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IMPACT FACTOR 2023: 1.6

ROSUMIBE

Rosuvastatina + Ezetimiba

A PRIMEIRA MARCA COM AS 4 DOSAGENS* DE ROSUVASTATINA + EZETIMIBA.

AGORA ROSUMIBE 40 MG + 10 MG É COMPARTICIPADO.

AZEVEDOS

* Comercializadas

INFORMAÇÕES ESSENCIAIS COMPATÍVEIS COM O RCM Nome do medicamento: Rosumibe 5 mg + 10 mg, 10 mg + 10 mg, 20 mg + 10 mg, 40 mg + 10 mg comprimidos revestidos por película. **Composição qualitativa e quantitativa:** Rosumibe 40 mg + 10 mg: Cada comprimido contém 40 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. Rosumibe 20 mg + 10 mg: Cada comprimido contém 20 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. Rosumibe 10 mg + 10 mg: Cada comprimido contém 10 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. Rosumibe 5 mg + 10 mg: Cada comprimido contém 5 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. **Forma farmacêutica:** Comprimido revestido por película. **Indicações terapêuticas:** Adjuvante da dieta para o tratamento de hipercolesterolemia primária como terapêutica de substituição em doentes adultos adequadamente controlados com as substâncias individuais administradas concomitantemente na mesma dose que na combinação de dose fixa, mas enquanto medicamentos separados. Redução do risco de eventos cardiovasculares como terapêutica de substituição em doentes com doença coronária (DC) e história de síndrome coronária aguda (SCA), que estão adequadamente controlados com as substâncias individuais administradas concomitantemente na mesma dose que na combinação de dose fixa, mas enquanto medicamentos separados. **Posologia e modo de administração:** A dose diária recomendada é de um comprimido da dosagem indicada, com ou sem alimentos. Rosumibe não é adequado para terapêutica inicial. A iniciação do tratamento ou ajuste posológico, se necessário, deve ser apenas efetuada através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível considerar a mudança para a combinação de dose fixa na dosagem apropriada. **Contraindicações:** Hipersensibilidade às substância ativas ou a qualquer um dos excipientes; em doentes com doença hepática ativa incluindo elevações persistentes e inexplicáveis das transaminases séricas e qualquer elevação das transaminases séricas excedendo 3 vezes o limite superior da normalidade (LSN); durante a gravidez e amamentação e em mulheres com potencial para engravidar que não adotam medidas contracetivas apropriadas; em doentes com compromisso renal grave (depuração da creatinina <30 ml/min); em doentes com miopatia.; em doentes tratados concomitantemente com ciclosporina. Rosumibe 40 mg + 10 mg está contraindicado em doentes com fatores predisponentes para miopatia/rabdomiólise. **Efeitos indesejáveis: Rosuvastatina:** Frequentes: Diabetes mellitus; Cefaleia; Tonturas; Obstipação; Náuseas; Dor abdominal; Mialgia; Astenia; Pouco frequentes: Prurido; Erupção cutânea; Urticária; Raros: Trombocitopenia; Reações de hipersensibilidade incluindo angioedema; Pancreatite; Transaminases hepáticas aumentadas; Miopatia (incluindo miosite); Rabdomiólise; Muito raros: Polineuropatia; Perda de memória; Icterícia; Hepatite; Artralgia; Hematúria; Ginecomastia; Desconhecido: Depressão; Neuropatia periférica; Alterações do sono (incluindo insónia e pesadelos); Tosse; Dispneia; Diarreia; Síndrome de Stevens-Johnson; Reação medicamentosa com eosinofilia e sintomas sistémicos (DRESS); Miopatia necrosante imunomediada; Afeções dos tendões, por vezes complicadas devido a rutura; Edema. **Ezetimibe:** Frequentes: Dor abdominal; Diarreia; Flatulência; Fadiga; Pouco frequentes: Apetite diminuído; Afrontamentos; Hipertensão; Tosse; Dispepsia; Afeção de refluxo gastroesofágico; Náuseas; Artralgia; Espasmos musculares; Dor cervical; Dor torácica; Dor; Aumento de ALT e/ou AST; Aumento da CPK no sangue; Aumento da gama glutamiltransferase; Teste anormal da função hepática; Desconhecido: Trombocitopénia; Hipersensibilidade (incluindo erupção cutânea, urticária, anafilaxia e angioedemea); Depressão; Tonturas; Parestesia; Miastenia grave; Miastenia ocular; Dispneia; Pancreatite; Obstipação; Hepatite; Colelitíase; Colecistite; Eritema multiforme; Artralgia; Mialgia; Miopatia/rabdomiólise; Astenia. **Rosumibe:** Frequentes: Cefaleia; Mialgia; Aumento de ALT e/ou AST; Pouco frequentes: Parestesia; Boca seca; Gastrite; Prurido; Erupção cutânea; Urticária; Dorsalgia; Fraqueza muscular; Dores nas extremidades; Astenia; Edema periférico. **Data de revisão do texto:** 05/2023. **Medicamento Sujeito a Receita Médica.** Escalão C de comparticipação – 37% (dosagens 5 mg + 10 mg, 10 mg + 10 mg, 20 mg + 10 mg, 40 mg + 10 mg). Para mais informações deverá contactar o titular de AIM. **Laboratórios Azevedos – Indústria Farmacêutica, S.A.** Estrada da Quinta, 148, Manique de Baixo, 2645-436 Alcabideche Contribuinte Nº 507474287 | www.grupoazevedos.com | 2307PEROS009

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CPC 2025

CONGRESSO PORTUGUÊS DE CARDIOLOGIA

BUILDING BRIDGES IN CARDIOLOGY

10-13 ABRIL

CENTRO DE CONGRESSOS
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Congresso Português de Cardiologia 2025

Dear colleagues,

The Portuguese Congress of Cardiology (CPC) has been a pivotal event in the field of cardiovascular medicine for the past fifty years, fostering a platform for scientific exchange, professional development, and networking among cardiologists and related healthcare professionals. This year, the CPC2025 will take place in the historic city of Porto, marking over two decades since the last time the congress was held there. The event will be hosted at the Alfândega building, a historical site that once served as an interchange for foreign products and cultures, from April 11 to 13, under the theme "Building Bridges in Cardiology." This same building, packed with history, will now serve as our scientific hub, where discussions on state-of-the-art cardiology will unfold.

It is well-known that the congress is a cornerstone for the advancement of cardiology in Portugal. It brings together experts, researchers, and practitioners from across the nation and beyond, creating an environment where the latest research, clinical practices, and technological innovations are shared and discussed. The congress not only updates attendees on the latest in cardiology but also plays a crucial role in shaping the future of cardiovascular care, creating lasting memories for fellows and providing networking opportunities for all those interested in cardiovascular medicine. Indeed, networking at the congress is invaluable! Our event provides a unique platform for professionals to connect, collaborate, and form partnerships that can lead to future research projects, clinical trials, and educational initiatives. These connections often result in long-term collaborations that drive the field forward.

The theme "Building Bridges in Cardiology" encapsulates the congress's aim to connect different aspects of cardiovascular medicine and at the same time, remind us of the two cities that are linked across the Douro River. It promotes interdisciplinary collaboration, recognizing that optimal patient care often requires a multidisciplinary team. Furthermore, the congress will highlight how digital transformation, including artificial intelligence, is reshaping cardiovascular care, enhancing diagnostics, and improving patient outcomes.

Scientific exchange is at the heart of the congress. Through presentations, workshops, and symposia, the latest research findings are disseminated, allowing for the integration of new knowledge into clinical practice. This exchange is vital for the continuous improvement of patient care, as it ensures that treatments are based on the most current evidence. Professional development is another key aspect of the congress. With sessions dedicated to various subspecialties within cardiology, professionals can expand their expertise, learn new techniques, and stay abreast of evolving guidelines and treatments. This continuous learning is essential in a field where advancements are rapid and impactful.

The submission and presentation of abstracts are fundamental to the congress and the future of Portuguese Cardiology. They allow for the introduction of novel ideas, treatments, and technologies. Abstracts and research presentations are the lifeblood of scientific progress, providing a platform for both established researchers and emerging talents to share their work. Presenting at the CPC offers immediate feedback from peers, which can refine research methodologies, validate findings, and inspire further investigation. For young cardiologists and researchers, presenting at such a prestigious event can significantly enhance their career trajectory by increasing their visibility within the scientific community. Moreover, the insights gained from these presentations directly influence clinical practice, leading to improved patient outcomes through the adoption of evidence-based strategies.

Finally, let us take a moment to reflect on the historical significance of Port wine, particularly its use as a "cordial." In the annals of medicine, a cordial was once considered a tonic for the heart, invigorating and reviving, derived directly from the Latin word "cor," meaning heart. Port wine, born from the rugged terraces of the Douro Valley, has long been celebrated as a cordial, fortifying and warming the spirit. Here, in this city where history and wine intertwine, we are building bridges in cardiology, connecting experince with innovation, much like the harmonious blend of grapes and brandy that creates Port. Let this congress be our cordial, strengthening our resolve to heal the hearts of our patients!

Be very welcome to the "Invicta" and let us celebrate with a glass of Port!

Rui Terenas Baptista
President of the 2025 Portuguese Congress of Cardiology

AGRADECIMENTO AOS REVISORES

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Rosuvastatina 20 mg / Ezetimiba 10 mg

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GET TO GOAL

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Referências: 1. RCM de Rozor®. 2. RCM de Twicor®.

INFORMAÇÕES ESSENCIAIS COMPATÍVEIS COM O RCM. NOME DO MEDICAMENTO ROZOR 10 mg/10 mg comprimidos revestidos por película. TWICOR 10 mg + 10 mg e 20 mg + 10 mg comprimidos revestidos por película **COMPOSIÇÃO QUALITATIVA E QUANTITATIVA** ROZOR 10 mg/10 mg comprimidos revestidos por película: Cada comprimido revestido por película contém 10 mg de rosuvastatina (sob a forma de cálcio) e 10 mg de ezetimiba. TWICOR 10 mg + 10 mg comprimidos revestidos por película: Cada comprimido revestido por película contém 10 mg de rosuvastatina (sob a forma de cálcio) e 10 mg de ezetimiba. TWICOR 20 mg + 10 mg comprimidos revestidos por película: Cada comprimido revestido por película contém 20 mg de rosuvastatina (sob a forma de cálcio) e 10 mg de ezetimiba. **FORMA FARMACÊUTICA** ROZOR 10 mg/10 mg comprimidos revestidos por película: Comprimido revestido por película, cor de rosa, redondo, com um diâmetro de 10,0 mm com a gravação "AL" de um lado. TWICOR 10 mg + 10 mg comprimidos revestidos por película: Comprimido revestido por película, cor de rosa, redondo, com um diâmetro de 10,1 mm com a gravação "AL" de um lado. TWICOR 20 mg + 10 mg comprimidos revestidos por película: Comprimido revestido por película, cor de rosa, redondo, com um diâmetro de 10,7 mm, liso de ambos os lados. **INDICAÇÕES TERAPÊUTICAS** ROZOR e TWICOR estão indicados como adjuvantes da dieta para o tratamento de hipercolesterolemia primária, como terapêutica de substituição, em doentes adultos adequadamente controlados com as substâncias individuais administradas concomitantemente na mesma dose que na combinação de dose fixa, mas enquanto medicamentos separados. **POSOLOGIA E MODO DE ADMINISTRAÇÃO** Posologia: O doente deverá estar a fazer uma dieta hipolipemiante adequada que deve ser continuada durante o tratamento com ROZOR e TWICOR. TWICOR pode ser administrado no intervalo de doses de 10 + 10 mg a 20 + 10 mg. A dose recomendada é de um comprimido revestido por película da dosagem prescrita por dia, com ou sem alimentos. ROZOR e TWICOR não são adequados para terapêutica inicial. O início do tratamento deve ser apenas efetuado através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível a mudança para a combinação de dose fixa na dosagem apropriada. O tratamento deve ser individualizado de acordo com os níveis lipídicos pretendidos, o objetivo terapêutico recomendado e a resposta do doente. O ajuste posológico pode ser realizado após 4 semanas, quando necessário. ROZOR e TWICOR 10 mg + 10 mg não é adequado para o tratamento de doentes que requeiram uma dose de 20 mg de rosuvastatina. ROZOR e TWICOR deve ser tomado ≥2 horas antes ou ≥4 horas após a administração de um sequestrante do ácido biliar. *População pediátrica*: A segurança e eficácia de ROZOR e TWICOR em crianças com menos de 18 anos de idade não foram ainda estabelecidas. *Utilização em idosos*: Recomenda-se uma dose inicial de 5 mg de rosuvastatina em doentes com idade >70 anos. A combinação de dose fixa não é adequada para terapêutica inicial. O início do tratamento deve ser apenas efetuado através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível a mudança para a combinação de dose fixa na dosagem apropriada. *Posologia em doentes com insuficiência renal*: Não é necessário ajuste posológico em doentes com compromisso renal ligeiro. A dose inicial recomendada é de 5 mg de rosuvastatina em doentes com compromisso renal moderado (depuração da creatinina <60 ml/min). A combinação de dose fixa não é adequada para terapêutica inicial. O início do tratamento deve ser apenas efetuado através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível a mudança para a combinação de dose fixa na dosagem apropriada.A utilização de rosuvastatina em doentes com compromisso renal grave está contraindicada em todas as doses. *Posologia em doentes com compromisso hepático*: Não é necessário ajuste posológico em doentes com insuficiência hepática ligeira (pontuação 5 a 6 na escala de Child-Pugh). O tratamento com ROZOR e TWICOR não é recomendado em doentes com disfunção hepática moderada (pontuação 7 a 9 na escala de Child-Pugh) ou grave (pontuação > 9 na escala de Child-Pugh). ROZOR e TWICOR estão contraindicados em doentes com doença hepática ativa. *Raça*: Tem sido observado aumento da exposição sistémica de rosuvastatina em indivíduos Asiáticos. A dose inicial recomendada é de 5 mg de rosuvastatina para doentes de ascendência Asiática. A combinação de dose fixa não é adequada para terapêutica inicial. O início do tratamento deve ser apenas efetuado através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível a mudança para a combinação de dose fixa na dosagem apropriada. *Polimorfismos genéticos*: São conhecidos tipos específicos de polimorfismos genéticos que podem levar a aumento da exposição à rosuvastatina. Para os doentes em que são conhecidos tais tipos específicos de polimorfismos, recomenda-se uma dose diária inferior. *Posologia em doentes com fatores predisponentes para miopatia*: A dose inicial recomendada é de 5 mg de rosuvastatina em doentes com fatores predisponentes para miopatia. A combinação de dose fixa não é adequada para terapêutica inicial. O início do tratamento deve ser apenas efetuado através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível a mudança para a combinação de dose fixa na dosagem apropriada. *Terapêutica concomitante*: A rosuvastatina é um substrato de várias proteínas transportadoras (p. ex., OATP1B1 e BCRP). O risco de miopatia (incluindo rabdomiólise) aumenta quando ROZOR ou TWICOR é administrado concomitantemente com determinados medicamentos, que podem aumentar a concentração plasmática da rosuvastatina, devido a interações com essas proteínas transportadoras (p. ex., ciclosporina e certos inibidores da protease, incluindo combinações de ritonavir com atazanavir, lopinavir e/ou tipranavir). Sempre que possível, devem ser considerados medicamentos alternativos e, se necessário, considerar temporariamente a interrupção da terapêutica com ROZOR ou TWICOR. Em situações em que a administração concomitante destes medicamentos com ROZOR ou TWICOR é inevitável, o benefício e o risco do tratamento concomitante e ajustes na dose de rosuvastatina devem ser cuidadosamente considerados. Modo de administração: Via oral. ROZOR e TWICOR devem ser tomado todos os dias, uma vez por dia, e à mesma hora, com ou sem alimentos. O comprimido revestido por película deve ser engolido inteiro com um copo de água. **CONTRAINDICAÇÕES** ROZOR e TWICOR estão contraindicados em doentes com hipersensibilidade às substâncias ativas (rosuvastatina, ezetimiba) ou a qualquer um dos excipientes; em doentes com doença hepática ativa, incluindo elevações persistentes e inexplicáveis das transaminases séricas e qualquer elevação das transaminases séricas excedendo 3 vezes o limite superior do normal (LSN); durante a gravidez, a amamentação e em mulheres em idade fértil que não adotam medidas contracetivas apropriadas; em doentes com compromisso renal grave (depuração da creatinina <30 ml/min); em doentes com miopatia; em doentes tratados concomitantemente com ciclosporina. **EFEITOS INDESEJÁVEIS** Resumo do perfil de segurança: As reações adversas observadas com rosuvastatina são geralmente de carácter ligeiro e transitório. Em ensaios clínicos controlados, menos de 4% dos doentes tratados com rosuvastatina foram retirados dos estudos devido a reações adversas. Em estudos clínicos, com a duração até 112 semanas, foram administrados 10 mg de ezetimiba, uma vez por dia, em monoterapia em 2.396 doentes, ou com uma estatina em 11.308 doentes ou com fenofibrato em 185 doentes. As reações adversas foram geralmente ligeiras e transitórias. A incidência global dos efeitos secundários foi semelhante entre a ezetimiba e o placebo. Da mesma forma, a taxa de descontinuação devido a efeitos adversos foi comparável entre a ezetimiba e o placebo. De acordo com os dados disponíveis, 1.200 doentes em estudos clínicos tomaram concomitantemente rosuvastatina e ezetimiba. Conforme notificado na literatura publicada, os acontecimentos adversos mais frequentes, relacionados com o tratamento concomitante de rosuvastatina e ezetimiba, em doentes com hipercolesterolemia, são aumento das transaminases hepáticas, problemas gastrointestinais e dores musculares. Estes são efeitos indesejáveis conhecidos das substâncias ativas. No entanto, não é possível excluir uma interação farmacodinâmica, em termos de efeitos adversos, entre a rosuvastatina e a ezetimiba. Reações adversas: Frequentes (≥1/100, <1/10): diabetes mellitus[1,2], cefaleia[2,4], tontura[2], obstipação[2], náuseas[2], dor abdominal[2,3], diarreia[3], flatulência[3], mialgia[2,4], astenia[2], fadiga[3], aumento de ALT e/ou AST[4]; Pouco frequentes (≥1/1.000, <1/100): apetite diminuído[3], parestesia[4], afrontamentos[3]; hipertensão[3], tosse[3], dispepsia[3], doença de refluxo gastroesofágico[3], náuseas[3], boca seca[4], gastrite, prurido[2,4], erupção cutânea[2,4], urticária[2,4], artralgia[3], espasmos musculares[3], dor cervical[3], dorsalgia[4], fraqueza muscular[4], dores nas extremidades[4], dor torácica[2], dor[2], astenia[4]; edema periférico[4], aumento de ALT e/ou AST[3], aumento da CPK no sangue[3], aumento da gama-glutamiltransferase[3], teste anormal da função hepática[3]; Raros (≥1/10.000, <1/1.000): trombocitopenia[2], reações de hipersensibilidade, incluindo angioedema[2], pancreatite[2], transaminases hepáticas aumentadas[2], miopatia (incluindo miosite)[2], rabdomiólise[2], síndrome semelhante ao lúpus, rutura muscular; Muito raros (<1/10.000): polineuropatia[2], perda de memória[2], icterícia[2], hepatite[2], artralgia[2], hematúria[2], ginecomastia[2]; Desconhecido (não pode ser calculado a partir dos dados disponíveis): trombocitopenia[5], hipersensibilidade (incluindo erupção cutânea, urticária, anafilaxia e angioedema)[5], depressão[2,5], neuropatia periférica[2], alterações do sono (incluindo insónia e pesadelos)[2], tonturas[5], parestesia[5], miastenia grave[2], Miastenia ocular[2], tosse[2], dispneia[2,5], diarreia[2], pancreatite[5], obstipação[5], hepatite[5], colelitíase[5], colecistite[5], síndrome de Stevens-Johnson[2], eritema multiforme[5], reação medicamentosa com eosinofilia e sintomas sistémicos (DRESS), miopatia necrosante imunomediada[2], afeções dos tendões, por vezes complicadas devido a rutura[2], artralgia[2], mialgia[2]; miopatia/rabdomiólise[5], edema[2], astenia[5]. [1]A frequência irá depender da presença ou ausência de fatores de risco (glicemia em jejum ≥ 5,6 mmol/L, IMC > 30 kg/m^2, triglicéridos aumentados, história de hipertensão) – para a rosuvastatina. [2]Perfil de reações adversas para a rosuvastatina com base em dados de estudos clínicos e numa extensa experiência pós-comercialização. [3]Ezetimiba em monoterapia. Foram observadas reações adversas em doentes tratados com ezetimiba (N=2.396) e com maior incidência do que com o placebo (N=1.159). [4]Ezetimiba administrada concomitantemente com uma estatina. Foram observadas reações adversas em doentes a tomar ezetimiba administrada concomitantemente com uma estatina (N=11.308) e com maior incidência do que na estatina administrada em monoterapia (N=9.361). [5]Reações adversas adicionais de ezetimiba, notificadas na experiência pós-comercialização. Como estas reações adversas foram identificadas a partir de notificações espontâneas, as frequências reais são desconhecidas e não podem ser calculadas. Tal como com outros inibidores da redutase da HMG-CoA, a incidência de reações adversas medicamentosas tem tendência a depender da dose. *Efeitos renais:* Em doentes tratados com rosuvastatina, foi observada proteinúria, detetada por tiras de teste, sendo maioritariamente de origem tubular. Foi observada uma variação dos valores de proteinúria, desde ausência ou vestígios até um resultado ++ ou superior, em < 1% dos doentes em determinada altura durante o tratamento com 10 mg e 20 mg, e em, aproximadamente, 3% dos doentes tratados com 40 mg. Com a dose de 20 mg, foi observado um aumento menor, desde ausência ou vestígios até um resultado +. Na maioria dos casos, a proteinúria diminui ou desaparece espontaneamente com a continuação da terapêutica. Até ao momento, a análise de dados provenientes de ensaios clínicos e da experiência pós-comercialização não identificou uma associação causal entre a proteinúria e a doença renal aguda ou progressiva. A hematúria tem sido observada em doentes tratados com rosuvastatina e os dados de ensaios clínicos demonstram que a ocorrência é baixa. *Efeitos musculosqueléticos:* Têm sido notificados efeitos no musculo esquelético, p. ex., mialgia, miopatia (incluindo miosite) e, raramente, rabdomiólise, com ou sem insuficiência renal aguda, em doentes tratados com rosuvastatina em todas as doses, em particular, com doses > 20 mg. Em doentes tratados com rosuvastatina, foi observado um aumento dos níveis de CK relacionado com a dose; a maioria dos casos foram ligeiros, assintomáticos e transitórios. Se os níveis de CK forem elevados (> 5xLSN), o tratamento deve ser interrompido. *Efeitos hepáticos:* Tal como com outros inibidores da redutase da HMG-CoA, um aumento das transaminases, relacionado com a dose, foi observado num pequeno número de doentes a tomar rosuvastatina; a maioria dos casos foram ligeiros, assintomáticos e transitórios. *Foram notificados, com algumas estatinas, os seguintes acontecimentos adversos*: Disfunção sexual; Casos excecionais de doença pulmonar intersticial, especialmente com terapêutica de longa duração. A taxa de notificação de rabdomiólise, acontecimentos renais graves e acontecimentos hepáticos graves (consistindo principalmente no aumento das transaminases hepáticas) é superior com a dose de 40 mg de rosuvastatina. *Valores laboratoriais:* Em ensaios clínicos controlados em monoterapia, a incidência de aumentos clinicamente importantes das transaminases séricas (ALT e/ou AST ≥ 3X LSN, consecutivos) foi semelhante entre a ezetimiba (0,5%) e o placebo (0,3%). Em ensaios de administração concomitante, a incidência foi de 1,3% para doentes tratados com ezetimiba administrada concomitante com uma estatina e de 0,4% para doentes tratados com uma estatina em monoterapia. Estes aumentos foram geralmente assintomáticos, não associados a colestase e retomaram os valores basais após interrupção da terapêutica ou com a continuação do tratamento. Em ensaios clínicos, foi notificada CPK > 10X LSN para 4 de 1.674 (0,2%) doentes que receberam ezetimiba em monoterapia, versus 1 de 786 (0,1%) doentes que receberam placebo e para 1 de 917 (0,1%) doentes medicados concomitantemente com ezetimiba e uma estatina versus 4 de 929 (0,4%) doentes que receberam uma estatina em monoterapia. Não houve excesso de miopatia ou rabdomiólise associado à ezetimiba em comparação com o braço de controlo relevante (placebo ou estatina em monoterapia). População pediátrica: A segurança e eficácia de ROZOR e TWICOR em crianças com menos de 18 anos de idade não foram ainda estabelecidas. *Rosuvastatina*: As elevações da creatinaquinase > 10x LSN e os sintomas musculares após exercício ou aumento da atividade física foram observados mais frequentemente em ensaios clínicos de 52 semanas em crianças e adolescentes em comparação com os adultos. Noutros aspetos, o perfil de segurança de rosuvastatina foi semelhante em crianças e adolescentes em comparação com adultos. *Ezetimiba*: Doentes pediátricos (6 a 17 anos de idade): Num estudo que envolveu doentes pediátricos (6 a 10 anos de idade), com hipercolesterolemia familiar ou não familiar heterozigótica (n=138), foram observadas elevações de ALT e/ou AST (≥ 3X LSN, consecutivos) em 1,1% (1 doente) dos doentes tratados com ezetimiba em comparação com 0% no grupo do placebo. Não ocorreram elevações da CPK (≥ 10X LSN). Não foram notificados casos de miopatia. Num estudo separado, envolvendo doentes adolescentes (10 a 17 anos de idade), com hipercolesterolemia familiar heterozigótica (n=248), foram observadas elevações de ALT e/ou AST (≥ 3X LSN, consecutivos) em 3% (4 doentes) dos doentes tratados com ezetimiba/sinvastatina em comparação com 2% (2 doentes) no grupo de sinvastatina em monoterapia; estes valores foram de 2% (2 doentes) e de 0%, respetivamente, para a elevação da CPK (≥ 10X LSN). Não foram notificados casos de miopatia. Estes ensaios não foram adequados para comparação de reações adversas medicamentosas raras. **Para informação completa por favor consultar RCM.** Rev: 02/2024. Medicamento Sujeito a Receita Médica. Medicamento comparticipado (regime geral: 37%). Para mais informações deverá contactar o titular da Autorização de Introdução no Mercado. Titular de AIM: Viatris Healthcare, Lda. E-mail da farmacovigilância: pv.portugal@viatris.com | 03/2025/VIATRIS/133

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COMUNICAÇÕES ORAIS (CO)

Congresso Português de Cardiologia 2025

11 a 13 de abril de 2025

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Espaço Ágora | Sessão de Comunicações Orais 01 – Dos lípidos aos genes - Fatores de risco e biologia molecular na aterosclerose e saúde cardiovascular

CO 1. UNDERSTANDING THE UNDERPINNING OF HYPERTRIGLYCERIDEMIA AS A RISK FACTOR FOR ATHEROSCLEROSIS

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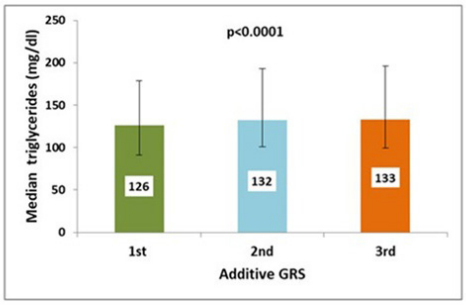
Introduction: Hypertriglyceridemia (HTG) is considered a risk factor for atherosclerosis and may sometimes be a monogenic condition. However, in most patients, this is due to the cumulative effect of multiple genetic risk variants along with lifestyle factors, medications, and disease conditions. Understanding the genetic and environmental basis of HTG could open new translational opportunities in clinical decisions that are not always consensual.
Objectives: Investigate the main risk factors, lifestyle and genetics, for hypertriglyceridemia during an extensive follow-up in a Portuguese population.
Methods: A prospective study was conducted on 3,157 enrolled participants from our Research Center dataset, and they were grouped into two categories based on the triglyceride levels, below or above 150 mg/dl in admission. An additive genetic risk score (GRS) was constructed using the variants from the lipidic axis and stratified into terciles. A non-parametric Spearman test evaluated the correlation between triglycerides and continuous GRS. The Kruskal-Wallis test investigated triglycerides median differences in the GRS terciles. Multivariate logistic regression entering GRS and adjusted to all confounders (CAD family history, sedentary lifestyle, alcohol abuse, smoking, type 2 diabetes, hypertension and body mass index BMI ≥ 30 kg/m^2) investigated variables independently associated with high triglyceride levels.
Results: A Spearman correlation between triglycerides levels and continuous GRS was positive and highly significant ($p < 0.0001$). Median triglycerides levels of 126 mg/dL, 132 mg/dL and 133 mg/dL were obtained for the GRS 1st, 2nd and 3rd terciles, respectively ($p < 0.0001$). After multivariate regression, entering additive GRS adjusted for all confounder variables, the 2nd tertile of GRS presented an OR of high triglycerides of 1.29 ($p = 0.005$) and 3rd tertile an OR of 1.23 ($p = 0.028$), as well as sedentary lifestyle ($p = 0.001$), alcohol abuse ($p = 0.005$), smoking ($p < 0.0001$), diabetes ($p < 0.0001$), hypertension ($p < 0.0001$) and BMI ≥ 30 ($p = 0.020$).



Triglycerides levels distribution (median) in the lipidic additive genetic score terciles

Variables independently associated with higher triglycerides levels

Variables	B	S.E.	Wald	df	Odds ratio (95% CI)	P value
Sedentary lifestyle	.252	.077	10.640	1	1.287 (1.106-1.497)	0.001
Diabetes	.585	.086	46.308	1	1.795 (1.516-2.124)	<0.0001
Hypertension	.301	.083	13.272	1	1.351 (1.149-1.588)	<0.0001
BMI≥30	.192	.082	5.427	1	1.211 (1.031-1.424)	0.020
Alcohol abuse	.288	.104	7.714	1	1.333 (1.088-1.634)	0.005
Smoking	.349	.079	19.801	1	1.418 (1.216-1.654)	<0.0001
Additive GRS			9.787	2		
2nd tercile	.256	.092	7.819	1	1.292 (1.080-1.546)	0.005
3rd tercile	.209	.095	4.810	1	1.232 (1.022-1.485)	0.028

Variables that didn't remain in the equation: CAD family history.

Conclusions: In our population, genetic loci identified in GWAS and gathered in a lipidic GRS influenced the high triglyceride levels as well as some clinical conditions (diabetes, hypertension and obesity) and lifestyle as sedentarism, alcohol abuse, and smoking. A healthy lifestyle, with weight loss without smoking and alcohol and appropriate medication, could protect against genetic susceptibility in reducing triglyceride levels.

CO 2. THE ROLE OF AGE ON LIPID-LOWERING THERAPY PRESCRIPTIONS AND ON LOW-DENSITY LIPOPROTEIN CHOLESTEROL (LDL-C) CONTROL: A SUBANALYSIS OF THE PORTRAIT-DYS STUDY

Cristina Gavina[1], Daniel Seabra[1], Sílvia Oliveira[1], Carla Teixeira[2], Jorge A. Ruivo[2], Nuno Lourenço-Silva[3], Rita Luz[4], Cristina Jácome[4], Francisco Araújo[5]

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Lifelong exposure to high cholesterol levels represents a risk factor for atherosclerotic cardiovascular disease (ASCVD). We characterized lipid-lowering therapies (LLT) prescription patterns among middle-aged and older adults with high and very-high ASCVD risk and estimated the effect of age in achieving LDL-C control. This retrospective cohort study used electronic health records of a Portuguese healthcare institution from Jan 1, 2012 to Dec 31, 2022. Patients aged 40-85 yrs and with high and very-high ASCVD risk were analysed. Exposure consisted of any time a LLT was prescribed (regardless of duration). Two age cohorts were defined (middle-aged 40-69 yrs; older 70-85 yrs), along with six LLT prescription patterns based on statin intensity (high, moderate, low) and the addition of ezetimibe to each intensity group. A patient could be eligible for multiple cohorts as they could have multiple LLT prescription episodes. The likelihood of reaching the LDL-C goal between 150-360 days of follow-up according to ESC/EAS guidelines was modelled using multivariate Cox regression adjusted at baseline for age group, sex, comorbidities and LLT intensity. A total of 31 755 patients with 408 219 episodes of LLT prescription were identified (Table 1). Most LLT prescriptions were from the middle-aged cohort (229 602, 56.2%). In both cohorts, statins in monotherapy (moderate 78.4%, high 10.3%, low 6.9% intensity) were more commonly prescribed than statin-ezetimibe combinations (moderate 2.6%, high 1.6%, low 0.2% intensity). The use of moderate intensity statin in monotherapy was similar across cohorts (middle-aged 77.7%, older 79.3%), but patients in the middle-aged cohort were more frequently prescribed high intensity (11.8 vs. older 8.5%), while older were more frequently prescribed low intensity (8.4 vs. middle-aged 5.7%). The prescription of statin-ezetimibe combinations was similar across cohorts. At 150 days of follow up, only 4 301 (1.2%) episodes reached LDL-C goal, which increased to 20 909 (5.9%) episodes at 360 days. The older cohort had 18% higher likelihood of reaching the LDL-C goal at 150 days (HR = 1.18, 95%CI 1.09-1.28) and 14% higher likelihood at 360 days (HR = 1.14, 95%CI 1.08-1.20) compared to the middle-aged cohort. LDL-C control in high and very-high risk patients remains suboptimal, with particularly low rates in middle-aged adults, despite receiving more frequent high-intensity LLT. This underscores the importance of combined therapies and age-specific strategies in managing dyslipidaemia to decrease lifelong high LDL-C exposure.

Table 1

Baseline lipid-lowering therapies prescription patterns for the total cohort and stratified by age.

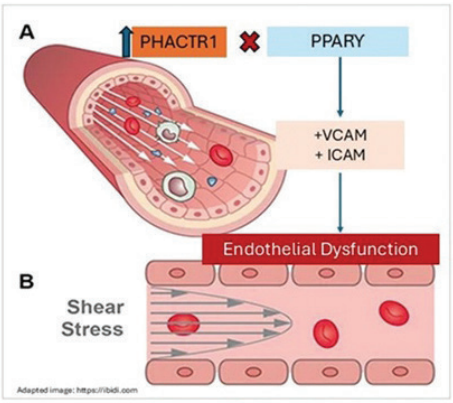
	Total cohort n = 408 219	Age cohorts n (%)	
		40-69 years n = 229 602	70-85 years n = 178 617
Low intensity statin, n(%)	28 085 (6.9%)	13 003 (5.7%)	15 082 (8.4%)
Moderate intensity statin, n(%)	320 179 (78.4%)	178 460 (77.7%)	141 719 (79.3%)
High intensity statin, n(%)	42 275 (10.3%)	27 139 (11.8%)	15 136 (8.5%)
Low intensity statin + Ezetimibe, n(%)	727 (0.2%)	369 (0.2%)	358 (0.2%)
Moderate intensity statin + Ezetimibe, n(%)	10 537 (2.6%)	6 320 (2.7%)	4 217 (2.4%)
High intensity statin + Ezetimibe, n(%)	6 416 (1.6%)	4 311 (1.9%)	2 105 (1.2%)

CO 3. THE ROLE OF THE PHACTR1 GENE IN CORONARY ARTERIAL DISEASE IN SMOKERS WITH FEW OTHER CARDIOVASCULAR RISK FACTORS

Francisco Sousa[1], Maria Isabel Mendonça[2], João Adriano Sousa[1], Débora Sá[1], Matilde Ferreira[1], Gonçalo Abreu[1], Sónia Freitas[2], Mariana Rodrigues[2], Graça Guerra[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Central do Funchal. [2]Research Centre Dra. Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Coronary arterial disease (CAD) poses a significant public health challenge, with tobacco recognized as the most predominant modifiable risk factor in young individuals. Despite a strong correlation between tobacco use and cardiovascular (CV) events, many smokers remain event-free. This raises questions about the complex interplay of environmental, epigenetic, and genetic factors contributing to CAD.
Objectives: To identify genetic polymorphisms potentially responsible for CAD in smokers without other cardiovascular risk factors.
Methods: A case-control study involved individuals with low-density lipoprotein (LDL) levels < 100 mg/dL, who were non-diabetic and non-hypertensive. A total of 134 individuals (83% men; Age 48.9 ± 8.4) were enrolled, comprising 97 CAD patients (defined as having at least 70% stenosis in one major coronary artery) and 37 controls without CAD. Eight polymorphisms previously associated with CAD but not with traditional risk factors (TRFs) were genotyped using TaqMan real-time PCR: CDKN2B-AS1 (rs1333049/rs4977574), TCF21 (rs12190287), PHACTR1 (rs1332844), MIA3 (rs17465637), ADAMTS7 (rs3825807), ZC3HC1 (rs11556924), SMAD3 (rs17228212), and GJA4 (rs618675). Bivariate and multivariate analyses compared genotypic proportions between CAD and non-CAD groups.
Results: The PHACTR1 polymorphism (rs1332844 TT/TC) was significantly more prevalent in the CAD cohort, with 86.6% of CAD patients exhibiting this genotype compared to 70.3% of controls (p = 0.028). After multivariate analysis of the 8 polymorphisms, the PHACTR1 variant remained associated with CAD (OR 2.7; p = 0.031). No other genetic variant examined was associated with CAD in this population.



Variables independently associated with CAD

Variable	B	S.E.	Wald	df	Odds ratio (CI 95%)	P value
PHACTR1 (TT/TC)	1.006	0.467	4.635	1	2.734 (1.094 - 6.829)	0.031
Constant	0.167	0.410	0.166	1	1.182	0.683

Variables excluded from the equation: age; gender; MIA3; TCF21; ZC3HC1; CDKN2B-AS1;ADAMTS7; GJA4 and SMAD3.

Conclusions: The PHACTR1 variant is linked to an increased risk of CAD in smokers without other main CV risk factors. This gene encodes a phosphatase and actin regulator protein involved in endothelial cell stabilization, suggesting a synergistic effect of smoking and the PHACTR1 (rs1332844 TT/TC) variant on endothelial dysfunction. PHACTR1 overexpression has been linked to Peroxisome proliferator-activated receptor gamma suppression, a mechanism involved in endothelial dysfunction. GLP-1 analogs have shown promise in increasing PPARγ activity and may be a potential therapy for this population.

CO 4. FIBRINOGEN IS CORRELATED TO INCREASED ARTERIAL STIFFNESS ON HYPERTENSIVE INDIVIDUALS

Cláudia C. Sousa[1], Ana Célia Sousa[1], Patrícia Nunes[1], João Gouveia[1], Mónica Jardim[1], Sara Gomes[1], Sofia Borges[1], Maria João Oliveira[1], Mariana Rodrigues[1], Eva Henriques[1], Maria Isabel Mendonça[1], Roberto Palma dos Reis[2]

[1]Hospital Dr. Nélio Mendonça. [2]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Arterial hypertension is the main risk factor for the development of arterial stiffness. Arterial elastic properties are important for cardiovascular function and predictors of cardiovascular risk. Fibrinogen is an inflammatory marker that stimulates endothelial dysfunction, leading to an increase in arterial stiffness. However, these mechanisms of subclinical inflammation, triggered at the level of the vascular wall, remain unknown.
Objectives: Evaluate whether serum fibrinogen is associated with increased arterial stiffness in a Portuguese hypertensive population.
Methods: A study was performed in a Portuguese population of 860 hypertensive individuals (aged 52.0 ± 8.0 years; 53.3% male). Pulse wave

velocity (PWV) was determined using the Complior method, which is an arterial distensibility index. A case-control study was performed depending on whether they had high PWV (≥ 10 m/s) or not (< 10 m/s). Serum fibrinogen levels were determined in both groups. Subsequently, a multivariate analysis was performed with other conventional risk factors for cardiovascular disease, namely: diabetes, dyslipidemia, alcohol consumption and smoking to estimate which variables were significantly and independently associated with increased PWV.

Results: Cases group (PWV ≥ 10 m/s) consisted of 130 individuals and the control group (PWV ?10 m/s) consisted of 730 individuals. In a hypertensive population, individuals with higher PWV have increased serum fibrinogen levels than those with lower PWV (402.77 ± 93.10 mg/dL versus 380.28 ± 80.75 mg/dL; p = 0.004). A positive Pearson correlation was found between fibrinogen and PWV (p < 0.0001). After logistic regression analysis, the risk factors that remained in the equation as significantly and independently associated with PWV increase were: diabetes OR = 2.138 (95%CI 1.400-3.264; p < 0.0001), alcohol abuse OR = 1.511 (95%CI 1.027-2.224; p = 0.036) and fibrinogen OR = 1.003 (95%CI 1.001-1.005; p = 0.006).

Table – Variables independently associated with high PWV (≥10 m/s).

Variables	OR (95% CI)	p-value
Diabetes	2.138 (1.400-3.264)	***<0.0001***
Alcohol	1.511 (1.027-2.224)	***0.036***
Fibrinogen	1.003 (1.001-1.005)	***0.006***

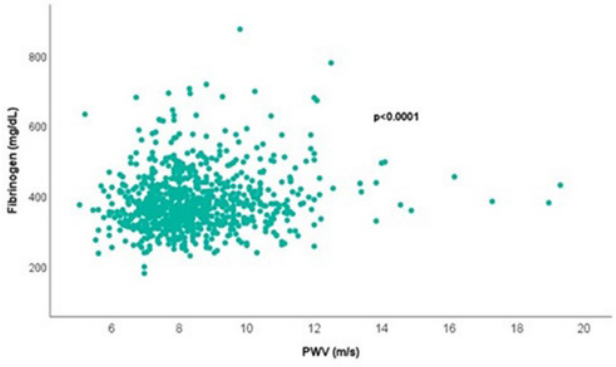


Figure - Pearson Correlation between Fibrinogen and PWV values.

Conclusions: The findings demonstrate a significant and independent association between serum fibrinogen levels and increased arterial stiffness in patients with hypertension. This underscores fibrinogen's crucial role as a marker of arterial wall injury and reinforces its involvement in the pathophysiology of arterial stiffness. To mitigate cardiovascular risks, it is essential to implement control measures in hypertensive individuals aimed at reducing both arterial stiffness and fibrinogen levels.

CO 5. INVESTIGATING THE EFFECTS OF β-ESTRADIOL ON HUMAN MICROVASCULAR ENDOTHELIAL CELLS: A FOCUS ON SEX DIFFERENCES IN CARDIAC HEALTH

Ivo Fonseca[1], Cristiana Fernandes[1], Ana Grego[1], Rita Ferreira[2], Adelino Leite-Moreira[1], Marina Dias-Neto[1], Sandra Marisa Oliveira[1], Rita Nogueira-Ferreira[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]Universidade de Aveiro.

Endothelial dysfunction plays a key role in the pathogenesis of various conditions, including heart failure with preserved ejection fraction (HFpEF). It has been proposed that coronary microvascular endothelial dysfunction is a central factor driving the structural and functional changes in the heart associated with this syndrome. HFpEF primarily affects post-menopausal women, yet the potential influence of estrogen on its pathophysiology remains poorly understood. We began investigating the effects of β-estradiol (E2) on human microvascular endothelial cardiac cells (HMVECs) from both sexes, focusing on cell proliferation (assessed via the BrdU assay) and the nitric oxide (NO) signaling pathway. HMVECs obtained from commercial sources were exposed to various E2 concentrations (0, 0.01, 0.1, 1, and 10 nM). The results indicated that E2 enhanced proliferation in male HMVECs ($p < 0.05$ for 1 nM E2 compared to 0 nM), while it inhibited proliferation in female cells ($p < 0.05$ for 0.01 nM E2 compared to 0 nM). Nitrite levels in the culture medium appeared to rise in male HMVECs, suggesting that E2 stimulated NO production in these cells. Additionally, E2 treatment seemed to increase the p-eNOS/eNOS ratio in female HMVECs compared to their male counterparts. The levels of estrogen receptor-α did not significantly differ between sexes with E2 treatment, suggesting that this receptor may not play a role in the observed effects. E2 treatment did not affect NOX4 levels, but GPx1 levels appeared consistently higher in male HMVECs across all E2 concentrations. These findings suggest that the impact of E2 on HMVECs can vary in a sex-dependent manner. Future research into the roles of other estrogen receptors and the effects of serum from HFpEF patients on HMVECs may contribute to our understanding of cardiac microvascular endothelial dysfunction in HFpEF.

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Sala Arquivo | Sessão de Comunicações Orais 02 – Hipertensão pulmonar: desenvolvimentos na estratificação de risco, diagnóstico e tratamento

CO 6. PULMONARY ARTERY PULSE PRESSURE AS A PREDICTOR OF PULMONARY HYPERTENSION IN PATIENTS WITH INTERMEDIATE-HIGH RISK PULMONARY EMBOLISM

Julien Lopes, Mariana Caetano Coelho, Bárbara Lacerda Teixeira, André Grazina, João Reis, Ana Galrinho, Duarte Cacela, Rúben Ramos, Melanie Ferreira, Rui Cruz Ferreira, Luís Almeida Morais

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Pulmonary hypertension (PH) is a recognized long-term complication that can arise after pulmonary embolism (PE), due to persistent obstruction of pulmonary arteries by organized thrombi and secondary remodeling. Higher systolic pulmonary artery pressure (sPAP) at presentation during the acute PE event as already been stablished as a predictor of pulmonary hypertension at long-term. Also, diastolic pressure has been discussed as a marker for chronic setting. This study aimed to evaluate the predictive power of pulmonary artery pulse pressure (PAPP) for the development of PH and compare it to sPAP.

Methods: Patients with intermediate-high risk PE submitted to catheter-directed therapy in a tertiary centre were scheduled for follow-up to screen for PH after 3-6 month of anticoagulation with RHC. PPAP values from RHC during the acute PE episode were collected and analysed to assess their potential as predictive markers for the development of pre-capillary PH (mPAP > 20 mmHg, PVR > 2 WU and PCWp < 15 mmHg in RHC). A logistic regression was used to assess the predictive value of PAPP for PH development and then a ROC curve analysis to determine the optimal cut-off threshold for PAPP as a predictor.

Results: 48 patients (median age 63 years [IQR 24]; 56% female) were included. At baseline, the mean sPAP was 52.7 ± 14.8 mmHg and the mean dPAP was 19.33 ± 6.3 mmHg. The mean PPAP was 33.4 ± 11.58 mmHg. 23 patients (47.9%) were diagnosed with pulmonary hypertension at 3-6 month follow-up. The logistic regression model showed that PPAP was a significant predictor of PH ($p = 0.017$) and the ROC curve analysis demonstrated a superior discriminative power compared to sPAP ($p = 0.004$; AUC = 0.716 vs. $p = 0.013$; AUC = 0.690) with an optimal cut-off of 33.5 mmHg

(Sensibility 65.2%; Specificity 80%). When employing this threshold, individuals exhibiting elevated PPAP levels (> 33.5 mmHg) demonstrated a 7.5-fold increased likelihood of developing PH (OR = 7.5; p = 0.002). They were also more likely to have saddle/central PE at admission (p = 0.03) and seemed to have higher values of mMiller index (p = 0.09; 95%CI 0.98-1.35).
Conclusions: In our study, PPAP at admission demonstrated a higher discriminative power in predicting the development of PH at 3-6 month follow-up when compared to sPAP suggesting that it may serve as a more reliable predictor for identifying patients at risk of PH. This finding is of utmost importance in an era of advanced percutaneous technologies for PE treatment.

CO 7. IMPROVING RISK PREDICTION IN PULMONARY HYPERTENSION: THE ROLE OF PULMONARY ARTERIAL COMPLIANCE

Daniel Inácio Cazeiro, Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, Diogo Ferreira, Marta Vilela, João Cravo, Tatiana Guimarães, Susana Robalo Martins, Nuno Lousada, Fausto J. Pinto, Rui Plácido

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Pulmonary arterial compliance (PAC) is an early marker of vascular disease in patients (pts) with pulmonary hypertension (PH), decreasing when pulmonary pressures and vascular resistance are still normal. Emerging evidence suggests that PAC may outperform traditional hemodynamic parameters as a predictor of outcomes in PH, potentially enhancing risk stratification in this population.
Objectives: To evaluate the potential of PAC in predicting adverse outcomes in pts with PH, as an adjunct to conventional risk stratification models.
Methods: Single-center, retrospective study of pts with precapillary PH (groups I and IV) followed at a tertiary hospital. Risk stratification was initially performed using the COMPERA 2.0 four-strata risk stratification score. Time-to-event analysis for a composite endpoint of all-cause death or hospitalization was conducted using Kaplan-Meier survival curves and Cox proportional hazards regression. A modified 4-strata risk score was developed to incorporate PAC. Pts with PAC values below the median advanced to the next risk category, except those at high risk, whose classification remained unchanged. The diagnostic performance of the traditional and modified models was compared using receiver operating characteristic (ROC) analysis.
Results: Seventy-one pts were included (mean age 58 years; 61% female; 55% with group I PH). In the conventional 4-strata score, 27%, 39%, 26% and 8% were at low, intermediate-low, intermediate-high and high risk, respectively. Median PAC was 1.30 mL/mmHg. Pts with PAC below this value had a shorter time to the composite endpoint (hazard ratio [HR]: 4.317, 95% confidence interval [CI]:1.423-13.095, p = 0.01). Over a median follow-up time of 818 days, 17 combined events occurred. The COMPERA risk score demonstrated moderate predictive accuracy for events, with an area under the curve (AUC) of 69% (p = 0.02); however, event rates were similar between intermediate-high and high-risk pts. According to the modified 4-strata score, a significant shift of risk category was noted, especially in low (27 > 15%) and high risk (8 > 27%) categories. Pts who were at low risk did not experience any events, and a higher number of events occurred in pts at high risk. The accuracy of the modified score for predicting events was higher than the COMPERA risk score, with an AUC of 73% (p = 0.005).
Conclusions: In PH pts with a more adverse hemodynamic profile (defined as PAC < 1.30 mL/mmHg), there was a higher risk to a combined endpoint of all-cause death or hospitalization. PAC may be used as a risk modifier in the conventional 4-strata risk score, providing a better accuracy for prediction of events. While our results provide new insight into risk stratification of PH pts, larger, prospective studies are needed to validate this hypothesis.

CO 8. PERSUING VENTRICULAR-ARTERIAL COUPLING: PROPOSING A NEW CUT-OFF OF TAPSE/SPAP TO IDENTIFY PATIENTS WITH PULMONARY HYPERTENSION AFTER INTERMEDIATE-HIGH RISK PULMONARY EMBOLISM

Julien Lopes, Mariana Caetano Coelho, Bárbara Lacerda Teixeira, André Grazina, João Reis, Ana Galrinho, Duarte Cacela, Rúben Ramos, Melanie Ferreira, Rui Cruz Ferreira, Luís Almeida Morais

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Pulmonary hypertension (PH) remains a potential long-term complication following pulmonary embolism (PE). Right heart catheterization (RHC) is the gold-standard for the diagnosis while echocardiography is often used as a non-invasive screening tool. The ventricular-arterial coupling

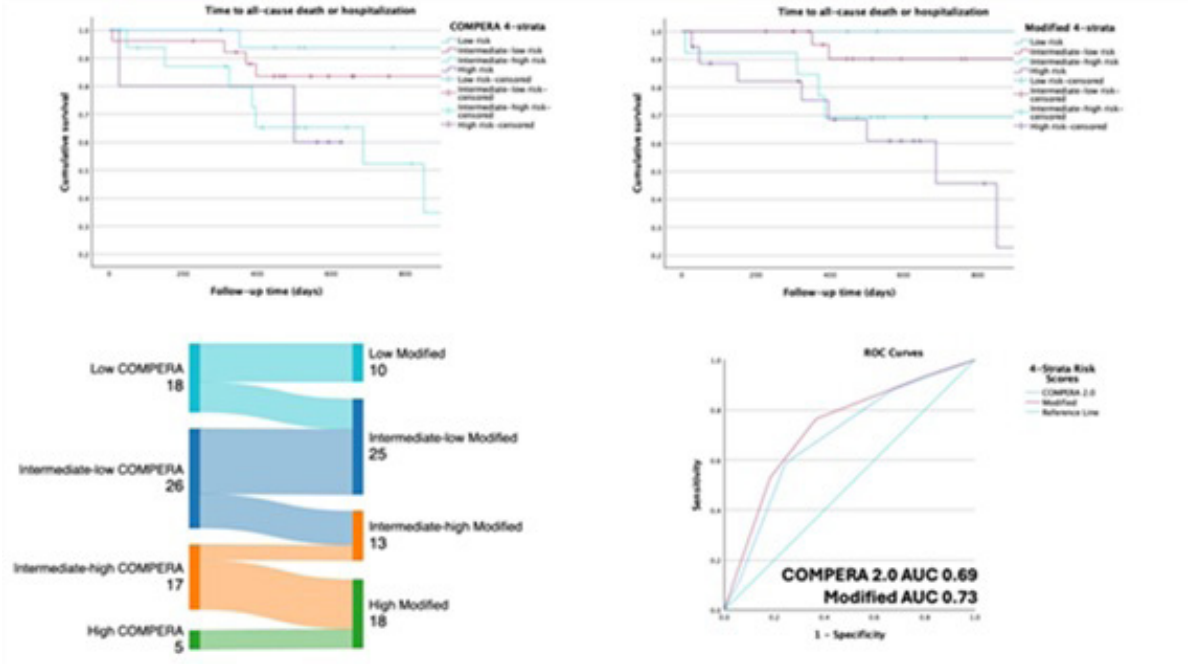
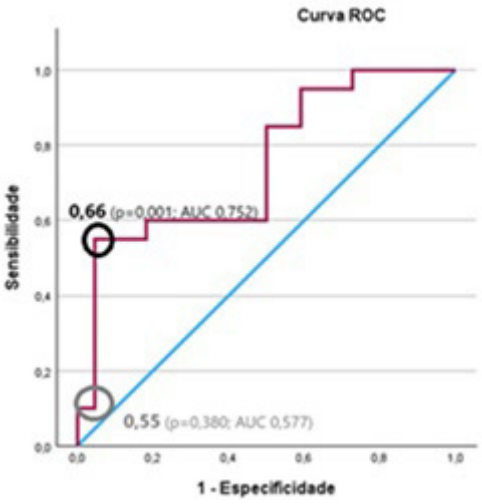


Figure CO 7

accessed by echocardiography in the form of TAPSE/sPAP ratio is increasingly used as an add-on to other echocardiography parameters to better predict the probability of PH. This study aimed to evaluate the predictive power of echocardiographic parameters to detect PH in patients with intermediate-high risk PE submitted to catheter-directed therapy (CDT).
Methods: Patients with intermediate-high risk PE submitted to catheter-directed therapy in a tertiary centre are submitted to a multimodality evaluation at 3 to 6-month follow-up to screen for PH. Patients were divided in two groups according to the presence of pre-capillary PH (mPAP > 20 mmHg, PVR > 2 WU and PCWp < 15 mmHg in RHC) and echocardiographic parameters were analysed to assess their power to predict PH.
Results: From the 78 patients, 42 completed the follow-up and were included in the analysis (median age 59 years [IQR 47-73 years], 57.1% female). 20 patients (47.6%) were diagnosed with PH by RHC at 3-6 month follow-up. Echocardiographic parameters of the right heart that were significantly different between the two groups were the presence of tricuspid regurgitation (p = 0.01) and the TAPSE/sPAP ratio (p = 0.03). Peak tricuspid regurgitation velocity (p = 0.169) and RVOT acceleration time (p = 0.520) showed no statistically significant differences between the two groups. The ROC curve analysis of TAPSE/sPAP showed the best cut-off value of 0.64 (p = 0.001, AUC 0.752, Sensibility 53%, Specificity 93%) when comparing with the guideline recommended cut-off of 0.55 (p = 0.389, AUC 0.577, Sensibility 20%, Specificity 95%). A logistic regression model showed a OR 2.15 (p = 0.017) in predicting PH for each increase of 0.1 in TAPSE/sPAP ratio.



Conclusions: In our study, for patients after intermediate-high risk PE, the ventricular-arterial coupling accessed by echocardiogram (TAPSE/sPAP) showed to be most valuable echocardiographic parameter to predict the presence of PH 3 to 6 months of effective anticoagulation. However, the optimal cut-off may be outdated taking into account the most recent hemodynamic threshold for the diagnosis of PH. In our cohort, a higher value of TAPSE/sPAP ratio seems to be a better predictor of PH.

CO 9. PULMONARY ENDARTERECTOMY AND BALLOON PULMONARY ANGIOPLASTY IN CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION: COMPARISON OF LONG-TERM HEMODYNAMIC RESPONSES TO EXERCISE

Rita Calé, Mariana Martinho, Filipa Ferreira, Sofia Alegria, Débora Repolho, João Luz, Ana Rita Pereira, Patrícia Araújo, Sílvia Vitorino, Hélder Pereira, Daniel Caldeira

Hospital Garcia de Orta.

Introduction: This study evaluates the long-term hemodynamic outcomes of right heart catheterization (RHC) at rest and during exercise in chronic thromboembolic pulmonary hypertension (CTEPH) patients treated with balloon pulmonary angioplasty and pulmonary endarterectomy. The objective was to evaluate whether disease resolution, particularly under exercise conditions, is consistently achieved in both treatment groups.
Methods: This was a prospective single-center registry of a Portuguese Pulmonary Hypertension referral center. Between 2017 and 2020, a total of 13 consecutive patients with CTEPH who underwent pulmonary endarterectomy (PEA Group) and 12 patients who completed a balloon pulmonary angioplasty program (BPA Group) were prospectively evaluated, with all patients having follow-up periods of over one year. The selection for PEA or BPA was conducted by a specialized CTEPH expert team. RHC at rest and during exercise was performed both prior to the procedure and after an average follow-up period of 45 ± 15 months. Long term rest hemodynamics and exercise mean pulmonary artery pressure/cardiac output (mPAP/CO) slope were compared between groups.
Results: Demographics were similar between groups. At baseline, a higher proportion of patients in the BPA group were receiving pulmonary vasodilator therapy compared to the PEA group (91.7 vs. 38.5%, p = 0.008). One patient in the BPA group died because of cancer after 28 months of follow-up. Both PEA and BPA significantly reduced mPAP (from 42.7 ± 13.9 mmHg at baseline to 23.1 ± 5.6 mmHg at follow-up; p < 0.001 and from 47.7 ± 9.3 mmHg at baseline to 29.8 ± 8.8 mmHg; p < 0.001) and pulmonary vascular resistance (from 9.9 ± 5.4 WU at baseline to 3.2 ± 1.9 WU at follow-up; p < 0.001 and from 11.2 ± 3.9 WU at baseline to 3.8 ± 1.3 WU; p < 0.001). At follow-up, the PEA group demonstrated better resting hemodynamics, with lower mPAP (p = 0.038) and a greater proportion of patients achieving normal hemodynamics at rest (mPAp < 20 mmHg in 17.4 vs. 0%, p = 0.093). However, in the long term, exercise hemodynamics remain impaired in both groups (mPAP/CO slope in both PEA and BPA groups was 4.5 ± 2.2 mmHg/L/min and 7.3 ± 5.5 mmHg/l/min, respectively; p = 0.154; figure). An abnormal slope (> 3.0 mmHg/L/min) was observed in 70.0% of patients in the PEA group compared to 85.7% in the BPA group (p = 0.603).
Conclusions: The analysis demonstrates that both BPA and PEA improve resting hemodynamics. While PEA showed lower mPAP values at long-term follow-up, many patients exhibit persistent abnormal hemodynamic responses to exercise over time, as reflected in the mPAP/CO slopes, regardless of treatment modality. These results highlight the importance of comprehensive patient evaluation, including exercise testing, in the long-term follow-up of CTEPH patients, and suggests the need for further studies to address exercise-induced pulmonary hypertension in these patients.

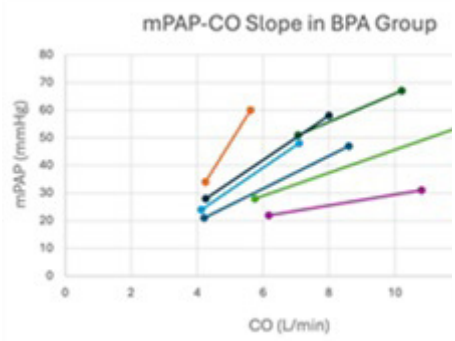


Figure CO 9

CO 10. TAPSE/PASP RATIO: UNVEILING A KEY PREDICTOR OF PULMONARY HYPERTENSION IN ACUTE PULMONARY EMBOLISM

Sofia Esteves, Miguel Azaredo Raposo, Ana Abantes, Daniel Inácio Cazeiro, Diogo Rosa Ferreira, João Mendes Cravo, Nuno Lousada, Susana Gonçalves, Sara Lopes, Catarina Sousa, Fausto J. Pinto, Rui Plácido

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Pulmonary hypertension (PH) is a serious complication of pulmonary embolism (PE), arising from persistent vessel obstruction. Early diagnosis and intervention can help reduce the risk of PH, but clinical predictors remain limited. The TAPSE/PASP ratio correlates with right ventricle-pulmonary artery (RV-PA) coupling. A low TAPSE/PASP ratio, indicating RV-PA uncoupling, has been linked to a poor prognosis in patients with acute PE.
Objectives: To evaluate the TAPSE/PASP ratio in patients with acute PE and assess its correlation with prognosis, namely with the development of PH.
Methods: Observational, single-center study conducted on intermediate-risk acute PE patients. Clinical and echocardiographic data were prospectively collected from hospital records between 2019 and 2021. To assess the diagnostic performance of the TAPSE/PASP ratio in predicting PH development, a ROC curve was generated, and the area under the curve (AUC) was calculated.
Results: A total of 166 patients were included, (46.4% male, median age of 76 years). The most common comorbidities were hypertension (66.9%), dyslipidemia (47.6%), and active cancer (26.5%), table. The in-hospital mortality rate was 7.4%. Echocardiographic data showed a median TAPSE of 20 mm and a median PASP of 37 mmHg, with a mean TAPSE/PASP ratio of 0.53. 44.2% of patients had a ratio > 0.55, and 55.8% had a ratio ≤ 0.55. During a median follow-up (FUP) of 43.5 months, 50% of patients died, with 29.6% of these deaths attributed to cardiovascular causes. 9.9% of patients developed PH. A TAPSE/PASP ratio < 0.44 showed a sensitivity of 80.3% and a specificity of 72.7% for predicting PH development during FUP (AUC: 0.758) (Figure 1). TAPSE/PASP was found to be an independent predictor of development of PH during FUP (OR 9.91, 95%CI: 2.318-42.319, p value = 0.002). However, when analyzing the subgroup of patients with PASp < 60 mmHg, the effect was more modest, not meeting statistical significance (p value = 0.09).
Conclusions: A TAPSE/PASP ratio < 0.44 was associated with the diagnosis of PH during FUP, but this effect was attenuated after excluding patients with PASP > 60. A low TAPSE/PASP ratio should prompt clinicians to provide both comprehensive diagnostic investigation and close FUP of these patients, as they present a higher risk of having either preexisting PH or developing it in the future.

Baseline Characteristics	
Male sex - n (%)	116 (46.4)
Age - median [IQR]	76 [62.75-87]
Comorbidities	
Obesity - n (%)	29 (17.5)
Hypertension- n (%)	111 (66.9)
Dyslipidemia- n (%)	79 (47.6)
Diabetes- n (%)	27 (16.3)
Heart Failure- n (%)	31 (18.7)
Ischemic cardiomyopathy- n (%)	23 (13.9)
Atrial fibrillation- n (%)	28 (16.9)
Chronic Kidney Disease- n (%)	28 (16.9)
Chronic Obstructive Pulmonary Disease- n (%)	20 (12)
Obstructive sleep apnea- n (%)	13 (7.8)
Smoking history- n (%)	40 (24.1)
Cerebrovascular disease- n (%)	32 (19.3)
Active Cancer- n (%)	44 (26.5)
Clinical presentation and evolution	
Dyspnea- n (%)	100 (60.2)
Pleuritic pain- n (%)	66 (39.8)
Syncope- n (%)	34 (20.5)
In-hospital death- n (%)	12 (7.4%)
Echocardiography	
TAPSE (mm)- median [IQR]	20 [18-21]
PSAP (mmHg)- median [IQR]	37 [34.36-39]
TAPSE/PSAP ratio- mean ± SD	0.53 ± 0.21
RV-PA coupling	
TAPSE/PSAP ratio > 0.55- n (%)	34 (44.2)
TAPSE/PSAP ratio ≤ 0.55- n (%)	43 (55.8)
Laboratory Parameters	
Hemoglobin (g/dL)- mean ± SD	12.99 ± 1.87
Platelet count (x10^9/L)- median [IQR]	228 [180-75-287.5]
Creatinine (mg/dL)- median [IQR]	0.95 [0.79-1.25]
D-dimers(ug/mL)- median [IQR]	4.37 [2.25-10.72]
NTproBNP (pg/mL)- median [IQR]	1248 [385.5-3969.5]
hs-T troponin (ng/L)- median [IQR]	37 [20-87.5]
Lactate (mg/dL)- median [IQR]	11.25 [8-14]

Table 1: Baseline characteristics of population.

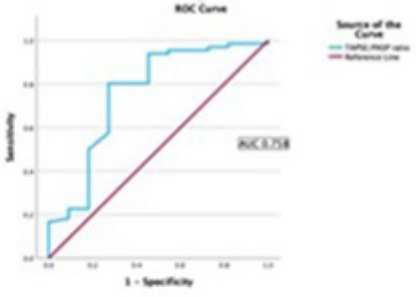


Figure 1: ROC Curve for assessing the performance of the TAPSE/PASP ratio in predicting PH during FUP.

Figure CO 10

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Sala Arrábida | Sessão de Comunicações Orais 03 – Epidemiologia e organização de cuidados de saúde

CO 11. MAPPING HEART FAILURE CARE IN PORTUGAL: ACCESS, RESOURCES, AND REGIONAL INEQUITIES

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Introduction: Heart failure (HF) presents a significant public health challenge in Portugal as the prevalence reported in the PORTHOS study is overwhelming. Managing HF requires specialized resources, including dedicated outpatient clinics and trained healthcare professionals. To better understand the current landscape of HF care across the country, a survey was conducted to gather insights into the availability of HF specific services, the distribution of healthcare resources and the challenges faced by medical teams in providing optimal care for HF patients.
Methods: A questionnaire was distributed to key medical leaders across all 41 Local Health Units (ULS) of mainland Portugal, as well as to the two autonomous regions. The recipients were either the Head of the HF Clinic, the Cardiology Department Head or the Head of Internal Medicine at each institution. Each center was classified according to the ICARe-HF accreditation program categories.
Results: A total of 42 responses were received from the 43 questionnaires sent. There are 8 advanced centers, including 4 Type A and 4 Type B centers, 22 specialized centers, 4 community centers and 8 centers with limited or no cardiology support to HF patients. Among the ULS, 22 have dedicated HF outpatient clinics, 10 manage HF patients through general outpatient clinics and 10 do not have any outpatient clinic. Additionally, 25 centers administer

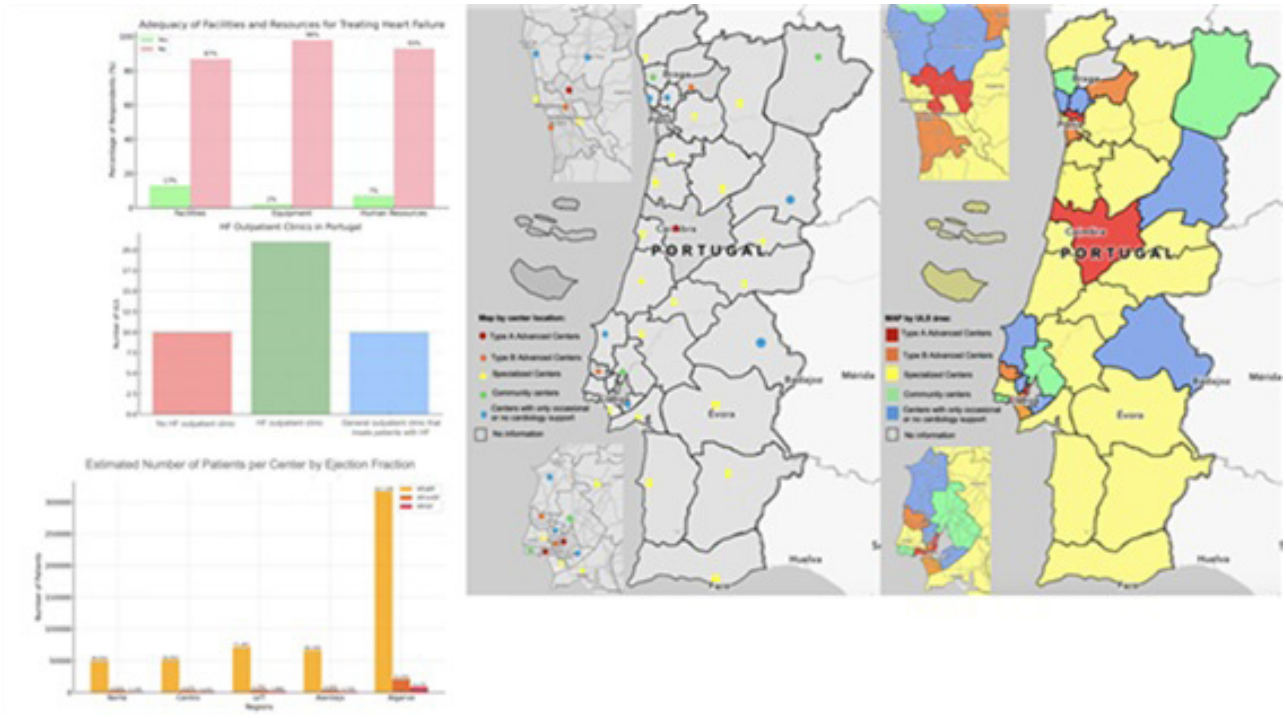

Figure CO 11

ambulatory IV diuretics or IV iron, while 20 centers offer intermittent levosimendan. Of the 35 centers offering HF-specific appointments, 27 are conducted by cardiologists (9 in ARS Norte, 6 in ARS Centro, 9 in ARS LVT, 2 in ARS Alentejo, and 1 in ARS Algarve). On average, each of these centers has 3 cardiologists dedicated to HF care, along with 2 dedicated nurses. By analyzing patient numbers in each ARS and using data from the PORTHOS study, we calculated the average number of patients served by each center with HF-specific appointments. The data reveals that the number of patients per center increases from the North to the South of Portugal. Sixty-three percent of the ULS have their own HF-specific protocols. When asked if the available facilities for treating HF patients were sufficient, 87% of respondents answered "no". Similarly, 93% indicated that human resources were inadequate, with the primary shortage being in doctors, followed by a lack of nurses.

Conclusions: The survey results reveal disparities in the availability of HF-specific care across Portugal's regions. While some areas are well-equipped with specialized centers and dedicated outpatient clinics, others face substantial challenges due to a lack of resources and specialized personnel. These findings emphasize the importance of addressing regional inequalities to ensure that HF patients receive the necessary care. Further investments in both healthcare facilities and human resources are essential to address the burden of HF in Portugal.

CO 12. SOCIOECONOMIC AND ETHNIC FACTORS AFFECTING HEART FAILURE TREATMENT AND PROGNOSIS: EXPLORING DISPARITIES IN CLINICAL OUTCOMES

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Introduction: Heart failure (HF) with reduced ejection fraction (rEF) is a prevalent and burdensome condition, with treatment shaped by social determinants such as ethnicity, migration status, and socioeconomic factors. However, little is known about disparities in treatment access between Portuguese and non-Portuguese patients and their impact on disease outcomes.

Objectives: This study aims to explore potential differences in the management of heart failure with reduced ejection fraction, including access to medication and survival outcomes between Portuguese and non-Portuguese patients.

Methods: A prospective, single-center study was conducted involving HFrEF patients treated in a HF Clinic with a protocol-based follow-up program. The sample was divided into two groups: Portuguese and non-Portuguese, based on their ethnic origin. Treatment strategies, including the use of guideline-directed medical therapies (GDMT) and HF-related events were analyzed and compared. T-test for independent samples and Kaplan-Meier analysis were used.

Results: A total of 181 Portuguese patients were included [mean age: 66 ± 13 years; baseline left ventricle ejection fraction (LVEF): 29 ± 8%; follow-up LVEF: 44 ± 11%; ischemic heart disease: 50%] and 38 patients of African/Asian origin (age: 57 ± 16 years; baseline LVEF: 26 ± 8%; follow-up LVEF: 41 ± 13%; ischemic heart disease: 31%). The mean follow up was 2.4 years. No significant differences were found between the two groups in clinical, epidemiological or treatment characteristics, except for the use of sacubitril-valsartan (ARNI), which was significantly higher in Portuguese patients (p = 0.033). Among the African/Asian group, 17 (44.7%) were not treated with ARNI, mainly due to an inability to afford the drug (11 patients; 28.9%). In the Portuguese group, 28 patients (15.5%) were not under ARNI and no one stated inability to afford the drug. Prognostic analysis, adjusted for age, LVEF and NYHA class revealed that African/Asian patients had a significantly higher risk of HF events (cardiovascular death or HF-related hospitalization) compared to Portuguese patients, with a hazard ratio of 3.53 (95%CI 1.53-8.14; p = 0.003) (Figure 1).

Conclusions: This study reveals disparities in HFrEF management between Portuguese and non-Portuguese patients, particularly in ARNI use, with financial barriers affecting access in the African/Asian group. Despite similar clinical profiles, non-Portuguese patients had a higher risk of heart failure events, highlighting the impact of ethnic and socioeconomic factors on treatment and outcomes.

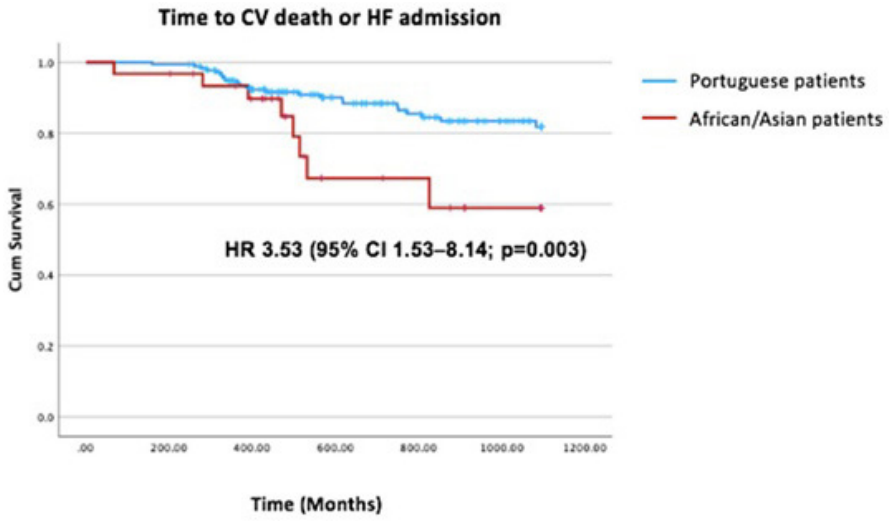


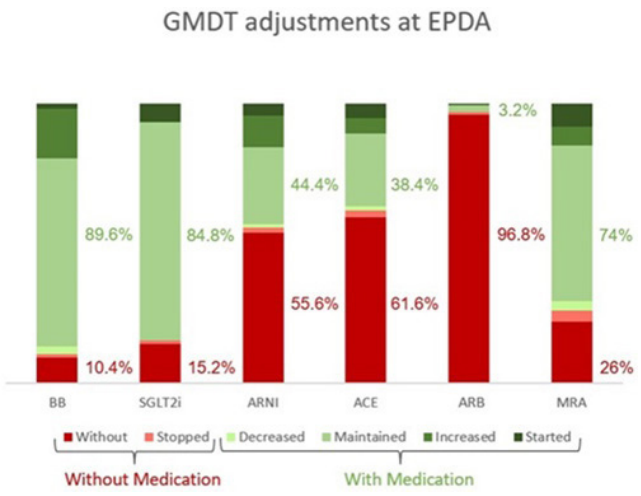
Figure CO 12

CO 13. THE EXPERIENCE OF 253 EARLY POST DISCHARGE HEART FAILURE APPOINTMENTS: WHAT WE HAVE LEARNED

Ana Filipa Mesquita Gerardo, Inês Miranda, Mariana Passos, Inês Fialho, Célia Henriques, Ana Oliveira Soares, Carolina Mateus, Mara Sarmento, Rodrigo Brandão, David Roque

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Heart Failure (HF) guidelines recommend a follow-up visit within 7 to 14 days post-hospitalization to facilitate a high-quality transition to outpatient care. This provides an excellent opportunity to monitor signs and symptoms of HF, assess potential treatment side effects and titrate medication accordingly. This strategy has been associated with lower 30-day readmission rates in retrospective studies.
Objectives: To describe the role of HF early post discharge appointment (EPDA) in the management of HF patients and the outcomes of these patients immediately after hospitalization.
Methods: Prospective registry of consecutive patients who underwent an EPDA between March 2021 and September 2023. Demographics, blood test results, treatment decisions, and HF-related readmissions and all-cause death at 90 days were recorded.
Results: A total of 253 patients were included, with 35.2% females (n = 89) and a median age of 68 [56-76] years. *De novo* HF was present in 48.2% (n = 122) patients; 77.9% (n = 197) had reduced left ventricle ejection fraction, and its etiology was still under investigation at the time of EPDA in 43.1% (n = 109) patients. Among patients with a known etiology, the majority (54.9%; n = 79) had ischemic heart disease. The median time between hospital discharge and EPDA was 13 [10-16] days. Just 2 weeks after discharge, there was already an increase in NYHA class in 10.3% (n = 26) of patients, and 18.2% (n = 46) already showed signs and symptoms of hypervolemia, requiring diuretic treatment intensification. Guideline medical directed treatment (GMDT) adjustments at EPDA are presented in Graph 1. At EPDA, 17.4% (n = 44) of patients experienced drug adverse effects: 4.3% (n = 11) hyperkalemia, 5.5% (n = 14) hypotension and 9.5% (n = 24) acute kidney injury; no one had bradycardia. At discharge 52.6% (n = 133) of patients were on the 4 pharmacologic pillars, and this rate increased only to 56.5% (143) at the EPDA, with the mineralocorticoid receptor antagonists being the least prescribed class. Serum creatinine level (1.1 vs. 1.3 mg/dL, p = 0.001), serum C cystatin level (1.5 vs. 1.9 mg/dL, p = 0.006), serum urea level (50.3 vs. 57.8 mg/dL, p = 0.005), serum NTproBNP level (1,847 vs. 4,877 mg/dL, p < 0.001) and furosemide dosage (42 vs. 56 mg, p = 0.01) at EPDA were associated with HF-related readmissions and all-cause death at 90 days. Logistic regression analysis revealed that only NTproBNP level at EPDA remained independently associated with adverse events (p = 0.031).



Conclusions: Early evaluation of HF patients after discharge allows congestion reassessment, GMDT titration, and detection of drug adverse effects. NTproBNP and kidney function measured around 2 weeks after discharge following an acute HF episode are strong predictors of HF-related readmissions and all-cause death at 90 days, allowing identification of high-risk patients that should be reassessed earlier.

CO 14. TRENDS IN CARDIOVASCULAR HOSPITAL ADMISSIONS OVER THE LAST 15 YEARS: IS IT TIME TO RETHINK HEALTHCARE POLICIES?

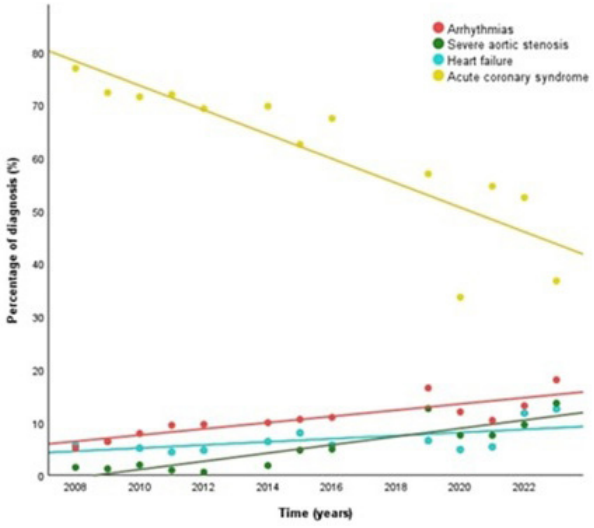
Helena Sofia Santos Moreira, Miguel Rocha, Pedro Mangas Palma, Ana Isabel Pinho, Cátia Oliveira, Luís Santos, Emanuel Oliveira, Joana Gonçalves, Bernardo Cruz, Rui André Rodrigues, Ana Lebreiro

Centro Hospitalar Universitário de S. João, EPE.

Introduction: The field of cardiovascular (CV) diseases has witnessed significant changes in recent years, marked by cutting-edge scientific advancements with novel diagnostic approaches and clinical entities. Understanding trends in CV hospital admissions is essential to improve healthcare policies, as it remains the leading cause of morbidity and mortality worldwide.
Objectives: To analyse the 15-year trends in the CV profile of patients (pts) admitted to the cardiology department of a tertiary center.

Methods: A retrospective analysis was conducted on pts admitted to the cardiology ward of our centre between 2008 and 2023. Data on baseline characteristics and index events were collected through medical records review. Linear regression was performed to evaluate time trends.

Figure 1. Linear regression illustrating the trends in admissions over the 15-year period.



Results: A total of 14,304 pts were included, with 80.2% (n = 11,470) representing urgent admissions. Bed capacity increased significantly over the study period, resulting in an annual mean rise of 75 admissions (R^2 = 0.77; p < 0.001), doubling from 849 in 2008 to 1713 in 2023. Focusing on urgent admissions, 68% were male (n = 7825), though the proportion of females increased annually by 0.48% (R^2 = 0.54; p < 0.004), comprising 39% of the pts in 2023. Mean age rose by 0.26 years annually (R^2 = 0.68; p < 0.001), with pts having 65 ± 15 years in 2023. Arterial hypertension (62.6%) and dyslipidemia (61.3%) were the most common CV risk factors, with no substantial variation over time. Acute coronary syndrome (ACS) was the most frequent diagnosis (n = 6684, 58.3%), though its proportion declined 2.3% annually (R^2 = 0.76; p < 0.001), reflecting the emergence of other diagnosis (Figure 1). Urgent admissions due to rhythm disturbances increased significantly, with a 0.58% annual rise (R^2 = 0.72; p = 0.001), particularly over the past 10 years (2014: 9.99 vs. 2023: 18.08%). Also, admissions for heart failure nearly doubled since the beginning of the decade (2010: 4.9 vs. 2023: 8.6%), with overall a yearly increase of 0.29% (R^2 = 0.35; p = 0.033). Hospitalizations due to severe aortic stenosis are currently nine times more prevalent (2008: 1.5 vs. 2023: 13.7%), with a 0.78% annual rise (R^2 = 0.80; p < 0.001), largely driven by elective admissions for transcatheter aortic valve implantation (TAVI). The median duration of hospitalizations was 6 (IQR 5) days, with a non-significant trend towards shorter stays (p = 0.11) over the years.

Conclusions: Our study highlights the dynamic nature of CV health, including an aging population, an increasing proportion of female pts and rising admissions for arrhythmias, heart failure and severe aortic stenosis. These findings underscore the need for tailored strategies and resource adaptation to address the growing burden of CV diseases. Further research is required to guide institutional and national healthcare policies in response to these trends.

CO 15. MORTALITY AND HOSPITALIZATION COSTS DUE TO HEART FAILURE ASSOCIATED WITH SYSTEMIC ARTERIAL HYPERTENSION IN BRAZIL FROM 2010 TO 2019

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[1]Centro Universitário Fametro. [2]Universidade Nilton Lins. [3]Hospital Beneficente Português do Amazonas. [4]Universidade do Estado do Amazonas (UEA). [5]Fundação de Vigilância em Saúde. [6]Universidade do Porto.

Introduction: Systemic arterial hypertension (SAH) represents one of the main risk factors for other cardiovascular diseases, such as heart failure (HF). In Brazil, it is estimated that more than 30% of the adult population is hypertensive and that over 2 million individuals present with HF, which is associated with a significant utilization of public health resources.

Objectives: To describe the magnitude of mortality and hospitalizations due to heart failure (HF) associated with systemic arterial hypertension (SAH) and to evaluate the trends in expenditures related to hospital admissions for this condition across the different geographic regions of Brazil from 2010 to 2019.

Methods: This is an ecological study on hospital admissions and mortality due to HF associated with SAH in Brazil between 2010 and 2019, using secondary data from the Hospital Information System (SIH/DATASUS) and the Mortality Information System (SIM/DATASUS), respectively. Data were filtered by category of the International Classification of Diseases (ICD-10) and analyzed in absolute

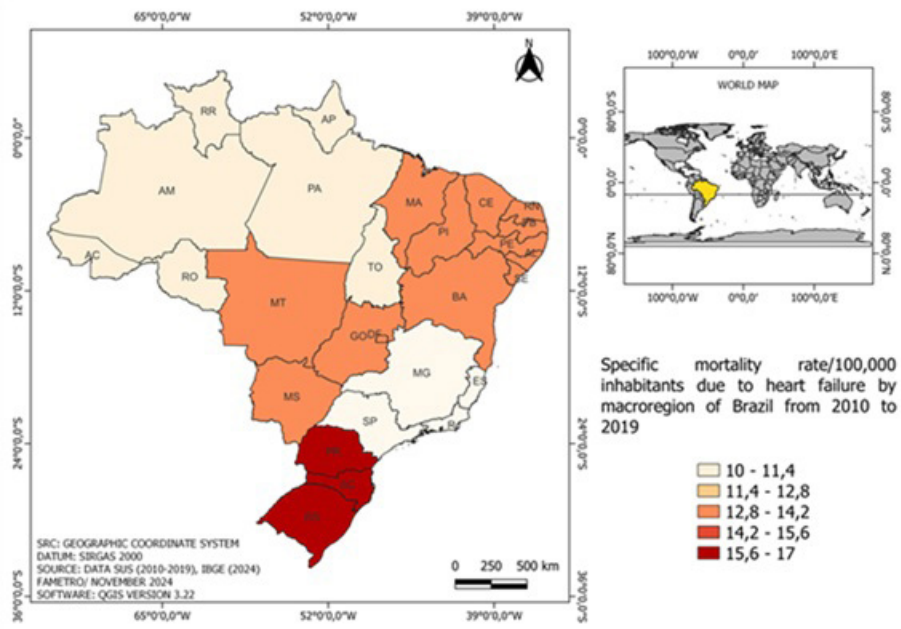

Figure CO 15

and relative frequencies. The specific mortality rate was calculated per 100.000 inhabitants, based on population data from the Brazilian Institute of Geography and Statistics. Expenditures related to hospitalizations were extracted (SIH/DATASUS) and adjusted for inflation during the study period.
Results: Between 2010 and 2019, there were 842,995 deaths due to HF, of which 35,123 (4.2%) were associated with SAH. A continuous increase in these deaths was observed during the study period, with the number of HF deaths associated with SAH rising from 2,829 in the first year to 4,327 in the last year of the time series, representing a 53.0% increase. Of the total deaths, 18,574 (52.9%) occurred in the Southeast and 7,913 (22.5%) in the Northeast. The specific mortality rate for HF associated with SAH per 100,000 inhabitants for the national territory and Brazilian regions was, respectively: Brazil (15.2), North (10.26), Northeast (14.22), Southeast (21.78), South (16.79), and Midwest (13.04). During the same period, 2,274,501 hospitalizations for HF were recorded, primarily concentrated in the Southeast, with 947,875 (41.7%). Expenditures on hospitalizations for HF totaled approximately 1.69 billion dollars, or around 742.8 dollars per admission.
Conclusions: The increase in hospitalisations and deaths due to heart failure associated with systemic arterial hypertension in Brazil, as well as the substantial expenditures resulting from this condition, underscores the importance of prevention and control strategies to reduce fatal outcomes.

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Sala D. Luís | Sessão de Comunicações Orais 04 – Inovação em cuidados intensivos: novas intervenções em choque cardiogénico e SCA

CO 16. OUTCOMES AND PROCEDURAL BURDEN OF CULPRIT-ONLY VS. MULTIVESSEL PERCUTANEOUS CORONARY INTERVENTION IN CARDIOGENIC SHOCK: A RETROSPECTIVE ANALYSIS OF REAL-WORLD DATA

Ana Raquel Carvalho Santos, Francisco Albuquerque, André Grazina, Pedro Brás, Tiago Mendonça, Luís Morais, Ruben Ramos, António Fiarresga, Lídia Sousa, Inês Rodrigues, Duarte Cacela, Rui Ferreira

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The optimal revascularization strategy for ST-segment elevation myocardial infarction complicated by cardiogenic shock remains controversial. While randomized trials, such as CULPRIT-SHOCK, demonstrated benefits of percutaneous coronary intervention (PCI) limited to the culprit vessel, real-world data remain limited. This retrospective study analyzed 84 patients with cardiogenic shock undergoing primary PCI. Of these, 53 patients with multivessel coronary artery disease were divided into culprit-only PCI (n = 38) and multivessel PCI (n = 15) groups. The mean age was significantly higher in the culprit-only group (72.3 ± 11.3 years) than in the multivessel group (58.5 ± 13.8 years, p = 0.0006). Primary outcomes included mortality and procedural complications; secondary endpoints included stent use, angiographic complications, bifurcation lesions, and clinical variables such as cardiopulmonary resuscitation (CPR) and mechanical circulatory support. Short-term mortality was similar between groups (p = 0.4218), with procedural death occurring in 15.8% of culprit-only PCI patients and 26.7% of multivessel PCI patients. Procedural burden was higher in multivessel PCI, requiring 3 or more stents in 40% of patients compared to 18% in culprit-only PCI. Angiographic complications occurred significantly more frequently in the multivessel PCI group (86.7 vs. 39.5%, p = 0.0009), including coronary dissection and no-reflow phenomenon. Culprit-only PCI predominantly targeted the proximal left anterior descending artery (39.5%), proximal right coronary artery (28.9%), and left main coronary artery (7.9%). Multivessel PCI addressed bifurcation lesions in 26.7% of culprit-treated vessels and 6.7% of second-treated vessels. Clinical outcomes, including CPR (36.8% in culprit-only vs. 20% in multivessel PCI) and ventricular arrhythmias, showed no significant differences. Intra-aortic balloon pump use was more common in multivessel PCI (66.7 vs. 34.2%), while Impella and extracorporeal membrane oxygenation (ECMO) use remained low overall. In conclusion, among 53 patients with multivessel disease and cardiogenic shock, culprit-only PCI was associated with fewer complications (39.5 vs. 86.7%, p = 0.0009) and reduced procedural burden compared to multivessel PCI. Despite addressing bifurcation and complex lesions, multivessel PCI did not improve short-term mortality. These findings align with prior randomized data and highlight the procedural safety of culprit-only PCI in this critically ill population.

	Culprit-Only PCI	Multivessel PCI	p-value	Odds Ratio (95% CI)
Age (mean, standard deviation)	72.3 ± 11.3	58.5 ± 13.8	0.0006[1]	
Mortality during procedure (%)	15.8	26.7	0.756[2]	
Angiographic complications (%)	39.5	86.7	0.0009[2]	
Procedural burden (stents) (%)	18	40	0.116[3]	
Cardiopulmonary resuscitation (%)	36.8	20		1.7 (1.12.5)[4]

PCI - Percutaneous coronary intervention

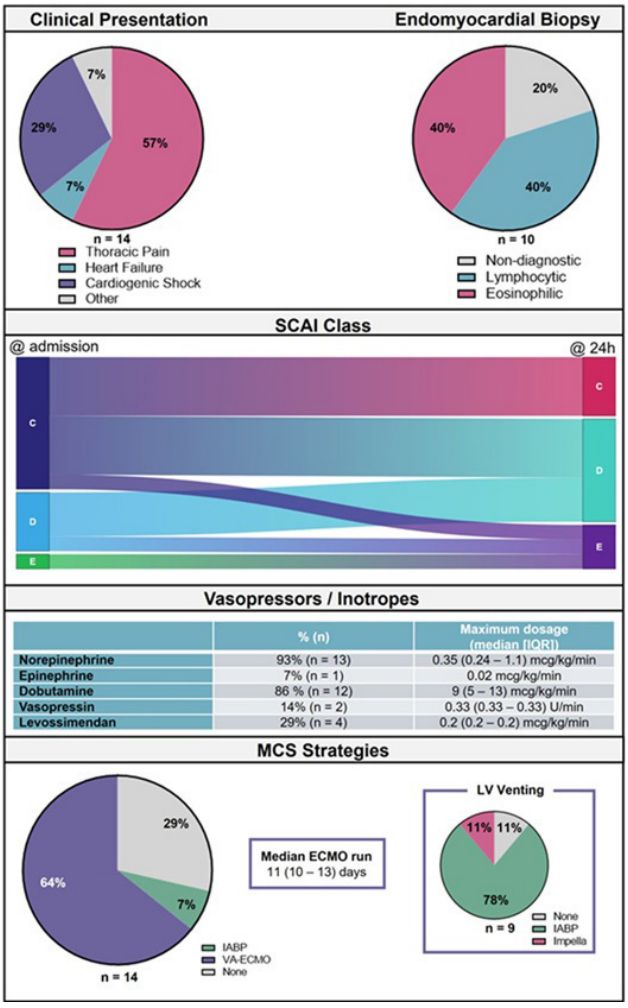
1 – Independent T-Test; 2 – Fisher's Exact Test; 3 – Chi Squared Test; 4 – Logistic Regression (adjusted for age)

CO 17. FULMINANT ACUTE MYOCARDITIS IN THE CARDIAC INTENSIVE CARE UNIT – A LONG BUT SUCCESSFUL ROAD TO RECOVERY

Rita Amador, Ana Rita Bello, Rita Lima, Rita Carvalho, Joana Certo Pereira, Rita Barbosa, Débora Correia, João Presume, Jorge Ferreira, Christopher Strong, Catarina Brízido, António Tralhão

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction and objectives: Fulminant myocarditis leading to cardiogenic shock (CS) is a life-threatening condition arising from various inflammatory etiologies. This study aims to describe the clinical characteristics, management strategies, and outcomes of patients with myocarditis-related CS treated at a tertiary center with mechanical circulatory support (MCS) capabilities.
Methods: We conducted a retrospective, observational single-center study of consecutive patients (pts) admitted to our Cardiac Intensive Care Unit for CS-related myocarditis, between 2018 and 2024. Diagnostic confirmation was made through cardiac magnetic resonance imaging (CMR) or endomyocardial biopsy (EMB), while a presumed diagnosis was considered based on clinical, laboratorial and TTE features in the absence of coronary artery disease.
Results: Fourteen pts (mean age 45 ± 14 years, 64% male) were included. The majority (93%, n = 13) experienced their first myocarditis episode. The most common symptom at admission was chest pain (57%, n = 8), while 29% (n = 4) immediately presented in CS. The median time from initial symptom onset to CS was 5 days (IQR 4-6). Median LVEF at admission was 25 (IQR 20-34)%, and biventricular dysfunction was present in 57% (n = 8). Diagnosis was confirmed by EMB (diagnostic yield 80%) or CMR in 13 pts, while 1 was diagnosed presumptively. SCAI class at admission was C in 9 pts (64%), D in 4 (29%) and E in1 pt (7%), with 5 pts deteriorating over the first 24 hours. All pts required vasoactive pharmacological support, and 71% (n = 10) required MCS, mostly VA-ECMO (n = 9). Other interventions included non-invasive and invasive mechanical ventilation (71%, n = 10) and renal replacement therapy (21%, n = 3). Complete AV block occurred in 14% (n = 2) of patients, 21% (n = 3) had ventricular arrythmias and 1 patient (7%) had cardiac tamponade requiring pericardiocentesis. The ICU length-of-stay was 12 days (IQR 7-21), and total hospital admission was 32 days (IQR 20-47). In-hospital mortality was 14% (n = 2): one due to refractory shock and another for surgical LVAD-related complications. One patient underwent transplantation for unrecovered biventricular failure. Among survivors (n = 11), LVEF improvement was observed at discharge (51 (IQR 41-56)%; p < 0.001), with 64% (n = 7) normalizing LVEF (> 50%). During a median follow-up of 20 months (IQR 5-35), one patient died of non-cardiovascular causes, and another underwent transplantation for persistent heart failure. The remaining patients (n = 8) were in NYHA class I or II, and all maintaining LVEF > 50%.



Conclusions: Fulminant myocarditis carries significant acute morbidity and mortality and often requires MCS as a bridge-to-recovery. However, survivors demonstrate favorable long-term outcomes, including functional recovery and LVEF normalization. Further studies are needed to optimize support strategies and improve outcomes in this high-risk population.

CO 18. IMPACT OF DANGER SHOCK ELIGIBILITY CRITERIA ON SURVIVAL IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION-RELATED CARDIOGENIC SHOCK: IT IS ALL ABOUT IMPELLA?

Débora Sá[1], Joana Certo Pereira[2], Ana Rita Bello[2], Rita Carvalho[2], Débora Correia[2], Samuel Azevedo[2], Rita Barbosa[2], Christopher Strong[2], Jorge Ferreira[2], João Presume[2], António Tralhão[2], Catarina Brízido[2]

[1]Hospital Dr. Nélio Mendonça. [2]Hospital de Santa Cruz.

Introduction: The recently published DanGer Shock trial demonstrated that incorporating a microaxial flow pump (Impella) alongside standard care significantly reduced all-cause mortality at 180 days in patients with STEMI-related cardiogenic shock (CS) compared to standard care alone. As patient selection criteria across centers can challenge the applicability of trial findings to the real-world setting, we aimed to apply the study's eligibility criteria in an acute myocardial infarction (AMI) related CS population in Portugal, evaluating differences in clinical management and all-cause mortality in eligible and ineligible groups.
Methods: Retrospective single-center study of AMI-CS patients admitted to a cardiac intensive care unit (CICU) between January 2017 and October 2024. After applying eligibility criteria, eligible and ineligible groups were compared regarding baseline characteristics, CS severity, types of mechanical circulatory support (MCS) used and in-hospital complications. Mortality at 180 days was compared using Kaplan-Meier survival curves and predictors of survival obtained through bivariate logistic regression analysis.
Results: Our cohort included 181 patients with AMI-CS, of whom 85 (47%) met eligibility criteria for the DanGer shock trial (see flow-chat). Eligible patients were younger (64 ± 14 vs. 71 ± 14 years, p = 0.001), all underwent coronary angiography and were more frequently submitted to culprit vessel PCI (88 vs. 63%, p < 0.001). Despite similar SCAI severity at admission, eligible patients had lower LV ejection fraction and received more MCS (53

Flowchart: Application of DanGer Shock Trial Inclusion and Exclusion Criteria to our Acute Myocardial Infarction related Cardiogenic Shock Cohort

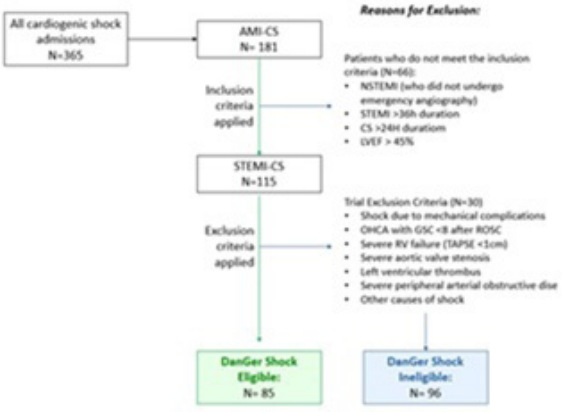


Figure: Time to death from any cause at 180 days after CICU admission

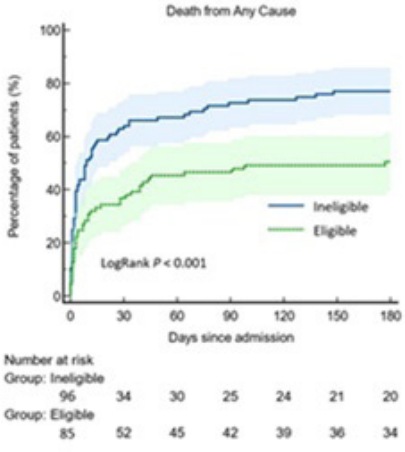


Table 1: Analysis of the initial type of mechanical circulatory support (MCS) implanted based on DanGer Shock trial eligibility criteria

Type of MCS	Total MCS use (n=76)	Eligibility		p-value
		Eligible (n=45)	Ineligible (n=31)	
Impella, n (%)	9 (11.8%)	6 (13.3%)	3 (9.7%)	0.730
IABP, n (%)	41 (53.9%)	23 (51.1%)	18 (58.1%)	0.550
ECMO, n (%)	6 (7.9%)	6 (13.3%)	0 (0.0%)	0.076
ECMO+IABP, n (%)	19 (25.0%)	9 (20%)	10 (32.3%)	0.225
ECPella, n (%)	1 (1.3%)	1 (2.2%)	0 (0.0%)	0.529

Table 2: Predictors of mortality at 180 days (Bivariate Logistic Regression Analysis)

Variables	Odds ratio (95% CI)	P-value
Eligible	0.35 (0.18 – 0.67)	0.002
Age	1.05 (1.02 – 1.07)	<0.001
Systolic blood pressure	0.98 (0.96 – 0.99)	0.019
Mean blood pressure	0.96 (0.94 – 0.99)	0.009
SCAI C or D	2.08 (1.06 – 4.05)	0.033
PCI	0.30 (0.13 – 0.73)	0.008
Mechanical ventilation	2.17 (1.05 – 4.47)	0.035

Figure CO 18

vs. 32%, p = 0.005), with numerically higher device-related complications. The type of MCS used was similar in both groups (Table 1). Mortality at 30 and 180 days was significantly lower in the eligible group (46 vs. 71%, and 55 vs. 78%, p < 0.001), regardless of the type of MCS used. The predictors of survival in this population included being eligible for DanGer Shock trial (OR 0.35 95%CI: 0.18 – 0.67; p 0.002), being submitted to PCI, younger age, higher blood pressure upon admission and the absence of mechanical ventilation (Table 2).

Conclusions: Less than half of all AMI-CS patients would be eligible for the DanGer Shock trial in a real-world CICU Portuguese population. These patients represented a subset with higher chances of survival, regardless of the type of MCS implanted. For ineligible patients, MCS should be carefully used, taking into consideration known predictors of survival to avoid futility.

CO 19. EXPLORING THE SAFETY AND EFFICACY OF RENAL DENERVATION IN ELECTRICAL STORM MANAGEMENT

Mariana Caetano Coelho, Sofia Jacinto, Ana Rita Teixeira, Inês Ferreira Neves, Guilherme Portugal, Bruno Valente, Ana Lousinha, Pedro Silva Cunha, Hélder Santos, Paulo Osório, Rui Cruz Ferreira, Mário Martins Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Catheter ablation (CA) has shown efficacy in managing ventricular arrhythmias (VA) associated with structural heart disease. However, some patients continue to experience refractory VA despite pharmacological therapy and multiple CA attempts. In such cases, additional interventions, including autonomic neuromodulation, have been investigated. Renal denervation (RDN), a technique originally developed to treat resistant arterial hypertension, works by inhibiting the afferent renal sympathetic pathways, thereby reducing systemic sympathetic overactivity. Given this mechanism, RDN has been studied as a therapeutic option for arrhythmias, including atrial fibrillation and VA, with promising outcomes. This study aims to evaluate both the effectiveness and safety profile of renal denervation as a therapeutic strategy for managing refractory ventricular arrhythmia storms in patients classified as high-risk. A retrospective analysis was conducted on renal denervation procedures performed to manage electrical storms at a tertiary center from February 2020 to October 2024. Baseline patient characteristics, procedural details, and acute complications were recorded. Recurrence of ventricular arrhythmia post-RDN was evaluated at one month and six months to assess the intervention's impact on arrhythmia control. A total of 11 patients underwent RDN for the treatment of refractory VA. The cohort had a mean age of 63 ± 10 years, with 9 males. The primary diagnosis in most patients was ischemic cardiomyopathy (n = 7), characterized by a mean left ventricular ejection fraction of 25 ± 8%. All patients had implantable cardioverter-defibrillators (ICDs), and two of these devices included concomitant cardiac resynchronization therapy. Nine patients had previously undergone endocardial VA ablation. Among the two patients without prior ablation, one was contraindicated due to a large left ventricular thrombus, while the other underwent an electrophysiological study without inducible ventricular tachycardia. In the four weeks preceding RDN, patients experienced an average of 18 ± 20 sustained VA episodes, meeting the criteria for an electrical storm (≥ 3 episodes within 24 hours). During RDN, a mean of 15 ± 9 radiofrequency applications were delivered to the right renal artery and 12 ± 9 to the left renal artery. No acute procedural complications were observed. One month post-RDN, VA episodes were reduced to a mean of 0 ± 1, with only two patients experiencing recurrent VA. At the six-month follow-up, VA recurrence remained low (mean 1 ± 2 episodes), and at one year, there was an increase in mean episodes (29 ± 50), with only one patient experiencing new episodes. There were four deaths during the follow-up period, three of which were attributable to heart failure. In our pilot study, RDN appeared to be a safe and effective treatment for the management of VA.

CO 20. CHANGING THE PARADIGM IN ACUTE CORONARY SYNDROMES: FROM STEMI VS. NSTEMI TO OMI VS. NON-OMI

André Lobo, Francisco Sousa, Francisca Nunes, Marta Catarina Almeida, Fábio Nunes, Marta Leite, Inês Neves, Inês Rodrigues, António Gonçalves, Ricardo Fontes-Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Occlusion Myocardial Infarction (OMI) is an emerging classification in acute coronary syndromes (ACS) that challenges the traditional STEMI. OMI emphasizes the identification of coronary occlusion

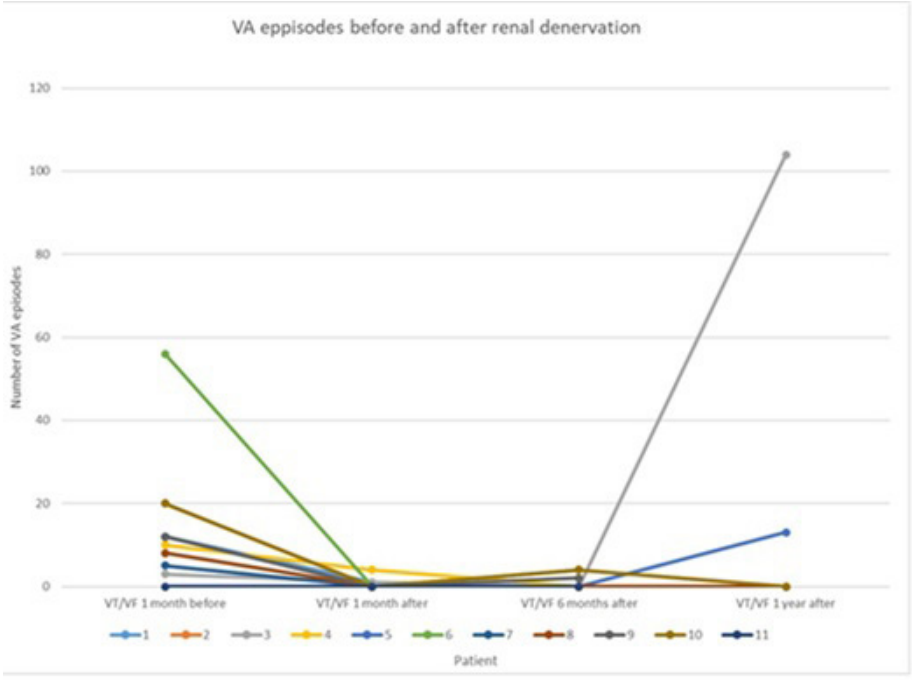


Figure CO19

through more subtle ECG changes. Advocates argue that this could improve the identification of patients who need urgent revascularization. OMI is defined by the presence of TIMI flow ≤ 2 and/or significantly elevated troponin levels (Troponin T > 1,000 ng/L or Troponin I > 5,000 ng/L) with regional wall motion abnormalities. In this study, we reclassified ACS patients using the OMI paradigm and analyzed their clinical characteristics and outcomes to explore the potential impact of this classification.
Methods: We conducted a retrospective one-year analysis of ACS patients. We analyzed clinical, angiographic, and imaging data, stratifying patients into STEMI, NSTEMI-OMI, and NSTEMI-NON OMI groups.
Results: We analyzed 336 ACS patients, including 196 STEMI and 134 NSTEMI/UA cases. Among NSTEMI/UA patients, 38.8% were classified as OMI, with 25% presenting TIMI flow ≤ 2. The median time to angiography was 1 hour in STEMI patients, significantly shorter than the 10.5 hours in NSTEMI-OMI patients (p < 0.001), and 12 hours in NSTEMI-NON OMI patients. Median Left ventricular ejection fraction (LVEF) at discharge was lower in NSTEMI-OMI patients (51%) compared to NSTEMI-NON-OMI (57%) (p < 0.001). This difference persisted at 12 months (p = 0.002). Median peak troponin T levels were higher in NSTEMI-OMI patients (1777 ng/L) compared to NSTEMI-NON OMI patients (217 ng/L) (p < 0.001). STEMI patients showed trends toward higher troponin levels and lower LVEF than NSTEMI-OMI, but these differences were not statistically significant. Clinical event rates at 12 months were low across all groups, with no significant differences.
Conclusions: Our findings show that NSTEMI-OMI patients resemble STEMI patients, suggesting they may benefit from an approach similar to STEMI care. NSTEMI-OMI patients faced longer delays to angiography, though times in this cohort were still shorter than usual benchmarks, which could underestimate the potential impact of reclassification. While the OMI paradigm is promising, it faces challenges in application. Unlike STEMI, it lacks randomized validation, and ECG criteria are not fully standardized. The troponin thresholds used to define OMI may contribute to overclassification, as seen in our cohort with a significant percentage of patients classified as OMI despite normal TIMI flow. AI-driven tools capable of detecting subtle ECG changes could complement this paradigm, improving early diagnosis and intervention. The OMI paradigm highlights critical gaps in ACS management and has the potential to improve risk stratification. Further validation is essential to refine its application and maximize its clinical impact.

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Sala D. Maria | Sessão de Comunicações Orais 05 – Avanços na gestão do ritmo cardíaco: um olhar sobre as inovações e os resultados do *pacing*

CO 21. LEFT BUNDLE BRANCH PACING AND MECHANICAL DESYNCHRONY: A REAL-WORLD PERSPECTIVE

Margarida de Castro, Luísa Pinheiro, Mariana Tinoco, Emídio Mata, Lucy Calvo, Cláudia Mendes, Assunção Alves, Sílvia Ribeiro, Olga Azevedo, Victor Sanfins, João Português, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: Left Bundle Branch (LBB) Area Pacing (LBBAP) is a pacing technique designed to mitigate the adverse effects of right ventricular pacing. It is believed to preserve inter- and intraventricular synchrony and reduce QRS duration (QRSd).
Objectives: To evaluate the performance and success rate of LBBAP in a real-world population. To compare the results of LBBAP under unipolar and bipolar configuration. To assess the effect of LBBAP on mechanical dyssynchrony (MD) in the subset of patients (pts) with intraventricular conduction disturbances (IVCD).
Methods: Retrospective study of pts undergoing LBBAP (intention-to-treat) for bradycardia indication. Performance, success rate and complications are described. In pts with baseline QRS > 110 ms, QRSd after LBBAP was measured and compared under unipolar and bipolar configuration. In the subset of pts with IVCD, echocardiographic (echo) evaluation of MD was performed offline by 2 independent observers in 3 scenarios: baseline rhythm and under unipolar and bipolar configuration. MD was defined using septal flash (SF) and interventricular mechanical delay (IVMD) > 40 ms.
Results: Of the 68 pts enrolled, LBBAP was successfully performed in 86.8% (n = 59). Median left ventricular activation time (LVAT) was 72.05 ± 1.65 ms. One septal lead displacement and 2 cases of loss of LBB capture criteria occurred during a mean follow-up (FU) of 11.85 ± 0.86 months. Ventricular threshold showed stability over time. Ventricular lead impedance decreased significantly (p < 0.001) while R wave amplitude increased (p < 0.001). Pts with a baseline QRS > 110 ms (n = 31) exhibited a significant reduction in QRSd (134 ± 28 vs. 120 ± 4; p = 0.002), particularly those with LBB block (LBBB). No significant difference was observed between bipolar and unipolar (p = 1.000). A subset of 14 pts with IVCD (3 with right bundle branch block (RBBB) and 11 with LBBB) underwent echo analysis of MD. At baseline, QRSd was 155.50 ms (IQR 24.25) and left ventricular ejection fraction (LVEF) was 56.7% ± 2.19. With LBBAP, LVEF remained stable. Regarding interventricular desynchrony, a significant reduction in IVMD was shown (p =.003) with both polarities (42 ± 52 ms vs. 18 ± 31ms in unipolar; vs. 10 ± 15 ms in bipolar) with a greater number of pts losing MD criteria with bipolar configuration (p =.004). SF resolved significantly with LBBAP (p = 0.030) on both polarities, especially under unipolar (p = 0.028).
Conclusions: LBBAP demonstrated high success rates and reduced QRSd, with minimal complications. Polarity configuration showed no significant impact on MD. Given that the unipolar configuration leads to greater battery drain, the polarity must be defined case by case in order to guarantee greater optimization of MD. MD improved in pts with IVCD, so LBBAP may be preferable to minimize the risk of LV dysfunction mediated by dyssynchrony in these pts. More research with larger samples is needed for robust conclusions.

CO 22. LEFT BUNDLE BRANCH AREA PACING: LONGITUDINAL DATA ON PACING EFFICACY

Joana Certo Pereira, Rita Barbosa Sousa, Daniel A. Gomes, Francisco Moscoso Costa, Gustavo Rodrigues, Daniel Matos, João Carmo, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Francisco Belo Morgado, Pedro Adragão

ULS Lisboa Ocidental, Santa Cruz.

Introduction: Left bundle branch area pacing (LBBAP) has gained recognition as a technique for physiological ventricular pacing that maintains left ventricular (LV) synchrony. Although procedural characteristics are increasingly documented, information on longer terms lead stability remains scarce. We aimed to evaluate the procedural features and the stability of pacing parameters over a mid-term follow-up.
Methods: Single centre prospective study including consecutive patients undergoing LBBAP from 2021 to 2024. Data on procedural characteristics, lead parameters, and final QRS duration were gathered immediately post-implantation and throughout follow-up. Criteria for confirming conduction system capture with LBBAP was defined according to current recommendations. Patients with > 1 year of follow-up were invited to undergo an echocardiogram to assess follow-up left ventricular ejection fraction (LVEF).
Results: Overall, 205 consecutive patients were included (mean age 77 ± 12 years and 64% male). Procedural duration was 63 min (IQR 51-80) and fluoroscopy time was 4.9 min (IQR 2.9-7.8). Median LVAT was 86 ms (IQR 78-96), paced QRS immediately after implantation was 112 ms (IQR 104-120) and interpeak V1-V6 was 38 ms (30-44). Acute R-wave amplitude and pacing threshold were 11.4 mV (IQR 6.9-15.7) and 0.5 mV (IQR 0.5-0.7), respectively. One case of in-hospital ischemic stroke associated with withholding anticoagulation in a patient with atrial fibrillation was reported at discharge. No other major complications were reported. Over a median follow-up of 7.9 months (IQR 2.3-15.3), both the pacing threshold (0.6 mV [IQR 0.5-0.75]) and R-wave amplitude [12.3 mV (IQR 9.0-19.3)] remained stable. QRS duration, a surrogate of LV synchrony, remained narrow: 120 ms [IQR 110-122]. In the

Figure 1. Lead parameters, final QRS complex duration and left ventricular ejection fraction collected immediately after implantation and during follow-up.

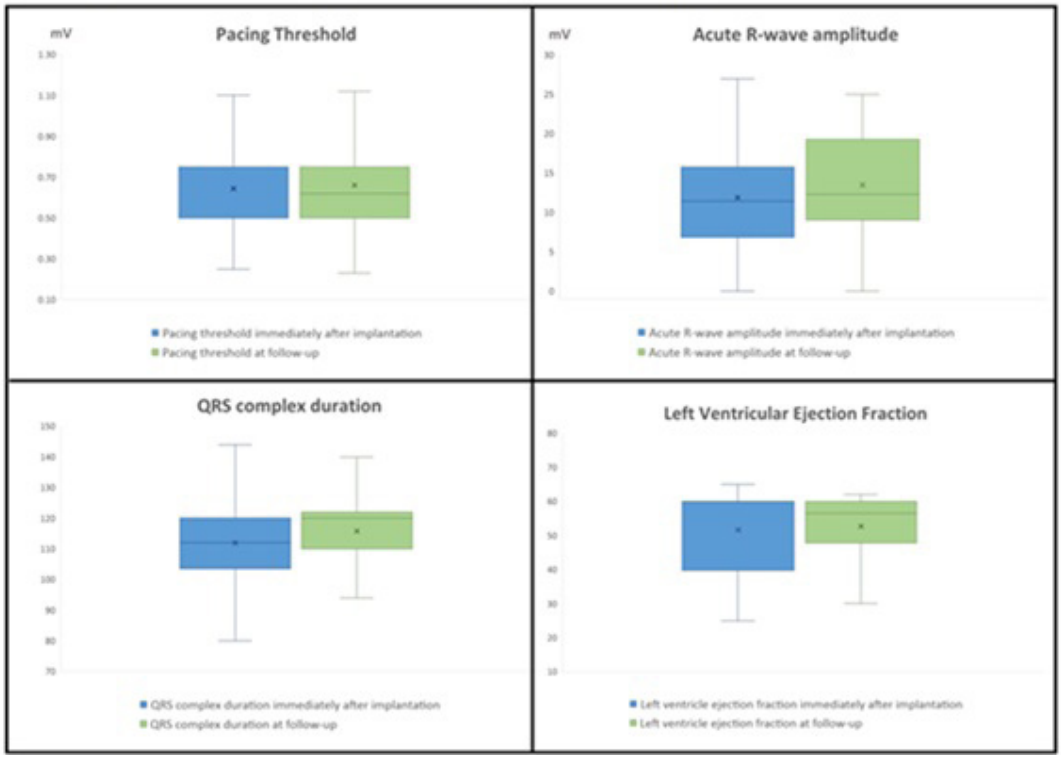


Figure CO22

subgroup with > 1 year of follow-up, 42 patients underwent LVEF assessment [median follow-up of 18 months (IQR 11-27)]. LVEF did not differ significantly from baseline (60% [IQR 40-60%] vs. 57% [IQR 48-60%], p = 0.861). Ventricular pacing dependency was 60% (IQR 8-98). Notably, 6 out of 10 patients (60%) with reduced baseline LVEF showed improvement, achieving an LVEF of > 40% at follow-up (mean LVEF improved from 33 ± 5% to 50 ± 6%, p < 0.001).
Conclusions: In this cohort, LBBAP proved feasible, demonstrating excellent pacing parameters that remained stable throughout the mid-term follow-up. QRS duration did not differ during follow up and LVEF did not change significantly after 1 year of implantation, with most patients with reduced baseline LVEF showing improved ventricular function.

CO 23. ADOPTION OF AN ECHO-GUIDED AXILLARY PUNCTURE WORKFLOW IS ASSOCIATED WITH FASTER PROCEDURAL DURATION IN TRANSVENOUS PACEMAKER IMPLANTATION

Guilherme Portugal, Francisco Barbas Albuquerque, Cátia Guerra, Rita Contins, Manuel Brás, Ana Sofia Delgado, Margarida Paulo, Sofia Jacinto, Pedro Silva Cunha, Rui Cruz Ferreira, Mario Martins Oliveira

Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Echo-guided venous access for the implantation of transvenous leads in cardiac device recipients is a class I recommendation in the current EHRA guidelines. However, many centers are still performing conventional anatomical or fluoro-guided venous puncture due to barriers related to equipment availability, operator learning curve and subjective perception of a longer procedural time. Our aim was to analyze the impact of the systematic adoption of an echo-guided workflow on transvenous pacemaker (PM) implantation.
Methods: We retrospectively analyzed a cohort of patients (P) submitted to transvenous PM lead implantation employing an axillary echo-guided puncture. An historical cohort from 2019 to 2021 was employed as a control group. Baseline characteristics, procedural data and outcomes were reviewed. Multivariate linear regression analysis was employed to determine baseline predictors of procedural duration.
Results: A total of 530 PM implantations were included, of which 59% were dual-chamber (DDD) corresponding to 841 implanted leads. The mean age was 79.4 ± 10.4 years and 41.1% were male. The indication for pacing was atrioventricular block in 67.2%, sinus node disease in 20.5% and binodal disease in the remaining 12.2%. There were 392 patients in the conventional group and 138 in the echo-guided group. No significant differences were observed between groups regarding baseline characteristics (p = ns for all). Axillary access was successful in 137 patients (99.2%), with one bailout to a cephalic cutdown technique. Two pneumothoraxes were observed in the conventional group and one pneumothorax in the echo-guided group (p = NS), while using the short-axis technique in the initial 30 patients. No other complications were observed after switching the echo-guided approach to a long-axis technique. Mean procedural duration for all P was 47.9 ± 22.7 minutes, which was 6.3 minutes lower in the echo-guided group (43.1 ± 21.4 vs. 49.5 ± 22.9; p = 0.004). After multivariate linear regression analysis, DDD PM (7.9 ± 2.0 mins, p < 0.001) and echo-guided puncture (-5.9 ± 2.2 mins, p = 0.007) were the only significant predictors of procedural duration.
Conclusions: The adoption of an echo-guided workflow for the implantation of transvenous leads has a high success rate and is associated with a decrease in procedural duration, even when considering the initial learning curve.

CO 24. PREDICTORS AND PROGNOSIS OF LEAD RELATED TRICUSPID REGURGITATION

Marta Miguez Vilela, Catarina Gregório, Joana Rigueira, João Cravo, Daniel Cazeiro, Pedro Alves Silva, Daniel Caldeira, Rui Plácido, João Agostinho, Fausto Pinto, Catarina Sousa

Department of Cardiology, Centro Hospitalar Universitário Lisboa Norte, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

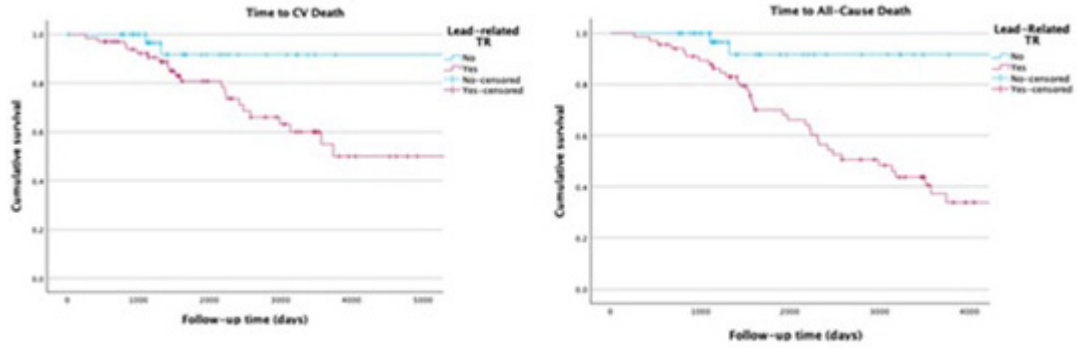


Figure 1 – Survival Analysis: Impact of Lead-Related TR on CV and All-Cause Death

Figure CO24

Introduction: Tricuspid regurgitation (TR) is a known post procedure complication of cardiac implantable electronic device (CIED) implantation, with reported prevalences up to 45%. Limited data that predicts which patients will develop this complication exists. Lead related TR is an independent predictor of poor prognosis, associated with higher rates of heart failure (HF) hospitalizations and mortality. Our study aimed to identify predictors of increased risk of lead related TR and its impact on cardiovascular outcomes during follow-up.
Methods: Single center, retrospective study of patients with device implantation between 2010 and 2024 with a pre and post procedure transthoracic echocardiogram (TTE). The population was divided in 2 groups: Group 1 with lead related TR according to established criteria. The control group consistent of patients with mild TR before and after CIED implantation. Patients with at least moderate TR before CIED implantation were excluded. Time to first urgent care visit/admission for HF and death (all-cause and cardiovascular) were evaluated with the use of Kaplan-Meier estimates and Cox proportional-hazards models.
Results: A total of 108 pts (68 in Group 1) were included, 63% male with a mean age of 73 ± 12 years. Median follow-up time was 5.9 years. The most common implantable devices were conventional single and dual-lead pacemakers (45%), followed by CRT-D (30%). Variables such as age (OR 1.109, atrial fibrillation (AF) (OR 23.033) and a QRS interval ≥ 150 ms (OR 5.631) post CIED implantation were independent predictors for development of lead-related TR. Regarding outcomes, in univariate analysis, patients with lead-related TR had an increased risk for cardiovascular death (23 pts (34%) in group 1 vs. 2 pts (5%) in the control group [HR 4.794, CI 1.121-20-502]). There were no statistically significant differences regarding urgent care visit/hospitalization for HF in these 2 groups. Finally, the presence of CIED related TR was independently associated with shorter CV survival, when adjusting for: age, gender, RV/LV function, AF and device type (HR 5.083, 95% [CI],1.091-23.678, p = 0.038).
Conclusions: Our study showed that CIED-related TR was an independent risk factor for CV mortality. Key predictors include advanced age, AF, and a post-implant QRS interval ≥ 150 ms, suggesting the means for an early identification of patients at risk to further optimize care.

CO 25. VENTRICULAR PACING RATE AND VENTRICULAR PACING DEPENDENCY IN PATIENTS REQUIRING PERMANENT PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Miguel Abrantes de Figueiredo, Inês Rodrigues, Fernando Ferreira, Mariana Coelho, Francisco Albuquerque, André Grazina, Tiago Mendonça, António Fiarresga, Rúben Ramos, Mário Oliveira, Rui Cruz Ferreira, Duarte Cacela

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Conduction disturbances requiring permanent pacemaker implantation (PPI) are a common complication of Transcatheter Aortic Valve Replacement (TAVR). Recently, it has been suggested that pacing dependency may decrease over time.
Objectives: To evaluate the dynamic evolution and predictors of adequacy of PPI after TAVR through an analysis of the ventricular pacing rate (VPR) and pacemaker dependency (PD) during the first year after PPI.
Methods: A retrospective analysis of all patients who underwent TAVR until November 2023 in one high-volume tertiary care center in Portugal was conducted. The VPR of the patients that were submitted to PPI after TAVR was analyzed at 3 distinct moments; during hospitalization, 1 month and 1 year after PPI. PMD was defined using a VPR cut-off of 80%. Patients with previous PPI, indication for PPI pre-TAVR and indication for cardiac resynchronization therapy were excluded.
Results: Of the 971 patients included, *de novo* PPI was conducted in 199 cases (implantation rate - 22.2%), on average 4 days after TAVR. VPR analysis showed a bimodal distribution, with rates predominantly over 80% and below 20%, with a reduction in VPR over time (Figure 1). During hospitalization, 57.7% of patients had a VPR over 80% and 17.6% had a VPR of less than 20% (median VPR of 99%). At 1 month, 46.7% had a VPR over 80% and 24.7% had a VPR of less than 20% (median VPR of 80%). Finally, at 1 year, only 33% had a VPR over 80% and 27.5% had a VPR of less than 20% (median VPR of 55%). Approximately 30% of the cases were "pacemaker dependent" in all the

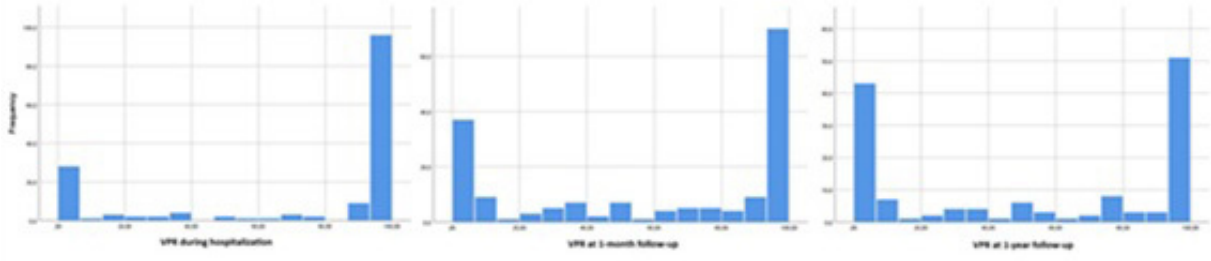


Figure 1: Evolution of VPR over the 1-year follow-up after PPI for conduction disturbances after TAVR. PPI (permanent pacemaker implantation); TAVR (transcatheter aortic valve replacement); VPR (ventricular pacing rate)

Figure CO25

evaluations and 20% were "never dependent". Previous complete right bundle branch block, occurrence of complete AV block and earlier PPI (especially within the first 24 hours) were significantly correlated with PMD across all VPR evaluations, with complete AV block during TAVR procedure being the sole independent predictive factor (OR 3.638 [95%CI: 1.388-9.533]; p = 0.009).
Conclusions: In a large cohort of P receiving PPI after TAVR, VPR and PD diminished over time during the first year of follow-up. Complete AV block during TAVR was the most powerful predictor of long-term PD.

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Sala Infante | Sessão de Comunicações Orais 06 – Explorando a amiloidose cardíaca: inovações no diagnóstico, prognóstico e tratamento

CO 26. DIFFERENTIATING TRANSTHYRETIN CARDIAC AMYLOIDOSIS AMONG LEFT VENTRICULAR HYPERTROPHY PHENOTYPES: THE ROLE OF RIGHT AND LEFT VENTRICULAR GLOBAL LONGITUDINAL STRAIN

André Manuel Faustino Martins, Adriana Vazão, Joana Pereira, Mónica Amado, Carolina Gonçalves, Mariana Carvalho, Margarida Cabral, Célia Domingues, Catarina Ruivo, Hélia Martins

ULSR Leiria.

Introduction: Left ventricular hypertrophy (LVH) may result from various cardiomyopathies, complicating the differentiation of transthyretin cardiac amyloidosis (ATTR-CA) from other LVH phenotypes. The overlap in echocardiographic features can hinder timely diagnosis and limit access to targeted therapeutic interventions.
Objectives: Assess the diagnostic accuracy of right ventricular (RV) and left ventricular (LV) global longitudinal strain (GLS) to discriminate ATTR-CA in patients (pts) evaluated for suspected CA at a Cardiomyopathy Clinic in a regional hospital in Portugal.
Methods: Retrospective single-center study of 96 adult pts followed from 2018 to 2024. Inclusion criteria: pts aged ≥ 60 years with LV wall thickness ≥ 12 mm and at least one cardiac/extracardiac red flag for CA. Baseline clinical data were collected, and speckle tracking echocardiography was used to analyze RV and LV GLS at the time of diagnosis. Pts were classified in the ATTR-CA group (group 1) and the non-ATTR-CA group (group 2) according to the ESC algorithm for the diagnosis of ATTR-CA. Group comparisons were performed.
Results: 96 pts were included (median age 79 [IQR 10] yrs, 77% male). Following the diagnostic workup, 52 pts (54%) were assigned to group 1, and 44 pts (46%) to group 2, which included 19 with hypertrophic cardiomyopathy, 13 with hypertensive heart disease, 3 with valvular heart disease, and 9 with multifactorial heart disease. Group 1 pts were older (81 [IQR 8] vs. 78 [IQR 10] yrs, p = 0.006) and more frequently had overweight (58 vs. 32%, p = 0.011) and chronic kidney disease (62 vs. 39%, p = 0.025). Regarding heart failure characterization, the majority of pts had a LV ejection fraction > 50% (67 vs. 84%, p = 0.06). Pts with CA had greater interventricular septum thickness (18.5 ± 3.2 vs. 15.7 ± 2.8 mm, p < 0.001), lower RV GLS (-11.2 ± 4.1 vs. -15.0 ± 4.1%, p < 0.001) and lower LV GLS (-9.8 ± 2.9 vs. -13.4 ± 4.1%, p < 0.001). LV and RV GLS showed adequate diagnostic accuracy (AUC 0.743 vs. 0.770, respectively; p < 0.001), with LV GLS ≥ -11.7 yielding 81% sensitivity and 66% specificity, and RV GLS ≥ -15.5 yielding 92% sensitivity and 48% specificity for identifying ATTR-CA. Multivariate logistic regression identified lower LV and RV GLS as independent predictors of ATTR-CA (Table 1B).
Conclusions: In this population, pts with ATTR-CA had notably lower RV and LV GLS values compared to non-ATTR-CA pts, with both parameters showing comparable diagnostic accuracy for identifying the disease.

CO 27. ECHOCARDIOGRAPHIC PREDICTORS OF DEATH IN WILD-TYPE TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

Luísa Pinheiro, Margarida de Castro, Emídio Mata, Bárbara Lage Garcia, Tamara Pereira, Filipa Cordeiro, Olga Azevedo, António Lourenço

Hospital da Senhora da Oliveira, EPE-Guimarães.

Introduction: Wild-type transthyretin amyloid cardiomyopathy (wtATTR-CM) is associated with high mortality. Although staging systems using biomarkers like NT-pro-B-type natriuretic peptide (NTproBNP) and estimated glomerular filtration rate (eGFR) have been used to assess disease severity, accurately predicting the prognosis in wtATTR-CM remains a challenge. Echocardiographic parameters, however, offer valuable insights into the prognosis of these patients.
Objectives: This study aimed to assess the impact of echocardiographic parameters on the prognosis of wtATTR-CM patients.
Methods: Retrospective, single-center study of patients with diagnosis of wtATTR-CM between 2014 and 2024. The primary endpoint was the death from any cause. Baseline echocardiographic parameters were compared between patients who reached the primary endpoint and those who did not. ProBNP and eGFR values were also assessed. Regression analyses were performed to identify independent predictors of death.
Results: A total of 111 patients were included in the study (74% males; mean age 81 ± 5 years). Median follow-up was 31 [IQR 16-39] months. In this study, forty-six patients (41%) achieved the primary endpoint. Patients who achieved the primary endpoint had significant higher prevalence of significant aortic stenosis (AS), defined by moderate or severe AS (59 vs. 37.5%, p = 0.031). These patients also had higher interventricular septal wall thickness (19 ± 3.6 vs. 17.7 ± 3.1, p = 0.041) and average E/e' (18.2 ± 4.4 vs. 13.5 ± 6.2, p < 0.001). They exhibited worse right ventricular global longitudinal strain (RV GLS) (-10.4 ± 4.3 vs. 12.7 ± 4.6%, p = 0.010), tricuspid annular plane systolic excursion (TAPSE) (16.2 ± 4.6 mm vs. 18.4 ± 4.5 mm, p = 0.016), left ventricular global longitudinal strain (LV GLS) (-10.2 ± 4.1 vs. -11.8 ± 3.6%, p = 0.034), peak atrial longitudinal strain (PALS) (7.8 ± 5.1 vs.11.5 ± 6.2, p = 0.002) and left atrium total emptying fraction (LATEF) (24.3 ± 12.3 vs. 34 ± 14.4%, p < 0.001). Multivariate regression analysis, that included ProBNP and eGFR, revealed that average E/e' (HR 1.17, 95%CI 1.04-1.33, p = 0.013) and RV GLS (HR 0.82, 95%CI 0.67-0.99, p = 0.045) were independent predictors of death.
Conclusions: These findings highlight the potential role of RV GLS and E/e' in assessing the prognosis of wtATTR-CM patients. Such echocardiographic parameters could be further integrated into existing staging system to better predict outcomes and guide clinical management.

CO 28. PREDICTORS OF ATRIAL FIBRILLATION IN WILD-TYPE TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

Luísa Pinheiro, Margarida de Castro, Emídio Mata, Barbara Lage Garcia, Tamara Pereira, Filipa Cordeiro, Olga Azevedo, António Lourenço

Hospital da Senhora da Oliveira, EPE-Guimarães.

Introduction: In wild-type transthyretin amyloid cardiomyopathy (wtATTR-CM) the cardiac infiltration by amyloid fibrils leads to increased stiffness of the atrial walls and diastolic dysfunction. This leads to a high prevalence of atrial fibrillation (AF) in these patients.
Objectives: To identify predictors of AF occurrence in patients with wtATTR-CM.
Methods: Retrospective, single-center study of patients with the diagnosis of wtATTR-CM between 2014 and 2024 who were in sinus rhythm at the time of the diagnosis. Data on clinical, laboratory, and echocardiographic parameters were collected and compared between patients who developed

(A)

	Total (n=96)	Group 1 (n=52)	Group 2 (n=44)	p-value
Male gender – n (%)	74 (77)	48 (92)	26 (59)	**<0.001[a]**
Age at diagnosis (yrs) – median (IQR)	79 (10)	81 (8)	78 (10)	**0.006[b]**
Past medical history – n (%)				
Overweight	44 (46)	30 (58)	14 (32)	**0.011[a]**
Hypertension	81 (84)	42 (80)	39 (89)	0.290[a]
Dyslipidemia	77 (80)	40 (77)	37 (84)	0.380[a]
Atrial fibrillation	67 (70)	39 (75)	28 (64)	0.227[a]
History of CAD	20 (21)	8 (15)	12 (27)	0.153[a]
Diabetes mellitus	41 (43)	24 (46)	17 (39)	0.458[a]
History of smoking	4 (4)	1 (2)	3 (7)	0.093[a]
Chronic kidney disease	49 (51)	32 (62)	17 (39)	**0.025[a]**
Asthma	4 (4)	2 (4)	2 (5)	1.000[a]
COPD	19 (20)	13 (25)	6 (14)	0.164[a]
Obstructive sleep apnea	18 (19)	9 (17)	9 (20)	0.694[a]
Prior MI	8 (8)	6 (12)	2 (5)	0.282[a]
Ischemic stroke/TIA	12 (13)	7 (13)	5 (11)	0.757[a]
Valvular heart disease	34 (35)	12 (23)	22 (50)	**0.003[a]**
Hypothyroidism	22 (23)	13 (25)	9 (20)	0.598[a]
Echocardiographic variables				
LVEF (%) – median (IQR)	54.15 (9.99)	53.0 (15.0)	58.5 (12.0)	**0.002[b]**
IVSd (mm) – mean (SD)	17.20 (3.30)	18.52 (3.16)	15.65 (2.75)	**<0.001[c]**
LVPWd (mm) – median (IQR)	14.40 (3.93)	15.84 (3.00)	12.72 (2.00)	**<0.001[b]**
RWT – median (IQR)	0.62 (0.19)	0.70 (0.17)	0.54 (0.12)	**<0.001[b]**
LV GLS (%) – mean (SD)	-11.43 (3.94)	-9.77 (2.94)	-13.39 (4.09)	**<0.001[c]**
SAB – median (IQR)	4.20 (5.29)	6.65 (7.00)	2.75 (3.00)	**<0.001[b]**
RV GLS (%) – mean (SD)	-19.92 (4.49)	-11.18 (4.06)	-14.96 (4.13)	**<0.001[c]**

(B)

Variables	OR	CI 95%	p-value
LVEF ≥ 59.5%	0.072	0.007 - 0.738	**0.027**
IVSd ≥ 15.8mm	3.191	0.556 - 18.313	0.193
RWT ≥ 0.60	54.092	6.655 - 439.662	**<0.001**
LV GLS ≥ -11.7%	9.259	1.122 - 76.379	**0.039**
SAB ≥ 3.92	69.607	7.293 - 664.384	**<0.001**
RV GLS ≥ -15.5%	25.879	2.753 - 243.232	**0.004**

Fig. 1

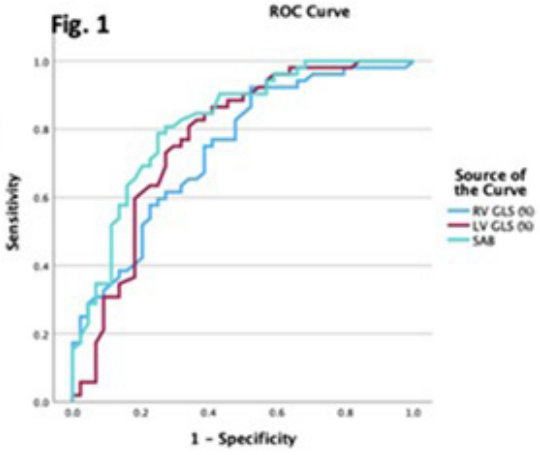


Table 1. Patient baseline characteristics and echocardiographic variables (A) and multivariate logistic regression (B). Fig. 1. ROC curve analysis. Statistical analysis: [a]Chi-square test, [b]Mann-Whitney U test, [c]t-student test. Abbreviations: **AUC** - area under the ROC curve, **CAD** - coronary artery disease, **CI** - confidence interval, **COPD** - Chronic obstructive pulmonary disease, **GLS** - global longitudinal strain, **IVSd** interventricular septum thickness end diastole, **LV** - left ventricular, **LVEF** - left ventricular ejection fraction, **LVPWd** - left ventricular posterior wall end diastole, **MI** - myocardial infarction, **OR** - odds ratio, **ROC** - receiver operating characteristic, **RV** - right ventricular, **RWT** - relative wall thickness, **SAB** - septal longitudinal systolic apex-to-base ratio, **TIA** - transient ischemic attack.

Figure CO 26

AF vs. did not develop AF. Regression analyses were used to determine the independent predictors of the primary endpoint.

Results: Out of 111 patients, 59 patients were in sinus rhythm at the diagnosis (73% males, mean age 80 ± 6 years). The median follow up was 30 [IQR 16-36] months. During follow-up 30 patients (51%) developed AF. Patients who developed AF had a higher prevalence of chronic kidney disease (CKD) (50 vs. 24%, p = 0.024). The use of spironolactone (14 vs. 37%, p = 0.044) and beta blockers (21 vs. 50%, p = 0.011) was less common in those who developed AF. Regarding echocardiographic parameters, those who developed AF had higher average E/e' (17 ± 6.5 vs. 13 ± 6, p = 0.033), worst PALS (12.1 ± 4.5 vs. 15.5 ± 6.1%, p = 0.034), PACS (-6.3 ± 3.8 vs. -9 ± 5.5%, p = 0.03) and left atrium total emptying fraction (LATEF) (35 ± 12.3 vs. 41.6 ± 12.2%, p = 0.047). On multivariate regression analysis, CKD was an independent predictor of AF (OR 6.20, 95%CI 1.276-30.142, p = 0.04). The use of beta-blockers was a protective factor against AF (OR 0.10, 95%CI 0.017-0.585, p = 0.019). Additionally, higher E/e' ratio (OR 1.17, 95%CI 1.013-1.355, p = 0.039) and worst PACS (OR 1.328, 95%CI 1.005-1.755, p = 0.046) were also independent predictors of AF.

Conclusions: The study suggests that atrial deformation analysis, along with diastolic dysfunction assessment, can be valuable tools in predicting the risk of AF in wtATTR-CM patients. The use of beta-blockers in these patients may offer a protective effect, supported by recent studies suggesting that beta-blocker therapy could provide beneficial prognostic value.

CO 29. DECODING THE DECADES: TAFAMIDIS EFFICACY ACROSS DIFFERENT AGE GROUPS IN ATTR-CM PATIENTS

Catarina Gregório[1], Ana Abrantes[1], Miguel Raposo[1], João Fonseca[1], Marta Vilela[1], Diogo Ferreira[1], João Cravo[1], Catarina Campos[2], Isabel Conceição[2], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[3]

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Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is a severe condition primarily affecting elderly patients (pts), leading to heart failure (HF) and increased mortality. In a sub-analysis of ATTR-ACT, tafamidis 61 mg demonstrated efficacy for pts with ATTR-CM both in those aged < 80 and those aged ≥ 80 years, improving quality of life and functional capacity. However, it remains unclear whether the efficacy of tafamidis varies significantly among different age subgroups within the elderly population.
Objectives: To assess the impact of tafamidis 61 mg in ATTR-CM pts aged < 75, 75-85, and > 85 years.
Methods: Single-center retrospective study of ATTR-CM pts, categorized into 3 groups based on age: < 75, 75-85, and > 85 years. Clinical, laboratory, and echocardiographic parameters were collected. Kaplan-Meier survival analysis was used to compare the composite endpoint of HF hospitalization and cardiovascular (CV) death.
Results: 89 pts with ATTR-CM were included (< 75 years: 23 pts; 75-85 years: 40 pts; > 85 years: 26 pts). Patients < 75 years had a significantly higher prevalence of hereditary ATTR-CM (p < 0.001). Effort dyspnea was the predominant initial symptom in the 75-85 and > 85-year subgroups (p = 0.002), whereas younger pts more commonly presented with carpal tunnel syndrome (p = 0.04) or sensory-motor polyneuropathy (p = 0.001). Older pts (75-85 and > 85 years) were predominantly in NYHA class II/III (p = 0.009) and required higher diuretic doses (p = 0.08), while younger pts showed better functional capacity, with a higher proportion in NYHA class I (p < 0.001). NT-proBNP levels were significantly higher in pts > 75 years (p < 0.001). At baseline, groups were comparable in LVEF and LV hypertrophy (p = NS), but global longitudinal strain was more impaired in pts > 85 years (< 75: -21.7 ± 0.8, 75-85: -14.5 ± 1.1, > 85: -10.1 ± 2.3; p = 0.039) (Table 1). During a follow-up period of 24.9 ± 2.1 months, tafamidis treatment in pts aged > 85 years was associated with a greater reduction in NT-proBNP compared to the other 2 groups (p = 0.041) and a reduction in diuretic doses compared to pts aged < 75 years (p = 0.044). However, no improvement in NYHA functional class (p = NS) or significant differences in KCCQ score were observed across the groups at follow-up (p = NS). Echocardiographic parameters remained comparable among all groups throughout the study. Similarly, the composite endpoint of HF hospitalizations and CV death showed no statistically significant differences between groups during follow-up (Log Rank 5.71, p = 0.06 (Figure 1). A sub-analysis of pts aged ≥ 90 years (all with ATTRwt) revealed outcomes consistent with the overall population, emphasizing that this very elderly subgroup also benefits from tafamidis therapy.
Conclusions: This study highlights the benefits of tafamidis in elderly pts, including those ≥ 85 years, and supports its use in all age groups to improve cardiovascular outcomes in ATTR-CM.

CO 30. AMYLOID CARDIOMYOPATHY: SPECIFICITIES OF TRANSTHYRETIN V30 MUTATION COMPARED TO WILD TYPE FORMS

Mariana Pereira Santos[1], Alexandra Pinto Pires[2], David Sá Couto[1], Diana Ribeiro[1], Pedro Monteiro[1], Tiago Peixoto[1], Andreia Campinas[1], Marta Fontes Oliveira[1], Sara Fernandes[1], Hipólito Reis[1], Severo Torres[1], Patrícia Rodrigues[1]

[1]ULS Santo António. [2]Instituto de Ciências Biomédicas Abel Salazar.

Introduction: Transthyretin amyloidosis (ATTR) results from mutations in the TTR gene (vATTR) or conformational changes in wild-type protein (wtATTR). Regarding TTR mutations, the Familial Amyloid Polyneuropathy phenotype is endemic in Portugal, with the V30M being the most common pathogenic variant. Our goal is to characterize cardiac manifestations of V30M ATTR patients, particularly amyloid cardiomyopathy (CM).
Methods: We conducted a retrospective study including patients with TTR V30M mutation, with and without CM, consecutively observed at our center in Cardiology appointments in 2019 and followed for at least 5 years. Diagnostic criteria for ATTR-CM were considered according to ESC recommendations. Data on severe aortic stenosis, atrial fibrillation (Afib) and conduction abnormalities, were also collected. "Significant conduction disease" was considered in patients with a clear recommendation for pacemaker implantation or in those whose initial indication was uncertain but who eventually required more than 10% pacing. V30M ATTR-CM patients were compared to a cohort with wtATTR-CM.
Results: We enrolled a total of 248 TTR V30M patients, with a mean age of 54 years old, mostly male (53%) and with early onset disease (< 50 years) (68%). 49 (21%) patients fulfilled the criteria for ATTR-CM diagnosis. Significant electric conduction diseases were present in 31% of patients and were notably higher within the CM group (57 vs. 25%, p < 0.001). Overall, among pacemaker carriers, only 61% (n = 77) had a significant conduction disease. Afib was noted in 11% of the entire cohort, being significantly more frequent among patients with CM (31 vs. 6%, p < 0.001). Severe aortic stenosis was rare, present in only 4 patients of the entire cohort. In comparison with a cohort of patients with wtATTR-CM (n = 44), patients with V30M vATTR-CM were significantly younger and had more electric conduction abnormalities and orthostatic hypotension. On the other hand, AFib, systolic dysfunction and hypertension were less frequent, which parallelled with lower levels of NT-proBNP and troponin T (Table 1).

	<75 years (n= 23)	75-85 years (n=40)	>85 years (n=26)
Male, n (%)	21 (91)	36 (90)	19 (73)
ATTRwt, n (%)	3 (13)	19 (48)	15 (58)
NYHA class – T0, n (%)			
I	15 (65)	10 (25)	2 (8)
II	6 (26)	24 (60)	19 (73)
III	2 (9)	6 (15)	5 (19)
NYHA class – T1, n (%)			
I	15 (65)	11 (28)	3 (12)
II	7 (30)	28 (70)	21 (80)
III	1 (4)	1 (2)	2 (8)
KCCQ score – T1, n	329.6±29.2	306.4±25.7	264.1±41.7
Δ NTproBNP, pg/mL	-386.9±464.6	-72.7±766.6	1931.4±1443.4
Δ Furosemide, mg	5.7±3.6	5.3±4.6	-1.1±4.5

Table 1 – Demographic Characteristics of the ATTR-CM Population Under Tafamidis Therapy by Age Group

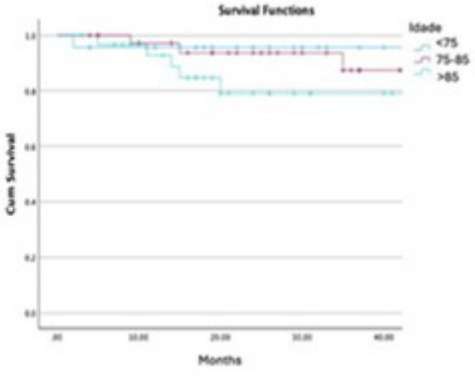


Figure 1 – Time to Event Analysis of Cardiovascular Death and Heart Failure Hospitalization Across Three Age Groups

CO29 Figure

Table 1 - Comparative characteristics of patients with vATTR-CM (V30M) and wtATTR-CM

	wtATTR-CM (n=44)		vATTR-CM V30M (n=49)		p value
	n	%	n	%	
Mean age, years (±SD)	80.7	(6.7)	62.4	(13.7)	**<0.001**
Mean age at presentation, years (±SD)	76.8	(5.3)	47.0	(17.2)	**<0.001**
Median disease duration, years (IQR)	3.5	(2.8)	12.0	(16.0)	**<0.001**
Early-onset (< 50 years)	0	0	28	59.6	**<0.001**
Males	43	97.7	38	77.6	**0.004**
Severe aortic stenosis	6	13.6	2	4.1	0.143*
Orthostatic hypotension	2	4.5	27	55.1	**<0.001**
Hypertension	32	72.7	8	16.3	**<0.001**
Atrial fibrillation	30	68.2	15	30.6	**<0.001**
Any conduction disease	22	50.0	39	79.6	**0.003**
Significant conduction disease	10	22.7	28	57.1	**<0.001**
Pacemaker	11	25.0	34	69.4	**<0.001**
LV hypertrophy	44	100.0	49	100.0	-
Median max wall thickness, mm (IQR)	18	(4)	14	(3)	**<0.001**
Median LV mass, g/m2 (IQR)	171	(65)	125	(55)	**<0.001**
Median LA volume, ml/m2 (IQR)	54	(18)	39.5	(10)	**<0.001**
Mean LVEF, % (±SD)	43	(11.4)	60	(9.0)	**<0.001**
LV systolic dysfunction	29	65.8	5	10.2	**<0.001***
LV diastolic dysfunction	4	21.1	6	12.2	0.678*
Median NT-proBNP, pg/ml (IQR)	2701	(10096)	839	(1988)	**<0.001**
Median troponin T, ng/L (IQR)	81	(72.5)	31.5	(32.0)	**<0.001**
Mean creatinine clearance, ml/min (±SD)	50	(23)	82	(25)	**<0.001**
Other manifestations					
- Neurological	3	12.0	44	89.8	**<0.001**
- Gastrointestinal	0	0	24	49.0	**<0.001**
- Ophthalmological	1	3.6	15	30.6	**0.005**
- Renal	0	9	7	14.3	**0.044***
- Urological	0	0	17	34.7	**<0.001**
Mean BMI, kg/m2 (±SD)	25.5	3.3	24.4	4.4	0.178

*Fisher's exact test

Abbreviations: IQR, interquartile range; LA, left atria; LV, left ventricle; LVEF, left ventricle ejection fraction; SD, standard deviation

Conclusions: Our findings highlight the need for thorough cardiovascular evaluation in TTR V30M patients due to frequent conduction disease and CM. V30M ATTR-CM patients are younger, have more conduction abnormalities, and a lower prevalence of AFib compared to those with wtATTR-CM. Further prospective studies are needed to explore differences in CM between variant and wild-type cases.

Sexta-feira, 11 Abril de 2025 | 15:00-16:00

Espaço Ágora | Sessão de Comunicações Orais 07 – Prémio Ferrer melhor comunicação oral em prevenção secundária

CO 31. IMPACT OF LIPOPROTEIN A ON LONG-TERM OUTCOMES IN ACUTE CORONARY SYNDROME: A RETROSPECTIVE COHORT ANALYSIS

Cátia Oliveira, Ana Pinho, Catarina Marques, Luís Santos, André Cabrita, Helena Moreira, Pedro Palma, Miguel Rocha, Bernardo Cruz, Emanuel Oliveira, Joana Gonçalves, Rui André Rodrigues

Centro Hospitalar Universitário do Porto EPE.

Introduction: Lipoprotein(a) [Lp(a)] has emerged as an important cardiovascular risk factor (CVRF). Higher Lp(a) levels (> 50 mg/dL) have been linked to increased CV risk, but the exact cut-off and its impact on outcomes remain unclear. This study aimed to examine the effect of high Lp(a) on post-acute coronary syndrome (ACS) complications and outcomes during follow-up.
Methods: This retrospective cohort study included 225 patients (pts) admitted with ACS between January 2020 and October 2023 at a tertiary care center. Lp(a) levels were measured on admission, and the analysis focused on pts with Lp(a) > 50 mg/dL. Data was obtained from medical records, and follow-up outcomes were assessed.
Results: The cohort had a mean age of 56.8 years, with 18.7% women and a high prevalence of CVRF (96%). Of the patients, 48% had non-ST-segment elevation ACS and 52% had ST-segment elevation ACS. The median follow-up was 26 months, with a median Lp(a) level of 36.6 mg/dL. Among the 87 pts with Lp(a) > 50 mg/dL, no significant differences were observed in baseline characteristics compared to Lp(a) < 50 mg/dL pts, especially regarding LDL-c levels at admission (p = 0.6), except for a higher prevalence of family history of premature coronary heart disease (CHD) (p = 0.04). Patients with higher Lp(a) were more likely to be on dyslipidemia medications prior to the index event (p = 0.02) and were more often prescribed higher-intensity regimens (p < 0.001). In terms of in-hospital outcomes, both groups were comparable regarding coronary angiography (p = 0.3), revascularization (p = 0.7), Killip classification (p = 0.3), left ventricular dysfunction (p = 0.1), and immediate post-ACS complications (p = 0.9). However, pts with elevated Lp(a) showed more complex coronary disease, with higher rates of multivessel involvement (p < 0.01). During long-term follow-up, the high Lp(a) group had a significantly higher rate of CV events (log-rank p = 0.03), with a mean time-to first-CV-event of 23.5 months. A total of 10.7% of the cohort experienced a CV event, including a new ACS episode (5.3%) and heart failure hospitalization (4.1%). All-cause mortality was 5.4%, with 3.2% attributed to cardiovascular death.

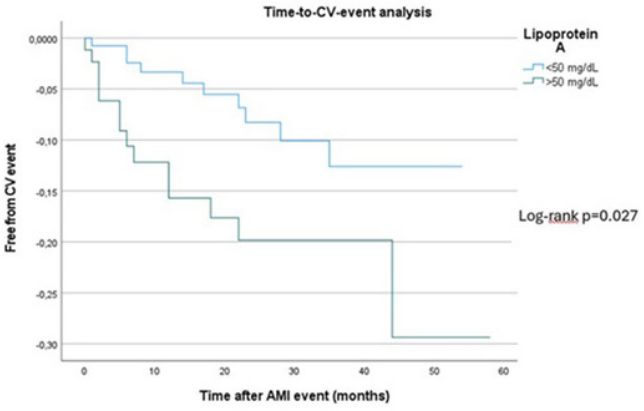


Figure 1. Time-to-event analysis

Conclusions: In this cohort of ACS patients, elevated Lp(a) levels (> 50 mg/dL) were associated with worse long-term CV outcomes, despite similar baseline characteristics, including lipid levels at admission. Additionally, elevated Lp(a) was linked to a higher incidence of a family history of premature CHD, suggesting a genetic predisposition. These findings highlight the importance of Lp(a) in identifying high-risk ACS patients who may require closer monitoring and more aggressive CV risk management. Further studies are needed to confirm these results and explore therapeutic strategies for managing elevated Lp(a) in this high-risk subgroup.

CO 32. CORONARY ARTERY DISEASE AND THE BAD DUAL: HOMOCYSTEINE AND LIPOPROTEIN (A)

Francisco Sousa[1], Maria Isabel Mendonça[2], Débora Sá[1], Gonçalo Abreu[1], Matilde Ferreira[1], Eva Henriques[2], Sofia Borges[2], Sónia Freitas[2], Mariana Rodrigues[1], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Central do Funchal. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

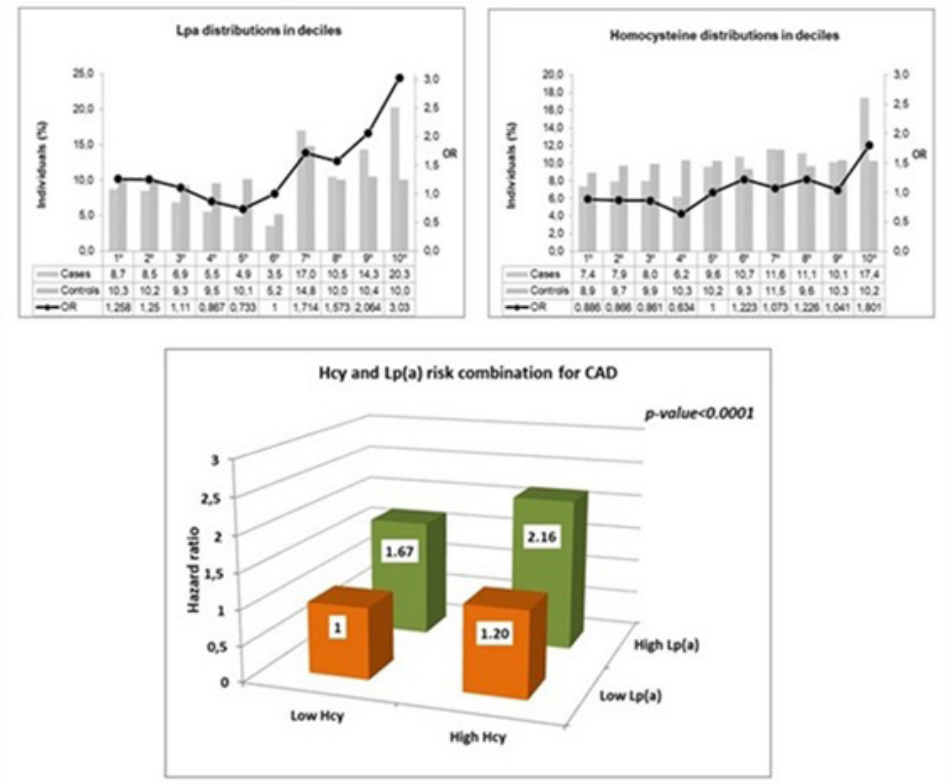


Figure CO32

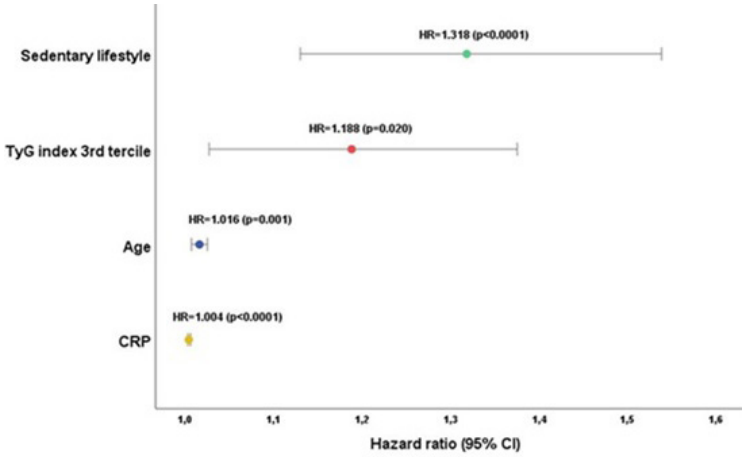
Introduction: High homocysteine (Hcy) and Lipoprotein [Lp(a)] levels are independent risk factors for coronary artery disease (CAD) through several mechanisms, such as endothelial dysfunction, increased permeability of lipids and inflammation. It promotes the release of free Apo(a) from Lp(a). Free Apo(a) has high fibrin affinity and inhibits plasminogen binding, altering fibrinolysis. Identifying individuals with the dual risk focus on preventive measures might decrease the risk of this atherothrombotic disease.
Objectives: Evaluate Hcy and Lp(a) as independent risk factors for CAD in a Portuguese population, establishing the cut-off value for the appearance CAD in our population. Finally, investigate whether there is a positive interaction between these two markers.
Methods: We performed a case-control study with 1722 coronary patients and 1435 controls (aged 53.0 ± 7.8 years; 77.6% male) matched by sex and age. Hcy and Lp(a) levels were determined and stratified into deciles. Multivariate logistic regression adjusted for age and gender was performed using Hcy and Lp(a) deciles to investigate the independent risk of CAD. Our disease cut-off is the point along the deciles when the risk begins. Finally, a second regression analysis was performed with Hcy and Lp(a) combination and adjusted for age, sex, smoking, hypertension, diabetes, dyslipidemia, BMI ≥ 30 Kg/m^2, physical inactivity and CAD family history to evaluate their synergistic interaction.
Results: After a multivariate regression concerning Hcy, the first four deciles (lower values) presented CAD protection. From this point (fifth decile), the CAD risk begins, and as Hcy levels increase, CAD risk also increases. In the 10th decile, the CAD risk was 80% higher than the reference. In the case of Lp(a), the 6th decile was the reference, starting the significant risk below these. On the 10th, CAD risk was 200% higher than the reference. The combination of Hcy and Lp(a) higher values had an increased risk of 2.16 (95%CI: 1.73-2.69; p < 0.0001).
Conclusions: High levels of Lp(a) and Hcy were independent risk factors for CAD in our population. There was an interaction between Lp(a) and Hcy that significantly potentiates the CAD risk. These findings highlight the importance of identifying individuals with this dual risk factor of elevated Hcy and Lp(a) to focus on preventive measures that might decrease the CAD risk in our population. This interaction deserves to be investigated in relation to other ethnicities.

CO 33. ASSOCIATIONS BETWEEN AN INSULIN RESISTANCE INDEX AND SUBCLINICAL ATHEROSCLEROSIS PROGRESSION IN A CORONARY POPULATION

Gonçalo Bettencourt Abreu[1], Isabel Mendonça[2], Débora Sá[1], Francisco Sousa[1], Matilde Ferreira[1], Eva Henriques[2], Sofia Borges[2], António Drummond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Universidade NOVA de Lisboa.

Introduction: Insulin resistance (IR), with its myriad proatherogenic effects, is a relevant risk factor for atherosclerosis. The triglyceride-glucose index (TyG) is a marker of IR and subclinical atherosclerosis. Its potential in coronary artery disease (CAD) prognostic assessment has little been explored, but the evidence suggests significant potential.
Objectives: Investigate the association between an IR index, triglyceride-glucose index (TyG), and cardiovascular and non-vascular events in a coronary population.
Methods: We included 1719 coronary patients with at least 70% stenosis in one or more main coronary arteries or their primary branches on coronary angiography. These patients were in stabilized phase after appropriate interventional approach (angioplasty with coronary stenting), coronary artery bypass graft (CABG) surgery and suitable medical therapy despite some residual Ischemia. Total events, including cardiovascular (CV) events, and non CV mortality were registered throughout an extended follow-up (average 7.0 ± 5.7 years). TyG was calculated through the formula ln[Triglyceride mg/dl*fast blood glucose (FBG) mg/dl)/2], which was subsequently stratified into terciles. All analyses were performed using the TyG 3rd tercile relatively to 1st. Bivariate analysis evaluated its association with other markers: pulse wave velocity (PWV), fibrinogen, C reactive protein (CRP), and clinical variables. A multivariate Cox regression analysis assessed the variables associated with total events.
Results: TyG was associated with PWV (p < 0.0001), CRP (p < 0.0001), kidney failure (p < 0.0001), peripheral vascular disease (p < 0.0001), stroke (p < 0.0001), CV events (p = 0.001), and total events (p < 0.0001) in bivariate analysis. After



Variables independently associated with total events (Cox regression analysis)

Figure CO33

Cox analysis adjusted to age, gender, diabetes, dyslipidemia, hypertension, smoking, alcohol > 300/week, obesity, sedentary lifestyle, CRP, fibrinogen, lipoprotein(a), PWV and TyG index, this marker remained as a significant and independent risk factor for total events (HR-1.19; p = 0.020), together with age (p = 0.001), sedentary lifestyle (p < 0.0001) and high CRP (p < 0.0001).

Conclusions: TyG index, cheap and easy to determine, was strongly associated with residual inflammation, atherosclerosis progression, CV events and mortality. Early identification of patients with higher TyG indices before deleterious events occur may be valuable for predicting disease progression in high-risk patients, allowing timely adoption of appropriate preventive measures.

CO 34. C-REACTIVE PROTEIN LEVEL AND RISK OF CARDIOVASCULAR EVENTS IN PATIENTS WITH CORONARY ARTERY DISEASE

Gonçalo Bettencourt Abreu[1], Isabel Mendonça[2], Débora Sá[1], Francisco Sousa[1], Matilde Ferreira[1], Eva Henriques[2], Sónia Freitas[2], Mariana Rodrigues[2], Sofia Borges[2], António Drummond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Universidade NOVA de Lisboa.

Introduction: The prognosis of cardiovascular disease can be predicted through various indicators, such as biochemical, imaging and genetic. C reactive protein (CRP) is a valuable inflammatory biomarker in different clinical conditions such as coronary artery disease (CAD). CRP biomarkers are easy to get, cheap, and sensitive for predicting deleterious events.

Objectives: To investigate the association between CRP levels and the risk of vascular and non-vascular outcomes in a Southern European population with CAD.

Methods: We performed an extended prospective study with 1,719 CAD patients with a follow-up of 7.3 ± 6.5 years. All demographic, biochemical, and clinical data, as well as CRP levels, were collected. The outcome was CV events occurrence [myocardial infarction or unstable angina, ischemic stroke, new admission by heart failure, revascularization (angioplasty, CABG) or cardiovascular death]. CRP levels were stratified into quintiles (Q) below 10 mg/L (1st Q CRP ≤ 1.2 mg/L; 2nd Q CRP 1.21-2.53 mg/L; 3rd Q CRP 2.54-2.60 mg/L; 4th Q CRP 2.61-3.69 mg/L and 5th Q CRP 3.70-10 mg/L and above 10 mg/L (> 10 mg/L). Associations between baseline CRP concentrations and primary outcome were assessed using Cox proportional hazard models adjusted for all confounders (age, sex, smoking status, diabetes mellitus, body mass index, hypertension, diabetes, dyslipidemia, physical inactivity, alcohol and CAD family history). Kaplan-Meier estimated differences in the survival probability in each CRP quintile and in the subgroup > 10 mg/L.

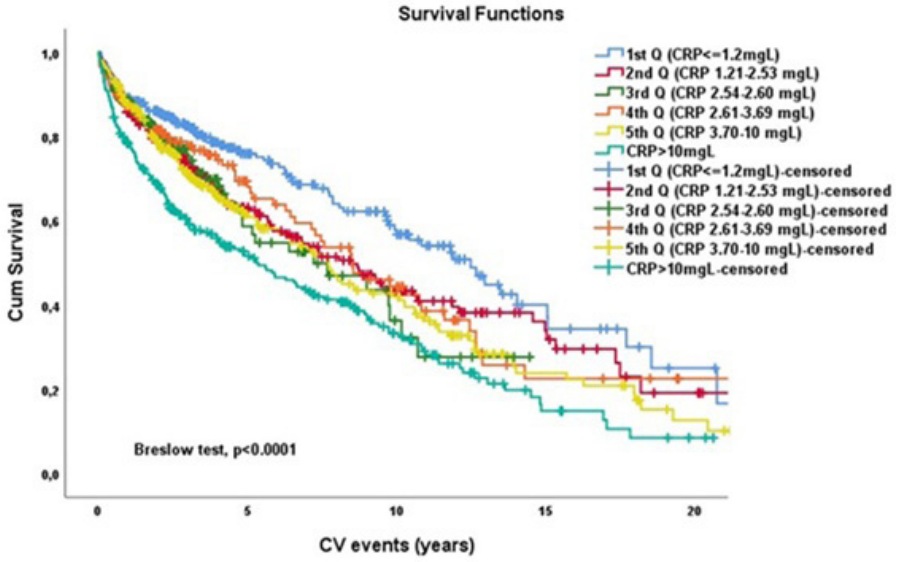


Figure CO34

Results: After Cox regression analysis, physical inactivity (p = 0.001), alcohol (p = 0.049), and CRP (p < 0.0001) remained in the equation as significantly associated with CV events. Specifically, the significances were: p = 0.023 for 2nd Q; p = 0.020 for 3rd Q; p = 0.002 for 5th Q and p < 0.0001 for CRP > 10 mg/L. CRP 4th Q did not reach statistical significance. The risk demonstrated by high CRP levels for the CV events occurrence is more significant than the previously established cardiovascular risk factors.
Conclusions: Our findings demonstrated that higher CRP concentrations in coronary patients were independently associated with an increased risk of recurrent CVD events. As a biomarker, CRP highlights the importance of inflammation in cardiovascular disease.

CO 35. IDENTIFYING REDUCE-IT TRIAL ELIGIBLE PATIENTS IN A STRUCTURED CORONARY DISEASE FOLLOW-UP PROGRAM

Marta Leite[1], Inês Neves[1], Marta Almeida[1], André Lobo[1], Sílvia O. Diaz[2], Diogo Ferreira[1], Gualter Santos Silva[1], Eduardo Vilela[1], Ricardo Fontes-Carvalho[1]

[1]ULSGE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: The REDUCE-IT trial demonstrated significant cardiovascular benefits of icosapent ethyl in patients with elevated triglycerides (TG) and optimized statin therapy. Identifying eligible patients in real-world settings is critical to translating these findings into practice and assess the cost-effectiveness of initiating this therapy in patients with high triglycerides levels after an acute coronary syndrome (ACS).
Objectives: This study aimed to evaluate the prevalence of patients meeting REDUCE-IT inclusion criteria within a Structured Coronary-Disease Follow-up Program (SCCC).
Methods: We conducted a retrospective analysis of patients enrolled in the SCCC program. The SCCC is a structured outpatient program implemented in our center in 2021 for all patients up to 12 months after an ACS and involves regular follow-up consultations focused on optimizing cardiovascular risk factor control. Inclusion criteria for this analysis mirrored those of the REDUCE-IT trial: age ≥ 45 years, history of cardiovascular disease, TG levels of 135-499 mg/dL measured at any point during the 12-month program, LDL-C levels of 41-199 mg/dL, and stable statin therapy for at least four weeks.
Results: Among 343 patients managed under the SCCC program, 27 (7.9%) fulfilled the REDUCE-IT inclusion criteria. Eligible patients had a median TG level of 176 mg/dL (IQR: 145-230) and an LDL-C level of 92 mg/dL (IQR: 71-115), with all on stable statin therapy for at least four weeks. These findings highlight a subpopulation that may benefit from icosapent ethyl to further reduce residual cardiovascular risk.
Conclusions: Approximately 8% of patients within a structured coronary-disease follow-up program met the inclusion criteria for the REDUCE-IT trial. Identifying such patients in real-world clinical settings is essential for targeted intervention and optimizing cardiovascular outcomes. Further studies are warranted to assess the impact of implementing REDUCE-IT findings in this population.

Sábado, 12 Abril de 2025 | 08:00-09:00

Espaço Ágora | Sessão de Comunicações Orais 08 – Otimizar resultados na TAVI: perfil do doente, técnicas e válvulas

CO 36. FINDING THE PERFECT MATCH: PROFILING AORTIC ANNULUS IN TAVI PATIENTS

Ana Lobato de Faria Abrantes, Catarina Gregório, Miguel Azaredo Raposo, Daniel Cazeiro, João Cravo, Marta Vilela, Sofia Esteves, Miguel Nobre Menezes, Cláudia Jorge, Pedro Carrilho Ferreira, Pedro Cardoso, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Transcatheter Aortic Valve Implantation (TAVI) has become the standard treatment for severe aortic stenosis (SAS) in elderly or high-risk patients. Accurate aortic annulus (AA) sizing is crucial for successful TAVI, as incorrect prosthesis sizing can lead to adverse outcomes.

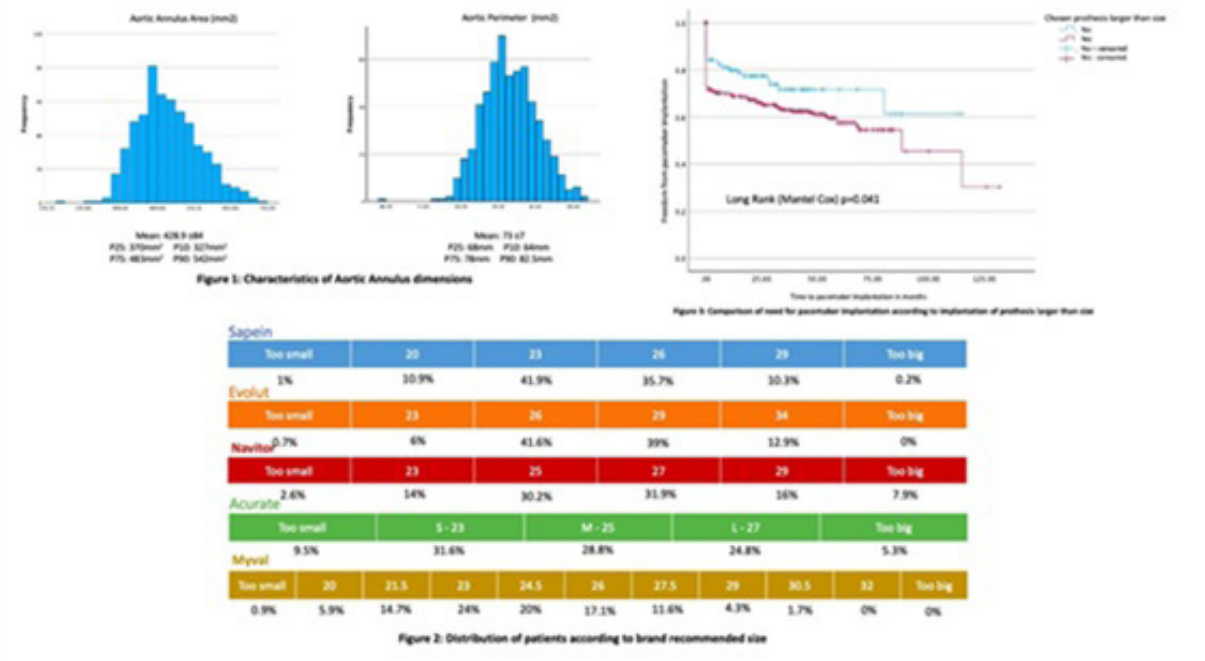


Figure CO36

Objectives: To describe AA characteristics and evaluate differences in TAVI outcomes when comparing implanted prosthesis size to brand recommended size (BRS), according to AA measurement.
Methods: Single center retrospective study of consecutive pts with SAS who underwent TAVI from 2014 to November 2023. AA measurements were obtained via computed tomography scan revised by an interventional cardiologist. AA was classified as small if below 10th percentile and large if above the 90th percentile. For each pt we evaluated all possible prosthesis options, based exclusively on AA measurement, matching the recommended size provided by the respective brands (Sapien, Evolut, Navitor, Accurate, Myval). Oversizing was defined as an oversizing index above 20% for self expandable valves and 10% for balloon expandable valves. Elderly pts were defined as age above 75. Kaplan-Meier survival analyses were used to compare the outcomes between groups.
Results: We included 580 pts, 45% men with a mean age of 84 ± 8 years. AA dimension characteristics are shown in Figure 1. Women and elderly patients had significantly smaller AA diameters (Ad) and perimeters (Ap) compared to men and younger patients (Sex: Ad 22 ± 2 vs. 25 ± 2, Ap 69 ± 6 vs. 78 ± 7, p < 0.001; Age: Ad 23 ± 2 vs. 25 ± 3, Ap 73 ± 7 vs. 77 ± 9, p < 0.001). Distribution of pts according to BRS prostheses is present in Figure2, all patients had at least one prosthetic size suitable for their AA. Sapien 26, Sapien 23 and Evolut 26 and 29 accounted for 83% of the implanted valves. The size of the implanted valve differed from the BRS in 82% of patients, with 67% receiving a larger prosthesis. Elderly patients and men had a 2-fold and 2.3-fold increased likelihood of receiving a larger valve, respectively (OR 0.48 [0.21-0.91], p = 0.026; OR 2.3 [1.5-3.5], p = 0.004). Receiving a prosthesis larger than BRS significantly increased the risk of procedural complications (OR 1.6 [1.1-2.5], p = 0.015), oversizing (OR 6.1 [3.3-11.8], p < 0.001), and the need for pacemaker implantation (35.6 vs. 24.5%, OR 1.76 [1.1-2.8], p = 0.016) during a mean follow-up of 39 months (Figure 3). However, no differences were found regarding prosthetic function, death, or heart failure hospitalization during follow-up.
Conclusions: These findings highlight the importance of precise AA measurement and careful prosthesis selection to minimize procedural risks and improve patient outcomes.

CO 37. TRANSCATHETER AORTIC VALVE IMPLANTATION WITHOUT CARDIAC SURGERY BACKUP: FIRST NATIONAL SINGLE-CENTER EXPERIENCE ASSESSING SAFETY AND EFFICACY OUTCOMES

António Maria Rocha de Almeida, Marta Paralta Figueiredo, Renato Fernandes, Ângela Bento, David Neves, Diogo Brás, Rita Rocha, Manuel Trinca, Álvaro Laranjeira Santos, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

Introduction: Transcatheter aortic valve implantation (TAVI) is traditionally performed with cardiac surgery backup onsite. Yet, TAVI development has enabled it to be conducted safely outside these centers. This study aims to describe our experience and the outcomes of TAVI in this paradigm shift to a center without a cardiac surgery backup onsite.
Methods: A retrospective cohort of 300 TAVI patients at a center without cardiac surgery backup onsite between 2020 and 2024 was analyzed. The primary endpoints were procedural death, 30-day mortality, and stroke. Secondary outcomes included in-hospital mortality, length of hospital stay, surgery-required complications, and permanent pacemaker implantation.
Results: 300 patients underwent TAVI, with a mean age of 82 ± 5 years, and 54% female. The median STS risk score was 3.8 [2.3-6.6], with 20% classified as high-risk patients (STS > 8). Baseline echocardiographic characteristics were a mean aortic gradient of 48 ± 14 mmHg, left ventricular ejection fraction of 57 ± 12%, and systolic pulmonary artery pressure of 38 ± 14 mmHg. The mean aortic valve calcium score was 2,912 ± 1,572 UA. The bicuspid aortic valve was present in 6% of patients (n = 18), and valve-in-valve procedures were performed in 7 cases (2.3%). Compared with the national TAVI registry, there were no significant differences in baseline characteristics. Most procedures were elective (83%, n = 249). Femoral access was preferred in 99% of cases, with the contralateral femoral artery as secondary access in 90%. Self-expandable Evolut CoreValve was used in 96% of procedures. Procedural success rate was 99% (n = 298). In-hospital and 30-day mortality was 2% and 3.7%, respectively; stroke occurred in 2.7%, and a pacemaker was required in 20%. Tamponade occurred in 0.6% of cases (n = 2), and surgical intervention in 0.3% (n = 1). There was 8% of major

Baseline Characteristics	Our centre (n=300)	National registry[1] (n=2346)	Centre without on-site cardiac surgery[2] (n=384)
Age	82±5	81±7	82±10
Female	54%	53%	53%
STS risk score	3.8 (2.3–6.6)	4.7 (3.0-7.1)	
Euroscore II risk	2.3 (1.6-4.0)	4.3 (2.5-7.1)	
NYHA class > 2	51%	68%	67%
DM	35%	33%	46%
COPD	12%	22%	28%
GRF < 60ml/kg/m2	50%	38%	35%
Atrial fibrillation	22%	25%	38%
Myocardial infarction	9%		17%
PCI	14%	23%	34%
Stroke	8%	12%	
Previous cardiac surgery	12%		9%
TTE			
Mean gradient mmHg	48±14	49±16	
AVA cm2	0,72±0,20	0.64±.0.20	
LVEF < 50%	21%	28%	26%
LF/LG	11%		4%
SPAP mmHg	38±14		47 (34-61)
Sig MR	27%		13%
Bicuspid	6%		1%

Baseline Characteristics	Our centre (n=300)	National registry[1] (n=2346)	Centre without on-site cardiac surgery[2] (n=384)	p value
Intraprocedural death	0,7%	Ø	0.8 (3)	Ø | 1
In-hospital death	2%	Ø	5.2 (20)	Ø | 0.001
30-day mortality	3.7%	4.8 (110/2297)	6.1 (23)	0,8 | 0,5
1 year mortality	12%	11% (194/1706)	12.2 (47)	0,9 | 0,9
Tamponade	0.6% (2)	1.0 (8/775)	1.6 (6)	0,7 | <0,001
Coronary obstruction	0%	1.8 (14/772)	0.8 (3)	Ø
Conversion to surgery	0.3%	0.4 (4/954)	0.3 (1)	0,4 |0,6
TAVI in TAVI	0%	1.1 (8/725)	1.6 (6)	Ø
ECS support	0%	1.3 (12/954)		Ø
Vascular complication	8%	6.8 (120/1766)	Ø	0,4 | Ø
Major bleeding	8.3%	13,3 (273/2054)	7.3 (28)	0,2 | 0,9
Stroke	2.7%	4.6 (88/1893)	Ø	0,1 | Ø
AKI	6%	4.2 (79/1892)	Ø	0,5 | Ø
Pacemaker requirement	20%	19.0 (374/1964)	Ø	0,7 | Ø
1 year hospitalization rate	17%	9.6 (98/1017)	Ø	0,03 | Ø

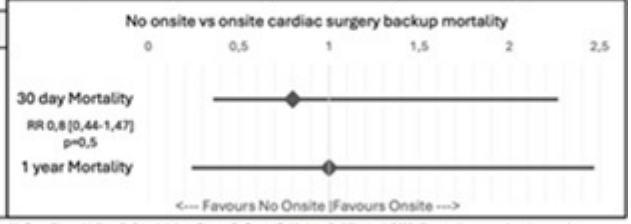


Figure CO 37

bleeding and vascular complication rates. There were no cases of coronary obstruction, the need for extra-circulatory support, or TAVI in TAVI deployment as a bailout. The median hospital stay was 3 days, 2 at the ICU level. Significant symptomatic improvement was verified in 91% of the cases. After 1 year, the mortality rate was 12%. There were no significant differences in outcomes compared to the TAVI national registry results and in a center without cardiac surgery onsite (Table 1).
Conclusions: This first national single-center experience of TAVI performed without cardiac surgery backup demonstrates excellent safety and efficacy outcomes. Procedural success was achieved in 99% of cases, with low in-hospital and 30-day mortality rates, stroke, and major complications. One-year survival was comparable to outcomes from centers with onsite surgical backup. These findings suggest that TAVI can be safely performed in appropriately equipped centers without immediate access to cardiac surgery, potentially broadening the accessibility of this procedure.

CO 38. EXPLORING IMPLANTATION DEPTH AND PROCEDURAL OUTCOMES IN TRANSCATHETER AORTIC VALVE REPLACEMENT

Miguel Abrantes de Figueiredo, Inês Rodrigues, Fernando Ferreira, Francisco Cardoso, Mariana Coelho, Francisco Albuquerque, André Grazina, Tiago Mendonça, António Fiarresga, Rúben Ramos, Rui Cruz Ferreira, Duarte Cacela

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Contemporary evidence showed an influence of transcatheter heart valve implantation depth (ID) on a multitude of outcomes, including conduction disturbances (CD) requiring permanent pacemaker implantation (PPI) and paravalvular leakage (PVL). However, a standardized protocol for determining and reporting ID in Transcatheter Aortic Valve Replacement (TAVR) is not so well established.
Objectives: To evaluate the ID and short-term procedural outcomes of patients undergoing TAVR with self-expandable transcatheter valves.
Methods: A retrospective analysis of the procedural angiograms of patients that underwent TAVR with self-expandable valves between January 2023 and November 2024 in a single high-volume tertiary center in Portugal was performed. ID was measured at the level of the non-coronary cusp (NCC) and the left coronary cusp (LCC) in the final aortic root angiogram in a left-anterior-oblique projection. Moreover, 2 additional categories were created: the arithmetic mean (AM) and the greatest value of the ID values obtained. Optimal implantation depth was defined according to the manufacturer's recommendations. PPI and echocardiographic evaluation were performed according to the current indications and institutional protocols.
Results: Of the 170 patients included, 102 underwent TAVR with the *Evolut Pro/Pro+* platform and the remaining patients with the *Navitor* platform. A mean NCC ID of 6.18 mm and a mean LCC ID of 6.98 mm was determined, with no statistically significant differences regarding the platform or the valve size utilized. Optimal ID was obtained in 11.8% to 23.5% of cases and a deep valve positioning was the most frequent result (Figure). Cusp Overlap Technique was the fluoroscopic approach used by default with corrective measures done with the 3 Cusp View in 25.3% of cases (without differences in the overall ID between those groups). There was a PPI rate of 35.9%, with a significantly deeper valve positioning across all measuring categories ($p < 0.01$) in this group. Optimal ID at the NCC was associated with the absence of CD requiring PPI (Chi-Square analysis, $p = 0.012$). Shallow valve implantation was associated with significant PVL (Fisher's Exact Test, $p < 0.01$).
Conclusions: ID is a procedural metric that influences hemodynamic and electrophysiological outcomes. A sub-optimal deeper valve positioning was associated with PPI and a sub-optimal shallower valve placement was associated with significant PVL.

CO 39. TAVI PARAVALVULAR LEAKS – 1 YEAR EVALUATION AND MULTIMODAL PREDICTORS

Inês Caldeira Araújo, Miguel Azaredo Raposo, Ana Abrantes, Catarina Gregório, João Fonseca, Daniel Cazeiro, Diogo Ferreira, Cláudia Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Carrilho Ferreira, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Paravalvular leak (PVL) is a common complication after transcatheter aortic valve implantation (TAVI), associated with adverse outcomes, including heart failure and reduced survival. Identifying predictors of PVL is essential for improving procedural outcomes and patient selection.
Objectives: To evaluate predictors of one-year TAVI moderate to severe PVL.
Methods: We conducted a single center retrospective study, studying patients (pts) who underwent TAVI procedure 2014 to 2022 and had a 1-year follow-up echocardiographic evaluation. Baseline echocardiographic and CT-derived data were collected and analyzed. For statistical analysis Mann-Whitney, Chi-square tests and logistic regression were performed.
Results: We included 743 pts, 54% of which were female, with a mean age of 82 ± 6.5 years. 20% of pts had "very severe AS" defined as Vmax ≥ 5 m/s or mean gradient ≥ 60 mmHg. Aortic valve (AV) annular eccentricity [1-D(min)/D(max)] and AV calcium score were derived from cardiac CT – mean 3,291 ± 1,687 AU and median 0.15 (IQR 0.08) respectively. Valve type distribution was balanced, with 50% receiving balloon-expandable (BEV) and 50% self-expandable valves (SEV). Overexpansion index (OI) was calculated based on area for BEV and perimeter for SEV – median 14.4 (IQR 15.4). At echocardiographic evaluation before discharge, 61% had a minor and 3.5% moderate leaks. At 1-year reassessment, 35% had minor leaks, 4% moderate

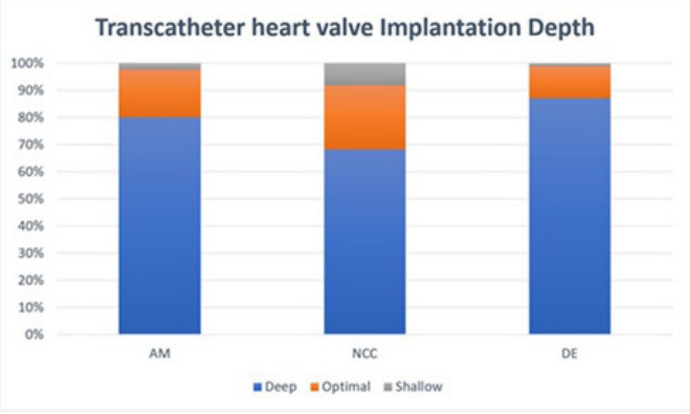


Figure 1: Transcatheter heart valve Implantation Depth according to the measuring category. AM (arithmetic mean); DE (deepest edge); NCC (non-coronary cusp)

Figure CO 38

and 0.3% severe. PVL severity had worsened in 10% of pts and improved in 34% with 44% of pts completely resolving a previously existing PVL. Pts with an OI > 20% had a 3.88 higher odd of leak resolution at 1 year (p = 0.02). On bivariate analysis, significant associations were observed between 1-year moderate to severe PVL and eccentricity index; smallest AV diameter on CT; AV ring area; SEV vs. BEV (p = 0.002; OR 0.28 for SEV) and very severe AS (p = 0.03; OR 2.3). AV calcium score and overexpansion index had no significant association.
Conclusions: TAVI PVL was linked to annular eccentricity, smaller diameter, AV ring area, and valve type, with self-expandable valves reducing risk. Very severe aortic stenosis increased PVL risk, while greater overexpansion improved leak resolution. Pre-procedural imaging and valve selection remain critical to minimizing PVL.

CO 40. IS SMART ENOUGH? BEV VS. SEV IN PATIENTS WITH SMALL AORTIC ANNULI

Sofia Esteves, Miguel Azaredo Raposo, Miguel Nobre Menezes, Ana Abrantes, Catarina Santos Gregório, Diogo Rosa Ferreira, Inês Caldeira de Araújo, Cláudia Moreira Jorge, João Silva Marques, Pedro Carrilho Ferreira, Pedro Pinto Cardoso, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: The recently published SMART randomized trial showed self-expanding aortic valves (SEV) to be non-inferior to balloon-expandable valves (BEV) among patients with aortic stenosis and a small aortic annulus (defined as CT area ≤ 4.3 cm²) undergoing TAVR.
Objectives: To evaluate outcomes of SEV compared with BEV among patients who underwent TAVR and had a small aortic annulus.
Methods: Retrospective single center study, studying patients submitted to TAVR from 2013 to 2023. Clinical, echocardiographic, and computer tomography data were analyzed. Small aortic annulus was defined as CT area ≤ 4.3 cm². For statistical analysis, independent samples t-test, Chi-square, Kaplan-Meier curves and Cox regression were used.
Results: We analyzed a population of 351 patients, 52% of whom received a SEV and 48% a BEV. Mean follow-up (FUP) time was 37.7 ± 24.3 months. Regarding demographics and comorbidities (Table 1), female sex was the only significatively different factor, with 66% females in the SEV group and 53% in the BEV. Echocardiographic evaluation at discharge showed similar results for SEV and BEV regarding maximum (SEV: 17 vs. BEV: 19 mmHg) and mean (SEV: 9 vs. BEV: 10 mmHg) transprosthetic gradients. Doppler velocity index (DVI) was significatively lower for BEV (SEV: 0.6 vs. BEV: 0.5, p = 0.02). Reevaluation at 1 year post procedure revealed reduced maximum (SEV: 16 vs. BEV: 22 p <.01) and medium (SEV: 8 vs. BEV: 11 p < 0.01) gradients comparing to BEV, as well as higher DVI (SEV: 0.62 vs. BEV: 0.49 p = 0.05). Analyzing outcomes at 1 year, there were no significative differences regarding death (SEV: 17 vs. BEV: 23); valve dysfunction defined as mean gradient ≥ 20 mm (SEV: 4 vs. BEV: 5%) and moderate to severe leak (SEV: 5 vs. BEV: 2.5%). As for outcomes at FUP, stroke and cardiovascular admission had no significative difference. Permanent pacemaker implantation (PPI) was similar during index admission (SEV: 27 vs. BEV: 23% p = NS). However, at FUP, SEV had higher need for PPI (SEV: 35 vs. BEV: 22% p = 0.01). Survival analysis shows a 43% higher hazard of death at a mean FUP of 38 months for BEV comparing to SEV.
Conclusions: The SMART trial showed non-inferiority of SEV choice vs. BEV in patients with small aortic annuli. Our analysis suggests it may in fact be superior, reducing transvalvular gradients at 1 year and overall mortality at a mean FUP of 38 months. Larger, multicentric trials are required to confirm this hypothesis.

Sábado, 12 Abril de 2025 | 08:00-09:00

Sala Arquivo | Sessão de Comunicações Orais 09 – Cardiologia de intervenção/ estrutural

CO 41. UNFREEZING THE PATH WITH ICE-ING: REVOLUTIONIZING LEFT ATRIAL APPENDAGE OCCLUSION

Catarina Gregório, Miguel Nobre Menezes, Ana Abrantes, Miguel Raposo, Ana Rita Francisco, Catarina Oliveira, Tiago Rodrigues, João Silva Marques, Gustavo Lima da Silva, João de Sousa, Pedro Cardoso, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Intraprocedural imaging is essential for transcatheter left atrial appendage occlusion (LAAO). While pivotal trials have relied on transesophageal echocardiography (TEE), intracardiac echocardiography (ICE) is emerging as a promising alternative, offering real-time imaging with no need for general anesthesia and potentially shorter procedural times.

Fig 1. Comparison of patients with small anulli receiving SEV vs BEV

Baseline characteristics	SEV (n=183)	BEV (n= 168)	p value
Age - median (IQR)	80.8(7)	81.8(7)	NS
BMI - mean±SD	27.4±5.3	27.1±5	NS
FUP time (months) - mean±SD	38.3±23	37±25	NS
Females - %	66%	53%	0.017
Hypertension - %	86%	94%	NS
Atrial fibrillation - %	37%	41%	NS
Diabetes mellitus (insulin dependent) - %	35%	33%	NS
COPD - %	22%	28%	NS
LVEF % - mean±SD	57±11	56±10	NS
LV function <30% - %	3.7%	4%	NS
Annulus area mm2 - mean±SD	363±43	366±45	NS
EuroSCORE 2 - median (IQR)	3.3(2.4)	3.3±2.6)	NS

Discharge TTEcho	SEV (n=183)	BEV (n= 168)	p value
Maximum AV gradient - median (IQR)	17(11)	19(11)	0.12
Mean AV gradient - median (IQR)	9(6)	10(8)	0.19
Doppler velocity index - median (IQR)	0.6(0.15)	0.5(0.09)	**0.02**

1 year TTEcho	SEV (n=183)	BEV (n= 168)	p value
Maximum AV gradient - median (IQR)	16(9.5)	22(11.2)	**<0.01**
Mean AV gradient - median (IQR)	8(6)	11(7)	**<0.01**
Doppler velocity index - median (IQR)	0.62(0.32)	0.49(0.29)	**0.05**

Outcomes	SEV (n=183)	BEV (n= 168)	p value
Death at 1 year n(%)	17 (9.2%)	23 (13.6%)	NS
Stroke at FUP n(%)	5 (3%)	13 (8.6%)	NS
CV hospitalization at FUP n(%)	19 (11.7%)	23 (15%)	NS
Mean gradient >20mmHg at 1year - n(%)	4(4%)	5 (5.9%)	NS
> moderate regurgitation - n(%)	9 (5%)	4 (2.5%)	NS
Device during index admission - n(%)	51 (27%)	40 (23%)	NS
Device at FUP - n(%)	64 (35%)	38 (22%)	**0.01**

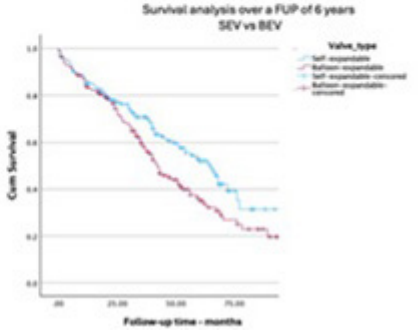


Figure CO 40

		ICE-patients (N=61)	TEE-patients (N=154)	P-value
CHA_2DS_2-VASc score		3.7±0.2	4.3±0.1	0.001
HAS-BLED score		2.8±0.1	3.2±0.1	NS
Procedural time, n (%)		61±21	92±36	0.013
Acute success, n (%)		58 (95.1)	149 (96.8)	NS
Acute complications, n (%)		2 (3.3)	7 (5.2)	NS
	Minor bleeding	1 (1.6)	27 (18.2)	NS
	Major bleeding	2 (3.3)	1 (0.6)	NS
Ischemic events, n (%)		3 (4.9)	10 (15.4)	NS
	Stroke	1 (1.6)	6 (3.9)	NS
	Other embolic event	1 (1.6)	0 (0)	NS
	CV death	1 (1.6)	4 (2.6)	NS

Table 1 - Comparison between ICE and TEE populations for baseline characteristics, procedural details, ischemic and hemorrhagic events.

Figure CO 41

Objectives: To compare the procedural and clinical outcomes of LAAO guided by ICE vs. TEE.

Methods: Single-center retrospective study of pts who underwent percutaneous LAAO between November 2009-December 2024. Patients were divided into 2 groups based on the imaging modality used: ICE or TEE. Clinical endpoints included acute and long-term safety (bleeding or device-related issues) and efficacy (absence of stroke, systemic embolism or cardiovascular death). Kaplan-Meier survival analysis was performed to evaluate the efficacy and safety endpoints.

Results: LAAO was attempted in 215 pts, including 61 cases (28%) with ICE and 154 (72%) with TEE. Baseline characteristics were similar between groups, although ICE pts had a lower CHA2DS2-VASc score (ICE 3.7 ± 0.2 vs. TEE 4.3 ± 0.1, p = 0.01) and fewer prior ischemic strokes (ICE 24 vs. TEE 42%, p = 0.02). Procedures guided by ICE had significantly shorter procedural times (ICE 61 ± 21 vs. TEE 92 ± 36 min, p = 0.013), with an average reduction of 11 min. The type of device implanted (Watchman: ICE 100%, TEE 92%), mean device size (ICE 29 ± 1 mm, TEE 28 ± 1 mm, p = NS), and implantation success rates (ICE 95 vs. TEE 97%) were comparable, with no device embolizations in either group. None of the ICE-guided procedures required general anesthesia nor sedation. Acute postprocedural complications were less frequent with ICE (1 minor venous access hematoma without transfusion) compared to TEE (4 pericardial effusions requiring percutaneous intervention and 3 vascular access complications, one of which major). However, all major complications occurred up to early 2015, during the initial phase of the LAAO program. After LAAO, DAPT was the preferred strategy in the TEE group, followed by VKA and aspirin, while in the ICE group, DAPT was the predominant choice (p < 0.001). Follow-up analysis is limited by shorter follow-up (24.3 ± 3.5 months) and slightly lower CHA2DS2-VASc score in the ICE group. However, the annual stroke/systemic embolic rate was 1.6%, a 65% to 77% relative risk reduction vs. the expected rate from a CHA2DS2-VASc score of 3 or 4, respectively. Furthermore, the primary safety endpoint occurred at similar rates in both groups. In the ICE group, 2 major bleeding events occurred (gastrointestinal and genitourinary) and 1 minor bleeding event, comparable to the TEE group (Log Rank p = 0.51).

Conclusions: ICE-guided LAAO is a safe and effective alternative to traditional methods, providing comparable outcomes with reduced procedural time without affecting device implantation success rates or efficacy.

CO 42. IMPROVING PATIENT SELECTION FOR PERCUTANEOUS SUTURE-MEDIATED PATENT FORAMEN OVALE CLOSURE: THE SWAT CRITERIA

Inês Gomes Campos[1], Joel Monteiro[1], Bruno Bragança[1], Inês Oliveira[1], Mauro Moreira[1], José Luís Ferraro[1], Ana Rodrigo Costa[1], Rafaela G. Lopes[1], Marta Tavares Silva[2], João Carlos Silva[2], Rui André Rodrigues[2], Aurora Andrade[1]

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Introduction: Percutaneous suture-mediated patent foramen ovale (PFO) closure with NobleStitch EL has demonstrated high immediate success rates and absence of significant procedural complications. However, long-term follow-up results show non-negligible rates of significant (grade > = 2) residual right-to-left shunt (RLS).

Objectives: To identify predictors of significant residual RLS in order to improve patient selection for NobleStitch EL procedure.

Methods: Single-center retrospective observational registry of consecutive patients admitted for PFO closure with NobleStitch EL between January 2020 and September 2024. Patient and baseline PFO echocardiographic characteristics were collected. Patients were followed up to 2.5 years (mean 533 ± 398 days). The primary outcome was significant residual RLS during follow-up. Predictors were identified using logistic regression and were combined in an additive model.

Results: Among 79 patients included (mean age 48.5 ± 12.6 years, 55.7% female), 95% were referred for PFO closure for cryptogenic stroke and transit ischemic attack, with high RoPE score (median 6). PFO was *tunnel-like* in 81.2%, with median length 10.0 mm (IQR 8.3), width 3.0 mm (IQR 2.0) and atrial septal aneurysm in 41.6% of the patients. Baseline spontaneous RLS was present in 87.8% patients. During follow-up, 30 patients (40.0%) had significant residual RLS. The variables identified as predictors for significant residual RLS were presence of *tunnel-like* PFO, PFO width (optimal cutoff ≥ 4 mm), presence of atrial septal aneurysm and presence of baseline spontaneous shunt. An additive model was created – the SWAT criteria (Spontaneous shunt, Width ≥ 4 mm, Aneurysm, Tunnel) – showing very good prediction accuracy (AUC 0.822; 95% IC 0.709-0.935). Patients with SWAT 0 or 1 showed significant lower residual RLS at follow-up than patients with SWAT 3 or 4 (9.1 vs. 78.3%, p < 0.001).

Conclusions: This study represents the largest and longest national registry of patients undergoing PFO closure with NobleStitch EL. Our findings indicate that long-term significant RLS is strongly associated with specific anatomical aspects of the atrial septum, emphasizing the critical role of detailed PFO characterization in suture-mediated closure. The SWAT criteria demonstrated high predictive accuracy for significant residual RLS during follow-up, offering a practical tool for identifying suitable candidates for this procedure.

CO 43. PERCUTANEOUS SUTURE-MEDIATED PATENT FORAMEN OVALE CLOSURE: RESULTS FROM THE LARGEST NATIONAL REGISTRY

Inês Gomes Campos[1], Joel Monteiro[1], Bruno Bragança[1], Inês Oliveira[1], Mauro Moreira[1], José Luís Ferraro[1], Rafaela G. Lopes[1], Ana Rodrigo Costa[1], Marta Tavares Silva[2], João Carlos Silva[2], Rui André Rodrigues[2], Aurora Andrade[1]

[1]Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa. [2]Centro Hospitalar de S. João, EPE.

Introduction: Percutaneous suture-mediated patent foramen ovale (PFO) closure with NobleStitch EL has demonstrated high immediate success rates and absence of significant procedural complications. However, data on long-term outcomes remain scarce.
Objectives: To assess the efficacy and long-term safety profile of NobleStitch EL procedure.
Methods: Single-center retrospective observational registry of consecutive patients admitted for PFO closure with NobleStitch EL between January 2020 and September 2024. Patient and baseline PFO echocardiographic characteristics were collected. Patients were followed up to 2.5 years (mean 533 ± 398 days) and recurrence of cerebral events, incidence of atrial fibrillation, residual right-to-left shunt (RLS) and need for additional PFO intervention were recorded.
Results: Among 79 patients included (mean age 48.5 ± 12.6 years, 55.7% female), 95% were referred for PFO closure for cryptogenic stroke and transit ischemic attack (TIA), with high RoPE score (median 6). PFO was *tunnel-like* in 81.2%, with median length 10.0 mm (IQR 8.3), width 3.0 mm (IQR 2.0) and atrial septal aneurysm in 41.6%. Baseline spontaneous RLS was present in 87.8% patients. Two stitches were used in 7 patients and one of them had a device implanted due to significant residual RLS (grade ≥ 2) at the end of the procedure. Three procedural complications occurred: 1 groin hematoma, 1 TIA and 1 iatrogenic atrial septal defect that had a device implanted 2 days later. During follow-up, 30 patients (40.0%) had significant residual RLS and 28 (35.4%) were submitted to a new procedure: device implantation in 20 patients, additional suture in 2 patients, surgical closure in 1 patient and 5 patients were awaiting reintervention. The mechanisms of ineffective closure most frequently reported were partial detachment (60.9%) and atrial septal tear (21.7%). There were 3 cases of late PFO reopening, one of them with recurrence of PFO-related stroke that had a device implanted 3 months later. No patient had atrial fibrillation.

Table 1: Baseline characteristics of the study population (n=79).

General characteristics	Results
Age (years) - mean ± SD	48.5 ± 12.6
Female gender - n (%)	44 (55.7)
Medical history - n (%)	
Hypertension	21 (26.6)
Diabetes mellitus	4 (5.1)
Dyslipidemia	47 (59.5)
Smoker	25 (31.6)
Overweight and Obesity	51 (64.6)
Family history of CAD	2 (2.5)
Migraine	1 (1.3)
Autoimmune disease	3 (3.8)
Thrombophilia	8 (10.1)
Cancer	3 (3.8)
PFO closure indication	
Cryptogenic stroke	71 (89.9)
Transient ischemic attack	4 (5.1)
Cardiovascular event	2 (2.5)
Platypnea-orthodeoxia syndrome	2 (2.5)
RoPE Score - median (IQR)	6 (2.0)
PFO echocardiographic characteristics	
Tunnel-like - n (%)	56 (81.2)
PFO length (mm) - median (IQR)	10.0 (8.3)
PFO width (mm) - median (IQR)	3.0 (2.0)
Spontaneous RLS - n (%)	65 (87.8)
Eustachian valve - n (%)	22 (28.6)
Chiari network - n (%)	2 (2.6)
Atrial septal aneurysm - n (%)	32 (41.6)

Legend: CAD - Coronary artery disease. IQR - Interquartile range. PFO - Patent foramen ovale. RoPE - Risk of peripheral embolism. RLS - Right-to-left-shunt. SD - Standard deviation.

Conclusions: This study represents the largest and longest national registry of patients submitted to PFO closure with NobleStitch EL. This suture-mediated technique was shown to be safe, though associated with a non-negligible rate of shunt patency or PFO reopening during follow-up, requiring re-intervention with another suture or device. This highlights the need for better patient selection and the importance of longer follow-up.

CO 44. TRANSCATHETER PULMONARY VALVE IMPLANTATION EXPERIENCE IN A PORTUGUESE CONGENITAL HEART DISEASE CENTER

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Centro Hospitalar Universitário de S. João, EPE.

Introduction: Right ventricular outflow tract (RVOT) obstruction occurs in various congenital heart defects. Following surgical repair, patients often experience residual pulmonic stenosis and/or insufficiency in the native outflow tract or the right ventricle to pulmonary artery (RV-to-PA) conduit. As an alternative to surgical pulmonary valve replacement (PVR), the introduction of transcatheter pulmonary valve implantation (TPVI) at the early 2000 has provided a less invasive treatment option.
Objectives: To analyse the indications, procedure-related characteristics and follow up of patients submitted to TPVI in a Portuguese Congenital Heart Disease Reference Center (start of program in 2015).
Results: Twenty-two patients were proposed and assessed as fit to TPVI; mean age 25.3 years-old (range 10-51 years-old), 11 (50%) were male, 2 patients had DiGeorge Syndrome. The primary diagnosis were: Tetralogy of Fallot (45.5%), Truncus Arteriosus (31.8%), pulmonary stenosis related to D-transposition of the great arteries (18.2%) and to double outlet right ventricle (4.5%). Mean number of open-heart surgeries was 1.6; there was RV-to-PA conduits in 12 patients, patch-extended RVOT in 9 and 1 patient had previously implanted a percutaneous pulmonary valve. Primary indication for TPVI was stenosis (45.4%), followed by regurgitation (40.9%) and mixed lesion in 13.6%. All patients underwent general anaesthesia and femoral access; 20 completed implantation with success; one procedure was aborted due to coronary anatomy (risk of left main artery occlusion) and another was interrupted due to obstruction of right pulmonary artery after RVOT stenting. Pre-stenting was performed in 16 patients, with a mean number of 1.9 (range 1-5) stents. Regarding the type of valve, 90% were balloon expandable (11 Melody, 4 MyVal and 3 Sapiens) and the remaining 2 patients had an auto expandable Vennus Valve implanted. Complications were registered in 3 (13.6%) patients – 1 had obstruction of PA branches with need for surgical intervention, 1 had balloon rupture retrieved percutaneously, and another suffered bleeding from vascular access, managed conservatively. During a mean follow-up time of 3.8 years, there were no deaths nor valve thrombosis; one patient with Melody valve had stent fracture. Four patients evolved with moderate pulmonary stenosis, asymptomatic. Three patients had late endocarditis of prosthesis, all treated with antibiotic and surgical PVR.
Conclusions: In this cohort, TPVI procedure had few complications and the short-medium term outcomes were favourable. Questions over endocarditis risk still prevail in the TPVI population and there is need for head-to-head comparisons to PVR.

CO 45. TO STENT OR NOT TO STENT IN TRUE BIFURCATION: WHAT IS THE BEST APPROACH FOR THE SIDE BRANCH IN A LEFT MAIN ARTERY BIFURCATION?

Rita Louro, Marta Figueiredo, Rafael Viana, Orlando Luquengo, António Almeida, Miguel Carias, Tânia Enereciano, David Neves, Ângela Bento, Renato Fernandes, Gustavo Sá Mendes, Lino Patrício

Hospital Évora.

Introduction: The left main (LM) bifurcation supplies the left ventricle, and effective management of the side branch necessitates a well-considered intervention technique. The gold standard for these lesions is the provisional

Primary Outcomes

	Provisional stent (n=36)			Drug eluting ballon (n=10)			Two-stent (n=6)		
Primary outcome, n (%)	Total @ FUP 18 (35.0)	6 month	12 month	Total @ FUP 19 +16.2	6 month	12 month	Total @ FUP 55 (135.0)	6 month	12 month
Death from cardiovascular causes, myocardial infarction, stroke, or target lesion revascularization	14 (38.9)	9 (25.0)	12 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	4 (66.7)	2 (33.3)	2 (33.3)
Components of primary outcome, n (%)	2								
Death from cardiovascular causes	8 (25.8)	6 (16.7)	7 (19.4)	0 (0.0)	0 (0.0)	0 (0.0)	2 (33.3)	2 (33.3)	2 (33.3)
Myocardial infarction	5 (16.7)	2 (22.2)	4 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	2 (50.0)	0 (0.0)	0 (0.0)
Stroke	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Target lesion revascularization (TLR)	4 (13.3)	0 (0.0)	4 (13.3)	0 (0.0)	0 (0.0)	0 (0.0)	2 (50.0)	0 (0.0)	0 (0.0)

Total @ FUP, presented in month as median (IQR) for PS and 2S and as mean±SD for DEB

Figure CO 45

stenting (PS) technique, however, in LM robust evidence comparing PS or two stent (2S) technique is scarce. New approaches such as drug-eluting balloons (DEB) offer promising alternatives, warranting further data comparing strategies.

Methods: Retrospective analysis, in a single centre between 2011 and 2024, of patients with true bifurcation of LM treated percutaneously (Medina 101, 111 or 011) to evaluate the non-inferiority strategy of side branch DEB versus PS and 2S techniques. Patients were allocated into 3 groups based on the side branch intervention: PS, 2S, or DEB. The primary outcome was composed of cardiovascular death, myocardial infarction (MI), stroke or target lesion revascularization (TLR). Secondary outcomes were length of stay, in-hospital mortality and total death.

Results: A total of 113 patients underwent a percutaneous approach for bifurcating LM disease, 52 of those had side branch evolvement and were included in this analysis. A total 36 patients underwent PS, 10 DEB, and 6 a 2S strategy. Regarding baseline characteristics, the SYNTAX score and the presentation (acute versus chronic coronary syndromes) were similar across groups. DEB group included older patients (82.1 ± 4.1 vs. 70.6 ± 9.4). DEB group experienced no events during the follow-up period (FUP). In contrast, the PS and 2S groups had higher cardiovascular death and myocardial infarction (table). In the PS and 2S groups, most events occurred in early FUP (@1 year), reinforcing the favourable outcomes of DEB, with a median FUP of 19 months. The Kaplan-Meier curve illustrates superior survival in the drug-eluting balloon group compared to the other strategies.

Conclusions: Treating the LM bifurcation side branches remains a nuanced decision. This cohort study, illustrating our experience on LM true bifurcating lesions, DEB demonstrated non-inferiority of DEB strategy compared to PS and 2S, with no MACE during FUP, while providing complete revascularization of bifurcation in a safer mode with less foreign material. The sample size is small, as this represents an initial experience with DEB in the lateral vessel, with larger populations required to validate these findings and refine treatment strategies for LM bifurcations.

Sábado, 12 Abril de 2025 | 08:00-09:00

Sala Arrábida | Sessão de Comunicações Orais 10 – Doença cardiovascular em doentes oncológicos e anticoagulação

CO 46. CLINICAL OUTCOMES OF TAVI IN PATIENTS WITH ACTIVE CANCER – A BRIDGE TO SUCCESS?

Rita Almeida Carvalho[1], Luís Raposo[1], João Vítor Slaviero[2], Ana Duarte Mendes[3], Francisco Albuquerque[1], Catarina Brízido[1], Pedro de Araújo Gonçalves[1], Henrique Mesquita Gabriel[1], João Brito[1], Marisa Trabulo[1], Rui Campante Teles[1], Manuel Almeida[1]

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Introduction and objectives: Oncologic disease is an increasingly prevalent condition that introduces additional challenges for transcatheter aortic valve intervention (TAVI) due to associated comorbidities and its impact on long-term outcomes. This study assessed the prognosis of patients with active cancer and concomitant aortic stenosis (AS) deemed eligible for TAVI.

Methods: Retrospective single-center study of patients with active cancer - defined as malignancy undergoing treatment, planned for treatment, or with treatment completed within one year - who underwent TAVI between November 2008 and October 2024. Eligible patients had severe AS or bioprosthetic valve dysfunction and underwent either transcatheter aortic valve replacement (TAVR) or balloon aortic valvuloplasty (BAV), with BAV used as a bridging procedure in cases of uncertain prognosis. Data on

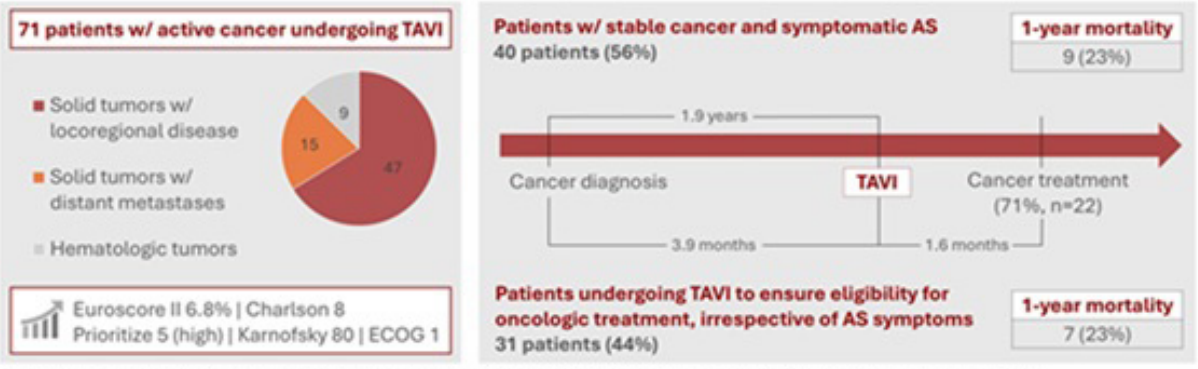

Figure 1. Timeline of median times to TAVI, oncologic treatments, and outcomes in patients with active cancer undergoing TAVI.

Figure CO 46

demographics, clinical and echocardiographic parameters, malignancy characteristics, procedural details, and follow-up outcomes were analyzed.
Results: Among 2,185 TAVI patients, 71 (3.2%) had active cancer (mean age 77 ± 15 years; 51% male). Most had solid tumors (87%, n = 62), predominantly gastrointestinal (31%, n = 22) and prostate (16%, n = 11). Cancer stages included localized (stage 1/2 40%, n = 28), locoregionally advanced (24%, n = 17), and metastatic disease (21%, n = 15). Patients had high surgical risk and significant comorbidities (mean EuroSCORE II 6.8 ± 7.0%; Charlson index 8.0 ± 1.8; Karnofsky score 80 ± 12). Bleeding was a common cancer-related symptom (25%, n = 18), particularly in gastrointestinal cancers (15%, n = 11). The mean aortic gradient was 45.9 ± 11.1 mmHg, and 17% (n = 12) had left ventricular ejection fraction < 40%. Most were severely symptomatic (NYHA III/IV 52%, n = 37) with a median NT-proBNP of 1,959 pg/mL (IQR 815-4,064). In 40 patients (56%) with stable cancer and symptomatic AS, TAVR was performed at a median of 1.9 years (IQR 1.0-1.7) after cancer diagnosis. In this group, 23% (n = 9) died within the first-year post-procedure. The remaining 31 patients (44%) had recent cancer diagnoses prior to TAVI (median 3.9 months, IQR 2.9-7.0), and intervention was conducted to ensure eligibility for oncologic treatment regardless of AS symptoms. In this group, BAV was initially performed in 12 patients, with 7 subsequently undergoing TAVR after a median of 8.4 months (IQR 7.6-10.3). Following TAVI, 71% (n = 22) received oncologic treatment, primarily surgery (29%, n = 9). In this subset, 23% (n = 7) died within the first-year post-procedure. Overall mortality was 23% at 1 year and 44% over a median follow-up of 1.4 years (IQR 0.5-2.5), with a median survival of 11.5 months (IQR 3.7-24.6).
Conclusions: Careful patient selection and a multidisciplinary approach are crucial for optimizing outcomes in patients with active cancer undergoing TAVI. Further research is needed to evaluate long-term outcomes in this population.

CO 47. CLOSING THE GAP: LEFT ATRIAL APPENDAGE OCCLUSION IN ATRIAL FIBRILLATION PATIENTS WITH CANCER

Sofia Esteves, Miguel Nobre Menezes, Catarina Santos Gregório, Ana Abrantes, Ana Rita Francisco, Catarina Simões Oliveira, Tiago Rodrigues, João Silva Marques, Gustavo Lima da Silva, João de Sousa, Pedro Pinto Cardoso, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Left atrial appendage occlusion (LAAO) is increasingly used to prevent stroke in patients with atrial fibrillation (AF), particularly those with contraindications to long-term anticoagulation. This approach is particularly relevant for cancer patients, who face a high risk of thromboembolic events and potential complications from anticoagulant therapy. However, data on LAAO in this population are limited.
Objectives: To evaluate the safety and efficacy of LAAO in cancer patients with AF compared to those without cancer.
Methods: A single-center retrospective study of patients who underwent percutaneous LAAO between November 2009 and December 2024. Procedure details, complications, CHA2DS2-VASc, and HAS-BLED scores were analyzed. Adjustments for these scores ensured comparable groups. Efficacy was defined as stroke, systemic embolism, or all-cause death. Safety endpoints included procedural complications and major bleeding events. Kaplan-Meier survival analysis was performed to evaluate efficacy and safety outcomes.
Results: Among 215 patients, 42 had a history of cancer (13 gastrointestinal, 10 hematologic, 4 genitourinary). Of these, 15.9% had active cancer, while 84.1% had previous cancer. The mean age was 74.4 ± 1.2 years, with 36% male; 55% had permanent AF, and 36% had a prior stroke. Median CHA2DS2-VASc and HAS-BLED scores were comparable between groups (4.1 ± 0.2 vs. 4.1 ± 0.1, p = NS; 3.2 ± 0.2 vs. 3.0 ± 0.1, p = NS). Referral reasons for LAAO in cancer patients included gastrointestinal bleeding (41%), high bleeding risk (14%), and anemia (10%). The procedure duration was 86.9 ± 5.2 minutes, with a 92.9% success rate, similar to non-cancer patients. Watchman devices were implanted in 39 patients, Amulet devices in the rest, with an average size of 27 ± 1 mm (p = NS). No acute procedural complications were observed in cancer patients. After the procedure, 26% of patients were on therapy with VKAs and aspirin (used until 2014), 46% were on dual antiplatelet therapy, and 14% were on NOACs, with no differences between the two groups. Major bleeding events occurred in 2 patients (1 genitourinary, 1 gastrointestinal), while minor bleeding events were reported in 7 cases (9 events in cancer patients vs. 22 events in non-cancer patients, p = 0.12), as defined by the VARC 3 criteria. During a follow-up of 52.8 ± 7.8 months, 18 cancer patients died (none from cardiovascular causes), and 1 patient had an ischemic stroke, representing 0.4% of the patients. No significant differences were found between cancer and non-cancer patients regarding safety (LogRank p = 0.44) or efficacy outcomes (LogRank p = 0.11).
Conclusions: In real-world practice, LAAO is a safe and effective option for cancer patients with AF, with outcomes similar to non-cancer patients. It should be considered a valuable strategy for managing these high-risk patients.

		Patients with Cancer	Other patients	P-value
		(N=42)	(N=173)	
Baseline demographics				
Age, years		74.4±1.2	74.5±0.7	NS
Male gender, n (%)		27 (64)	110 (64)	NS
Arterial hypertension, n (%)		37 (89)	162 (94)	NS
Diabetes, n (%)		13 (31)	53 (31)	NS
Previous stroke, n (%)		15 (36)	65 (38)	NS
CHA_2DS_2-VASc score		4.1±0.2	4.1±0.1	NS
HAS-BLED score		3.2±0.2	3.0±0.1	NS
Acute success, n (%)		39 (92.9)	168 (97.2)	NS
Acute complications, n (%)		0	8 (4.6)	NS
Hemorrhagic events, n (%)		9 (21)	22 (13)	NS
	Minor bleeding	7 (17)	21 (12)	NS
	Major bleeding	2 (5)	1 (2)	NS
Ischemic events, n (%)		1 (0.4)	11 (6)	NS
	Stroke	1 (0.4)	7 (4)	NS
	Other embolic event	0	4 (2)	NS

Table 1 - Comparison of baseline demographics, procedure time, success rates, complications, and long-term safety and efficacy between cancer and non-cancer patients who underwent LAAO.

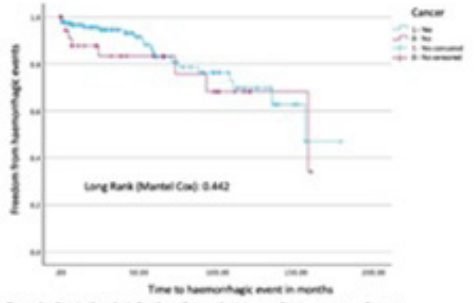

Figure 1 – Survival analysis for the safety endpoint according to presence of cancer.

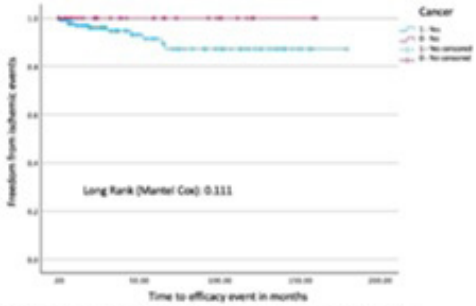

Figure 2 – Survival analysis for the efficacy endpoint according to presence of cancer.

Figure CO 47

CO 48. BODY FAT AS A PREDICTOR OF IMPAIRED CARDIORESPIRATORY FITNESS IN BREAST CANCER PATIENTS TREATED WITH ANTHRACYCLINES

Luísa Pinheiro, Margarida de Castro, Mariana Tinoco, Emídio Mata, Bárbara Lage Garcia, Tamara Pereira, Mário Lourenço, Filipa Castro, Alexandre Teixeira, Gonçalo Torres, Olga Azevedo, António Lourenço

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Introduction: Cardiorespiratory fitness (CRF), indicated by peak oxygen consumption (Vo2peak), is a strong predictor of quality of life, heart failure (HF) and mortality in cancer patients. Anthracycline chemotherapy (AC) is known to reduce CRF, independently from left ventricular ejection fraction (LVEF) and global longitudinal strain (GLS). Non-cardiac mechanisms underlying this decline in CRF remain however unclear. Body composition, which can be affected by cancer/cancer treatment-induced metabolic changes, may influence physical activity and clinical outcomes. Therefore, assessing body composition may provide valuable insights into the factors contributing to impaired CRF in breast cancer (BC) patients treated with AC.
Objectives: To evaluate the impact of AC in body composition of BC patients and to assess whether body composition these changes after AC are associated with impaired CRF.
Methods: A prospective study was conducted in women diagnosed with BC undergoing AC. Participants were assessed at two time points: before AC and twelve months post-AC. During each visit, cardiopulmonary exercise testing (CPET) was performed to measure CRF, and body composition was analysed using Bioelectric impedance analysis (BIA). Functional disability (FD) was defined as a Vo2peak ≤ 18.0 mL/kg/min.
Results: A total of 32 women were included in the study. FD increased significantly over time, from 9% prior to AC to 44% one month after AC and 53% six months post-AC. Before AC, patients with FD, had a significantly higher body mass index (BMI) (35.3 ± 1.0 vs. 26.2 ± 3.2 kg/m^2, p < 0.001), as well as higher body fat (39.5 ± 5.6 vs. 23.4 ± 6.3 kg, p < 0.001) and visceral fat levels (18.3 ± 2.1 vs. 10.4 ± 3.7, p = 0.001). Twelve months after AC, patients with FD also exhibited higher body fat and visceral fat levels (27.9 ± 9.1 vs. 21.9 ± 5.5 kg, p = 0.034; 14.2 ± 6.2 vs. 9.4 ± 3.6, p = 0.013). A significant association was found between body fat and Vo2peak, with body fat being independently associated to lower Vo2peak (each unit increase in body fat was associated with a decrease of -0.146 in Vo2peak, p = 0.004).
Conclusions: This study underscores the multifactorial nature of impaired CRF in BC patients undergoing AC. Body fat is independently and inversely associated with Vo2peak, highlighting the importance of non-cardiac factors, such as body composition, when evaluating CRF in this population. Further research is needed to better understand the impact of body composition on the overall health and physical performance of BC patients treated with AC.

CO 49. META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS ON THE EFFICACY OF DIRECT ORAL ANTICOAGULANTS IN LEFT VENTRICULAR THROMBOSIS: AN UPDATED PERSPECTIVE

Bernardo Manuel Lisboa Resende, Mariana Simões, Luísa Gomes Rocha, Tomás Carlos, Mafalda Griné, Gonçalo Batista, Ana Luísa Silva, Tatiana Santos, Rafaela Fernandes, Gonçalo Costa, João Gameiro, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Left ventricular thrombus (LVT) secondary to left ventricular dysfunction represents a clinical challenge with profound implications for patient morbidity and mortality. A substantial body of evidence has emerged on this topic. However, much of it is derived from observational studies, which lack randomization and consequently impose significant limitations. In line with this, the 2023 guidelines for Acute Coronary Syndrome recommend the use of direct oral anticoagulants (DOACs) or warfarin for LVT management, yet this recommendation is based on a single randomized controlled trial (RCT) with limited data, hindering critical analysis.
Objectives: Conduct a systematic review and meta-analysis to assess the efficacy and safety profile of DOACs compared with warfarin in the management of LVT.
Methods: We systematically searched the Cochrane Controlled Register of Trials, EMBASE, and PubMed, focusing exclusively on RCTs. We sought studies comparing the use of DOACs, without restrictions on active principles, against warfarin. The primary outcomes were overall thrombus resolution and major bleeding events, while secondary endpoints included all-cause mortality and stroke. We pooled dichotomous data using odds ratios (OR) to describe effect sizes, employing the Mantel-Haenszel procedure within a random-effects model, with a 95% confidence interval. Heterogeneity was assessed statistically using the I² index (< 25% low, 25-50% moderate, > 50% high heterogeneity).

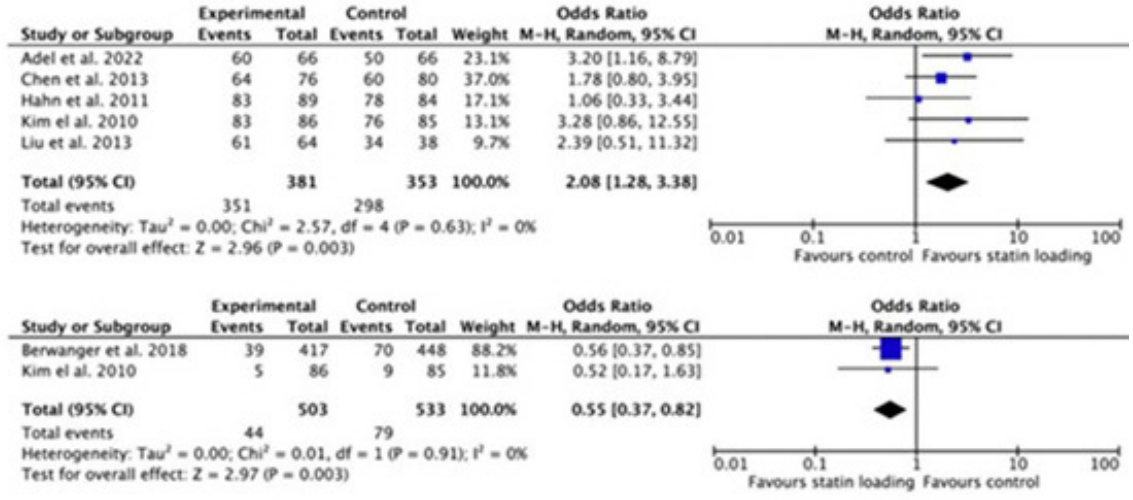


Image 1. Forest plot graphics of the analysed outcomes. 1.1 Post-percutaneous coronary intervention Thrombolysis In Myocardial Infarction flow 3; 1.2 Major Adverse Cardiovascular Events, defined as cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke within 30 days.
CI – Confidence interval. M-H – Mantel-Haenszel.

Figure CO 49

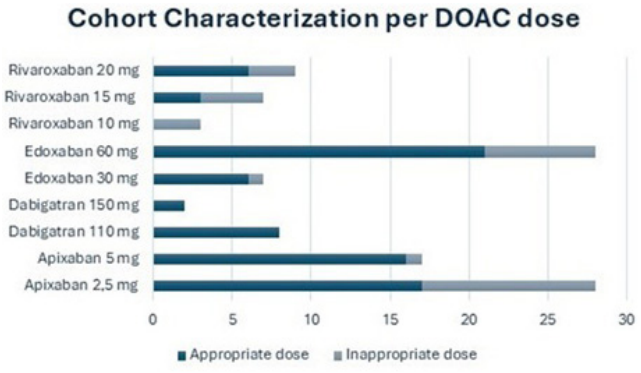
Results: Of the 290 records identified, 7 studies were included, providing data on 530 patients. Our meta-analysis revealed no significant differences in overall LVT resolution (pooled OR 1.52 [0.97, 2.36], p = 0.92, I^2 = 0), despite a trend favoring the DOAC group. Additionally, no differences were observed between groups regarding major bleeding events (pooled OR 0.51 [0.17, 1.52], p = 0.47, I^2 = 0). Furthermore, no differences were found regarding all-cause mortality (pooled OR 0.70 [0.20, 2.42], p = 0.57, I^2 = 0) or stroke (pooled OR 0.56 [0.12, 2.57], p = 0.42, I^2 = 0).
Conclusions: This meta-analysis indicates that DOACs are effective and safe alternatives to warfarin in the management of LVT. The advantages of DOACs, including their oral administration and ease of management, make them a more favourable option in contemporary clinical practice. Nevertheless, further large RCTs are necessary to further elucidate their role and optimize treatment strategies in this patient population.

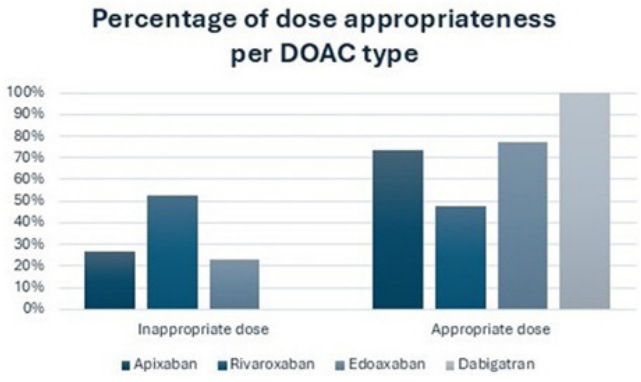
CO 50. INAPPROPRIATE DIRECT ORAL ANTICOAGULANT DOSING IN ATRIAL FIBRILLATION: A PORTUGUESE SINGLE-CENTER STUDY

Inês Brito e Cruz, Daniela Maurício, Ana Margarida Coutinho, Rita Bertão Ventura, Mafalda Griné, Tomás Carlos, Luísa Gomes Rocha, Maria João Primo, Didier Martinez, Luís Leite, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Direct Oral Anticoagulants (DOACs) are the first-line treatment in Atrial Fibrillation (AF). These therapies require dose adjustments based on factors such as age, renal function, body weight, and drug-drug interactions, increasing the risk of inappropriate dosing. Multiple studies showed that incorrect dosing regimens, whether under or overdosing, are associated with increased morbidity and mortality. This study aimed to evaluate the prevalence of inappropriate DOAC dosing and assess the association between the type of DOAC and dosing appropriateness in a cohort of AF patients.





Methods: A single-center retrospective study reviewed 685 patients who underwent an electrocardiogram in the emergency department between March 24 and March 30, 2024. Among these, 141 patients were identified as having either known or newly diagnosed AF. Patients were excluded if they were on warfarin, died during hospitalization, experienced major bleeding, had incomplete data. Those with specific conditions such as an estimated glomerular filtration rate < 15 or total dependency were also excluded, resulting in 109 eligible patients. Dosing appropriateness was assessed according to the European Society of Cardiology guidelines 2024 for AF.
Results: The cohort included 109 patients with AF (mean age 80.8 ± 11.8 years, 64% female) receiving DOACs: apixaban (n = 45, 41%), edoxaban (n = 35, 32%), rivaroxaban (n = 19, 17%) and dabigatran (n = 10, 9%). Inappropriate dosing was observed in 30 patients (28%), of whom 19 (63%) were underdosed and 11 (37%) were overdosed. Apixaban accounted for the highest number of inappropriate doses (n = 12, 9 underdoses, 3 overdoses). Rivaroxaban had 10 inappropriate doses (6 underdoses, 4 overdoses), while edoxaban had 8 (1 underdose, 7 overdoses). Notably, no inappropriate doses were observed with dabigatran. A chi-square test revealed a significant association between the type of DOAC and dosing appropriateness (p = 0.017). Furthermore, the type of DOAC was also statistically significant for both underdosing (p = 0.001) and overdosing (p = 0.001) within the inappropriate dosing group.
Conclusions: This single-center study highlights that inappropriate DOAC dosing is a prevalent issue in clinical practice, particularly as underdosing. These findings underscore the importance of careful dosing and monitoring of DOAC regimens to minimize errors and reduce the risk of adverse outcomes in AF patients.

Sábado, 12 Abril de 2025 | 08:00-09:00

Sala D. Luís | Sessão de Comunicações Orais 11- Avanços na gestão da insuficiência cardíaca

CO 51. INTERMITTENT LEVOSIMENDAN AND SURVIVAL OUTCOMES IN ADVANCED HEART FAILURE: A REAL-WORLD, SINGLE-CENTRE STUDY

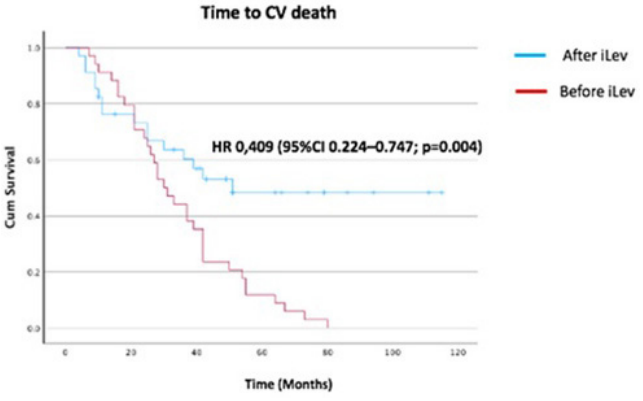
João Fernandes Pedro[1], Catarina Gregório[1], Ana Abrantes[1], Fátima Salazar[2], Ana Francês[2], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Cardiology Department, Hospital de Santa Maria (ULS Santa Maria).

Introduction: Previous studies suggest that intermittent levosimendan administration (iLev) in patients with advanced heart failure (HF) may be associated with a reduction in HF admissions, however its impact on survival is still not well established.
Objectives: The aim of this study was to evaluate the prognostic impact of intermittent levosimendan administration in a cohort of patients with advanced heart failure.
Methods: Single-center, prospective, one-arm study of consecutive advanced HF patients who received iLev therapy at a tertiary hospital. The total number of HF admissions after iLev initiation was compared to the number of HF admissions that occurred in the exact same time period before starting iLev for each patient. The impact of iLev in survival was assessed by comparing the predicted life expectancy (PLE) at baseline estimated by the Seattle Heart Failure Model (SHFM) with the observed

survival. For patients that have not surpassed their PLE nor died at the end of follow-up, a PLE recalculation was performed and the PLE difference was used to evaluate the survival benefit. Left ventricle (LV) assist device implant and heart transplant dates were considered the end of follow-up in patients that undergone these procedures. Wilcoxon test, Kaplan-Meier and Cox regression analyses were used to assess the prognostic impact of iLev.

Results: The study included 34 advanced HF patients - 79.4% male; median age of 68 (IQR 63-73) years; baseline LV ejection fraction of 24% (IQR 16%-27%); mostly in NYHA Class III (82.4%). The median follow-up time was 1.3 years (IQR 0.7-2.7 years). Of these, 35.3% surpassed their PLE, 32.4% died before reaching it and 32.3% were still alive but had not yet reached it. The median PLE determined by the SHFM at baseline was 30.5 (IQR 21-44) months and the observed survival or recalculated PLE at the end of follow-up was 39.5 (IQR 11-54.25) months. Survival analysis demonstrated that patients receiving iLev had a significantly better survival probability when compared to their baseline predicted survival (HR 0.409; 95%CI 0.224-0.747; p = 0.004) (Figure 1). iLev was also associated with a reduction in the total number of HF admissions: 4 admissions/patient/year before iLev Vs. 2 HF admissions/patient/year (p < 0.001).



Conclusions: Intermittent levosimendan administration may be associated with improved survival and with a reduction in HF admissions in advanced HF patients, highlighting its role as a supporting therapy in a particular subset of patients with highly complex clinical needs and a lack of readily available effective therapeutic options.

CO 52. IMPACT OF FUNCTIONAL MITRAL REGURGITATION ON OUTCOMES FOLLOWING CARDIAC RESYNCHRONIZATION THERAPY FOR HEART FAILURE

Isabel Martins Moreira, Marta Catarina Bernardo, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Inês Silveira, Ilídio Moreira

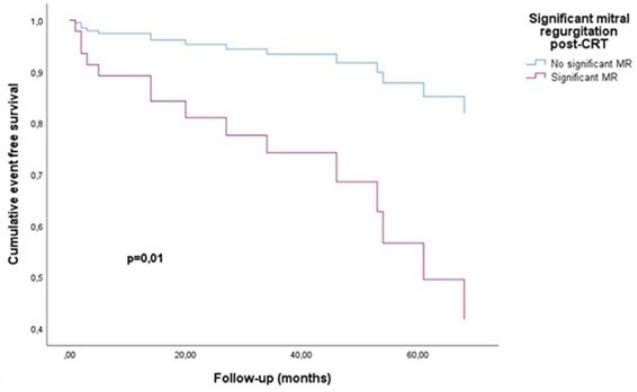
Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Functional mitral regurgitation (FMR) is common in heart failure (HF) patients undergoing cardiac resynchronization therapy (CRT). Although CRT can improve FMR, the long-term evolution and prognostic significance of FMR post-CRT remain unclear.

Objectives: This study aims to evaluate the prevalence, evolution, and prognostic impact of FMR in HF patients undergoing CRT.

Methods: We conducted a single-center retrospective study of consecutive patients who underwent CRT implantation between January 2017 and April 2024. Echocardiographic assessments were performed at baseline and 6-12 months post-CRT. FMR severity was classified as mild, moderate or severe, according to quantitative and qualitative methods, and FMR improvement was defined as a reduction of ≥ 1 grade in MR class. Patients with a ≥ 15% reduction in left ventricle end-systolic volume (LVESV) or a ≥ 10% increase in left ventricle ejection fraction (LVEF) were considered responders to CRT. The primary endpoint was major adverse cardiac events (MACE), including cardiovascular mortality or HF hospitalization.

Results: A total of 206 patients (median age 74 [IQR 66-79] years, 68.4% male, 67.5% non-ischemic etiology, 88.7% NYHA class II-III) were evaluated. At baseline, FMR was present in 152 patients (55.3% mild, 34.2% moderate, 10.5% severe), with a total of 68 patients having significant FMR (moderate or severe). Significant FMR was more common in older patients (74.0 vs. 71.5 years, p = 0.012) and women (54.9 vs. 36.0%, p = 0.024). At 1-year follow-up, FMR improved in 59.6% of patients with significant FMR. As expected, these patients exhibited better CRT response (90.3 vs. 60.0%, p = 0.015), lower LVESV (65 [43-96] ml vs. 128 [101-169] ml) and lower proBNP levels (567 [277-1,692] pg/mL vs. 4071 [1,203-9,351] pg/mL, p < 0.001). During a mean follow-up of 35 ± 24 months, 18 (8.7%) patients died from cardiovascular causes and 44 (21.4%) experienced MACE. Persistent significant FMR post-CRT was associated with an increased risk of MACE, after adjusting for CRT response (HR: 4.369, 95%CI 1.425-13.398, p = 0.01).



Conclusions: In this study, 59.6% of patients experienced FMR improvement, which correlated with better therapeutic response and prognosis. In contrast, persistent significant FMR post-CRT was associated with a higher incidence of MACE, regardless of CRT responsiveness. These findings highlight the need for closer follow-up and the importance of considering valvular interventions in patients with persistent FMR post-CRT.

CO 53. CRT-P VS. CRT-D IN NON-ISCHEMIC CARDIOMYOPATHY: STILL A MATTER OF DEBATE

Marta Catarina Bernardo, Isabel Martins Moreira, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Pedro Mateus, Sofia Silva Carvalho, José Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Cardiac resynchronization therapy (CRT) is a treatment with proven evidence in patients with heart failure and desynchrony. However, adding a defibrillator in patients with non-ischemic cardiomyopathy (NICM) is still a matter of debate and there are no clear recommendations about it.

Objectives: To compare a population of patients (pts) with NICM that received CRT-D with the ones that received CRT-P in terms of basal characteristics, implant complications and clinical evolution.

Methods: Retrospective study of consecutive pts with NICM and a left ventricular ejection fraction (LVEF) ≤ 35% submitted to CRT implantation in a single centre between 2017 to 2024. The primary outcome was all-cause death and the secondary outcome was cardiovascular (CV) death. Response to CRT was defined as ≥ 10% improvement in LVEF or ≥ 15% reduction in left ventricular end systolic volume.

Results: Out of a total of 221 pts, we included 91 pts, 58.2% male, median age 73.0 (IQR 36-87) years. The rate of success of transvenous implantation was 96.7% and the remaining pts implanted epicardial lead. Pts who implanted CRT-D were significantly younger (67 (IQR 36-84) years vs. 78 (IQR 51-87) years (p < 0.001)). We found no significant differences between groups in terms of cardiovascular risk factors, rates of atrial fibrillation (37 vs. 33%, p = 0.75) or chronic kidney disease (p = 0.08). Both groups had similar LVEF (26 ± 5 vs. 27 ± 5%, p = 0.31) as well as rates of left bundle branch block (65 vs. 61%, p = 0.64). The pro-BNP of the CRT-P group was significantly higher compared to CRT-D group (1,760 (129- 8,761) pg/ml vs. 3546 (IQR 418-15,115) pg/ml, p = 0.004). There were no differences between the two groups in complications, namely hematoma (p = 0.46), infection (p = 0.38) or lead dislodgement (p = 0.84). During a median follow-up of 39 (IQR 17-61) months, 20 (22%) patients died (55% of CV causes), 10 (11.0%) had ventricular tachycardia/ appropriate therapy and 88% presented echocardiographic response to CRT. There were no differences between the groups in all-cause death (18 vs. 28%, p = 0.78) or CV death (14 vs. 10%, p = 0.62). In a multivariate analysis, after adjusting for age and pro-BNP, the implantation of a defibrillator didn't reduce all-cause mortality (HR: 1.23; 95%CI: 0.50-3.18, p = 0.62) (Figure 1) or CV mortality (HR: 1.8; 95%CI: 0.53-6.21, p = 0.35) (Figure 2).

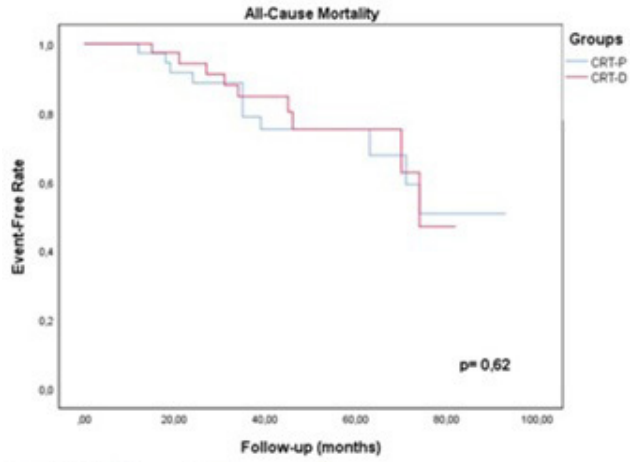


Figure 1- Kaplan-Meier curve for all-cause mortality.

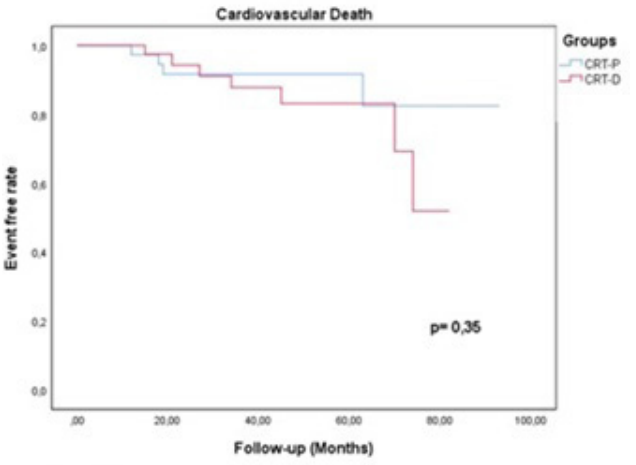


Figure 2- Kaplan-Meier curve for cardiovascular death.

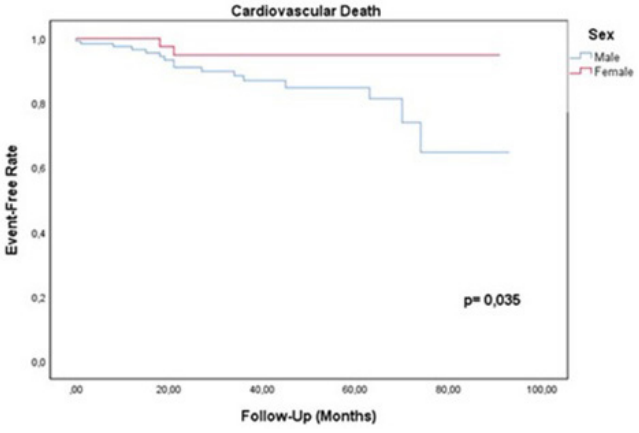
Conclusions: In our population of pts with NICM and a LVEF ≤ 35% and an indication to CRT, the addition of a defibrillator lead was not significantly associated with a reduction in all-cause mortality or cardiovascular mortality, suggesting the need to improve risk stratification to identify the best candidates for CRT-D implantation in this setting.

CO 54. THE RELATIONSHIP BETWEEN SEX AND CARDIAC RESYNCHRONIZATION THERAPY: WHAT ABOUT WOMEN?

Marta Catarina Bernardo, Isabel Martins Moreira, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Pedro Mateus, Sofia Silva Carvalho, José Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Women are underrepresented in cardiac resynchronization trials; however, they have been shown to derive a greater benefit from CRT compared to men.
Objectives: To determine sex-specific differences in CRT in our population.
Methods: Single center retrospective study of patients (pts) submitted CRT implantation between 2017 and 2024. Echocardiographic CRT response was defined as a reduction in left ventricular end-systolic volume (LVESV) ≥ 15% or an improvement in LVEF ≥ 10%. Superresponse was defined as an increase in LVEF ≥ 20% or a reduction in LVESV ≥ 30%. The mean follow-up time was 36.3 ± 23.9 months.
Results: We included 182 pts, 69% males, age 74 (IQR 66-79) years, median LVEF 29% (IQR 25-33). Males had higher rate of tobacco use (38 vs. 7%, p < 0.005), obstructive sleep apnoea (12 vs. 2%, p = 0.026) and previous stroke (14 vs. 0%, p = 0.003). Ischemic aetiology was significantly more common in males (40 vs. 18%, p = 0.003), who also had higher rates of obstructive coronary disease (63 vs. 34%, p = 0.005) and prior revascularization (43 vs. 20%, p = 0.003). Women were more likely to present with left bundle branch block (51 vs. 78%, p 0.001). The mean QRS duration was 161 ± 28 ms with no differences between sexes. Women presented with higher NHYA functional class (NHYA Class III-IV in 35 vs. 53%, p = 0.029). No differences in LVEF between groups. Men had higher prevalence of valvular prostheses (14 vs. 4%, p = 0.047), and more dilated ventricles (mean left ventricular end-diastolic volume: 107 ± 35 ml/m2 vs. 93 ± 39 ml/m^2, p = 0.003; mean left ventricle diameter: 65 ± 8 mm vs. 61 ± 7 mm, p = 0.005). There were no significant differences in pre-CRT medication use, although men showed a trend toward higher use of sacubitril-valsartan (41.3 vs. 26.8%, p = 0.06). Women had higher CRT response rates compared to men (70 vs. 89%, p = 0.01) and were more likely to achieve superresponse (55 vs. 80%, p = 0.003). In multivariate analysis, after adjusting for possible confounders, female sex was an independent predictor of CRT response (HR 4.2, 95%CI: 1.4-12.4, p = 0.008). Regarding clinical evolution, there were no differences in heart failure hospitalizations (log-rank p = 0.92), but higher rates of cardiovascular mortality in men (12.8 vs. 3.6%, log-rank p = 0.035).



Conclusions: In our cohort, women showed significantly higher response rates to cardiac resynchronization therapy (CRT) and better clinical outcomes. Despite having less dilated ventricles and larger QRS widths, female gender was independently associated with improved CRT response. The higher prevalence of ischemic aetiology may contribute the poorer prognosis in males. These findings highlight the importance of increasing female representation in CRT trials and further investigating sex-specific factors affecting CRT outcomes.

CO 55. REDUCING THE BURDEN OF ADVANCED HEART FAILURE: A CLINICAL AND ECONOMICAL ANALYSIS OF AN INTERMITTENT LEVOSIMENDAN PROGRAMME

João Fernandes Pedro[1], Catarina Gregório[1], Ana Abrantes[1], Fátima Salazar[2], Ana Francês[2], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Cardiology Department, Hospital de Santa Maria (ULSSM).

Introduction: Advanced heart failure (HF) entails a high economic burden, mainly due to the frequent hospitalizations and emergency department (ER) visits that patients require. Previous studies suggest that intermittent levosimendan administrations (iLev) can reduce this economic burden by reducing HF-related admissions.
Objectives: To assess the impact of intermittent levosimendan treatment in the heart failure related economic burden in patients with advanced heart failure.
Methods: One-arm, prospective, single-center study of consecutive advanced heart failure patients receiving iLev at a tertiary hospital. The total number of HF-related hospitalizations and ER visits since iLev initiation and in the exact same time frame before iLev and the total number of iLev administrations, either as a 24-hour inpatient or a 6-hour outpatient administration were recorded. Cost analysis was based on standardized Ministry of Health rates for HF-related hospitalizations, ER visits and 6-hour day care hospital visits and the price of a levosimendan dose. Wilcoxon Signed-Rank Test was used for comparison.
Results: Over a 6-year period, 283 levosimendan infusions were administered to 34 patients, including 142 inpatient 24-hour infusions and 141 outpatient infusions. The median age was 68 (IQR 63-73) years, and the median left ventricle ejection fraction was 24% (IQR 16-27%). The median follow-up was 1.3 years (IQR 0.7-2.7 years). Within this time frame, the median number of admissions per patient before iLev was 4 (IQR 2-5) and after iLev, 2 (IQR1-3). The median number of ER visits before iLev was 5 (IQR 3-14) and 2 [IQR 1-5] after iLev. A significant reduction in both HF-related hospitalizations ($p < 0.001$) and ER visits ($p < 0.001$) after iLev initiation was observed. The mean cost per patient before treatment was €17,298.00 (IQR €8,957-23,696) and €10,682.50 (IQR €6,268-18,540) after iLev, representing a significant reduction in costs ($p = 0.010$). In the deterministic analysis, the mean total savings per patient after starting iLev was - €4,112.76.
Conclusions: Intermittent levosimendan infusions in patients with advanced HF resulted in a reduction in heart failure related hospital admissions, emergency department visits and overall healthcare costs. These results suggest that intermittent Levosimendan administration may be cost-effective and may generate important savings when used in a well select population with advanced heart failure.

Sábado, 12 Abril de 2025 | 08:00-09:00

Sala D. Maria | Sessão de Comunicações Orais 12 – Avanços em ablação: técnicas, ferramentas e resultados

CO 56. ZERO-FLUOROSCOPY ATRIAL FIBRILLATION ABLATION: INITIAL EXPERIENCE IN A SINGLE-CENTER COHORT

Miguel Sobral Domingues, Joana Certo Pereira, Francisco Moscoso Costa, Daniel Gomes, Gustavo Rodrigues, Daniel Matos, João Carmo, Pedro Galvão Santos, Pedro Carmo, Francisco Morgado, Diogo Cavaco, Pedro Adragão

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Zero-fluoroscopy (ZF) atrial fibrillation (AF) ablation is an innovative technique, combining intracardiac echocardiography (ICE) and mapping systems to avoid radiation exposure for both patients and physicians.
Objectives: This study aimed to describe a single-center experience with ZF AF ablation, focusing on procedural techniques, immediate success rates, and safety outcomes.
Methods: Retrospective data were collected for consecutive ZF ablation procedures performed between October 2023 and December 2024. A descriptive and statistical analysis was conducted for procedural features, immediate efficacy, and safety outcomes.

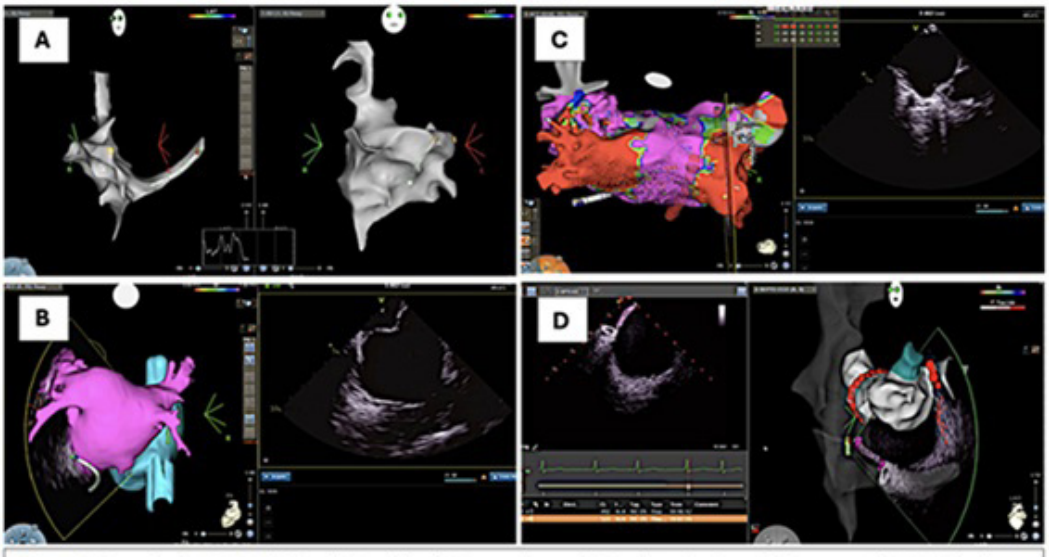


Figure 1: Steps during ZF AF ablation (PVI-only): A) RA mapping and CS catheterization with *Decanav;* B) ICE guided transeptal puncture; C) ICE guided LA mapping; D) Ablation (with RF in this case) – example from a patient of our cohort

Figure CO 56

Results: During the study period, 44 ZF ablation procedures were performed, including 22 AF ablation cases (60% male; mean age: 59 years). Paroxysmal AF accounted for 80% of cases and persistent AF for 20%. This represented 2% of the total AF ablation cohort (n = 758) during the same period. All patients underwent right atrial mapping and coronary sinus catheterization using a *Decanav* catheter. Transseptal puncture and left atrial mapping were guided by intracardiac echocardiography (ICE) with *CARTO 3* (n = 20) and *Ensite NavX* (n = 2) mapping systems. *Cartosound FAM* IA based module was employed for anatomical mapping in 50% of cases (n = 11). Complete pulmonary vein isolation (PVI) was achieved in all patients, with additional linear ablation performed in 4 cases. Radiofrequency was used in 14 patients (64%) and pulse field ablation (PFA) in 8 patients (36%). Among PFA cases, *VARIPULSE* ablation catheter was used in 5 patients and *FARAPULSE* in 3 patients. Sinus rhythm was restored in 85% of cases, with 15% requiring electrical cardioversion. For cases with PVI-only, median left-sided catheter dwelling time and total procedure time were comparable to the global AF ablation cohort (46 min [IQR 38-58] vs. 55 min [IQR 44-72] and 78 min [IQR 73-115] vs. 79 min [IQR 63-106]; both, p > 0.05). No complications, including cardiac tamponade, stroke, or major vascular hemorrhage, were reported.
Conclusions: Our findings demonstrate the feasibility of ZF AF ablation, achieving radiation-free procedures with high safety and efficacy. Complete pulmonary vein isolation was successful in all cases, with no significant increase in procedure duration compared to standard fluoroscopy-guided ablation. This technique offers a promising and safer alternative for the treatment of AF, for both patients and physicians.

CO 57. PULSED FIELD ABLATION: A NEW STANDARD FOR SINGLE-SHOT ATRIAL FIBRILLATION ABLATION

Ana Lobato de Faria Abrantes, Miguel Azaredo Raposo, Catarina Gregório, João Cravo, Ana Bernardes, Joana Brito, Nelson Cunha, Afonso Nunes Ferreira, Gustavo Lima da Silva, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Pulsed field ablation (PFA) induces cell death through electroporation, offering a potentially safer and more effective method for atrial fibrillation (AF) ablation.

Objectives: To compare the acute and long-term efficacy, safety, and procedural duration of PFA and cryoablation (CA) for pulmonary vein isolation (PVI).
Methods: This single-center, prospective study included AF patients (pts) undergoing PVI with either PFA (Farapulse system) or CA from January 2023 to November 2024. Ablation included cavotricuspid isthmus (CTI) ablation for pts with concomitant atrial flutter (AFL). Groups were matched using propensity scores based on AF type and CHA_2DS_2-VASc scores. Acute success was defined as complete PVI. Safety was assessed by major/minor complications, and procedural duration was defined as the total skin-to-skin time. Kaplan-Meier survival analysis was used to compare the long-term efficacy, defined as freedom from AF, or atrial tachycardia post a 90-day blanking period.
Results: Of 315 pts undergoing PVI, 204 were matched (1:1): 64% male, 66 ± 13 years, CHA_2DS_2-VASc 2.4 ± 1.3, with paroxysmal (69%), short-duration (14%), or long-standing persistent AF (15%). Acute success (PFA: 99 vs. CA: 96%), major (PFA: 2 vs. CA: 1%) and minor complications (PFA: 1 vs. 5%) showed no significant differences (Table 1). Procedure time, which included CTI ablation in 20%, was shorter with PFA (55 ± 25 vs. 84 ± 28 min, p < 0.001) with similar fluoroscopy times (Table 1). One PFA pt died from femoral hemorrhage within 30 days. Over a 469 ± 19 days median follow-up, long-term efficacy showed no significant difference (PFA: 72 vs. CA: 66%) (Table 2).
Conclusions: PFA is an innovative technology for rapid PVI with comparable safety and efficacy, establishing it as the preferred single-shot AF ablation technique.

CO 58. ELECTROPHYSIOLOGICAL CHARACTERIZATION OF TACHYCARDIA CIRCUIT AND UNDERLYING SUBSTRATE IN ATYPICAL ATRIAL FLUTTERS

Guilherme Portugal[1], Mariana Pereira[2], Pedro Silva Cunha[1], Bruno Valente[1], Hélder Santos[1], Sofia Jacinto[1], Inês Neves[1], Rui Cruz Ferreira[1], Mário Martins Oliveira[1]

[1]Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta. [2]Biosense.

Introduction: Atypical atrial flutter (AFL) is an uncommon arrythmia due to an underlying atrial electrophysiological substrate which may be idiopathic or related to previous interventions. Data is lacking on the electrophysiological characterization of AFL circuits, which may help in the understanding of this complex arrhythmia.
Methods: Consecutive patients submitted to atypical atrial flutter ablation in a tertiary center were included. Only patients where the entire circuit

Safety outcome, n	PFA (N= 102)	CA (N=102)	pValue
Any major complication			
Hemopericardium	2	0	NS
Stroke	0	1	NS
Retroperitoneal bleeding	0	0	NS
Any minor complication			
Vascular access	1	2	NS
Transient phrenic nerve palsy	0	1	NS
Pericarditis	0	2	NS

Table 1: Comparison of pulsed field ablation to cryoablation regarding acute ablation success, complications and procedural time

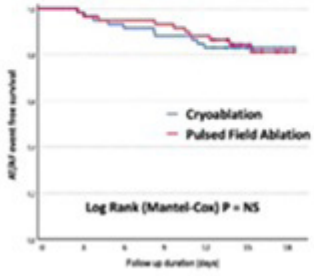


Table 2: Comparison of pulsed field ablation to cryoablation regarding acute regarding long-term efficacy

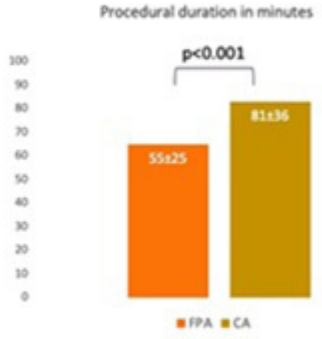
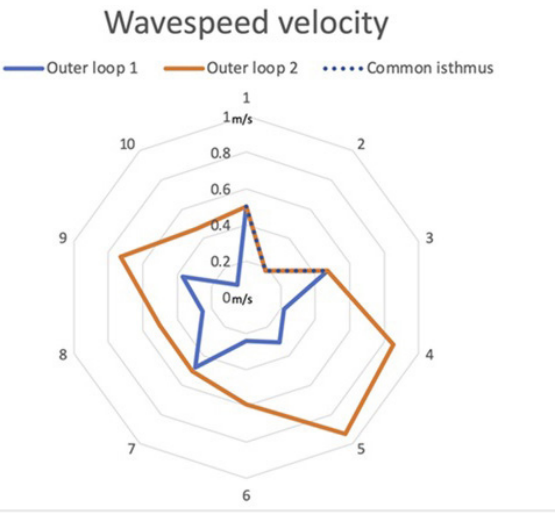


Table 3: Comparison of pulsed field ablation to cryoablation regarding procedural duration.

Figure CO 57

was mapped were included in the final analysis. The activation map was divided in 10 isochronal segments; after analysis of the tachycardia circuit, each segment was categorized as common isthmus or as outer loop. The propagation velocity was manually calculated for each segment. In addition, the presence of atrial substrate, defined as bipolar voltage < 0.3 mV, was assessed for each tachycardia component and calculated as a percentage of the total area of the circuit segment.

Results: 25 AFL circuits in 21 patients were analyzed, with a mean cycle length 280 ± 46 ms. All 21 patients had circuits related with low atrial voltage areas, which were due to previous intervention in 54% and spontaneous in 46%. The mechanism was microreentry in 12% and macroreentry in 88%, with 3,577 ± 1,911 points per activation map. The tachycardia was mapped to the left atrium in 72%, right atrium in 24% and was biatrial in 1 case; 11 circuits were single-loop, 14 were double loop and 1 was triple-loop. A total of 355 AFL segments were assessed of which 56 corresponded to the common isthmus and 299 to an outer loop; each circuit had a mean of 4 isthmus and 6 outer loop segments. Wavespeed velocity was 0.56 ± 0.37 m/s and did not differ between isthmus and outer loop (0.54 vs. 0.56, p = 0.73); a representative chart plotting the wavespeed for the different circuit isochrones is presented on Figure 1. The mean length of the tachycardia isthmus was 56 ± 27 vs. 116 ± 42 mm for the outer loop (p < 0.001). At multivariate regression analysis, critical isthmus segments were predicted by a smaller isochronal area (OR 1.15, CI 1.10-1.20, p < 0.001) and higher percentage of fibrosis (OR 7.3, CI 1.2-45, p = 0.03).



Markers 1 through 10 are consecutive isochrones and corresponding wavespeed of the circuit segment in a representative activation map

Conclusions: AFL circuits are invariably related to atrial substrate. Most circuits are complex, consisting of 2 or more loops. The critical isthmus has similar wavespeed velocity to the remaining tachycardia circuit but is more commonly found in narrow areas with high percentage of atrial fibrosis.

CO 59. VALIDATION OF IMAGELESS ELECTROCARDIOGRAPHIC IMAGING FOR ACCESSORY PATHWAY LOCALISATION IN WPW SYNDROME

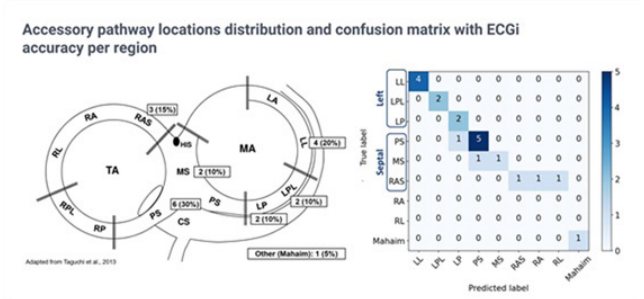
Sofia Monteiro[1], Jana Reventós Presmanes[2], Marta Martínez Pérez[3], Guilherme Portugal[1], Guilherme Lourenço[1], Pedro Silva Cunha[1], Andreu Climent[3], Mário Oliveira[1], Sérgio Laranjo[1]

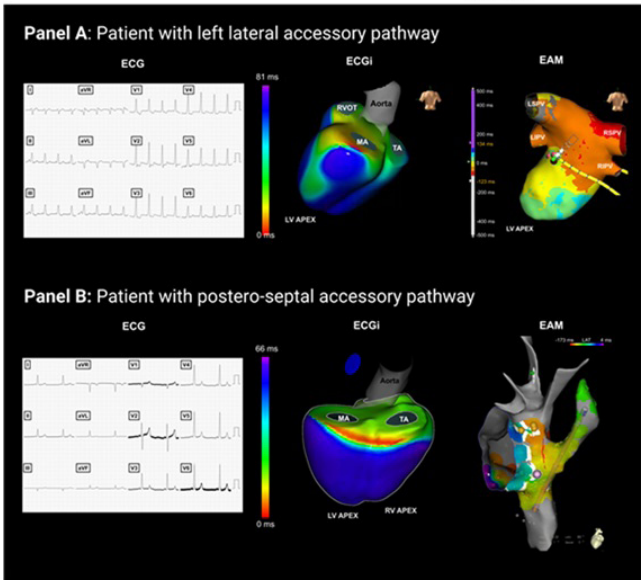
[1]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [2]Hospital Clínic Barcelona, Institut Clínic Cardiovascular (ICCV). [3]Universitat Politècnica de Valencia, ITACA, Valencia.

Introduction and objectives: Catheter ablation is the definitive treatment for Wolff-Parkinson-White (WPW) syndrome, where precise preprocedural localisation of accessory pathways (APs) is critical to optimise outcomes and reduce procedural time. Traditional imaging and ECG techniques often fall short, particularly for septal APs. This study evaluated the diagnostic accuracy of an imageless electrocardiographic imaging (ECGi) system that does not require additional CT or MRI in localising APs for targeted ablation.

Methods: In this single-centre prospective study, adult and paediatric patients with WPW syndrome referred for AP ablation were consecutively enrolled. Non-invasive electroanatomic mapping was conducted using an imageless ECGi system, which uses a 128-electrode array to record body-surface potentials, a 3D torso model generated via a structured light camera, and an artificial intelligence algorithm to estimate the patient's biventricular geometry. Epicardial electrograms were computed to obtain epicardial ventricular activation maps. The atrioventricular junction was divided into 11 regions using a modified Pappone classification to support AP localisation, with only the pathway responsible for ventricular pre-excitation being analysed in patients with multiple APs. The differential diagnostic capacity of the 12-lead ECG and ECGi was assessed by comparing the predicted AP locations with the ablation sites in invasive electroanatomical mapping (EAM) across three endpoints: (1) localisation within the same region, (2) within the same or adjacent regions, and (3) correct laterality (right, left, or septal).

Results: The study included 14 adult patients (mean age: 34.4 ± 16.4 years, 71.4% male) and six paediatric patients (mean age: 14.3 ± 0.71 years, 100% male). AP distribution included eleven septal pathways, eight left-sided pathways, and 1 Mahaim fibre. ECGi achieved a global accuracy rate of 80.0% in precisely localising APs to the correctly predefined AV region. When allowing for localisation in the adjacent area, the accuracy improved to 95.0%, and the accuracy in identifying laterality (right, left, or septal) was 90.0%. Notably, all mislocalizations were confined to septal pathways, suggesting the potential limitations of the current ECGi configuration in these complex anatomical regions. ECGi's diagnostic capacity was significantly superior to the 12-lead ECG (p < 0.05), which achieved an average accuracy of 45% for precise AP localisation, 70% when including the adjacent region, and 72.5% for laterality.





Conclusions: ECGi demonstrates a higher accuracy than the 12-lead ECG for AP localisation in WPW syndrome, supporting its use as a diagnostic tool for pre-ablation planning. Future integration of endocardial and epicardial mapping could improve accuracy for septal APs, further enhancing targeted ablation.

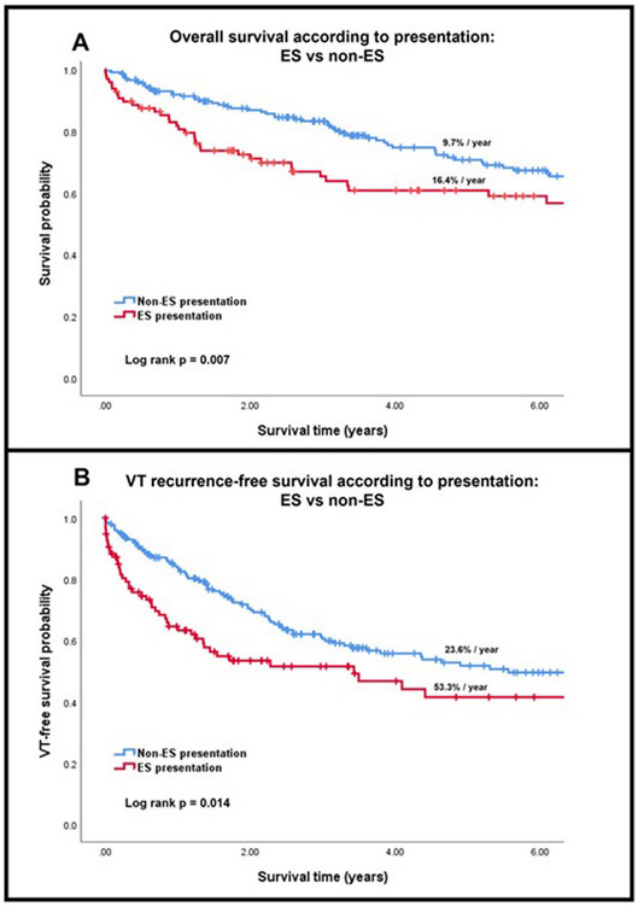
CO 60. LONG-TERM OUTCOMES OF VENTRICULAR TACHYCARDIA ABLATION IN PATIENTS PRESENTING WITH ELECTRICAL STORM

Joana Certo Pereira, Rita Barbosa Sousa, Daniel A. Gomes, Daniel Matos, Gustavo Rodrigues, João Carmo, Pedro Galvão Santos, Pedro Carmo, Francisco Moscoso Costa, Diogo Cavaco, Francisco Belo Morgado, Pedro Adragão

ULS Lisboa Ocidental, Santa Cruz.

Introduction: Catheter ablation (CA) is an established therapy for drug-resistant ventricular tachycardia (VT). Although previous reports suggest higher recurrence and mortality rates in patients presenting with electrical storm (ES), data on mid- and long-term outcomes remain scarce. We aimed to evaluate the clinical characteristics and long-term outcomes of patients presenting with ES undergoing VT ablation.
Methods: Single-centre registry of consecutive patients undergoing scar-related VT ablation from 2010 to 2024. ES was defined as ≥ 3 episodes of sustained VT or ventricular fibrillation in 24h. Clinical and procedural characteristics were assessed and compared between groups. Primary outcomes were VT-free survival and all-cause mortality. Safety outcome was a composite of tamponade, hemodynamic decompensation, acute heart failure, stroke, and procedure-related mortality.

Figure 1. Overall survival and VT recurrence-free survival according to presentation: Electrical Storm versus non-Electrical Storm.



Results: A total of 298 patients (aged 65 ± 13years, 91% male, mean left ventricular ejection fraction [LVEF] 34 ± 11%, 67% with ischemic cardiomyopathy, 20% redo procedures) were included. ES at presentation was observed in 32% (N = 96). Patients with ES had worse functional status (NYHA III-IV: 38.5 vs. 17.8%, p < 0.001), although there were no differences regarding age, sex, aetiology, and LVEF. Procedure and fluoroscopy duration were similar (165 vs. 154 min, p = 0.20; and 15 vs. 13 min, p = 0.20; respectively), and acute non-inducibility of VT was achieved in 81.4% (p = 0.772). Overall, the VT ablation approach was endocardial in 83.6% (n = 249), epicardial in 7.3% (n = 22), and combined in 9.1% (n = 27). Major complications were rare, including 2 cases of tamponade, 2 right ventricular punctures, 1 cases of acute heart failure with hemodynamic decompensation, and 2 procedure-related death. The complications rate was higher in the ES group (5.2 vs. 1.0%, p = 0.025). During a median follow-up of 3.4 (IQR 1.4-7.2) years, 127 patients (42.6%) suffered a VT relapse and 104 (34.9%) died. Compared to others, patients presenting with ES had higher rates of VT recurrence (53.3%/year vs. 23.6%/year, log rank p = 0.014) and death (16.4%/year vs. 9.7%/year, log rank p = 0.007) (Figure 1). ES remained independently associated with VT recurrence, even after adjusting for six clinical confounders (aHR 1.50 [95%CI 1.02-2.19], p = 0.039). Non-ischaemic aetiology (aHR 1.79 [95%CI 1.21-2.66], p = 0.004), atrial fibrillation (aHR 1.71 [95%CI 1.17-2.52], p = 0.006) and chronic kidney disease (aHR 1.59 [95%CI 1.08-2.35], p = 0.019) were the other predictors of relapse.
Conclusions: Patients presenting with ES undergoing VT ablation had higher rates of VT recurrence, mortality, and major complications compared to those without ES, even achieving similar acute procedural success. ES was an independent predictor of poorer long-term outcomes, highlighting the need for targeted strategies to improve prognosis in this high-risk population.

Sábado, 12 Abril de 2025 | 08:00-09:00

Sala Infante | Sessão de Comunicações Orais 13 - Fronteiras inovadoras no diagnóstico da doença arterial coronária e avaliação de risco: da imagem avançada aos resultados clínicos

CO 61. DIAGNÓSTICO DE DOENÇA CORONÁRIA ESTÁVEL POR ANGIO TOMOGRAFIA COMPUTADORIZADA COMO EXAME DE PRIMEIRA LINHA: ANÁLISE DE CUSTOS NUM CENTRO DE RESPONSABILIDADE INTEGRADA

Claúdia Russo[1], David Neves[1], Diogo Brás[1], Rita Rocha[1], Ricardo Ribeiro[1], Margarida Figo[1], Carlos Patinho[1], Amílcar Silva[1], Liliana Boieiro[1], Marisa Serrano[1], Sandra Oliveira[2], Lino Patrício[1]

[1]Hospital do Espírito Santo, EPE, Évora. [2]Instituto Politécnico de Santarém.

In the health sector, we must always promote greater efficiency, with a view to reducing failures in the services provided and thus guaranteeing greater quality in the care and treatment of users of the National Health Service (SNS), making correct and efficient use of the scarce resources available to us. In recent years, there has been an increase in cases of acute myocardial infarction (AMI) in the Portuguese population, largely due to cardiovascular risk factors. Most of these cases could have been avoided with good control of these factors, healthy lifestyle habits and early diagnostic imaging. Computed Tomography Angiography of the heart (CT Angiography) has recently emerged and can replace some tests. On its own, it helps to confirm and/or exclude CAD with its ability to detect CAD, calculate the coronary artery calcium score, as well as other cardiac pathologies. It also allows for extracardiac findings of decisive relevance to the patient's prognosis. It is a non-invasive test that is carried out with the injection of iodinated contrast to assess the flow of the arteries. The Centro de Responsabilidade Integrada Cérebro-Cardiovascular do Alentejo (CRIA) has cardiac CT Angiography equipment and aims to increase its capacity for correct diagnosis, reducing the time and waiting list for treatment of CD in the Alentejo. It also aims to reduce healthcare costs. The general aim of the project presented here is to assess whether the implementation of a protocol for the diagnosis and/or exclusion of stable CD, using CT angiography as a first-line test, is economically advantageous. Whether there will be *savings* for the Alentejo

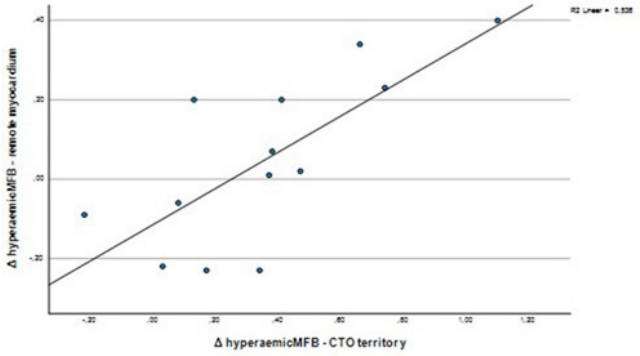
Central Local Health Unit (ULSAC). For this study, a survey was carried out of the number of MCDTs carried out in 2023 for the diagnosis of stable CD, the amount spent by ULSAC on these exams, as well as the amount spent on referring patients abroad for MCDTs that do not exist in this health unit. A survey was carried out of the costs per CT angiography, with human resources and consumables. We projected the amount that would be spent if the number of CT angiograms doubled as proposed by the project, and the amount that would be saved by reducing all other MCDTs by 50% and even eliminating others for the detection of stable CD. With the implementation of this project, it is estimated that ULSAC would *save* €345,045.16/year, but with great clinical benefit.

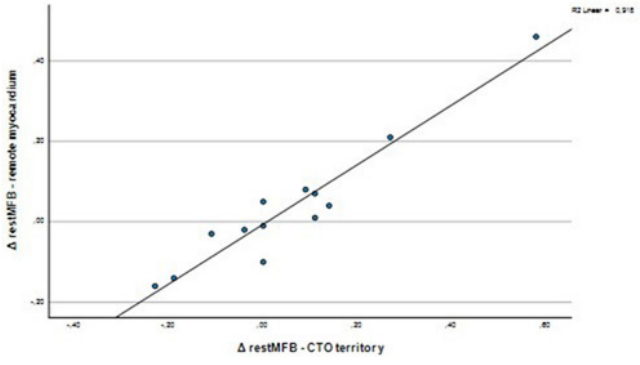
CO 62. ASSESSMENT OF MYOCARDIAL BLOOD FLOW CHANGES USING [13N]NH3 PET-CT IN CHRONIC TOTAL CORONARY OCCLUSION PATIENTS UNDERGOING PCI

Tomás M. Carlos[1], Inês Brito e Cruz[1], Luís Leite[1], Gustavo Campos[1], Rodolfo Silva[2], Andreia Gomes[2], Miguel Castelo-Branco[2], Antero Abrunhosa[2], Lino Gonçalves[1], Maria João Ferreira[1]

[1]Centro Hospitalar e Universitário de Coimbra/Hospitais da Universidade de Coimbra. [2]Instituto de Ciências Nucleares Aplicadas à Saúde (ICNAS), Coimbra.

Introduction: In chronic total coronary occlusions (CTO) the affected myocardium becomes vascularized by collateral networks from adjacent coronary vessels. The perfusion in the CTO territory is decreased, mainly in stress conditions, but also in remote areas because of the "steal phenomenon". There is limited data about changes in quantitative perfusion in these patients after percutaneous coronary intervention (PCI). Our aim was to assess changes in myocardial blood flow (MBF), measured in $mL.min^{-1}.g^{-1}$, in both CTO and remote myocardium territories after PCI, using $[^{13}N]NH_3$ positron emission tomography computed tomography (PET-CT).





Methods: We performed a single-centre prospective study involving patients with CTO who underwent myocardial quantitative perfusion assessment using $[^{13}N]NH_3$ both before and after PCI. Patients were excluded if they lacked indication for PCI based on current guidelines, had inadequate follow-up, insufficient data or did not complete imaging either before or after the procedure.

Results: Within our cohort of 19 patients with CTO who underwent PCI, 13 were submitted to pre and post- procedural assessment with $[^{13}N]NH_3$ PET-CT. The mean age was 68 years (± 4.3) and 76.9% were male. After PCI, hyperaemic MBF (hMBF) increased in CTO territory (Δ 0.36 ± 0.34, p = 0.003), whereas no statistically significant difference was observed in the remote myocardium (Δ 0.05 ± 0.21, p = 0.423). At rest, MBF (rMBF) did not significantly change after PCI in either CTO territory (Δ 0.06 ± 0.21, p = 0.351) or remote myocardium (Δ 0.04 ± 0.16, p = 0.444). Myocardial flow reserve also showed no differences between the two groups. Alterations in MBF in the CTO territory exhibited a strong linear correlation with the corresponding changes in the remote myocardium (hMBF: r = 0.732, p = 0.004; rMBF: r = 0.958, p < 0.001).

Conclusions: PCI reestablishes normal coronary perfusion and may lead to the regression of the collateral network. In our study, myocardial perfusion increased in the CTO territory in stress conditions, with no differences being observed at rest or in the remote myocardium in both conditions. Interestingly, a more significant improvement in CTO territory perfusion was associated with a greater increase in MBF in remote myocardium, likely reflecting the reduction of a previously larger coronary "steal phenomenon" after PCI.

CO 63. ASSOCIATION BETWEEN ABDOMINAL FAT DISTRIBUTION AND SEVERITY OF CORONARY ARTERY DISEASE: DATA FROM A LARGE COHORT OF PATIENTS SUBMITTED TO CARDIAC CT SCAN

Cátia Costa[1], Fábio Sousa Nunes[2], António S. Barros[1], João Manuel Pedrosa[3], Ricardo Fontes-Carvalho[2]

[1]Faculdade de Medicina da Universidade do Porto. [2]Unidade Local de Saúde de Gaia/Espinho. [3]INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência.

Introduction: Obesity is known as an important risk factor for the development of coronary artery disease (CAD). However, recent studies have suggested that abdominal fat distribution (AFD), such as the ratio between visceral and subcutaneous adipose tissue area, can be a stronger predictor of the presence and severity of CAD.

Objectives: We aimed to evaluate the association between different ratios of AFD, such as subcutaneous adipose tissue volume (SATVol) and visceral adipose tissue volume (VATVol) to Body Mass Index (BMI), SATVol and VATVol to total abdominal volume (AbdVol), and VATVol to SATVol, with CAD severity, assessed by coronary computed tomography angiography (CCTA) and the CAD-RADS classification system.

Methods: Retrospective analysis including 1641 patients who underwent CCTA for CAD assessment (2006-2023). Beyond cardiac CT, all patients acquired a single slice CT scan at abdominal level (L4/L5-S1 level). CAD-RADS data were extracted, and abdominal fat volumes (visceral and subcutaneous) were measured by filtering voxels with attenuation values between -150 and -50 HU. The association between AFD and the CAD-RADS was assessed using Welch's test and pairwise Games-Howell test.

Results: From the 1,641 patients (mean age 57 ± 10 years; 57% male), 62% were classified as CAD-RADS 0, 14% as CAD-RADS 1, 4% as CAD-RADS 2, 13% as CAD-RADS 3, 4% CAD-RADS 4, and 3% as CAD-RADS 5. Overall, an increase in all VATVol ratios was associated with greater CAD severity. The strongest association was observed with VATVol/BMI ratio (p < 0.0001; $\log_e(BF_{01})$ = -59.17), with the mean VATVol/BMI ratio increasing as CAD severity worsened. The second-strongest association with CAD severity was observed with VATVol/AbdVol ratio (p < 0.0001; $\log_e(BF_{01})$ = -47.91), followed by the VATVol/SATVol ratio (p < 0.0001; $\log_e(BF_{01})$ = -43.61). The SATVol/AbdVol ratio inversely correlated with CAD severity (p < 0.0001; $\log_e(BF_{01})$ = -39.96), with its mean decreasing as CAD severity worsened. A similar pattern was observed for the SATVol/BMI ratio, although with a weaker magnitude of evidence (p < 0.0001; $\log_e(BF_{01})$ = -8.31).

Conclusions: This study showed that the pattern of AFD is associated with CAD severity, particularly the ratios of VATVol/BMI and SATVol/AbdVol. These findings highlight the distinct roles of VAT and SAT in cardiovascular

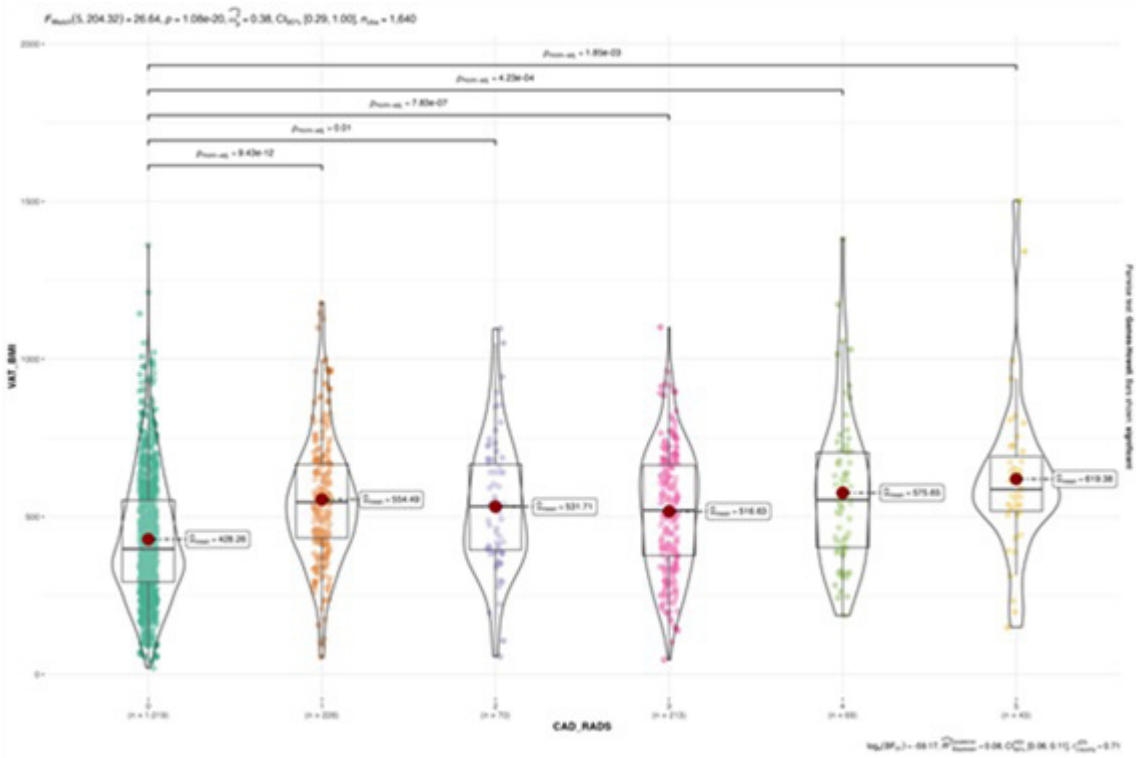


Figure CO 63

risk, with VAT linked to worsening CAD and SAT having a more beneficial metabolic effect. These data can be useful for individualized CAD risk stratification.

CO 64. STRUCTURAL INVASIVELY-ASSESSED CORONARY MICROVASCULAR DYSFUNCTION PHENOTYPE ASSOCIATES WITH THE PRESENCE OF MYOCARDIAL FIBROSIS IN CARDIAC MAGNETIC RESONANCE

Miguel Marques Antunes, Francisco Barbas Albuquerque, Eunice Oliveira, Ana Santana, Pedro Garcia Brás, Tiago Mendonça, Tiago Pereira da Silva, Rúben Ramos, Duarte Cacela, Rui Cruz Ferreira, Sílvia Aguiar Rosa, António Fiarresga

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Coronary microvascular disfunction (CMD) is related to the affection of the coronary microvasculature, common in hypertrophic cardiomyopathy (HCM). Invasive assessment of CMD through thermodilution methods allows for the calculation of coronary flow reserve (CFR) and index of microvascular resistance (IMR) - categorizing these patients (P) under a functional (low CFR normal IMR) or structural (low CFR high IMR) CMD phenotype. A structural disease phenotype is expected to be associated to myocardial fibrosis - however, this has never been demonstrated.
Objectives: To correlate findings of a structural invasively assessed CMD phenotype with myocardial fibrosis evaluated by cardiac magnetic resonance (CMR).
Methods: In a prospective single-center study, we opportunistically recruited consecutive adult P with an established diagnosis of HCM that had an indication to pursue elective coronarography (Figure 1). CFR was calculated as the ratio between resting and hyperemia mean transit times (TmnRest;TmnHyper). IMR was calculated as the ratio between distal coronary pressure (Pd) and the inverse of TmnHyper (IMR = Pd/TmnHyper-1). A cutoff of ≤ 22.0 in IMR, and ≥ 2 in CFR was used. P characteristics, coronary hemodynamic invasive assessment, and CMR data with quantification of late gadolinium enhancement (LGE) were obtained. A logistic regression model was used to test the predictive effect of LGE on CMD phenotype.

Figure 1 – Study workflow

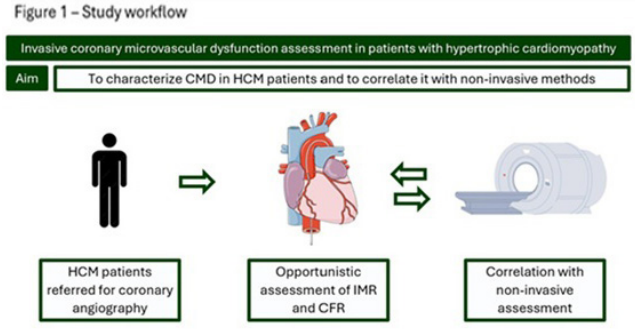


Table 1 – General patient characteristics

Baseline characteristics	n = 13
Age - yr	65 [57-75]
Male sex - n (%)	6 (46%)
Hypertension - n (%)	10 (80%)
Dyslipidemia - n (%)	2 (15%)
NYHA class [IQR]	2 [2-3]
Angina – n (%)	4 (31%)
Obstructive MCH phenotype – n (%)	11 (85%)
Pharmacotherapy	
Beta-Blocker - n (%)	11 (85%)
Calcium channel blockers – n (%)	8 (32%)
ACEi/ARAII - n (%)	6 (46%)

Table 2 – Invasive coronary microvascular function assessment

Invasive assessment	n = 13
Distal coronary pressure (Pd) - [IQR]	65 [59-76]
Resting mean transit time (TmnRest) [IQR]	0.32 [0.27-0.49]
Hyperemic mean transit time (TmnHyper) [IQR]	0.23 [0.20-0.31]
Coronary Flow Reserve (CFR) , [IQR]	1.5 [1.2-1.5]
Index of Myocardial Resistance (IMR) , [IQR]	19 [14-20]
Structural CMD pattern - CFR < 2 and IMR > 22, n (%)	3 (23%)
Functional CMD pattern - CFR < 2 and IMR < 22, n (%)	10 (77%)

Table 3 – Cardiac Magnetic Resonance Imaging assessment

Cardiac Magnetic Resonance Imaging	Patients with CMD (n=13)	Structural CMD pattern (n=3)	Functional CMD pattern (n=9)	P – value
LVDVi ml/m2 [IQR]	64 ml/m2 [56-82]	62 ml/m2 [57-91]	65 ml/m2 [55-77]	0.432
LVSVi ml/m2 [IQR]	20 ml/m2 [15-25]	19 ml/m2 [19-31]	21 ml/m2 [13-23]	0.532
LVEF % [IQR]	71% [67-77]	68% [66-70]	73% [70-80]	0.777
MWT mm [IQR]	19mm [17-22]	20mm [15-22]	18mm [18-22]	0.624
LGE % [IQR]	8% [6-15]	17% [14-19]	6% [6-8]	**<0.001**

Results: 34 consecutive P underwent invasive coronary microvascular assessment. Of these 13 P - median age 65 [57-75], 7 (54%) of which female - had a CFR ≤ 2 and CMR with LGE evaluation data available and were therefore included in this analysis (Table 1). Median CFR was 1.5 [1.2-1.5] and median IMR was 19 [14-20]. A total of 3 P (23%) had a phenotype compatible

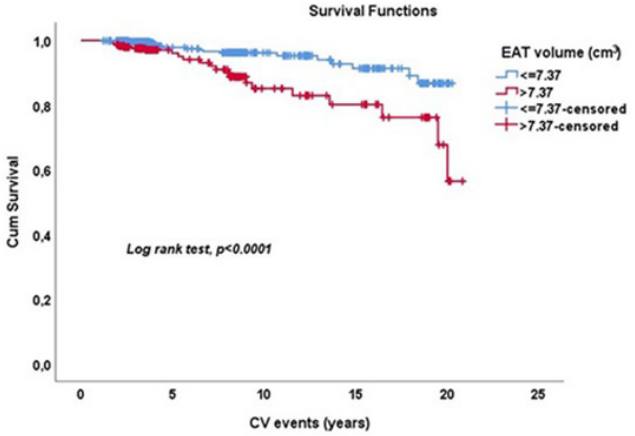
with structural CMD, with the remaining P presenting a functional CMD phenotype (Table 2). CMR revealed a median 8% [6%-15%] LGE of LV mass quantification. P with a structural CMD phenotype had a statistically significant higher LGE% – median 17% [14-19] vs. 6% [6-8] (Table 3). In a logistical regression model, the LGE% correlated with the presence of a structural CMD phenotype – OR 1.4 (95%CI 1.00-1.96, p = 0.047).
Conclusions: In a prospective cohort of HCM P, an invasively-assessed structural CMD phenotype was associated with the presence of extensive myocardial fibrosis assessed by CMR. A percentual increase in LGE correlated with higher odds of finding a structural CMD phenotype.

CO 65. EPICARDIAL ADIPOSE TISSUE VOLUME ARE RELATED TO SUBCLINICAL ATHEROSCLEROSIS AND MAJOR ADVERSE CARDIAC EVENTS IN ASYMPTOMATIC SUBJECTS

Gonçalo Bettencourt Abreu[1], Isabel Mendonça[2], Débora Sá[1], Francisco Sousa[1], Matilde Ferreira[1], Eva Henriques[2], Sónia Freitas[2], Mariana Rodrigues[2], Sofia Borges[2], António Drummond[2], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Universidade NOVA de Lisboa.

Introduction: Epicardial adipose tissue (EAT) volume is an imaging biomarker to detect individuals with a higher risk of coronary atherosclerosis. Recent research has shown its association with Coronary Artery Disease (CAD) prognosis.
Objectives: We propose to investigate whether CACS and EAT volume are associated in our population and, additionally, study the role of EAT volume alone in preventing overall major cardiovascular events (MACE) in a population free of cardiovascular disease.
Methods: This prospective study included 1,024 participants (58.3 ± 8.4 years; 75.6% male) from a Southern European population without apparent CAD and followed during an extended period (average 6.1 ± 4.8 years). All demographic, biochemical, CV risk factors and clinical data were performed. Non-contrast CT images obtained CACS and EAT, which was measured using a postprocessing workstation-the "TeraRecon Aquarius Workstation". Data were displayed as mean and standard deviation (SD). Student's t-test compared the numerical variables and Chi-square the categorical. Cox regression analysis, entering EAT volume, estimated variables independently associated with prognosis after adjustment to co-variates (age, gender, family history, alcohol, smoking, physical inactivity, body mass index, dyslipidemia and type 2 diabetes). Kaplan-Meier estimated the events-free survival. Statistical significance was defined as $p < 0.05$, and all analyses were performed using SPSS statistical software version 25.0.
Results: Increased EAT was associated with higher CAC score categories ($p < 0.0001$). After Cox regression analysis, the increased EAT volume was associated with an adjusted hazard ratio of 1.95 (95%CI: 1.02-3.75; p = 0.044). Higher EAT volumes presented worse survival free of events, when compared to lower EAT volumes.



Events-free survival analysis in the patients with low and high EAT volume

Conclusions: Our findings demonstrated that epicardial adipose tissue and CAC score categories are correlated significantly. When used 4,777 independently, EAT volume is a significant risk factor for MACES, and subjects with a high EAT volume had a worse vascular prognosis.

Sábado, 12 Abril de 2025 | 09:00-10:30

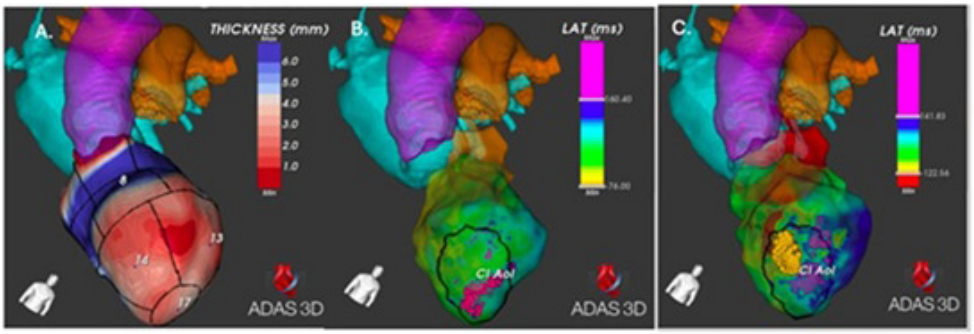
Espaço Ágora | Sessão de Comunicações Orais 14 – Prémio Jovem Investigador (Clínica e Básica)

CO 66. ECGI TO GUIDE VT ABLATION IN STRUCTURAL HEART DISEASE

Ana Lobato de Faria Abrantes, Afonso Nunes Ferreira, Catarina Gregório, Miguel Raposo, João Fonseca, Diogo Ferreira, Irina Neves, Joana Brito, Gustavo Lima da Silva, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: The efficacy of ventricular tachycardia (VT) ablation in patients (pts) with structural heart disease (SHD) remains sub-optimal, due to complex circuits and inability to map the clinical VT. Electrocardiographic imaging (ECGi) may allow to map the clinical VT, facilitating procedural planning. Its use in this specific setting has not been validated.
Objectives: Evaluate the accuracy of EGCi in predicting the area of interest for VT ablation and compare its accuracy with multidetector computed tomography (MDCT) and late gadolinium enhancement cardiac magnetic resonance (LE-CMR).
Methods: This prospective single-center study included pts with SHD referred for VT ablation. All pts underwent pre-procedural MDCT, and 55% also underwent LE-CMR, both segmented with ADAS-VT software. The MDCT area of interest was defined as the region with a wall thickness ≤ 6 mm. The LE-CMR area of interest was defined as the region with pixel signal intensity (PSI) ≥ 40 ± 5%. Heterogeneous tissue corridors were predicted in PSI maps, and their areas were measured. Noninvasive programmed stimulation was performed using a 252-electrode noninvasive 3D mapping system (CardioInsight™) under mild sedation after a 72h anti-arrhythmic drug suspension. The ECGi area of interest was identified as the earliest activated area (initial 20 ± 5 ms since the first dV/dT). MDCT, LE-CMR, and ECGi maps were co-registered and integrated into the electroanatomical mapping (EAM) system for the VT ablation procedure. The area of interest predicted by each pre-procedural planning method was compared to the location of local abnormal ventricular activities (LAVA). In pts in whom the clinical VT was mapped, the VT exit site location was also analyzed.
Results: We studied 20 pts (67 ± 14 years, 90% male, 50% ischemic SHD, LVEF 37 ± 11%). ≥ 1 sustained VT was mapped during the ECGi study in all patients. The median concordance between ECGi and EAM for the delineation of the area of interest for ablation was 61.6% [24.1-73.1] (Figure 1). ECGi correctly predicted the segments displaying LAVAs in 95% of pts, with a discordance of 8 mm in the remaining 5%. Among the various methods, ECGi was the most accurate in predicting the segment of interest for VT ablation, presenting a sensitivity of 92.5 ± 24.5%, specificity of 98.7 ± 2.7%, and accuracy of 98.2 ± 2.8%, $p < 0.01$ (Figure 2). ECGi analysis resulted in a more restricted area of interest (11.6 ± 6.9 cm^2) compared to MDCT (67.5 ± 53.3 cm^2), LE-CMR (55.9 ± 17.4 cm^2), and LE-CMR corridors (20.5 ± 10.4 cm^2), $p < 0.01$. During the ablation procedure, 17 VTs were mapped in 12 pts. We found an 88% overlap between the ECGi and the EAM-confirmed VT exit site.
Conclusions: ECGi is a valuable resource for pre-procedural planning in pts with SHD undergoing VT ablation, on top of advanced imaging modalities, accurately predicting the location of LAVAs and the VT exit site.



A. MDCT segmented with ADAS-VT software, demonstrating a large antero-apical ischemic scar.
B. Endocardial substrate map collected with Octaray and Carto™, with pink tags labeling LAVAs and black circle depicting the area of interest predicted by the ECGi.
C. Endocardial VT activation map covering the full VT cycle length, with yellow tags depicting the exit site region.

Figure 1: concordance between ECGi and EAM for the delineation of the area of interest for ablation

Pre-procedural planning	MDCT	LE-CMR (BZ+core)	LE-CMR (corridors)	ECGi (vs LE-CMR)
Sensitivity	65.0±48.9	60.0±45.9	66.7±50.0	92.5±24.5 *(P=0.01)*
Specificity	60.5±20.1	65.4±12.8	77.3±18.6	98.7±2.7 *(P < 0.01)*
Accuracy	60.9±18.3	60.9±18.3	76.3±20.4	98.2±2.8 *(P < 0.01)*

Figure 2: Comparison of sensitivity, specificity and accuracy for area of interest prediction according to pre-procedural planning method

Figure CO 66

CO 67. SUBCLINICAL FOCAL FIBROSIS AND ABNORMAL LEFT VENTRICULAR STRAIN IN PATIENTS WITH SARCOIDOSIS WITHOUT CLINICAL EVIDENCE OF CARDIAC DISEASE

João Mendes Cravo, Ana Abrantes, Beatriz Garcia, Catarina Gregório, Ana Margarida Martins, Catarina Oliveira, Ana Cristina Mendes, Joana Rigueira, Rui Plácido, Fausto J. Pinto, Ana G. Almeida

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Cardiac involvement in systemic sarcoidosis occurs in 20-25% of patients and is associated with poor outcome and reduced survival. The identification of cardiac sarcoidosis is challenging in asymptomatic patients using conventional methods including echocardiography. We aimed to assess the role of CMR for detecting subclinical cardiac sarcoidosis (CSc) in patients with demonstrated pulmonary sarcoidosis, without cardiac symptoms and normal conventional echocardiogram.
Methods: We included consecutive patients with pulmonary sarcoidosis referred for CMR study from a specialized sarcoidosis ambulatory clinic in a tertiary university hospital. Inclusion criterion was the diagnosis of sarcoidosis and absence of clinical signs of cardiovascular disease. Exclusion criteria included the presence of atrial fibrillation, more than mild valvular heart disease, ischemic heart disease and general contra-indications to CMR and/or gadolinium. All patients underwent CMR at 3.0T. CMR study included cine CMR (bSSFP) for LV function, T2-weighed imaging, late gadolinium enhancement (LGE) with gadobutrol 0.20 mmol/Kg. Strain imaging was obtained using feature tracking analysis (Circle, CVI).
Results: 54 patients were included, 50 ± 14 year-old, 17 male. A control group of 18 healthy individuals were assessed by feature tracking. ECG and conventional echocardiograms were normal in all. LV end-diastolic volume and ejection fraction were normal in all patients (72 ± 12 ml/m^2 and 58 ± 6% respectively). No myocardial signal changes were found on T2-weighed imaging. Focal LGE was found in 18%, predominantly involving the midwall and or subepicardium of the basal septum and lateral myocardial segments. Regarding strain analysis, patients with sarcoidosis had significantly lower LV peak longitudinal strain than the controls (-15.3 ± 1.9 versus -18.0 ± 1.1, p = 0.006). In 22 patients, including 11 patients with focal LGE and other 11 without LGE, strain values were abnormal, with a mean value of -13.5 ± 1.2.
Conclusions: In patients with systemic sarcoidosis and absence of clinical, electrocardiographic and echocardiographic involvement, CMR showed subclinical involvement in a substantial proportion, with focal LGE and abnormal longitudinal strain probably due to more widespread myocardial disease. The impact of these findings on the outcome is currently being assessed by our group.

CO 68. CAN MY ECHO WORK AS A CRYSTALBALL? - ECHOCARDIOGRAPHIC PARAMETERS PREDICTING RESIDUAL PULMONARY HYPERTENSION AFTER PULMONARY ENDARTERECTOMY

João Mirinha Luz, Filipa Ferreira, Sofia Alegria, Bárbara Marques Ferreira, Ana Cláudia Vieira, Débora Repolho, Diogo Cunha, Oliveira Baltazar, Nazar Ilchyshyn, Liliana Brochado, Adriana Silva, Hélder Pereira

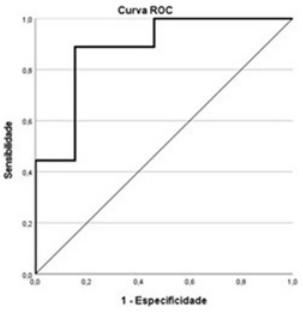
Hospital Garcia de Orta, EPE.

Introduction and objectives: Chronic thromboembolic pulmonary hypertension (CTEPH) results from post thromboembolic fibrotic occlusions within the pulmonary arteries and its small branches, associated with pre-capillary pulmonary hypertension (PH). Surgical removal of those occlusions, by pulmonary endarterectomy (PEA), should be considered in all CTEPH patients (pts), being potentially curative. It is estimated that 25% of pts maintain PH after PEA, described as residual PH, which comprises therapeutic and prognostic implications. The aim of this study is to evaluate if echocardiographic (echo) parameters that could predict development of residual PH after PEA.
Methods: We conducted a retrospective, observational, unicentric study of pts with confirmed diagnosis of CTEPH subjected to PEA, between January 2010 and October 2024. All pts were subjected to throughout transthoracic echo at diagnosis. 3 to 6 months after PEA, patients were subjected to RHC to evaluate presence of residual PH (characterized by mean pulmonary artery pressure ≥ 30 mmHg). Right heart echo parameters (disclosed in Table 1) were assessed and compared between pts.

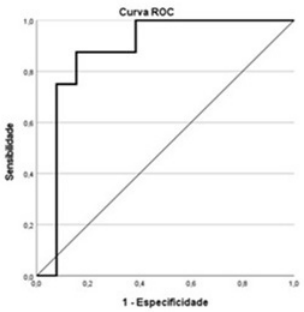
Results: 39 pts were diagnosed with CTEPH and underwent PEA during the follow-up period. Mean age at time of diagnosis was 57.3 years-old. 46.2% (18 pts) had documented residual PH after PEA. Echo parameters that were significantly different between the two groups were: tricuspid annular plane systolic excursion (TAPSE; p = 0.009); tele-diastolic right ventricular area (TDRVA; p = 0.001); tele-sistolic right ventricular area (TSRVA; p = 0.003); fractional area change (FAC; 0.036); TAPSE/pulmonary artery systolic pressure (PASP) ratio (p = 0.002); diastolic (DER; p = 0.007) and systolic eccentric ratio (SER; p = 0.036). TSRVA and TDRVA were independently associated with residual PH (p = 0.023; p = 0.013). By using ROC curves, pts with TDRVA above 27.13 cm^2 [area under the curve (AUC) 0.880, sensitivity (S) 90%, specificity (E) 90%, odds ratio (OR) 81) and TSRVA above 19.54 cm^2 (AUC 0.875, S 90%, E 89%, OR 72) had higher probability of developing residual PH after PEA (graphic 1 and 2).

	Residual PH (n=18)	No residual PH (N=21)	p-value
TAPSE (mean; mmHg)	15.8	20.0	**0.009**
RVOT AccT (mean; ms)	71.2	81.5	0.171
TDRVA (mean; cm2)	30.5	21.4	**0.001**
TSRVA (median; cm2)	23.4	14.3	**0.003**
FAC (median; %)	20.4	36.0	**0.036**
TR velocity (mean; m/s)	4.58	4.14	0.062
TAPSE/PASP ratio (median; mm/mmHg)	0.16	0.24	**0.002**
Tricuspid S' wave (median; cm/s)	9.17	10.4	0.259
DER (median)	1.63	1.07	**0.007**
SER (mean)	1.70	1.35	**0.036**

Figure 1 – echo parameters evaluated at diagnosis; RVOT AccT – right ventricular outflow tract acceleration time; TR velocity – tricuspid regurgitation velocity



Graphic 1 – ROC curve for TDRVA



Graphic 2 – ROC curve for TSRVA

Conclusions: Echo is a paramount exam when evaluating CTEPH pts, and this study shows that it can somewhat predict the development of residual PH. Ventricular remodeling in CTEPH, evaluated in terms of right ventricular area, was independently associated with residual PH, but validation in larger cohorts is mandatory.

CO 69. MYOCARDIAL WORK AND EXERCISE LVEF AS PREDICTORS OF IMPAIRED CARDIORESPIRATORY FITNESS IN BREAST CANCER PATIENTS TREATED WITH ANTHRACYCLINES

Margarida de Castro, Luísa Pinheiro, Mariana Tinoco, Emídio Mata, Bárbara Lage, Tamara Pereira, Mário Lourenço, Alexandra Teixeira, Mafalda Cunha, Olga Azevedo, João Português, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: Anthracycline chemotherapy (AC) for breast cancer (BC) patients may be responsible for cancer therapy-related cardiac dysfunction (CTRCD). Alternative echocardiographic markers, besides LVEF and GLS, are being explored for their potential in early detection of CTRCD. In addition, impaired CRF has been recognized as a predictor of development of heart failure (HF).
Objectives: To explore the effects of AC on advanced echocardiographic parameters at rest and during exercise in BC patients (pts); and to assess whether these parameters are associated with impaired cardiorespiratory fitness (CRF).
Methods: We conducted a prospective study involving women with early-stage BC undergoing AC, with or without radiotherapy, and without HER2-directed therapies, between May 2022 and December 2023. Each pt had 3 visits: before starting AC, early after (1-month), and at short-term follow-up (FU) (6-months) after completing AC. During each visit, the pts performed cardiopulmonary exercise test (CPET) with modified Bruce protocol on a treadmill and resting and exercise echocardiogram. Functional disability (FD) was defined as a Vo2peak ≤ 18.0 mL/kg/min at CPET. Vo2peak was defined as the highest oxygen consumption rate over a 15-20 second interval in the last 90 seconds of exercise.
Results: 32 women were included, with a mean age of 50.8 ± 9.3 years. The mean cumulative dose of AC (doxorubicin) was 230 ± 21 mg/m^2. All pts met the criteria for maximum exercise testing. Before AC, the mean Vo2peak was 22.7 ± 3.7 mL/kg/min. It dropped to 18.6 ± 3.7 mL/kg/min at 1-month ($p < 0.001$) and to 19.7 ± 4.7 mL/kg/min at 6-months ($p < 0.001$). FD increased from 9% pre-AC to 44% at 1-month and 53% at 6-months post-AC. One-month post-AC, patients with FD had lower LVEF (62.8 ± 5.9 vs. 69.5 ± 3.6%), contractile reserve (1.4 ± 7.9 vs. 8.8 ± 4.2%) and stroke volume (SV) (68.6 ± 13.5 vs. 87.7 ± 24.4 ml) during exercise. Six-months post-AC, patients with FD had lower SV (46.6 ± 9.8 vs. 60.3 ± 11.4 ml/beat) and CO (3.4 ± 0.6 vs. 4.6 ± 1.2 L/min), lower 2D-GLS (-17.4 ± 1.7 vs. -19.6 ± 2.0%), global work index (GWI) (1,457 ± 241 vs. 1,729 ± 250 mmHg%, p = 0.014), and global constructive work (GCW) (1,768 ± 299 vs. 1,989 ± 293 mmHg%) at rest than patients without FD. During exercise, these patients also had lower SV (66.9 ± 19.3 vs. 86.4 ± 26 ml). In univariate analysis (Table 1), age, GWI, exercise LVEF, exercise CO significantly influenced Vo2peak during follow-up. In our multivariable model (Table 1), resting GWI and exercise LVEF were independently associated with Vo2peak.

Table 1: Univariable and Multivariable Associations Between Clinical, Analytical, and Echocardiographic Parameters and VO2peak (Dependent Variable).

	Univariable association with VO2peak			Multivariable association with VO2 peak		
	Beta	SE	p-value	Beta	SE	p-value
Age	-0.15	0.06	**0.020**	-0.088	0.04	**0.049**
LV GLS (%)			0.156			
GWI (mmHg%)	0.003	0.001	**0.014**	0.003	0.001	**0.012**
LV 3D-GLS (%)			0.192			
LV 3D-GAS (%)			0.688			
Exercise LVEF (%)	0.28	0.07	**<0.001**	0.277	0.07	**<0.001**
Exercise LV GLS (%)			0.084			
Exercise GWI (mmHg%)			0.889			0.003
Exercise CO (L/min)	0.24	0.11	**0.031**	0.237	0.08	**0.007**
β2-microglobulin (mg/dL)			0.555			
IL-6 (pg/mL)			0.578			
sFlt-1 (pg/mL)			0.785			
PlGF (pg/mL)			0.289			
MPO (IU/mL)	-2.74	0.60	**0.036**			
Body fat (kg)	-0.15	0.06	**0.025**	-0.146	0.05	**0.004**

Multivariable association Marginal R^2: 0.572 and Conditional R^2: 0.702 for entire model; all beta values represent the average change in VO2peak for a unit change. CO: Cardiac Output; IL-6: Interleukin-6; GAS: Global Area Strain; GLS: Global Longitudinal Strain; GWI: Global Work Index; LV: Left ventricle; LVEF: Left Ventricle Ejection Fraction; MPO: myeloperoxidase; PlGF: Placental growth factor; sFlt-1: soluble fms-like tyrosine kinase-1

Conclusions: Significant and persistent CRF reductions are common in BC pts post-AC. While current echocardiographic markers of CTRCD, such as resting LVEF and GLS, were not associated to CRF measured by Vo2peak, resting GWI and exercise LVEF were. As CRF is a predictor of HF risk, resting GWI and exercise LVEF could be useful echo markers to identify pts at increased long-term risk of HF.

CO 70. INCREMENTAL PROGNOSTIC VALUE OF CT-DERIVED EXTRACELLULAR VOLUME IN SEVERE AORTIC STENOSIS

Rita Almeida Carvalho, Márcia Presume, Rita Reis Santos, Francisco Albuquerque, Pedro Lopes, Francisco Gama, Cláudia Silva, Pedro Freitas, Sara Guerreiro, João Abecasis, Rui Campante Teles, António Ferreira

Hospital Santa Cruz ULSLO.

Introduction: Severe aortic stenosis (AS) has a poor prognosis without timely intervention. While risk stratification is primarily guided by clinical scores, myocardial extracellular volume estimation using cardiac computed tomography (ECV-CT), a marker of fibrosis, has emerged as a promising prognostic tool. This study sought to determine if ECV-CT can provide independent and incremental prognostic information to established clinical risk markers.

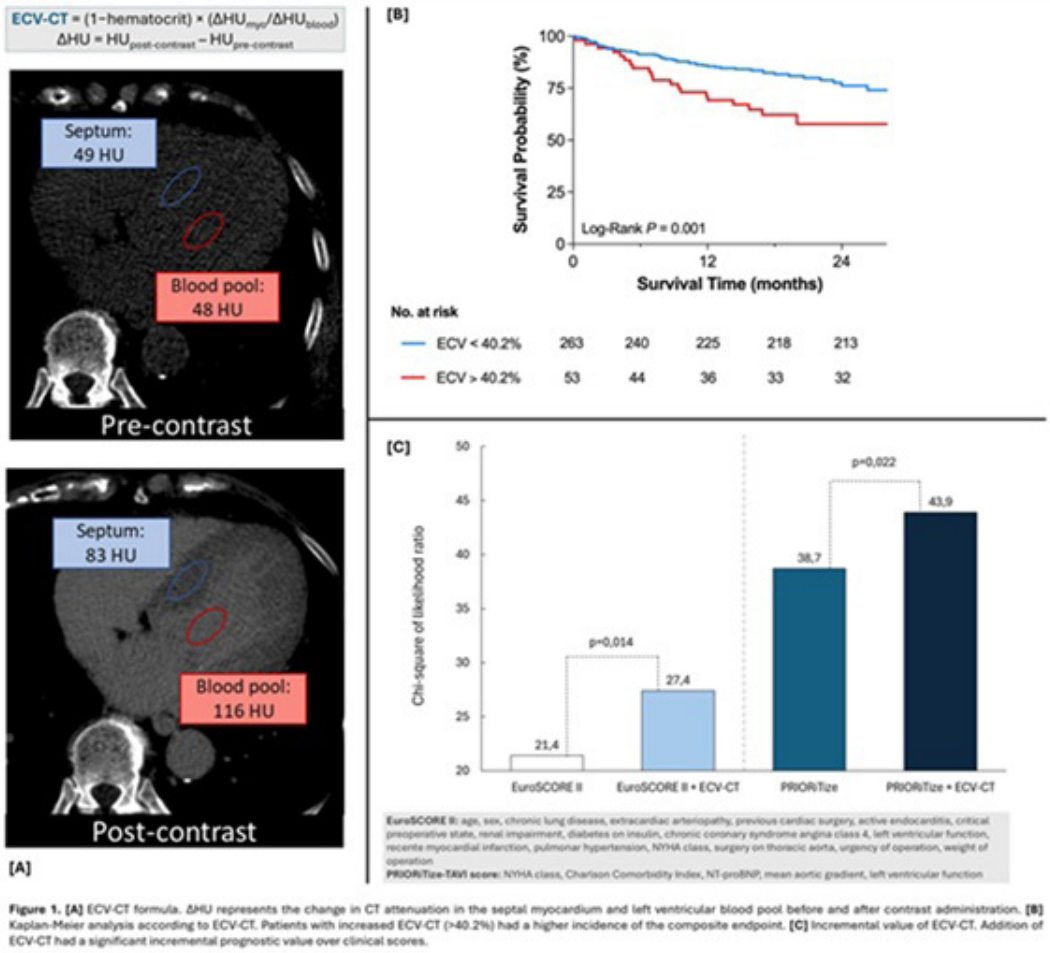


Figure 1. [A] ECV-CT formula. *ΔHU* represents the change in CT attenuation in the septal myocardium and left ventricular blood pool before and after contrast administration. **[B]** Kaplan-Meier analysis according to ECV-CT. Patients with increased ECV-CT (>40.2%) had a higher incidence of the composite endpoint. **[C]** Incremental value of ECV-CT. Addition of ECV-CT had a significant incremental prognostic value over clinical scores.

Figure CO 70

Methods: This prospective single-center study included consecutive patients with severe symptomatic AS undergoing pre-TAVR (transcatheter aortic valve replacement) CT. Patients with prosthetic aortic valves or known cardiac amyloidosis were excluded. Imaging was performed using a 192-slice dual-source CT scanner, with ECV-CT obtained via an additional post-contrast, low-radiation-dose, prospective acquisition (Figure 1A). ECV-CT values were compared with two risk scores: EuroSCORE II and PRIORiTize-TAVI. The composite endpoint was time to all-cause mortality or cardiovascular hospitalization.

Results: A total of 316 patients (mean age 81 ± 8 years; 44% male; mean transaortic gradient 50 ± 15 mmHg; mean aortic valve area 0.74 ± 0.19 cm^2; mean left ventricular ejection fraction 56 ± 11%) were analyzed. The median ECV-CT was 33.9% (IQR 29.5-38.7). Over a median follow-up of 340 days (IQR 198-517), the composite endpoint occurred in 72 patients (23%), including 47 deaths (15%) and 25 cardiovascular hospitalizations (8%). Patients reaching the endpoint were older (84 ± 8 vs. 80 ± 8 years, p = 0.012), had lower LV ejection fraction (51 ± 13 vs. 57 ± 10%, p < 0.001), higher NT-proBNP levels (4,002 pg/mL (IQR 929-8,678) vs. 838 (IQR 377-2,126), p < 0.001), and higher scores on both EuroSCORE II (6.32 ± 5.12 vs. 4.05 ± 3.23%, p = 0.002) and PRIORiTize (4.4 ± 1.6 vs. 3.3 ± 1.3, p = 0.008). These patients also had higher median ECV-CT values (39.8% (IQR 33.5-44.2) vs. 32.9% (IQR 29.5-38.3), p = 0.001). Decision tree analysis identified an ECV-CT value ≥ 40.2% as the best threshold for predicting outcomes (Figure 1B). Patients with ECV-CT ≥ 40.2% (n = 53) accounted for 17% of the study population but were responsible for 29% of all events. Multivariate Cox regression showed that logECV-CT remained an independent predictor of the composite endpoint after adjusting for EuroSCORE II (HR 4.2, 95%CI 1.3-13.9, p = 0.016) and PRIORiTize (HR 3.9, 95%CI 1.3-11.6, p = 0.012). Finally, nested regression models of the global Chi-square value of the likelihood ratio test demonstrated that incorporating logECV-CT significantly improved the predictive performance of both EuroSCORE II and PRIORiTize (Figure 1C).

Conclusions: CT-derived ECV provides incremental prognostic value beyond clinical scoring systems in patients with severe AS, aiding in identifying higher-risk patients. The potential role of this marker for clinical decision-making warrants further investigation.

Domingo, 13 Abril de 2025 | 08:30-09:30

Espaço Ágora | Sessão de Comunicações Orais 15 - Inteligência artificial em cardiologia: aproveitar o potencial!

CO 71. COULD CHATGPT BE A CARDIOLOGY RESIDENT IN PORTUGAL?

Mafalda Griné, Gonçalo Ferraz-Costa, Rita Bertão Ventura, Inês Brito e Cruz, Bernardo Resende, Luísa Rocha, Tomás Carlos, Manuel Oliveira-Santos, Rogério Teixeira

ULS Coimbra.

Introduction: Artificial intelligence-based tools, such as ChatGPT (OpenAI, United States of America) are increasingly being used for medical exam preparation and clinical decision support. We sought to evaluate ChatGPT's

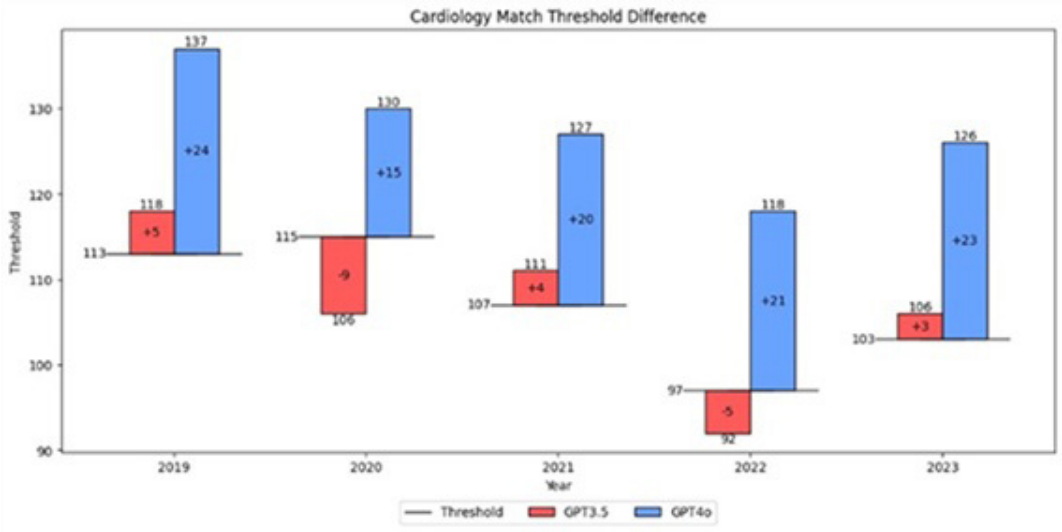


Figure CO 71

performance on *Prova Nacional de Acesso* (PNA) and determine whether it would be able to match into a Cardiology residency program.
Methods: We submitted all questions from the 2019 to 2023 editions of the PNA to ChatGPT 3.5 and ChatGPT 4o (version A order). A new chat window was created for each part of each exam. Performance was gauged against average exam scores and the score of the last candidate to match into Cardiology each year.
Results: ChatGPT 4o correctly answered 638 out of 750 questions, reflecting an 85% accuracy rate, compared to a 71% accuracy rate by ChatGPT 3.5 (median 127 points (Interquartile Range (IQR): 122.5-134) for ChatGPT-4o and median 106 points [IQR: 99-114.5] for ChatGPT-3.5). ChatGPT 4o surpassed the median score for each exam edition, while ChatGPT 3.5 performed below the 50th percentile once (2022). Additionally, ChatGPT 4o ranked within the top 1% in two exam editions (2019 and 2023), achieving the highest score. The minimum score required to match into Cardiology ranged between 97 and 115. ChatGPT 3.5 exceeded the matching threshold in 3 exam editions, while ChatGPT 4o could have matched into Cardiology every year.
Conclusions: ChatGPT-4o demonstrated excellent performance on PNA, consistently outperforming its predecessor and the average exam participant, achieving high enough scores to secure a Cardiology residency spot every edition.

CO 72. PRELIMINARY RESULTS FROM THE EXTERNAL VALIDATION OF AN ARTIFICIAL INTELLIGENCE MODEL FOR OCCLUSION MYOCARDIAL INFARCTION DETECTION

Mafalda Griné[1], Catarina Sena Silva[2], Henrique Sena Silva[3], Rita Bertão Ventura[1], Tomás Carlos[1], Bernardo Resende[1], Luísa Rocha[1], Manuel Oliveira-Santos[1], Miguel Nobre Menezes[2], Lino Gonçalves[1]

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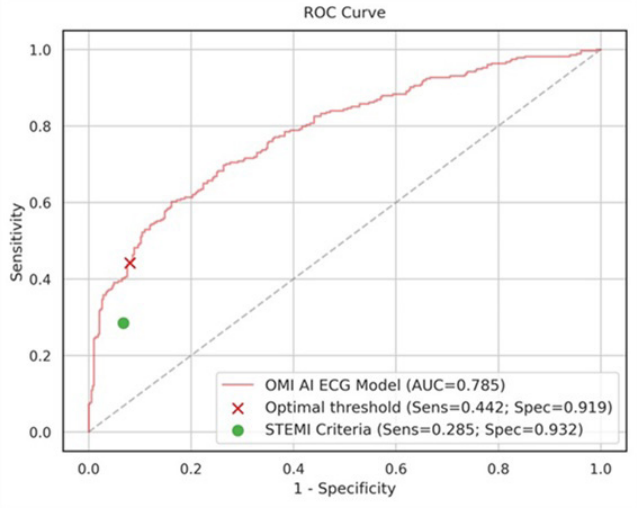
Introduction: Around 15 to 30% of patients presenting without significant ST-segment elevation have an acutely occluded coronary artery. These patients have a worse prognosis, likely related to delayed revascularization. We aimed to test a novel artificial intelligence (AI) model designed to enhance the detection of these cases based on admission 12-lead electrocardiograms (ECGs).
Methods: A total of 658 ECGs from 398 patients admitted to the emergency department with suspected acute coronary syndrome (ACS) were retrospectively analyzed via the OMI AI ECG Model (Powerful Medical, Slovakia). The primary endpoint was the detection of occlusion myocardial infarction (OMI), defined as angiographic evidence of an acute culprit lesion with either 0-2 TIMI flow and positive troponin or TIMI 3 flow and significant troponin elevation (i.e. high-sensitivity troponin I ≥ 5000 ng/L). The model's performance was compared with the current gold standard.
Results: In this initial test set, we identified 147 (36.9%) OMI cases. The OMI AI ECG Model achieved 72% accuracy (95% confidence interval (CI): 67.4-76.5), 44.2% sensitivity (95%CI: 37.2-51.6), 91.9% specificity (95%CI: 88.7-94.8), 79.6% PPV (95%CI: 71.9-86.6), NPV 69.8% (95%CI: 63.9-75.4), and a 0.422 Mathew's correlation coefficient (MCC; 95%CI: 0.341-0.503), whereas the ST-segment elevation myocardial infarction (STEMI) criteria had 66.3% accuracy (95%CI: 61.0-71.3), 28.5% sensitivity (95%CI: 22.3-35.3), 93.2% specificity (95%CI: 90.1-96.1), 75.0% PPV (95%CI: 64.8-84.5), 64.6% NPV (95%CI: 58.6-70.4), and a 0.293 MCC (95%CI: 0.206-0.38)]. Demographic parameters, such as age and sex, did not impact model performance. Notably, within the patient group who underwent coronary angiography within 2 hours of admission, the model's sensitivity increased to 81.2% (CI: 73.1-88.5), reflecting good model performance in acute/active case detection.



Conclusions: In this challenging all-comer suspect ACS cohort, the OMI AI ECG Model outperformed the STEMI criteria in active OMI detection, with about 1.5 times higher sensitivity, without compromising specificity. This tool may contribute to better patient triage and timely revascularization.

CO 73. PHENOTYPING HEART FAILURE WITH REDUCED EJECTION FRACTION: A MACHINE LEARNING APPROACH TO PATIENT STRATIFICATION

Diogo Rosa Ferreira[1], Sofia Morgado[2], Fátima Salazar[3], Ana Francês[3], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto Pinto[1], Dulce Brito[1], João Agostinho[1]

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Introduction: Left ventricular ejection fraction (LVEF) is a key marker in heart failure with reduced ejection fraction (HFrEF). However, relying solely on LVEF oversimplifies HFrEF, especially in terms of treatment response and comorbidities. This study used a machine learning approach to identify subgroups of HFrEF patients, aiming to improve treatment strategies and guide personalized decision-making.
Methods: We conducted a prospective cohort study including patients with newly diagnosed HFrEF followed at a tertiary clinic from 2020-24. Clinical data underwent preprocessing (outlier correction, imputation of missing values, normalization). Dimensionality reduction was done using Principal Component Analysis, retaining components based on the Kaiser criterion. Agglomerative hierarchical clustering with Ward's linkage identified subgroups. Statistical comparisons between clusters utilized Mann-Whitney U, Kruskal-Wallis, Kaplan-Meier survival analysis, and log-rank tests. The primary outcome was a composite of heart failure hospitalizations (HHF) or cardiovascular (CV) death at 2 years.
Results: The study included 213 patients, with a mean age of 64 years and baseline LVEF of 28.5%. Follow-up averaged 2.4 years. Clustering revealed three subgroups: Responders, Frail, and Resilient. The Responders group, mostly non-ischemic, had the lowest LVEF and elevated left atrial volume index, NTproBNP, and GGT, reflecting a congestive phenotype. Despite pronounced adverse remodeling, this group experienced the greatest LVEF recovery following optimized medical therapy (OMT). The Frail group, the oldest cohort, had balanced ischemic and non-ischemic etiologies, with low hemoglobin, estimated glomerular filtration rate (eGFR), ferritin, transferrin saturation (TSAT), LDL, and uric acid, suggesting undernutrition. It had the highest baseline LVEF but the poorest outcomes. The Resilient group, similar in age to the Responders, had higher baseline LVEF, lower NTproBNP and LAVI, better hemoglobin, eGFR, ferritin, and TSAT, and a higher body mass index compared to the Frail group. LVEF improved across all groups with OMT, but prognosis varied significantly. The Frail group had an eightfold higher risk of HHF or CV death compared to the Resilient group (HR: 8.2; 95%CI: 2.7-24.3; p < 0.001) and nearly twice the risk compared to Responders (HR: 1.9; 95%CI: 1.1-3.4; p = 0.019). Responders had 2.2 times the risk of the composite outcome compared to Resilient patients (HR: 2.2; 95%CI: 1.1-4.5; p = 0.036). A user-friendly software was developed to classify any HFrEF patient into these clusters.
Conclusions: This study demonstrates that machine learning can identify distinct HFrEF subgroups with unique characteristics and outcomes. Phenotypic stratification goes beyond LVEF, enabling personalized treatment strategies to improve outcomes, particularly for high-risk groups.

CO 74. IMPROVING PACEMAKER IMPLANTATION PREDICTION AFTER TAVR: CREATION AND VALIDATION OF A MACHINE LEARNING BASED MODEL

Francisco Barbas de Albuquerque[1], Miguel Marques Antunes[1], Tomás Barbas de Albuquerque[2], Barbara Teixeira[1], André Grazina[1], Fernando Ferreira[1], Inês Rodrigues[1], António Fiarresga[1], Rúben Ramos[1], Rui Ferreira[1], Duarte Cacela[1], Mário Oliveira[1]

[1]Hospital de Santa Marta. [2]Investigador Independente.

Introduction: Pacemaker (PM) implantation (I) is a common complication after TAVR. Artificial intelligence (AI)- and machine-learning (ML) technologies may contribute to developing better prediction models in this clinical context.
Objectives: To develop a ML-based Binary Classification Model for predicting PMI after TAVR, compare it with a regression-based model and validate it in a prospective cohort.
Methods: Single-center retrospective study on patients (P) that underwent TAVR between 2018 and 2024. A full review of demographic, clinical, electrocardiographic, echocardiographic, cardiac CT scan and intra-procedural data was performed. Both pre- and intra-procedural variables were included in the dataset to train the model. A Python script was developed to build a Binary Classification model. Due to dataset imbalance, a SMOTE-based upsampling technique was performed on the minority class. The XGBoost (eXtremeGradient Boosting) open-source software library and algorithm was used to train the ML-based prediction model. To achieve better performance, we implemented an Ensemble Model approach consisting of 21 Binary Classifiers. For each P, the final prediction was determined by aggregating the predictions from all classifiers and selecting the most frequently predicted value. Both testing and validation model performance metrics were computed using the confusion matrix of predictions and are as follows: weighted precision (WP), weighted recall (WR) and weighted f1-score (WF1). In addition, a logistic regression was executed for performance comparison between models. ROC curves AUC were developed for both models.
Results: From a total of 770 TAVR procedures during the study period, 611 P entered the analysis. Mean age was 82 years and 44% were male. PM implantation occurred in 170 (27.8%) P. Using our XGBoost Ensemble ML algorithm a scoring model was generated. The highest weighted variables

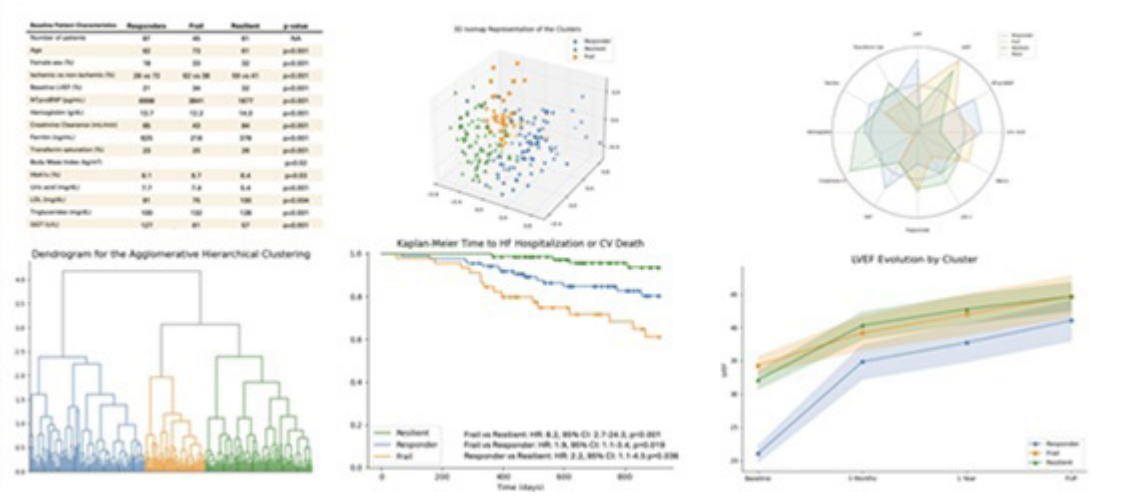

Figure CO 73

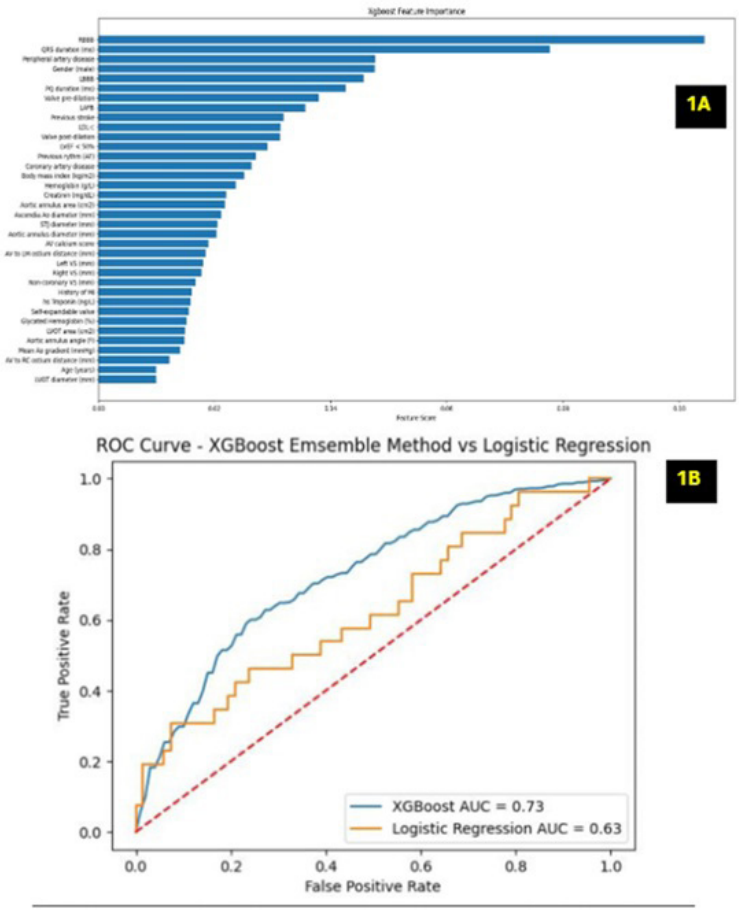

Figure CO 74

were the presence of right bundle branch block, QRS duration, peripheral artery disease, male gender and left bundle branch block (figure 1A). The ML-based model performance metrics were: WP of 58.47%, WR of 59.07% and WF1 of 58.69%. The logistic regression model had the following metrics: WP of 48.45%, WR of 54.80% and WF1 of 51.43%. The XGBoost AUC was 0.73 and the LogRegression AUC was 0.63 (Figure 1B). Seventy-one P enter the prospective validation cohort. PMI occurred in 23 (32%) P. The metrics from our ML-based model in the validation cohort were: WP of 66.17%, WR of 64.48% and WF1 of 65.42%. The metrics from logistic-regression based model were: WP of 58.22%, WR of 52.28% and WF1 of 55.09%.

Conclusions: We created and validated a ML-based prediction model for PMI after TAVI. This model outperformed the traditional used regression-based model. This underscores the move towards a more personalized medicine, where AI and ML-based models may enhance clinical decision-making for better patient outcomes.

CO 75. ACUTE KIDNEY INJURY POST-TAVI: DOES IT STILL IMPACT PROGNOSIS?

Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, Daniel Cazeiro, Diogo Ferreira, João Cravo, Marta Vilela, Pedro Carrilho Ferreira, João Silva Marques, Miguel Nobre Menezes, Fausto J. Pinto

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Introduction: Transcatheter aortic valve implantation (TAVI) procedure has evolved over the years, with reduction of periprocedural complications. Acute kidney injury (AKI) is a frequent complication that affects outcomes and survival.

Objectives: To determine the incidence of post-TAVI AKI, its predictors and impact on outcomes.

Methods: Retrospective single center study, analyzing a population of non-consecutive pts who underwent TAVI in a single center between 2014 and 2023, not previously under dialysis. AKI was defined using AKI Network criteria from stages 0 to 3. Univariate analysis with independent T-student and Chi-square tests was conducted to define associations between baseline characteristics and AKI. Multivariate analysis with logistic regression was conducted to identify predictors of AKI. Kaplan-Meier survival curves were drawn and compared between grades of AKI and hazard ratios were calculated with cox regression.

Results: We analyzed a population of 835 patients (pts) with a mean age of 82 ± 6.3 years, 54.4% female, with a mean FUP of 39 ± 26 months. 29% of pts had CKD, 7.2% with severe CKD (stage IV or V). Regarding AKI, 20.8% of pts developed stage 1 AKI; 4.1% stage 2 and 1.9% stage 3. Patients with severe CKD at baseline had a significative association with grade 2 or higher AKI ($p < 0.01$, OR 2.1). There was a significant difference between pts having any degree of post-TAVI AKI and death during FUP (OR 2.1 [CI 1.5-2.8] p <.01). Regarding survival analysis (Figure 1), there was a 46% increase in hazard for death during mean FUP for patients with any degree of AKI post-TAVI. This increase of hazard is proportional to severity of AKI, being non significative for pts with stage 1 (HR 1.3 p = 0.055), 61% increase in hazard for grade 2 AKI and (HR 1.61 p = 0.04) and 240% increase in hazard for patients sustaining grade 3 AKI post procedure (HR 3.4 p < 0.01). Pts with an AKI grade 2 or 3 post procedure displayed an odds ratio of 2.7 for death at FUP. On univariate analysis, basal hemoglobin (Hb), post-TAVI Hb drop, baseline creatinine, hypertension and general anesthesia had significant associations with post-procedural grade 2 or 3 AKI. On multivariate analysis, only basal Hb, Hb drop and basal creatinine could predict grade 2 or 3 AKI. Other factor such as contrast volume, procedural time, age and EuroSCORE II had no significant association with AKI.

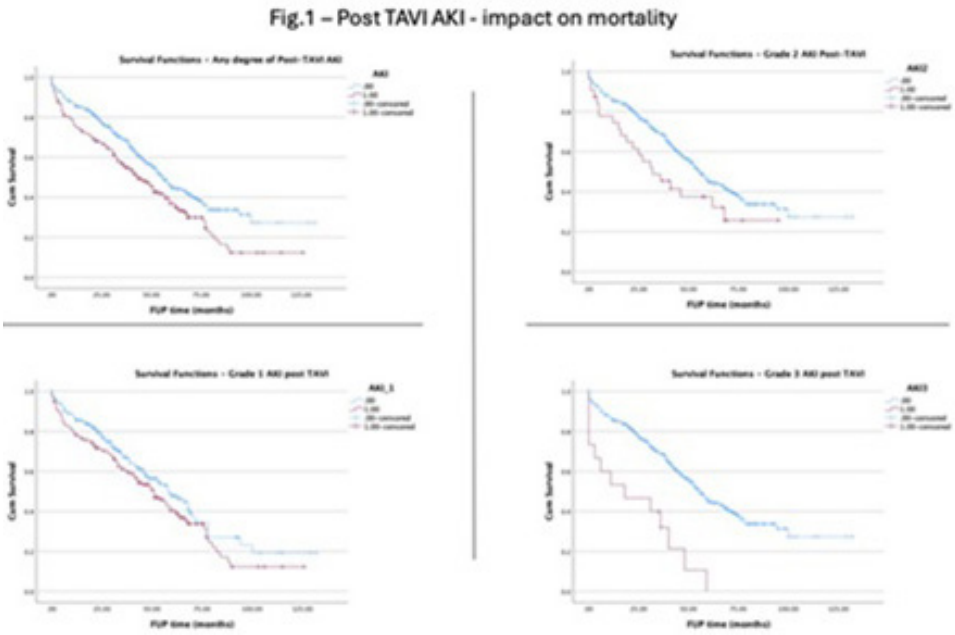


Figure CO 75

Conclusions: Over 20% of pts develop some degree. AKI is associated with worse outcomes, especially grades 2 and 3, significatively impacting mortality. AKIs etiology is multifactorial, with an interplay of multiple factors which expand well beyond the nephrotoxic insult from contrast. Hemoglobin reduction should be avoided, and special attention should be given for patients with baseline severe CKD.

Domingo, 13 Abril de 2025 | 08:30-09:30

Sala Arrábida | Sessão de Comunicações Orais 16 – Avanços no diagnóstico e tratamento de miocardiopatias

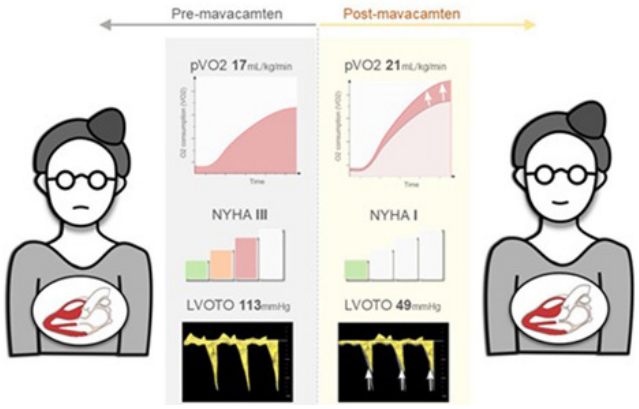
CO 76. MAVACAMTEN USE IN A REAL-WORLD COHORT OF OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY PATIENTS: INSIGHTS FROM THE INITIAL CENTRE EXPERIENCE

Maria Rita Giestas Lima, Débora Silva Correia, Rita Carvalho, Rita Amador, Tânia Laranjeira, Pedro Lopes, Sérgio Maltês, Gonçalo Cunha, Miguel Mendes, Regina Ribeiras, Bruno Rocha, Carlos Aguiar

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Mavacamten was recently approved for the treatment of obstructive hypertrophic cardiomyopathy (HOCM) in patients who remain symptomatic despite first-line medical therapy. We aimed to describe the first real-world experience of this drug in a Portuguese cohort of patients with HOCM.

Methods: Single-centre prospective study enrolling patients with HOCM [peak left ventricle outflow tract obstruction (LVOTO) ≥ 50 mmHg] treated with mavacamten. All patients fulfilled the following criteria: moderate symptoms (NYHA III) despite first-line medical treatment with beta-blockers (BB) and/or calcium channel blockers (CCB), or who were intolerant to or had a contraindication for BB/CCB therapy; LV ejection fraction (LVEF) > 55%. Following treatment, patients underwent transthoracic echocardiography at 1, 2, 3 and, thereafter, every 3 months. Cardiopulmonary exercise testing (CPET) and quality-of-life assessment using SF-36v2 score were performed at baseline and at 6 months. Efficacy and safety endpoints were evaluated in patients with at least 6 months follow-up.



Results: Overall, 20 patients with symptomatic HOCM initiated treatment with mavacamten: 15 (75%) were female; median age 65 (58-71) years; and 2 patients (10%) had significant residual LVOTO despite prior surgical myectomy. Genetic testing showed positive sarcomeric mutations in 7 patients (50%) and negative results in another 7 (50%). CYP2C19 genotyping revealed normal metabolizers in all but 2 patients (10%) which were intermediate metabolizers. At baseline, 19 patients (95%) were treated with BB (bisoprolol equivalent mean dose 7 ± 3 mg), and 4 (20%) discontinued CCB before starting mavacamten. All patients were at NYHA III, with median SF-36v2 score 104 ± 14, median NT-proBNP 1,250 (296-2,909) pg/mL, with a mean LVEF 65 ± 6% and maximal LVOTO 105 ± 39 mmHg. Treatment began at a median dose of 2.5 (2.5-5) mg and was significantly titrated up to 5 (5-10) mg at a median follow-up of 7 (1-11) months. Follow-up data (at 6-months) was available in 10 (50%) patients. Mavacamten associated with an improvement in cardiac symptoms (NYHA I: 0 vs. 50%, p < 0.001), SF-36v2 score (104 ± 14 vs. 109 ± 9; p = 0.180) and LVOTO (113 ± 36 *vs*. 49 ± 40 mmHg; p = 0.008), without remarkable changes in NT-proBNP, LVEF or global longitudinal strain. CPET showed a significant improvement in peak VO_2 (17 ± 6 vs. 21 ± 6; p = 0.043) with 10 (50%) patients having met the primary

efficacy endpoint of EXPLORER-HCM. No patient stopped the drug due to adverse events: none had LVOTO < 20 mmHg during the initiation phase (1-3 months) nor LVEF < 50% at any time. One patient discontinued treatment at 6-months due to planned pregnancy.
Conclusions: Treatment with mavacamten in selected patients with symptomatic HOCM was safe and associated with significant clinical improvement, thus reproducing the main findings of the EXPLORER-HCM trial in a real-world setting.

CO 77. EFFECT OF MAVACAMTEN ON THE REMODELLING AND MICROSTRUCTURAL ARCHITECTURE OF THE MYOCARDIUM: A PRELIMINARY MECHANISTIC STUDY

Sílvia Aguiar Oliveira Rosa[1], Miguel Marques Antunes[1], Vera Ferreira[1], Inês Miranda[2], Isabel Cardoso[1], José Viegas[1], Cláudia Marra[3], Filipa Gerardo[2], Rodrigo Brandão[2], Maria Passos[2], Rui Cruz Ferreira[1], João Augusto[2]

[1]Hospital de Santa Marta. [2]Hospital Prof. Dr. Fernando da Fonseca, EPE/ Hospital Amadora Sintra. [3]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Curry Cabral.

Introduction: Mavacamten is an allosteric inhibitor of cardiac myosin, capable of modifying myosin mechanochemistry leading to a reduction in sarcomere force generation, myocardial hypercontractility, and left ventricular outflow tract obstruction in patients with hypertrophic cardiomyopathy (HCM).
Objectives: To study the effect of mavacamten in ventricular remodelling, microvascular dysfunction, left ventricular (LV) strain and interstitial and replacement fibrosis, assessed by cardiovascular magnetic resonance (CMR).
Methods: We conducted a prospective observational study in HCM patients from two different centers. Eligible patients were required to have left ventricular outflow tract (LVOT) obstruction and were prescribed mavacamten as part of clinical care. All patients were treated with mavacamten for at least 24 weeks, with doses individualized to achieve targeted reductions in LVOT gradients based on echocardiographic assessments. We measured the effect of mavacamten at 24 weeks on microvascular dysfunction assessed by myocardial blood flow after stress perfusion CMR with regadenoson, specifically reporting the proportion (%) of LV hypoperfusion. We additionally obtained other CMR-derived metrics at baseline and follow-up: LV and right ventricle ejection fraction (LVEF, RVEF), LV and RV volumes, LV mass, global longitudinal and radial strains (GLS, GRS), native T1 and T2 mapping, extracellular volume (ECV), and percentage of LV late gadolinium enhancement (LGE). LVOT gradient was measured on echocardiogram.
Results: A total of 8 HCM patients were included, mean age 59.4 ± 9.5 years, 62.5% were male. Mavacamten reduced LVOT obstruction (gradient from 99.0 [80.8-115.3] mmHg to 20 [14.0-44.0] mmHg), reflecting the concomitant reduction in LVEF (baseline 67.9% ± 6.2%, follow-up 63.0% ± 4.9%). CMR demonstrated stability in terms of ventricular adverse remodelling (no significant changes in LV and RV volumes or RVEF) and no progression in measures of fibrosis (stable native T1 mapping, ECV and% LGE). Notably, mavacamten decreased LV mass and improved LV systolic performance assessed by ventricular strain. Four patients concluded baseline and follow-up stress perfusion. Mavacamten reduced LV hypoperfusion (from 21.0 ± 15.5% to 15.6 ± 11.9%) (Figure 1 and 2). All results are detailed in Table 1.
Conclusions: Mavacamten caused a reverse remodelling of the LV, leading to an improvement in systolic performance assessed by LV strain, and reduced microvascular ischemic burden.

CO 78. ECHOCARDIOGRAPHIC EVOLUTION OF SYMPTOMATIC PATIENTS WITH OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY TREATED WITH MAVACAMTEN: EXPERIENCE OF A PORTUGUESE TERTIARY CARE CENTER

José Miguel Viegas, Pedro Garcia Brás, Inês Grácio Almeida, Isabel Cardoso, Miguel Marques Antunes, Rui Cruz Ferreira, Sílvia Aguiar Rosa

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Mavacamten, a first-in-class cardiac myosin inhibitor, received marketing authorization throughout the European Union in June 2023. The purpose of this study was to evaluate echocardiographic changes over time in patients (pts) with obstructive hypertrophic cardiomyopathy (oHCM) treated in a Portuguese tertiary hospital.
Methods: A standardized registry was prospectively performed for all pts who started mavacamten at a single oHCM referral center. Echocardiographic measures of cardiac structure and function were assessed at baseline and subsequently in accordance with the product characteristics. Data were compared using paired t-test.
Results: A total of 18 pts, 61% male, mean age 57 ± 16 years. 2 pts had latent exercise-provoked left ventricular outflow tract (LVOT) obstruction. No CYP2C19 poor metabolisers were identified. The mean follow-up period was 18 ± 10 weeks. At this point, 8 pts (44%) had completed the titration phase and reached the maintenance dose of the drug, of which 1pt on 5 mg, 1pt on 15 mg, and the remaining on 10 mg per day. Echocardiographic parameters at baseline and during follow-up are presented in Figure 1. Pts showed rapid and sustained reduction in both resting and Valsalva LVOT gradients (20 and 24% reduction from baseline, respectively, at the 5 mg dose, and 60% reduction at the 10 mg dose). 1 pt required a dose reduction per protocol due to a decrease in LVOT gradient to < 20 mmHg. There was a decline in LV ejection fraction (LVEF), however, no patient had to discontinue treatment due to an LVEF < 50%. A marked improvement in diastolic function was evident early, even before the complete resolution of LVOT obstruction, while right ventricular function parameters remained unchanged.

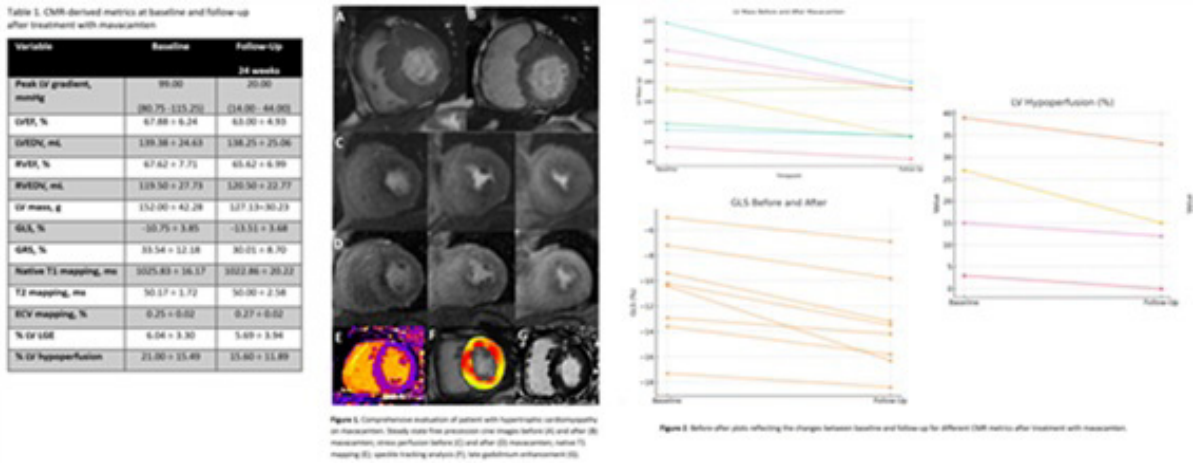


Figure CO 77

	Baseline (n=18)	5 mg/d (n=18)	p value	10 mg/d (n=10)	p value
Maximal LV wall thickness, mm	20,5 ± 4,7	19,6 ± 4,5	0,012	17,2 ± 3,1	0,027
LV end-diastolic diameter, mm	41,6 ± 5,5	41,6 ± 3,8	0,756	42,2 ± 3,7	0,671
LV mass index, g/m2	157,3 ± 41,6	133,4 ± 34	0,076	115,9 ± 27,5	0,016
LA diameter, mm	45,8 ± 7,0	45,0 ± 7,1	0,395	41,8 ± 7,5	0,021
LA volume index, ml/m2	51,8 ± 14,8	49,1 ± 9,7	0,297	44,4 ± 12,8	0,118
LV end-diastolic volume index, ml/m2	39,3 ± 5,6	46,1 ± 8,0	0,013	46,1 ± 8,5	0,463
LV end-systolic volume index, ml/m2	9,5 ± 2,9	11,8 ± 3,5	0,015	13,3 ± 2,4	0,006
LV ejection fraction, %	77,0 ± 6,0	74,4 ± 5,5	0,020	68,9 ± 3,0	0,001
Global longitudinal strain, %	-14,7 ± 3,1	-17,0 ± 2,5	0,006	-17,1 ± 2,6	0,031
Systolic anterior motion	16 (89%)	15 (83%)		4 (40%)	
LVOT gradient, mmHg					
Resting	81,7 ± 38,5	57,5 ± 42,2	0,035	32,6 ± 45,3	0,003
Valsalva	115,3 ± 46,5	88,2 ± 51,1	0,122	46,4 ± 50,6	0,004
Mitral regurgitation					
Mild	7 (39%)	9 (50%)		8 (80%)	
Moderate	9 (50%)	9 (50%)		2 (20%)	
Severe	2 (11%)	-		-	
Septal e', cm/s	5,3 ± 1,7	6,1 ± 1,4	<0,001	6,9 ± 1,3	<0,001
Lateral e', cm/s	7,1 ± 2,3	8,9 ± 2,5	<0,001	9,2 ± 1,9	0,003
E/e' average	14,3 ± 4,9	11,5 ± 3,3	<0,001	11,7 ± 2,7	0,010
TAPSE, mm	24,1 ± 3,3	23,7 ± 4,9	0,724	23,4 ± 3,1	1,000
RV S' velocity, cm/s	12,9 ± 2,3	13,1 ± 3,3	0,513	11,5 ± 2,6	0,405
PA systolic pressure	37,0 ± 11,5	31,8 ± 8,4	0,030	28,8 ± 6,3	0,041

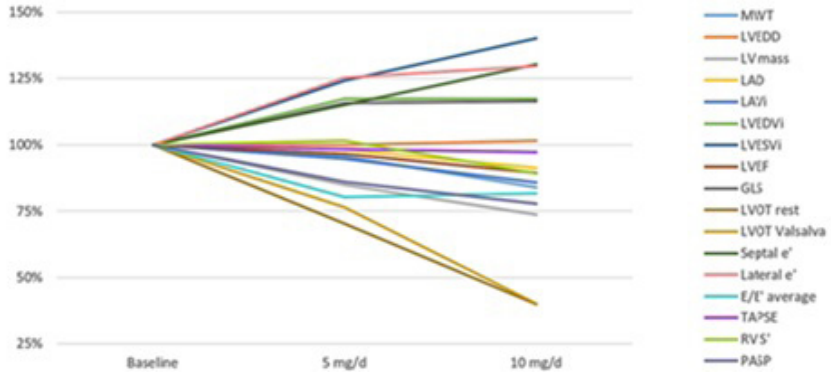


Figure CO 78

Conclusions: Mavacamten significantly improved echocardiographic outcomes in this Portuguese cohort of symptomatic oHCM pts. These findings align with clinical trial data, confirming its efficacy in reducing obstruction and improving myocardial relaxation.

CO 79. THE INFLUENCE OF GENOTYPE ON THE PHENOTYPE AND PROGNOSIS OF PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

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Hospital de Braga.

Introduction: Hypertrophic cardiomyopathy (HCM) is a genetically heterogeneous condition characterized by diverse clinical manifestations, ranging from asymptomatic cases to severe heart failure and sudden cardiac death. Advances in cardiac imaging and genetic testing have enhanced our understanding of the disease, revealing complex interplays between genotype and phenotype. However, the precise impact of specific genetic variants on clinical and imaging characteristics, as well as long-term outcomes, remains incompletely understood.

Objectives: To evaluate the influence of genotype on clinical and imaging phenotypes, and on a 2-year prognosis in HCM patients.

Methods: Observational, retrospective, single-center study, including 117 patients diagnosed with HCM through cardiac MRI between 2018 and 2024. Genetic test results (negative, variant of unknown significance, or positive and affected genes) were correlated with clinical and MRI data. For prognosis analysis, patients diagnosed between 2023 and 2024 were excluded, and comparisons were made between different genotype groups regarding the occurrence of MACE, cardiac hospitalizations, death, and non-sustained ventricular tachycardia (NSVT) in Holter monitoring after 1 year.

Results: 117 patients (67.5% male, mean age 62.9 ± 1.2 years) were included in our sample. Patients with positive genetic results had more severe symptoms, greater left ventricular (LV) wall thickness, lower LV ejection fraction, more fibrosis, and a higher likelihood of MACE and hospitalizations. Between the positive and VUS groups, there were no differences in the prevalence of NYHA class III or the presence of LGE, as well as in the likelihood of cardiac hospitalizations. Patients with VUS were more symptomatic and had more fibrosis compared to patients with a negative genetic test. Thin filament mutations were associated with worse imaging phenotypes. Specifically, patients with TPM1 mutations were more likely to develop NSVT.

Conclusions: Genotype influences the phenotype and prognosis of HCM patients, underscoring the importance of understanding the genetic basis of this disease.

CO 80. "RING-LIKE" LATE GADOLINIUM ENHANCEMENT: EXPLORING PATTERNS AND OUTCOMES

Rita Almeida Carvalho, Débora Correia, Rita Amador, Sérgio Maltês, Gonçalo Cunha, Pedro Lopes, Catarina Brízido, Christopher Strong, João Abecasis, Bruno Rocha, Carlos Aguiar, António Ferreira

Hospital Santa Cruz ULSLO.

Introduction: Left ventricular (LV) scar with a "ring-like" pattern detected by late gadolinium enhancement (LGE) on cardiac magnetic resonance (CMR) has been associated with an increased risk for ventricular arrhythmias and sudden cardiac death (SCD). However, the used definition varies between studies. We aimed to assess the differences across available definitions.
Methods: Retrospective single-center study of consecutive patients undergoing CMR and LGE study. A "ring-like" pattern was broadly identified by the presence of non-subendocardial (mid-wall and/or sub-epicardial) LGE involving at least three adjacent myocardial segments, as per the standardized AHA 17-segment model. Those with acute myocarditis and specific myocardial diseases (other than dilated cardiomyopathy) were excluded. The primary endpoint was a composite of death, sustained ventricular tachycardia (VT), or implantable cardioverter-defibrillator (ICD) shocks.
Results: Among 4,528 patients undergoing CMR, 210 (4.6%) exhibited a "ring-like" pattern, of whom 88 (42%) were excluded due to specific etiologies. Thus, 122 patients were assessed (mean age 60 ± 18 years; 80% male; 61% NYHA I; mean left ventricular ejection fraction (LVEF) 42 ± 14%; family history of cardiomyopathy or SCD in 5%). Mixed mid-wall and sub-epicardial patterns predominated (53%), followed by isolated mid-wall (34%). LGE was most prevalent in the basal segments (88%), followed by mid (48%) and apical walls (36%), involving 7 ± 3 segments overall and 4 ± 1 segments per ring. During a median follow-up of 12 (4-22) months, 25 (20%) patients had an event of the primary endpoint (13 VT, 7 deaths and 5 ICD shocks). These patients were older (67 ± 10 *vs.* 58 ± 19 years, p = 0.032), more often with SCD in first degree family members (12 vs. 3%, p = 0.044), with more cardiovascular symptoms (palpitations 40 vs. 18%, p = 0.007; syncope 36 vs. 7%, p < 0.001), structural heart disease (LVEF 36 ± 13 vs. 43 ± 14%, p = 0.028; LV end-diastolic volume 233 ± 59 *vs.* 193 ± 64 mL, p = 0.006), and higher native T1 mapping values (1,079 ± 85 *vs.* 1,033 ± 52 ms, p = 0.008). Patients with an event of the primary endpoint had a higher number of overall segments with mid-wall or sub-epicardial LGE (9 ± 4 *vs.* 7 ± 3; p < 0.001), even though the number of segments involved in each ring *per se* was similar to other patients (4 ± 1 *vs.* 4 ± 1; p = 0.089). Their rings more frequently exhibited a mixed pattern (68 *vs.* 48%, p = 0.042), having more involvement of the mid (76 vs. 40%, p = 0.001) and apical (36 *vs.* 8%, p < 0.001) walls, as well as more often presenting with LGE in the right ventricle (8 *vs.* 1%, p = 0.046).
Conclusions: Our data suggests that different "ring-like" patterns may have varying degrees of association with the risk of arrhythmic events. Patients with mixed-type "ring-like" involving mid and apical walls were particularly more likely to have had an event of the primary outcome.

Domingo, 13 Abril de 2025 | 08:30-09:30

Sala D. Luís | Sessão de Comunicações Orais 17 – Reabilitação cardíaca: estratificação de risco, impacto do exercício e o papel da educação na melhoria dos resultados dos doentes

CO 81. MYERS AND MECKI SCORES IN CARDIAC REHABILITATION - COMPREHENSIVE AND SIMPLE AND RELIABLE TOOLS FOR RISK STRATIFICATION

João Mendes Cravo[1], Catarina Gregório[1], Marta Ramalhinho[2], Paula Sousa[3], Mariana Ferreira[4], Pedro Alves da Silva[1], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto J. Pinto[1], Ana Abreu[1]

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Introduction: Several cardiovascular risk stratification protocols exist, but few integrate cardiopulmonary exercise testing (CPET) parameters. The role of CPET in assessing patients and stratifying cardiovascular risk is becoming

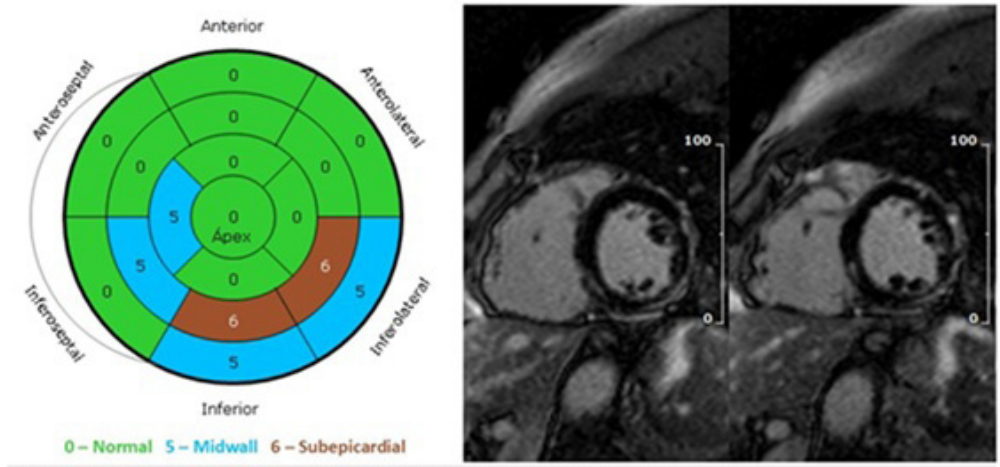

Figure 1. Example of a patient with a "ring-like" LGE pattern associated with "high-risk" features.
This patient exhibited a mixed-type LGE involving three mid-ventricular inferior segments and extending into the right ventricle. There was moderate biventricular dysfunction (LVEF 46%, RVEF 35%) and significant right ventricular dilation (RVEDVi 135mL/m²). The patient met the Padua's criteria for biventricular arrhythmogenic cardiomyopathy. Family history was unremarkable, and genetic testing for arrhythmogenic and dilated cardiomyopathy panels was negative. During follow-up, this patient experienced episodes of sustained ventricular tachycardia and implanted an ICD for secondary prevention.

Figure CO 80

increasingly recognized. Objective scores, such as the Meyers and MECKI scores, which incorporate CPET parameters, are well established in heart failure, but their utility in other populations, including coronary artery disease, is yet to be validated.
Objectives: To evaluate the MECKI and Meyers scores as risk stratification tools in patients undergoing cardiac rehabilitation (CR).
Methods: Prospective observational single-center study including patients enrolled in a phase II CR program between 2016 and 2024. The MECKI score was calculated using peak VO2, VE/VCO2 slope, hemoglobin levels, sodium levels, MDRD-estimated glomerular filtration rate and left ventricular ejection fraction (LVEF). The Myers score based on CPET parameters (peak VO2, PetCO2, OUES, HR and VE/VCO2) classified patients into low-, intermediate-, or high-risk categories. Both scores were assessed before and after CR. For analysis on clinical outcomes, a composite outcome of all-cause mortality, cardiovascular hospitalizations and urgent visits was defined.
Results: We gathered 550 patients who completed a phase II CR program (80% male, mean age 63.3 ± 11 years). The mean number of exercise sessions attended was 14. Among the participants, 83% had ischemic heart disease, with 49% presenting multivessel coronary disease and 29% with incomplete revascularization. The median MECKI score decreased from 2.29 (0.7-4.8) to 0.95 (0.4-1.8) after completing the program. Similarly, the mean Myers score decreased from 6.02 ± 0.4 to 4.69 ± 0.4 after CR. Regarding risk stratification using the Myers score, the proportion of patients in the low-risk category increased from 51% to 64% post-CR, while the intermediate-risk group decreased from 42% to 32% and the high-risk group from 7% to 4%. These changes reflected statistically significant improvements in MECKI and Meyers scores from baseline evaluations after CR completion ($p < 0.001$), in line with amelioration of patient risk profile. The mean follow-up duration was 2.97 ± 1.69 years. During this period, 44 patients were hospitalized and 21 patients died. A statistically significant association was found between high-risk Meyers scores post-CR and adverse outcomes ($p < 0.001$). Additionally, a trend toward higher event rates was observed in patients whose MECKI and Meyers scores did not improve between pre- and post-CR assessments.
Conclusions: The MECKI and Meyers scores were easily applied in our population and improved after CR, effectively identifying high-risk patients with higher rates of adverse outcomes. These scores help stratify post-phase II CR patients, guiding tailored care and intensive follow-up for high-risk individuals.

CO 82. THE ROLE OF PEAK VO2 IN CARDIAC REHABILITATION: PREDICTORS OF NON-RESPONSE AND THEIR IMPACT ON LONG-TERM OUTCOMES

Ana Rita M. Figueiredo[1], Miguel Raposo[1], Catarina Gregório[1], Ana Abrantes[1], Bruno Bento[2], Sílvia Fiuza[3], Graça Araújo[2], Pedro Alves da Silva[1], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto J. Pinto[1], Ana Abreu[1]

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Introduction: The positive impact of cardiac rehabilitation in terms of improvement in functional capacity, quality of life, and prognosis is well established. However, not all patients respond adequately to the programs.
Objectives: The objective of this work is to determine the rate and predictors of non-response to a cardiac rehabilitation program in terms of functional capacity. Additionally, it aims to evaluate the impact of non-response on prognosis.
Methods: Prospective observational single-center study including patients enrolled in a phase II CR program between 2016 and 2024. Clinical, imaging, laboratory and CPET data were collected. The population was divided into two groups: responders and non-responders to the CR program. A responder was defined as someone who showed an improvement in peak VO2 of at least 1 ml/kg/min in the CPET after completing the program.
Results: A total of 236 patients completed a phase II CR program, of these 105 were non-responders to the CR program. The peak VO2 increased by 2.9 ml/kg/min (1.9-4.6) in the responders group compared to a decrease of 0.3 ml/kg/min (-2.15-0.2) in the non-responders group. The baseline walking test results were similar between the groups, but the responders group showed improvement at the end of the program (539m vs. 575 m, $p = 0.03$). Both groups were similar regarding baseline characteristics, except for the presence of diabetes, hypertension, age and BMI. In the non-responder group, the percentage of diabetics was higher (37 vs. 22%, $p = 0.02$), as well hypertension (79.5 vs. 56.5%, $p = 0.04$). Non-responders were older (61.2 ± 0.9 years vs. 57.8 ± 1.2 years, $p = 0.024$) and more obese (28.3 ± vs. 27.0, $p = 0.023$). There was a significant correlation between non-response to CR and diabetes ($p = 0.02$), with a 52% probability of no improvement in peak VO2 among diabetics. Patients aged 62 or older demonstrated a statistically significant association with no improvement in peak VO2 ($p = 0.024$). The mean follow-up time was 2.97 ± 1.69 years. Seven deaths were recorded and 12 hospitalizations. Non-responders reported a higher incidence of events and mortality compared to the responder group (1.4 vs. 1% for reinfarction, and 4 vs. 2% for deaths, respectively). A statistically significant correlation was observed between composite outcomes and a peak VO2 ≤ 15 ml/kg/min ($p = 0.02$).
Conclusions: Our findings highlight the importance of peak VO2 improvement in monitoring functional improvement during cardiac rehabilitation and its role in reducing events during follow-up. Diabetes and age were identified as predictors of non-improvement, emphasizing the need to enhance adherence and tailored interventions in these high-risk groups.

CO 83. NONSPECIFIC VENTRICULAR REPOLARIZATION ABNORMALITIES: A BENIGN FINDING OR A PROGNOSTIC CONCERN?

Sofia Andraz, Joana Massa Pereira, Lucas Hamann, Joana Guerreiro Pereira, Miguel Espírito Santo, Pedro de Azevedo, Hugo Costa, Jorge Mimoso

Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro.

Introduction: Nonspecific ventricular repolarization abnormalities (NVRA) are minor electrocardiographic changes in the ST segment and/or T wave often described in individuals without apparent heart disease. Although their clinical significance remains uncertain, often no further investigation is pursued, and they are usually disregarded in the absence of accompanying symptoms.
Objectives: To assess the impact of NVRA on the prognosis of individuals without established cardiovascular disease (CVD).
Methods: This analysis included 8,561 participants from the Third Report of the National Health and Nutrition Examination Survey who performed an ECG. Individuals with prior CVD or major ECG changes (e.g. QRS ≥ 120 ms, pathological Q waves or non-sinus rhythm) were excluded from the analysis. NVRAs were defined as subtle T wave changes (< 1 mm) and/or ST-segment depression < 0.5 mm. Relevant demographic, clinical and laboratorial data were compared between patients with and without NVRAs. The prognostic impact of NVRAs on all-cause and cardiovascular mortality was assessed using a Cox regression model to adjust for cofounders.
Results: A total of 6.766 participants were included, of which 739 (12%) had NVRAs. This group was older (mean age 62.6 ± 12.5 vs. 57.4 ± 12.9 years, $p < 0.001$), less frequently male (38.6 vs. 45.9%, $p < 0.001$) or of white race (65.1 vs. 74.6%, $p < 0.001$). This group had higher rates of hypertension (67.4 vs. 41.4%, $p < 0.001$), diabetes mellitus (21.9 vs. 14.8%, $p < 0.001$), dyslipidaemia (24.0 vs. 23.1%, $p < 0.001$) and higher BMI (28.2 vs. 26.7 kg/m^2, $p < 0.001$). After a mean follow-up of 18.6 ± 7.3 years, the overall all-cause mortality rate in the cohort was 49.2%, and CV mortality was 13.1%. The NVRA group experienced significantly higher all-cause mortality (64.1 vs. 47.2%, $p < 0.001$) and CV mortality (19.8 vs. 12.2%, $p < 0.001$) compared to the non-NVRA group. In multivariate Cox regression analysis, NVRA remained significantly associated with increased all-cause mortality (HR 1.21, 95%CI 1.06-1.40, $p = 0.006$), but not CV mortality (HR 1.20, 95%CI 0.91-1.59, $p = 0.180$). Conventional CV risk factors were predictors of both all-cause and CV mortality.
Conclusions: NVRAs are associated with higher all-cause mortality in individuals without CVD, indicating that NVRA may not be a benign finding and instead serve as a useful marker for poor overall prognosis. The clinical

Table 1 – Baseline clinical characteristics of individuals without established cardiovascular disease.

			No NVRA	NVRA	Total	p-value
			n=5.439 (88%)	n=739 (12%)	6.178	
Gender	Male	n (%)	2.498 (45.9%)	285 (38.6%)	2.774 (44.9%)	<0.001
	Female	n (%)	2.941 (54.1%)	454 (61.4%)	3.395 (55.1%)	
Age (years)		Mean±SD	57.4 ± 12.9	62.6 ± 12.5		<0.001
White race		n (%)	4.055 (74.6%)	481 (65.1%)		<0.001
Hypertension		n (%)	2.254 (41.4%)	498 (67.4%)		<0.001
Dyslipidimia		n (%)	1.256 (23.1%)	177 (24.0%)		<0.001
Diabetes mellitus		n (%)	806 (14.8%)	162 (21.9%)		<0.001
Current or past history of smoking		n (%)	2.964 (54.5%)	374 (50.6%)		0.047
COPD		n (%)	427 (7.9%)	59 (8.0%)		0.90
BMI		n (%)	26.7 (23.8 – 30.3)	28.2 (25 – 31.5)		<0.001
Systolic BP		n (%)	129 ± 18	141 ± 21		<0.001
Diastolic BP		n (%)	76 ± 10	78 ± 11		<0.001
Total cholesterol		n (%)	217 ± 43	222 ± 44		<0.001
HbA1c		n (%)	5.7 ± 1.2	6.0 ±1.4		<0.001

Figure CO 83

relevance of NVRA in relation to cardiovascular events remains unclear and warrants further investigation.

CO 84. REALLY WORTH THE EFFORT: UNVEILING EXERCISE PULMONARY HYPERTENSION – A SINGLE CENTRE EXPERIENCE

João Mirinha Luz, Otília Simões, Filipa Ferreira, Sofia Alegria, Rita Calé, Bárbara Marques Ferreira, Ana Cláudia Vieira, Débora Repolho, Sílvia Vitorino, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction and objectives: The 2022 ESC/ERS Pulmonary Hypertension (PH) guidelines brought us the definition of exercise pulmonary hypertension (E-PH), characterized by a mean pulmonary artery pressure to cardiac output ratio (mPAP/CO) slope above 3 mmHg/L/min, assessed by exercise right heart catheterization (E-RHC). Cardiopulmonary exercise test (CPET), though the evaluation of some metabolic parameters, could evaluate the probability of presence of PH. The aim of this study was to correlate parameters obtained in CPET, in predicting presence of E-PH in E-RHC. This study reflects the 2-plus years of evaluating patients with suspected E-PH.
Methods: We performed an observational, cross-sectional and unicentric study that included patients (pts) with dyspnea on effort, with risk factors for PH, but with low echocardiographic probability and normal NTproBNP. Pts were subjected to sequential CPET and E-RHC between January 2022 to October 2024. CPET was performed in a treadmill, using staged protocols - Bruce and modified Bruce. E-RHC used a protocol of 15 minutes (mts) in total, with stepwise workload increase of 10 Watts every 3 mts, and mPAP/CO slope was evaluated at peak effort.

	E-PH (n=20)	No E-PH (n=9)	p-value
VO2 peak (%; median)	83.5	87.0	0.390
VE/VCO2 slope (mean)	38.3	32.9	**0.013**
PET CO2 AT (median)	32.5	34.0	0.527
VE/VCO2 AT <34	6	6	0.08
VE/VCO2 AT >34	13	3	

Table 1 – CPET results in pts with and without E-PH

Results: Twenty-nine pts were included. Median age at the time of CPET was 64 years-old. Main diagnosis was chronic thromboembolic disease (CTED), including patients who previously were subjected to pulmonary endarterectomy and had no residual PH or patients with CTED who had been treated with ballon pulmonary angioplasty. Modified Bruce was the main protocol used for CPET (86%, n = 25), with mean effort time of 10.6 ± 2.7 mts. Regarding E-RHC, 93% of patients performed 9 or more minutes of exercise. Twenty pts (69%) had confirmed E-PH, with mean mPAP/CO slope in peak exercise of 4.62 mmHg/L/min. In pts with confirmed E-PH, VE/VCO2 slope was significantly higher (38.25 vs. 32.88, p = 0.013), but no differences were seen regarding percentage of VO2 peak or PETCO2 at anaerobic threshold (AT) (Table 1). Using a cutoff of 34 for respiratory equivalent for CO2 at first AT, we've seen more pts with confirmed E-PH with values above 34, but no statistical difference was obtained (p = 0.08).
Conclusions: Our study shows that CPET could be a paramount exam regarding evaluation of pts at risk for E-PH, with documented differences in VE/VCO2 slope. This study also shows that larger cohorts are needed to define the optimal cutoff values to define higher probability of E-PH, predicting the need for E-RHC or not.

CO 85. TEACHING YOUR HEART TO HEAL: THE ROLE OF PATIENT EDUCATION IN IMPROVING OUTCOMES IN PRIMARY ANGIOPLASTY FOR STEMI

Ana Raquel Carvalho Santos, Ricardo Carvalheiro, Francisco Albuquerque, Pedro Brás, André Grazina, Inês Rodrigues, Tiago Mendonça, Luis Morais, Ruben Ramos, Tiago Pereira da Silva, Duarte Cacela, Rui Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Primary angioplasty has evolved significantly over the past two decades. This study explores trends in patient characteristics, comorbidities, quality of life, and the role of patient education in improving adherence and survival across three periods.
Methods: A retrospective cohort study was conducted on primary angioplasty data from 2002 to 2023 divided by three periods: 2002-2009 (Decade 1; 1,356 patients), 2010-2019 (Decade 2; 2,465 patients), and 2020-2023 (Decade 3; 1,155 patients). We assessed changes in patient demographics (age), comorbidities (hypertension [HTA] and heart failure [HF]), mortality, readmissions (30-day, 1-year, 3-year, and 5-year), quality of life (Perceived Health Status, Daily activity), and education outcomes (Therapeutic adherence, Autonomy taking medicines).
Results: There was a significant increase in patient age and the prevalence of HTA and HF, reflecting a more complex patient population. Despite this, readmission rates significantly decreased at 1, 3, and 5 years ($p < 0.0001$), and long-term mortality showed a substantial decline, especially in 2020-2022 ($p < 0.0001$). Improvements in quality of life were noted, with Perceived Health Status and Daily Activity showing significant gains at 30 days and 3 years ($p = 0.0007$, $p = 0.0008$), highlighting the benefits of early intervention. Patient education played a critical role in these outcomes. Therapeutic Adherence significantly improved at 30 days, 1 year, and 5 years ($p < 0.0001$), reflecting the effectiveness of structured discharge education and follow-up. Similarly, Autonomy taking medicines improved at 30 days and 1 year ($p < 0.0001$), indicating the importance of educating patients to manage their medications. Strong negative correlations were

observed between adherence and mortality, particularly at 1 year (r = -0.79) and 5 years (r = -0.60), underscoring the importance of education in improving survival.
Conclusions: This study underscores the critical role of patient education in improving both short- and long-term outcomes in primary angioplasty for STEMI. Despite an aging and more complex patient population, improvements in adherence, medication autonomy, and quality of life suggest that patient education is key to reducing mortality and improving recovery.

Domingo, 13 Abril de 2025 | 08:30-09:30

Sala D. Maria | Sessão de Comunicações Orais 18 – Imagem avançada e biomarcadores na estratificação de risco cardiovascular: da ressonância magnética de perfusão à remodelagem cardíaca

CO 86. PROGNOSTIC VALUE OF STRESS PERFUSION CARDIAC MAGNETIC RESONANCE: REAL-WORLD EVIDENCE FROM A LARGE PORTUGUESE COHORT

Miguel Sobral Domingues, André Garcia, Rui Gomes, Pedro Lopes, Kamil Stankowski, Francisco Gama, Cláudia Silva, Sara Guerreiro, João Abecasis, Pedro Freitas, António Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction and objectives: Vasodilator stress perfusion cardiovascular magnetic resonance (CMR) has demonstrated good diagnostic performance for detecting obstructive coronary artery disease (CAD), but its prognostic value is sometimes regarded as less well established compared with other imaging modalities. The aim of this study was to assess the prognostic value of stress CMR in a contemporary cohort of patients with known or suspected CAD.
Methods: Consecutive patients undergoing adenosine stress perfusion CMR on a 1.5T scanner between 2019 and 2023 were followed for the occurrence of major adverse events, defined as all-cause mortality, non-fatal myocardial infarction (MI), cardiovascular hospitalization and late coronary revascularization (> 12 months post-CMR). The primary endpoint was defined as the composite of all-cause death and non-fatal MI. Secondary outcomes were defined as the occurrence of each individual major event. Survival analysis was performed to determine the prognostic value of inducible myocardial ischemia (≥ 2 segments) and late gadolinium enhancement (LGE) with ischemic pattern.
Results: A total of 1,043 patients (66% male; mean age 68 ± 11 years) were analyzed. Among them, 46.5% (n = 485) had known CAD, including 28.8% (n = 300) with previous MI, 29.2% (n = 305) with prior percutaneous coronary intervention (PCI), and 11.7% (n = 122) with prior coronary artery bypass grafting (CABG). Stress CMR was positive for ischemia in 268 patients (24.7%) and showed ischemic LGE in 426 (40.8%). A total of 157 patients (15.1%) had both inducible ischemia and ischemic LGE. Non-ischemic LGE was incidentally detected in 278 cases (26.6%). Over a median follow-up of 2.9 years, 215 events (20.6%) were recorded (84 deaths, 33 non-fatal MI's, 81 cardiovascular hospitalizations and 17 late revascularizations). Survival analysis showed significantly higher risks for the primary composite endpoint in patients with inducible ischemia, ischemic LGE, or both (Figure 1). Prognostic significance was consistent across each individual event analyzed (all log-rank p < 0.001). Multivariable Cox regression identified age (HR 1.05, 95%CI 1.03-1.07, p < 0.001), LV ejection fraction (HR 0.97, 95%CI 0.96-0.99, p < 0.001), inducible ischemia (HR 1.59, 95%CI 1.09-2.32, p = 0.015) and ischemic LGE (HR 1.70, 95%CI 1.07-2.69, p = 0.024) as independent predictors of the primary endpoint.
Conclusions: Both ischemia and ischemic LGE detected by stress perfusion CMR are significantly associated with an increased risk of the primary composite outcome of death and non-fatal MI. These findings confirm the prognostic value of stress perfusion CMR and support its application in routine clinical practice.

CO 87. REDUCED MRI-BASED RIGHT-TO-LEFT VENTRICULAR BLOOD POOL T2 RATIO PREDICTS ADVERSE EVENTS AND IMPAIRED CARDIOPULMONARY FUNCTION IN HEART FAILURE PATIENTS

Débora Sá[1], Ana Rita Bello[2], Pedro Lopes[2], Gonçalo Cunha[2], Bruno Rocha[2], Pedro Freitas[2], Sara Guerreiro[2], Cláudia Silva[2], Kamil Stankowski[3], Francisco Gama[2], João Abecasis[2], António Ferreira[2]

[1]Hospital Dr. Nélio Mendonça. [2]Hospital de Santa Cruz. [3]Humanitas Research Hospital.

Introduction: Cardiovascular magnetic resonance (CMR) T2 mapping is a sensitive tool for assessing blood oxygenation levels. A reduced right

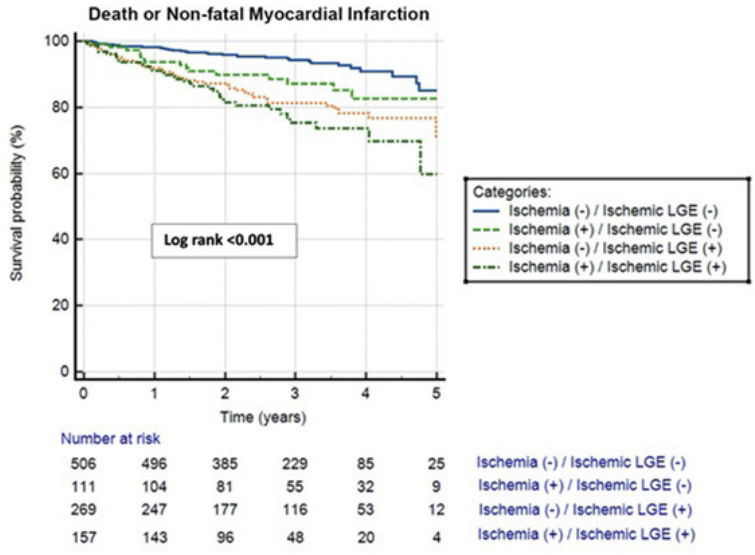


Figure CO 86

ventricular (RV) to left ventricular (LV) blood pool (BP) T2 relaxation time has been observed in patients with Heart Failure (HF) -due to increased peripheral oxygen extraction-, but its association with adverse clinical outcomes and physiologic parameters remains unexplored. This study aimed to assess the prognostic value of the RV/LV BP T2 ratio and its correlation with cardiopulmonary exercise metrics in patients with HF with reduced and mildly reduced ejection fraction (HFrEF and HFmrEF).

Methods: This retrospective, single-center cohort study included adult patients with HF and LVEF < 50% who underwent CMR with T2 mapping (T2-prep SSFP) between 2019-2024. Patients with congenital heart disease and/or known shunts were excluded. RV and LV BP T2 values were measured on a mid-ventricular short-axis slice, excluding trabeculations, papillary muscles, and inflow artifacts. The study endpoint was a composite of all-cause death or hospital admission for decompensated HF. In a subset of patients who underwent clinically indicated cardiopulmonary exercise testing (CPET) within one year of CMR, RV/LV BP T2 ratio was correlated with metrics of HF severity.

Results: A total of 301 patients were included (66% male, mean age 60 ± 16 years, median LVEF 35%; 36% with ischemic etiology). The mean RV/LV BP T2 ratio was 0.70 ± 0.11. After a median follow-up of 22 ± 17 months, 49 patients (14.1%) experienced the outcome (31 deaths, 18 HF hospitalizations). ROC curve analysis showed good discriminatory power of RV/LV BP T2 ratio for predicting outcome, with an AUC of 0.76 (95%CI: 0.69-0.83, p = 0.001). A RV/LV BP T2 ratio cut-point of 0.72 had 94% sensitivity and 46% specificity for MACE. Patients with values ≤ 0.72 represent 61% of the population but account for 94% of the events (Figure 2). After Cox regression adjustment for age, LVEF, NYHA class and ischemic etiology, RV/LV BP T2 ratio remained an independent predictor of outcome (adjusted HR 0.92 per 1% increase, 95%CI 0.89-0.96, p < 0.001). In the subset of 49 patients with CPET, RV/LV BP T2 ratio correlated with peak oxygen uptake (VO2, r = 0.43, p = 0.002) and ventilatory efficiency (VE/VCO2, r = -0.34, p = 0.020).

Figure 1: Two examples of CMR images with T2 mapping weighting at mid-ventricular short-axis slice, showing high and low RV/LV T2 ratios.

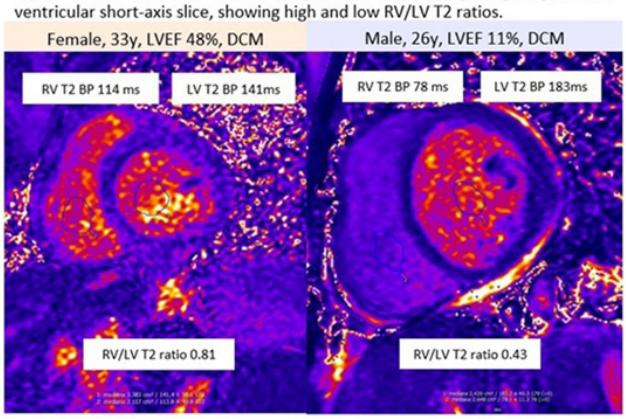
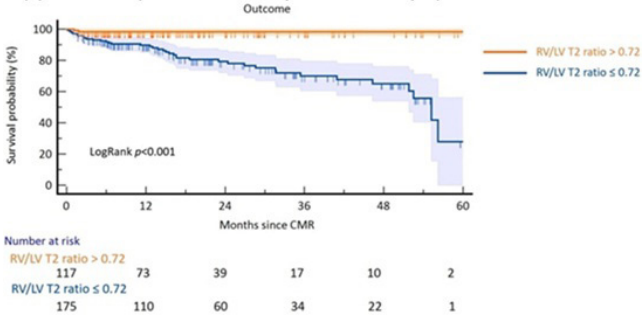


Figure 2: Kaplan-Meier survival curves comparing RV/LV ratio > 0.72 and ≤ 0.72 (optimal cutoff point determined by ROC curve analysis).



Conclusions: Decreased RV/LV T2 ratio correlates with impaired CPET parameters and is independently associated with higher risk of death and HF hospitalization. This biomarker can be readily obtained from routine CMR protocols and may serve as an additional tool to aid in assessing HF severity and prognosis.

CO 88. EPICARDIAL ADIPOSE TISSUE PLAYS AN ADDITIONAL ROLE IN CARDIOVASCULAR RISK ASSESSMENT TOGETHER WITH CORONARY ARTERY CALCIUM SCORE

Débora Sá[1], Maria Isabel Mendonça[2], Francisco Sousa[1], Gonçalo Abreu[1], Matilde Ferreira[1], João Adriano Sousa[1], Marco Gomes Serrão[1], Eva Henriques[2], Sónia Freitas[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

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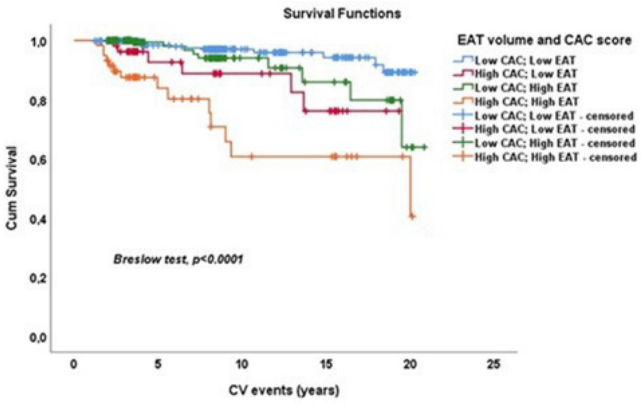
Introduction: Recent research has shown that Epicardial Adipose Tissue (EAT) and the Coronary Artery Calcium Score (CACS), both assessed through a cardiac computed tomography (CT), are strongly associated with patient prognosis and the risk of adverse cardiovascular (CV) outcomes. Nevertheless, it is unclear if EAT remains an event risk tool when considering the CACS.

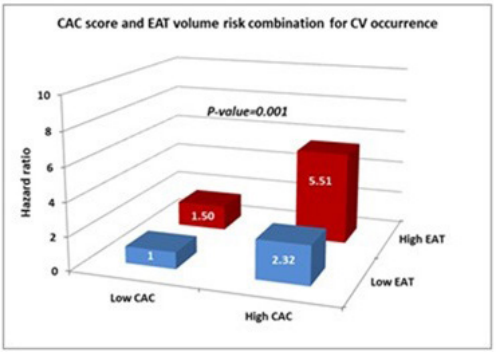
Objectives: Study the role of Epicardial Adipose Tissue in cardiovascular risk when CAC score influence is present.

Methods: A prospective study with 1,024 healthy participants (58.3 ± 8.4 years; 75.6% male) followed during an average of 6.1 ± 4.8 years. Non-contrast CT images for CACS were obtained at baseline, and the EAT volume was analyzed. Kaplan-Meier estimator was used to assess the additional predictive value of EAT relative to the CACS in four models for the risk of all-cause CV adverse events. A Cox regression analysis was performed with the CACS and EAT combination and adjusted for all other covariables.

Results: After an extended follow-up period, 41 participants (4%) had CV events. Kaplan-Meier, stratified by EAT and CAC, showed the lowest EAT and CACS had the best probability of survival, and those with higher EAT volume and CACS had the worst survival. After Cox regression analysis, increased EAT and CAC was associated with an adjusted hazard ratio of 5.51 (95%CI: 2.33 to 13.00; p < 0.0001), predicting CV events.



Events-free survival time of EAT volume and CAC score combination models



Conclusions: Increased EAT volume is associated with more CV events, probably due to atherosclerosis advance. There is an incremental predictive

value when the increased EAT volume is added to the increased CAC score in predicting CV events. Strategies to reduce EAT volume may decrease subclinical atherosclerosis and improve outcomes with adequate measures like physical exercise, proper diet and pharmaceutical intervention.

CO 89. INCREMENTAL PROGNOSTIC ROLE OF LEFT VENTRICULAR GLOBAL LONGITUDINAL STRAIN AFTER ACUTE MYOCARDIAL INFARCTION

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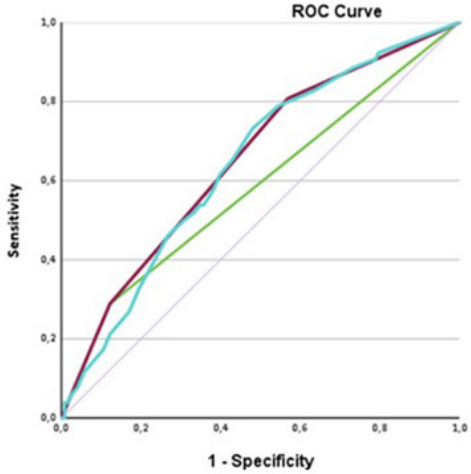
Introduction: Left ventricular (LV) systolic function is a key predictor of outcomes after acute myocardial infarction (AMI). While global longitudinal strain (GLS) has demonstrated additional prognostic value in patients with mildly to moderately depressed LV ejection fraction (LVEF), its significance in patients with more severely reduced LVEF remains less well established. In the early post-AMI phase, LVEF may have limitations in accurately identifying significant systolic dysfunction. GLS, a more precise and operator-independent measure of LV deformation, offers potential for improved assessment of LV systolic function in this setting.

	LVEF ≤40% or GLS≤16% (n=121)	Others (n=58)	p-value
Demographics			
Age, years	63±18	62±13	0,499
BMI, Kg/m²	29.6±2.4	26.6 ± 3.7	0,456
Killip ≥3, n (%)	4 (6)	0	**0.038**
NT-proBNP, pg/mL	1448 [607-3477]	339.5 [165-727]	**<0.001**
Peak Troponin, ng/L	2712.5 [770-8212]	986 [279-3300]	**<0.001**
Transthoracic Echocardiography			
EDVi, ml/m²	57 [50-69]	54 [45-59]	**0.001**
LAVI ml/m²	32 [24-41]	30 [24-40]	0.414
E/E'	9 [7-12]	8 [6.6-10.8]	0.087
Follow-Up			
NT-proBNP at 3-months, pg/mL	575 [147-1820]	142 [62-388]	**0.005**
NT-proBNP at 6-months, pg/mL	469 [106-1042]	151 [64-286]	**0.009**
Heart Failure (HF), n (%)	39 (32)	6 (10)	**0.002**
CV Hospitalization, n (%)	10 (8)	5 (9)	0.948
All-cause Mortality, n (%)	4 (4)	1 (2)	0.516
HF + CV Hospitalization+ All-cause Mortality, n (%)	45 (37)	9 (16)	**0.003**

Table 1- Differences between groups in demographics, ETT and Follow-up. Mean ± SD, Median [IQR]



	AUC	95% Confidence Interval	*p*-value
FEVE≤40%	0.583	0.487-0,679	0.082
WMSI	0.643	0.564-0,740	0.003
4 groups based on GLS+LVEF	0.652	0.556-0,730	0.001

Figure 1 and Table2- ROC Curves for LVEF≤40%, WMSI and 4 groups based on GLS+LVEF

Objectives: Evaluate the incremental value of GLS in the estimation of LV systolic function in patients with LVEF ≤ 40% and its prognostic implications following AMI.
Methods: Single-centre prospective cohort of 333 consecutive patients admitted with AMI between 2023 and 2024 (65 ± 16 years, 74% male). After the acute phase, all patients underwent echocardiography a mean of 4 ± 6 days after admission. Patients with previously known coronary artery disease or heart failure (HF), or incomplete echocardiographic data were excluded. Baseline characteristics and outcomes were compared between patients with LVEF ≤ 40% or GLS ≤ -16%, and all other patients. The incremental value of GLS for the prediction of the composite endpoint of HF, cardiovascular (CV) hospitalization and all-cause death was evaluated by dividing patients into four groups based on LVEF and GLS: "LVEF > 40%+GLS > -16", "LVEF > 40%+GLS ≤ -16", "LVEF ≤ 40%+GLS > -16" and "LVEF ≤ 40%+GLS ≤ -16." ROC curve analyses were used to compare the incremental predictive value of GLS beyond LVEF and wall motion score index (WMSI) for the composite endpoint.
Results: 179 patients were included (mean age 62 ± 16 years, 74% male, 58% STEMI and 31% with anterior AMI). Among these, 24% (n = 43) had mildly reduced LVEF, 18% (n = 32) LVEF ≤ 40% and 67% (n = 119) had GLS ≤ -16%. WMSI was > 1 in 19% (n = 63). Patients with LVEF ≤ 40% or GLS ≤ -16% (n = 121) presented with higher Killip class (≥ 3 in 6 vs. 0%, p = 0.038), higher peak hsTnT (2,712 [770-8,212] vs. 986 [279-3,300], p < 0.001), and higher peak NT-proBNP (1,448 [607-3,477] vs. 339.5 [165-727] pg/mL, p < 0.001). Over a median follow-up of 324 ± 110 days, 54 patients (30%) reached the composite endpoint, with the majority coming from the group with LVEF ≤ 40% or GLS ≤ -16% (Table 1). Stratifying patients into groups based on LVEF and GLS demonstrated a higher area under the curve (AUC) compared to only using LVEF ≤ 40% or WMSI alone (FEVE ≤ 40%: AUC 0.583, p = 0.082; WMSI: AUC 0.643, p = 0.003; 4 groups based on GLS and FEVE: 0.652, p = 0.001) (Figure 1).
Conclusions: In this cohort, stratifying patients based on both LVEF and GLS provided a more accurate prediction of clinical outcomes compared to using LVEF ≤ 40% or WMSI alone.

CO 90. CHARACTERISATION OF LEFT ATRIAL DEFORMATION DURING CARDIOVASCULAR REVERSE REMODELLING INDUCED BY PREGNANCY AND ITS POTENTIAL PREDICTORS

Ana Barros[1], Ana Filipa Ferreira[1], Rui Alves[1], Juliana Morais[1], Débora Veiga[1], Maria João Azevedo[2], Carla Sousa[3], Ana Paula Machado[3], Adelino Leite-Moreira[1], Carla Ramalho[1], António S. Barros[1], Inês Falcão-Pires[1]

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Introduction: Haemodynamic overload during pregnancy leads to changes in the cardiovascular (CV) system, which may normalise within 6-12 months postpartum through a process called CV reverse remodelling (RR). Although cardiac systolic function is preserved during pregnancy and the postpartum period, impaired cardiac relaxation has been described during pregnancy and recovery after delivery. Left atrial (LA) strain has been named as a potential predictor of diastolic dysfunction; hence, it is relevant in this context.
Objectives: To characterise LA strain during CV RR induced by pregnancy and identify its potential predictors.
Methods: This prospective cohort study included volunteer pregnant women recruited from two tertiary healthcare centres between February 2019 and December 2023. Participants were evaluated by transthoracic echocardiography in the 3rd trimester [PT3, 30-35 weeks gestation, peak of CV remodelling] and in the 1st (PP1), 6th (PP2), and 12th (PP3) months postpartum, during CV RR. Generalised linear mixed-effect models were used to evaluate the CV RR, including the variation in LA strain and its potential predictors.
Results: We included 169 women with a median age of 34 [31;37] years, having 35.5% at least one CV risk factor prior to pregnancy. After delivery, we observed a significant reduction in LA volume (49 [42;56] mL/m$^{2.7}$ to 41 [34;51] mL/m$^{2.7}$, p < 0.001) and E/e' (6.67 [5.44;7.96] to 5.79 [4.87;6.54], p < 0.001) as soon as 1 month postpartum. Regarding LA deformation, a significant reduction in LA strain was found from PT3 to PP1 (32 [29;40]% to 29 [26;34]%, p < 0.001) and recovering in PP2 (32 [29;40]% to 33 [30;38]%, p = 0.031). Although left ventricular (LV) systolic function was preserved during the follow-up period, a significant increase in global longitudinal strain (GLS, -21.6

[-23.9;-20.1]% to -22.85 [-24.4;-21.1]%, p = 0.019) and ejection fraction (60 [58; 63]% to 61 [58;64]%, p = 0.016) was observed from PT3 to PP2. In our cohort sample, LV GLS was an independent predictor of LA strain (-0.53 [-0.74,-0.32], p < 0.001). The presence of CV risk factors (0.03 [-1.65.1.70], p = 0.974), pregnancy complications (-0.43 [-2.14;1.29], p = 0.6624), LA volume (-0.10 [-0.34.0.13], p = 0.399), E/e' (0.05 [-0.42.0.52], p = 0.830), and age (-0.04 [-0.21.0.13], p = 0.632) showed no significant impact on LA strain.
Conclusions: Although LA volume and E/e' demonstrated recovery at 1 month postpartum, LA deformation exhibited significant improvement only after 6 months. LV GLS was identified as an independent predictor of LA strain.

Domingo, 13 Abril de 2025 | 08:30-09:30

Sala Infante | Sessão de Comunicações Orais 19 – Doença valvular

CO 91. EFFECTIVE REGURGITANT ORIFICE AREA AND LEFT VENTRICULAR VOLUME IMPACT ON HOSPITALIZATIONS EFFECTS OF TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR: A META-REGRESSION ANALYSIS

Bárbara Lage Garcia, Emídio Mata, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Sílvia Ribeiro, Lucy Calvo, António Lourenço

Unidade Local de Saúde do Alto Ave.

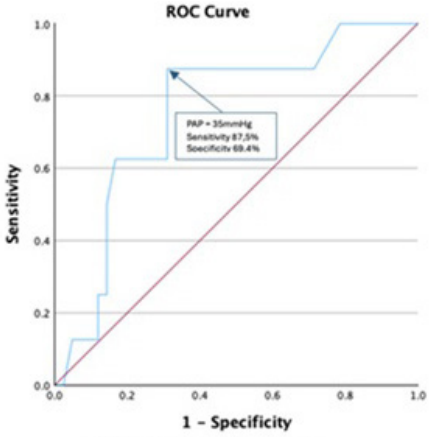
Introduction: The impact of transcatheter edge-to-edge mitral valve repair (MTEER) on reducing hospitalizations in patients with secondary mitral regurgitation (SMR) remains a topic of debate. This meta-regression evaluates how baseline effective regurgitant orifice area (EROA) and left ventricular end-diastolic volume (LVEDV) influence hospitalization effects of MTEER when compared to guideline-directed medical therapy (GDMT).

Methods: In September 2024, a systematic search was performed in PubMed, the Cochrane Central Register of Controlled Trials, Scopus, and Web of Science to identify randomized controlled trials (RCTs) involving patients with SMR randomized to either MTEER plus GDMT or GDMT alone and reporting hazard ratios (HR) for hospitalizations. HRs between the two groups for all hospitalizations (first and recurrent) at 24 months were pooled using a mixed-effects meta-regression model (DerSimonian-Laird) with EROA and LVEDV as moderators.
Results: From 1,558 identified articles, the final analysis included the COAPT, MITRA-FR, and RESHAPE-HF2 trials with a total of 1,423 patients. Meta-regression revealed a baseline HR for 24-month all hospitalizations for a patient with an EROA of 0.2 cm^2 of 0.758 [95%CI: 0.359-1.600], with an increase by a factor of 0.873 [95%CI: 0.508-1.501] per 0.1 cm^2 increase in EROA. Baseline EROA did not influence the outcome significantly (p = 0.622), having a pseudo-R^2 of -2.09, indicating no improvement in model fit. As for a baseline LVEDV impact, a baseline HR for 24-month all hospitalizations for a reference LVEDV of 180 mL estimated at 0.500 [0.374-0.668], with a borderline non-significant increase by a factor of 1.077 [0.994-1.166] per additional 10 mL (p = 0.0687, pseudo-R^2 = 1.00).
Conclusions: This meta-regression found no significant effect of baseline EROA on hospitalization outcomes for SMR patients undergoing MTEER. However, a borderline trend suggested that larger baseline LVEDV may be associated with a higher risk of hospitalization. These findings highlight the complexity of predicting hospitalization outcomes after MTEER and suggest that baseline LVEDV may be more relevant than EROA in determining MTEER benefits in SMR. Nevertheless, the limited dataset raises concerns about the robustness of these conclusions.

CO 92. PROGNOSTIC IMPACT OF MITRAL BALLOON VALVULOPLASTY FOR MITRAL STENOSIS PATIENTS: WHEN THE RIGHT HEART CATHETERIZATION IS THE ANSWER

Fernando Nascimento Ferreira, Mariana Caetano Coelho, Bárbara Lacerda Teixeira, Sofia Jacinto, Inês Rodrigues, Ana Teresa Timóteo, Luís Bernardes, Duarte Cacela, Cristina Fondinho, Luís Almeida Morais, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.



Diagonal segments are produced by ties.

Variables	Univariate		Multivariate	
	OR (95% CI)	p value	OR (95% CI)	p value
Mean PAP ≥ 35 mmHg by RHC	7.81 (1.42 – 42.83)	**0.018**	6.65 (1.16 - 38.20)	**0.034**
Age in years	0.99 (0.95-1.0)	0.353	0.97 (0.92 – 1.06)	0.310
NYHA Class	1.089 (0.43-2.75)	0.857	1.40 (0.43 – 5.15)	0.578
Wilkins Score	1.32 (0.86 – 2.0)	0.210	0.74 (0.74 - 2.01)	0.414
Left Atrial volume in Echo	1.0 (0.96 – 1,01)	0.960	1.03 (0.62 – 1.10)	0.405
SPAP in Echo	1.03 (0.99 – 1.06)	0.156	1.0 (0.95 - 1.06	0.973

Figure CO 92

Introduction: Mitral balloon valvuloplasty (MBV) is a well-established procedure used to treat patients with mitral stenosis, a condition that often leads to the development of pulmonary hypertension (PH). While MBV effectively reduces left atrial pressure and improves PH, previous PH is associated with worse outcomes and its prognostic value in this population is not fully understood. This study aims to assess the relevance of right heart haemodynamics, comparing to non-invasive parameters, in predicting prognosis following BMV, with a focus on determining a cut-off value for mean PAP that best correlates with patient outcomes.
Objectives: Assess the prognostic significance of mean PAP in patients undergoing balloon mitral valvuloplasty.
Methods: A retrospective analysis was performed on consecutive patients with severe mitral stenosis who underwent PMBV between 2010 and 2024 in a single centre. Mean PAP was measured for each patient, and a ROC curve analysis was used to determine the optimal cut-off value. Patients were divided into two groups based on a mean PAP threshold of 35 mmHg (derived from ROC analysis). Prognostic significance was assessed considering other factors such as age, NYHA class, Wilkins score, left atrial volume and systolic pulmonary artery pressure (SPAP).
Results: 51 pt were included in the analysis, the median age was 49 years and 80.4% were female and 50% was NYHA class III or higher, on Echo the median Wilkins score was 8, with mitral average mean gradient of 12 mmHg and mean anatomic Mitral Valve area was 1.04 cm^2, PSAP 49.6 mmHg and on right heart catheterization the average mean PAP was 35.2 mmHg. ROC analysis identified a mean PAP threshold of 35 mmHg as the best predictor of adverse outcomes. Patients with PAP > 35 mmHg had significantly worse prognosis, with more cardiovascular death or reintervention rate, with an odds ratio of 6.65 (95%CI: 1.16-38.19). In multivariate analysis, this parameter becomes the most powerful predictor of events, comparing to non-invasive echocardiographic measures like the Wilkins score, and PSAP.
Conclusions: In patients undergoing balloon mitral valvuloplasty, a mean pulmonary artery pressure greater than 35 mmHg is the stronger predictor of adverse outcomes. This finding highlights the value of invasive PAP evaluation as an independent prognostic tool, comparing to non-invasive echocardiographic measures. Further research is needed to explore the benefits of incorporating PAP measurement into routine risk assessment for BMV candidates.

CO 93. THE IMPACT OF AORTIC DISTENSIBILITY IN PATIENTS WITH BICUSPID AORTIC VALVE STENOSIS

Débora da Silva Correia[1], Kamil Stankowski[2], João Abecasis[1], Pedro Lopes[1], Rita Reis Santos[1], Rita Lima[1], Telma Lima[1], António Ferreira[1], Maria João Andrade[1], Regina Ribeiras[1], Sância Ramos[1], Pedro Adragão[1]

[1]Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]IRCCS Humanitas Research Hospital, Milano, Italy.

Introduction: Ventricular adaptation to aortic stenosis (AS) is influenced by both valve obstruction and overall vascular load. Bicuspid aortic valve (BAV) is associated with intrinsic aortopathy, impacting aortic stiffness. We aimed to compare aortic stiffness, using distensibility as its surrogate marker, between AS patients with BAV and tricuspid aortic valve (TAV) and to assess its impact on LV remodeling.
Methods: Single-centre, prospective cohort study of 158 patients with severe symptomatic AS (71 ± 8 years, 50% male; mean transaortic gradient 61 ± 17 mmHg, mean indexed aortic valve area 0.4 ± 0.1 cm^2/m^2 and mean LV ejection fraction 58 ± 9%) referred for SAVR between 2019 and 2022. Patients with previous cardiomyopathy, concomitant moderate/severe aortic regurgitation and severe non-AS valvulopathy were excluded. All participants underwent transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR) before SAVR. Valve morphology was determined from TTE or surgical operative reports. Average systolic and diastolic ascending aortic (AA) dimensions were measured at *cine* images on the horizontal three-chamber and coronal left ventricular outflow views, at the level of pulmonary artery bifurcation. Maximum and minimum aortic areas were then inferred and aortic distensibility calculated. Relative aortic valve load (VL) and valvulo-arterial impedance (Zva) were calculated and correlated with aortic distensibility. LV ventricular geometric remodeling, defined from CMR, was assessed according to valve morphology and aortic distensibility.
Results: *A* total of 123 patients were included (71 years [IQR 9]; 50% male), 13% with BAV, and 87% with TAV (25 patients with undetermined valve morphology). All patients had normal flow/high gradient AS, and BAV cases exhibited the ascending phenotype without root involvement. BAV patients were younger, with lower prevalence of hypertension and with higher prevalence of aortopathy. AS severity indexes were similar between groups, except for higher mean transvalvular gradients in BAV (Table 1). BAV patients

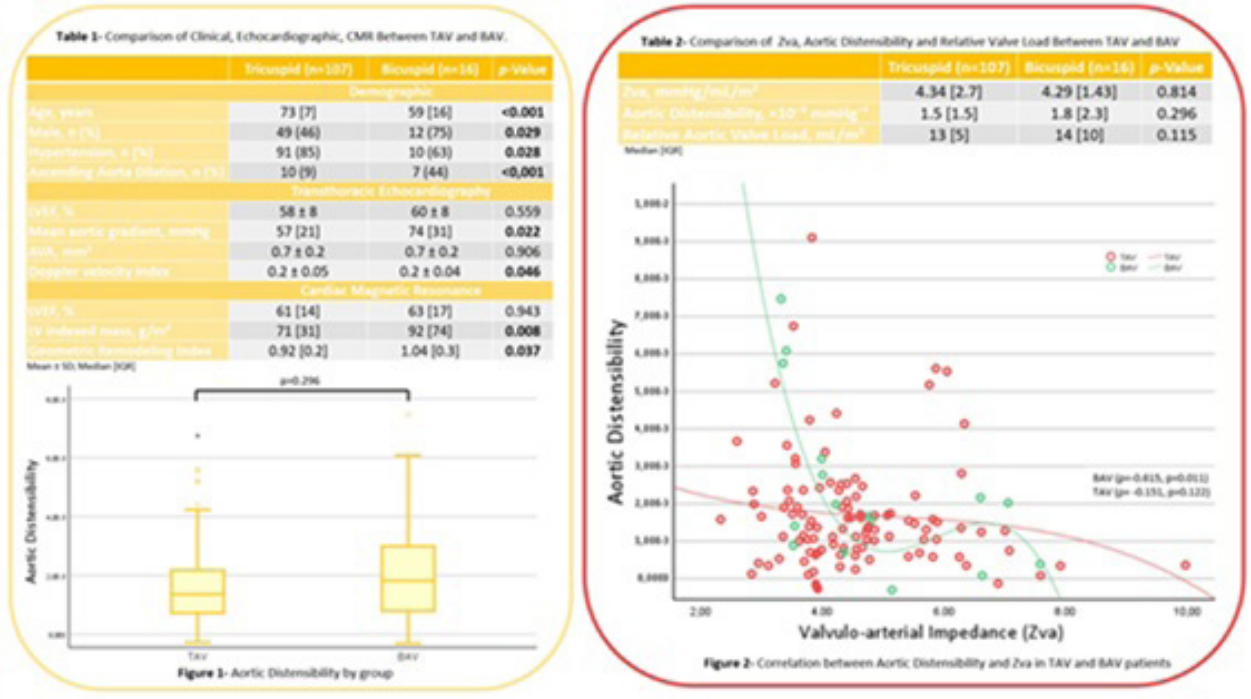


Figure CO 93

exhibited higher aortic distensibility and VL, though these differences were not statistically significant. Zva values were comparable between groups (Table 2). A negative correlation was found between distensibility and Zva in BAV patients (ρ = -0.615, p = 0.011) but not in the TAV group (ρ = -0.151, p = 0.122) (Figure 2). LV geometric remodeling had no significant correlation with aortic distensibility in both group of patients (ρ -0.114, p = 0.246 in BAV and ρ 0.137, p = 0.264 in TAV).
Conclusions: Aortic distensibility was similar between BAV and TAV patients and showed no association with LV remodeling in either group. However, in BAV patients there was a significant negative correlation between distensibility and Zva, favouring a distinct ventricular-valvular and vascular relationship in this subgroup.

CO 94. CALCIUM IDENTIFICATION AND SCORING BASED ON 3D TRANSESOPHAGEAL ECHOCARDIOGRAPHY - AN EXPLORATORY STUDY ON AORTIC VALVE STENOSIS

Paula Fazendas[1], Rita Bairros[2], Luís Brito Elvas[2], Liliana Brochado[3], João Carlos Ferreira[4], Ana Rita Pereira[3], Cristina Martins[3], José Pereira[3], Cândida Lourenço[3], Tomás Brandão[2], Hélder Pereira[3], Ana G. Almeida[1]

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Introduction: Calcium score of the aortic valve has emerged as a tool for assessing aortic valve severity. Computed tomography (CT) is needed for calcium quantification according to the Agatston score. The use of CT scans is limited due to ionizing radiation and availability. Calcium identification based on echo pixels using artificial intelligence (AI) systems have shown promising results in transthoracic echocardiography (TTE). Nevertheless, this technique is highly dependent on the patient's acoustic window. We propose that transesophageal echocardiography (TEE) obviates the poor acoustic window and could be used for sequential follow-up of patients since no ionizing radiation is used. We also propose that 3D TEE could be more adequate to estimate total valve calcium burden because it allows for identification of calcium pixels in a greater portion of the aortic valve, when compared to 2D techniques.
Objectives: Quantification by AI of the calcium burden of the aortic valve by 3D TEE (Standard method: Computer tomography).

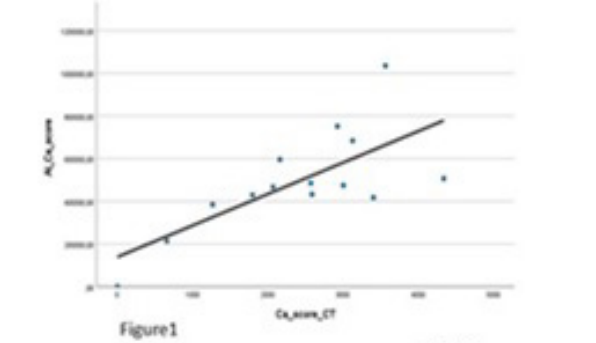


Figure1

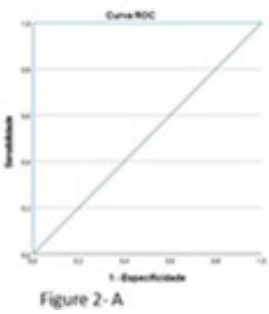


Figure 2- A

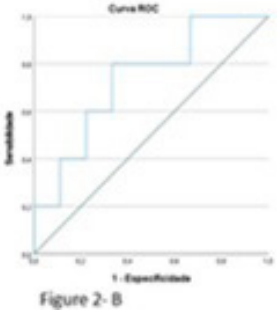


Figure 2- B

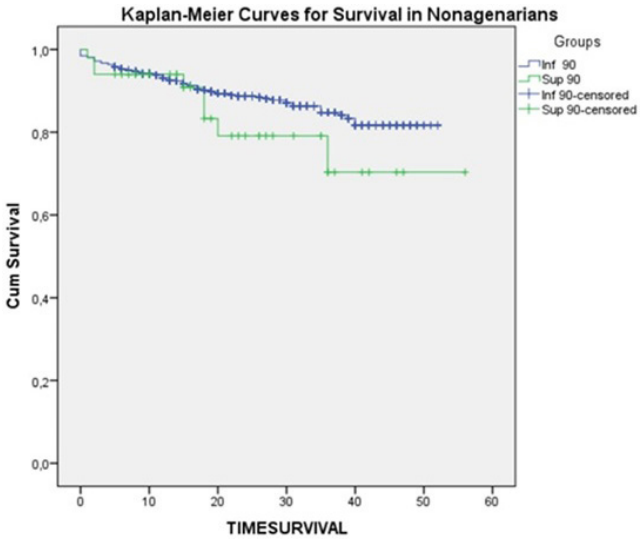
Methods: Prospective study. Population: 14 individuals, 6 males, 13 patients with moderate or severe aortic stenosis by TTE, median age 77 years (IQR 15). Imagiologic studies: TEE exam: 3D volume sets acquired in 3D zoom at the level of the aortic valve, stored in DICOM for post-processing. In the MPR quantification software contiguous 1.5 mm slices were obtained of the aortic valve in diastole, in short axis view. A Computer Vision (CV) model was applied to echocardiographic images, via adaptive image segmentation and Deep Learning to identify speckles and artifacts generated by the presence of calcium and hence quantify the amount of calcification of the valve. To train the model, images from a healthy control were used. The concordance of the Ca speckles of the 3D TEE images and the Agatston score was compared.
Results: CT Ca score: mean 2,391 ± 1,176; AI_Ca_score: 491,652 ± 240,952, The delay between TEE and CT scans was 55 days (IQR 75), The AI Ca score showed a significant positive correlation with the CT Agatston Ca_score: R = 0.72 (CI 95% 0.30-0.90) (Figure 1). The ROC curve analysis to detect very likely or likely severe calcification showed an excellent result with an AUC of 1 (Figure 2A) for a cutoff of 300,068 in the AI Ca Score, and a good result to detect very likely severe calcification with an AUC of 0.73 (Figure 2B) for a cutoff of 471061.5 in the AI Ca Score, with a Sensibility of 80% and Specificity of 67%.
Conclusions: In this pilot study we conclude that identification of calcification of the aortic valve by AI from TEE 3D images is feasible and correlates positively with CT scans with a good performance do detect severe calcification. This model should be applied to further ranges of aortic valve calcification to better discriminate severity of the disease.

CO 95. AGING HEARTS: TRANSCATHETER AORTIC VALVE REPLACEMENT ASSESSMENT IN THE NONAGENARIAN POPULATION - A SINGLE CENTER EXPERIENCE

Tatiana Pereira dos Santos, Ana L. Silva, Mariana Rodrigues Simões, Gonçalo Terleira Batista, Rafaela Fernandes, Tomás M. Carlos, Bernardo Lisboa Resende, Luísa Gomes Rocha, Mafalda Griné, Elisabete Jorge, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Nonagenarians pose a significant challenge for cardiology interventions due to their clinical frailty and comorbidities. Transcatheter aortic valve replacement (TAVR) has demonstrated safety in high surgical risk patients, with more evidence concerning low to intermediate risk patients. The aging population, coupled with a high prevalence of severe aortic stenosis, underscores the need for deeper insights. However, studies and randomized control trials frequently suffer from insufficient representation of this age cohort, hampering our ability to definitively assess the efficacy and safety of interventions in nonagenarians.
Methods: Retrospective analysis of TAVR patients aged ≥ 90 years at a tertiary hospital (March 2020-June 2024). The purpose was to evaluate the characteristics, outcomes, and safety of patients ≥ 90 years who underwent TAVR for severe aortic stenosis and compare their mortality with younger patients.
Results: Among 903 patients, 50 were nonagenarians, median age of 91 (IQR 5), and 50% were male. Median follow-up was 506 (IQR 609) days. Cardiovascular (CV) risk factors included: 20% diabetes, 86% hypertension, and 60% dyslipidemia. The majority were in NYHA class II (58%) and III (32%). The mean EuroSCORE II was 3.16% ± 2.26%, with a mean LVEF of 55.7% ± 11.9%, and a mean transaortic gradient of 48.8 ± 13.5 mmHg. Procedurally was used transfemoral access, with 82% self-expandable valves. There were 2 immediate access complications, a hematoma at the primary access site and a vessel rupture, promptly resolved. There was also 1 case of retroperitoneal hematoma. Pacemaker implantation was required in 20%. TAVR patients had an all-cause mortality of 11.1%. For nonagenarians, there were 8 deaths (16%), one due to CV causes (stroke), with the others having unknown causes. Kaplan-Meyer survival analysis showed that the survival rates for nonagenarians versus patients < 90 years of age were 94.0% versus 93.2% at 12 months and 79.1% versus 84.8% at 36 months, with no statistically significant difference (p = 0.226). No difference in mortality between sexes (p = 0.702).



Conclusions: This study demonstrates that TAVR appears to be a safe procedure in fit patients aged ≥ 90 years, with a low complications rates and overall mortality comparable to younger patients. A better representation of this subgroup is needed in studies concerning the high prevalence of this disease and high mortality without interventional treatment.

Domingo, 13 Abril de 2025 | 11:30-12:30

Espaço Ágora | Sessão de Comunicações Orais 20 – Prémio Melhor Comunicação Oral

CO 96. IMPACT OF USING THE 2024 ESC GUIDELINE-RECOMMENDED METHOD FOR ESTIMATING THE LIKELIHOOD OF OBSTRUCTIVE CORONARY DISEASE - A CARDIAC CT STUDY

Rita Barbosa Sousa, Rita Lima, Samuel Azevedo, Débora da Silva Correia, Kamil Stankowski, Pedro Lopes, Sara Guerreiro, Cláudia Silva, Francisco Gama, Pedro Freitas, João Abecasis, António Ferreira

Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: The 2024 ESC guidelines on chronic coronary syndromes incorporate risk factors alongside traditional parameters such as age, sex and symptom typicality to estimate the pre-test probability (PTP) of obstructive coronary artery disease (CAD). The Guidelines also suggest using coronary artery calcium score (CACS, Class IIa recommendation) to reclassify patients with a low PTP (> 5% to ≤ 15%).
Objectives: To assess the potential impact of using the new 2024 ESC-PTP model in symptomatic patients undergoing coronary computed tomography angiography (CCTA) for suspected CAD.
Methods: We conducted a retrospective analysis of prospectively collected data from consecutive patients undergoing CCTA for suspected CAD. CACS

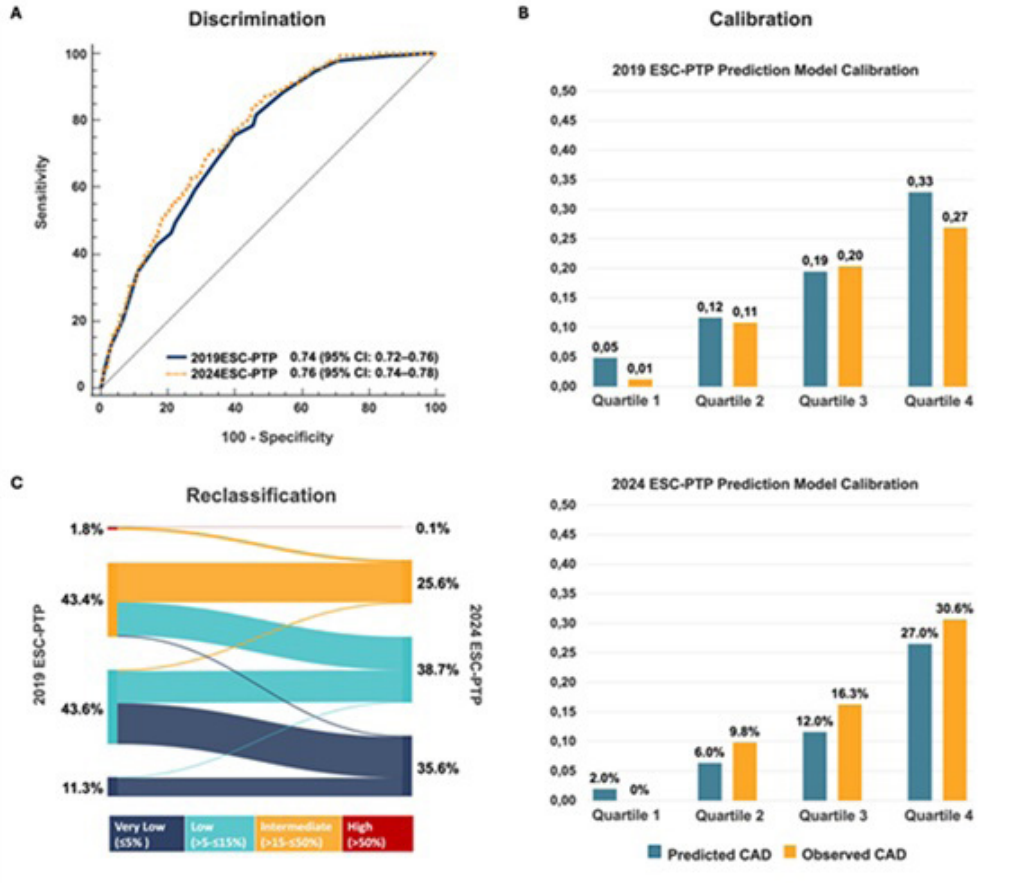


Figure 1 – (A) Receiver operating characteristic (ROC) curves showing that the 2024 ESC-PTP model achieves the highest discriminatory ability compared to the 2019 ESC-PTP (p=0.031). **(B)** Comparison of predicted vs. observed CAD across quartiles for each model. **(C)** Reclassification of clinical likelihood categories for CAD (very low, ≤5%; low, >5% to ≤15%; moderate, >15% to ≤50%; high, >50%) based on the 2024 ESC-PTP, as compared to the categories defined by the 2019 ESC-PTP.

Figure CO 96

was performed immediately prior to CCTA. Key exclusion criteria included asymptomatic patients, symptoms other than chest pain or dyspnea, known CAD, preoperative assessment, known LVEF < 50%, suspected acute coronary syndrome or age < 30 years. Obstructive CAD was defined as any luminal stenosis ≥ 50% on CCTA. Whenever downstream testing was performed, patients were reclassified accordingly. Discrimination and calibration were assessed. Reclassification was analyzed across PTP categories [Very Low (≤ 5%); Low (> 5 to ≤ 15%); Moderate (> 15 to ≤ 50%); High (> 50%)].

Results: A total of 1,595 patients were included (42% male (n = 671); median age 64 [IQR 56-72] years). Obstructive CAD prevalence was 14.2% (n = 226). Compared to the 2019 ESC-PTP, the 2024 ESC-PTP showed improved discrimination, with C-statistics of 0.76 (95%CI: 0.74-0.78, p < 0.001) vs. 0.74 (95%CI: 0.72-0.76, p < 0.001), p = 0.031 for comparison. In terms of calibration, the 2019 ESC-PTP overestimated the likelihood of CAD by 18.0% (p < 0.001), while the 2024 ESC-PTP underestimated it by 19.4% (p < 0.001). The 2024 ESC-PTP model reclassified 47.3% of patients (n = 755) previously categorized by the 2019 ESC-PTP model, with 97.2% (n = 734) of these being reassigned to a lower risk category (Figure 1C). The proportion classified as Very Low PTP increased from 11.3% to 35.6%. Among patients classified as Low PTP by 2024 ESC-PTP (n = 617), adding CACS to the diagnostic pathway would reclassify 41.3% (n = 255) to Very Low PTP, with only 1.6% of these (n = 4) showing obstructive CAD.

Conclusions: In patients undergoing CCTA for suspected CAD, the 2024 ESC-PTP offers slightly better discrimination than the 2019 ESC-PTP but seems to underestimate the likelihood of disease. This new method reclassifies almost half of these patients to lower categories, potentially impacting testing decisions. Using CACS in patients with Low PTP could obviate further testing in roughly 40% of these patients, but at the cost of 1-2% missed diagnoses.

CO 97. STENT PERFORMANCE IN THE SPOTLIGHT: SIMULATION USING 3D-PRINTED BIFURCATION MODELS

Catarina Simões de Oliveira[1], Miguel Raposo[1], Diogo Ferreira[1], Daniel Cazeiro[1], Tiago Rodrigues[1], Miguel Nobre Menezes[1], Helena Santiago[2], Helena Correia[2], Manuel F.C. Pereira[3], Fausto J. Pinto[1], João Silva Marques[1]

[1]Department of Cardiology, Centro Hospitalar Universitário de Lisboa Norte, CAML, Faculdade de Medicina, Universidade de Lisboa; Department of Cardiology, Centro Hospitalar Universitário de Lisboa Norte, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Cardiology, Centro Hospitalar Universitário de Lisboa Norte. [3]CERENA, Centro de Recursos Naturais e Ambiente, Instituto Superior Técnico, Universidade de Lisboa.

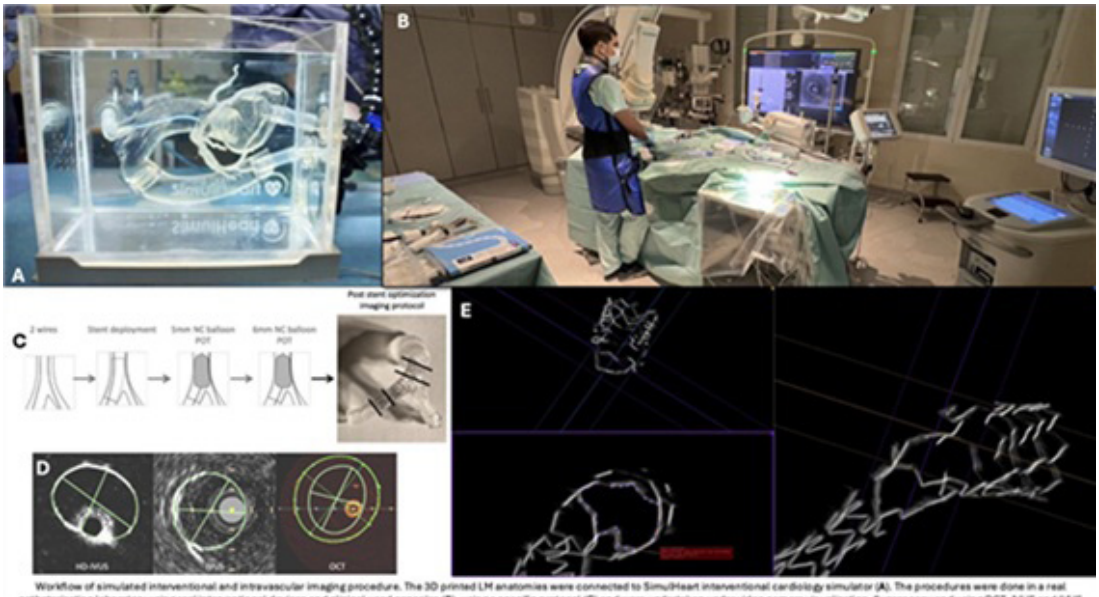
Introduction: The treatment of ostial lesions in the left anterior descending artery (LAD) poses significant challenges. Left main crossover stenting tests the limits of contemporary drug eluting stents (DES). There is a gap in evidence for guiding stent selection in this context.

Objectives: This study sought to compare the performance of different DES in a standardized left main bifurcation lesion (Medina 0.1,0) using 3D-printing and a realistic simulation environment (Image A and B).

Methods: A realistic left main anatomy with an eccentric ostial LAD lesion was replicated using 3D-printing with flexible resin. Tests were performed using a realistic simulator with pulsatile flow in the cath lab. Five 3.5 mm DES (Xience Skypoint, Onyx Frontier, Synergy, Orsiro Mission and Ultimaster Tansei) were implanted in similar 3D-printed models using a standardized protocol following European Bifurcation Club recommendations that included final POT using a 6 mm balloon (Image C). Angiography, OCT and IVUS runs were acquired at each procedural step and images were blindly reviewed and analyzed offline (Image D). Micro-CT was used after each intervention for comprehensive analysis of DES performance (Image E).

Results: Micro-CT analysis revealed that stent expansion at the ostial lesion was higher using Ultimaster and lower with Synergy. Xience achieved the highest and Synergy the lowest expansion in the left main after POT. Observed overexpansion was 147% of the nominal stent diameter, on average. Importantly, all stents kept structural integrity. Accordingly, stent malapposition after POT assessed by OCT was lower for Ultimaster and Xience stents and higher for Synergy. On micro-CT, the stent cell area at the side-branch showed substantial variation (3.3-13.1 mm^2) being lower for Synergy and higher for Ultimaster. Regarding stent length, Xience, Orsiro and Onyx elongated after POT (4.3 mm, 1.6 mm and 1.5 mm, respectively) and Ultimaster shortened (-1.5 mm). Synergy showed no significant length change. When employing micro-CT as the benchmark for evaluating intravascular imaging techniques in analyzing the outcomes of bifurcation interventions, OCT demonstrated superior performance compared to IVUS. There was a strong correlation between OCT and micro-CT stent measurements in distal left main and at the ostial stenosis (distal left main area p = 0.037, r = 0.9; stenosis stent area p = 0.026, r = 0.92).

Conclusions: This study underscores the potential influence of DES platform selection on the outcomes of bifurcation interventions, particularly when there is a significant size disparity between the distal and proximal landing zones, as well as complex ostial stenosis. The integration of 3D-printed anatomical models in simulation testing marks a significant leap forward offering a novel pathway to enhance the safety, efficacy, and personalization of interventions.



Workflow of simulated interventional and intravascular imaging procedure. The 3D printed LM anatomies were connected to SimuHeart interventional cardiology simulator (A). The procedures were done in a real catheterization laboratory using real interventional devices and clinical used consoles (B), using a specific protocol (C) and were undertaken under video camera visualization, fluoroscopy and using OCT, IVUS and IVUS HD intravascular imaging (D). MicroCT analysis was also performed (E).

Figure CO 97

CO 98. MACHINE LEARNING ALGORITHMS FOR PREDICTING ARRHYTHMIC EVENTS IN HYPERTROPHIC CARDIOMYOPATHY: LIMITED ENHANCEMENT BEYOND LATE GADOLINIUM ENHANCEMENT

Joana Certo Pereira, Rita Amador, Armando Vieira, Rita Carvalho, Bruno Castilho, Edmundo Arteaga, Carlos Rochitte, João Abecasis, Pedro Lopes, Pedro Freitas, Pedro Adragão, António M. Ferreira

ULS Lisboa Ocidental, Santa Cruz.

Introduction and objectives: The optimal tool for predicting arrhythmic risk in Hypertrophic cardiomyopathy (HCM) remains a topic of ongoing debate. Artificial intelligence techniques, particularly machine learning (ML) predictive modelling, hold promise for improving risk stratification. The purpose of this study was to develop and assess the performance of a ML model integrating common clinical features to predict arrhythmic events in patients with HCM.
Methods: We conducted a post-hoc analysis of an international multicenter registry of 530 HCM patients (median age of 49 years (IQR 35-61), 57% male) who underwent cardiac magnetic resonance (CMR) for diagnostic confirmation and risk stratification. The dataset comprised clinical, echocardiographic, and CMR variables, including quantification of late gadolinium enhancement (LGE) using the 6 SD method. The study endpoint was a composite of sudden cardiac death (SCD), aborted SCD, and sustained ventricular tachycardia (VT). A total of 28 events (15 SCDs, 6 aborted SCD and 7 sustained VTs) were accrued over a median follow-up of 4.1 (IQR 1.8-7.3) years. Using these data, several ML models [including Logistic Regression, Decision Trees, Gradient Boosting Machines, Support Vector Machines and Random Forest (RF)] were developed to predict the study endpoint. The predictive performance of the best model was then compared to the ESC HCM risk score and to the amount of LGE.
Results: After testing several models, the RF was the most effective method. Key predictive features included LGE percentage, left ventricular ejection fraction, left atrial diameter, and left ventricular indexed mass (Figure 1A). After 5-fold cross-validation, the RF model showed good performance for predicting arrhythmic events, achieving a time-weighted AUC of 0.78 (95%CI: 0.76-0.82, p < 0.001). This performance substantially outperformed the ESC HCM risk score, which achieved a time-weighted AUC of 0.64 (95%CI 0.62-0.67; p < 0.001), p < 0.001 for comparison. However, when compared to LGE alone, which attained a time-weighted AUC of 0.76 (95%CI: 0.73-0.84, p < 0.001), the RF model provided only a modest, statistically non-significant improvement in predicting the study endpoint (p = 0.817 for comparison).
Conclusions: A machine learning model using readily available clinical variables significantly outperformed the ESC HCM risk score in predicting arrhythmic events in HCM. However, its incremental value over LGE alone was modest, underscoring the strong predictive value of this imaging biomarker. Future research exploring AI-driven image analysis and other innovative approaches may yield better results.

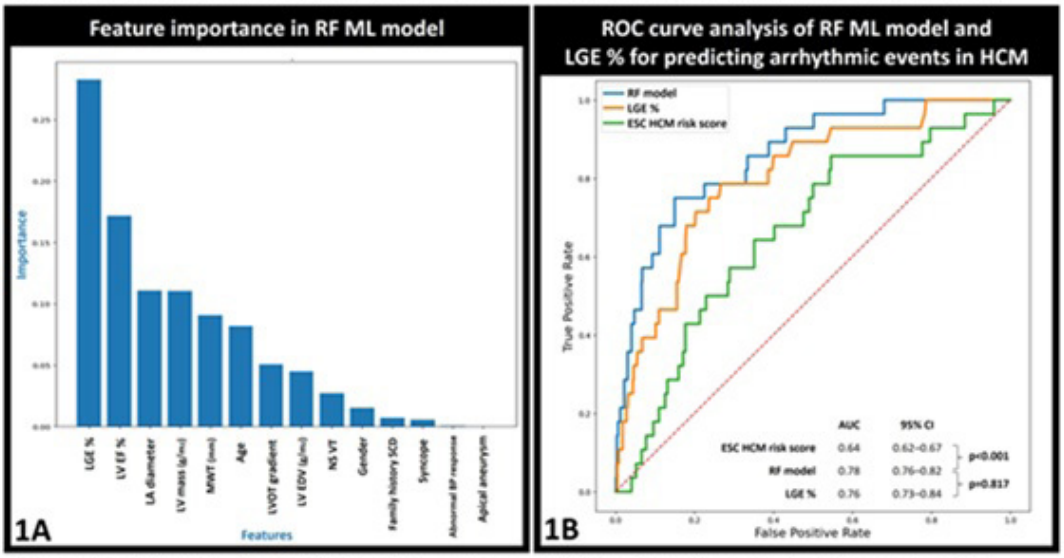
CO 99. DYNAMIC CT PERFUSION TO IDENTIFY HEMODYNAMICALLY SIGNIFICANT CORONARY ARTERY DISEASE: PRELIMINARY RESULTS OF A "ONE-STOP-SHOP" APPROACH

Débora da Silva Correia[1], Joana Certo Pereira[1], Rita Barbosa[1], Kamil Stankowski[2], Sara Guereiro[1], Francisco Gama[1], Cláudia Silva[1], João Abecasis[1], Pedro Freitas[1], Pedro Lopes[1], António Ferreira[1]

[1]Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.
[2]IRCCS Humanitas Research Hospital, Milano, Italy.

Introduction: Coronary CT Angiography (CCTA) is effective for diagnosing coronary artery disease (CAD) but often overestimates stenosis severity and lacks hemodynamic evaluation. Dynamic stress CT perfusion (CTP) has emerged as a potential strategy to combine anatomical and functional assessment in a single scan. The aim of this study was to assess the impact on clinical pathways of performing CTP in patients with ≥ 50% stenosis on CCTA.
Methods: In this single-center study, patients with suspected CAD and ≥ 50% stenosis on CCTA who underwent stress dynamic CTP were compared with patients with ≥ 50% stenosis on CCTA who didn't undergo CTP. To improve comparability, patients were matched in a 1:2 ratio based on age, sex, body mass index, pretest probability, coronary calcium score, and CAD-RADS. Perfusion scans were performed on a 192-slice scanner, using regadenoson as stressor agent. Hemodynamically significant CAD was defined as ≥ 90% stenosis on invasive coronary angiography (ICA), positive functional assessment, or decision to revascularization. The primary outcome was the rate of invasive angiographies without significant CAD. Secondary outcomes were time to diagnosis and total radiation exposure including downstream

Figure1. ML for predicting arrhythmic events in HCM: Feature importance in RF model (1A) and ROC curve analysis of RF ML model, LGE %, and ESC HCM risk score for predicting arrhythmic events in HCM (1B).



RF: Random Forest; ML: Machine Learning; LGE: Late gadolinium enhancement; HCM: Hypertrophic Cardiomyopathy; ESC: European Society of Cardiology; AUC: area under the curve; LV: left ventricular; EF: ejection fraction; LA: left atrium; MWT: myocardial wall thickness; LVOT: LV outflow tract; EDV: end-diastolic volume; NS VT: Non-sustained ventricular tachycardia; SCD: sudden cardiac death; BP: blood pressure.

Figure CO 98

Table 1- Baseline Characteristics of both groups. Median ± SD. Median [IQR]

	"CCTA only" (n=94)	"CCTA+CTP" (n=47)	*p-value*
Age, years	66.3 ± 9.9	69.0 ± 8.9	0.104
Male	57 (61%)	39 (83%)	**0.007**
Body mass index, kg/m2	27.8 [5.4]	28.1 [5.7]	0.898
Pre-test probability ESC 2024	18 ± 12%	19 ± 11%	0.589
Coronary Calcium Score	305 [336]	731 [1583]	**<0.001**
CAD RADS ≥ 4	45 (48%)	27 (57%)	0.284
Downstream Ischemia Testing	12 (13%)	0 (0%)	**0.010**
Invasive coronary angiograms	47 (53%)	18 (39%)	0.132
Negative invasive angiography rate	19 (40%)	2 (11%)	**0.001**
Leading to revascularization	28 (60%)	16 (89%)	**0.036**
Total effective radiation dose, mSv	5.7 [7]	6.5 [5]	0.341
Median time to diagnosis from CCTA, days	10 [155]	0 [184]	**0.004**

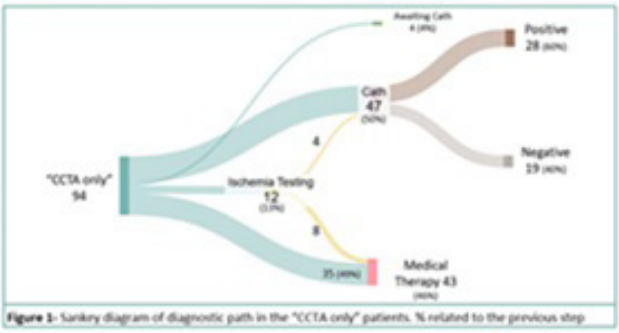


Figure 1- Sankey diagram of diagnostic path in the "CCTA only" patients. % related to the previous step

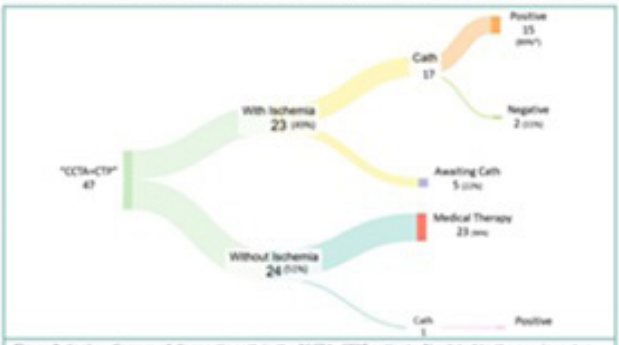


Figure 2- Sankey diagram of diagnostic path in the "CCTA+CTP" patients. % related to the previous step
*Including the patients without ischemia on CTP

Figure CO 99

testing. All decisions on downstream testing, ICA, and revascularization were at the cardiologist's discretion.

Results: A total of 141 patients were studied (67 ± 10 years, 68% male), 47 of whom underwent CCTA+CTP, and 94 CCTA only. The groups were comparable, except for a higher proportion of males and higher calcium scores in the CCTA+CTP group (Table 1). Overall, 49% perfusion scans were considered positive. Downstream ischemia testing was performed in 13% of "CCTA only" patients compared to none in the other group (p = 0.009). Invasive coronary angiography was performed in 50% of "CCTA only" patients and 36% of CCTA+CTP patients. The "CCTA+CTP" group had a significantly lower rate of negative invasive angiography (4 vs. 20%, p = 0.001). One patient without significant ischemia on CTP underwent ICA with positive invasive functional assessment. The proportion of ICA leading to revascularization was also higher in CCTA+CTP, with a positive predictive value (PPV) of 86 vs. 59% on "CCTA only" group (p < 0.001). Median time to diagnosis was significant lower in the "CCTA+CTP" group. Performing Perfusion CT added a median effective radiation dose of 3.6 [3-4] mSv to the scan protocol, but this difference was offset by additional downstream testing in the "CCTA only" group. Over a median follow-up of 515 days, no patient without ischemia on CCTA+CTP had an acute coronary event.

Conclusions: Performing stress CTP in patients with ≥ 50% stenosis on CCTA seems to streamline diagnosis by decreasing downstream ischemia testing, negative invasive angiographies, and time to diagnosis. After accounting for these, the overall effective radiation dose is not increased by using this strategy.

CO 100. RADIOMICS-BASED ARTIFICIAL INTELLIGENCE MODEL ALLOWS FOR PERSONALIZED PREDICTION OF VENTRICULAR ARRHYTHMIAS IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Miguel Marques Antunes[1], Ricardo Carvalheiro[1], João Santinha[2], Vera Ferreira[1], Isabel Cardoso[1], Boban Thomas[3], Mário Martins Oliveira[1], António Fiarresga[1], Nuno Cardim[1], Rui Cruz Ferreira[1], João Bicho Augusto[1], Sílvia Aguiar Rosa[1]

[1]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [2]Digital Surgery LAB-Champalimaud Foundation. [3]Integrated Care Cardiology Program, Regional Hospital Mullingar, Dublin Midlands Hospital Group.

Introduction: Ventricular arrythmias (VA) are potentially life-threatening in hypertrophic cardiomyopathy (HCM) patients (P). Traditional risk models have limited accuracy to predict these events. Artificial intelligence models allow for deep quantitative phenotyping of high-dimensional radiomics data derived from cardiac magnetic resonance (CMR), which may enhance VA risk stratification in HCM.

Objectives: To develop a model able to predict VA events derived from CMR left ventricular (LV) late gadolinium enhancement (LGE) imaging.

Methods: CMR images from 63 HCM P (median age 54 [43-66] years, 35% female), prospectively followed at a Cardiomyopathy Clinic were analyzed. The LV wall was manually segmented using 3D Slicer 5.2.2. We extracted 1223 features using PyRadiomics (v3.1.0), covering shape, first order and textural features from original and filtered images, which were z-score normalized for intensity discretization. The outcome was a time-to-event analysis of a composite of VA – ventricular fibrillation (VF), ventricular tachycardia, (VT), and non-sustained VT (NSVT) - with T0 being the day of the CMR. Sixty-three P were randomly split in a 75%:25% ratio into a 47P (training) and 16P (held-out testing) sets. A Random Survival Forest (RSF) was optimized using a 5-fold cross-validation and performance was assessed with the concordance index (c-index).

Results: The studied cohort had a median 12% [6-18] of LV mass LGE. The primary outcome occurred in 14 (22%) P-1 VF, 2 VT and 11 NSVT – over a median follow-up of 3.6 [1.5-4.2] years. The RSF with 30 estimators (2 samples/split;10 samples/leaf) yielded a c-index of 0.872 ± 0.146. A c-index of 0.761 was achieved when tested in P not used for training (held-out set). Permutation importance analysis identified the features that were key to the model (Figure 1). Patients who suffered events had a higher presence of heterogeneity-related features in their myocardium (Figure 2). Finally, the model allowed for the creation of unique risk curves for each individual P, with which a physician can capture a personalized evolution of the arrhythmic risk of each P throughout time (Figure 3).

Conclusions: For the first time, a LV LGE radiomic-based model performed a time-to-event analysis of VA. This approach showed strong internal and external validation performance, enabling the development of individualized risk profiles. Further model refinement and validation could allow clinicians to predict individual arrhythmic risk since the day a CMR is performed.

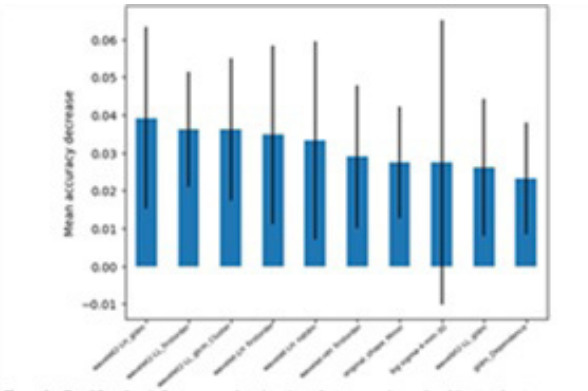


Figure 1 – Top 10 radiomic features – related to tissue heterogeneity and architectural entropy - with the highest importance for event classification, using the permutation method

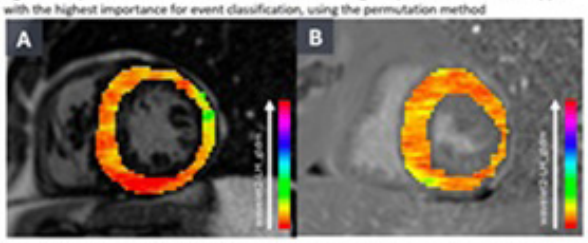


Figure 2 – Cardiac magnetic resonance with visual distribution of the highest-relevance feature for the AI model on the LV myocardium. In Panel A we can see a higher presence of the feature (lower wall) comparing to Panel B. Patient A had a ventricular fibrillation event, whereas Patient B is event-free.

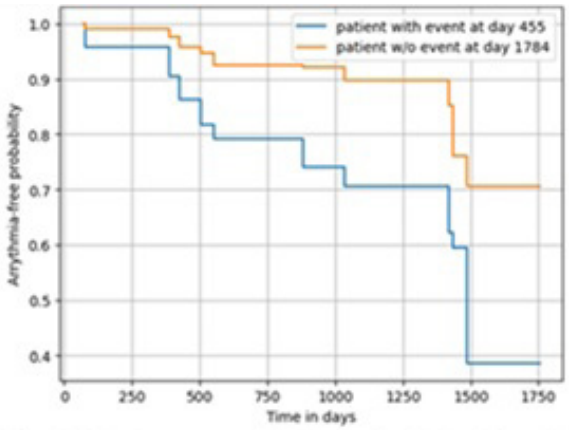


Figure 3 – The time to-event model allows for the derivation of personalized Kaplan-Meier curves, informing physician decisions regarding the risk for the patient of a ventricular arrhythmic outcome at a certain point in time (T0 = CMR date). In this case two curves were derived for patients A (blue) and B (orange) from Figure 2. Patient A had an event at day 455 (ventricular fibrillation) and patient B is event free at day 1784. This graph depicts the arrhythmic risk that would be calculated based on our model for each patient at each point in time. The cumulative risk of having an event increases with time. We can see that patient A (blue line) has hypothetical significantly higher risk of having an arrhythmic event (lower arrythmia free probability) than patient B. The more accurate the model, the higher the difference between curves that it will be able to provide to the physician, allowing for the tailoring of protective strategies throughout the follow up - that starts at day 0, the day of cardiac magnetic resonance.

Figure CO 100

Domingo, 13 Abril de 2025 | 12:00-12:30

Sala Arrábida | Sessão de Comunicações Orais 21 – Prémio Manuel Machado Macedo

CO 101. LESS-INVASIVE AORTIC VALVE REPLACEMENT: MID-TERM SINGLE-CENTER RESULTS

António Canotilho, Helena Boavida, Irina Cristóvão, Carlos Branco, Pedro Correia, Gonçalo Coutinho, David Prieto

ULS Coimbra.

Introduction: Less invasive aortic valve replacement has proved to be a safe approach for the treatment of aortic valve disease and is associated with reduced transfusion requirements, reduced intensive care and length of hospital stay, less pain and improved aesthetic appearance as quality of life including return to work.
Objectives: The aim of this study was to evaluate single center 4-year results of surgical aortic valve replacement by upper hemi-sternotomy approach.
Methods: We reviewed 562 patients who underwent surgical aortic valve replacement by less invasive approach–upper hemi-sternotomy by 3rd and 4th right intercostal space from January 2021 to March 2024. Patients underwent aortic valve replacement by classic sternotomy were excluded. We analyzed the early and mid-term outcomes, in-hospital death and a subgroup survival analysis.
Results: Mean age of group was 67.8 ± 10.7 years, 28.4% older than 75 years old (n = 160), 65% were males. The preoperative data showed 59% of patients on NYHA III-IV, 1.9% had previous disability stroke, 34.7% with arterial hypertension; 11.8% with severe aortic regurgitation, 77.6% with severe aortic stenosis, 33.8% with bicuspid aortic valve. Mean LVEF was 59.8 ± 7.9%, maximum/medium Aorta-LV Gradients 81.5 ± 21.6/50.5 ± 13.4mmHg and a mean EuroSCORE II 1.7 ± 2.6%. There were implanted 75.4% of biological/24% of mechanical prosthesis and 3 cases of aortic valve repair. Associated procedures: transannular aortic root enlargement in 2%, IV septum myectomy in 9.4%, left atrial appendage occlusion in 1.4% and aortic valve replacement associated to ascending Aorta replacement in 3.7%. The mean extra-corporal circulation time was 80.9 ± 23.2 min and aortic cross-clamping time 50 ± 16.6 min. About postoperative data, inotropic support > 12 hours was needed in 3% of patients, V-A ECMO in 0.2%, paroxysmal atrial fibrillation in 22.7%, 3rd degree AV block with need of permanent pacemaker implantation in 1.6%, early prosthetic endocarditis in 0.3%, acute kidney injury in 10.6%, stroke in 1%, redo surgery due to cardiac tamponade in 1.6%. Four patients (0.7%) needed intra-operative conversion to sternotomy. The mean timing to discharge was 5.8 ± 3.6 days. The 30-day mortality was 0.7%. In the mid-term follow-up period analysis, the 4-year survival rate was 96.4 ± 2.7% and the 4-year time free of MACCE events was 94.7 ± 3.8%. About patients over 75 years old, the 30-day mortality was 0.6%. In the mid-term follow-up period, the 4-year survival rate was 94.4 ± 4.3% and the 4-year time free of MACCE events was 93.2 ± 4.8%.
Conclusions: From the perspective of saving lives, the results of single center casuistic about minimally invasive aortic valve replacement approach were very acceptable according to literature and showed the way we should adopt to improve as quality of life. Even in selected older patients as an alternative this procedure showed to be very safe and effective.

CO 102. DEVELOPMENT AND VALIDATION OF AN OPEN-SOURCE 3D SLICER PLUGIN FOR TAVI SIZING

Sofia Esteves, Miguel Nobre Menezes, João Silva Marques, Cláudia Moreira Jorque, Pedro Carrilho Ferreira, Tiago Rodrigues, Ana Rita Francisco, Catarina Simões de Oliveira, Marta Vilela, Miguel Azaredo Raposo, Daniel Inácio Cazeiro, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: TAVI planning with dedicated CT software is a key component of any TAVI program. The Pie Medical 3mensio software suite is the most commonly used system. Some competitors are also available. However, all this software is limited by very significant costs, both upfront and regarding updates. As a result, open source or more affordable software would be

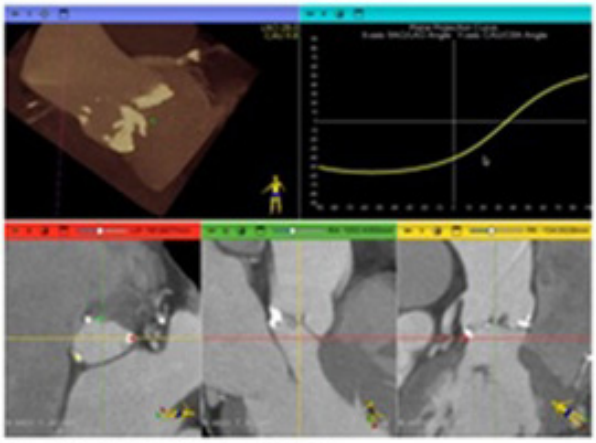


Figure 1: Aortic valve measurement with Python Plugin.

	Trimensio	Python Plugin	P-value
Minimum diameter (mm), mean ± SD	21.1 ± 2.67	21.1 ± 2.8	0.995
Maximum diameter (mm), mean ± SD	26.57 ± 2.92	26.47 ± 3.33	0.999
Perimeter (mm), mean ± SD	75.26 ± 8.62	75.89 ± 7.86	< 0.001
Area (mm^2), mean ± SD	442.07 ± 99.63	443.98 ± 104.45	0.464

Table 1: Measurements carried out with Trimensio and the developed Python Plugin.

Figure CO 102

ideal in order to reduce the costs of TAVI and increasing availability. We aimed to develop an open-source software plugin for TAVI sizing, comparing its results with the gold standard, 3mensio.

Methods: A python plugin for the open-source software 3D Slicer was written by an Interventional Cardiologist with python coding knowledge, aided by artificial intelligence coding assistants. The software requires the input of the 3 cusps nadir and marking reference points of the aortic ring, similarly to the 3mensio software. From there, the fluoroscopic angles and ring measurements are made automatically (Figure 1). 50 consecutive successful TAVI cases were selected. Measurements had been carried out by Interventional Cardiologists proficient in TAVI using the 3mensio software. Measurements were then carried out in the 3D slicer plugin. The results of the aortic annulus measurements were then compared between the two software methods (perimeter, area, area derived diameter, mean diameter, maximum diameter, minimum diameter), using the t-test for assessing differences.

Results: A total of 50 measurements carried out with 3mensio software revealed a mean minimum diameter of 21.1 ± 2.68 mm; mean maximum diameter of 26.465 ± 2.92 mm, mean perimeter of 75.26 ± 8.62 mm and mean area of 442.07 ± 99.63 mm^2. Regarding the measurements done with the python plugin, the mean minimum diameter was 21.09 ± 2.8 mm; mean maximum diameter was 26.47 ± 3.33 mm; mean perimeter was 75.89 ± 7.86 mm; mean area was 443.98 ± 104.45 mm^2 and a mean area derived from mean diameter was 236.19 ± 27.5 mm^2. The comparison of the two measurements revealed that only the perimeter was significantly different between the 2 tools (p value < 0.001), with an absolute mean difference of 1.21 mm.

Conclusions: Our plugin produced measurements for aortic annulus dimensions that were highly comparable to those generated by the gold standard Trimensio software, with no significant differences observed for most parameters. The only exception was the perimeter, which showed a statistically significant but small absolute difference of 1.21 mm. Despite being statistically significative, this difference is probably not clinically relevant. The open-source plugin may offer a viable alternative for TAVI sizing, potentially reducing software-related costs and increasing accessibility to TAVI programs.

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POSTERS (PO)

Congresso Português de Cardiologia 2025

11 a 13 de abril de 2025

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Área de Posters-écran 1 | Sessão de Posters 01 – Caminhos pioneiros em reabilitação cardíaca – inovação e cuidado centrado no doente

PO 1. THE ROLE OF PHASE 3 CARDIAC REHABILITATION IN BOOSTING PEAK VO2 AND PREDICTING CLINICAL SUCCESS

Inês Caldeira Araújo[1], Ana Abrantes[1], Miguel Azaredo Raposo[2], Madalena Lemos Pires[3], Mariana Borges[3], Gonçalo Sá[3], Pedro Alves da Silva[2], Nelson Cunha[2], Inês Aguiar-Ricardo[2], Fausto J. Pinto[2], Ana Abreu[2], Rita Pinto[3]

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Introduction: Recent evidence underscores cardiac rehabilitation (CR) as essential for recovery and functional improvement after cardiovascular events. After completing a phase 2 CR program, patients are encouraged to progress to a phase 3 long-term CR program to optimize their cardiorespiratory fitness. While the cardiopulmonary exercise test (CPET) is a practical tool for evaluating functional gains during CR, its utility in predicting long-term outcomes remains unclear.
Objectives: To assess the association between improvements in VO2 peak after one year of phase 3 CR and clinical outcomes.
Methods: This prospective observational single-center study included patients enrolled in a phase 3 CR program between 2016 and 2024. Clinical, imaging and CPET data were collected at baseline while CPET data was also collected one year after the program. Clinical outcomes included a composite of all-cause mortality, cardiovascular hospitalizations, and urgent care visits. Patients were categorized into 3 groups based on VO2 peak changes: improvement ≥ 5%, stable VO2 peak (< 5% change), and decline > 5%.
Results: A total of 284 patients (78% male, 61 ± 11 years) enrolled in phase 3 CR program. The primary indication for referral was ischemic cardiomyopathy (84%). Common comorbidities included diabetes (18%), active smoking (9%), hypertension (50%), dyslipidemia (46%), atrial fibrillation (7%), and prior stroke (5%). Echocardiographic findings included a mean left ventricular ejection fraction (LVEF) of 54 ± 13% and TAPSE of 21 ± 5 mm. After one year of phase 3 CR, significant improvements in CPET parameters were observed: VO2 peak (22.6 ± 6.6 vs. 24.3 ± 7.4 mL/kg/min,

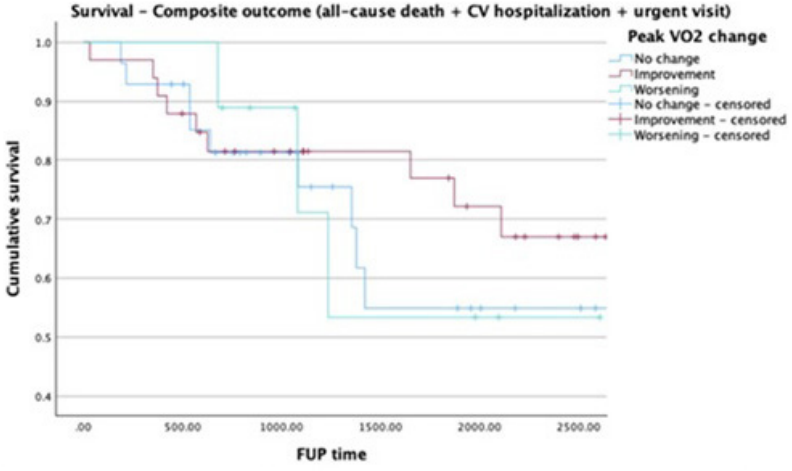


Figure 1: Composite outcome of all-cause mortality, cardiovascular hospitalizations, and urgent care visits in patients with improvement ≥5% VO2 peak, stable VO2 peak (<5% change), and decline >5% VO2 peak after 1 year of CR phase 3.

Figure PO 1

p < 0.001), percentage of predicted VO2 peak (98 ± 19 vs. 105 ± 21%, p < 0.001), and peak PETCO2 (34 ± 4.4 vs. 35 ± 4.9 mmHg, p < 0.001). During a mean follow-up of 3.4 ± 2.4 years, there were 4 deaths, 13 cardiovascular-related hospitalizations, and 34 urgent cardiovascular visits. The mean time to the first composite event was 2.7 ± 1.8 years. Patients with VO2 peak improvement after one year of phase III CR demonstrated a trend toward fewer adverse events compared to those with stable or declining VO2 peak values. Additionally, adverse events were similar between the group with a stable VO2 peak and those with a declining VO2 peak, and both were higher compared to those with VO2 peak improvement (25 vs. 32 vs. 33% of composite outcomes in the improvement, stable, and declining groups, respectively).
Conclusions: Our findings underscore the value of CPET in assessing CR outcomes. Patients showing a ≥ 5% improvement in VO2 peak after one year of phase 3 CR had better clinical outcomes. Importantly, a stable VO2 peak was associated with adverse event rates similar to those with a declining VO2 peak, highlighting the need for continuous monitoring and management.

PO 2. IMPROVEMENT IN CARDIOPULMONARY EXERCISE TEST PARAMETERS PHASE 2 REHABILITATION AND ITS IMPACT ON CLINICAL OUTCOMES

Marta Miguez Vilela[1], Ana Abrantes[1], João Cravo[1], Alda Jordão[2], Edite Caldeira[3], Gisela Afonso[4], Pedro Alves Silva[1], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, Centro Hospitalar Universitário Lisboa Norte, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Internal Medicine, Centro Hospitalar Universitário Lisboa Norte. [3]Department of Cardiology, Centro Hospitalar Universitário Lisboa Norte. [4]Department of Physical and rehabilitation Medicine, CHULN.

Introduction: Phase II cardiac rehabilitation (CR) programs have shown to enhance functional capacity and clinical outcomes. Cardiopulmonary exercise testing (CPET) is a valuable tool for assessing exercise tolerance and cardiovascular function. However, given the wide range of parameters included in CPET, there is still debate on which specific measures are most reliable for monitoring patient progress during CR.
Objectives: To assess CPET parameters as predictors of adverse events in patients after completing CR.
Methods: Prospective observational single-center study including patients enrolled in a phase II CR program between 2016 and 2024. The program involved assessments by cardiologists, nutritionists and psychologists, with exercise sessions twice a week. A composite outcome of all-cause mortality, cardiovascular hospitalizations and urgent visits was evaluated.
Results: A total of 550 patients (80% male, 63 ± 11 years) completed a phase II CR program. The majority had ischemic cardiomyopathy (83%). Among those with coronary artery disease, 49% had multivessel disease and 29% incomplete revascularization. During the CR program, we observed a statistically significant improvements in several CPET parameters: exercise time (7 minutes and 46 seconds ± 9 seconds to 8 minutes and 25 seconds ± 9 seconds), VO2 peak (15.6 ± 0.3 to 17 ± 0.3 ml/kg/min, p < 0.01),% of predicted VO2 peak (62.2% ± 1.1 to 68.0% ± 1.1 p < 0.01), PETCO2 (33.6 ± 0.3 to 34.4 ± 0.3 p < 0.01), circulatory power (2,661 ± 72.1 to 2,896 ± 79 p < 0.01), VE/VCO2 slope (32.2 ± 0.5 to 30.7 ± 0.4 p < 0.01), workload (100.2W ± 2.7 to 116W ± 3.1 p < 0.01) and peak VO2 at the first threshold (10.7 ± 0.2 to 11.3 ± 0.2 ml/kg/min p < 0.01). During a mean follow-up of 2.97 ± 1.69 years, we registered a total of 21 deaths, 13 of which from cardiovascular causes, alongside 44 admissions for CV causes. The average time to the composite outcome was 1.94 ± 1.23 years. We noted a trend toward a reduced incidence of adverse outcomes in patients that displayed a global improvement in the aforementioned CPET parameters. Of note, an improvement in circulatory power was positively associated with a reduction in the composite outcome of adverse CV events (p < 0.01). Additionally, a statistically significant association was observed between adverse outcomes and a peak VO2 ≤ 15 ml/kg/min (p = 0.02) as well as circulatory power ≤ 1,600 (p = 0.018) at the end of the program. A trend toward worse outcomes was also noted for a VE/VCO2 slope > 33 (p = 0.18) and OUES ≤ 1.4 (p = 0.2) in the post-CR CPET.

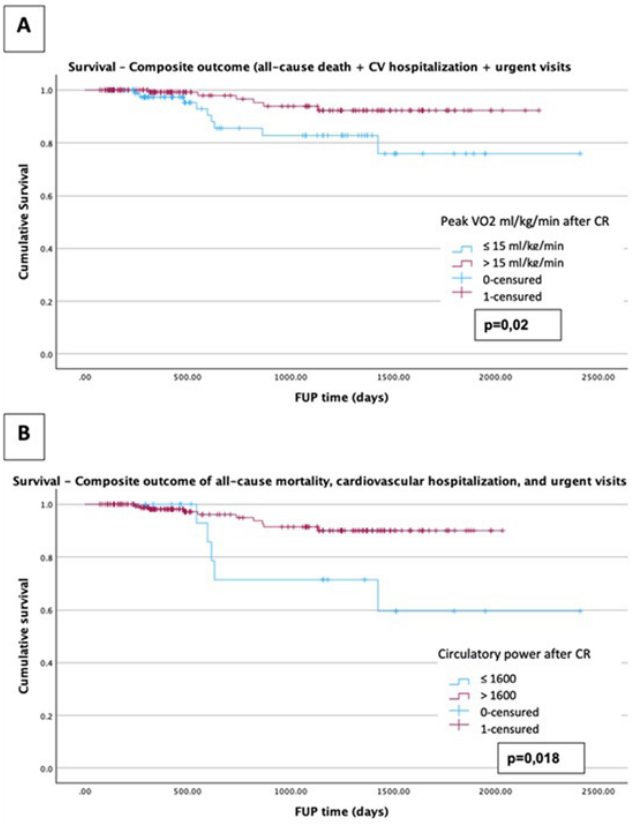


Figure 1. Correlation between the composite outcome of all-cause mortality, cardiovascular hospitalization, and urgent care visits with peak VO2 and circulatory power in the CPET after the CR program. A) Peak VO2 > 15 ml/kg/min (red) vs. peak VO2 ≤ 15 ml/kg/min (blue). B) Circulatory power > 1600 (red) vs. circulatory power ≤ 1600 (blue). Both correlations are statistically significant (p < 0.05)

Conclusions: Identifying high-risk individuals and referring them to phase III rehabilitation is crucial, with CPET parameters proving valuable for risk assessment. Individuals at high CV risk at the end of CR programs can be identified through routinary CPET assessment, warranting a closer clinical follow-up by prolonging the phase II program or by swiftly incorporation in a phase III program.

PO 3. THE CLINICAL AND HOLISTIC IMPACT OF A PROGRAM OF CARDIAC REHABILITATION

Carla Oliveira Ferreira, Hélder Marques, Filipe Silva Vilela, Mónica Dias, Ana Sofia Fernandes, Inês Conde, Cátia Costa Oliveira, Vítor Hugo Pereira

Hospital de Braga.

Introduction: The cardiac rehabilitation program (CR) is an important secondary prevention intervention that lowers cardiovascular morbidity and mortality by 20%. While initially focusing on aerobic exercise, it has now expanded into a multifaceted program that includes risk-factor modification, disease education and psychosocial support. The aim of this study is to analyze the impact of CR in clinical and functional variables using validated scores.
Methods: This study included a sample (n = 57) of patients admitted in a CR from November 2022 to September 2024. It's split into a prospective subsample (n = 17) who were submitted to several questionnaires before and after 12 sessions, to study the impact on quality of life, stress, anxiety,

depression and cognition; an into a retrospective subsample (n = 38) of patients submitted to several questionnaires, before and after CR, to study the impact on adherence to mediterranean diet, self-care and therapeutic adhesion.
Results: The mean age of our sample was 59.6 years, with a mean number of CR sessions of 26 (9-76). Ischemic heart disease was present in 43 (75.5%) of patients and 49.1% had reduced left ventricular ejection fraction (LVEF). The results show significant improvement in LVEF (41.3% [± 11.9] vs. 43% [± 10.2], p = 0.028), pro-BNP (565.5 [45-12,145], p = 0.033), NYAH functional capacity classification (p < 0.001), LDL-cholesterol (92.9 [± 47.3] vs. 68.1 [± 28.1], p = 0.010), quality of life evaluated with Kansas City Cardiomyopathy Questionnaire-23 (71.8 [38.79-100] vs. 80.83 (42.29-93.65), p = 0.008), perceived stress evaluated with Perceived Stress Scale 10 items (16 [6-26] vs. 14 [2-26], p = 0.041) and self-care behaviour evaluated with European Heart Failure Self-care Behaviour-12 items (57.29 [27-98] vs. 87.5 [10-100], p < 0.01) before and after the CR program.
Conclusions: The integration in CR program has shown significant improvement on clinical variables as well as in quality of life, stress, self-care and functional capacity. A deeper knowledge about the effect of the CR might allow the development of new strategies, making the CR a more thorough, individualized and comprehensive tool.

PO 4. IMPACT OF COMPLETING CARDIAC REHABILITATION PROGRAM ON CARDIOVASCULAR EVENTS FOLLOWING ACUTE CORONARY SYNDROME

Adriana Henriques Silva, Cristina Martins, Oliveira Baltazar, Liliana Brochado, Nazar Ilchyshyn, João Mirinha Luz, Diogo Cunha, Tiago Lobão, Lourenço Aguiar, Bárbara Ferreira, Mariana Martinho, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Cardiac rehabilitation (CR) plays a vital role in secondary prevention for individuals recovering from acute coronary syndrome (ACS). Participation in CR programs has been associated with reduced risk of readmission and death. However, adherence to CR remains suboptimal. This study aims to evaluate the occurrence of cardiovascular events (CV) in patients who completed a CR program after ACS compared to those who did not.
Methods: This retrospective study analysed data from patients enrolled in a CR program after ACS between 2018 and 2022 at our centre. Patients were divided into two groups based on CR completion status: those who completed the program and those who did not. We assessed the incidence of CV events (ACS, hospitalization for heart failure, all-cause mortality, and repeat revascularization) during the follow-up period (a minimum of 1 year). Additionally, we evaluated the final metabolic equivalents (METs) achieved by the patients who completed the program.
Results: A total of 168 patients were included. Of these, 114 patients (68%) completed the program, while 54 patients (32%) did not complete the program. The median of follow-up period was 24 [17;28] months. There were no statistically significant differences between the groups in the baseline characteristics, except in the history of smoking (p = 0.03), with a higher proportion of smokers in the group that did not complete the CR program (76 vs. 59%). Regarding the group that completed CR program, there was a statistical association between the final METs and the occurrence of CV events (p = 0.03). Patients who completed the CR program experienced significantly fewer cardiovascular events compared to those who did not complete the program (7 vs. 18.5%, p = 0.02). In the Kaplan-Meier analysis, the mean event-free survival time was 65 months for patients who completed the CR program and 48 months for patients who did not complete the CR program, with statistically significant difference (Log-Rank p < 0.001).
Conclusions: This study demonstrates that completing a CR program following acute coronary syndrome is associated with a lower incidence of cardiovascular events. Additionally, higher final METs achieved during CR were linked to fewer cardiovascular events. These findings emphasize the importance of rehabilitation in secondary prevention and the need to improve adherence.

PO 5. UNLOCKING PHYSICAL POTENTIAL: THE CRUCIAL ROLE OF CARDIAC REHABILITATION IN ENHANCING PHYSICAL CAPACITY

Ana Rita Andrade[1], Ana Abrantes[1], Catarina Gregório[1], Miguel Raposo[1], João Fernandes Pedro[1], Graça Araújo[2], Sandra Miguel Correia[2], José Costa[2], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto J. Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Hospital Santa Maria (ULSSM) and Faculty of Medicine of the University of Lisbon, Department of Physical and Rehabilitation Medicine.

Introduction: Cardiac rehabilitation (CR) is a structured program that combines exercise and education to help patients (pts) recovering from cardiac conditions in order to improve their cardiovascular health, enhancing overall well-being and quality of life.
Objectives: To compare cardiopulmonary exercise test (CPET) parameters and 6-minute walking test (6MWT) performance before and after CR program completion.
Methods: Single center prospective study of consecutive pts that completed a center-based CR program from 2015 to April 2023. The CR program includes evaluation by cardiologist physician, nutritionist and psychologist, 2 times weekly supervised exercise sessions, educational sessions. CPET and 6MWT were performed at baseline and after program conclusion. Student T and Pearson correlation tests were for statistical analysis.
Results: We included 446 pts, 81% males, mean age 60 ± 11 years, ischemic cardiomyopathy was the main reason for CR referral followed by dilated and valvular cardiomyopathy in 84%, 6% and 6% of pts respectively. Most pts had hypertension, 72% dyslipidemia, 60% of pts were current or former smokers and 20% diabetics. Most pts were overweight, (median BMI 27 kg/m^2), mean ejection fraction was 49% and median NTproBNP was 478 pg/ml. Overall pts completed on average 14 CR sessions, which corresponds to 92% of scheduled sessions. After CR program pts experienced a significant improvement on CPET parameters with an increase in VO2 peak (17 ± 5 to 19 ± 5 ml/kg/min, p < 0.001), percentage of predicted VO2 peak (66 ± 17 vs. 68 ± 17 ml/kg/min, p < 0.001), O2 pulse (mean 11.7 ± 3 vs. 13 ± 5, p < 0.001), maximum work (12 ± 3 vs. 135 ± 41 W, p < 0.001), duration of CPET (8.5 ± 2 vs. 9 ± 3p < 0.001) and total distance on 6MWT (443 ± 105 vs. 558 ± 113 m, p = < 0.001) and decrease in optimal cardiorespiratory point (OCP) (27 ± 6 vs. 26 ± 6, p = < 0.001), reflecting physical capacity improvement. This improvement was consistent when performing subgroup analysis for gender, people older than 70 years, obese pts (defined as BMI > 30 kg/m^2), ischemic and non-ischemic cardiomyopathy. We found a positive correlation between the program adherence and improvement in VO2 peak, VO2 pulse and OCP (rs 16%, p = 0.045, rs 16% p = 0.042, rs 26% p = 0.001, respectively).
Conclusions: In our population, CR program significantly improved CPET and 6MWT performance enhancing physical fitness and well-being, especially in patients with higher program adherence rates.

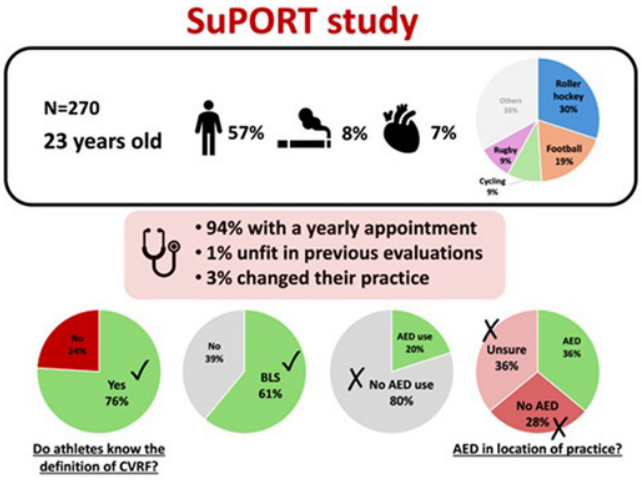
PO 6. AWARENESS OF COMPETITIVE ATHLETES REGARDING CARDIOVASCULAR PROFILE, SPORTS MEDICINE EVALUATION AND EMERGENCY SUPPORT – SUPORT STUDY

Carolina Gonçalves[1], Adriana Vazão[1], André Martins[1], Joana Pereira[1], Mónica Amado[1], Mariana Carvalho[1], Margarida Cabral[1], Fátima Saraiva[1], Hélia Martins[1], Hélder Dores[2]

[1]Centro Hospitalar de Leiria/Hospital de Santo André. [2]Hospital da Luz Lisboa.

Introduction: Pre-participation cardiovascular (CV) screening is of the utmost importance for sudden cardiac death (SCD) prevention. Appropriate emergency medical plans and athletes' awareness regarding SCD are crucial strategies in medical emergencies.
Objectives: To describe the knowledge of competitive athletes regarding pre-participation screening, CV risk profile and emergency life support.
Methods: A questionnaire (https://forms.gle/gxXtjhqN8LBybEdL8) with 36 questions was developed and released online to be completed by

competitive athletes registered in Portuguese sports federations, aged 18 years or older. Its validity was previously tested in 10 athletes.



Results: A total of 270 athletes, with a median age of 23 years, predominantly male (57%), were analyzed. The athletes reported a mean of 13 ± 6.7 years of sports practice, around 75% having 4-6 training sessions per week, mainly involved in roller hockey (30%), football (19%), cycling and rugby (9%). The prevalence of CV risk factors was low, however, 8% were active smokers and 3% had dyslipidemia. A family history of CV disease was reported in 24%, mainly due to acute myocardial infarction and stroke, and for SCD in 2.6%. 24% of athletes did not know the definition of CV risk factors. The great majority (93%) denied having CV disease. Around 94% have a yearly consultation with a sports medicine specialist (49%), mostly organized by the club (74%), 53% underwent exercise stress testing and had 64% at least one transthoracic echocardiogram. Almost 70% and 53% of the athletes recognized the importance of reporting CV symptoms and family history, respectively. Only 1.1% were considered unfit in previous evaluations, and 3% changed their practice due to medical reasons. Almost all the individuals (97%) were familiar with the term sudden cardiac arrest (SCA), and despite 61% having basic life support education, 80% did not know how to use an automated external defibrillator (AED) and 89% did not feel comfortable intervening in these situations. Furthermore, 36% are unsure if an AED is available in their place of practice, while 28% reported the absence of an AED.

Conclusions: Although most of the competitive athletes analyzed underwent regular CV screening and recognize the importance of CV symptoms and family history, there is a gap in knowledge regarding SCA situations. These findings highlight the need for the implementation of educational programs and the availability of AED in sports facilities.

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Área de Posters-écran 2 | Sessão de Posters 02 – Resultados e avaliação de programas de reabilitação cardíaca – Da prática clínica aos benefícios para o doente

PO 7. SECONDARY PREVENTION AFTER ONE-YEAR OF A CARDIOVASCULAR REHABILITATION PROGRAM - A SINGLE-CENTRE ANALYSIS

Carolina Gonçalves, Margarida Cabral, Mariana Carvalho, Adriana Vazão, André Martins, Joana Pereira, Mónica Amado, Fátima Saraiva, Filipa Januário, Alexandre Antunes

Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Cardiovascular rehabilitation (CR) is considered a cornerstone in secondary prevention of cardiovascular (CV) diseases, with class IA recommendations in European guidelines.
Objectives: To describe the one-year impact of the CR program, particularly regarding anthropometric data, smoking cessation and blood analysis.

	TOTAL (N=307)
Sex – Male, n(%)	212(69.1)
Age, years, mean (SD)	58.2(9.3)
Admission diagnosis, n(%)	
STEMI	170(55.4)
NSTEMI	114(37.1)
UA	5(1.6)
Other	18(5.9)
PCI, n(%)	288(93.8)
CABG, n(%)	13(4.2)
Past medical history, n(%)	
Dyslipidemia	238(77.5)
Hypertension	181(59.0)
Active smoker	137(44.6)
History of smoking	85(27.7)
OSA	82(26.7)
Diabetes	72(23.5)
History of CAD	43(14.0)
PAD	18(5.9)
CVD	15(4.9)
ICD	7(2.3)
CRT	3(1.0)
1-year MACE, n(%)	8(2.6)

Table 1. Patient baseline characteristics

CABG - coronary artery bypass grafting; CAD – coronary artery disease; CRT - cardiac resynchronization therapy; CVD – cardiovascular disease; CVD - Cerebrovascular disease; ICD - implantable cardioverter-defibrillator NSTEMI - non-ST-elevation myocardial infarction; PCI - percutaneous coronary intervention; OSA - obstructive sleep apnea; MACE – major adverse cardiac events; PAD – peripheral artery disease; STEMI - ST-elevation myocardial infarction; UA - unstable angina

	T0	T1	FU	N(PAIR T0-FU)	P-VALUE*
BMI, kg/m2, mean (SD)	28.4(4.43)	27.2(4.12)	27.8(4.56)	91	0.005
Abdominal Circumference, mm, mean (SD)	100.6(11.29)	98.9(10.99)	98.6(10.63)	112	<0.001
Smoking cessation, n(%)	-	-	47(34.3)**	-	-
Blood analysis					
LDL-c, mg/dL, median (IQR)	111(46)	60(29)	55(26)	142	<0.001
HDL-c, mg/dL, median (IQR)	43(13)	45(14)	46(16)	141	<0.001
TG, mg/dL, median (IQR)	136(87)	99(48)	104(65)	140	<0.001
HbA1c, %, median (IQR)	5.6(0.7)	5.6(0.6)	5.9(1)	136	0.073

Table 2. Clinical evaluation and blood analysis (baseline - T0, end of CR - T1 and FU)

SD – standard deviation; HbA1c - hemoglobin A1c; HDL - high-density lipoprotein; IQR - interquartile range; LDL - low-density lipoprotein; TG - triglycerides
** p-value T0 vs. FU*
*** percentage calculated from the total number of smokers*

Figure PO 7

Methods: Retrospective single-centre analysis of patients referred to the CR program between 2017 and 2024. Baseline characteristics and major adverse cardiovascular events (MACE) a composite of death, non-fatal myocardial infarction (MI), cardiovascular rehospitalization and stroke - were analysed. Body mass index (BMI), abdominal circumference, lipid profile and hemoglobin A1c (HbA1c) were compared at baseline (T0), end of CR (T1) and one-year follow-up (FU).
Results: A total of 307 patients were included at baseline, 69% male, with a mean age of 58 ± 9 years. Of these, 194 patients (63%) completed phase 2 CR program. The patients were referred to CR mostly after acute coronary syndromes (ACS) (94%), and the remaining were heart failure patients (6%). Around 94% of the ACS patients underwent percutaneous coronary intervention at the index event, and only 4% coronary artery bypass grafting. Dyslipidemia (78%), hypertension (59%) and active smoking (45%) were the most common CV risk factors. Personal background of smoking (28%), obstructive sleep apnea (27%), diabetes (24%), coronary artery disease (14%), peripheral artery disease (6%) and cerebrovascular disease (5%), were also observed. Regarding cardiac devices, 2% and 1% already had an implantable cardioverter-defibrillator and a cardiac resynchronization therapy, respectively. Both BMI (p = 0.005) and abdominal circumference (p < 0.001) were significantly lower at FU. Smoking cessation remained successful in 34% of active smokers. Low-density lipoprotein and triglycerides were significantly lower at FU (p < 0.001), while high-density lipoprotein (HDL) was higher (p < 0.001). HbA1c was already controlled at baseline. These positive results at the end of CR were not lost at one-year FU (p = 0.815, p = 0.081), and HDL improved (p = 0.006). One-year MACE occurred in only 2.6%, mainly due to cardiovascular rehospitalization.
Conclusions: In our CR population, there were significant improvements in anthropometric data, lipid profile, and smoking cessation at the end of phase 2, and the benefits were not lost at the one-year follow-up, highlighting the importance of multidisciplinary programs in secondary prevention, even after phase 2 CR.

PO 8. CLINICAL CHALLENGES IN CARDIOVASCULAR REHABILITATION PROGRAMS: PREDICTORS OF DROPOUT – A SINGLE-CENTRE ANALYSIS

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Introduction: Cardiovascular rehabilitation (CR) has demonstrated multiple benefits in patient prognosis. However, poor adherence to these programs remains a clinical challenge.
Objectives: To describe the differences between dropout patients (Group 1) and the remaining patients (Group 2) regarding baseline characteristics and findings, and to identify predictors of dropout.
Methods: Retrospective single-centre analysis of patients referred to the CR program between 2017 and 2024. Baseline characteristics, clinical findings, one-year and extended follow-up (FU) major adverse cardiovascular events (MACE) –a composite of death, non-fatal acute myocardial infarction (MI), cardiovascular rehospitalization and stroke– were compared. Quality of life (EuroQoL five-dimensional index), Hospital Anxiety and Depression Scale (HADS), International Physical Activity Questionnaire short form (IPAQsf) (total physical activity METs-minutes/week), exercise testing (ET) in METs (metabolic equivalents), body mass index (BMI), abdominal circumference, lipid profile and hemoglobin A1c at baseline were also compared. Multivariate logistic regression was performed to assess predictors of dropout.
Results: From a total of 259 patients, 67% were male, with a mean age of 58 ± 9.4 years. Admission diagnoses were mainly ST-elevation MI (57%), non-ST-elevation MI (NSTEMI) (37%), and heart failure (4%). Approximately 95% underwent percutaneous coronary intervention at the index event. The past medical history was remarkable for dyslipidemia (78%), hypertension (61%) and active smoking (45%). Around 25% failed to complete CR program (Group 1). Age, past medical history, EuroQoL, IPAQsf and HADS scores, as well as blood analyses, were similar between the groups. Group 1 had more female patients (p < 0.001), fewer NSTEMI cases (p = 0.035) and higher number of heart failure cases (p = 0.007). Furthermore, at baseline, functional capacity in ET measured in METs was significantly lower and BMI was significantly higher in group 1. Both one-year MACE and FU MACE were low and were statistically higher in the dropout group. After multivariate logistic regression, only female sex remained an independent predictor of CR dropout (OR = 8.662, 95%CI: 4.608-16.284, p-value < 0.001).

	TOTAL (N=259)	GROUP 1 (N=65)	GROUP 2 (N=194)	P-VALUE
Sex – Male, n(%)	174(67.2)	20(30.8)	154(79.4)	**<0.001**
Age, years, mean (IQR)	58(9.4)	59(9.1)	58(9.5)	0.315
Admission diagnosis, n(%)				
STEMI	148(57.1)	41(63.1)	107(55.2)	0.264
NSTEMI	96(37.1)	17(26.2)	79(40.7)	**0.035**
UA	4(1.5)	-	4(2.1)	-
Other	11(4.2)	7(10.8)	4(2.1)	**0.007**
PCI, n(%)	245(94.6)	59(90.8)	186(95.9)	0.123
CABG, n(%)	12(4.6)	3(4.6)	9(4.6)	1.000
Past medical history, n(%)				
Dyslipidemia	201(77.6)	46(70.8)	155(79.9)	0.127
Hypertension	157(60.6)	40(61.5)	117(60.3)	0.861
Active smoker	116(44.8)	34(52.3)	82(42.3)	0.159
History of smoking	73(28.2)	15(23.1)	58(29.9)	0.290
OSA	76(29.3)	15(23.1)	61(31.4)	0.200
Diabetes	58(22.4)	13(20.0)	45(23.2)	0.593
History of CAD	37(14.3)	11(16.9)	26(13.4)	0.483
PAD	16(6.2)	6(9.2)	10(5.2)	0.242
CVD	12(4.6)	4(6.2)	8(4.1)	0.503
ICD	4(1.5)	1(1.5)	3(1.5)	1.000
CRT	2(0.8)	2(3.1)	-	-
1 year MACE, n(%)	8(3.1)	6(9.2)	2(1.3)	**0.003**
Follow-up MACE, n(%)	17(6.6)	11(16.9)	6(3.1)	**<0.001**
EuroQoL (baseline)				
EuroQoL-5D index, mean (SD)	0.74(0.2)	0.75(0.3)	0.74(0.2)	0.925
EuroQoL-VAS, %, median (IQR)	70(30)	70(30)	70(30)	0.972
HADS (baseline)				
HADS anxiety, points, mean (SD)	7.0(3.7)	7.2(2.8)	6.9(3.6)	0.642
HADS depression, points, mean (SD)	4.8(3.3)	5.5(3.8)	4.6(3.1)	0.167
Functional capacity (baseline)				
IPAQ, METs, median (IQR)	693(1188)	594(928)	693(1188)	0.344
Exercise testing, METs, mean (SD)	11.2(3.1)	10.1(3.0)	11.4(3.1)	**0.012**
Clinical evaluation (baseline)				
LVEF, %, mean (SD)	52.9(8.8)	51.3(8.9)	53.5(8.7)	0.101
BMI, kg/m2, mean (SD)	27.8(4.2)	29.1(4.9)	27.5(4.9)	**0.024**
Abdominal Circumference, mm, median (IQR)	100.0(13.3)	102.0(10)	98.5(14)	0.105
Blood analysis (baseline)				
LDL-c, mg/dL, mean (SD)	115.4(46.2)	121.2(49.9)	113.6(45.0)	0.275
HDL-c, mg/dL, median (IQR)	43.0(13)	42.0(13)	44.0(14)	0.199
TG, mg/dL, median (IQR)	136.5(88)	149.0(98)	131.5(82)	0.236
HbA1c, %, median (IQR)	5.6(0.7)	5.6(0.6)	5.6(0.8)	0.545

Table 1. Comparison dropout patients (group 1) and the remaing patients (group 2)

Conclusions: In our population, a high proportion of patients completed the CR program. Only female sex was an independent dropout predictor. Identifying risk factors for CR dropout may help in designing tailored interventions for these patients to improve adherence and, consequently, outcomes.

PO 9. AGE-RELATED DIFFERENCES IN CARDIOVASCULAR REHABILITATION PROGRAMS – A SINGLE-CENTRE ANALYSIS

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Introduction: Cardiovascular rehabilitation (CR) consists of a patient-centered multidisciplinary program with multiple benefits in secondary prevention. Misconceptions about older patients may lead to lower referral rates.
Objectives: To describe age-related differences in CR (≤ 50 vs. > 50 years).
Methods: Retrospective single-centre analysis of patients referred to our CR program (2017-2024). Baseline characteristics, major adverse cardiovascular

events (MACE) – a composite of death, non-fatal acute myocardial infarction (MI), cardiovascular rehospitalization and stroke-, quality of life (EuroQoL five-dimensional score), Hospital Anxiety and Depression Scale (HADS), exercise testing (ET) in METs (metabolic equivalents), International Physical Activity Questionnaire short-form (IPAQsf) (total physical activity METs-minutes/week), body mass index (BMI), abdominal circumference, lipid profile and hemoglobin A1c were compared.

	TOTAL (N=307)	≤50 YEARS (N=62)	>50 YEARS (N=245)	P-VALUE
Sex – Male, n(%)	212(69.1)	42(67.7)	170(69.4)	0.802
Admission diagnosis, n(%)				
STEMI	170(55.4)	45(72.6)	125(51.0)	**0.002**
NSTEMI	114(37.1)	15(24.2)	99(40.4)	**0.018**
UA	5(1.6)	1(1.6)	4(1.6)	1.000
Other	18(5.9)	1(1.6)	17(6.9)	0.137
PCI, n(%)	288(93.8)	60(96.8)	228(93.1)	0.384
CABG, n(%)	13(4.2)	1(1.6)	12(4.9)	0.478
Past medical history, n(%)				
Dyslipidemia	238(77.5)	45(72.6)	193(78.8)	0.297
Hypertension	181(59.0)	24(38.7)	157(64.1)	**<0.001**
Active smoker	137(44.6)	41(66.1)	96(39.2)	**<0.001**
History of smoking	85(27.7)	12(19.4)	73(29.8)	0.101
OSA	82(26.7)	11(17.7)	71(29.0)	0.074
Diabetes	72(23.5)	5(8.1)	67(27.3)	**0.001**
History of CAD	43(14.0)	2(3.2)	41(16.7)	**0.006**
PAD	18(5.9)	-	18(7.3)	-
CVD	15(4.9)	-	15(6.1)	-
ICD	7(2.3)	3(4.8)	4(1.6)	0.149
CRT	3(1.0)	1(1.6)	2(0.8)	0.292
1 year MACE, n(%)	8(2.6)	-	8(3.3)	-
Follow-up MACE, n(%)	19(6.2)	-	19(7.8)	-
Dropout rate, n(%)	65(21.2)	9(14.5)	56(22.9)	0.108
EuroQoL (baseline)				
EuroQoL-5D index, mean (SD)	0.75(0.22)	0.71(0.2)	0.76(0.2)	0.274
EuroQoL-VAS, %, mean (SD)	68.1(16.5)	66.1(15.3)	68.6(16.7)	0.384
EuroQoL (end)				
EuroQoL-5D index, mean (SD)	0.81(0.20)	0.80(0.20)	0.81(0.19)	0.839
EuroQoL-VAS, %, mean (SD)	74.8(12.9)	73.8(15.2)	75.1(12.1)	0.587
HADS (baseline)				
HADS anxiety, points, mean (SD)	7.0(3.6)	7.9(3.9)	6.8(3.5)	**0.035**
HADS depression, points, mean (SD)	4.9(3.3)	5.0(3.3)	4.9(3.3)	0.850
Functional capacity (baseline)				
IPAQ, METs, median (IQR)	693(1188)	693(940)	693(1187)	0.399
Exercise testing, METs, mean (SD)	11.1(3.1)	12.4(3.2)	10.7(2.9)	**<0.001**
Functional capacity (end)				
IPAQ, METs, median (IQR)	1093(1527)	1091(1360)	1095(1769)	0.809
Exercise testing, METs, mean (SD)	12.6(3.7)	14.3(3.6)	12.1(3.5)	**<0.001**
ET, METs, ΔEnd-baseline, mean (SD)	1.3(2.9)	1.4(3.6)	1.2(2.7)	0.399
Clinical evaluation (baseline)				
LVEF, %, mean (SD)	52.4(9.1)	51.2(8.1)	52.7(9.3)	0.243
BMI, kg/m2, mean (SD)	27.8(4.2)	27.9(4.3)	27.8(4.1)	0.927
Abdominal Circumference, mm, median (IQR)	100.0(13.0)	99.0(16.0)	100.0(13.0)	0.763
Clinical evaluation (end)				
BMI, kg/m2, mean (SD)	22.4(11.5)	24.7(9.5)	21.7(11.9)	0.162
Abdominal Circumference, mm, median (IQR)	97.0(14.0)	95.0(18.0)	97.5(13.8)	0.640
Blood analysis (baseline)				
LDL-c, mg/dL, mean (SD)	111.7(46.1)	122.3(44.9)	108.9(46.1)	**0.048**
HDL-c, mg/dL, median (IQR)	43.0(13.0)	41.0(12.0)	44.0(13.0)	0.256
TG, mg/dL, median (IQR)	136.0(87.0)	158(87.0)	135(82.0)	0.113
HbA1c, %, median (IQR)	5.6(0.7)	5.5(0.5)	5.7(0.9)	**<0.001**
Blood analysis (end)				
LDL-c, mg/dL, mean (SD)	61.4(23.3)	64.1(22.1)	60.5(23.7)	0.356
HDL-c, mg/dL, median (IQR)	45.0(14.9)	41.0(16.0)	45.5(13.0)	0.157
TG, mg/dL, median (IQR)	99.0(48.0)	86.0(47.0)	102(45.0)	**0.046**
HbA1c, %, median (IQR)	5.6(0.6)	5.4(0.4)	5.7(0.8)	**<0.001**
LDL-c ΔBaseline-end, mg/dL, mean (SD)	54.3(46.7)	61.1(45.8)	52.1(46.9)	0.266
TG ΔBaseline-end, mg/dL, median (IQR)	38.0(77.0)	61.5(66.3)	29.0(80.0)	**0.011**

Table 1. Comparison according to age

Results: From a total of 307 patients, 69% were male and 20% were ≤ 50 years old. Admission diagnoses consisted of ST-elevation MI (STEMI) (55%), non-ST-elevation MI (NSTEMI) (37%), heart failure (6%) and unstable angina (2%). 94% underwent percutaneous coronary intervention at the index event, while 5% underwent coronary artery bypass grafting. Dyslipidemia (78%), hypertension (59%), and active smoking (45%) were the most common risk factors. Both one-year MACE and follow-up MACE were low, occurring only in the older group (3.3%, 7.8%). Younger patients were more commonly diagnosed with STEMI (p = 0.002), while older patients had significantly more NSTEMI (p = 0.0018). Younger patients had lower rates of hypertension (< 0.001), diabetes (0.001) and previous coronary heart disease (p = 0.006). Conversely, they were more frequently smokers (p < 0.001). EuroQoL, HADS depression and IPAQsf scores were similar between groups, except for HADS anxiety, which was higher in younger patients. Although functional capacity in ET was significantly better in younger patients at baseline and at the end of CR (p < 0.001), PE improvements were similar between groups (p = 0.399). Low-density lipoprotein cholesterol (LDL-c) was significantly higher at baseline in younger patients (p = 0.048) and triglycerides (TG) lower at the end (p = 0.046). LDL-c improvements were similar, though TG improvement was greater in the younger group (p = 0.001).

Conclusions: Despite differences in baseline characteristics, CR seems equally beneficial in young and older patients. Nevertheless, tailored programs are of the utmost importance for the success of CR, particularly in frailer patients.

PO 10. EXPLORING PEAK CIRCULATORY POWER AND ITS CORRELATION WITH EXERCISE TEST PARAMETERS IN CARDIAC REHABILITATION

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Introduction: Peak circulatory power (PCP), defined as the product between peak oxygen uptake and peak systolic blood pressure, has been proposed as a surrogate for cardiac power and a reliable prognostic marker in patients with heart failure and coronary artery disease. In cardiac rehabilitation (CR), where improving functional capacity is a key goal, understanding the relationship between PCP and other established Cardiopulmonary Exercise Test (CPET) parameters offers valuable insights for optimizing exercise prescriptions and monitoring progress.

Objectives: To evaluate the relationship between baseline peak circulatory power (PCP) and key CPET parameters in patients undergoing CR.

Methods: Single-center, retrospective observational study. Patients who performed a CPET before the phase II CR program between January 2023 and September 2024 were included. Data were collected by a specialized multidisciplinary team. Correlations between PCP and other CPET parameters were assessed using Pearson's/Spearman's correlation coefficient, as appropriate. Statistical analysis was performed using SPSS 28.0.1.1 software.

Results: A total of 71 patients were included, with a mean age of 57.9 ± 12.9 years and 51/71.8% male. The most common referral criterion to CR was coronary artery disease (49/60.9%), followed by heart failure (17/23.9%), with 21/29.6% presenting reduced left ventricular ejection fraction (LVEF) at baseline. In the pre-CR CPET, the mean peak VO2 was 19.5 ± 6.2 mL/kg/min, the mean maximum systolic blood pressure was 165.3 ± 30.4 mmHg, and the mean PCP was 3,329.0 ± 1,417.7 mmHg·min/mL/kg. PCP significantly differed between patients with LVEF ≤ 40% and those with LVEF > 40% (2,700.9 ± 1,267.7 vs. 3,620.1 ± 1,402.6 mmHg·min/mL/kg, respectively, p = 0.016). Strong positive correlations were found between PCP and physical performance (watts) (r = 0.823, p < 0.001) and metabolic equivalents (METs) (r = 0.890, p < 0.001). Additionally, VO2 at the second anaerobic threshold demonstrated a very strong positive correlation with PCP (r = 0.903, p < 0.001). Moderate positive correlations were observed between PCP and maximum heart rate (HR) (r = 0.533, p < 0.001), VO2 at the first anaerobic threshold (r = 0.624, p < 0.001), and oxygen pulse (r = 0.619, p < 0.001). Conversely, low negative correlations were identified between PCP and respiratory reserve (r = -0.335, p = 0.017) along with VE/VCO2 slope (r = -0.357, p = 0.011).

Conclusions: This study highlights the significant role of PCP in assessing exercise capacity and reinforces its potential utility in stratifying patients, tailoring exercise interventions, and monitoring progress during CR programs. PCP was notably lower in patients with reduced LVEF, emphasizing its sensitivity to cardiac dysfunction. Future studies should evaluate its prognostic implications and broader applicability in clinical practice.

Variables	Correlation coefficient (r)	p-value	Size of correlation
Maximum HR achieved (bpm)	0.533	**<0.001**	Moderate positive
Maximum diastolic blood pressure (mmHg)	0.474	**<0.001**	Low positive
VO2 at the first anaerobic threshold (mL/kg/min)	0.624	**<0.001**	Moderate positive
VO2 at the second anaerobic threshold (mL/kg/min)	0.903	**<0.001**	Very high positive
Oxygen pulse (mL/min)	0.619	**<0.001**	Moderate positive
Respiratory reserve (%)	-0.335	**0.017**	Low negative
VE/VCO2 slope (mL/kg/min)	-0.357	**0.011**	Low negative
Resting PETCO2 (mmHg)	0.382	**0.004**	Low positive
HR at the first anaerobic threshold (bpm)	0.152	0.258	-
HR at the second anaerobic threshold (bpm)	0.584	**<0.001**	Moderate positive
OUES	0.456	**0.019**	Low positive
Physical performance (W)	0.823	**<0.001**	High positive
Metabolic Equivalent (METs)	0.890	**<0.001**	High positive
VO2/Work Rate slope (mL/kg/min/W)	0.186	0.178	-
Left ventricular ejection fraction (%)	0.236	0.070	-
Hemoglobin (g/dL)	0.077	0.571	-
Ferritin (ng/mL)	-0.016	0.929	-

Figure PO 10

PO 11. LONG-TERM IMPACT OF EXERCISE-BASED CARDIAC REHABILITATION ON CARDIORESPIRATORY FITNESS AND PHYSICAL FUNCTION

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Introduction: Cardiac Rehabilitation (CR) is widely recognized as a cornerstone in the management of patients with established cardiovascular disease. One of the challenges in clinical practice is maintaining the benefits acquired during the CR program.
Objectives: Compare contemporary data on cardiorespiratory fitness and physical function tests at the end of Phase II and 12 months following an exercise-based CR program.
Methods: This single-center, retrospective observational study analyzed consecutive patients who completed the 12-month period post-Phase II CR

Cardiorespiratory fitness variables	Post Phase II CRP	12 months post CRP	p-value
Maximum HR achieved (bpm) - mean ± SD	132.4 ± 19.9	119.2 ± 20.0	p=0.116
Percentage of predicted maximum HR (%) - mean ± SD	80.5 ± 9.7	77.9 ± 11.2	p=0.149
Heart rate decreased by 12 bpm or more after one minute of recovery - n (%)	22 (88.0)	21 (84.0)	**p=0.032**
Maximum systolic blood pressure (mmHg) - mean ± SD	162.5 ± 27.3	175.3 ± 36.7	p=0.074
Maximum diastolic blood pressure (mmHg) - mean ± SD	86.0 ± 14.4	89.5 ± 12.7	p=0.255
Peak VO2 (mL/kg/min) - mean ± SD	23.9 ± 7.1	22.4 ± 7.9	**p=0.046**
Percentage of predicted maximum VO2 (%) - mean ± SD	81.5 ± 15.8	79.6 ± 20.8	p=0.470
VO2 at the first anaerobic threshold (mL/kg/min) - mean ± SD	12.3 ± 4.9	10.9 ± 3.9	p=0.303
Percentage of VO2 at the first anaerobic threshold relative to the reference value (%) - mean ± SD	49.6 ± 26.1	39.9 ± 10.7	p=0.196
VO2 at the second anaerobic threshold (mL/kg/min) - mean ± SD	21.3 ± 4.1	19.9 ± 4.3	**p=0.046**
Oxygen pulse (mL/min) - mean ± SD	13.8 ± 3.9	10.9 ± 4.6	p=0.420
Respiratory reserve (%) - mean ± SD	45.7 ± 20.5	44.6 ± 12.2	p=0.819
VE/CO2 slope (mL/kg/min) - median (IQR)	28.0 (8.2)	25.0 (13.6)	p=0.877
Resting PETCO2 (mmHg) - mean ± SD	35.1 ± 4.3	35.6 ± 4.3	p=0.585
HR at the first anaerobic threshold (bpm) - mean ± SD	99.0 ± 13.7	91.5 ± 13.3	**p=0.028**
HR at the second anaerobic threshold (bpm) - mean ± SD	121.4 ± 17.5	118.6 ± 15.5	p=0.379
OUES - median (IQR)	2.0 (1.2)	1.9 (0.9)	p=0.998
Physical performance (W) - mean ± SD	138.9 ± 48.1	130.1 ± 52.6	**p=0.032**
Percentage of watts relative to physical performance (%) - mean ± SD	89.3 ± 20.1	83.5 ± 24.6	**p=0.013**
Qualitative characterization of physical performance			
Normal or elevated - n (%)	19 (76.0)	15 (60.0)	**p=0.005**
Reduced - n (%)	4 (16.0)	9 (36.0)	
Metabolic Equivalent (METs) - median (IQR)	7.1 (2.0)	6.5 (1.8)	p=0.083
VO2/Work Rate slope (mL/kg/min/W) - median (IQR)	10.7 (1.9)	10.9 (1.9)	p=0.061

Table 2. Cardiorespiratory fitness analysis after Phase II and 12 Months of Phase III Exercise-Based Cardiac Rehabilitation.
Bpm - Beats per minute. CRP - Cardiac Rehabilitation Program. HR – Heart rate. IQR - Interquartile Range. METs - Metabolic Equivalent of Task. OUES - Oxygen Uptake Efficiency Slope. PETCO2 - partial pressure of end-tidal CO2. SD - Standard deviation.

Figure PO 11

from June 2023 to August 2024. Data were collected by a specialized multidisciplinary team. Continuous variables were analyzed using paired T-Tests or Wilcoxon signed-rank tests, as appropriate. Categorical variables were analyzed using the Chi-Square test.
Results: The study primarily comprised males (n = 19, 76%), with a mean age of 54.3 ± 14.6 years. The average duration of the Phase II program was 20.0 weeks (IQR 8.0). A statistically significant difference between the means of the two groups was observed regarding Peak VO2 (23.6 ± 7.1 vs. 22.4 ± 7.9 mL/kg/min, *p-value* = 0.046) and VO2 at the second anaerobic threshold (21.3 ± 4.1 vs. 19.9 ± 4.3 mL/kg/min, *p-value* = 0.046). Considering physical performance, significant differences were noted in overall physical performance (138.9 ± 48.1 vs. 130.1 ± 52.6 W, *p-value* = 0.032) and in the percentage of watts relative to physical performance (89.3 ± 20.1 vs. 83.5 ± 24.6%, *p-value* = 0.013), with a statistically significant association in qualitative assessments of physical performance (4/16.0 vs. 9/36.6%, *p-value* = 0.005). In contrast, there were significant improvements in bicipital one-repetition maximum (9.4 ± 2.7 vs. 10.1 ± 2.6 Kg, *p-value* = 0.008) and quadriceps one-repetition maximum (14.6 ± 4.4 vs. 16.4 ± 4.3 Kg, *p-value* = 0.003), while no statistically significant differences were observed in the Timed Up and Go Test (TUG) (6.2 ± 1.2 vs. 6.6 ± 1.5 s, *p-value* = 0.083).
Conclusions: This study indicates that the exercise-based CR program did not fully maintain gains in cardiorespiratory fitness and physical performance in this population. However, the one-repetition maximum values and stable results in the TUG test suggest maintenance of physical function. These findings highlight the need for ongoing support and interventions to sustain rehabilitation benefits and emphasize the importance of further research on quality-of-life outcomes.

PO 12. IMPACT OF STRUCTURED CARDIAC REHABILITATION ON PATIENT OUTCOMES: A PROSPECTIVE COHORT ANALYSIS

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Introduction: Current guidelines provide clear recommendations regarding the benefits of structured cardiac rehabilitation (CR) programs for patients with established cardiovascular disease. Despite the significant advantages associated with CR, maintaining a healthy lifestyle and ensuring medication adherence post-phase II remain key points for achieving optimal clinical outcomes.
Objectives: Evaluate the impact of CR on quality of life, exercise adherence, and medication adherence three months after transitioning to CR in the community.
Methods: This single-center, prospective, observational study included consecutive patients who successfully completed a follow-up period of three months after participating in a supervised, exercise-based CR program conducted from January 2023 to October 2024. Data were collected by a multidisciplinary team, and self-reported medication adherence was cross-verified with prescription records. Continuous variables were analyzed using paired samples T-Tests or Wilcoxon signed-rank tests, as appropriate.
Results: A total of 75 patients were enrolled, with a median age of 62 years (IQR 19.0). The majority of participants were male (52/69.3%), and the primary reason for referral was coronary artery disease (52/69.3%). Regarding medical history, 16 patients (21.3%) were classified as obese (body mass index [BMI] ≥ 30 kg/m^2), while 34 patients (45.3%) were categorized as overweight (BMI 25-29.9 kg/m^2). Following 3 months after the end of phase II CR, no significant differences were observed in the EuroQol 5D-5L questionnaire scores (82.1 ± 13.8 vs. 85.8 ± 13.1, *p-value* = 0.164) or the Duke Activity Status Index (8.9, 2.3 IQR vs. 9.8, 2.3 IQR, *p-value* = 0.193). Most patients (52/69.3%) engaged in exercise more than three times per week, and 72 patients (96.0%) adhered to their medical prescriptions without errors. Overall, exercise tolerance was favourable, with 67 patients (89.3%) reporting no difficulties during exercise, the same proportion (67/89.3%) monitored their blood pressure at least once per week.
Conclusions: These findings indicate that the majority of patients after phase II CR successfully maintain their exercise habits and adhere to prescribed medications. The absence of significant changes in quality-of-life questionnaires suggests that the benefits of structured CR are sustained over time. These results highlight the importance of ongoing support in promoting healthy behaviours following cardiac rehabilitation.

Analyzed variables	Total (n=75)
Weekly exercise habits	
>3 times per week - n (%)	52 (69.3)
2-3 times per week - n (%)	18 (24.0)
Once per week - n (%)	2 (2.7)
None - n (%)	3 (4.0)
Correct medication adherence - n (%)	72 (96.0)
Clinical events	
Hospitalizations - n (%)	2 (2.7)
Emergency department visit - n (%)	1 (1.3)
Exercise tolerance	
No difficulties during exercise - n (%)	67 (89.3)
Difficulties during exercise - n (%)	3 (4.0)
Weekly blood pressure evaluation - n (%)	67 (89.3)

Table 2. Analyzed variables after 3 months of Phase III Exercise-Based Cardiac Rehabilitation.

Quality of Life Questionnaires	Post Phase II CRP	3 months post CRP	p-value
EuroQol 5D-5L - mean ± SD	82.1 ± 13.8	85.8 ± 13.1	p=0.164
Duke Activity Status Index - median (IQR)	8.9 (2.3)	9.8 (2.3)	p=0.193

Table 3. Quality of Life Questionnaires after Phase II and 3 Months of Phase III Exercise-Based Cardiac Rehabilitation.
CRP - Cardiac Rehabilitation Program. IQR - Interquartile Range. SD - Standard deviation.

Figure PO 12

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

Área de Posters-écran 3 | Sessão de Posters 03 – Reabilitação cardíaca ao longo do continuum de cuidados - Da prevenção aos resultados a longo prazo

PO 13. BODY MASS INDEX AS A PREDICTOR OF CLINICAL AND FUNCTIONAL OUTCOMES IN CARDIAC REHABILITATION

Mariana Ferreira Carvalho, Margarida Cabral, Carolina Gonçalves, Adriana Vazão, André Martins, Joana Pereira, Mónica Amado, Filipa Januário, Alexandre Antunes

Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Obesity and overweight are established risk factors for cardiovascular disease, impacting both acute and long-term prognoses. During Phase II cardiac rehabilitation (CR), the degree of functional recovery and improvement in quality of life may vary according to Body Mass Index (BMI) categories. A comprehensive understanding of BMI's role in CR outcomes is essential to optimize personalized rehabilitation protocols.
Objectives: This study investigates the influence of BMI on clinical and functional outcomes during Phase II CR, focusing on quality of life (EQ-VAS), functional capacity (METs), and the incidence of major adverse cardiovascular events (MACE).
Methods: A cohort of 269 patients enrolled in Phase II CR was stratified into five BMI categories: underweight, normal weight, overweight, obesity class I, and obesity class II/III. Clinical events (MACE), functional capacity (METs), and quality of life (EQ-VAS) changes were evaluated. Comparative analyses were conducted using descriptive statistics, ANOVA, and Kruskal-Wallis tests. Multivariate regression models adjusted for confounding variables were used to explore the association between BMI categories and clinical outcomes.
Results: BMI was significantly associated with differential outcomes in CR. Patients with overweight and obesity class I showed greater MET improvements compared to those with obesity class II/III. Notably, normal-weight and overweight patients demonstrated significant EQ-VAS gains ($p = 0.014$). The incidence of MACE was markedly higher in the obesity class II/III group (OR = 2.34, 95%CI = 1.45-3.56, $p < 0.01$). Multivariate regression confirmed that obesity class II/III independently predicted reduced functional gains and lower quality of life improvements compared to the normal-weight group.
Conclusions: Patients with elevated BMI, particularly those in obesity class II/III, experience less favourable clinical and functional outcomes during Phase II CR and are at increased risk of MACE. These findings underscore the need for tailored CR strategies to address the unique challenges faced by patients with higher BMI, ultimately enhancing recovery trajectories and reducing cardiovascular risk.

PO 14. INFLUENCE OF CARDIAC REHABILITATION ADHERENCE ON CARDIOVASCULAR OUTCOMES

Mariana Ferreira Carvalho, Carolina Gonçalves, Margarida Cabral, Adriana Vazão, André Martins, Joana Pereira, Mónica Amado, Filipa Januário, Alexandre Antunes

Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Cardiac rehabilitation (CR) constitutes a fundamental element of secondary prevention in cardiovascular disease management, aimed at enhancing functional recovery and mitigating adverse clinical outcomes. Despite its well-established benefits, non-adherence remains a critical barrier, potentially elevating the risk of major adverse cardiovascular events (MACE). Clarifying the association between CR completion and MACE incidence, while accounting for baseline diagnoses, is essential for optimizing patient care strategies.
Objectives: This investigation sought to determine the relationship between CR completion and MACE occurrence, while assessing whether specific cardiovascular diagnoses (STEMI, NSTEMI, or other conditions) influence MACE rates.
Methods: A retrospective cohort analysis was performed using clinical records of patients enrolled in a structured CR program. Participants were classified into completers and non-completers based on adherence status. Diagnoses were grouped into three categories: STEMI, NSTEMI, and other cardiovascular conditions. MACE, defined as a composite outcome including cardiovascular mortality, non-fatal myocardial infarction, or revascularization, was compared between groups. Statistical evaluation was conducted using chi-square tests to assess associations between CR completion, diagnosis type, and MACE rates, applying a significance threshold of $p < 0.05$.
Results: Among the 214 patients included, 160 successfully completed the CR program, while 54 did not. MACE incidence was significantly lower among completers (1.2%) compared to non-completers (11.1%), yielding a statistically significant difference ($\chi^2 = 8.34$; $p = 0.0039$). MACE rates by diagnosis were 3.9% for STEMI, 2.6% for NSTEMI, and 14.3% for other conditions. However, inter-group differences were not statistically significant ($\chi^2 = 2.57$; $p = 0.462$). These findings suggest that CR completion offers protective benefits against adverse events regardless of diagnosis.
Conclusions: Adherence to CR programs is significantly associated with reduced MACE rates, underscoring the vital role of program completion in secondary cardiovascular prevention. Although diagnosis-specific MACE variations were not statistically significant, enhancing strategies to encourage CR participation is essential to improving long-term patient outcomes. Future research should aim at developing targeted interventions to minimize non-adherence and further explore the influence of distinct cardiovascular diagnoses on prognostic outcomes.

PO 15. PHASE 2 CARDIOVASCULAR REHABILITATION: A STUDY ON POPULATION PROFILES AND OUTCOMES

Nuno Madruga[1], Miguel Raposo[2], Bruno Bento[2], Sílvia Fiúza[2], Daniela Roxo[2], Pedro Alves da Silva[2], Nelson Cunha[2], Inês Aguiar Ricardo[2], Fausto J. Pinto[2], Ana Abreu[2]

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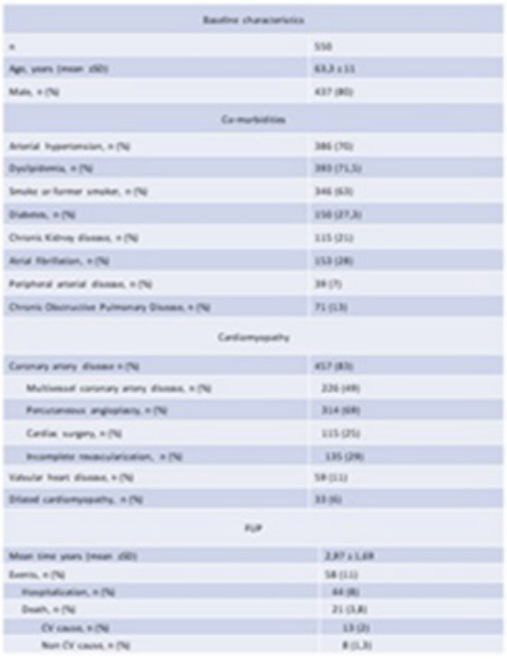
Introduction: Phase II cardiac rehabilitation (CR) programs, integrating exercise, education, and multidisciplinary care, play a key role in improving outcomes for cardiovascular patients. However, the impact on cardiorespiratory test (CPET) and long-term clinical results remains underexplored.
Objectives: To evaluate the impact of a phase II CR program on CPET parameters, cardiovascular risk factors and clinical outcomes.
Methods: Prospective observational single-center study including patients enrolled in a phase II CR program between 2016 and 2024. The program involved assessments by cardiologists, nutritionists and psychologists, with supervised exercise sessions twice a week and educational sessions. Parametric and non-parametric tests were performed as appropriate.
Results: A total of 550 patients (80% male, mean age 63.3 ± 11 years) completed a phase II cardiac rehabilitation (CR) program. The majority had ischemic cardiomyopathy (83%), followed by valvular (11%) and dilated cardiomyopathy (6%). Among coronary artery disease patients, 49% had multivessel disease and 29% had incomplete revascularization. Common comorbidities included hypertension (70%), dyslipidemia (71.5%), smoking (63%), diabetes (27.3%) and chronic kidney disease (21%). At baseline, 50% of patients were in NYHA class II, 34% in class I, and 16% in class III. The median NT-proBNP was 456 (186-1,072) pg/ml and 20% had LVEF < 40%. Patients attended an average of 14 CR sessions (92% of scheduled sessions). Following the CR program, statistically significant improvements in CPET



Baseline characteristics	
n	550
Age, years (mean ±SD)	63,3 ± 11
Male, n (%)	437 (80)
Co-morbidities	
Arterial hypertension, n (%)	386 (70)
Dyslipidemia, n (%)	393 (71,5)
Smoker or former smoker, n (%)	346 (63)
Diabetes, n (%)	150 (27,3)
Chronic Kidney disease, n (%)	115 (21)
Atrial fibrillation, n (%)	153 (28)
Peripheral arterial disease, n (%)	39 (7)
Chronic Obstructive Pulmonary Disease, n (%)	71 (13)
Cardiomyopathy	
Coronary artery disease n (%)	457 (83)
Multivessel coronary artery disease, n (%)	226 (49)
Percutaneous angioplasty, n (%)	314 (69)
Cardiac surgery, n (%)	115 (25)
Incomplete revascularization, n (%)	135 (29)
Valvular heart disease, n (%)	59 (11)
Dilated cardiomyopathy, n (%)	33 (6)
FUP	
Mean time years (mean ±SD)	2,97 ± 1,69
Events, n (%)	58 (11)
Hospitalization, n (%)	44 (8)
Death, n (%)	21 (3,8)
CV cause, n (%)	13 (2)
Non CV cause, n (%)	8 (1,3)

Figure 1. Characteristics of the population enrolled in phase II cardiac rehabilitation and follow-up.

Before and after cardiac rehabilitation			
Parameters	Before CR	After CR	
NYHA			
NYHA I, n (%)	185 (34)	336 (61)	p<0.001
NYHA II, n (%)	272 (50)	148 (27)	p<0.001
NYHA III, n (%)	91 (16)	70 (12)	p<0.001
Echocardiogram			
FEVE <40%, n (%)	109 (20)	50 (9)	p<0.001
FEVE < 50%, n (%)	206 (37)	91(17)	p<0.001
PSAP mmHg (mean ±SD)	31,5 ± 0,9	30 ± 0,9	p<0.001
Lab test			
NT proBNP pg/ml (median, IQR)	456 (186-1072)	232 (105-525)	p<0.001
CT mg/dL (median, IQR)	151 (105-210)	134 (100-180)	p<0.001
HDL mg/dL (mean ±SD)	42 ± 0,1	47 ± 0,5	p<0.001
LDL mg/dL (median, IQR)	90 (60-114)	63 (50-86)	p<0.001
TG mg/dL (median, IQR)	110 (81-151)	99 (78-134)	p<0.001
Hba1c % (mean ±SD)	6,8 ± 0,9	6,1 ± 0,7	p<0.001
CPET			
VO2 peak mL/kg/min (mean ±SD)	15.6 ± 0.3	17.0 ± 0.3	p<0.001
% predicted VO2 peak (mean ±SD)	62.2 ± 1.1	68.0 ± 1.1	p<0.001
PETCO2 (mean ±SD)	33.6 ± 0.3	34.4 ± 0.3	p<0.001
Circulatory power (mean ±SD)	2661 ± 72.1	2896 ± 79	p<0.001
VE/VCO2 slope (mean ±SD)	32.2 ± 0.5	30.7 ± 0.4	p<0.001
Other			
6MWT (mean ±SD)	439 ± 4,7	549 ± 5,9	p=0,2

Figure 2. Clinical, functional, and echocardiographic parameters before and after the cardiac rehabilitation program.

Figure PO 15

were observed: VO2 peak increased from 15.6 ± 0.3 to 17.0 ± 0.3 mL/kg/min (p < 0.01),% predicted VO2 peak increased from 62.2 ± 1.1 to 68.0 ± 1.1 (p < 0.01), PETCO2 improved from 33.6 ± 0.3 to 34.4 ± 0.3 (p < 0.01), circulatory power increased from 2,661 ± 72.1 to 2,896 ± 79 (p < 0.01), and the VE/VCO2 slope decreased from 32.2 ± 0.5 to 30.7 ± 0.4 (p < 0.01). There was also a statistically significant improvement in cardiovascular risk factor control. Total cholesterol decreased (median 151 to 138 mg/dL p < 0.01), LDL cholesterol dropped (median 90 to 63 mg/dL, p < 0.01), triglycerides declined (median 110 to 99 mg/dL, p < 0.01) and HbA1c improved (6.8 ± 0.9% to 6.1 ± 0.7%, p < 0.01). Additionally, after the CR program, the number of patients with LVEF below 50% decreased from 206 to 91. Clinically, most patients were in NYHA class I after rehabilitation, with an improvement in NT-proBNP levels and a trend toward enhanced functional capacity as assessed by the 6-minute walk test. The mean follow-up duration was 2.97 ± 1.69 years. During this period, 44 patients (8%) were hospitalized and 21 patients (4%) died, 13 of whom due to cardiovascular causes. The mean time to the first composite event was 1.94 ± 1.23 years.

Conclusions: These results highlight the importance of CR in improving both functional capacity and clinical outcomes in patients with cardiovascular disease.

PO 16. ADHERENCE TO PHASE 3 CARDIAC REHABILITATION: PREDICTORS AND OUTCOMES

Catarina Sena Silva[1], Ana Abrantes[1], Marta Vilela[1], Madalena Lemos Pires[2], Mariana Borges[2], Gonçalo Sá[2], Pedro Alves da Silva[1], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto J. Pinto[1], Ana Abreu[1], Rita Pinto[2]

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Introduction: Cardiac rehabilitation (CR) plays a vital role in enhancing recovery and long-term outcomes for patients following cardiovascular events. Adherence to CR programs often varies, which may influence their effectiveness, making it crucial to identify factors that predict adherence and improve outcomes.

Objectives: To evaluate predictors of adherence to phase 3 CR and the impact of adherence on clinical outcomes.

Methods: Retrospective observational single-center study including patients enrolled in a phase 3 CR program between 2016 and 2024. We analyzed social characteristics, cardiovascular risk factors, clinical indications for referral and data from lab tests, transthoracic echocardiography and cardiopulmonary exercise testing. Adherence to the program was established based on whether patients were still in the program at the time of data collection (2024). Clinical outcomes were measured using a composite of all-cause mortality, cardiovascular hospitalizations and urgent care visits.

Results: A total of 284 patients (78% male, 61.2 ± 11.1 years) completed a phase 3 CR program. Common comorbidities included hypertension (50%), dyslipidemia (46%), diabetes (18%), active smoking (9%), atrial fibrillation (7%) and prior stroke (5%). Most of referrals were due to ischemic cardiomyopathy (84%). Regarding social and demographic factors, 60% of patients had attended college, with 32% holding at least a master's degree. A substantial portion of the cohort were employed (47%), while 39% were retired and 4% were unemployed. Most patients lived close to the phase 3 CR facility, with 62% reporting a travel time of less than 30 minutes. Additionally, 69% of patients were married. At the time of data collection, 68% of patients remained active in the phase 3 CR program, while 32% had dropped out. The primary reasons for dropout were incompatibility with work schedules (8%), significant changes in health status (7%) and the COVID-19 pandemic (7%). No statistically significant correlation was found between social and demographic factors (such as education level, profession, or distance from home to the rehabilitation facility) and dropout rates, except for marital status. Adherence was significantly higher in patients who were married compared to those who were single or widowed (p = 0.028). During a mean follow-up of 3.4 ± 2.4 years, there were 4 deaths, 13 cardiovascular-related hospitalizations and 34 urgent cardiovascular visits. A statistically significant association was found between dropout and adverse events (p = 0.028), with a trend toward better outcomes for patients who remained active in the program (p = 0.2).

Conclusions: Our findings reveal no clear association between sociodemographic factors and adherence to phase 3 CR. However, there was

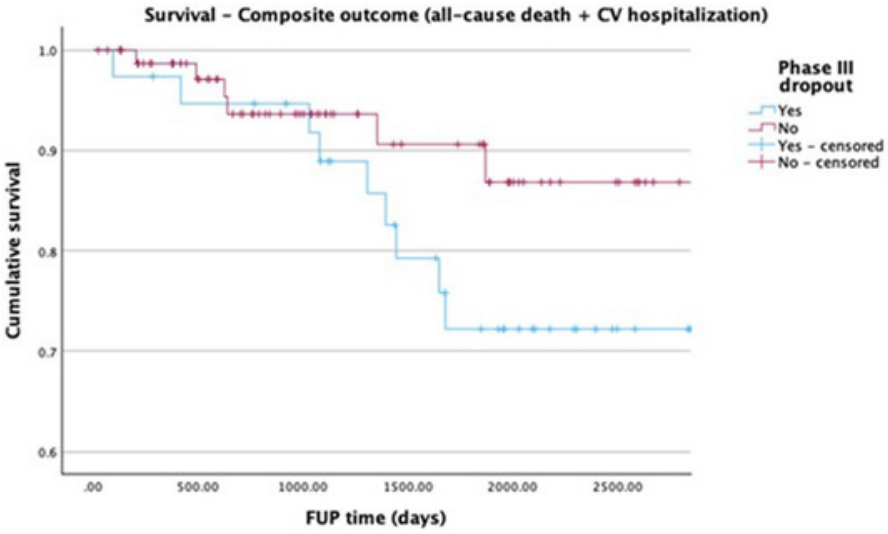


Figure PO 16

an association between adherence and improved clinical outcomes. Therefore, it is essential to promote adherence for all patients.

PO 17. ROLE OF PHASE 3 CARDIAC REHABILITATION IN IMPROVING CARDIORESPIRATORY FITNESS

Catarina Sena Silva[1], Miguel Azeredo Raposo[1], João Cravo[1], Madalena Lemos Pires[2], Mariana Borges[2], Gonçalo Sá[2], Pedro Alves da Silva[1], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto J. Pinto[1], Ana Abreu[1], Rita Pinto[2]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Centro Cardiovascular da Universidade de Lisboa (CCUL@RISE), CAML, Faculdade de Medicina, Universidade de Lisboa.

Introduction: The cardiopulmonary exercise test (CPET) is nowadays considered the gold standard method to evaluate patients' cardiorespiratory fitness. It is an integral part of a structured cardiac rehabilitation (CR) phase 3 program, allowing tailored exercise training prescription for each patient. However, more studies are needed to better quantify CPET parameters improvements in long-term exercise-based CR programs.
Objectives: To compare CPET parameters and subsequent cardiorespiratory fitness gains in patients enrolled in a structured exercise-based phase 3 CR program at baseline and at 1 year follow-up.
Methods: Single center prospective cohort study of patients enrolled an exercise-based phase 3 CR program (2 or 3 times per week, 60 min/session, aerobic and strength training) between 2016 and 2024. CPET were performed in symptom limited ramp protocol 10-20W/min in a cycle-ergometer at baseline and at 1 year follow-up. Parametric and non-parametric tests were performed as appropriate.
Results: We included 284 patients, 78% males, 61 ± 11 years, where 82% of patients participated 3 times per week in the CR program and 188 patients (67%) completed a previous phase 2 CR program. Regarding CPET parameters, our data shows that at 1 year follow-up there was a substantial improvement in CPET parameters such as: maximum load (149 ± 50 vs. 165 ± 59 W, $p < 0.001$), VO2 at first ventilatory threshold (14.7 ± 3.8 vs. 16.3 ± 4.7 mL/kg/min, $p < 0.001$), VO2 peak (22.6 ± 6.6 vs. 24.3 ± 7.4 mL/kg/min, $p < 0.001$), percentage of predicted VO2 peak (98 ± 19 vs. 105 ± 21%, $p < 0.001$), peak PETCO2 (34 ± 4.4 vs. 35 ± 4.9 mmHg, $p < 0.001$). Finally, a Wilcoxon test indicated a statistically significant reduction in VE/VCO2 slope at follow-up ($Z = -2.3$, $p = 0.022$). This improvement was consistent in the older population (above 70 years old) and in patients who did not complete a previous phase 2 program.
Conclusions: Our results showed an improvement in CPET parameters and cardiorespiratory fitness at 1 year follow-up highlighting the importance to participate in a long-term phase 3 CR program.

PO 18. CARDIAC REHABILITATION PHASE 3 – WHO ARE THEY?

Rodrigo Afonso[1], Miguel Azaredo Raposo[1], Catarina Gregório[1], Madalena Lemos Pires[2], Mariana Borges[2], Gonçalo Sá[2], Pedro Alves da Silva[1], Nelson Cunha[1], Inês Aguiar-Ricardo[1], Fausto J. Pinto[1], Rita Pinto[2], Ana Abreu[1]

[1]Department of Cardiology, Centro Hospitalar Universitário Lisboa Norte, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Centro Cardiovascular da Universidade de Lisboa (CCUL@RISE), CAML, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Cardiac Rehabilitation (CR) Phase 3 acts as an extension to Phase 2, encompassing a very heterogeneous patient population with structured exercise, nutrition counselling and educational sessions and an already established benefit in health outcomes among patients with cardiovascular diseases.
Objectives: To characterize the patient population enrolled in a structured phase 3 CR program.
Methods: Single centre prospective cohort study of patients enrolled in a phase 3 CR program between 2016 and 2024. We analysed the demographic and social characteristics, risk factors, clinical indications for referral and baseline echocardiogram data. A composite outcome of all-cause deaths, cardiovascular (CV) hospitalizations and urgent visits was analysed.
Results: We included 284 patients, 78% male, 61 ± 11 years. Mean follow-up time was 3.4 ± 2.4 years. Concerning social and demographic characteristics: 69% of patients were married, 47% were employed in a full-time job and 39% were already retired. Only 4% were unemployed. At least 60% of our patients had attended college, of which 32% had at least a master's degree. The majority of patients lived nearby the phase 3 CR facility with up to 62% of patients reporting a travel duration from their home to the facility inferior to 30 minutes. Most of the patients (53%) reported previous physical activity experience from recreational to competitive sports. About 67% of our population transitioned from phase 2. The number of sessions per week varied from 2 to 3, with 82% of patients participating in phase 3 activities 3 times per week. At the time of data collection, we reported high levels of adherence to the program with 64% of the total patients enrolled still being active in phase 3 CR activities. The two main reasons for dropout were: incompatibility with work schedule (8%); change in health status (7%) and the COVID-19 pandemic (7%). Regarding risk factors, 18% of patients had diabetes, 9% were active smokers, 50% had hypertension, 46% had dyslipidemia, 7% had atrial fibrillation, 5% had a history of stroke. The main

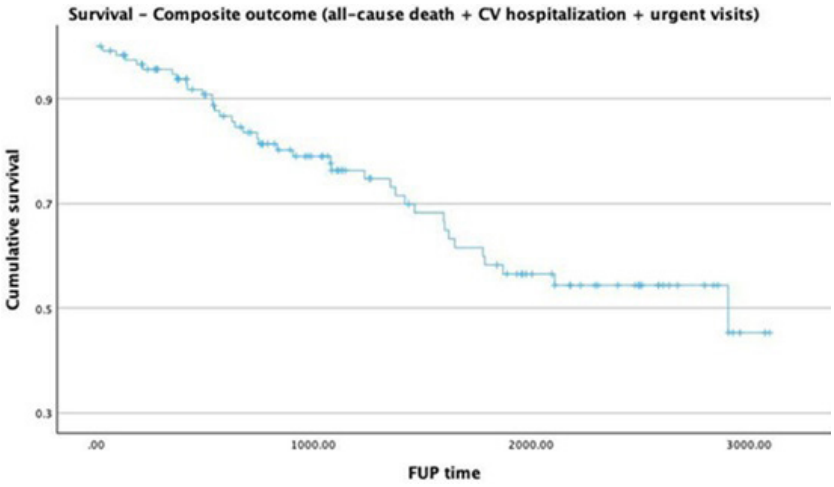


Figure PO 18

clinical indication for referral was ischemic cardiomyopathy (84% of patients). Echocardiogram data were as followed: Left ventricular ejection fraction (54 ± 13%) and TAPSE (21 ± 5 mm). Finally, there were a total of 4 deaths, 13 hospitalizations due to CV causes and 34 urgent visits to the emergency department due to CV causes throughout follow-up. The mean time to a first composite event was 2.7 ± 1.8 years.

Conclusions: Our data encompasses a wide range of patient population characteristics enrolled in a phase 3 CR program. Characterizing this population is crucial for tailoring interventions, enhancing adherence, and optimizing outcomes. Personalized approaches and strict risk factor control remain essential to minimize adverse events and promote sustained cardiovascular health.

Sexta-feira, 11 Abril de 2025 | 08:00-09:00

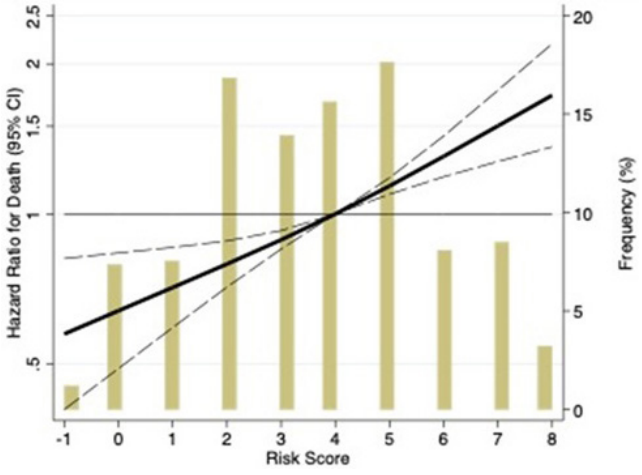
Área de Posters-écran 4 | Sessão de Posters 04 – Amiloidose e aorta

PO 19. ASSOCIATION OF AN ATTR CARDIOMYOPATHY RISK SCORE WITH CARDIAC AND KIDNEY OUTCOMES AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE – INSIGHTS FROM CRIC

Catarina Vale[1], Muthiah Vaduganathan[2], Brendon L. Neuen[3], João S. Neves[1], Scott D. Solomon[2], Finnian R. Mc Causland[4]

[1]Centro Hospitalar Universitário de S. João, EPE. [2]Cardiovascular Division, Brigham and Women's Hospital, Boston, MA, USA and Harvard Medical School, Boston, MA, USA. [3]The George Institute for Global Health, University of New South Wales, Sydney, Australia and Department of Renal Medicine, Royal North Shore Hospital, Sydney, Australia. [4]Harvard Medical School, Boston, MA, USA and Renal Division, Department of Medicine, Brigham and Women's Hospital, Boston, MA, USA.

Transthyretin amyloid cardiomyopathy (ATTR-CM) is thought to be an underdiagnosed cause of heart failure, especially among those with HF with preserved ejection fraction (HFpEF). A clinical risk-score to predict ATTR-CM has been validated among patients with HFpEF, but its utility among patients with chronic kidney disease is unclear. We applied a 6-variable risk score (age, sex, hypertension, ejection fraction, relative wall thickness, posterior wall thickness; range -1 to +10) to participants of the Chronic Renal Insufficiency Cohort with available 1-year echocardiographic data (n = 2.718) and calculated the prevalence of a high-risk score (6 points). Using Cox regression models, landmarked at 1-year, we explored the adjusted association of a high vs. low-risk score with development of atrial fibrillation (AF), HF, stroke, myocardial infarction (MI), a kidney composite (kidney failure, ≥ 50% decline in estimated glomerular filtration rate (eGFR), eGFR15 mL/min/1.73 m^2), and all-cause mortality. The median score was 4 [2, 5]; 539 (19.8%) had a high-risk score for ATTR-CM, which was associated with a higher adjusted risk of AF (hazard ratio [HR] 1.87, 95% confidence interval [CI] 1.48, 2.35), HF (HR 1.63, 95%CI 1.27, 2.08), MI (HR 1.82, 95%CI 1.33, 2.49) and all-cause mortality (HR 1.60, 95%CI 1.37, 1.87). There was a trend towards a higher risk of stroke with high (vs low) risk score (HR 1.47, 95%CI 0.94, 2.29) but no association with kidney composite (HR 1.01, 95%CI 0.82, 1.23). Using a restricted cubic spline, a monotonic association of higher risk score with all-cause mortality was evident (Figure 1). 1 in 5 individuals with CKD in CRIC appear to have a high predicted risk for ATTR-CM. A high-risk score was prognostic for adverse cardiac outcomes and death, but not for a kidney composite outcome. Future studies to examine the true prevalence and to determine the optimal screening pathways for ATTR-CM among patients with CKD are warranted.



PO 20. FUNCTIONAL CAPACITY ASSESSMENT FOR TAFAMIDIS TREATMENT IN CARDIAC AMYLOIDOSIS PATIENTS

Bruno Delgado, Célia Neto, Ana Pereira

Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António.

Introduction: Cardiac amyloidosis is a disease characterized by abnormal deposition of amyloid proteins in the myocardium, causing progressive

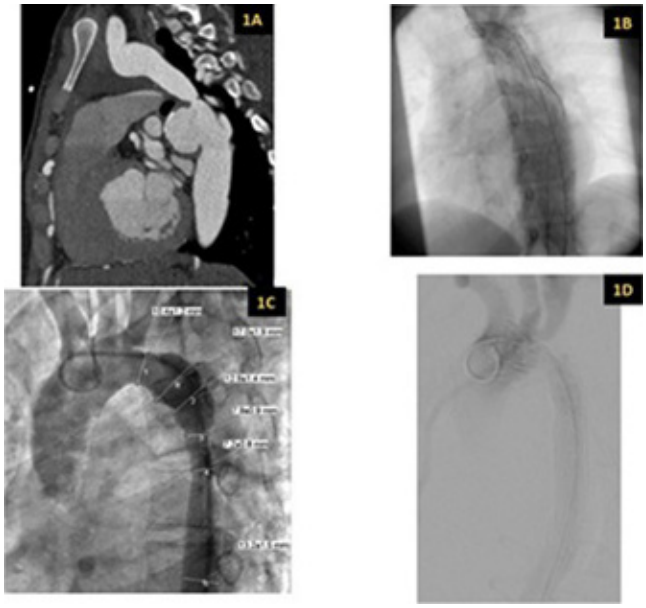
cardiac dysfunction. This deposition of amyloid substance can lead to symptoms such as dyspnea, activity intolerance, oedema and dysrhythmias. There are different types of cardiac amyloidosis, depending on the type of amyloid protein involved. The two most common types are transthyretin-associated cardiac amyloidosis (ATTR) and light chain-associated cardiac amyloidosis (LDA). Tafamidis is a drug that has been used in the treatment of cardiac amyloidosis, being a stabilizer of amyloid transthyretin (TTR), allowing to reduce the formation of amyloid substance and the progression of the disease. The six-minute walk test is a test used to assess the functional capacity of patients with cardiac amyloidosis before starting to take tafamidis and as a follow-up test to assess the functional evolution of the patient under pharmacological treatment. This test can provide information about exercise tolerance and disease progression over time.
Objectives: To evaluate functional capacity of cardiac amyloidosis patients before starting tafamidis treatment alongside with home-based cardiac rehabilitation program.
Methods: The prescription of tafamidis requires an extensive evaluation of several parameters, being one of those the functional capacity of the patient. In this study the functional capacity was assessed by the 6-minute walking test, according to the ATS guidelines. Patients were consecutively recruited for treatment and prior to this, a 6-minute walking teste was performed. After starting the medication and according to the functional capacity, a home-based cardiac rehabilitation program was also recommended. At one year, a follow-up will be performed.
Results: A total of 28 patients were evaluated, being 2 females. The mean age was 78 years old and 52% of the patients presented a reduction of left ventricular ejection fraction, being the mean score of ejection fraction 42%. Patients walked a mean distance of 362 meters at the six-minute walking test. The cut off distance to be selected for medication is 100 meters, and all of the patients walked more than that. Regarding the pro-BNP values, patients presented a mean value of 2,635. To all of them a home-based cardiac rehabilitation program was prescribed.
Conclusions: All the selected patients were elected for treatment. At one year follow up another functional evaluation will be performed, and several contacts will be done in order to accompany the evolution of the patients.

PO 21. TEVAR PLUS BALLOON EXPANDABLE STENT: A NOVEL HYBRID ENDOVASCULAR APPROACH FOR COMPLEX COARCTATION OF AORTA REPAIR

Francisco Barbas de Albuquerque, Lídia de Sousa, Petra Loureiro, Gonçalo Alves, José Diogo Ferreira Martins

Hospital de Santa Marta.

Introduction: Coarctation of the aorta (CoA) is a common congenital heart defect, typically treated with balloon-expandable stents. In rare cases, it can lead to complex aortic aneurysms and dissections, presenting challenges for balloon expandable stents. While surgery has been the primary treatment for such cases, advancements in interventional cardiology offer minimally invasive options. A hybrid approach combining thoracic endovascular aortic repair (TEVAR) with conventional balloon expandable stents may serve as a viable alternative for such cases.
Objectives: To describe two clinical cases of complex CoA where a hybrid endovascular approach using simultaneous TEVAR and balloon-expandable stents was performed.
Methods: A single-center descriptive study of two consecutive patients that performed a hybrid endovascular repair of complex CoA.
Results: Patient 1. A 36-year-old male presented with severe uncontrolled hypertension. During investigation, transthoracic echocardiographic (TTE) revealed a gradient of 89 mmHg in the descending aorta. Cardiac-CT scan confirmed a critical CoA (5.2 × 5 mm least diameter) 40 mm after left subclavian artery origin. A calcified aortic aneurysm (43 × 36 mm) after CoAo was observed (Figure 1A). After Heart Team discussion, the patient was accepted for percutaneous intervention. An endovascular hybrid approach was conducted, with a Zenith Alpha Thoracic Endovascular Graft Alpha 39 × 15 mm implantation for aneurysm exclusion followed by a stent BeGraft 37 × 22 mm for CoAo correction. The final angiography showed no stenosis, endoleaks (figure 1B) or residual gradient. Patient 2. An 18-year-old female with a past medical history of CoA of percutaneous angioplasty in an outside institution was referred to our center with reCoA and a suspected aneurysm. Angiography revealed an aneurysm between the left subclavian artery and the aortic isthmus (17 mm of max diameter and 24 mm of length), a long-segment (32 mm) CoA and multiple dissected sites between the left subclavian artery and aortic isthmus (figure 1C). After Heart Team discussion, the patient was admitted to percutaneous intervention. An endovascular hybrid approach was conducted. First, a TEVAR Zenith 24 × 24 × 10 was implanted, followed by a BeGraft 16 × 18 mm stent in the long-segment stenosis. The final angiography showed no stenosis, endoleaks (figure 1D), or residual gradient.



Conclusions: We present two complex cases of CoAo where a hybrid endovascular approach was successfully conducted. This technique adds the benefit of self-expanding stents which exclude the aneurysm and high-radial strength balloon expandable stents which treat the stenosis. No complications were reported. These cases highlight a novel, minimally invasive technique to be implemented in these challenging clinical scenarios.

PO 22. CHARACTERISATION OF PRE-INTERVENTION OUTCOMES IN VERY OLD PATIENTS WITH SEVERE AORTIC STENOSIS

Adriana Vazão, Mónica Amado, Carolina Gonçalves, André Martins, Joana Pereira, Mariana Carvalho, Margarida Cabral, João Carvalho, Luís Graça Santos, Hélia Martins

ULSR Leiria.

Introduction: Severe aortic stenosis (SAS) prevalence is increasing due to population aging and transcatheter aortic valve implantation (TAVI) is the preferred treatment option in older patients (pts).
Objectives: To characterize pre-intervention outcomes in very old pts (aged > 85 years) with SAS awaiting TAVI.
Methods: Retrospective cohort study of SAS pts who consecutively underwent pre-TAVI cardiac computed tomography (CCT) protocol (June 2022 -September 2024). Demographic data, clinical characteristics, transthoracic echocardiography (TTE), coronary angiography (CAG) and CCT parameters were collected. Pts were followed from the date of the CCT until aortic valve replacement (AVR), death, or December 1, 2024, whichever occurred first (median follow-up: 8 months). Our pre-intervention endpoint was a composite of cardiovascular (CV) hospitalization, including due to heart failure (HF), all-cause mortality, and major adverse cardiovascular events (MACE), consisting of CV mortality, non-fatal acute myocardial infarction (AMI) and stroke. Pts aged ≥ 85 years (group 1) were compared to those aged < 85 years (group 2).

	Total (n=189)	Group 1 (n= 52)	Group 2 (n=137)	p-value
Male sex (%)	98 (52)	29 (56)	69 (50)	0,507 (a)
Past medical history				
Overweight/Obesity (%)	138 (73)	39 (75)	99 (72)	0,705 (a)
Body mass index (kg/m2) – mean ± SD	**28 ± 5**	**27 ± 4**	**29 ± 5**	**0,038 (c)**
Diabetes Mellitus (%)	**73 (39)**	**13 (25)**	**60 (44)**	**0,018 (a)**
Dyslipidemia (%)	136 (72)	36 (69)	100 (73)	0,607 (a)
Hypertension (%)	155 (82)	41 (79)	114 (83)	0,485 (a)
History of smoking (%)	22 (12)	5 (10)	17 (12)	0,593 (a)
Atrial Fibrillation/Atrial Flutter (%)	57 (30)	18 (35)	39 (29)	0,411 (a)
History of cancer (%)	20 (11)	6 (12)	14 (10)	0,792 (a)
Chronic kidney disease (CKD) (%)	19 (10)	6 (12)	13 (10)	0,676 (a)
Symptoms				
Heart failure (%)	140 (74)	36 (72)	104 (77)	0,531 (a)
New York Heart Association class III-IV (%)	**50 (27)**	**6 (12)**	**44 (33)**	**0,005 (a)**
Fatigue (%)	157 (83)	42 (84)	115 (85)	0,842 (a)
Exertional angina (%)	27 (14)	10 (20)	17 (13)	0,205 (a)
Syncope (%)	20 (11)	5 (10)	15 (11)	0,829 (a)
Cardiac Computed Tomography parameters				
Left ventricular Ejection Fraction (%) – mean ± SD	**63±11**	**66±10**	**61±11**	**0,033 (c)**
Mitral annulus calcification (%)	**28 (15)**	**12 (23)**	**16 (12)**	**0,049 (a)**
Pre-intervention outcomes (%) – N= 182	47 (25,8)	17 (35,4)	30 (22,4)	0,125 (a)
Cardiovascular hospitalization (%)	35 (19)	11 (21)	24 (18)	0,566 (a)
Heart failure hospitalization (%)	21 (11)	8 (15)	13 (10)	0,249 (a)
Major adverse cardiovascular events (MACE) (%)	9 (5)	2 (4)	7 (5)	1,000 (b)
Non-fatal AMI (%)	1 (0,5)	-	1 (1)	-
Non-fatal Stroke (%)	4 (2)	-	4 (3)	-
CV mortality (%)	8 (4)	4 (8)	4 (3)	0,219 (b)
All-cause mortality (%)	20 (11)	9 (17)	11 (8)	0,064 (a)

Fig. 1 – Baseline characteristics and pre-intervention outcomes (a – chi-square test; b- Fisher's exact test; c- T-student test)

Figure PO 22

Results: A total of 189 pts underwent pre-TAVI CCT (98 males [52%]; mean age 81 ± 5 years). Of these, 52 pts (28%) were aged ≥ 85 years (Group 1). Group 1 had a lower body mass index (27 ± 4 vs. 29 ± 5 kg/m^2, p = 0.038) and less frequent diabetes (25 vs 44%, p = 0.018) but more frequent pacemaker implantation (23 vs7%, p = 0.001). CCT parameters were similar, except for a higher estimated left ventricular ejection fraction (LVEF) in Group 1 (66 ± 10 vs. 61 ± 11%, p = 0.033) and greater prevalence of mitral annulus calcification (23 vs. 12%, p = 0.049). Group 1 had less severe clinical presentation, including fewer New York Heart Association (NYHA) Class III-IV symptoms (12 vs. 33%, p = 0.005). CAG revealed less frequent multivessel coronary artery disease (CAD) in Group 1 (25 vs. 58%, p = 0.042) among pts with obstructive CAD. Overall, regarding treatment status, 7 pts were deemed unfit/declined TAVI, 16 had not completed pre-TAVI study, 9 were awaiting decision, 75 were awaiting intervention (69 for TAVI, 6 for surgical AVR [SAVR]), and 79 had undergone the treatment (74 TAVI, 5 SAVR). The median time from CCT to intervention was 9 [4-14] months. Pre-intervention outcomes were CV hospitalization (n = 35), HF hospitalization (n = 21), MACE [n = 9, including non-fatal strokes (n = 4) and AMIs (n = 1)], and all-cause mortality (n = 20, including 8 CV-related deaths [40%]). No significant differences were observed in pre-intervention outcomes between the groups, however with a non-significant trend to higher all-cause mortality in group 1 (Figure 1).
Conclusions: In our study, although very old pts awaiting TAVI presented less severe clinical presentation, lower diabetes prevalence, comparable pre-intervention hospitalization rates and CV events, a trend towards higher all-cause mortality was observed.

PO 23. AORTIC VALVE REPLACEMENT IN OCTOGENARIANS: IMPACT ON AGE-EXPECTED SURVIVAL

Rui Cerqueira[1], Francisca Saraiva[1], Cândida Gonçalves[1], Lívia Torres[1], Inês Sousa[1], Sílvia Diaz[1], Mário Jorge Amorim[2], Paulo Pinho[2], António Barros[1], André Lourenço[1], Adelino Leite-Moreira[1]

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Introduction: Despite the growing use of transcatheter aortic valve implantation, the steady increase in life expectancy also makes the surgical aortic valve replacement (AVR) an increasingly used procedure.

Objectives: To compare the survival of octogenarian patients undergoing isolated AVR with sex, race and aged-matched general population. Also to describe the need for reoperation and short-term hemodynamic data with Trifecta bioprosthesis in a single-center Tertiary Hospital.
Methods: This is a longitudinal, retrospective, single-center study, including a consecutive sample of patients aged over 80 years who underwent isolated AVR surgery with Trifecta bioprosthesis, between 2011 and 2019. The primary outcome was long-term all-causes mortality (collected from the National Registry in December 2022). Hospital mortality was defined as death during hospitalization or up to 30 days after surgery. The survival curve in the octogenarian cohort (observed) was compared with the curve in the general population (expected), the latter collected from National Life tables from the National Institute of Statistics, specifically for the study's follow-up period (2011-2022). The software provided by the Massachusetts General Hospital Biostatistics Center and the R package "OneSampleLogRankTest" were used to compare the curves and apply the Log-Rank test and standardized mortality rate (matched for sex and age). The mean follow-up time was 4.5 years, and the maximum time was 10.2 years. Hemodynamic data were collected from the 1st transthoracic echocardiogram performed at a mean of 4 months postoperatively.
Results: We included 163 octogenarian patients (mean age 82, maximum 89 years). The median European System for Cardiac Operative Risk Evaluation (EuroSCORE) II was 2.36 (minimum: 0.98% and maximum: 13.16%). Most patients were female (67%), and the main pathology was aortic stenosis (87%). One-third of the patients had NYHA III-IV classification. Hospital mortality was 6%. After excluding these patients, the survival rate of the cohort undergoing AVR vs. expected in the population at 1st, 3rd, 5th, and 10th years were 93.5 vs. 93.7%, 86.3 vs. 79.5%, 67.8 vs. 63.4%, and 24.8 vs. 25.3%, respectively. The standardized mortality rate (0.92) revealed no significant differences between the observed and expected (confidence interval: 0.70-1.21, p = 0.49). Only one patient underwent a transcatheter valve-in-valve procedure due to structural valve deterioration at 4 years of follow-up. In the follow-up echocardiogram, the mean aortic valve gradient was 11 ± 4 mmHg, and the functional area was 2.0 ± 0.4 cm^2.
Conclusions: In a clinical scenario of our service, AVR surgery proved to be effective in the octogenarian cohort, as it was close to that expected in the national population. The study also reinforced the good hemodynamic profile of the prosthesis analyzed in this sample.

PO 24. TRANSFORMING MULTIMODAL STETHOSCOPE SIGNAL QUALITY: THE ROLE OF OPERATOR TRAINING AND FEEDBACK IN ECG AND PCG CLARITY

André Lobo[1], Marta Catarina Almeida[1], Cátia Costa[1], Cristina Oliveira[1], Daniel Proaño-Guevara[2], Hugo Silva[3], Francesco Renna[4], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]INESC TEC. [3]Instituto de Telecomunicações. [4]INESC TEC; Faculdade de Ciências da Universidade do Porto.

Introduction: The acquisition of high-quality multimodal auscultation signals, including electrocardiography (ECG) and phonocardiography (PCG), has emerged as a promising tool for cardiovascular disease (CVD) screening, especially when combined with artificial intelligence automatic analysis. Capturing high-quality signals reliably is critical for its application in clinical practice. However, the quality of signal acquisition depends heavily on operator proficiency. Differences in experience and training significantly affect the clarity of key cardiac landmarks, such as the QRS complex and T-wave (ECG) and the S1 and S2 sounds (PCG), which must be distinguished from background noise. This study evaluates the feasibility of achieving adequate signal quality using a multimodal stethoscope and investigates whether targeted training and feedback can enhance operators' performance.
Methods: This study evaluated ECG and PCG acquisitions using Rijuven's Cardiosleeve, a device capable of recording ECG and PCG simultaneously. PCG acquisition was the primary focus, with ECG recorded opportunistically. Acquisitions were grouped by operator experience and training level: Group 1 (acquisitions 1-50) included experienced operators blinded to signal quality; Group 2 (acquisitions 51-144) comprised inexperienced operators without feedback on signal quality; and Group 3 (acquisitions 145-190) consisted of operators who received a small amount of specialized training and regular feedback. An external reviewer scored each acquisition on a 0-5 scale, assessing the presence and clarity of key cardiac landmarks relative to background noise. For ECG, the QRS complex and T-wave were evaluated, while for PCG, the S1 and S2 sounds were analyzed. Scores of 3 or higher indicated the presence of key landmarks, albeit with varying noise.
Results: Group 1 achieved moderate signal quality (ECG Score: mean = 1.73, SD = 1.39; PCG Score: mean = 2.53, SD = 1.65), performing better than Group 2 (ECG Score: mean = 0.59, SD = 0.87; PCG Score: mean = 1.04, SD = 1.49), where most ECG signals were unusable. Group 3, with a small amount of training and feedback, achieved the highest signal quality (ECG Score: mean = 3.02, SD = 1.66; PCG Score: mean = 2.78, SD = 1.50), significantly outperforming the other groups.
Conclusions: While multimodal auscultation has potential, achieving good clarity of key cardiac landmarks remains challenging. Even experienced operators often faced difficulties due to noise, highlighting the complexity of signal acquisition. However, notable improvements observed with minimal training and feedback demonstrate the feasibility of improving signal quality with targeted interventions. Enhanced training programs and robust feedback systems could make this technology a reliable tool in clinical practice.

Sexta-feira, 11 Abril de 2025 | 09:00-10:30

Área de Posters-écran 1| Sessão de Posters 05 – TAVI 1

PO 25. OUTCOMES WITH PLUG-BASED VERSUS SUTURE-BASED VASCULAR CLOSURE DEVICE AFTER TRANSFEMORAL TRANSCATHETER AORTIC VALVE REPLACEMENT: A META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS

Capela Pascoal[1], Ocílio Gonçalves[2], Hilária Faria[3], Barbara Masiero[4], Mohamed Doma[5], Antonino Francisco[1], Giovana Faria[6], Lucas Bendaham[7], Lorena Bahia[8], Mauer Gonçalves[1], Shirley Enríquez[9]

[1]Faculdade de Medicina da Universidade Agostinho Neto. [2]Universidade Federal de Piauí. [3]Universidade Federal de Santa Maria. [4]Pontifícia Universidade Católica do Rio Grande do Sul. [5]Faculdade de Medicina de Alexandria. [6]Faculdade de Medicina Barão de Mauá. [7]Federal University of Roraima. [8]Afya Faculdade de Ciências Médicas de Itabuna. [9]Hospital de Especialidades Santa Margarita.

Introduction: Mixed results have been obtained in studies comparing plug-based (MANTA) with suture-based (ProStar XL and ProGlide) vascular closure

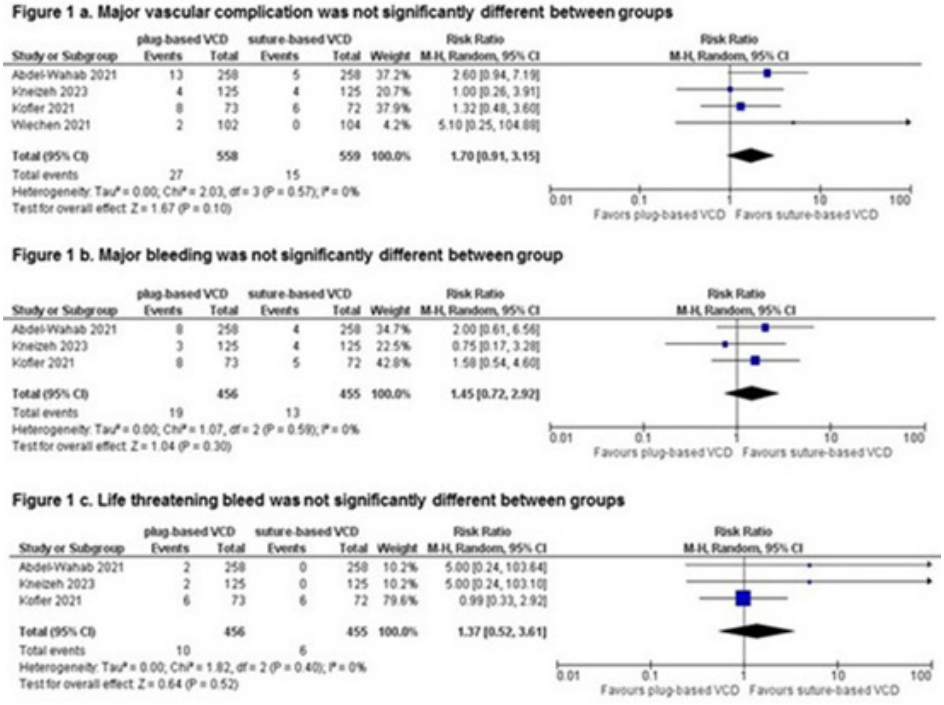

Figure PO 25

devices (VCDs) for closing large-caliber access after transcatheter aortic valve replacement (TAVR). Question: Are plug-based vascular closure devices superior to suture-based devices in terms of adverse cardiovascular events in patients undergoing TAVR?
Methods: PubMed, Scopus and Cochrane database were searched for randomized controlled trials that compared MANTA with ProStar XL or ProGlide for closing large-caliber access after TAVR and reported the outcomes of (1) major vascular complications; (2) minor vascular complications; (3) major or minor bleeding; and (4) life threatening bleed. Heterogeneity was examined with I^2 statistics. A random-effects model was used for outcomes with high heterogeneity.
Results: We included 4 RCTs with 717 patients, of whom 358 (49.9%) underwent MANTA. Major vascular complication (RR 1.70; 95%CI 0.91 - 3.15; p = 0.10; Figure 1a), minor vascular complication (RR 1.10; 95%CI 0.63 - 1.92; p = 0.73), major bleeding (RR 0.45; 95%CI 0.72 - 2.92; p = 0.30; Figure 1b) and life threatening bleed (RR 1.37; 95%CI 0.52 - 3.61; p = 0.52; Figure 1c) was not significantly different between plug-based VDC and suture-based VDC.
Conclusions: The vascular closure devices plug-based are a safe and feasible option for vascular access closure in patients undergoing transfemoral TAVR.

PO 26. VASCULAR COMPLICATIONS AFTER MANTA VASCULAR CLOSURE DEVICE FOLLOWING TRANSCATHETER AORTIC VALVE IMPLANTATION

Tomás M. Carlos, Mafalda Griné, Diogo Fernandes, Joana Guimarães, Gonçalo Terleira Batista, Tatiana Santos, Bernardo Resende, Luísa Gomes Rocha, Luís Leite, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Vascular complications are common and serious adverse events following transcatheter aortic valve implantation (TAVI), with incidence ranging from 5% to 20%. Recent advances, such as the MANTA vascular closure device (MANTA-VCD), aim to reduce these complications. This study aimed to evaluate vascular complications associated with main arterial access after TAVI, focusing on the performance of the MANTA-VCD system.
Methods: We conducted a retrospective, single-centre study of patients who underwent TAVI between March 2020 and September 2023. Patients who did not use the MANTA-CVD system for main arterial access closure were excluded. Baseline characteristics were assessed, and the primary outcome was the incidence of vascular complications. Potential predictors were analysed using binary logistic regression.

Table 2. Predictors of primary access vascular complications following closure with MANTA system, after TAVI.

Predictors	Odds Ratio (OR)	95% Confidence Interval	*p*-value
Female gender	2.49	1.18-5.29	**0.017**
Right femoral artery access	1.05	0.38-2.87	0.930
Left femoral artery access	3.152	1.495-6.644	**0.003**
CKD under dialysis	9.74	1.56-60.83	**0.015**

CKD – chronic kidney disease; OR – odds ratio; TAVI – transcatheter aortic valve implantation. Statistically significant results are highlighted in **bold.**

Results: In our cohort of 628 patients, 604 (96.1%) used the MANTA-VCD system for arterial access closure. The mean age was 81.6 ± 6.0 years, with a balanced gender distribution. Cardiovascular risk factors were common, with 83.4% having arterial hypertension and 70.7% dyslipidaemia. The right common femoral artery was the most used access site (71.9%). Vascular complications occurred in 35 patients (5.8%), with local hematomas or bleeding requiring transfusion as the most common events. Among these, 65.7% were female, 88.6% had arterial hypertension, and 80.0% had dyslipidaemia. The right common femoral artery was the most frequently affected site (60%), although left common femoral artery showed statistically significant higher prevalence of complications (p = 0.001). Dialysis patients also had a notable prevalence among those with complications (5.7%). Binary logistic regression identified female gender (OR 2.49; CI 1.18-5.29; p = 0.017), dialytic treatment (OR 9.74; CI 1.56-60.83, p = 0.015) and left common femoral artery access (OR 5.47, CI 1.69-17.7, p = 0.005) as potential predictors of vascular complications.
Conclusions: The use of the MANTA-CVD system for main arterial access closure in TAVI was associated with a low rate of vascular complications (5.8%), aligning with previously reported outcomes and supporting its safety and efficacy. Female gender, dialysis and less commonly used primary access sites emerged as predictors of vascular complications, highlighting the importance of targeted evaluation in these subgroups.

PO 27. EARLY DISCHARGE SAFETY IN TAVI PATIENTS WITH NEW-ONSET LEFT BUNDLE BRANCH BLOCK

Rita Louro, António Almeida, Orlando Luquengo, Rafael Viana, Marta Figueiredo, Miguel Carias, Conceição Patinho, David Neves, Ângela Bento, Renato Fernandes, Gustavo Sá Mendes, Lino Patrício

Hospital Évora.

Introduction: Transcatheter Aortic Valve Implantation (TAVI) is now the first-line therapeutic approach for a growing number of patients. However, conduction system disturbances and the need for a permanent pacemaker (PPM) are well-known complications. Among these, new onset left bundle branch block (LBBB) is recognised as a harmful sign of complications during follow-up in this subgroup of patients, raising concerns among clinicians, the reason leading to delay in discharge.
Methods: Retrospective analysis of data consecutive collected prospectively, assessed TAVI patients, from a single centre, focusing on conduction complications and pacemaker implantation. Patients who died during hospitalization, those with a pre-existing PPM, and those who required a PPM during hospitalization were excluded. The aim was to compare patients with new-onset LBBB with a control group (absence of new-onset LBBB). The primary outcome was the incidence of readmission leading to PPM at 1 month and 6 months follow-up (FUP) and the secondary outcome was length of hospital stay.
Results: From a total of 300 patients undergoing TAVI, 33 patients had new-onset LBBB and 190 remaining were attributed the control group. At 1-month FUP, 1 (3.0%) patient with new-onset LBBB patients had readmission leading to PPM, comparing with 3 (1.1%) in the control group, which was not significant (p value 0.383). At 6 months FUP, was also not significant (p-value 0.159), with a total of 2 (6.1%) patients with new-onset LBBB needing PPM, and 3 (1.6%) in the control group. Patients with new-onset LBBB had a median stay of 3.00 (IQR 3) days and the control group of 3.00 (IQR 4), without significance (p-value 0.546).
Conclusions: The results of cohort results demonstrate that patient discharge was conducted safely and without delay, as the length of hospital stay was not significantly prolonged in patients with new-onset LBBB and a similar rate of readmission leading to PPM compared to the rest of the population. In summary, these findings support the feasibility of implementing early discharge protocols for TAVI patients with new-onset LBBB.

PO 28. OPTIMIZING TAVI – SHOULD PREEMPTIVE PACING BE CONSIDERED IN ADVANCED CONDUCTION DISEASE?

Rita Barbosa Sousa, Afonso Félix de Oliveira, Joana Certo Pereira, Samuel Azevedo, Márcia Presume, André Garcia, Rui Gomes, João Brito, Pedro Gonçalves, Rui Campante Teles, Manuel Almeida

Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Permanent pacemaker implantation (PPM) is the most common complication of transcatheter aortic valve replacement (TAVI), often leading to prolonged hospitalization. While preemptive PPM before TAVI is not currently recommended as a routine in patients with advanced conduction disease, this procedure has been rarely employed in selected high-risk cases. In order to understand the potential advantages of

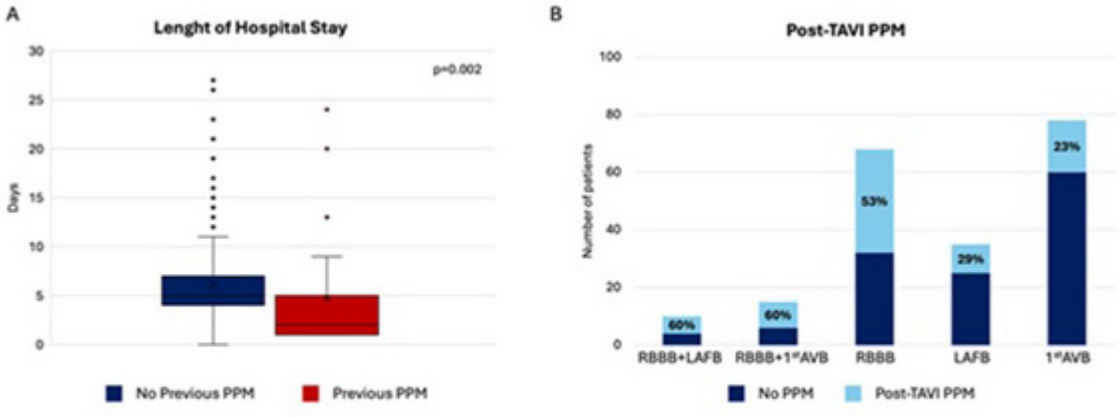

Figure 1 – (A) Hospitalization duration is longer in patients without previous pacemaker implantation (5.0 [4.0–7.0] days vs. 2.0 [1.0–5.0] days, p=0.002). **(B)** Percentage of patients requiring PPM after TAVI based on pre-existing electrophysiological alterations. AVB, atrioventricular block; LAFB, left anterior fascicular block; PPM, permanent pacemaker implantation; RBBB, right bundle branch block; TAVI, transcatheter aortic valve replacement.

Figure PO 28

preemptive PPM, we have compared the in-hospital outcomes of patients undergoing TAVI with and without PPM.

Methods: This single-center retrospective study included patients undergoing elective TAVI between January 2022 and October 2024. We analyzed pre- and post-procedural electrophysiological alterations and clinical complications, including cases of prophylactic PPM, as well as length of hospitalisation.

Results: A total of 515 patients were included, with a median age of 83.0 (IQR 79.0-87.0) years, 53.0% (n = 273) male. Self-expandable valves were implanted in 74.0% (n = 381) and PPM was present before the TAVI procedure in 11.3% (n = 58). Patients without prior PPM (n = 457) experienced longer hospital stays (5.0 [4.0-7.0] days vs. 2.0 [1.0-5.0] days, p = 0.002), primarily due to electrophysiological complications, which were observed in 193 (42.2%) patients and lead to the implantation of PPM in 94 (20.6%). Most common electrophysiological complications were prolonged complete atrioventricular block (AVB) (n = 63, 13.8%), new onset left bundle branch block (n = 50, 10.9%) and intermittent AVB (n = 15, 3.3%). Urgent PPM complications included cardiac tamponade (n = 1, 0.2%), infection (n = 1, 0.2%), and hematoma (n = 1, 0.2%). There were no significant differences in infection rates (3.5 vs. 8.6%, p = 0.063), although numerically higher in the previous PPM group. There were also no differences in stroke or transient ischemic attack (2.8 vs. 3.4%, p = 0.797), vascular access complications (12.5 vs. 10.3%, p = 0.641) or in-hospital mortality (1.1 vs. 0.0%, p = 0.423). Among patients with pre-existing right bundle branch block (RBBB) (n = 68), 52.9% (n = 36) required PPM, with risk increasing in the presence of additional predictors such as left anterior fascicular block (LAFB) (60.0%, n = 6) or first-degree AVB (60%, n = 9). Five patients received preemptive PPM, primarily due to RBBB with LAFB (n = 4, 80%), with or without first-degree AVB.

Conclusions: Conduction disturbances post-TAVI are associated with significantly prolonged hospitalization compared to patients with previous PPM. Long-term follow-up was not available but adverse events have also been described in the literature. Preemptive PPM may have a role in selected high-risk patients undergoing TAVI.

PO 29. INITIAL EXPERIENCE WITH EVOLUT FX: HOW DOES IT MEASURE UP?

Catarina Gregório, Miguel Raposo, Ana Abrantes, Marta Vilela, Diogo Ferreira, João Cravo, Miguel Nobre Menezes, João Silva Marques, Claúdia Jorge, Pedro Carrilho Ferreira, Fausto J. Pinto, Pedro Cardoso

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: The Evolut FX system represents the latest generation of self-expandable aortic valves (SEV). Evidence on real-world results is still building.

Objectives: To describe the initial experience with the latest generation of Evolut self-expandable aortic valves and compare it to the previous generation (Evolut Pro +) regarding intra-hospital outcomes.

Methods: We compared results from the first 50 pts submitted to TAVI with Evolut FX (EFX) devices with the last 50 pts receiving an Evolut Pro + (EPP) valve in a single centre, from 2023 to 2024. Clinical, and echocardiographic data were collected and analyzed. For statistical analysis independent sample T tests, Mann-Whitney and Chi-square tests were applied.

Fig 1. Evolut FX vs Evolut Pro +

Baseline characteristics	FX (n=50)	Pro + (n= 50)	p value
Age - median (IQR)	83.6(8)	80.7(11)	NS
BMI - mean±SD	26.2±4.7	27.5±5.9	NS
Females - %	54%	58%	NS
Hypertension - %	49%	45%	NS
Atrial fibrillation - %	24%	30%	NS
Diabetes mellitus (insulin dependent) - %	38%	36%	NS
CKD - %	34%	20%	NS
LVEF % - median (IQR)	58.8(8)	57.5(15)	NS
EuroSCORE 2 - median (IQR)	3.1(1.8)	3+(1.5)	NS
Baseline PQ interval ms - median (IQR)	180(38)	177(38)	NS
Baseline QRS interval ms - median (IQR)	95.5(36)	94(16)	NS
Complete left bundle branch block - %	16%	12%	NS
Complete right bundle branch block - %	2%	8%	NS

Discharge TTEcho	FX (n=50)	Pro + (n= 50)	p value
Maximum AV gradient - mean±SD	16.6(11)	19(11)	NS
Mean AV gradient - mean±SD	8.2(3.5)	9.2(4.6)	NS
Doppler velocity index - mean±SD	0.67(0.16)	0.65(0.11)	NS

Outcomes	FX (n=50)	Pro + (n= 50)	p value
Death during 1st month - n	2	0	NS
Intra-hospitalar stroke - n	1	2	NS
Arterial vascular complications - n	3	3	NS
Intra-hospitalar pacemaker implantation - n	12	19	NS (0.17)

Figure PO 29

Results: From the first 50 consecutive pts treated with EFX, 54% were female with a median age of 83.6 (IQR = 8) years. Regarding the last 50 consecutive pts treated with the EPP, 58% were female, with a median age of 80.7 (IQR = 11) years. There were no significant differences between groups pertaining baseline demographics, comorbidities, electrocardiographic data (Fig 1). Comparing the EFX to EPP population: echocardiographic evaluation at discharge, maximum (16.6 vs. 19 mmHg) and mean (8.2 vs. 9.2 mmHg) transvalvular gradients and doppler velocity index (0.67 vs. 0.65) showed no significative difference. Index admission pacemaker implantation (12 vs. 19) showed no statistically significant difference. All-cause death in the first month (2 vs. 0), stroke during index admission (2 vs. 1) and incidence of arterial vascular complications (3 for both groups) were also not significatively different.
Conclusions: Our initial experience with the Evolut FX demonstrates comparable intra-hospital outcomes to its predecessor, the Evolut Pro. There seems to be a signal directing towards a lower rate of permanent pacemaker implantation, albeit not statistically significant in our small population. Larger studies are necessary to confirm these results and evaluate long-term outcomes.

PO 30. PROGNOSTIC VALUE OF QRS VARIATION FOLLOWING TAVI: A PREDICTOR OF LEFT VENTRICULAR DYSFUNCTION AND MORTALITY AT 1-YEAR FOLLOW UP

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Introduction: Conduction abnormalities are common following TAVI, with post-TAVI QRS duration (QRSd) often studied as a predictor of adverse outcomes. However, the prognostic significance of QRSd variation —the change from baseline QRSd to post-TAVI QRSd— has received less attention. This study aims to evaluate the relationship between QRS variation and adverse outcomes and compares its prognostic utility with post-TAVI QRSd alone.
Methods: A single-center retrospective analysis was conducted on TAVI patients from 2015 to 2021, excluding those with prior pacemakers or with insufficient data. Primary endpoint was a composite of worsening left ventricular ejection fraction (LVEF) at 1 year (defined as a reduction of more than 10 percentage points from pre-TAVI to 1-year follow-up (FUP)) and all-cause mortality at 1year FUP.
Results: A total of 296 patients were included (mean age 80 ± 7 years). Prior to TAVI, 5.1% (n = 15) of patients had pre-existing left bundle branch block (LBBB) and 7.4% (n = 22) had pre-existing right bundle branch block (RBBB). During in-hospital stay following TAVI, 33.8% (n = 100) of patients developed new-onset LBBB, 1.4% (n = 4) developed RBBB, and 11.2% (n = 29) required pacemaker implantation. Median QRSd increased from 101 ms (IQR 27) before TAVI to 126 ms (IQR 50) immediately after the procedure, and to 114 ms (IQR 49) at discharge, with a mean inicial QRSd increase of 19 ± 26 ms and 18 ± 26 ms at discharge. One year after TAVI, patients with new-onset sustained rhythm disturbances had a significantly lower mean LVEF (50.0%, IQR 14.8) compared to those without rhythm disturbances (58.0%, IQR 8.0; p < 0.001). In the univariate analysis for the primary endpoint, QRSd variation at discharge demonstrated the highest predictive value (Wald 11.383, p = 0.001), followed by new onset persistent LBBB at 1-year FUP (Wald 9.141, p = 0.002) and QRSd variation immediately after TAVI (Wald 6.609, p = 0.010). QRSd immediately after TAVI or at discharge did not show statistical significance as predictors of the primary outcome (p = 0.188 and p = 0.062, respectively), as presented in Table 1. QRSd variation at discharge was the only independent predictor of the composite endpoint of worsening LVEF and all-cause mortality at 1-year follow-up. Each 1-ms increase in QRSd variation was associated with a 3.8% higher odds of reaching the composite endpoint (OR 1.038, 95%CI 1.009-1.069; Wald Chi-Square = 6.520; p = 0.011).
Conclusions: This study highlights the QRSd variation may offer a dynamic assessment of risk, particularly for LVEF worsening and mortality at 1-year FUP, especially in comparison to QRSd alone. The identification of optimal QRSd variation thresholds could help enhance clinical decision-making and patient outcomes.

PO 31. CLINICAL PROFILING ON CLUSTERING TAVI PATIENTS: MULTIVARIATE ANALYSIS OF RISK FACTORS, CLINICAL PRESENTATION, AND OUTCOME ASSOCIATION

António Maria Rocha de Almeida, Rita Louro, Marta Paralta Figueiredo, Rafael Viana, Renato Fernandes, Ângela Bento, David Neves, Diogo Brás, Kisa Congo, Manuel Trinca, Álvaro Laranjeira Santos, Lino Patrício

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Introduction: Despite advances in transcatheter aortic valve implantation (TAVI), patient outcomes remain variable due to the complex interplay of multiple risk factors. Although these factors are well-established predictors, the combined effect of their interactions on clinical outcomes remains challenging to predict. This study aims to stratify TAVI patients according to clinical and risk factor variables, identify distinct risk profile clusters, and examine their association with outcomes.
Methods: A retrospective analysis of 300 patients who underwent TAVI was conducted. A two-step cluster analysis was performed to group patients based on clinical presentation and risk factors. Two clusters were identified: Cluster 1 and Cluster 2. The primary endpoint included death at 30 days,

Table 1 – Univariate and Multivariate Analysis of the primary endpoint (Composite of worsening of left ventricular ejection fraction and death at 1 year follow up after TAVI)

	Univariate Analysis			Multivariate Analysis		
	Odds ratio (95% CI)	Wald	P value	Odds ratio (95% CI)	Wald	P value
QRSd immediately after TAVI	1.006 (0.997 - 1.015)	1.734	0.188			
QRSd at discharge	1.009 (1.000 - 1.019)	3.475	0.062			
New onset LBBB after TAVI	0.512 (0.227 - 1.152)	2.621	0.105			
Persistent new onset LBBB at 1year	0.240 (0.095 - 0.605)	9.141	**0.002**	0.825 (0.230 - 2.959)	0.087	0.768
QRSd variation immediately after TAVI	1.023 (1.005 - 1.041)	6.609	**0.010**	0.987 (0.958 - 1.017)	0.710	0.399
QRSd variation at discharge	1.030 (1.013 - 1.048)	11.383	**0.001**	1.038 (1.009 - 1.069)	6.520	**0.011**

Footnote: LBBB - left bundle branch block, QRSd - QRS duration; TAVI - transaortic valve implantation

Figure PO 30

stroke, and hospital readmission within one year. Baseline characteristics, procedural variables, and outcomes were compared between clusters.
Results: Among 300 TAVI patients, Cluster 1 (n = 182) and Cluster 2 (n = 32) exhibited similar age and gender distribution, with a mean age of 82 ± 5 and 83 ± 5 years (p = 0.6) and females in 54% and 50% (p = 0.7), respectively. Comorbidities such as diabetes, chronic kidney disease, and atrial fibrillation were comparable between groups (Table 1). Yet, Cluster 1 had a higher prevalence of severe symptoms (NYHA class > 2 in 52 vs. 25%, p = 0.005), previous hospitalization for aortic stenosis (28 vs. 3%, p = 0.03), and significant mitral regurgitation (30 vs. 12%, p = 0.05). Cluster 1 also exhibited a shorter waiting period (48 [24-72] vs. 93 [47-139], p = 0.03), potentially reflecting prioritization based on disease presentation severity. Cluster 1 was associated with significantly better outcomes despite a higher symptomatic burden. Outcome analysis revealed that Cluster 2 was associated with worse outcomes, including higher 30-day and 1-year mortalities (12 vs. 2%, p < 0.001 and 29 vs. 7%, p < 0.001) and stroke (6 vs. 0.5%, p < 0.01). Hospital readmission rates were also significantly higher in Cluster 2 (16 vs. 0.5%, p < 0.001). Symptomatic burden with hospitalization may result in an earlier TAVI, as a shorter waiting time is associated with better outcomes.

	Total (n=300)	Cluster1 (n=182)	Cluster 2 (n=32)	*p-value*
Age,				
Mean, SD	82±5	82+6	83+5	p=0,6
Median, IQR	82, 8	82, 7	84,10	
Female, (%)	54%	54%	50%	p=0,7
Katz score > 4 (%)	96%	97%	94%	p=0,6
STS score				
Mean, SD	5,2±4,5	4,9±4,2	5,8±4,3	p=0,3
Median, IQR	3,8, 4,3	3,7, 3,6	4,0±5,5	
STS score high risk (>8)	17%	13%	22%	p=0,2
Euroscore	2,32, 2,4	2,2, 2	2,6, 2	p=0.5
Hospital Admission due to AS	22%	28%	3%	**p=0,03**
NYHA > 2	51%	52%	25%	**p=0,005**
Comorbidities				
HTN	86%	85%	88%	p=0,7
DM	35%	36%	41%	p=0,6
CAD	21%	16%	25%	p=0.2
COPD/OSA	11%	10%	16%	p=0,3
GFR < 30ml/kg/m2	11%	11%	16%	p=0,5
Atrial fibrillation	22%	24%	19%	p=0,5
MI	9%	9%	13%	p=0,5
PCI	14%	12%	22%	p=0,1
Stroke	8%	8%	18%	p=0,07
ECG				
1st AV Block	12%	11%	13%	p=0,8
LBBB	9%	8%	7%	p=0,8
RBBB	7%	6%	16%	**p=0,05**
TTE				
Mean gradient (mmHg)	48±14	49±13	46±15	p=0,2
AVA (cm2)	0,7±0,2	0,7±0,2	0,8±0,2	p=0,08
LVEF (%)	56±11	55±10	57±10	p=0,7
LVEF < 40%	13%	10%	10%	p=0,9
SPAP > 40mmHg	54%	64%	43%	p=0,03
Significant MR	30%	30%	12%	**p=0,05**
CCTA				
Aortic calcium score	721±88			p=0,3
Min femoral diameter (mm)	7,3, 1,8	7,0, 1,9	7,3, 1,6	p=0,3
Laboratory findings				
Hemoglobin	12,2±1,9	12,3±1,8	12,1±2,2	p=0,8
Serum creatinine	1,2, 0,6	1,0, 0,6	1,0, 0,8	p=0,9
NTproBNP	526±284	510±269	657±291	p=0,09
TAVI waiting time (days)	60, 101,	48, 98	93, 92	**p=0,03**
	Total (n=300)	**Cluster 1** (n=182)	**Cluster 2** (n=32)	***p-value***
Death, stroke and hospital readmission	25%	12%	100%	p<0,001
Death at 30 days	3,7%	1%	6%	p=0,05
Death at 1 year	12%	7%	29%	p<0,001
Stroke	2,8%	0,5%	16%	p<0,001
Hospital admission	17%	13%	88%	p<0,01
Pacemaker implantation	20%	21%	23%	p=0,9
Vascular complication	7,8%	5,5%	9,4%	p=0,4

Conclusions: Multivariate clustering of clinical presentation and risk factors successfully identified two distinct clusters of profiles with divergent TAVI outcomes. Notably, despite having more symptomatic disease (as indicated by a higher NYHA class) and a history of hospitalization, patients were associated with better outcomes. The shorter waiting period highlights the potential benefit of earlier intervention for more symptomatic patients. In contrast, Cluster 2 patients experienced higher mortality, stroke, and hospital readmission rates, possibly reflecting the detrimental impact of delays. Earlier prioritization of symptomatic patients for TAVI could significantly improve clinical outcomes.

PO 32. A COMPARISON OF SELF-EXPANDING AND BALLOON-EXPANDABLE VALVES IN PACEMAKER IMPLANTATION RATES IN TAVI

Mariana Caetano Coelho, Fernando Nascimento Ferreira, Miguel Abrantes de Figueiredo, Francisco Albuquerque, Francisco Cardoso, Rúben Baptista Ramos, Inês Rodrigues, António José Fiarresga, Rui Cruz Ferreira, Duarte Nuno Cacela

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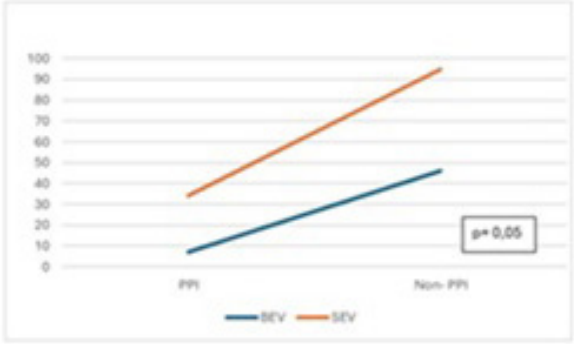
Introduction: Permanent pacemaker implantation (PPI) is a common complication after transcatheter aortic valve implantation (TAVI), with incidence rates ranging from 10% to 30%. While PPI rates have declined due to advances in TAVI techniques, the risk differences between self-expanding valves (SEVs) and balloon-expandable valves (BEVs) remain unclear. Some studies associate SEVs, like the Evolut series, with higher PPI risk than BEVs, like the SAPIEN series, but results are inconsistent. Factors such as valve oversizing, calcifications, and anatomical variations also contribute to conduction disturbances. The comparative risk of PPI between SEVs and BEVs requires further investigation.
Objectives: We aimed to evaluate the relationship between pacemaker implantation rates in BEVs and SEVs in patients undergoing TAVI within the immediate postoperative period (up to 1 week). Additionally, it assessed the correlation between PPI and factors such as aortic valve oversizing and native aortic valve calcium.

Outcomes	PPI (=41)	Non-PPI (n=140)	p-value
Age (years)	82,34 ± 0,98	81,66 ± 0,52	0,62
QRS (ms)	118 ± 4	105 ± 2	0,136
LBBB	3	14	0,616
RBBB	15	11	**0,001**
1st Degree AVB	8	23	**0,02**
AF	20	43	**0,035**
Pre-dilatation	33	103	0,273
Post-dilatation	25	68	0,130
Prosthetic valve size	27 ± 0,5	26 ± 0,2	0,127
Valve oversize area	31	103	0,382
Calcium score (Agatston units)	2181 ± 211	2195 ± 108	0,965



Methods: We retrospectively analyzed records of 184 patients without prior permanent pacemakers who underwent TAVI in 2024. BEVs were implanted in 29.9% of cases (8 Myval and 47 Sapien 3/Ultra), while SEVs were used in

70% of patients, including 34 Portico, 35 ACURATE, 58 CoreValve Evolut R/Pro, and 2 Vienna. Population analyses: Baseline characteristics were similar between patients receiving BEVs or SEVs. PR intervals > 200 ms did not differ significantly (p = 0.16). Right bundle branch block (RBBB) was present in 39 BEV patients (16%) and 6 SEV patients (10.7%) (p = 0.319), while left bundle branch block (LBBB) rates were also similar (p = 0.972). Aortic valve calcium scores were comparable (BEV: 2716 ± 172 vs. SEV: 1,973 ± 110 Agatston units, p = 0.871). Although valve oversize was greater in SEVs, the difference was not statistically significant. Outcomes: PPI rates were significantly higher in SEVs than BEVs during early follow-up (7 vs. 34, p = 0.05). Independent predictors for pacemaker implantation included RBBB, first-degree AV block, and atrial fibrillation, with significant associations (RBBB: 15 vs. 11, p = 0.001; AVB: 8 vs, 23, p = 0.02; AF: 20 vs. 43, p = 0.035). No associations were found between PPI rates and pre-/post-dilation, valve oversize, or calcium score.

Conclusions: BEVs had lower pacemaker implantation rates in the early post-TAVI period. While SEVs offer flexibility for complex anatomies, their higher PPI risk should be weighed, especially in patients prone to conduction disturbances.

PO 33. COMPARATIVE ANALYSIS OF DEVICE PERFORMANCE AND PACEMAKER IMPLANTATION RATES IN SUPRA-ANULAR AND INTRA-ANULAR TAVR VALVES IN PATIENTS WITH SMALL AORTIC ANNULI

Mariana Caetano Coelho, Miguel Antunes, Fernando Nascimento Ferreira, Francisco Albuquerque, Miguel Figueiredo, Francisco Cardoso, António Fiarresga, Rúben Baptista Ramos, Inês Rodrigues, Rui Ferreira, Duarte Nuno Cacela

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Transcatheter aortic valve replacement (TAVR) has evolved from a treatment for inoperable patients to the gold standard for managing severe aortic stenosis (AS) in high and intermediate-risk patients, and more recently, in low-risk patients. A small aortic annulus (SAA), common in elderly women, increases the risk of prosthesis-patient mismatch (PPM). The leaflet mounting design, whether supra-annular (SAV) or intra-annular (IAV), influences outcomes, with SAVs offering better hemodynamics.

Objectives: We aimed to compare the hemodynamic and clinical performance between two SAVs (Medtronic CoreValve Evolut R, Evolut PRO, and Boston Acurate) and two IAVs (Abbott Portico and Edwards SAPIEN 3) in patients with a SAA (area ≤ 400 mm^2), during a follow-up of 4.3 years.

Results: Primary outcomes included device success, and hemodynamic characteristics evaluated by echocardiography, including moderate/severe paravalvular leak (PVL), residual mean gradient, and PPM. Secondary outcomes focused on permanent pacemaker implantation (PPI). Study Population: We included 94 patients who underwent TAVR using either SAV (n = 53) or IAV (n = 41) between 2016 and 2022. The majority were women in both groups with a mean age of 79.6 ± 8.3 years and 81.1 ± 6.5 years, respectively. The cohort was well balanced, including the Society of Thoracic Surgeons mortality score, which showed no significant difference between groups (mean score 4.19 ± 0.38 vs. 4.85 ± 0.67, p = 0.097), respectively. Outcomes: No significant difference was found in residual mean gradients (14.8 ± 1.3 vs. 15.3 ± 1.2, p = 0.855) or PPM rates (1.98 ± 0.16 vs. 2 ± 0.23, p = 0.416). However, PPI was significantly higher in the IAV group (0 vs. 10, p = 0.05). The Sapien3 valve was more stenotic than the Portico valve (maximum velocity: 2.02 ± 0.14 vs. 1.77 ± 0.07, p = 0.011; maximum gradient: 18.2 ± 2.2 vs. 13.2 ± 1, p = 0.012; mean gradient: 10.1 ± 1.3 vs. 7.5 ± 0.6, p = 0.037). No significant difference in PPM rates or pacemaker implantation was found between the two IAV valves. No differences were seen between SAVs versus Portico valves in gradients (14.9 ± 1.3 vs. 13.2 ± 1, p = 0.094) or valve areas (2 ± 0.16 vs. 2.2 ± 0.4, p = 0.203), but PPI was lower with Medtronic valves (0 vs. 5, p = 0.011).

Conclusions: IAVs and SAVs demonstrate similar hemodynamic performance and dysfunction after 4.3 years in patients with SAA. The Portico valve in IAVs shows more favourable outcomes, while PPI rates were higher in the IAV group.

Sexta-feira, 11 Abril de 2025 | 09:00-10:30

Área de Posters-écran 2 | Sessão de Posters 06 – Amiloidose cardíaca

PO 34. A COMPREHENSIVE CHARACTERIZATION OF FAMILIAL AMYLOID POLYNEUROPATHY PATIENTS WITH PACEMAKER IMPLANTATION

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Outcomes	SAV (n=53)	IAV (n= 41)	p-value
Device Success	41 (100%)	26 (93%)	0,24
Max Velocity (m/s)	1,88 ± 0,1	1,87 ± 0.07	0,93
Max Gradient (mmHg)	14,8 ± 1,3	15,3 ± 1,2	0,855
Mean Gradient (mmHg)	8,65 ± 0,91	8,58 ± 0,67	0,635
AVA (cm^2)	1,98 ± 0,16	2 ± 0,23	0,416
Paravalvular Leak	13	21	0,918
Mild	9	15	
Moderate	4	6	
PPI	0	10	0,05
Valve Size	25,3 ± 0,4	24,2 ± 0,23	0,008

Outcomes	Sapiens 3 (n= 17)	Portico (n=24)	p-value
Max Velocity (m/s)	2,02 ± 0,14	1,77 ± 0.07	0,011
Max Gradient (mmHg)	18,2 ± 2,2	13,2 ± 1	0,012
Mean Gradient (mmHg)	10,1 ± 1,3	7,5 ± 0,6	0,037
AVA (cm^2)	1,8 ± 0,24	2,2 ± 0,4	0,405
Paravalvular Leak	9	12	0,853
Mild	9	12	
Moderate	0	0	
PPI	5	5	0,529

Outcomes	Evolut R/ Evolut Pro/ Acurate (n=53)	Portico (n=24)	p-value
Max Velocity (m/s)	1,88 ± 0.10	1,77 ± 0.07	0,234
Max Gradient (mmHg)	14,9 ± 1,3	13,2 ± 1	0,094
Mean Gradient (mmHg)	8,6 ± 0,9	7,5 ± 0,6	0,161
AVA (cm^2)	2 ± 0,16	2,2 ± 0,4	0,203
Paravalvular Leak	13	12	0,085
Mild	9	8	
Moderate	4	4	
PPI	0	5	0,011

Figure PO 33

Introduction: Familial amyloid polyneuropathy (FAP) is an autosomal dominant disorder caused by transthyretin (TTR) gene mutations, typically ATTR Val30Met, leading to systemic amyloid deposition and multi-organ dysfunction. These patients often present with early neuropathy, but cardiovascular manifestations are also common, particularly conduction disturbances. The aim of this study was to characterize FAP patients with a pacemaker, including disease stage at implantation and indications, and to evaluate treatment outcomes.
Methods: Retrospective analysis of FAP patients with pacemaker implantation followed at a referral center in Portugal. Data was collected from clinical, electrocardiographic and echocardiographic records. Descriptive and inferential statistics were performed.
Results: A total of 212 patients with FAP treated with a pacemaker were included (59.9% male, median age of 37 ± 14 years at the time of pacemaker implantation), during a mean follow-up period of 11 ± 6.5 years. 96.7% of the patients carried the ATTR Val30Met mutation and 67.9% underwent liver transplantation after a median disease duration of 4.0 ± 3.2 years. At baseline, 23.1% had hypertension, 2.8% diabetes mellitus, 11.8% dyslipidemia, and 35.8% were smokers (current or past). At the time of pacemaker implantation, 86.3% presented with polyneuropathy, mostly in Coutinho stage 1 (80.7%), 9.0% had cardiomyopathy, and 38.7% had some form of conduction disturbance. Regarding the indication for pacemaker, 69.3% underwent prophylactic implantation prior to liver transplantation, 7.1% was due to sinoatrial disease, and 23.6% due to atrioventricular block. During follow-up, 46.2% of the patients who underwent prophylactic implantation, progressed or developed conduction disturbances, with 21.2% becoming pacemaker-dependent after a median of 12 ± 6.3 years. Pacemaker complications included lead displacement (1.9%), over- and undersensing (3.3%), and infections requiring extraction (2.8%). Death occurred in 36.8% of cases (median age of 53 ± 12.8 years).
Conclusions: In conclusion, most patients underwent pacemaker implantation at a young age and in the early stages of polyneuropathy (Coutinho stage 1), primarily as a prophylactic measure in the context of liver transplantation. Despite this approach, a significant proportion developed advanced conduction disturbances over time. Nevertheless, the rate of pacemaker-related complications remained low, highlighting the safety and feasibility of this strategy.

PO 35. CLINICAL OUTCOMES IN FAMILIAL AMYLOID POLYNEUROPATHY PATIENTS: THE EFFECT OF PACEMAKER IMPLANTATION

Diana Ribeiro, André Alexandre, David Sá Couto, Mariana Pereira Santos, Pedro Monteiro, Tiago Peixoto, Sara Lopes Fernandes, Bruno Brochado, Hipólito Reis, Severo Torres

Unidade Local de Saúde de Santo António.

Introduction: Familial amyloid polyneuropathy (FAP) is an autosomal dominant disorder with possible cardiac involvement, including rhythm and conduction disturbances. Pacemakers are frequently needed, but there is still no evidence or specific guidelines regarding indications in this group of patients. In addition to conventional indications, several centers have performed prophylactic implantations in pre-surgical scenarios and/or followed a lower threshold for implantation. The aim of this study was to compare the progression of the disease's various manifestations between PAF patients with and without pacemaker implantation.
Methods: A retrospective study of FAP patients followed at a referral center in Portugal was performed using data from clinical, electrocardiographic, and echocardiographic records, with descriptive and comparative statistical methods applied for analysis.
Results: A total of 296 FAP patients were included, 71.6% with pacemakers and 58.1% male. The mean age at pacemaker implantation was 41.5 ± 14.0 years. Of the pacemaker implants, 69.2% were prophylactic, 23.7% for atrioventricular block, and 7.1% for sinus node dysfunction. Diabetes (11.9 vs. 2.8%; p = 0.002) and dyslipidemia (25.0 vs. 11.8%; p = 0.006) were more prevalent in non-pacemaker patients, while hypertension (31.0 vs. 23.1%; p = 0.162) and smoking (34.5 vs. 35.8%; p = 0.830) did not differ significantly. Symptom onset was later in non-pacemaker patients (46.9 vs. 36.5 years; p < 0.001). More patients with pacemakers were in stage 1 of Coutinho's (p < 0.001). Polyneuropathy was more common in pacemaker patients (p < 0.001), while cardiomyopathy was slightly more frequent in non-pacemaker patients, but the difference was not significant (p = 0.880). Conduction abnormalities were observed in 35.1% of patients, with a higher prevalence in pacemaker carriers (38.7 vs. 26.2%, p = 0.042). During an 11 ± 6.5 years follow-up, conduction disturbances (47.1 vs. 30.1%; p = 0.008) and polyneuropathy (94.7 vs. 74.7%; p < 0.001) were more frequently observed in pacemaker patients, and no significant differences in cardiomyopathy were observed (24.5 vs. 14.6%; p = 0.066). Mortality was higher in non-pacemaker patients, though not significantly (40.5 vs. 36.8%; p = 0.556).
Conclusions: While pacemaker patients had more conduction disturbances and polyneuropathy, cardiomyopathy progression was similar between groups. Mortality was higher in non-pacemaker patients, but not significantly, suggesting pacemaker implantation aids symptom management but other factors affect survival.

PO 36. MULTIPARAMETRIC ECHOCARDIOGRAPHY SCORES FOR TRANSTHYRETIN CARDIAC AMYLOIDOSIS DIAGNOSIS – IS THE INCREASED WALL THICKNESS SCORE APPROPRIATE?

André Manuel Faustino Martins, Mónica Amado, Joana Pereira, Adriana Vazão, Carolina Gonçalves, Mariana Carvalho, Margarida Cabral, Célia Domingues, Catarina Ruivo, Hélia Martins

ULSR Leiria.

Introduction: Transthyretin cardiac amyloidosis (ATTR-CA) is a restrictive cardiomyopathy increasingly diagnosed in elderly patients (pts) with heart failure. While echocardiography serves as the primary imaging tool, diagnostic challenges often arise in identifying ATTR-CA. Multiparametric echocardiography scores may enhance diagnostic accuracy.
Objectives: Evaluate the diagnostic accuracy of the Increased Wall Thickness (IWT) score in detecting ATTR-CA among pts referred to a Cardiomyopathy Clinic (CC) at a regional hospital in Portugal for suspected CA.
Methods: Retrospective single-center study of adult pts followed from 2018 to 2024. The inclusion criteria comprised pts aged 60 yrs or older with left ventricular wall thickness ≥ 12 mm and at least one cardiac/extracardiac red flag for CA. We collected data regarding clinical characteristics and the five echocardiographic variables used for calculating the IWT score (Table 1). The IWT score was calculated for all pts, and categorized as low (IWT ≤ 2), intermediate (3 < IWT < 7) and high (IWT ≥ 8) diagnostic probability for ATTR-CA. Pts were classified in the ATTR-CA group (Group 1) and the non-ATTR-CA group (Group 2) according to the ESC algorithm for ATTR-CA diagnosis. Group comparisons were performed.
Results: 96 pts were included; median age was 79 yrs (IQR 10) and 74 pts (77%) were male. After diagnostic workup, 52 pts (54%) had ATTR-CA confirmed (group 1), of which 51 (98%) had wild-type ATTR-CA. Group 1 pts were older (81 [IQR 8] vs. 78 [IQR 10] yrs, p = 0.006) and more frequently had overweight (58 vs. 32%, p = 0.011), hyperuricemia (50 vs. 16%, p < 0.001) and chronic kidney disease (62 vs. 39%, p = 0.025). Valvular heart disease was less common in the former group (23 vs. 50%, p = 0.003). Group 1 pts showed greater interventricular septum thickness (18.5 ± 3.2 vs. 15.7 ± 2.8 mm, p < 0.001) and IWT scores (8 [IQR 3] vs. 4 [IQR 4], p < 0.001). Despite providing intermediate diagnostic probability in a significant proportion of pts, IWT score revealed adequate discrimination value for the presence of ATTR-CA (area under ROC curve 0.91, 95%CI 0.85-0.97, p < 0.001), with a sensitivity of 67% and specificity of 96% for a score higher than 7.5.
Conclusions: In our population, the IWT score is a useful predictive tool for ATTR-CA. Given the increasing number of pts referred to our CC, this echocardiographic score could help identify those who should undergo further diagnostic workup to exclude ATTR-CA.

	Total (n=96)	Group 1 (n=52)	Group 2 (n=44)	p-value
Male gender – n (%)	74 (77)	48 (92)	26 (59)	**<0.001[a]**
Age at diagnosis (yrs) – median (IQR)	79 (10)	81 (8)	78 (10)	**0.006[b]**
Past medical history – n (%)				
Overweight	44 (46)	30 (58)	14 (32)	**0.011[a]**
Hypertension	81 (84)	42 (80)	39 (89)	0.290[a]
Dyslipidemia	77 (80)	40 (77)	37 (84)	0.380[a]
Atrial fibrillation	67 (70)	39 (75)	28 (64)	0.227[a]
History of CAD	20 (21)	8 (15)	12 (27)	0.153[a]
Diabetes mellitus	41 (43)	24 (46)	17 (39)	0.458[a]
History of smoking	4 (4)	1 (2)	3 (7)	0.093[a]
Hyperuricemia	33 (34)	26 (50)	7 (16)	**<0.001[a]**
Chronic kidney disease	49 (51)	32 (62)	17 (39)	**0.025[a]**
Asthma	4 (4)	2 (4)	2 (5)	1.000[a]
COPD	19 (20)	13 (25)	6 (14)	0.164[a]
Obstructive sleep apnea	18 (19)	9 (17)	9 (20)	0.694[a]
Prior MI	8 (8)	6 (12)	2 (5)	0.282[a]
Ischemic stroke/TIA	12 (13)	7 (13)	5 (11)	0.757[a]
Valvular heart disease	34 (35)	12 (23)	22 (50)	**0.003[a]**
Hypothyroidism	22 (23)	13 (25)	9 (20)	0.598[a]
IWT score variables				
RWT – median (IQR)	0.62 (0.19)	0.70 (0.17)	0.54 (0.12)	**<0.001[b]**
TAPSE (mm) – mean (SD)	19.31 (4.37)	17.97 (4.00)	20.89 (4.30)	**<0.001[c]**
E/e' ratio – median (IQR)	14.88 (1.03)	17.00 (7.00)	13.06 (6.00)	**<0.001[b]**
LS (%) – mean (SD)	-11.43 (3.94)	-9.77 (2.94)	-13.39 (4.09)	**<0.001[c]**
SAB – median (IQR)	4.20 (5.29)	6.65 (7.00)	2.75 (3.00)	**<0.001[b]**
IWT score				
Total scoring – median (IQR)	7 (4)	8 (3)	4 (4)	**<0.001[b]**
Low probability of CA – n (%)	15 (16)	2 (4)	13 (30)	**<0.001[a]**
Intermediate probability of CA – n (%)	44 (46)	15 (29)	29 (66)	**<0.001[a]**
High probability of CA – n (%)	37 (39)	35 (67)	2 (5)	**<0.001[a]**
Other echocardiographic variables				
IVSd (mm) – mean (SD)	17.20 (3.30)	18.52 (3.16)	15.65 (2.75)	**<0.001[c]**
LVPWd (mm) – median (IQR)	14.40 (3.93)	15.84 (3.00)	12.72 (2.00)	**<0.001[b]**
LVEF (%) – median (IQR)	54.15 (9.99)	53.0 (15.0)	58.5 (12.0)	**0.002[b]**

Table 1. Patient baseline characteristics and echocardiographic variables. Statistical analysis: [a]Chi-square test, [b]Mann-Whitney U test, [c]t-student test. Abbreviations: **CA** - cardiac amyloidosis, **CAD** - coronary artery disease, **COPD** - chronic obstructive pulmonary disease, **E/e'** - E-wave/e'-wave, **IVSd** - interventricular septum thickness end diastole, **IWT** - increased wall thickness, **LS** - longitudinal strain, **LVEF** - left ventricular ejection fraction, **LVPWd** - left ventricular posterior wall end diastole, **MI** - myocardial infarction, **RWT** - relative wall thickness, **SAB** - septal longitudinal systolic apex-to-base ratio, **TAPSE** - tricuspid annular plane systolic excursion, **TIA** - transient ischemic attack.

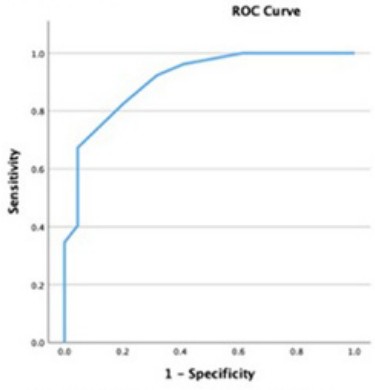

Figure 1. ROC curve analysis for IWT score.

Figure PO 36

PO 37. TRANSTHYRETIN AMYLOID CARDIOMYOPATHY (ATTR-CM) CARDIOGENOMICS: A TERTIARY CENTRE EXPERIENCE

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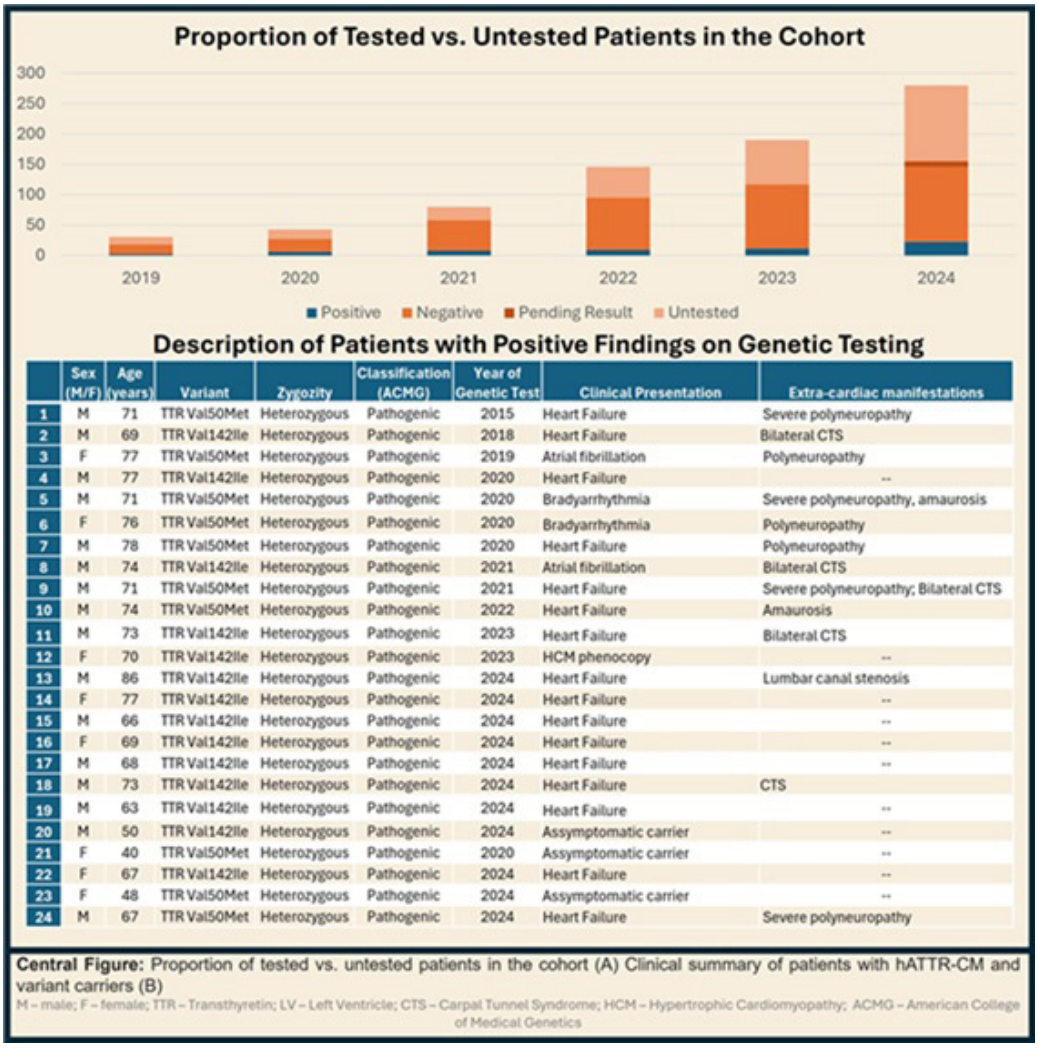
Introduction: ATTR-CM results from the accumulation of wild-type (wtATTR-CM) or mutated/variant (hATTR-CM) transthyretin in the heart. The differentiation between these two subtypes often supports the use of specific treatments and family counselling/screening. Our main goal was to assess the temporal trends of genetic testing in patients with ATTR-CM.

Methods: We performed a study enrolling consecutive patients with ATTR-CM since the inception of a dedicated rare disease primary cardiomyopathy program in our centre. The diagnosis of cardiac amyloidosis and the amyloid subtype was confirmed according to the algorithm of Gilmore and colleagues. Genetic testing for transthyretin variants was performed using next-generation sequencing from blood samples collected from each patient after written informed consent, as per site protocol. Further molecular confirmation of the variants was performed by standard Sanger sequencing. All transthyretin (TTR)



Description of Patients with Positive Findings on Genetic Testing

	Sex (M/F)	Age (years)	Variant	Zygozity	Classification (ACMG)	Year of Genetic Test	Clinical Presentation	Extra-cardiac manifestations
1	M	71	TTR Val50Met	Heterozygous	Pathogenic	2015	Heart Failure	Severe polyneuropathy
2	M	69	TTR Val142Ile	Heterozygous	Pathogenic	2018	Heart Failure	Bilateral CTS
3	F	77	TTR Val50Met	Heterozygous	Pathogenic	2019	Atrial fibrillation	Polyneuropathy
4	M	77	TTR Val142Ile	Heterozygous	Pathogenic	2020	Heart Failure	--
5	M	71	TTR Val50Met	Heterozygous	Pathogenic	2020	Bradyarrhythmia	Severe polyneuropathy, amaurosis
6	F	76	TTR Val50Met	Heterozygous	Pathogenic	2020	Bradyarrhythmia	Polyneuropathy
7	M	78	TTR Val50Met	Heterozygous	Pathogenic	2020	Heart Failure	Polyneuropathy
8	M	74	TTR Val142Ile	Heterozygous	Pathogenic	2021	Atrial fibrillation	Bilateral CTS
9	M	71	TTR Val50Met	Heterozygous	Pathogenic	2021	Heart Failure	Severe polyneuropathy; Bilateral CTS
10	M	74	TTR Val50Met	Heterozygous	Pathogenic	2022	Heart Failure	Amaurosis
11	M	73	TTR Val142Ile	Heterozygous	Pathogenic	2023	Heart Failure	Bilateral CTS
12	F	70	TTR Val142Ile	Heterozygous	Pathogenic	2023	HCM phenocopy	--
13	M	86	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	Lumbar canal stenosis
14	F	77	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	--
15	M	66	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	--
16	F	69	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	--
17	M	68	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	--
18	M	73	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	CTS
19	M	63	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	--
20	M	50	TTR Val142Ile	Heterozygous	Pathogenic	2024	Assymptomatic carrier	--
21	F	40	TTR Val50Met	Heterozygous	Pathogenic	2020	Assymptomatic carrier	--
22	F	67	TTR Val142Ile	Heterozygous	Pathogenic	2024	Heart Failure	--
23	F	48	TTR Val50Met	Heterozygous	Pathogenic	2024	Assymptomatic carrier	--
24	M	67	TTR Val50Met	Heterozygous	Pathogenic	2024	Heart Failure	Severe polyneuropathy

Central Figure: Proportion of tested vs. untested patients in the cohort (A) Clinical summary of patients with hATTR-CM and variant carriers (B)
M – male; F – female; TTR – Transthyretin; LV – Left Ventricle; CTS – Carpal Tunnel Syndrome; HCM – Hypertrophic Cardiomyopathy; ACMG – American College of Medical Genetics

Figure PO 37

variants are classified as per the American College of Medical Genetics and Genomics Guidelines.

Results: A total of 280 patients with confirmed ATTR-CM were included, which accounts for a mean of 47 new diagnosis per year (31, 12, 37, 66, 44 and 58 diagnoses in 2019, 2020, 2021, 2022, 2023 and 2024, respectively). Of these, 157 patients (56% of the cohort, age 81 ± 8 years, 75% male) performed genetic testing, of which 150 have received results. This corresponds to an average of 27 genetic tests requests per year. When analysed per year, 58%, 63%, 73%, 65%, 62% and 55% of the patients in the cohort in 2019, 2020, 2021, 2022, 2023 and 2024, respectively, were genetically tested. The absolute amount of genetic testing requests increased from the start of the program. Pathogenic variants in the TTR gene were found in 21 patients, median age 71 (IQR 67-75) years old at the time of diagnosis. Moreover, 3 individuals are followed as asymptomatic carriers detected through family screening. The most frequently identified mutations were the Val142Ile (14 patients) and Val50Met variants (10 patients). Compared with wtATTR-CM, patients with hATTR-CM were younger (median age 71 (IQR 67-75) *vs.* 83 (78-87) years; $p < 0.001$). No significant differences were found in the prevalence of hATTR-CM in males *vs.* females and patients with vs. without extracardiac manifestations. Clinical presentation is summarized in Figure 1.

Conclusions: Over the last years, routine TTR genetic testing is becoming standard-of-care for patients with ATTR-CM. In our cohort, a positive causal gene variant was found 14% of the cases. The identification of hATTR-CM often promoted personalized approach with directed therapies and cascade family screening.

PO 38. ATTR-CM UNDER THE MICROSCOPE: COMPARING REAL-WORLD WITH TRIAL OUTCOMES

Catarina Gregório[1], Miguel Raposo[1], Ana Beatriz Garcia[1], Marta Vilela[1], João Cravo[1], Daniel Cazeiro[1], Catarina Campos[2], Isabel Conceição[2], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[3]

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Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is a progressive and life-threatening disease that leads to heart failure and increased mortality. Pivotal clinical trials - ATTR-ACT, HELIOS-B, and ATTRibute-CM - have provided robust evidence supporting the efficacy of TTR stabilizers or synthesis inhibitors in reducing mortality and cardiovascular events.

Objectives: To compare the cardiovascular outcomes of a real-World cohort of patients with ATTR-CM under tafamidis treatment with those reported in the ATTR-CM pivotal trials.

Methods: Single-center, perspective, single-arm observational study of consecutive patients with ATTR-CM treated with tafamidis 61 mg. Their clinical, laboratorial and echocardiographic characteristics were collected and compared with data from the three studies using Student's t Test. The

	Our population (n=89)	ATTR-ACT (n=264)	HELIOS-B (n=326)	ATTRibute-CM (n=421)
Males, n (%)	76 (85)	241 (91)	299 (92)	384 (91)
Age, mean (SD or IQR)	78.6 (11)	74.5 (7)	77 (65-85)	77.4 (6.5)
ATTRwt, n (%)	37 (42)	201 (76)	289 (89)	380 (90)
NYHA class, n (%) I II III	27 (30) 49 (55) 13 (15)	24 (9) 162 (61) 78 (30)	49 (15) 250 (77) 27 (8)	51 (12) 293 (70) 77 (18)
NYHA class, mean (SD)	1.8 (0.7)	2.2 (0.8)	1.9 (0.8)	1.5 (0.7)
NTproBNP, mean (SD or IQR), pg/mL	2639.3 (4267.5)	2995.9 (1751.5, 4861.5)	2021 (1138-3312)	2946 (2226)
KCCQ, points, mean	52.1 (26.4)	62.3	63.3	61.1

Table 1 – Clinical characteristics at baseline for the study population compared with the pivotal trials populations

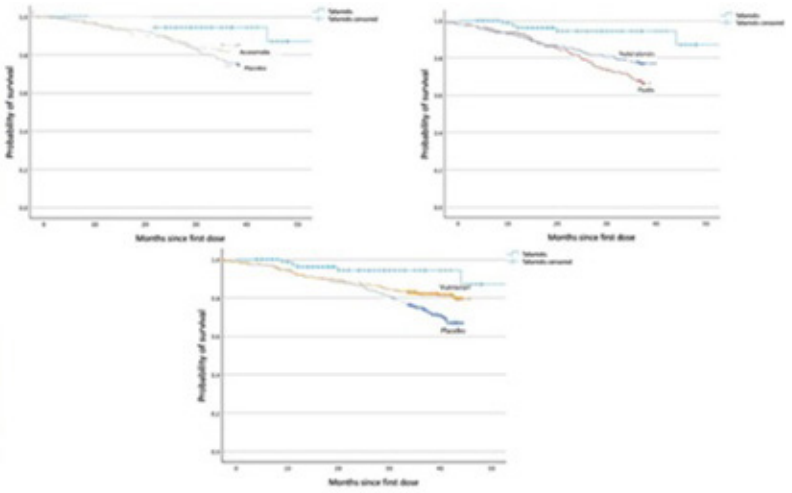

Figure 1- Comparative analysis of all-cause mortality between the study population and pivotal trials

Figure PO 38

endpoint of all-cause mortality at 24 months was assessed using the Kaplan-Meier survival curve.

Results: 89 patients were included (76 males, 39 with hereditary ATTR and 37 with wild-type ATTR). The real-World population was older (mean age 78.6 ± 10.7 years, p < 0.001) and had better functional capacity (p < 0.001) when compared to the ATTR-ACT study population. However, it appeared to have a slightly worse functional capacity when compared to the ATTRibute-CM population (p < 0.001). This real-World cohort is composed of a significantly higher rate of patients with hereditary ATTR (p < 0.001), which may be explained by the endemicity of p.Val50Met mutation in Portugal. The KCCQ-OS score at follow-up was worse in the real-World population compared to the ATTR-ACT (p < 0.001), HELIOS-B (p < 0.001) and ATTRibute-CM studies (p < 0.001) populations. There were no statistically significant differences in NT-proBNP levels between groups (p = NS). During a follow-up of 27.4 ± 2.1 months, there were 7 hospitalizations for heart failure in the real-World population, 5 patients died, 3 due to cardiovascular causes. The all-cause mortality rate at 27 months was 26% in ATTR-CM, 18% in ATTRibute-CM and 12% in HELIOS-B, while in this real-World cohort it was 5.6%.

Conclusions: This study data shows that patients selected for ATTR-CM disease modifying therapy in the real-World present clinical characteristics similar to those included in the pivotal trials. This suggests that patient selection has followed the trials' inclusion criteria. Despite having worse quality of life - which does not seem to be explained by disease severity - this real-World population had better survival when compared to the trials' populations.

PO 39. NAVIGATING TAFAMIDIS OUTCOMES ACROSS DIFFERENT DISEASE SEVERITIES IN ATTR-CM

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Introduction: In the ATTR-ACT trial, tafamidis 61 mg was proved to be beneficial in patients with confirmed TTR amyloid cardiomyopathy (ATTR-CM) and NT-proBNP levels ≥ 600 pg/mL, emphasizing the pivotal role of NT-proBNP as a prognostic marker. This threshold remains a widely adopted prescribing criterion in many healthcare centers.

Objectives: To evaluate the impact of tafamidis 61 mg on clinical outcomes in ATTR-CM patients with NT-proBNP levels < 600 pg/mL and ≥ 600 pg/mL.

Methods: Single-center retrospective study of ATTR-CM patients receiving tafamidis 61 mg, categorized into two groups based on NT-proBNP levels: < 600 pg/mL and ≥ 600 pg/mL. Demographic characteristics and echocardiographic parameters were collected. Continuous variables were compared using the Student's T-test, and categorical variables were compared using Chi-square tests.

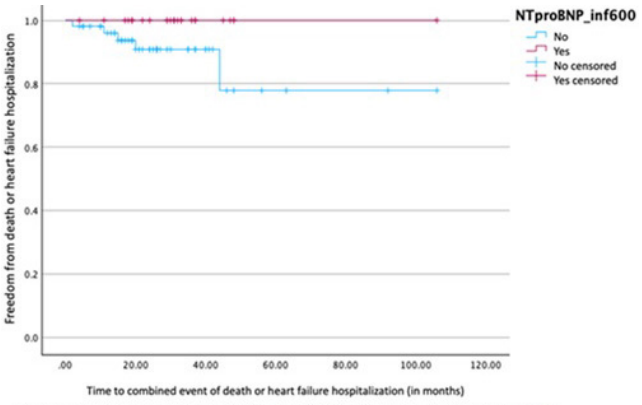

Figure 1: Mortality analysis according to NTproBNP levels above or below 600 pg/ml

Results: Among the 98 ATTR-CM patients (79 males, mean age: 78.6 ± 10.7 years), 25 had NTproBNP levels < 600 pg/mL, while 73 had NTproBNP levels ≥ 600 pg/mL at the time of diagnosis. All patients in the NTproBNp < 600 pg/mL group had hereditary ATTR and classified as NYHA I (25 vs. 3 patients in the NTproBNP ≥ 600 pg/mL group; p < 0.001), had an earlier symptom onset age (63.2 ± 3.4 vs. 77.4 ± 8.5; p < 0.001), with initial manifestations including polyneuropathy, gastrointestinal or genitourinary symptoms, compared to the predominance of heart failure symptoms in the NTproBNP ≥ 600 pg/mL group. These patients exhibited lower troponin T (30.8 ± 7.4 vs. 55.7 ± 5.6; p < 0.001), milder left ventricular wall thickness (IVS: 13.7 ± 0.7 vs. 17.4 ± 0.4 mm; p < 0.001), better right ventricular function (TAPSE: 21.4 ± 0.7 vs. 18.2 ± 0.6 mm; p < 0.001), and lower filling pressures (E/e': 10.4 ± 0.9 vs. 17.2 ± 1.1, p < 0.001). Fewer patients in this group were on furosemide therapy (6 vs. 39; p < 0.001). During the 24.9 ± 2.1 months follow-up, the NTproBNp < 600 pg/mL group appeared to benefit from the initiation of the drug, with a reduction in left ventricular mass (T0:119.1 ± 10.8 vs. T1:95.8 ± 4.3 g/m^2; p = 0.023). No statistically significant differences were observed in NTproBNP or troponin T levels during the follow-up. However, a decline in functional capacity was noted (NYHA I 14, NYHA II 9, NYHA III 1 patients). Despite the progression in functional class, patients in this group did not experience cardiovascular-related hospitalizations or cardiovascular death events during the follow-up period (p = 0.056).

Conclusions: The use of tafamidis in patients with NTproBNp < 600 pg/mL appears to have a protective effect on disease progression suggesting that this cut-off should not be used as a factor for disease modifying treatment exclusion.

PO 40. NON-CONVENTIONAL VERSUS CONVENTIONAL PACING IN CARDIAC AMYLOIDOSIS: IMPACT ON CLINICAL, ELECTRICAL, AND FUNCTIONAL OUTCOMES

Maria Rita Giestas Lima, Rita Carvalho, Francisco Moscoso Costa, Sérgio Maltês, Gustavo Rodrigues, Pedro Galvão Santos, Pedro Carmo, Isabel Santos, Bruno Rocha, Carlos Aguiar, Diogo Cavaco, Pedro Adragão

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Cardiac amyloidosis (CA) is linked to conduction disturbances requiring pacing therapy, which includes conventional permanent pacemaker (PPM) or cardiac resynchronization therapy (CRT). Left bundle branch area pacing (LBBAP) is an alternative, offering physiological pacing. Limited evidence compares the outcomes of conventional (PPM) vs. non-conventional pacing (CRT or LBBAP) in CA. Thus, we aimed to evaluate these modalities of pacing in these patients.
Methods: Single-centre retrospective study of consecutive CA patients who had a pacemaker implantation and classified as conventional (PPM group) and non-conventional pacing (CRT and LBBAP groups). Baseline clinical, laboratory, and echocardiographic data were collected pre- and post-implantation and differences were evaluated between groups. Basal ECG on routine ambulatory evaluation was used to measure baseline QRS intervals.
Results: Among 312 CA patients, 50 (16%) received a device implantation (mean age 84 ± 6 years, 80% male, mean left ventricle ejection fraction [LVEF] 46 ± 13%): 32 (64%) underwent PPM, 12 (24%) CRT and 6 (12%) LBBAP. The primary indication for PPM was complete heart block (n = 22), while CRT was primarily indicated for complete heart block and LVEF < 50% (n = 5) and LBBAP for complete heart block (n = 3). At baseline, CRT and LBBAP patients were more likely to have more symptoms of heart failure (p = 0.049), complete LBBB (p = 0.028), wider QRS (127 ± 25 *vs.* 156 ± 24 *vs.* 132 [104-147] ms for PPM/CRT/LBBAP, respectively; p = 0.003) and more intraventricular desynchrony (p = 0.001). Following implantation, pacing dependency was similar across all three groups during the follow-up (pacing percentage of 76 ± 31 *vs.* 98 ± 1 *vs.* 88 ± 9% for PPM/CRT/LBBAP, respectively; p = 0.054). At a median follow-up of 24 months, CRT and LBBAP patients had more pronounced improvement in NYHA (p = 0.005) (Figure 1A) and less intraventricular desynchrony (p = 0.004). CRT patients had a greater reduction in QRS (+27 vs. -8 vs. +24 ms for PPM, CRT and LBBAP, respectively; p = 0.002) (Figure 1B). No significant differences were noted in NT-proBNP, LVEF or LV global longitudinal strain (Figure 1C-D).
Conclusions: In a real-world cohort of patients with CA, the different pacing modalities were mostly applied according to guidelines recommendations. Accordingly, baseline features differed between groups, with patients undergoing CRT and LBBAP displaying markers of more severe disease. CRT was associated with an improvement in symptoms and LV desynchrony. LBBAP was associated with an increase in QRS duration similar to that observed in PPM, likely due to the infiltrative nature of CA and septal thickening, which may compromise the LBBAP results.

PO 41. RIGHT VENTRICULAR FUNCTION ANALYSIS IN WILD-TYPE TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: IDENTIFYING THE BEST PREDICTOR OF PATIENT OUTCOMES

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Introduction: Wild-type transthyretin amyloid cardiomyopathy (wtATTR-CM) is an increasingly recognized pathology associated with global cardiac infiltration by amyloid fibrils, including the right ventricle. Right ventricular dysfunction is common in wtATTR-CM and is a predictor of poorer outcomes. Although multiple echocardiographic parameters can assess right ventricular dysfunction, identifying the most reliable parameter for predicting prognosis can be valuable for better patient management.
Objectives: To determine which right ventricular echocardiographic parameter is the most reliable predictor of adverse outcomes in wtATTR-CM patients.
Methods: Baseline echocardiographic parameters were compared between patients who reached the primary endpoint and those who did not. The primary endpoint was the composite endpoint of heart failure hospitalization and all-cause mortality. Regression analyses were used to determine the independent predictors of the primary endpoint.
Results: A total of 111 patients were included in the study (74% males; mean age 81 ± 5 years). Median follow-up was 31 [IQR 16-39] months. Four echocardiographic parameters were analysed: S' wave, Fractional Area Change (FAC), and Tricuspid Annular Plane Systolic Excursion (TAPSE) and Right Ventricular Global Longitudinal Strain (RVGLS). Patients who reached the primary endpoint showed significantly worse values for all analyzed parameters: S': 9.66 ± 2.90 vs. 12.16 ± 3.6%, p < 0.001; FAC: 16.12 ± 4.73 vs. 18.59 ± 4.33%,

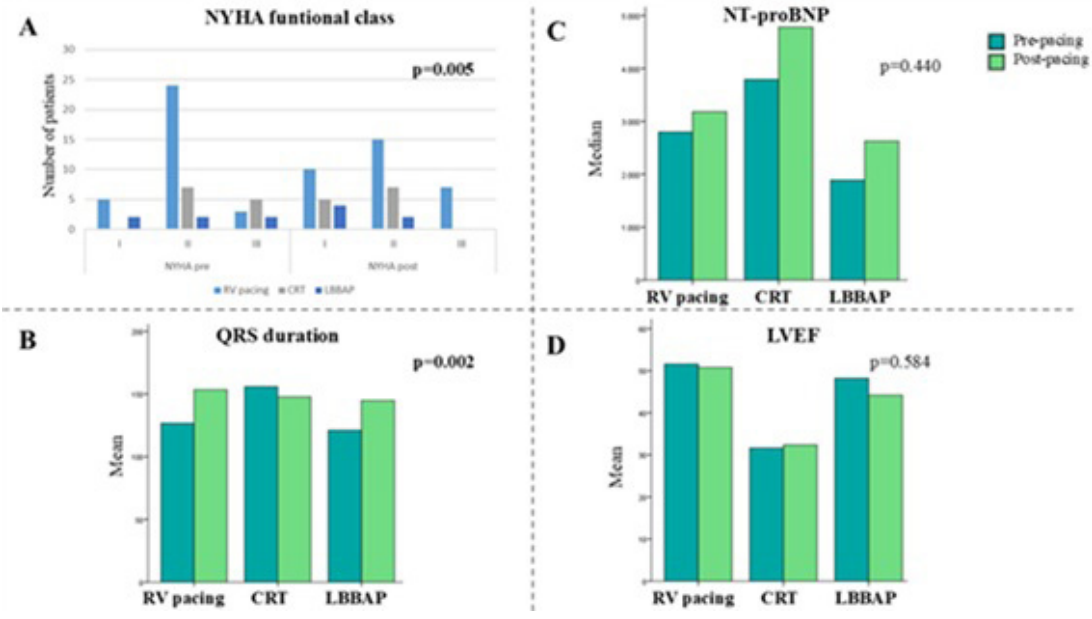

Figure PO 40

p = 0.007; TAPSE: 32.12 ± 9.42 mm vs. 39.21 ± 9.23 mm, p < 0.001; RVGLS: -10.50 ± 4.09 vs. -12.72 ± 4.64%, p = 0.011; ROC analysis identified the best cutoffs for S' (≤ 11 m/s), FAC (≤ 39.1%), TAPSE (≤ 18.7%) and RVGLS (≥ -14.5%). On multivariate regression analysis, FAC was the only independent predictor of the composite endpoint (HR 3.98, 95%CI 1.36-11.63, p = 0.012).

Conclusions: FAC emerged as the most reliable echocardiographic parameter for predicting adverse outcomes in wtATTR-CM patients, highlighting its potential as a valuable tool in clinical decision-making.

PO 42. PREDICTORS OF MAJOR ADVERSE CARDIOVASCULAR EVENTS IN PATIENTS WITH WILD-TYPE TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: INSIGHTS FROM A REGIONAL HOSPITAL EXPERIENCE

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ULSR Leiria.

Introduction: Transthyretin cardiac amyloidosis (ATTR-CA) results from the deposition of amyloid fibrils in the myocardium, leading to restrictive cardiomyopathy and reduced myocardial contractile reserve. This progressive process often results in symptomatic chronic heart failure (HF) and, eventually, death.

Objectives: Identify predictors of extended major adverse cardiovascular events (MACE) in patients (pts) with ATTR-CA followed at a Cardiomyopathy Clinic (CC) in a regional hospital in Portugal.

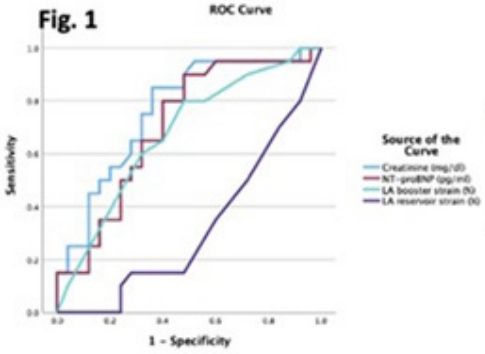
Methods: Retrospective single-center study of pts diagnosed with wild-type ATTR-CA per ESC algorithm from 2018 to 2024. Clinical, echocardiographic, electrocardiographic and analytical data were collected at the time of diagnosis (table 1). The occurrence of extended MACE, defined as cardiovascular (CV) mortality, myocardial infarction, stroke and HF hospitalizations, was assessed 18 months after diagnosis. Pts who suffered MACE (group 1) were compared with those who did not (group 2).

Results: 45 pts were included (80 ± 6yrs, 91% male), of whom 20 (44%) had MACE (group 1). Group 1 pts more frequently had atrial fibrillation (AF) (95 vs. 48%, p < 0.001), chronic kidney disease (CKD) (80 vs. 44%, p = 0.014) and chronic obstructive pulmonary disease (COPD) (40 vs. 12%, p = 0.041). After

Table 1.

	Total (n=45)	Group 1 (n=20)	Group 2 (n=25)	p-value
Male gender – n (%)	41 (91)	18 (90)	23 (92)	1.000[a]
Age at diagnosis(yrs) – mean (SD)	80 (6)	81 (6)	80 (6)	0.492[b]
Past medical history – n (%)				
Overweight	28 (62)	13 (65)	15 (60)	0.731[a]
Hypertension	38 (84)	19 (95)	19 (76)	0.120[a]
Dyslipidemia	35 (78)	17 (85)	18 (72)	0.473[a]
Atrial fibrillation	31 (69)	19 (95)	12 (48)	**<0.001[a]**
History of CAD	7 (16)	3 (15)	4 (16)	1.000[a]
Diabetes mellitus	20 (44)	10 (50)	10 (40)	0.502[a]
Hyperuricemia	21 (47)	10 (50)	11 (44)	0.688[a]
Chronic kidney disease	27 (60)	16 (80)	11 (44)	**0.014[a]**
Asthma	2 (4)	1 (5)	1 (4)	1.000[a]
COPD	11 (24)	8 (40)	3 (12)	**0.041[a]**
Obstructive sleep apnea	7 (16)	2 (4)	5 (20)	0.437[a]
Prior MI	5 (11)	3 (15)	2 (8)	0.642[a]
Ischemic stroke/TIA	9 (20)	3 (15)	6 (24)	1.000[a]
Valvular heart disease	10 (22)	6 (30)	4 (16)	0.301[a]
Hypothyroidism	11 (24)	6 (30)	5 (20)	0.500[a]
Echocardiographic parameters				
LVEF (%) – mean (SD)	51 (9)	52 (8)	52 (10)	0.758[c]
IVSd (mm) – mean (SD)	18.5 (3.3)	18.4 (2.8)	18.8 (3.7)	0.645[c]
LVPWd (mm) – mean (SD)	16.0 (2.7)	15.6 (2.1)	16.5 (3.3)	0.323[c]
LV mass index (g/m²) – mean (SD)	197.5 (49.1)	184.8 (35.0)	210.0 (56.7)	0.112[c]
LVESV index (ml/m²) – median (IQR)	23.3 (15.5)	22.0 (19.5)	22.5 (8.2)	0.802[b]
LVEDV index (ml/m²) – mean (SD)	53.3 (18.3)	50.4 (14.2)	53.9 (22.1)	0.472[c]
RWT – mean (SD)	0.72 (0.17)	0.70 (0.11)	0.75 (0.23)	0.308[c]
TAPSE (mm) – mean (SD)	18.2 (3.9)	18.42 (3.9)	18.03 (4.0)	0.747[c]
E/e' ratio – mean (SD)	18.1 (6.5)	17.3 (6.8)	19.1 (6.5)	0.296[c]
LS (%) – mean (SD)	-9.6 (3.0)	-9.7 (2.6)	-9.8 (3.6)	0.969[c]
SAB – median (IQR)	7.0 (7.7)	6.7 (7.2)	7.3 (8.1)	0.982[c]
PSAP (mmHg)* – median (IQR)	41 (15)	44 (18)	38 (15)	0.060[b]
LA volume index (ml/m²) – mean (SD)	66.3 (15.9)	64.4 (13.2)	65.6 (17.7)	0.812[c]
LA reservoir strain (%) – median (IQR)	6.0 (6.0)	5.5 (3.0)	7.0 (8.0)	**0.039[b]**
LA booster strain (%) – median (IQR)	-1.0 (5.0)	0.0 (2.0)	-3.0 (6.0)	**0.049[b]**
LA conduit strain (%) – mean (SD)	-5.4 (2.9)	-4.9 (2.5)	-5.8 (3.2)	0.479[c]
Electrocardiographic parameters				
Atrial fibrillation – n (%)	24 (53)	15 (75)	9 (36)	**0.009[a]**
Pacemaker rhythm – n (%)	6 (13)	4 (20)	2 (8)	0.383[a]
Sinus Rhythm – n (%)	15 (33)	1 (5)	14 (56)	**0.016[a]**
QRS width (ms)** – mean (SD)	122 (33)	128 (34)	117 (32)	0.312[a]
Low voltage criteria** – n (%)	30 (67)	11 (55)	19 (76)	0.444[a]
AV-Block** – n (%)	9 (20)	8 (40)	1 (4)	**0.012[a]**
LBBB** – n (%)	5 (11)	1 (5)	4 (16)	0.631[a]
RBBB** – n (%)	8 (18)	5 (25)	3 (12)	0.235[a]
Bifascicular block** – n (%)	7 (16)	5 (25)	2 (8)	0.101[a]
Analytical parameters				
NT-proBNP (pg/ml) – mean (SD)	4756.0 (3104.2)	5655.0 (3006.4)	4029.5 (2927.1)	**0.028[c]**
hs-TnI (pg/ml) – median (IQR)	93.0 (182.6)	106.8 (364.5)	78.7 (340.9)	0.275[b]
Creatinine (mg/dl) – median (IQR)	1.37 (0.60)	1.57 (0.65)	1.20 (0.49)	**0.003[b]**

Figure PO 42



Variables	AUC	p-value
Creatinine (mg/dl)	0.764	<0.001
NT-proBNP (pg/ml)	0.705	0.009
LA booster strain (%)	0.675	0.030
LA reservoir strain (%)	0.320	0.024

Table 1. Patient baseline characteristics. Fig. 1. ROC curve analysis. Statistical analysis: [a]Chi-square test, [b]Mann-Whitney U test, [c]t-student test. *5 missing values in the total population. **Only patients without a pacemaker. Abbreviations: **AV** - atrioventricular, **CAD** - coronary artery disease, **CI** - confidence interval, **COPD** - chronic obstructive pulmonary disease, **E/e'** - E-wave/e'-wave, **hs-TnI** - high-sensitivity troponin I, **IQR** - interquartile range, **IVSd** interventricular septum thickness end diastole, **IWT** - increased wall thickness, **LA** - left atrial, **LBBB** - left bundle branch block, **LS** - longitudinal strain, **LVEDV** - Left ventricular end diastolic volume, **LVEF** - left ventricular ejection fraction, **LVESV** - left ventricular end systolic volume, **LVPWd** - left ventricular posterior wall end diastole, **MI** - myocardial infarction, **OR** - odds ratio, **PSAP** - pulmonary artery systolic pressure, **RBBB** - right bundle branch block, **RWT** - relative wall thickness, **SAB** - septal longitudinal systolic apex-to-base ratio, **SD** - standard deviation, **TAPSE** - tricuspid annular plane systolic excursion, **TIA** - transient ischemic attack.

Figure PO 42 ***(Cont.)***

multivariate logistic regression of these 3 comorbidities, only AF (OR 24.83, CI 95% 2.31-266.46, p = 0.008) and CKD (OR 7.55, 95%CI 1.51-37.66, p = 0.014) remained independent predictors of MACE. Regarding echocardiographic variables, group 1 pts demonstrated lower left atrial (LA) reservoir strain (LASr) [5.5 (IQR 3) vs. 7.0% (IQR 8); p = 0.039] and LA contractile strain (LASct) [0.0 (IQR 2) vs. -3.0% (IQR 6); p = 0.026]. Additionally, group 1 more often had atrioventricular block (40 vs. 4%, p = 0.012) and showed significantly higher NT-proBNP levels (5,655 ± 3,006 vs. 4,030 ± 2,927 pg/mL, p = 0.028). ROC analysis identified cut-offs for predicting MACE in ATTR-CA pts: creatinine ≥ 1.25 mg/dl (AUC 0.764, sensitivity (S) 85%, specificity (E) 64%), NT-proBNP ≥ 3,220 pg/ml (AUC 0.705, S 90%, E 52%), and LASct ≥ -2.5% (AUC 0.675, S 80%, E 52%). The primary driver of 18-month MACE was HF hospitalizations (86%), followed by CV mortality (14%).
Conclusions: In this ATTR-CA population, pts with extended MACE had lower LASr and LASct values and higher NT-proBNP levels at diagnosis. Assessing these parameters may help predict adverse outcomes. Additionally, AF and CKD were identified as independent risk factors for MACE.

Sexta-feira, 11 Abril de 2025 | 09:00-10:30

Área de Posters-écran 3 | Sessão de Posters 07 – Doenças cardiovasculares - lesão renal aguda e inflamação

PO 43. ACUTE KIDNEY INJURY, THE WORST NIGHTMARE IN PATIENTS WITH MYOCARDIAL INFARCTION AND CARDIOGENIC SHOCK

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Introduction: Cardiogenic shock (CS) in patients with acute coronary syndromes (ACS) is one of the most challenging situations in a cardiac intensive care unit due to the high complexity and mortality associated. There are several cardiac and non-cardiac factors that could impact the mortality rate in this group – identifying them can be an important advantage in the outcome of ACS with CS.

Objectives: This study aims to determine predictors of mortality in patients admitted with ACS complicated with CS.
Methods: We retrospectively analysed patients admitted with ACS to our institution over a 7-year period and selected those who presented with CS. We recorded demographic data, personal history, heart rate (HR), blood pressure, ECG data, existence of mechanical complications and laboratory data. Multivariate regression analysis was performed to identify predictors of in-hospital mortality and eliminate cofounders. An increase in creatinine of 0.3 mg/dL and > 50% compared to baseline value was defined as AKI.
Results: We documented 419 patients with ACS who evolved in CS. They were predominantly male (63.2%) with a mean age of 72 ± 13 years. Regarding personal history, 71.8% had arterial hypertension, 56.0% had dyslipidemia, 33.8% diabetes mellitus and 22.0% were smokers. In this population, we documented 39.6% (n = 166) of in-hospital mortality. Multivariate linear regression revealed a statistically significant association between mortality and AKI [b = 1.339; OR 3.82 (CI: 2.39-6.10); p < 0.001)] and the existence of mechanical complications [b = 1.143; OR 3.14 (CI 1.40-7.04); p = 0.006]. Other associations that were statistically significant, but with b < 1.0 were age ≥ 75 years-old (p = 0.001), HR ≥ 100 bpm (p = 0.021) and Hb at admission < 12.0 mg/dL (p = 0.020). AKI was revealed as the strongest predictor of in-hospital mortality in ACS with CS. There were no other statistically significant variables associated with mortality.
Conclusions: There are multiple factors that impact mortality rates in patients with ACS that progresses to CS, however the presence of acute kidney injury was the strongest independent predictor. Therefore, a swift recognition and approach of AKI may benefit the outcome of patients with ACS complicated with CS.

PO 44. CONTRAST VOLUME TO CREATININE CLEARANCE RATIO - A STRONG PREDICTOR OF CONTRAST INDUCED NEPHROPATHY IN PATIENTS UNDERGOING PERCUTANEOUS INTERVENTION

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Introduction: Contrast-induced nephropathy (CIN) is a common complication following percutaneous coronary intervention (PCI) and it is associated with a worse prognosis. There are predictive factors of CIN, such as chronic kidney disease, but it can also affect individuals with normal renal function. In this study, we aim to assess if a ratio with volume of iodinated contrast (Vc) and creatinine clearance (ClCr) can predict the occurrence of CIN in patients with normal renal function.

Methods: We developed a retrospective analysis of patients who underwent elective or urgent PCI between January 1, 2019, and May 31, 2024. Patients with creatinine clearance (ClCr) > 60 mL/min, calculated using the Cockroft-Gault formula, and pre procedure serum creatinine (SCr) ≤ 1.2 mg/dL were included. According to literature, a Vc/ClCr ratio ≥ 4 was considered high, therefore, patients were divided into two groups accordingly. CIN was defined as an increase in SCr of ≥ 0.5 mg/dL or 0.25% increase from basal levels and the relationship between Vc/ClCr and CIN was then analysed, using the Chi-square and Mann-Whitney U tests and multivariate logistic regression.
Results: 487 patients were included, 59.1% (n = 289) were men, with a mean age of 66.62 ± 10.33 years and 31.4% (n = 153) diabetic. Mean ClCr was 91.92 ml/min/1.73 m^2 ± 28.26 and an average dose of iodinated contrast used of 208.61 ± 2.48 ml. 9% (n = 44) patients developed CIN. Vc/ClCr ratio > 4 was observed in 14.8% (n = 72) patients, 41.7% of diabetics vs. 29.6% in the Vc/ClCr < 4 group, 33.3% with anaemia vs. 21.0% in the group with the lower contrast dose. After analysis with Chi-square test, a statistically significant association between the presence of CIN and Vc/ClCr > 4 appeared (χ^2 = 41.666, p < 0.001), with patients with CIN showing a markedly higher prevalence of Vc/ClCr > 4 (47.7%) compared to those without CIN (11.5%). Multivariate logistic regression analysis supported the previous results (OR: 7.018, 95%CI: 3.629-13.573, p = 0.001), These findings thus support an increased risk of CIN in this patient group, independent of other variables.
Conclusions: This study highlights the likely impact of the volume of iodinated contrast used during percutaneous coronary intervention on the development of CIN, further demonstrating a real risk of this complication even in patients with good renal function at admission. It also emphasizes the need to adopt preventive strategies, particularly minimizing the volume of contrast used to the necessary minimum.

PO 45. RETHINKING AKI RISK: BEYOND CONTRAST VOLUME IN ACUTE MYOCARDIAL INFARCTION

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Introduction: Acute kidney injury (AKI) is a frequent complication following acute myocardial infarction (AMI), influenced by multiple factors and associated to prolonged hospital stays and worse outcomes. While contrast volume used in coronary angiography is traditionally considered a key risk factor, its significance in contemporary clinical practice remains controversial. The purpose of this study was to assess predictive factors for AKI and to evaluate the prognostic value of the presence and grade of AKI in AMI patients.
Methods: Retrospective analysis including consecutive AMI patients admitted to a Cardiology Department from November 2021 to October 2022. Demographic characteristics, cardiovascular risk factors, serial creatinine levels (at admission, 24- and 48- hours post-coronary angiography), hs-TnI, NT-proBNP, and other laboratory parameters were collected. AKI presence and severity were classified using the AKIN criteria. Logistic regression models were employed to identify predictors of AKI.
Results: 375 patients were included (72% male), of which 7.7% had previous history of chronic kidney disease (CKD). 10.7% of patients developed AKI (7.5% AKIN I, 1.9% AKIN II and 2.4% AKIN III). Patient characteristics are described in Table 1. Patients with CKD had 5.26 times higher odds of developing AKI (OR = 5.26 [95%CI: 2.37-13.00]; p < 0.001). Patients on angiotensin converting enzyme inhibitors or angiotensin receptor blockers had higher odds of AKI (OR = 2.10 [95%CI: 1.06-4.20]; p = 0.03), as did those on insulin therapy (OR = 3.04 [95%CI: 1.13-8.19]; p = 0.04). Killip class was significantly associated with the presence of AKI (p < 0.001), with higher prevalence of AKI in Killip classes III and IV. Overall, mean contrast volume did not differ significantly between AKI and non-AKI groups. However, when analysing AKIN stages, we found contrast volume to be higher in patients with AKIN III (p = 0.013). Results of logistic regression are shown in table 2. On multivariate analysis, NTproBNP was the only independent predictor of AKI, remaining a strong predictor even when adjusted for the most relevant baseline clinical and laboratory parameters (Wald = 14.093; p < 0.001). Patients with AKI had higher in-hospital mortality (OR = 6.673 [95%CI: 2.011 to 22.144]; p = 0.005).

Table 1: A- Comparison between the AKI group Non-AKI group; **B -** Univariate and Multivariate analysis of Predictors of Acute Kidney Injury (AKI) in AMI Patients

A

	AKI (n=40)	Non-AKI (n=335)	p value
Age in years, mean (SD)	72.0 (13.8)	65.4 (11.9)	**0.001**
Male , n (%)	26 (65.0)	244 (72.8)	0.351
Hypertension, n (%)	33 (82.5)	231 (69)	0.098
Dyslipidemia, n (%)	24 (60)	169 (50.4)*	0.316
Type 2 Diabetes Mellitus, n (%)	24 (60)	169 (50.4)*	0.316
Obesity, n (%)	7 (17.5)	77 (23.0)*	0.549
CKD, n (%)	10 (25.0)	19 (5.7)	**<0.001**
Smokers, n (%)	8 (20)	105 (31.3)	0.150
ACEi/ARB, n (%)	25 (62.5)*	146 (43.6)*	**0.041**
Insulin Therapy, n (%)	6 (15)*	18 (5.4)*	**0.035**
Oral antidiabetic therapy, n (%)	15 (37.5)*	78 (23.3)*	0.080
Contrast volume, mean (SD)	166.6 (91.7)	172.1 (72.0)	0.687
Creatinine (admission), median (IQR)	1.27 (1.01)	0.88 (0.33)	**<0.001**
Urea (admission), median (IQR)	51.5 (51.3)	36.0 (15.8)	**0.020**
Troponin I (admission), median (IQR)	1305 (17614)	425 (3409)	**0.047**
Troponin I (maximal), median (IQR)	26557 (68986)	17999 (37367)	**0.039**
LDL-cholesterol, median (IQR)	99.5 (59.3)	114.5 (61.0)	**0.017**
Total cholesterol, median (IQR)	168.5 (71.0)	178.0 (69.5)	**0.035**
NTproBNP, median (IQR)	4185 (14032)	1118 (2359)	**<0.001**
Glycosylated hemoglobin , median (IQR)	6.15 (1.08)	5.8 (0.78)	**0.016**

Footnote: AKI - Acute kidney injury. CKD - Chronic kidney disease. ACEi - Angiotensin-converting enzyme inhibitors. ARB - Angiotensin receptor blockers.
IQR - Interquartile Range. SD - Standard deviation.
*missing values

B

	Univariate Analysis			Multivariate Analysis		
	Odds ratio (95% CI)	Wald	P value	Odds ratio (95% CI)	Wald	P value
Contrast volume	0.999 (0.995-1.003)	0.162	0.687			
Age	1.051 (1.021-1.082)	11.097	**0.001**	1.017 (0.981-1.055)	0.833	0.361
Creatinine (admission)	1.364 (1.074-1.731)	6.505	**0.011**	1.228 (0.782-1.928)	0.793	0.373
Urea	1.015 (1.005-1.025)	8.145	**0.004**	0.993 (0.973-1.013)	0.466	0.495
NT-proBNP	1.000 (1.000-1.000)	29.898	**<0.001**	1.000 (1.000-1.000)	14.093	**<0.001**
LDL cholesterol	0.989 (0.981-0.998)	6.120	**0.013**	0.987 (0.961-1.013)	1.022	0.312
Total cholesterol	0.992 (0.985-0.999)	5.333	**0.021**	1.009 (0.986-1.033)	0.631	0.427

Conclusions: These findings suggest the need to focus on intrinsic patient factors rather than contrast volume alone when assessing AKI risk. In particular, NT-proBNP, as a surrogate for congestion, may be a good predictor of AKI after AMI. The fact that AKI was associated with increased in-hospital mortality underscores the need for targeted prevention and management strategies.

PO 46. SHOCK INDEX-CREATININE CLEARANCE IN ACUTE CORONARY SYNDROME

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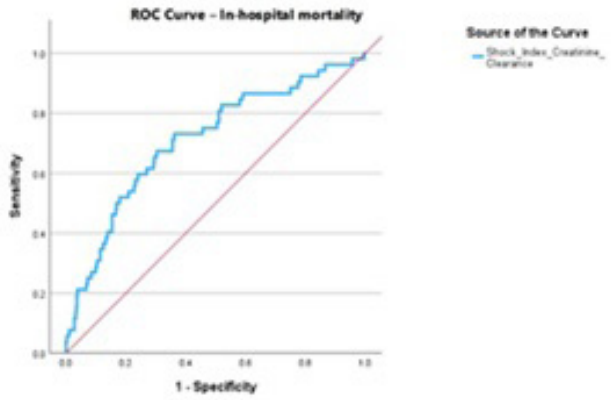
Introduction: Shock Index-Creatinine Clearance score (SI-C) is a recently developed version of the shock index. These updated score includes renal function and has already been used in ST-Elevation Myocardial Infarction patients. However, its utility in predicting outcomes for patients with Acute Coronary Syndrome (ACS) remains unclear. The aim of this study was to evaluate the interaction between SI-C and the in-hospital mortality in ACS patients.

Methods: A retrospective analysis of 528 patients admitted to a Cardiology ward diagnosed with ACS. Patients with chronic kidney disease were not included in this analysis. The SI-C was calculated from the data collected from the patient admission to the emergency room. The primary endpoint was defined as in-hospitality mortality. Analysis of significance was conducted using Chi-square analysis and Mann-Whitney U test. Receiver Operating Characteristic (ROC) curve analysis was conducted to evaluate the performance of SI-C in predicting the primary outcome. Patients were stratified into two groups based on the optimal cut-off value determined from ROC curve.
Results: Mean patient age was 65.3 (± 13.7) years; 78% were male; 9.8% of the patients died during hospital stay. No differences were found between SI-C regarding the presence of type 2 diabetes mellitus (p = 0.41), arterial hypertension (p = 0.49), dyslipidemia (p = 0.45), smoking habits (p = 0.48), obesity (p = 0.49) and previous coronary artery disease (p = 0.29). The SI-C score was significantly higher in the group of patients who deceased during hospital stay (15 ± 26 vs. -14 ± 19, p < 0.01). The predictive value of SI-C for in-hospitality mortality was good (area under the curve = 0.711, 95%CI: 0.633-0.789, p < 0.001). After categorization of the SI-C, a high SI-C score (≥ 20) was associated with an odds ratio of 3.89 (2.09-7.30; 95%CI).



Conclusions: SI-C had a good predictive value in-hospitality mortality of patients after ACS, particularly with a score ≥ 20.

PO 47. THE HEART-KIDNEY CONNECTION: ACUTE KIDNEY INJURY IN CARDIOGENIC SHOCK

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Introduction: Acute kidney injury (AKI) is a common complication in critically ill patients, with its impact on sepsis well-documented. In the setting of cardiogenic shock (CS), reduced renal perfusion and increased venous congestion, among other factors, may lead to varying degrees of renal dysfunction. However, its consequences remain insufficiently documented. We aimed to characterize the incidence and outcomes at hospitalization and at 1 year follow-up in patients with AKI associated with CS.
Methods: Single center retrospective analysis of consecutive patients admitted to a cardiac intensive care unit (CICU) between 2016 and 2023 with CS. AKI was defined by either KDIGO criteria based on serum creatinine (AKI-Cr) or urine output (AKI-UO) within 48 hours of admission. Time-to-event analysis evaluated all-cause mortality, with subgroups compared by Log-Rank test. Exclusion criteria were end-stage kidney disease, unknown prior renal status and lack of data due to early death.
Results: A total of 262 patients were included (66 ± 16 years, 66% males), with 23.3% (n = 61) having previous chronic kidney disease (CKD). AKI occurred in 79.4% (n = 208), with 73.7% (n = 193) meeting AKI-Cr criteria. AKI-UO were available for 238 patients, of whom 60.1% (n = 143) fulfilled criteria. Distribution of AKI stages is shown in Figure 1A. Continuous renal replacement therapy (CRRT) was required in 18.7% (n = 49), primarily due to volume overload (n = 41; 83.7%). Compared to patients without AKI, those with AKI, particularly those requiring CRRT (AKI-CRRT) were older (60 [47-68] vs. 70 [61-79] vs. 70 [50-82] years; p = 0.001), more likely to have previous CKD (3.7% [n = 2] vs. 24.0% [n = 38] vs. 42.9% [n = 21]; p < 0.001) and to require invasive mechanical ventilation (38.9% [n = 21] vs. 60.4% [n = 96] vs. 75.5% [n = 37]; p < 0.001). No significant differences were found in mechanical circulatory support use, contrast volume administered or CICU length of stay. In-hospital mortality was significantly higher in patients with AKI and AKI-CRRT (24.1% [n = 13] vs. 50.3% [n = 80] vs. 61.2% [n = 30]; p < 0.001). One-year mortality was 45.6% (n = 140): 37.7% (n = 20) without AKI, 56.2% (n = 86) with AKI and 67.3% (n = 33) with AKI-CRRT (p = 0.007; Figure 1B), with 6 patients lost to

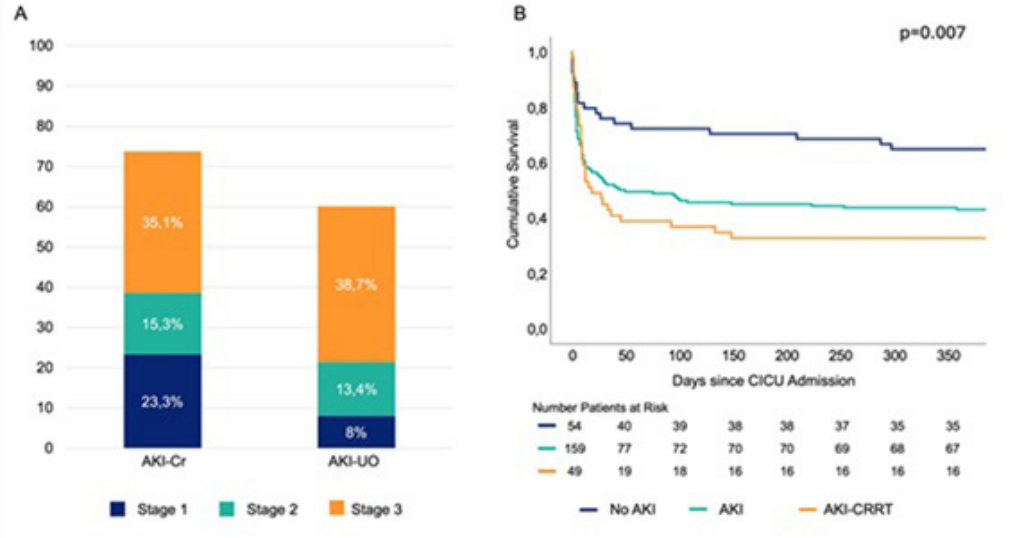

Figure 1 – (A) Distribution of AKI stages according to serum creatinine (AKI-Cr) and urine output (AKI-UO). **(B)** Kaplan-Meier estimates of all-cause mortality at one year of follow-up for patients without AKI, with AKI and AKI requiring CRRT defined by either AKI-Cr or AKI-UO criteria during CICU admission.

Figure PO 47

follow-up. Both models showed similar discriminative power for this outcome (p = 0.837), with C-statistics of 0.67 (95%CI: 0.61-0.73) for AKI-Cr and 0.67 (95%CI: 0.60-0.73) for AKI-UO. Among 116 patients who survived 1 year, 3 (2.6%) remained on chronic dialysis. Blood analyses were available for 97 survivors, of whom 81 (83.5%) recovered baseline renal function, while 16 (16.5%) experienced persistent reduction in renal function.
Conclusions: AKI is a highly prevalent condition in CS and is associated with both baseline clinical severity and worse outcomes. Among survivors, most recover their renal function during follow-up while a small fraction will require chronic dialysis.

PO 48. LIPOPROTEIN A AND CARDIOVASCULAR RISK IN ACUTE MYOCARDIAL INFARCTION: WHAT HAVE WE LEARNED IN 5 YEARS?

Cátia Oliveira, Ana Pinho, Catarina Marques, Luís Santos, Miguel Rocha, Helena Moreira, Pedro Palma, Bernardo Cruz, Emanuel Oliveira, Joana Gonçalves, Paulo Araújo, Rui André Rodrigues

Centro Hospitalar Universitário do Porto EPE.

Introduction: Lipoprotein(a) [Lp(a)] has emerged as a potential independent marker of cardiovascular risk, particularly in pts with atherosclerotic cardiovascular disease. However, its clinical utility, especially in the context of acute coronary syndrome (ACS), remains underexplored. This study aims to assess Lp(a) levels in ACS pts and evaluate their association with clinical outcomes and lipid management.
Methods: This retrospective study analyzed pts admitted with acute coronary syndrome (ACS) at a tertiary care center between 2020 and 2023, with Lp(a) testing performed at admission. Baseline characteristics, clinical outcomes, lipid management, and treatment regimens were reviewed.

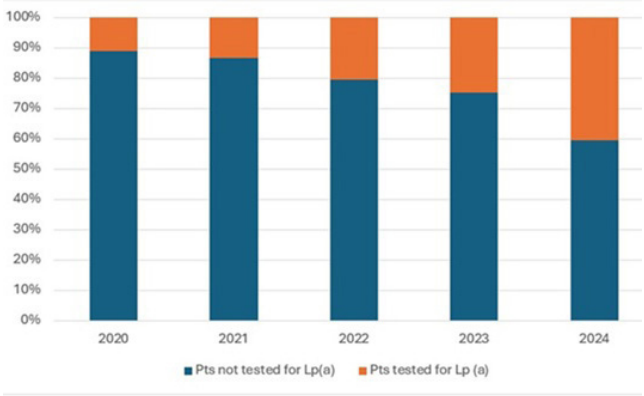

Figure 1. Evolution of lipoprotein A testing in acute coronary syndrome patients

Results: A total of 225 pts were included, with a median age of 56.8 years and a median follow-up of 26 months. The cohort included 18.6% females, and 96% had ≥ 1 cardiovascular risk factor (CVRF). 56.9% of pts had Lp(a) ≥ 30 mg/dL, with a median Lp(a) of 36.6 mg/dL. Testing frequency of Lp(a) improved over time, though less than half of ACS pts were tested in the final year of the study (Figure 1). No significant differences were observed in Lp(a) levels concerning sex, age, CVRF, family history of premature coronary heart disease, or previous cv events. Notably, higher Lp(a) levels were associated with increased use of pre-AMI antidyslipidemic treatments (p < 0.01) and higher-intensity lipid-lowering regimens (p < 0.01). In-hospital outcomes showed no significant differences except for a higher incidence of multivessel coronary disease in pts with elevated Lp(a) (p = 0.02). During follow-up, pts with higher Lp(a) levels experienced worse cardiovascular outcomes, including increased CV death and CV-related hospitalizations (median Lp(a) of 65.9 mg/dL vs. 34.8 mg/dL; p = 0.028). The incidence of recurrent ACS and heart failure hospitalization was 5.4% and 4.1%, respectively. Higher Lp(a) levels were also associated with worse lipid control during follow-up, with more pts failing to achieve LDL-C targets (median Lp(a) of 48.3 mg/dL vs. 26.1 mg/dL in LDL-targeted pts, p < 0.01). Genetic testing for familial hypercholesterolemia was performed in 5.8% of the cohort and was more common in pts with higher Lp(a) (median Lp(a) of 96.7 mg/dL vs. 34.9 mg/dL, p = 0.009).
Conclusions: Our study highlights the growing recognition of Lp(a) as a CV risk marker in ACS patients. Despite improvements in testing, Lp(a) remains underutilized in clinical practice. Elevated Lp(a) levels were associated with worse lipid control and worse CV outcomes, even with high-intensity lipid-lowering therapy. Genetic testing, while more common in pts with elevated Lp(a), remains insufficient. These findings emphasize the need for improved assessment and personalized management of pts with high Lp(a) levels. Larger studies with longer follow-up are needed to develop targeted therapeutic strategies for this high-risk group.

PO 49. PREVALENCE OF HIGH LIPOPROTEIN (A) LEVELS IN PATIENTS WITH PREMATURE MYOCARDIAL INFARCTION: SYSTEMATIC REVIEW

Mariana Agapito Fonseca, Francisco Salvaterra, Mariana Alves, Daniel Caldeira

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Introduction: Young patients with acute myocardial infarction (MI) represent a unique population, often lacking the traditional cardiovascular risk factors typically present in older individuals. In this group, genetic factors, such as elevated lipoprotein(a) [Lp(a)] levels, may play a pivotal role in the development of premature atherosclerotic cardiovascular disease (ASCVD). Elevated Lp(a) exerts proatherogenic, prothrombotic and proinflammatory effects, accelerating the progression of ASCVD. While studies trying to address the relevance of Lp(a) are undergoing, it is very important to acknowledge the dimension of the contribution of Lp(a) in this population.
Objectives: This systematic review aims to estimate the prevalence of elevated Lp(a) levels in patients with premature MI.
Methods: A systematic search was conducted in PubMed/MEDLINE and Cochrane CENTRAL, complemented by manual reference checks. The review included all types of studies (interventional and observational, cross-sectional or longitudinal, including randomized controlled trials, cohort, case-control and cross-sectional studies) that provided data about the proportion of patients with premature MI, defined as under 55 years old in men and under 65 years old in women, and elevated Lp(a). The outcome of interest was the prevalence of elevated Lp(a) levels. A random effects meta-analysis was performed to derive pooled estimates of frequency and corresponding 95% confidence intervals.
Results: 352 studies were screened, and 13 studies fulfilled the inclusion criteria. These studies enrolled a total of 2841 premature MI patients. Three different cut-off values were identified for elevated Lp(a): 20 mg/dL (n = 1), 30 mg/dL (n = 11) and 50 mg/dL (n = 1). Overall, 39.09% (95%CI 30.10-48.46) of premature MI patients had elevated Lp(a). Specifically, at the 20 mg/dL cut-off, 70% of patients had elevated Lp(a), which decreased to 39% at the 30 mg/dL cut-off and further dropped to 16% at the 50 mg/dL cut-off.
Conclusions: This systematic review revealed that the prevalence of elevated Lp(a) in young patients with MI was around 40%. These findings suggest that elevated Lp(a) may significantly contribute to premature cardiovascular events.

PO 50. LIPOPROTEIN(A) LEVELS IN ACUTE MYOCARDIAL INFARCTION PATIENTS AND THEIR ASSOCIATIONS WITH PRIOR EVENTS AND CORONARY ARTERY DISEASE SEVERITY: A REAL-WORLD COHORT STUDY

Samuel Azevedo, Rita Barbosa Sousa, Débora Silva Correia, André Moniz Garcia, C. Santos-Jorge, Márcia Presume, Rui Gomes, Isabel Fonseca, Marisa Trabulo, João Figueira, Manuel Sousa Almeida, Jorge Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Lipoprotein(a) [Lp(a)] is a recognized independent risk factor for atherosclerotic cardiovascular diseases, including coronary artery

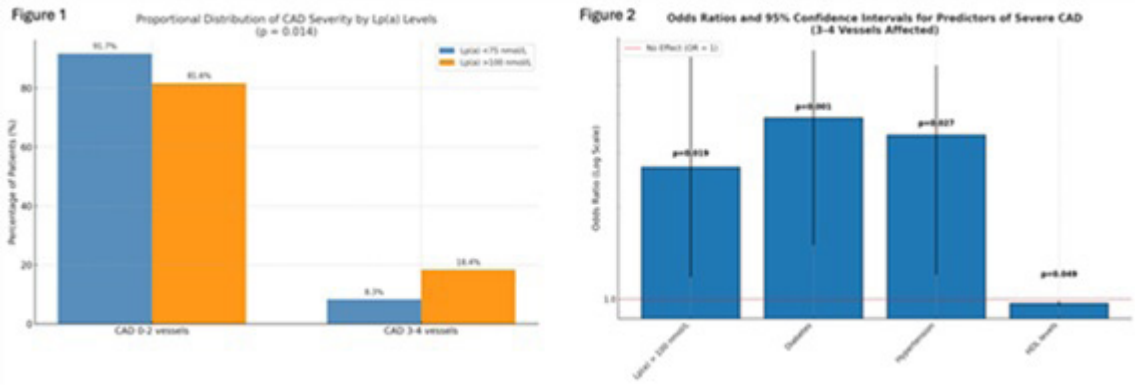


Figure PO 50

disease (CAD). The objective of this study is to explore the association between serum levels of Lp(a) and previous myocardial infarction (MI) and/or coronary revascularization and the extension of obstructive CAD in patients with acute MI undergoing coronary angiography.

Methods: All consecutive patients with MI who underwent coronary angiography and Lp(a) measurement between May 2023 and October 2024 were included. Patient data were either registered prospectively or completed retrospectively using electronic health records. Lp(a) levels were measured via immunoturbidimetric assay and categorized as < 75 nmol/L or > 100 nmol/L. CAD severity was assessed by the number of major vessels (left main, left anterior descending, left circumflex and right coronary arteries) with stenosis > 50% (CAD 0-2 vs. 3-4). Statistical analyses included chi-square tests and multivariable logistic regression adjusted for key cardiovascular risk factors.

Results: Patients with elevated Lp(a) levels (> 100 nmol/L) showed a higher prevalence of previous cardiovascular events (myocardial infarction, percutaneous coronary intervention, Coronary Artery Bypass Graft; p = 0.037). Elevated Lp(a) was independently associated with a 2.7-fold increased risk of severe CAD (3-4 vessels > 50% stenosis; OR = 2.696, 95%CI = 1.176-6.176, p = 0.019). Diabetes (OR = 3.910, p = 0.001) and hypertension (OR = 3.436, p = 0.027) were additional predictors, while HDL levels were protective (OR = 0.967, p = 0.049). The regression model demonstrated good discriminatory power (AUC = 0.780).

Conclusions: In this small real-world cohort population with acute MI, the number of previous MI or coronary revascularization was higher in patients with increased levels of Lp(a) and this marker of atherosclerotic disease was greater in patients with more extensive CAD.

PO 51. HIGH-SENSITIVITY C-REACTIVE PROTEIN AS A PREDICTOR OF CARDIOVASCULAR EVENTS IN YOUNG PATIENTS FOLLOWING MYOCARDIAL INFARCTION

Francisco Sousa[1], Maria Isabel Mendonça[2], João Adriano Sousa[1], Débora Sá[1], Matilde Ferreira[1], Gonçalo Abreu[1], Sónia Freitas[2], Eva Henriques[2], Mariana Rodrigues[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Central do Funchal. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Young patients diagnosed with coronary artery disease (CAD) face an increased risk of recurrent cardiovascular events (CVE), leading to significant morbidity and mortality. Secondary prevention in CAD patients

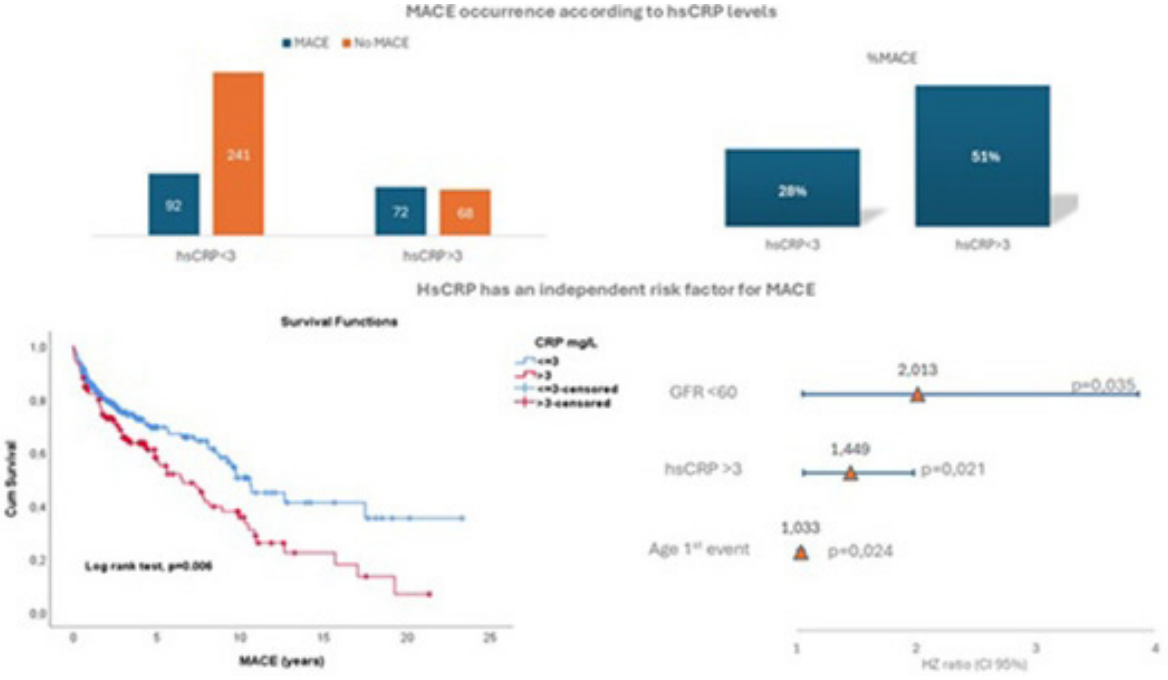


Figure PO 51

has been a cornerstone of cardiology, with great advances in traditional risk factor (TRF) management like dyslipidemia, obesity and diabetes. Inflammation has long been associated with atherosclerosis, but can it be a real driving factor in the recurrence of CVE?

Objectives: To determine if high sensibility CRP (hsCRP) can improve the identification of recurrent CVE, in patients < 55 years at the time of the first event and with few TRFs.

Methods: 473 non-diabetic patients with LDL levels < 100 mg/dl at first admission, who experienced a Myocardial Infarction < 55 years (mean age 47.2 ± 5.8 years) were prospectively followed for (4.9 ± 4.9 years). Major adverse cardiovascular events (MACE) were recorded (Myocardial Infarction; Unstable Angina; Stroke; Heart failure hospitalizations). HsCRP was measured and taking in to account the current evidence the chosen cut off was > 3 mg/L. Bivariate analysis was used to determine if elevated CRP levels and other traditional risk factors (TRFs) were associated with MACE. A multivariate analysis was performed to evaluate if hsCRP was an independent risk factor for MACE.

Results: During follow up 164 patients had at least one CVE. Patients with hsCRP > 3 mg/L (n = 140) had a 51% event rate (n = 72), the ones with hsCRp < 3 mg/L had a 28% event rate (n = 92), this difference met statistical significance (p < 0.001). After bivariate analysis Lp(a) > 30 mg/dl, younger age at the time of the 1st event, alcohol consumption > 300 mg p/week and Glomerular Filtration rate < 60 ml/min/1.73 m^2 were also associated with MACE. The multivariate analysis confirmed CRP > 3 mg/L as an independent risk factor for MACE (p = 0.021; HR 1.449) as well as GFR < 60 ml/min/1.73 m^2 (p = 0.035; HR 2.013) and younger age at the time of 1st event (p = 0.024; HR 1.033).

Conclusions: HsCRP may help the identification of individuals at a very high risk of recurrent CVE. Anti-inflammatory therapies have consistently delivered promising results in cardiovascular endpoints but failed to achieve safety. Future studies are needed to understand if HsCRP guided anti-inflammatory therapies would benefit young patients with few TRFs in secondary prevention.

Sexta-feira, 11 Abril de 2025 | 09:00-10:30

Área de Posters-écran 4 | Sessão de Posters 08 – Doenças cardiovasculares – Prognóstico na SCA

PO 52. STRATIFICATION OF CHEST PAIN IN THE EMERGENCY DEPARTMENT: HOW EFFECTIVELY DO RISK SCORES PREDICT CORONARY ARTERY STENOSIS?

André Manuel Faustino Martins, Margarida Cabral, Joana Pereira, Mónica Amado, Adriana Vazão, Carolina Gonçalves, Mariana Carvalho, Hélia Martins

ULSR Leiria.

Introduction: Chest pain (CP) is a common presenting symptom in emergency departments (ED), where a key task is to confirm or exclude acute coronary syndrome (ACS). Several risk stratification scoring systems have emerged, with the HEART, EDACS, and T-MACS scores being readily applicable in clinical practice.

Objectives: To assess the performance of the HEART, EDACS, and T-MACS scores in predicting ACS with significant coronary artery stenosis (SCS) in pts presenting with CP to the ED of a regional hospital in Portugal.

Methods: Retrospective single-center study of adult pts admitted to the ED with CP and classified as very urgent by the Manchester system during the first 5 months of 2022. Pts with ST-segment elevation myocardial infarction, traumatic CP or those in the postoperative period of cardiothoracic surgery

Table 1. (A)

	Total (n=480)	Group 1 (n=34)	Group 2 (n=446)	p-value
Male gender – n (%)	241 (50.2)	22 (64.7)	219 (49.1)	0.079[a]
Age at diagnosis (yrs) – median (IQR)	59 (27.0)	66.5 (14.0)	57.5 (27.0)	**0.004[b]**
Past medical history – n (%)				
Diabetes mellitus	85 (17.7)	11 (32.4)	74 (16.6)	**0.020[a]**
Arterial hypertension	235 (49.0)	24 (70.6)	211 (47.3)	**0.009[a]**
Dyslipidemia*	203 (42.4)	25 (73.5)	178 (40.0)	**<0.001[a]**
History of smoking*	40 (44.4)	8 (57.1)	32 (42.1)	0.298[a]
History of CAD	59 (12.3)	17 (50.0)	42 (9.4)	**<0.001[a]**
Family history of CVD*	10 (2.1)	1 (2.9)	9 (2.3)	0.519[a]
Atrial fibrillation	54 (11.3)	3 (8.8)	51 (11.4)	1.000[a]
HFpEF	45 (9.4)	6 (17.6)	39 (8.7)	0.117[a]
HFmrEF	12 (2.5)	0 (0)	12 (2.7)	1.000[a]
HFrEF	12 (2.5)	3 (8.8)	9 (2.0)	**0.046[a]**
Valvular heart disease	26 (5.4)	3 (8.8)	23 (5.2)	0.417[a]
Previous ischemic stroke/TIA	24 (5.0)	3 (8.8)	21 (4.7)	0.237[a]
Peripheral arterial disease	17 (3.5)	2 (5.9)	15 (3.4)	0.342[a]
Chronic kidney disease	36 (7.5)	5 (14.7)	31 (7.0)	0.164[a]
Pulmonary disease	44 (9.2)	9 (26.5)	35 (7.8)	**0.002[a]**
Depression/anxiety	154 (32.1)	7 (20.6)	147 (33.0)	0.136[a]
Clinical risk score results				
HEART score				
Total scoring – median (IQR)	3.0 (3.0)	8.0 (1.0)	3.0 (3.0)	**<0.001[b]**
Low risk, score [0-3] – n (%)	255 (53.1)	0 (0)	255 (57.2)	**<0.020[a]**
Intermediate risk, score [4-6] – n (%)	173 (36.0)	6 (17.6)	167 (37.4)	**<0.001[a]**
High risk, score [7-10] – n (%)	52 (10.8)	28 (82.4)	24 (5.4)	**<0.001[a]**
EDACS score				
Total scoring – median (IQR)	13.0 (10.0)	20.0 (6.0)	13.0 (8.0)	**<0.001[b]**
Low risk, score < 16 – n (%)	311 (64.8)	3 (8.8)	308 (69.1)	**<0.001[a]**
Not low risk, score ≥ 16 – n (%)	169 (35.2)	31 (91.2)	138 (30.9)	**<0.001[a]**
T-MACS score				
Total scoring – median (IQR)	0.026 (0.076)	0.998 (0.454)	0.024 (0.058)	**<0.001[b]**
Very low risk, score < 0.02 – n (%)	180 (37.5)	0 (0)	180 (40.4)	**<0.001[a]**
Low risk, score [0.02-0.05[– n (%)	121 (25.2)	1 (2.9)	120 (26.9)	**0.002[a]**
Moderate risk, score [0.05-0.95[– n (%)	138 (28.8)	12 (35.3)	126 (28.2)	0.382[a]
High risk, score ≥ 0.95 – n (%)	41 (8.5)	21 (61.8)	20 (4.5)	**<0.001[a]**

(B)

EDACS score

- **Age** – 18-45: 2 pts, 46-50: 4 pts, 51-55: 6 pts, 56-60: 8 pts, 61-65: 10 pts, 66-70: 12 pts, 71-75: 14 pts, 76-80: 16 pts, 81-85: 18 pts, ≥86: 20 pts
- **Aged 18-50 yrs and either known CAD or ≥3 risk factors** – 4 pts
- **Male sex** – 6 pts
- **Symptoms and signs** – Diaphoresis: 3 pts, Radiation to arm/shoulder: 5 pts, Pleuritic pain: - 4 pts, Pain reproduced by palpation: - 6 pts

HEART score

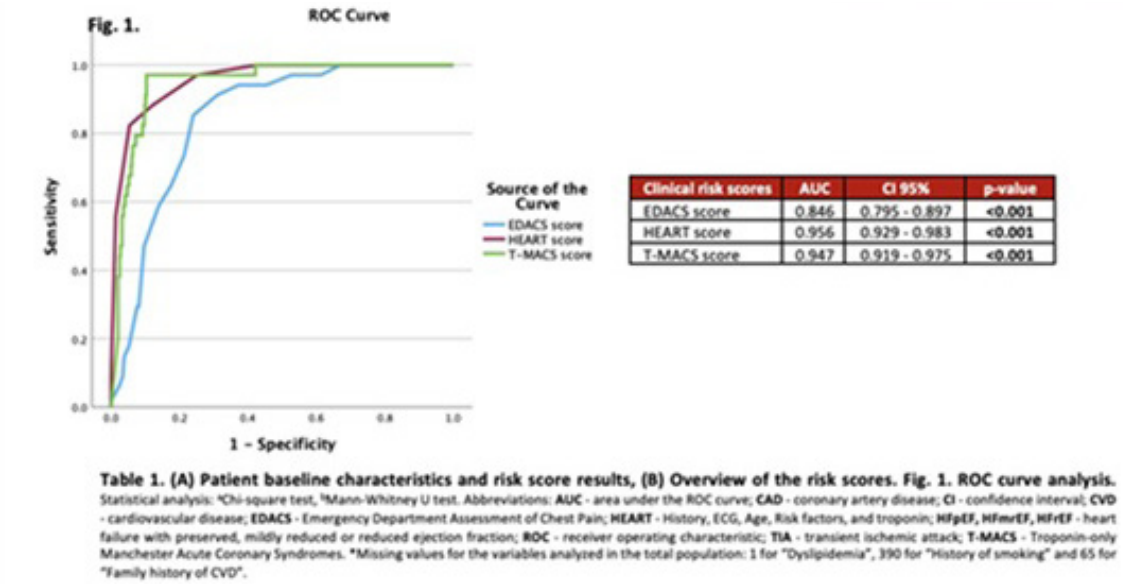
- **History** – Highly suspicious: 2 pts, Moderately suspicious: 1 pts, Slightly suspicious: 0 pts
- **ECG** – Significant ST depression: 2 pts, Nonspecific repolarization disturbance: 1 pts, Normal: 0 pts.
- **Age** – ≥65: 2 pts, 45-65: 1 pts, <45: 0 pts
- **Risk factors** – ≥3 or history of atherosclerotic disease: 2 pts, 1-2: 1 pts, 0: 0 pts
- **Troponin** – >2x normal limit: 2 pts, 1-2x normal limit: 1 pts, < normal limit: 0 pts

T-MACS score

- **ECG** significant ST changes (E) – 1 pts
- **Worsening angina** (A) – 1 pts
- **Radiation** to arm/shoulder (R) – 1 pts
- **Vomiting** (V) – 1 pts
- **Sweating** (S) – 1 pts
- **Hypotension** (H) – 1 pts
- **Troponin levels at presentation** (pg/ml) (T)

$p = \frac{1}{1 + e^{[illegible]}}$

Figure PO 52



Clinical risk scores	AUC	CI 95%	p-value
EDACS score	0.846	0.795 - 0.897	<0.001
HEART score	0.956	0.929 - 0.983	<0.001
T-MACS score	0.947	0.919 - 0.975	<0.001

Table 1. (A) Patient baseline characteristics and risk score results, (B) Overview of the risk scores. Fig. 1. ROC curve analysis.
Statistical analysis: *Chi-square test, †Mann-Whitney U test. Abbreviations: **AUC** - area under the ROC curve; **CAD** - coronary artery disease; **CI** - confidence interval; **CVD** - cardiovascular disease; **EDACS** - Emergency Department Assessment of Chest Pain; **HEART** - History, ECG, Age, Risk factors, and troponin; **HFpEF, HFmrEF, HFrEF** - heart failure with preserved, mildly reduced or reduced ejection fraction; **ROC** - receiver operating characteristic; **TIA** - transient ischemic attack; **T-MACS** - Troponin-only Manchester Acute Coronary Syndromes. *Missing values for the variables analyzed in the total population: 1 for "Dyslipidemia", 390 for "History of smoking" and 65 for "Family history of CVD".

Figure PO 52 ***(Cont.)***

were excluded. Pts with suspected ACS underwent cardiac catheterization (CC) and were classified into two groups: Group 1, consisting of pts with significant coronary artery stenosis (SCS), defined as ≥ 70% coronary artery stenosis; and Group 2, which included ACS patients without SCS and non-ACS patients. Demographic data were recorded, and the HEART, EDACS, and T-MACS scores were calculated for each patient. Group comparisons were performed.
Results: A total of 480 pts were included; median age was 59 yrs (IQR 27) and 241 pts (50.2%) were male. The baseline characteristics are presented in Table 1. 46 pts (9.6%) underwent CC due to suspected ACS, and 34 (7.1%) were found to have SCS (Group 1). Group 1 pts were significantly older and had a higher prevalence of diabetes, hypertension, dyslipidemia and history of coronary artery disease (Table 1). The EDACS score showed the lowest discriminatory capacity for ACS-SCS, with an area under the curve (AUC) of 0.846 ($p < 0.001$) and a score ≥ 16.5 yielding 85% sensitivity and 76% specificity. In contrast, the HEART and T-MACS scores showed superior discriminatory accuracy for ACS-SCS (AUC 0.956 and 0.947, respectively; $p < 0.001$), with a HEART score ≥ 6.5 yielding 82% sensitivity and 46% specificity, and a T-MACS score ≥ 0.229 showing 97% sensitivity and 90% specificity. However, it is important to note that both the HEART and T-MACS scores have limited discriminatory ability for predicting ACS-SCS in pts with moderate risk.
Conclusions: The HEART, EDACS, and T-MACS scores are valuable tools for SCS, enabling the prioritization of CP pts in ED and ensuring timely interventions and efficient resource allocation.

PO 53. IDENTIFYING PREDICTORS OF MISCLASSIFICATION IN OCCLUSION MYOCARDIAL INFARCTION

André Lobo, Francisca Nunes, Francisco Sousa, Fábio Nunes, Marta Catarina Almeida, Marta Leite, Inês Neves, Inês Rodrigues, António Gonçalves, Ricardo Fontes-Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Occlusion Myocardial Infarction (OMI) is an evolving concept in Acute Coronary Syndromes (ACS) that challenges the traditional STEMI paradigm. It emphasizes detecting acute coronary occlusion through subtle ECG findings to better identify patients requiring urgent revascularization. This study evaluates the characteristics of patients classified as NSTEMI despite presenting with acute OMI, focusing on cases where a paradigm shift may hold greater clinical significance.
Methods: We retrospectively analyzed 336 ACS patients admitted over one year. Patients initially classified as STEMI or NSTEMI/UA were reclassified as OMI or non-OMI ACS based on OMI definition: TIMI flow ≤ 2 and/or significantly elevated troponin (Troponin T > 1,000 ng/L or Troponin I > 5,000 ng/L) with regional wall motion abnormalities. Patients were grouped as STEMI, NSTEMI-OMI, or NSTEMI-non-OMI. Baseline characteristics, including demographics, comorbidities, and ECG findings (rhythm abnormalities, bundle branch block [BBB], pacemaker rhythm, and left ventricular hypertrophy), were compared across groups.
Results: Among 336 ACS patients, including 196 STEMI and 134 NSTEMI/UA cases. Of those, 52 were reclassified as NSTEMI-OMI. NSTEMI-OMI patients were more likely to present with BBB or pacemaker rhythm (23.1 vs. 6.1%; $p < 0.001$) and a history of coronary disease (30.8 vs. 11.2%; $p = 0.002$) compared to STEMI patients. No other significant differences in demographics, comorbidities, or ECG characteristics were found. Similarly, no significant differences were observed between NSTEMI-OMI and NSTEMI-non-OMI patients. Discussion: Prior ECG changes, such as BBB or pacemaker rhythm, and a history of coronary disease may obscure coronary occlusion using STEMI criteria, likely due to baseline ECG abnormalities. Even modified criteria may miss these cases. Transitioning to the OMI paradigm could improve early recognition and management by identifying occlusions irrespective of STEMI criteria. This study highlights a subgroup where this shift may be particularly important. Advanced tools like AI-driven ECG analysis could enhance detection, bridge diagnostic gaps, and support timely revascularization. However, the OMI paradigm still faces challenges, including a lack of standardization in ECG interpretation and validation in randomized studies.
Conclusions: Adopting the OMI paradigm could improve the detection and management of coronary occlusion in patients with challenging ECGs, such as BBB, pacemaker rhythm, or prior coronary disease. Further standardization and validation are needed to ensure broader clinical applicability.

PO 54. LONG-TERM OUTCOMES AND RISK FACTORS IN YOUNG ADULTS WITH ACUTE CORONARY SYNDROME: A DECADE OF EXPERIENCE

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Hospital Garcia de Orta, EPE.

Introduction: Acute Coronary Syndrome (ACS) incidence in younger populations has been increasing worldwide. Several aspects remain unclear despite young individuals presenting distinct risk profiles compared to their older counterparts. A comprehensive understanding of the evolving characteristics and treatment options is crucial to address the burden of ACS in this population. However, data regarding long-term follow-up and prognosis in young adults remain limited.
Objectives: Describe the demographic, clinical characteristics, and outcomes, including major adverse cardiovascular events (MACE), in young individuals hospitalized with ACS.
Methods: We conducted a retrospective, single-center study of young individuals hospitalized with ACS between January 1, 2013, and October 30, 2023. We defined young individuals as 45 years or below. We analyzed demographics, clinical characteristics, and outcomes, including MACE, defined as the composite of all-cause mortality, myocardial infarction, stroke, and hospitalization due to heart failure.
Results: A total of 130 patients were included, with a median follow-up of 4.5 years (SD 2.9). The majority were male (77.7%), with a mean age of 41.8 years (SD 4.2). Nearly all patients (97.9%) had at least one traditional cardiovascular risk factor. The most prevalent were overweight or obesity (75.2%), dyslipidemia (74.6%), hypertension (30.8%), diabetes (20%), family history of premature ACS (20%), and smoking (79.2%). Less common comorbidities included drug use (11.5%), autoimmune diseases (2.3%), and inflammatory conditions (0.8%). The cohort's clinical presentation included STEMI (60.8%), NSTEMI (30%), and unstable angina (9.2%). Cardiorespiratory arrest occurred in 3.1% of cases at presentation. Most patients had single-vessel disease (74.6%), predominantly involving the left anterior descending artery (61.5%). Atherosclerosis was the primary cause of ACS (76.9%), followed by in-stent restenosis (8.5%), embolism (5.4%), and spontaneous coronary artery dissection (2.3%). During follow-up, 17.7% of patients experienced MACE, with cardiovascular mortality at 5.4% and recurrent myocardial infarction at 10.8%. In a multivariate analysis, no significant associations were found between demographic characteristics, risk factors, or clinical presentation and the development of MACE.
Conclusions: Young adults with ACS face a substantial risk of major cardiovascular events and premature mortality during long-term follow-up, with a high rate of recurrent events. Early morbidity and mortality significantly impact their most productive years. Cardiovascular risk factors such as smoking, obesity, and dyslipidemia should not be underestimated in young individuals. Further studies are needed to explore the potential benefits of primary prevention strategies in this high-risk population.

PO 55. PREDICTING MAJOR ADVERSE CARDIOVASCULAR EVENTS AFTER UNSTABLE ANGINA: IS IT POSSIBLE?

Mariana Rodrigues Simões, Bernardo Resende, Mafalda Griné, João Gameiro, Luís Paiva, Maria João Ferreira, Lino Gonçalves

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Introduction: Acute coronary syndromes (ACS), such as unstable angina (UA), represent a significant burden of morbidity and may severely impact quality of life. Over their lifetime, many patients experience recurrent cardiovascular events, for example, additional episodes of ACS or development of heart failure.
Methods: We performed a single-centre retrospective study reviewing patients with the diagnosis of unstable angina (UA) between January 2013-June 2021. Our purpose was to identifying predictors of major adverse cardiac events (MACE). MACE was defined as a composite of nonfatal myocardial infarction (MI), hospitalization for heart failure (hHF), and repeated coronary angiography because of recurring UA (rUA) during follow-up. A revision of informatized clinical files was performed and SPSS software was used for statistical analysis.
Results: A total of 742 patients were included. Sixty-eight percent of patients were men. The mean age was 65.75 ± 11.18 years. All patients underwent coronary angiography and the median high sensitivity troponin levels at admission were 0.012 (0.011-0.034) ng/ml. The follow-up time was 46.1 ± 25.7 months. Patients were divided in MACE and non-MACE groups. MACE happened to 125 patients (17%). MACE group had higher percentage of diabetes *mellitus* (DM) (47% versus (*vs*) 33%, p = 0.002), arterial hypertension (90 vs. 83%, p = 0.03) and hyperlipidaemia (91 vs. 83%, p = 0.02). There was not any association between gender (p = 0.118), age (p = 0.23) or past/current history of smoking (p = 0.140) and MACE. Regarding, echocardiographic alterations, patients in MACE group presented lower median left ventricular ejection fraction (LVEF) (55 (IQR15) *vs*. 60 (IQR5), p < 0.001) and a higher percentage of patients with wall motion alterations (45 vs. 29%, p < 0.001). Significant coronary artery disease (CAD) was also more common in MACE group: 73 vs. 50%, p < 0.001. When performing multivariate analysis, and adjusting to confounders, presence of significant CAD (B = 0.864; OR = 2.37 (CI 1.53-3.67), p < 0.001), DM (B = 0.472; OR = 1.60 (CI 1.06-2.41), p = 0.024) and LVEF (B = -0.042; OR = 0.96 (CI 0.94-0.98), p < 0.001) were independent predictors of MACE.
Conclusions: In our contemporary cohort of unstable angina, presence of significant CAD, diabetes *mellitus*, and lower values of LVEF were predictors of composite of nonfatal myocardial infarction, hospitalization for heart failure and repeated coronary angiography because of recurring UA, after index event.

PO 56. PREDICTORS OF SIGNIFICANT CORONARY ARTERY DISEASE IN A CONTEMPORARY COHORT OF UNSTABLE ANGINA PATIENTS

Mariana Rodrigues Simões, Rafaela Fernandes, Gonçalo Terleira Batista, Luís Paiva, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: The diagnosis of unstable angina (UA) can be challenging due to its diverse clinical presentations, as well as its varying association with significant coronary artery disease and the need for myocardial revascularization.
Methods: We performed a single-centre, retrospective observational study reviewing patients with the diagnosis of UA between January 2013 - June 2021. The cohort was divided in two group: patients with significant coronary artery disease (CAD^+) and those without (CAD^-), detected by coronary angiography. A revision of informatized clinical files was performed and SPSS software was used statistical analysis.
Results: A total of 742 patients were included. Sixty-eight percent of patients were men. The mean age was 65.75 ± 11.18 years. All patients underwent coronary angiography and the median high sensitivity troponin levels at admission were 0.012 (0.011-0.034) ng/ml. The follow-up time was 46.1 ± 25.7 months. Significant CAD was present in 396 patients (53%). Patients in CAD^+ group were more frequently men (n = 293 versus (*vs*) 215, p = 0.001) and were older (66.8 ± 10.7 vs. 64.5 ± 11.6, p = 0.004). They also presented more risk factors such as arterial hypertension (n = 344 *vs*. 278, p = 0.016), diabetes *mellitus* (156 vs. 104, p = 0.008) and hyperlipidemia (n = 355 vs. 271, p < 0.001), but current or past smoking history was not associated to CAD (n = 135 *vs*. 108, p = 0.405). In the electrocardiogram (ECG), patients in the CAD^+ group more commonly exhibited ST segment deviation (n = 62 vs. 33, p = 0.013). Related to echocardiographic findings, CAD^+ group showed lower left ventricular ejection fraction (LVEF) (54.43 ± 8.38 vs. 56.48 ± 7.89%, p = 0.001) and more frequently wall motion abnormalities (WMA) (n = 150 vs. 73, p < 0.001). When performing multivariate analysis, and adjusting to confounders, age (B = 0.02, OR = 1.02 (CI 1.005-1.035), p = 0.007), male gender (B = 0.504, OR = 1.66 (CI 1.178-2.326), p = 0.004), hyperlipidemia (B = 0.747, OR = 2.111 (CI 1.356-3.286), p = 0.001), WMA (B = 0.726, OR = 2.07 (CI 1.468-2.91), p < 0.001) and ST-segment deviation (B = 0.633, OR = 1.88 (CI 1.174-3.02), p = 0.009) were independent predictors of CAD.
Conclusions: In a contemporary UA cohort, age, male gender, hyperlipidaemia, WMA on echocardiography and ST-segment deviation on ECG were independent predictors of significant CAD.

PO 57. INSIGHTS INTO LEFT VENTRICULAR SYSTOLIC FUNCTION RECOVERY FOLLOWING ACUTE CORONARY SYNDROME

Inês Arrobas Rodrigues, António Gonçalves, Marta Almeida, André Lobo, Inês Neves, Marta Leite, Leonor Moura, Fábio Nunes, Rafael Teixeira, Eduardo Vilela, Ricardo Fontes-Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Left ventricular (LV) dysfunction frequently occurs following acute coronary syndrome (ACS) and can significantly impact patient outcomes. Standard care aims to prevent and reverse adverse LV remodelling, but several factors may influence LV function recovery.
Objectives: This study aims to evaluate LV ejection fraction (LVEF) recovery at 12 months in patients with newly reduced LVEF following ACS and to identify predictors of LVEF non-recovery.
Methods: All patients hospitalized for an ACS between April 2022 and December 2023 were retrospectively identified. Those with reduced LVEF (EF < 50%) during the index event and no prior history of LV disfunction were included. LVEF was evaluated during the initial hospitalization and at 12 months. A multivariate logistic regression model was used to identify independent predictors of LVEF non-recovery at 12 months.
Results: A total of 339 patients with ACS were identified, of whom 135 (41%) patients had newly reduced LVEF and were included. The majority were male (75.6%) with a mean age of 64 years (SD 12.0) and a median LVEF of 41% (IQR 37-45). 65.2% of the patients presented with ST elevation myocardial infarction (STEMI) and 28.1% with non-STEMI; 6.7% were admitted for unstable angina. At 12 months, two-thirds of patients (66.7%) demonstrated LVEF recovery (LVEF ≥ 50%), while 16.3% had mildly reduced LVEF (40-49%) and 11.1% had LVEF < 40%. Overall, the median LVEF significantly increased to 55% (IQR 46-59), p < 0.001. Patients with persistent LVEF dysfunction (LVEF < 50%) were more frequently diabetic compared with patients with LVEF recovery (43.2 vs. 25.6%, p = 0.059). No other significant differences were observed between groups. After adjusting for other cardiovascular risk factors, type of ACS at baseline, complete revascularization, adherence to treatment, and participation in cardiac rehabilitation programs, diabetes (OR 4.6, 95%CI 1.4-14.9, p = 0.01) and previously known coronary artery disease (OR 2.3, 95%CI 1.0-5.0, p = 0.04) were identified as independent predictors of LVEF non-recovery at one year.
Conclusions: A significant proportion of patients developed newly reduced LVEF following an ACS. Current treatments enabled a favourable cardiac remodeling with LVEF recovery observed in two-thirds of patients at 12 months. Diabetes and previously known coronary artery disease were independent predictors of LVEF non-recovery at 12 months, possibly indicating low cardiac reserve in these patients.

PO 58. MECHANICAL COMPLICATIONS OF ACUTE MYOCARDIAL INFARCTION: CLINICAL CHARACTERISTICS AND MORTALITY TRENDS

Mariana Ferreira Carvalho[1], Carolina Gonçalves[2], Adriana Vazão[2], André Martins[2], Joana Pereira[2], Mónica Amado[2], Jorge Guardado[2], Hélia Martins[2], em nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[3]

[1]Centro Hospitalar de Leiria, Hospital de Santo André. [2]Centro Hospitalar de Leiria/Hospital de Santo André. [3]CNCDC-Centro Nacional de Coleção de Dados em Cardiologia.

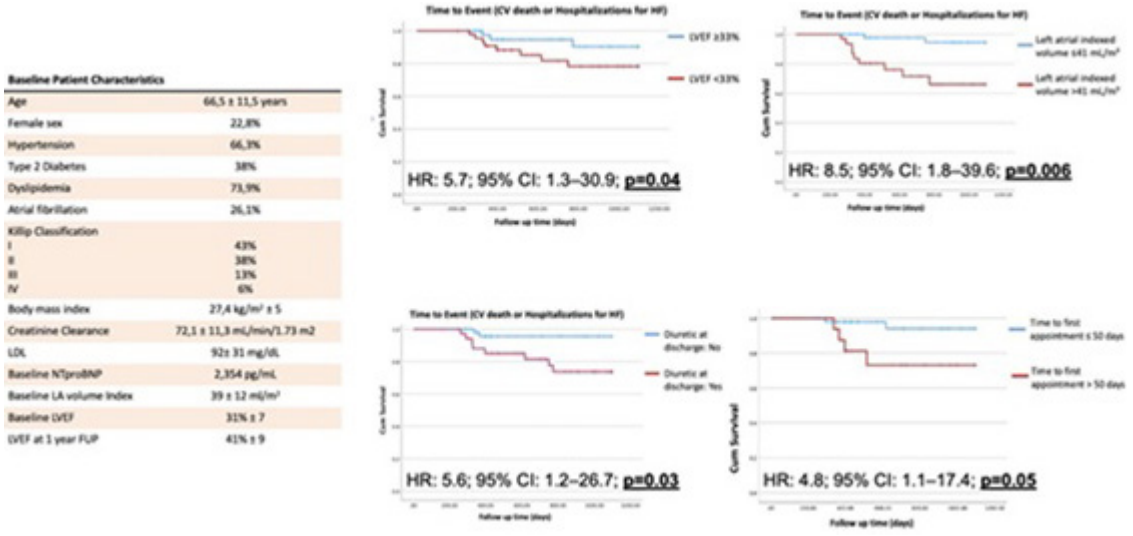
Introduction: Mechanical complications following acute myocardial infarction (AMI) remain a critical concern despite advances in reperfusion therapies. These events, though less frequent with improved reperfusion, still carry significant mortality. This study aimed to evaluate temporal trends in incidence and mortality of mechanical complications post-AMI in Portugal and identify key prognostic factors, emphasizing the clinical impact of these findings.
Methods: A retrospective study using data from the Portuguese Registry of Acute Coronary Syndromes (ProACS) (2002-2022) on STEMI patients ≥ 18 years presenting within 12 hours and undergoing reperfusion. Survival analysis included Kaplan-Meier estimates for survival probabilities and Cox proportional hazards models to identify independent predictors of mortality. Temporal mortality trends were assessed with segmented regression to evaluate statistical significance over four defined periods.
Results: Of 5,269 STEMI patients, 26 (0.5%) had complications: acute mitral regurgitation (38.5%), ventricular free wall rupture (34.6%), and ventricular septal rupture (26.9%). In-hospital mortality was significantly higher in these patients (p < 0.001). Mortality declined from 0.8% (2011-2013) to 0.5% (2020-2023; p = 0.005). One-year survival was 45% for patients with complications versus 90% for those without. Key predictors of mortality included advanced age (HR = 1.04, p < 0.001), diabetes (HR = 1.49, p = 0.017), prior heart failure (HR = 1.97, p = 0.026), vascular disease (HR = 2.86, p < 0.001), and malignancy (HR = 2.55, p < 0.001). Dyslipidemia showed a protective effect (HR = 0.64, p = 0.005), likely reflecting statin therapy benefits. Kaplan-Meier analysis revealed 62% of deaths occurred within 30 days. Free wall rupture had the worst prognosis (25% one-year survival), followed by septal rupture (40%) and mitral regurgitation (50%). Temporal trends showed patients receiving reperfusion within 6 hours experienced significantly lower mortality than those treated later (p < 0.01).
Conclusions: Mechanical complications of STEMI remain rare but associated with high mortality, particularly within the first 30 days post-event. This analysis shows that early reperfusion (< 6 hours) significantly reduces mortality, emphasizing the need for rapid intervention. Identifying high-risk groups, such as patients with advanced age, prior heart failure, or vascular disease, allows physicians to tailor management strategies.

PO 59. PREDICTORS OF CORONARY ARTERY DISEASE IN ACUTE HEART FAILURE PATIENTS: DO THEY ALL BENEFIT FROM INVASIVE CORONARY ANGIOGRAPHY?

Mauro Moreira, José Luís Ferraro, Ana Rodrigo Costa, Inês Gomes Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Adriana Pereira, Aurora Andrade

ULS Tâmega e Sousa.

Introduction: Coronary artery disease (CAD) is highly prevalent in heart failure (HF), posing diagnostic and management challenges due to overlapping manifestations. Despite advances, uncertainty remains regarding CAD assessment and revascularization in HF patients.
Methods: Single-centre, retrospective study with acute heart failure (AHF) patients undergoing invasive coronary angiography (ICA). Acute coronary syndrome cases were excluded. History, symptoms, biomarkers, electrocardiogram (ECG) and echocardiogram findings were compared. A composite endpoint (CE) included revascularization, antiplatelet therapy or lipid-lowering therapy initiation/up-titration. Backwards Wald logistic regression was used to estimate composite endpoint independent predictors.
Results: Of 215 patients, 120 patients underwent ICA (58.6%). Mean age was 67.9 ± 12.0 years; 68.3% male. Hypertension (80.8%) and dyslipidaemia (63.3%) were highly prevalent. HFrEF was present in 44.2% of cases, and 65% had new-onset HF. Chest pain was absent in 82.5% of patients. History of CAD was present in 16.7%. Median left ventricle ejection fraction was 33.78 ± 14.1%. ECG changes suggestive of ischemia were observed in 36.7% of patients, and 35.8% had new-onset segmental kinetic disturbances. CE was more frequent in current smokers (37.5%; p < 0.001); absence of previous HF (35.1 vs. 12.7%; p < 0.001); typical thoracic pain (42.9 vs. 16.9%; p = 0.016) non-medicated with beta-blockers (24.8 vs. 13.3%; p = 0.032); new-onset HF (24.5 vs. 12.4%; p = 0.022); higher haemoglobin (13.5 vs. 12.7 g/dL; p = 0.039), total cholesterol (169.9 vs. 139.5 mg/dL; p < 0.001), LDL-C (99.0 vs. 74.7 mg/dL; p < 0.001) and TG (140.5 vs. 109.2 mg/dL; p = 0.019); presence of changes suggestive of ischemia (28.4 vs. 13.5%; p = 0.008) and new-onset segmental kinetic disturbances (42.9 vs. 16.9%; p = 0.016). When these variables are applied in logistic regression, the resulting module has a very good prediction accuracy for the CE (AUC = 0.798 (0.716-0.881)). ECG changes suggestive of ischemia (OR = 10.9; p = 0.007) and new-onset segmental kinetic disturbances (OR = 14.1; p = 0.011) were identified as independent predictors of the CE.
Conclusions: This study highlights the diagnostic and therapeutic importance of simple variables, such as ischemic markers on ECG and echocardiography, in identifying CAD and guiding management in patients



Baseline Patient Characteristics	
Age	66,5 ± 11,5 years
Female sex	22,8%
Hypertension	66,3%
Type 2 Diabetes	38%
Dyslipidemia	73,9%
Atrial fibrillation	26,1%
Killip Classification	
I	43%
II	38%
III	13%
IV	6%
Body-mass index	27,4 kg/m² ± 5
Creatinine Clearance	72,1 ± 11,3 mL/min/1.73 m2
LDL	92± 31 mg/dL
Baseline NTproBNP	2,354 pg/mL
Baseline LA volume index	39 ± 12 ml/m²
Baseline LVEF	31% ± 7
LVEF at 1 year FUP	41% ± 9

Figure PO 60

with AHF. Elevated cholesterol, smoking, and typical thoracic pain further inform risk of CAD, particularly in new-onset HF cases.

These findings highlight the importance of early follow-up and tailored guideline directed medical therapy for patients with any of those characteristics at discharge.

PO 60. UNCOVERING PREDICTORS OF ADVERSE OUTCOMES IN HFREF AFTER ACUTE MYOCARDIAL INFARCTION

Daniel Inácio Cazeiro[1], Catarina Gregório[1], Diogo Ferreira[1], Fátima Salazar[2], Ana Francês[2], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto J. Pinto[1], Dulce Brito[1], João Agostinho[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Cardiology, Hospital de Santa Maria (ULSSM), Lisboa.

Introduction: ischemic heart disease is the leading cause of heart failure (HF) with reduced left ventricle ejection fraction (LVEF). Acute myocardial infarction often serves as the precipitating event that leads to LVEF reduction and, in some cases, to HF. However, while some patients fully recover their LVEF and avoid developing HF with revascularization and optimized medical therapy, others remain with reduced LVEF and end up developing HF symptoms. The aim of this study is to define predictors of cardiovascular (CV) death or HF hospitalization (HFH) in this population.
Methods: This prospective, single-center study included post-myocardial infarction patients with LVEF < 50% at discharge, who started being followed at a HF-specialized outpatient clinic since 2020. The primary outcome was a composite of CV death or HFH at 3 years. Logistic regression, receiver operating characteristic curve and Kaplan-Meier survival analysis were performed to identify predictors of poor outcomes.
Results: The study included 92 patients (22.8% female, mean age: 66.5 ± 11.5 years) with a mean follow-up of 2.5 years. Baseline mean LVEF was 31%, and median NT-proBNP was 2,354 pg/mL; 46.7% were discharged without diuretic therapy. After one year of optimized medical therapy, the mean LVEF improved to 41%, 63% of patients no longer required furosemide, and 51%, were in NYHA class I. At three years, baseline LVEF < 33% was associated with an increased risk of the composite outcome (HR: 5.7; 95%CI: 1.3-30.9; p = 0.04). A left atrial indexed volume > 41 mL/m² was also strongly associated with worse outcomes (HR: 8.5; 95%CI: 1.8-39.6; p = 0.006). Additional predictors of poor prognosis included a delay of > 50 days to the first post-discharge appointment (HR: 4.8; 95%CI: 1.1-17.4; p = 0.05) and diuretic therapy at discharge (HR: 5.6; 95%CI: 1.2-26.7; p = 0.03). In contrast, baseline creatinine, LDL cholesterol, NT-proBNP levels, and foundational HF therapy doses were not statistically associated with outcomes.
Conclusions: In this cohort, baseline LVEF < 33%, left atrial indexed volume > 41 mL/m², delayed follow-up (> 50 days), and diuretic need at discharge were significant predictors of cardiovascular death and HF hospitalization.

Sexta-feira, 11 Abril de 2025 | 11:00-12:00

Área de Posters-écran 1| Sessão de Posters 09 – Obesidade e hipertensão: velhos conhecidos, novas ferramentas

PO 61. GLP1 AGONISTS: PRESCRIBER INERTIA OR ACCESSIBILITY ISSUE?

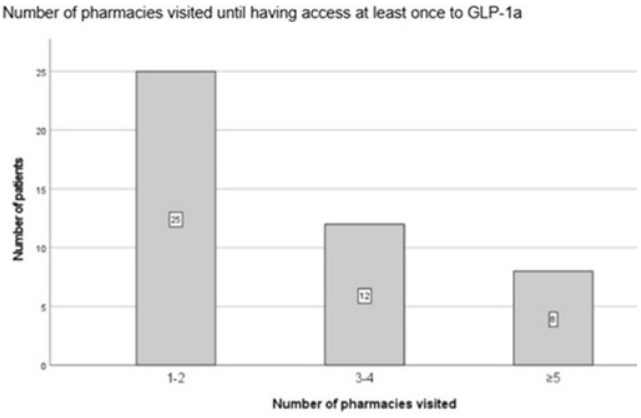
Matilde Ferreira[1], João Adriano Sousa[1], Maria Isabel Mendonça[2], Débora Sá[1], Gonçalo Abreu[1], Francisco Sousa[1], Sónia Freitas[2], Eva Henriques[2], Mariana Rodrigues[2], António Drumond[1], Ana Célia Sousa[1], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra. Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: In patients with diabetes and chronic coronary syndrome, treatment with GLP-1 receptor agonists and/or SGLT2 inhibitors is recommended to reduce cardiovascular (CV) risk, independent of glucose control, and as an addition to the standard of care, according to the latest guidelines. However, prescription patterns and data on local availability appear limited, as there is a general perception that access to GLP-1 receptor agonists (GLP-1a) in local pharmacies is low.
Methods: A substudy of the cross-sectional database from our center cohort was conducted using diabetic patients with chronic coronary syndrome. This observational study aimed to better understand guideline adherence, prescription patterns, and local drug accessibility. Data was obtained through a telephone survey.
Results: A total of 261 patients with type 2 diabetes mellitus and a history of coronary cardiovascular events (e.g. myocardial infarction or unstable angina) were surveyed. Of these, 210 (80.5%) were male, with a mean age of 68.1years (range 44-87). SGLT2 inhibitors were prescribed to 79.3% (n = 207) of patients. However, 216 patients (82.5%) had not been prescribed GLP-1a in the past two years. Among the 45 patients (17.2%) who had received at

least one prescription, the distribution was as follows: 44.4% for semaglutide, 28.9% for dulaglutide, 11.1% for liraglutide and 15.6% for exenatide. Access to the prescribed medication was reported by 88.9% of these patients at least once, while 1.9% never obtained access. On average, patients visited 2.93 pharmacies (range: 1-12) to obtain their medication. Notably, 73.3% of patients reported interrupting treatment at least once due to limited availability, and an alternative GLP-1a was prescribed in 15.6% of cases to address accessibility issues.

Conclusions: The proportion of diabetic patients receiving guideline-recommended therapy remains suboptimal, reflecting a persistent gap between findings from randomized clinical trials and real-world clinical practice. GLP-1a therapies are still infrequently prescribed, and when prescribed, they are often difficult to access in local pharmacies. To our knowledge, this is one of the first observational studies to highlight the complexities surrounding GLP-1a prescription and accessibility in routine practice.



PO 62. CARDIAC REHABILITATION IN OBESE PATIENTS: A POPULATION AT INCREASED RISK

João Martins Neves, Miguel Azaredo Raposo, Ana Abrantes, Catarina Gregório, João Fernandes Pedro, Gisela Afonso, Graça Araújo, Sandra Miguel Correia, Nelson Cunha, Inês Aguiar-Ricardo, Fausto J. Pinto, Ana Abreu

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Cardiac rehabilitation (CR) is a cornerstone in cardiovascular patients' treatment. Patients with obesity face elevated cardiovascular risk and warrant meticulous integration into these programs. Moreover, it has been suggested that standard CR guidelines may not be optimal for obese patients and further studies are needed to better understand obese patients' adherence and CR efficacy.

Objectives: To evaluate adherence and efficacy of CR program in obese patients when compared to non-obese patients.

Methods: Single center retrospective study of consecutive patients referred to a center-based CR program from 2015 to April 2023. The CR program was conducted 2 or 3 times per week, the exercise training session lasts 60 mins. (aerobic and resistance training) plus 60 minutes of respiratory session. Obesity was defined as BMI ≥ 30 kg/m² and control as BMI < 30 kg/m². Adherence was evaluated as percentage of programmed sessions attended and efficacy as reduction in cardiovascular risk factors or improvement of cardiopulmonary exercise test (CPET) parameters after the CR program. Parametric and non-parametric tests were applied as adequate.

Results: We included 446 patients, 23% obese, of these 6% had BMI > 35 kg/m² and 5 patients BMI > 40 kg/m². In obese patients 73% were male, mean age 50 years, 72% had dyslipidemia, 56% had smoking habits. Obese patients had an 80% increased odd of hypertension and 90% odd of diabetes when compared to non-obese patients (81 vs. 71%, OR 1.8 CI 1.1-3.2; 36 vs. 23%, OR 1.9 CI 1.2-3; respectively). Most patients completed the program with 98% adherence, with median number of exercise sessions completed of 12 ± 4, with no differences between groups. After completing the CR program obese patients presented a significant improvement in NYHA functional class ($p < 0.001$), cardiovascular risk factors (weight: 95 ± 12 kg vs. 94 ± 12 kg $p = 0.035$, abdominal perimeter: 113 vs. 108 $p = 0.009$, cLDL75 ± 69 vs. 56 ± 33 $p = 0.002$, HgA1C 6.5 ± 1.2 vs. 6 ± 0.5 $p = 0.04$) and improvement of functional capacity (peak VO2 14.6 vs. 16.5 ml/kg/min, $p = 0.008$; % of predicted VO2peak 59 vs. 65% $p = 0.009$; O2pulse 11 vs. 12.4 $p = 0.003$; CPET time 8 vs.10 min, $p = < 0.00$). Obese patients showed a significantly higher weight, abdominal perimeter and BMI reduction when compared to control (1.4 ± 4 vs. 0.5 ± 3 kg, $p < 0.001$, 2 ± 4 vs. 0.5 ± 4 cm, $p = 0.02$, 1 ± 2 vs. 0.1 ± 1 points, $p \leq 0.001$ respectively). In obese patients both METs and percentage of predicted peak O2 positively correlated with distance in 6MWT, with a strongest correlation for METs (rs44%, $p < 0.001$, rs57%, $p < 0.001$, respectively). Regarding phase 3, 46% of obese patients joined a supervised program, 12% enrolled in a fitness center and 42% failed to maintain an activity regime.

Conclusions: Obese patients demonstrated comparable adherence to the program and exhibited equivalent, or in some cases, superior efficacy in terms of cardiovascular risk control compared to those without obesity.

PO 63. DIFFERENCES IN OVERWEIGHT AND OBESITY PREVALENCE AMONG PRIMARY SCHOOL CHILDREN IN SÃO JOÃO DA MADEIRA, PORTUGAL

Ana Margarida Silva Pinho[1], Ana Guedes[1], Alice Coelho[1], Irene Guimarães[2], Rosa Cardoso[1], Lúcia Gomes[1], Miguel Costa[1], Carla Araújo[1], Rui Baptista[1]

[1]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.
[2]Câmara Municipal de São João da Madeira.

Introduction: Childhood obesity is a growing global health concern, associated with increased risks of cardiometabolic disorders and long-term health complications. São João da Madeira, Portugal's smallest municipality in area, provides a unique setting to investigate localized disparities in childhood obesity. Understanding these small-scale differences is essential

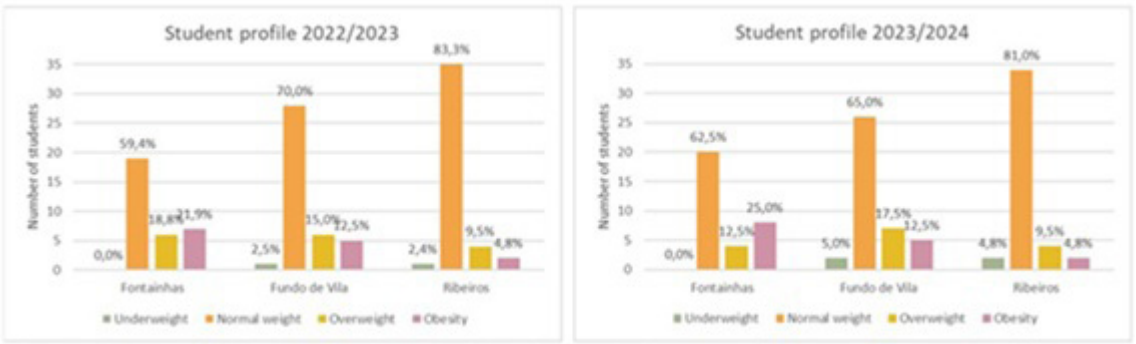


Figure 1. Prevalence of weight categories in students from primary school in the 2022/2023 academic year and 2023/2024.

Figure PO 63

for implementing targeted, effective public health strategies. We aimed to analyze the prevalence of overweight and obesity among primary school children in São João da Madeira and evaluate differences between schools across two academic years (2022/2023 and 2023/2024).
Methods: A cross-sectional study was conducted in three primary schools in São João da Madeira, involving 114 children (age range 7-11 years, 56.1% females) participating in the ongoing GREAT (Target in promoting children's health: a research-driven school-based physical activity intervention) prospective cohort study. Anthropometric measures and BP were obtained by a trained team using standardized techniques and appropriate equipment. Body composition was assessed through Body Mass Index (BMI) and pediatric growth curves, classifying children into four categories: underweight, normal weight, overweight, and obesity.
Results: The findings revealed significant disparities in overweight and obesity prevalence between schools. In the 2022/2023 academic year, overweight and obesity rates ranged from 14.3-40.7%, with Fontaínhas school recording the highest prevalence (40.7%) versus 27.5% in Fundo de Vila and 14.3% in Ribeiros. In 2023/2024, while a slight overall improvement was noted, the rates remained high, ranging from 14.3-37.5%. Ribeiros school consistently reported the lowest levels of overweight and obesity.
Conclusions: This study demonstrates that even in small, geographically compact areas such as São João da Madeira, notable differences in childhood obesity prevalence exist, driven by school location and socioeconomic factors. These disparities emphasize the need for localized approaches to obesity prevention, rather than relying on broad, generalized strategies. Extrapolating these results to larger urban centers highlights the potential for even greater disparities, reinforcing the importance of targeted, region-specific public health interventions to address childhood obesity and its associated health risks.

PO 64. COMPARISON BETWEEN OFFICE BLOOD PRESSURE AND AMBULATORY BLOOD PRESSURE MONITORING IN PREDICTING CARDIOVASCULAR EVENTS

Simão de Almeida Carvalho, Carlos Costa, Inês Cruz, Tiago Aguiar, Adriana Pacheco, Andreia Fernandes, Ana Briosa Neves, José Mesquita Bastos

Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro.

Introduction: Hypertension is a major risk factor for cardiovascular disease. While office blood pressure (BP) is commonly used in practice, it may fail to capture BP variability and nocturnal patterns, which are crucial for assessing cardiovascular risk.
Objectives: This study compares the ability of office BP and Ambulatory Blood Pressure Monitoring (ABPM) to predict cardiovascular events.
Methods: A single-center cross-sectional study of hypertensive patients undergoing ABPM. Parametric tests analyzed variables with normal distribution, using Independent-Samples T Test, Chi-square, logistic and ROC analysis for model comparison in SPSS. Patients were classified by office BP, ABPM, and anti-hypertensive medications into Ambulatory Resistant Hypertension (ARH), Ambulatory Non-Resistant Hypertension (ANRH), White Coat Uncontrolled Resistant Hypertension (WCURH), and Controlled Hypertension (CH). The composite endpoint included stroke, acute coronary syndrome (ACS), or heart failure (HF) hospitalization.
Results: The study included 958 patients (mean age: 58.7 ± 11.5 years; 51.3% female), followed for 11.9 ± 5.5 years. Cardiovascular risk factors included mean BMI of 28.2 ± 4.7 kg/m^2, diabetes (29.2%), smoking history (35.3%), and dyslipidemia (68.6%). Office BP showed mean systolic BP of 153.1 ± 22.2 mmHg and pulse pressure (PP) of 58.8 ± 18.2 mmHg. ABPM showed 24-hour systolic BP of 131.5 ± 15.8 mmHg and PP of 52.1 ± 11.0 mmHg, with nocturnal dipping in 52.1%. During follow-up, 18.8% of patients had cardiovascular events: stroke (8.7%), ACS (5.6%), or HF hospitalization (4.5%). Compared to event-free patients, those with events had higher BMI (29.3 ± 4.3 vs. 27.8 ± 4.8 kg/m^2; p = 0.002), casual systolic BP (158.3 ± 23.5 vs. 151.9 ± 21.7 mmHg; p < 0.001), and PP (62.3 ± 19.9 vs. 58.0 ± 17.7 mmHg; p = 0.004). ABPM showed higher 24-hour systolic BP (137.3 ± 17.1 vs. 130.1 ± 15.2 mmHg; p < 0.001), nighttime systolic BP (130.0 ± 19.7 vs. 120.8 ± 15.6 mmHg; p < 0.001), and reduced nocturnal dipping (42.1 vs. 55.1%; p = 0.002). Logistic regression models compared office BP (Model 1: systolic BP and PP) and ABPM (Model 2: 24-hour systolic BP, PP, daytime and nighttime systolic BP, nighttime diastolic BP, and nocturnal dipping). Model 2 had a higher AUC (0.65, 95%CI: 0.60-0.70) than Model 1 (0.60, 95%CI: 0.55-0.64), though the difference was not statistically significant (p = 0.10). Subgroup analysis showed that ABPM significantly outperformed casual BP in ARH (AUC 0.77 vs. 0.63; p = 0.04) and ANRH (AUC 0.62 vs. 0.52; p = 0.03). In WCURH (AUC 0.60 vs. 0.56; p = 0.28) and CH (AUC 0.65 vs. 0.63; p = 0.23), differences were not significant.
Conclusions: ABPM demonstrated clear superiority in ARH and ANRH, improving predictive accuracy in these subgroups. In WCURH and CH, differences were not significant but favoured ABPM, highlighting its value in complex cases where office BP may not fully reflect cardiovascular risk.

PO 65. EXPLORING CORRELATION BETWEEN ADIPOSITY AND BLOOD PRESSURE AND THE IMPACT OF EXERCISE IN PRIMARY SCHOOL CHILDREN FROM SÃO JOÃO DA MADEIRA

Ana Guedes[1], Margarida Pinho[1], Alice Coelho[1], Irene Guimarães[2], Rosa Cardoso[1], Lúcia Gomes[1], Miguel Costa[1], Carla Araújo[1], Rui Baptista[1]

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[2]*Câmara Municipal de São João da Madeira.*

Introduction: Childhood obesity and high blood pressure are critical public health concerns, with elevated BP in children being a predictor of future cardiovascular disease. Schools have the potential to mitigate these health problems by implementing key prevention strategies. Regular physical activity, as recommended by the WHO (300 minutes/week), is key to improving cardiovascular health. We aimed to evaluate the prevalence of overweight and obesity among primary school children in São João da Madeira and to explore the correlation between adiposity and blood pressure and to study the impact of exercise on this correlation.

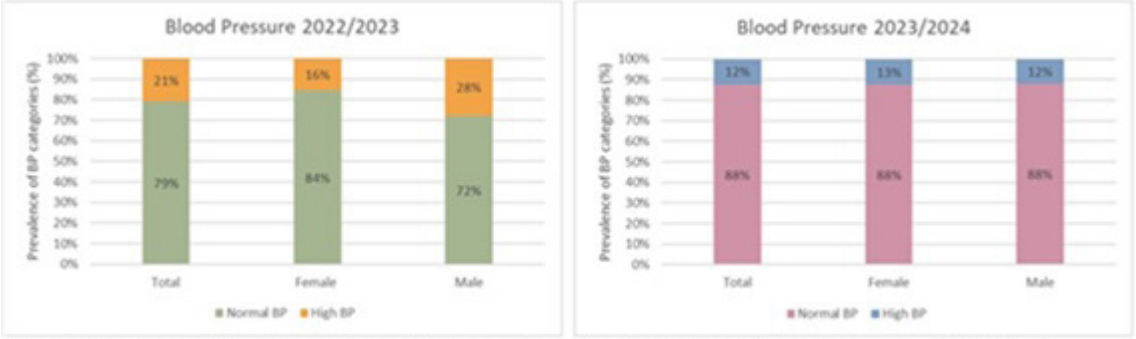


Figure 1. Prevalence of Blood Pressure in students from primary school in the 2022/2023 academic year and 2023/2024.

Figure PO 65

Methods: A cross-sectional study was conducted in three primary schools in São João da Madeira, involving 114 children (age range 7-11 years, 56.1% females) participating in the ongoing GREAT (Target in promoting children's health: a research-driven school-based physical activity intervention) prospective cohort study. Anthropometric measures were assessed using bioelectrical impedance, blood pressure was measured following standardized protocols and fat mass was obtained by a validated equation for this age range. Physical activity levels, inside and outside school activities, were quantified. Correlations between fat mass, blood pressure, and activity levels were analyzed using statistical models.
Results: The prevalence of elevated blood pressure decreased from 21.1% in 2022/2023 to 12.3% in 2023/2024. A significant correlation was found between adiposity and blood pressure ($R^2 = 0.1531$, $p < 0.01$), showing higher fat mass is associated with elevated blood pressure. Children with greater participation in structured physical activity experienced a measurable decrease in body fat percentage, reinforcing its inverse relationship with adiposity. Despite these improvements, 30.7% of participants (35 children) met at least one criterion for medical referral.
Conclusions: The study shows an association between increased adiposity and elevated blood pressure and an inverse relationship between adiposity and structured physical activity, in primary school children. This underscores the critical role of structured physical activity in reducing body fat and improving health indicators such as blood pressure in children. Schools are well placed to implement specific programs that promote increased physical activity to prevent long-term cardiovascular risks.

PO 66. IMPACT OF SUBCLINICAL PRIMARY ALDOSTERONISM ON VALVULAR, CORONARY AND AORTIC CALCIFICATION: A POPULATION-BASED COHORT STUDY

António Afonso Angélico Gonçalves[1], Ana Rita Ferreira Leite[2], João Pedro Ferreira[2], João Sérgio Neves[2], Adelino Leite Moreira[2]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Primary aldosteronism (PA) is a state of autonomous, renin-independent aldosterone production, which elevates cardiovascular risk. Subclinical forms of PA are prevalent in the general population and increase the risk for incident hypertension and cardiovascular events. Data from preclinical and clinical studies showed that aldosterone is involved in atherosclerosis by contributing to vascular calcification and plaque inflammation. However, it is unknown whether subclinical forms of PA increases calcification in heart valves and great vessels.
Objectives: Explore the association of the spectrum of PA with aortic, coronary and valvular calcification in individuals included in the Framingham Heart Study cohort.
Methods: We assessed participants from the Generation 3 cohort of the Framingham Heart Study, in which aldosterone and renin levels were measured and cardiac computerized tomography (CT) was performed. Individuals taking angiotensin converting enzyme inhibitors, angiotensin receptor blockers or mineralocorticoid blockers were excluded. Linear regressions adjusted for relevant covariates were performed to evaluate the association of the aldosterone-to-renin ratio with mitral annulus calcium (MAC), aortic valve calcium (AVC), coronary artery calcium (CAC) and thoracic aorta calcium (TAC) scores.
Results: We included 4,573 individuals (mean age 40.9 ± 10.1 years; 54% female; mean body mass index [BMI] 26.9 kg/m^2; mean systolic blood pressure 117 ± 0.21 mmHg; mean diastolic blood pressure 75.3 ± 9.7), of whom 1,566 (34%) underwent cardiac CT. A higher aldosterone-to-renin ratio, reflecting increased aldosterone production independent of renin, was not associated with a higher MAC (b = 0.20, 95%CI -0.13-0.53; p = 0.22), AVC (b = -0.21, 95%CI -0.15 – 0.11; p = 0.75), CAC (b = 0.01, 95%CI -0.04 – 0.06; p = 0.61) nor TAC (b = -0.02, 95%CI -0.07 – 0.04; p = 0.56) scores.
Conclusions: In the general population, a biochemical phenotype of subclinical primary aldosteronism did not correlate with meaningful valvular, coronary or aortic calcification, suggesting that pathophysiological mechanisms other than mineralocorticoid receptor overaction are responsible for the calcification of these structures.

Sexta-feira, 11 Abril de 2025 | 11:00-12:00

Área de Posters-écran 2 | Sessão de Posters 10 – Geriatria cardiovascular: mostra-me os dados!

PO 67. PACEMAKER IN NONAGENARIAN AND CENTENARIAN PATIENTS: A FIVE-YEAR EXPERIENCE AT A TERTIARY CENTER

Emanuel de Oliveira, Bernardo Cruz, Gonçalo Pestana, Ana Lebreiro, João Calvão, Ricardo Pinto, Marta Madeira, Luís Adão, Rui A. Rodrigues

Centro Hospitalar Universitário de São João.

Permanent pacing is the treatment of choice for various bradyarrhythmias. With population aging, there has been an increase in permanent pacemaker implantation in elderly individuals. However, data on nonagenarians and centenarians remain scarce. This study describes the characteristics and outcomes of patients aged ≥ 90 years undergoing pacemaker implantation at a tertiary center. This observational, retrospective study included consecutive patients aged ≥ 90 years who underwent their first permanent pacemaker implantation between January 1, 2020, and November 30, 2024. Demographic and clinical data were collected from electronic medical records. A total of 110 patients were included, 53.6% of whom were women, with a mean age of 92.6 years (range: 90-101). The Clinical Frailty Scale (CFS) ranged from 4 to 8, with 43.6% scoring 6 and 17.3% scoring > 6. Hypertension was the most common comorbidity (74%), followed by heart failure (41.1%) and diabetes mellitus (28.7%). Urgent implantations accounted for 82.7% of procedures, 7% requiring temporary pacing. The main symptoms were syncope (34.5%), heart failure (18.2%), and fatigue (14.5%). Most patients had sinus rhythm (68.2%) and more frequently presented with complete atrioventricular block (49.1%), second-degree atrioventricular block (17.3%), and atrial fibrillation with slow ventricular response (10.9%). Single-chamber ventricular pacemakers were the most implanted type (62.7%). Complications occurred in 2.7% of cases, the most common being ventricular lead displacement, followed by ventricular tachycardia and pocket hematoma. The mean follow-up period was 433 days, with an overall mortality rate of 30.9% (12.7% in the first year). Within the first month, 14.8% visited the emergency department, and 8.3% were hospitalized for any cause. The average number of emergency visits per patient was 2.3 (0.4 cardiovascular-related), and the average number of hospitalizations was 0.7 (0.3 cardiovascular-related). Pacemaker implantation in nonagenarians and centenarians proved safe and effective. Despite frailty and comorbidities, first-year mortality was low. The predominance of single-chamber pacemakers reflects a preference for less invasive procedures in this population. The prominence of non-cardiovascular events underscores the impact of comorbidities and highlights the need for a comprehensive care approach.

PO 68. GENDER DIFFERENCES IN NONAGENARIANS UNDERGOING PACEMAKER IMPLANTATION

Emanuel de Oliveira, Joana Conde Gonçalves, Gonçalo Pestana, Ana Lebreiro, João Calvão, Ricardo Pinto, Marta Madeira, Luís Adão, Rui A. Rodrigues

Centro Hospitalar Universitário de São João.

Pacemaker implantation in very elderly patients is an increasingly common practice for treating bradyarrhythmias. However, the influence of gender on clinical characteristics, laboratory findings, and prognosis in this population remains underexplored. This study aims to compare and analyze gender differences in these patients. This observational, retrospective study included consecutive patients aged ≥ 90 years who underwent their

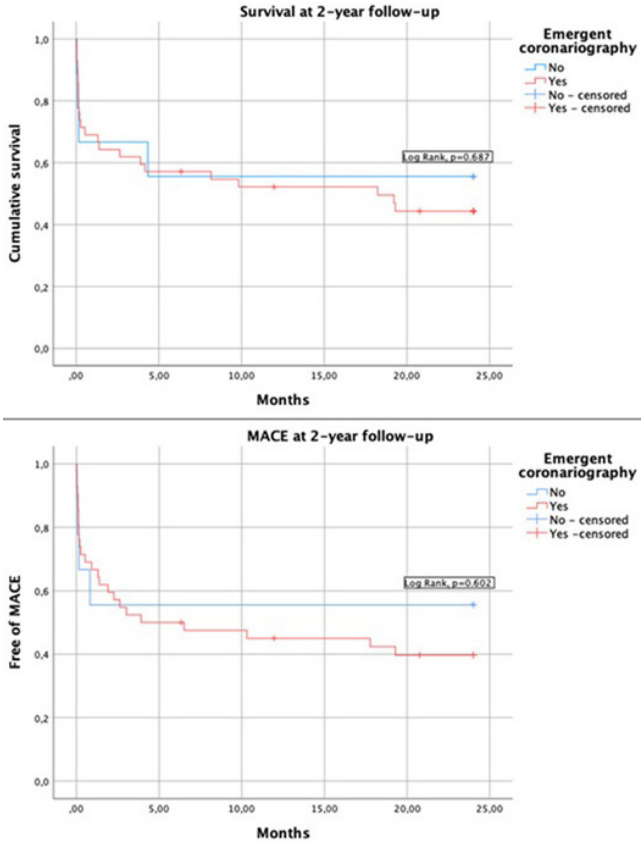
first permanent pacemaker implantation between January 1, 2020, and November 30, 2024. Patients were divided into two groups based on gender. Demographic and clinical data were collected from electronic medical records. A total of 110 patients were included, 59 women (53.6%) and 51 men (46.4%), with similar mean ages (93.1 vs. 92.2 years, p 0.056). Syncope was the most common presenting symptom in both groups (30.5% in women vs. 39.2% in men), but heart failure symptoms and fatigue were more frequent in women (28.8 vs. 5.9% and 22 vs. 5.9%, p 0.004). Conversely, dizziness and absence of symptoms were more common in men (11.8 vs. 3.4% and 17.6 vs. 5.1%, p 0.004). No significant differences were found in indication, rhythm, or pacemaker type. Women had significantly higher rates of Clinical Frailty Scale (CFS) scores ≥ 6 (74.6 vs. 45.1%, p 0.002) and advanced chronic kidney disease (14 vs. 2%, p 0.023). Conversely, the prevalence of left ventricular dysfunction was higher in men (13.7 vs. 8.9%, p 0.03), while women had a greater prevalence of heart failure with preserved ejection fraction (41.1 vs. 17.6%, p 0.03). No significant differences were observed in overall mortality (27.1% in women vs. 35.3% in men, p 0.355) during an average follow-up of 433 days. Our findings highlight significant differences in clinical presentation between nonagenarian men and women undergoing pacemaker implantation, even though the electrocardiographic indications did not differ. Despite similar mean ages, women exhibited greater frailty and more comorbidities, such as heart failure with preserved ejection fraction and advanced chronic kidney disease. Nonetheless, mortality rates were comparable between genders, suggesting that pacemaker implantation offers similar benefits to both men and women.

PO 69. CLINICAL OUTCOMES IN NONAGENARIANS UNDERGOING EMERGENT CORONARY ANGIOGRAPHY: A RETROSPECTIVE ANALYSIS

Joana Conde Gonçalves, Emanuel de Oliveira, Mariana Paiva, Bernardo Cruz, Paula Dias, Rui Almeida, Rui Rodrigues

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Management of acute coronary syndrome (ACS) in elderly patients presents unique challenges due to frailty and higher burden of comorbidities. The impact of emergent coronariography in these patients remains a subject of debate. This study investigates the clinical profile, in-hospital outcomes and 2-year follow-up of nonagenarians presenting with ST elevation ACS (STE-ACS), focusing on comparing those undergoing emergent coronary angiography with a matched control group.
Methods: A retrospective analysis of patients aged ≥ 90 years admitted with STE-ACS to our institution between January 2008 and June 2024 was performed. Clinical data were collected from institutional registries. Major adverse cardiovascular events (MACE) were defined as a composite of all-cause mortality, ischemic stroke, recurrent ACS and hospitalization for acute heart failure.
Results: Fifty-one patients (median age 92 ± 2 years; 59% female) were included. Comorbidities were highly prevalent (hypertension 82.4%, diabetes 15.7%, dyslipidemia 51%, smoking 15.7%, obesity 15.7%, atrial fibrillation 17.6%, chronic kidney disease 19.6%). The median Clinical Frailty Score was 4. Most ACS cases (64.7%) involved the anterior wall. Emergent coronary angiography was performed in 82.4% of patients. The left anterior descending artery was the most frequent culprit site and revascularization was achieved in just over half of the patients, predominantly via stent implantation. Clinically, 27.4% of patients progressed to Killip class III/IV and only 29.4% retained preserved ejection fraction post-event. In-hospital mortality was 31.4%. No significant differences in mortality were observed between patients undergoing emergent angiography and controls (p = 0.588). Similarly, 2-year follow-up revealed no significant differences in mortality (p = 0.687) or MACE (p = 0.602). Overall, 56.9% of patients experienced MACE and 52.9% died within the follow-up period.
Conclusions: Nonagenarians with STE-ACS represent a high-risk population. Emergent coronary angiography was not associated with improved survival or reduced MACE in this cohort. These findings underscore the need for individualized therapeutic strategies in this vulnerable population.



PO 70. EVALUATING THE PREDICTIVE VALUE OF FRAILTY SCORES ON MORTALITY IN PATIENTS WITH CARDIOGENIC SHOCK ACROSS THE AGE SPECTRUM

André Moniz Garcia[1], Inês Coutinho Dos Santos[2], João Presume[1], Ana Rita Bello[1], Jorge Ferreira[1], Catarina Brízido[1], Christopher Strong[1], António Tralhão[1], C. Santos-Jorge[1], Rui Miguel Gomes[1], Márcia Presume[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Cardiogenic shock is a multifactorial syndrome affecting patients across all age groups with mortality rates that exceed 50% in several cohorts. Elderly individuals, due to their inherent frailty, are particularly susceptible. This study aims to evaluate differences in clinical characteristics and outcomes between younger and older patients with cardiogenic shock and assess the utility of frailty scores in predicting outcomes.
Methods: This retrospective study analysed a cohort of cardiogenic shock patients from a single center, from 2017-2024, focusing on one-year mortality as the primary outcome. Predictive variables included demographic, clinical, and frailty data, incorporating the ECOG Performance Status (PS), Charlson Comorbidity Index (CCI), and Modified Frailty Index-11 (mF11). Univariate and multivariate analyses assessed the predictive value of these scores. Age and frailty were combined into a logistic regression model to evaluate their joint predictive capacity.
Results: A total of 356 patients were included, with a mean age of 66 ± 16 years, 66.5% male, and a one-year mortality rate was 54.8%. Mortality increased with age, reaching 66.0% in patients aged ≥ 70 years compared to 46.6% in younger patients (p = 0.002) (Figures 1 and 2). Worse functional status was also associated with higher mortality; individuals with PS ≥ 2 had a one-year mortality rate of 68.9%, compared to 50.2% in those with PS ≤ 1 (Figures 3 and 4). Among frailty scores, PS independently predicted one-year mortality (HR1.272 [1.099-1.471]; p = 0.001), while CCI (HR 1.055 [0.979-1.139]; p = 0.165) and mF11 (HR1.066 [0.988-1.150]; p = 0.101) were not significant. In a multivariate analysis adjusting for age, gender, SCAI class, troponin levels, cardiac arrest, and chronic kidney disease, PS remained a robust predictor

Figure 1: Pie chart of the distribution age ranges.

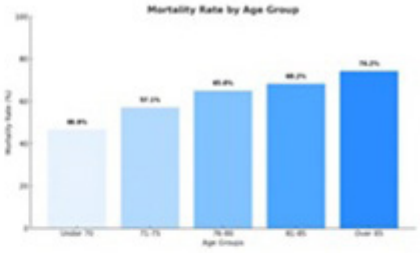


Figure 2: Bar chart of the mortality rate by age group

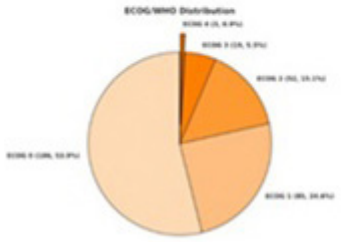


Figure 3: Pie chart of the distribution of the ECOG score.

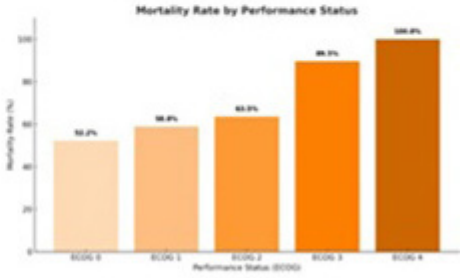


Figure 4: Bar chart of the mortality rate by ECOG score

Figure PO 70

(HR1.347 [1.142-1.588]; p < 0.001, per unit increase). In patients aged ≥ 70 years, those with PS ≤ 1 had a one-year mortality rate of 61.2%, compared to 82.4% with PS > 1. Combining age and PS into a logistic regression model yielded a significant association with one-year mortality (p < 0.001) and an AUROC of 0.691, indicating moderate discriminative ability.
Conclusions: Age and frailty, particularly functional status as measured by ECOG PS, are critical predictors of mortality in cardiogenic shock. This study underscores the need to routinely integrate frailty assessments into risk models to refine prognostication and optimize care pathways in this critically ill population.

PO 71. ADVANCED THERAPEUTIC INTERVENTIONS IN ELDERLY HEART FAILURE: OUTCOMES OF CARDIAC RESYNCHRONIZATION THERAPY

Ana Rita Teixeira, Julien Lopes, André Paulo Ferreira, Madalena Coutinho Cruz, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Tânia Mano, Rui Cruz Ferreira, Mário Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: The increasing prevalence of heart failure (HF) among the aging population has prompted questions about the suitability of advanced therapeutic interventions, such as cardiac resynchronization therapy (CRT), in elderly individuals. This study aims to assess the clinical and echocardiographic outcomes over a 6-month period in patients aged 75 years and older.
Methods: A single-center retrospective analysis was conducted on a cohort of patients who underwent successful CRT device implantation between 2011 and 2016. Clinical status, echocardiographic parameters and cardiopulmonary exercise testing data were assessed both before and 6 months after CRT implantation. Follow-up data included changes in left ventricular ejection fraction (LVEF) and LV end-systolic volume (LVESV), New York Heart Association (NYHA) functional class, and the incidence of major adverse cardiovascular events (MACE) post-CRT.
Results: The study involved 204 HF patients with a mean age 70 ± 10 years, of whom 64.7% had left bundle branch block and a baseline QRS of 151 ± 21 ms. Atrial fibrillation was present in 74 patients, and a defibrillator was added in 79.9% of cases. Initial echocardiography indicated severe systolic dysfunction, with a mean LVEF of 26 ± 7%, and severe LV dilation (end-systolic and end-diastolic volumes, 151 mm and 204 mm, respectively). Of these patients, 70 HF were ≥ 75 years old. The older group showed a higher prevalence of hypertension (p = 0.033) and a more frequent use of CRT-P instead of defibrillator (p < 0.001). Echocardiographic LVEF was higher in older HF patients (28 ± 7 vs. 25 ± 7%, p = 0.014) while peak VO_2 was lower (14.1 ± 3.8 vs. 17 ± 4.3, p = 0.012). No significant differences were observed between groups regarding sex, other cardiovascular risk factors or comorbidities and NYHA class (p = ns). NYHA class improvement was similar between groups. Significant improvements in elderly patients were observed in LVEF (p = 0.034) and a reduction in LVESV (p < 0.001) which did not show significant differences between younger patients. At the 6-month follow-up, older patients had more heart failure hospitalizations (p = 0.022), although death, arrhythmias and ischemic events were comparable between both groups.
Conclusions: In our population, CRT demonstrated effectiveness in LV remodeling among elderly heart failure patients. Despite favourable outcomes and a similar improvement in NYHA class between groups, elderly patients experienced more HF hospitalizations at the 6-month follow-up. The results suggest that advanced age alone should not limit CRT implantation in well-selected patients.

PO 72. SEGMENTAL KINETIC DISTURBANCES: A POOR PREDICTOR OF CORONARY ARTERY DISEASE IN VERY ELDERLY PATIENTS WITH HEART FAILURE

José Luís Ferraro, Mauro Moreira, Ana Rodrigo Costa, Inês G. Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Inês Almeida, Carla Almeida, Aurora Andrade

Centro Hospitalar Tâmega e Sousa.

Introduction: Very elderly patients with heart failure (HF) is a growing population that exhibit distinct clinical characteristics and cardiovascular phenotypes, highlighting the need for personalized approaches in management. The aim of this study was to compare clinical characteristics between very elderly (≥ 80 years) and elderly (65-80 years) patients with HF.
Methods: A retrospective single-center analysis of patients admitted for HF throughout 2022, included 265 patients. There were divided in two groups: very elderly (n = 76) and elderly (n = 104). A statistical analysis was performed to compare baseline characteristics, biomarkers, coronary anatomy, and outcomes between groups. A p-value of < 0.05 was considered statistically significant.

Results: The mean age of very elderly and elderly group was 85 ± 3.3 and 73 ± 4.5 years, respectively. The median follow-up period was 1.5 years. Very elderly patients were predominantly revascularized surgically in the past and elderly patients were predominantly revascularized percutaneously (p = 0.003). Complete revascularization was significantly more frequent in very elderly patients compared to elderly patients (87.5 vs. 43.5%, p = 0.031). Valvular etiology was more frequent in the very elderly group, with severe aortic stenosis being the most common condition (34.7 vs. 15.4%, p = 0.003). Very elderly patients showed a predominance of heart failure with preserved ejection fraction, elderly patients predominantly had heart failure with reduced ejection fraction (p = 0.011). 49.3% of very elderly patients and 29.8% of elderly patients did not have segmental kinetic disturbances (p = 0.033). There were no significant differences between groups regarding invasive coronary angiography during hospitalization and detection of coronary arterial disease detection or progression. Logistic regression analysis showed that SKD did not significantly predict CAD in very elderly patients (p = 0.705, OR = 0.859).
Conclusions: Very elderly and elderly patients have distinct cardiovascular profiles. Despite fewer segmental kinetic disturbances in the very elderly group, similar rates of invasive coronary angiography during hospitalization and disease progression were observed. This raises the possibility that segmental kinetic disturbances may not be a fully reliable primary factor in decision-making for catheterization in very elderly patients. Further studies are needed to identify additional predictors for catheterization in this population.

Sexta-feira, 11 Abril de 2025 | 11:00-12:00

Área de Posters-écran 3 | Sessão de Posters 11 – Cardioncologia de Ponta II

PO 73. MANAGING CARDIOVASCULAR RISK IN CANCER PATIENTS: THE IMPACT OF CANCER THERAPIES ON NEW-ONSET HEART FAILURE

Inês Caldeira Araújo, Andreia Magalhães, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Marta Vilela, João Cravo, Diogo Ferreira, Daniel Cazeiro, Miguel Nobre Menezes, F.J. Pinto, Manuela Fiúza

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Advances in oncologic treatments have enabled cancer patients to live longer, however, this has been overshadowed by unintended and often severe cardiac complications that impact overall patient outcomes. Cardiotoxicity, particularly the link between certain cancer therapies and the development of new on-set heart failure (HF), has become an increasingly significant concern.
Objectives: To evaluate the impact of cancer therapies, cardiovascular comorbidities, laboratory and echocardiographic parameters on new-onset HF.
Methods: A retrospective, observational, single-center study was conducted including patients enrolled in a cardio-oncology consultation between 2022 and 2023. New-onset HF was defined by a reduction of left ventricular ejection fraction (LVEF) or signs and symptoms of HF plus an elevation of NT-proBNP. Parametric and non-parametric tests were performed.
Results: A total of 185 patients (48% male, mean age 64 ± 15 years) were included. Of these, 35 patients (19%) developed HF. Cardiovascular comorbidities were similar across both groups. Patients on SGLT2 inhibitors tended to experience a lower incidence of new-onset HF (p = 0.089). Regarding cancer therapies, those receiving targeted therapy had a significantly higher incidence of new-onset HF (HR 2.5, p = 0.015). Additionally, 20% of patients who developed HF had been treated with anthracyclines (p = 0.073) and the combination of target therapy and radiotherapy also potentiated this cardiotoxic effect (p < 0.001). Higher baseline troponin levels were associated with an increased likelihood of developing the primary endpoint (p = 0.05). Echocardiographic parameters revealed that patients with lower LV strain prior to starting oncological treatment were more likely to develop LV dysfunction or HF (p = 0.057). Among patients with new-onset HF, the median LVEF was 43 (36 to 50) (p < 0.001), and the median LV strain was -12 (-14.5 to -9.5) (p < 0.001). During follow-up, 29% of patients who developed new-onset HF were hospitalized for cardiovascular causes (p < 0.001). Elevated NT-proBNP and troponin levels were strongly associated with an increased risk of hospital admissions (p = 0.012 and p = 0.034, respectively), while lower LVEF and higher LV strain values also correlated with higher rates of cardiovascular admissions. There were no significant differences in mortality between the two groups (p = 0.981). Of the patients who developed new-onset HF, 45% suspended treatment, with 6.5% undergoing a temporary interruption and 38.7% permanently discontinuing therapy. Notably, 43% of patients demonstrated full recovery of LVEF.

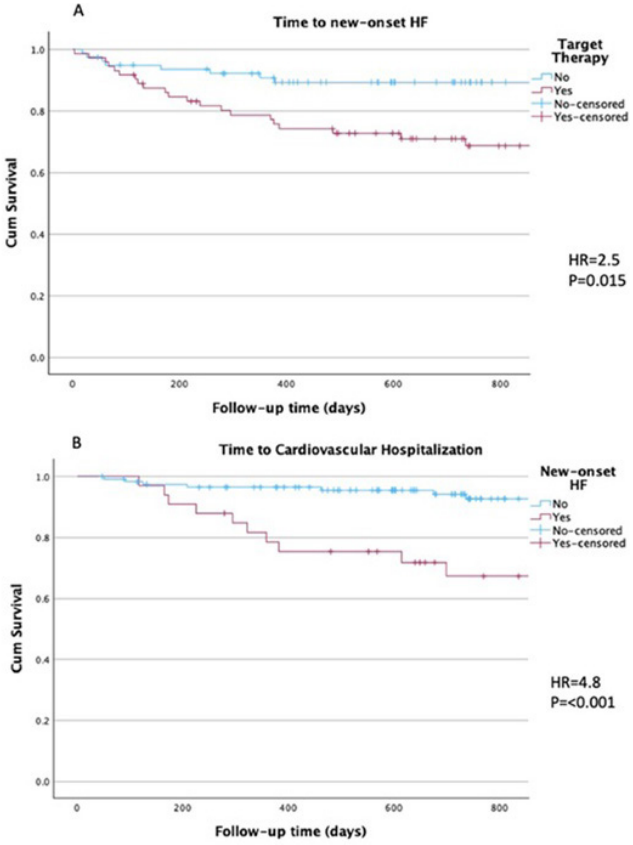


Figure 1: A - Time to new-onset HF in patients who received versus did not receive target therapy. B - Time to CV hospitalization in patients that developed versus did not developed HF after cancer therapy.

Conclusions: The results highlight the significant impact of cancer therapies, particularly target therapy, on the development of LV dysfunction and HF. These findings underscore the need for vigilant CV monitoring in cancer patients to manage risks and improve patient outcomes.

PO 74. A NEW ERA IN CARDIO-ONCOLOGY: UPRISING HEART FAILURE THERAPIES FOR CARDIO-PERMISSIVE STRATEGIES IN CANCER THERAPY-RELATED CARDIAC DYSFUNCTION

Leonor Magalhães[1], Ricardo Carvalheiro[1], Isabel Cardoso[1], Vera Vaz Ferreira[1], Tânia Branco Mano[1], Luís Almeida Morais[1], Boban Thomas[2], Rui Cruz Ferreira[1]

[1]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [2]Integrated Care Cardiology Program, Regional Hospital Mullingar, Dublin Midlands Hospital Group, Dublin, Republic of Ireland.

Sex, male – N (%)	4 (20%)
Age (mean±SD)	56 (±12)
Cancer	**N (%)**
Breast	13 (65%)
Hematologic	5 (25%)
Lung	1 (5%)
Prostate	1 (5%)
Chemotherapy agents	**N (%)**
Anti-HER2 agent	11 (55%)
Taxane	2 (10%)
Anthracycline	3 (15%)
BTK	2 (10%)
TKI	2 (10%)
ICI	1 (5%)
Radiotherapy – N (%)	8 (40%)
CV risk factors and diseases	**N (%)**
Hypertension	9 (45%)
Dyslipidaemia	9 (45%)
Mellitus Diabetes	4 (20%)
Smoker	5 (25%)
Coronary artery disease	3 (15%)
Peripheral artery disease	2 (10%)
Arrhythmia	2 (10%)
Valvular disease	1 (5%)
Cerebrovascular Disease	1 (5%)
HF previously diagnosed (HFpEF)	2 (10%)
Chronic Renal Disease	1 (5%)
CV risk factors	
1	4 (20%)
≥ 2	11 (55%)

CTRCD Grade	**N (%)**
Asymptomatic Mild	11 (55%)
Asymptomatic Moderate	7 (35%)
Asymptomatic Severe	0
Symptomatic Mild	1 (5%)
Symptomatic Moderate	1 (5%)
Symptomatic Severe or Very Severe	0
Optimized Cardioprotective Therapy	**N (%)**
RAAS inhibitors	18 (90%)
ACE inhibitors	11(55%)
ARBs	2 (10%)
ARNIs	5 (25%)
Beta-blockers	17 (85%)
MRA	11 (55%)
SGLT2 inhibitors	10 (50%)
Number of Drug Classes Utilized	
1 class	1 (5%)
2 classes	7 (35%)
3 classes	7 (35%)
4 classes	5 (25%)
NT-proBNP	
Elevated - N (%)	9 (45%)
Basal (pg/mL)	513 (195-843)
Maximum (pg/mL)	1805 (274-3900)
% of increased	103% (34%-420%)
LVEF	Median (IQR)
Baseline LVEF, %	61 (58-65)
Minimum LVEF, %	49 (48-54)
LVEF reduction in percentual points, %	12 (5-14)
LVEF post-treatment suspension, % (N=11)	57 (53–61)
GLS	Median (IQR)
Baseline GLS (%)	- 17,5(-15.2 to -18.2)
Minimum GLS (%)	-13.9 (-11.7 to -16.1)
GLS reduction in percentual points (%)	-2,85 (-2.57 to -4.9)
GLS post-treatment suspension (N=11)	-15.2 (-15.5 to -18.2)

Legends: N, number of patients; %, percentage of patients; SD, standard deviation; BTK Bruton's Tyrosine Kinase, TKI, Tyrosine Kinase Inhibitor; ICI, CV, cardiovascular; HFpEF, Heart Failure with Preserved Ejection Fraction; CTRCD, Cancer Therapy-Related Cardiac Dysfunction; RAAS, Renin-Angiotensin-Aldosterone System; ACE, Angiotensin-Converting Enzyme Inhibitors; ARB Angiotensin Receptor Blockers; ARNI, Angiotensin Receptor-Neprilysin Inhibitors; MRA, Mineralocorticoid Receptor Antagonist; SGLT2i, Sodium-Glucose Cotransporter-2 Inhibitor; LVEF, Left Ventricular Ejection Fraction; GLS, Global Longitudinal Strain

Figure PO 74

Introduction: Permissive cardiotoxicity is a novel concept in cardio-oncology that balances the need for life saving oncological therapy with the acceptance of its cardiotoxicity. One of the most feared cardiotoxicities of chemotherapy (QT) is cancer therapy-related cardiac dysfunction (CTRCD) which often leads to premature QT discontinuation. Change in left ventricular ejection fraction (LVEF) and global longitudinal strain (GLS) define the CTRCD according to 2022 ESC Cardio-oncology guidelines.
Methods: Retrospective analysis of outpatients (P) diagnosed with CTRCD, followed at a cardio-oncology clinic at a tertiary centre between April 2021 and December 2023, managed with a permissive cardiotoxicity strategy without subsequent QT discontinuation.
Results: 20P were included with a mean age of 56 ± 12 years, 80% were women. Most common malignancies were breast cancer (65%) and hematologic neoplasms (25%); 45% were stage IV. The major of cardiotoxic QT were HER2-targets (55%) and anthracyclines (15%). There was a high burden of CV risk factors (≥ 2 in 55%). The median follow-up was 16 months (IQR 11-27). Most patients (85%) presented mild or moderate asymptomatic CTRCD. The cohort presented a median baseline of LVEF 61% (IQR 58-65) and GLS -17.5% (-15.2 to -18.2%). Both presented a significant decrease during QT to a median minimum LVEF of 49% ($p < 0.001$) and GLS -13.9% ($p = 0.028$). An increase in NT-proBNP levels (median 2x increase) was observed in 9 (45%), with a median maximum of 1,805 pg/mL. Only 3P experienced mild-to-moderate symptomatic HF due to toxicity, 1 requiring hospitalization. All patients received cardioprotective therapy (95% under ≥ 2 HF pillar classes; 25% under sacubitril-valsartan). With permissive strategy, 13P (65%) completed the entire oncological treatment, with a post-treatment median LVEF of 57% (53-61) and GLS of -15.2% (-15.5-18.2%), showing no significant difference compared to baseline ($p > 0.05$). 7P remain on QT, 6 of whom are under palliative treatment despite cardiac dysfunction for over 12 months (range: 14 to 36 months). No mortality or severe cardiovascular-related adverse events were reported.
Conclusions: A permissive cardiotoxicity strategy supported by optimized cardiac care and close monitoring allowed patients with mild-to-moderate CTRCD to safely maintain QT with cardioprotective therapy. These findings underscore the importance of structured cardio-oncology follow-up in enabling high-risk patients to complete oncological therapies.

PO 75. THE DELICATE BALANCE OF PERMISSIVE CARDIOTOXICITY STRATEGY IN CANCER-RELATED CARDIAC DYSFUNCTION AT A TERTIARY CENTRE: A COMPARATIVE ANALYSIS

Leonor Magalhães[1], Ricardo Carvalheiro[1], Isabel Cardoso[1], Vera Vaz Ferreira[1], Tânia Branco Mano[1], Sónia Oliveira[2], Leonor Fernandes[2], Luís Almeida Morais[1], Boban Thomas[3], Rui Cruz Ferreira[1]

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Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a common cause of early suspension of chemotherapy (QT), potentially impacting survival rates. Permissive cardiotoxicity emphasizes the continuation of cancer treatments while managing cardiotoxic effects. This study assesses clinical outcomes in patients with CTRCD undergoing a permissive strategy.
Methods: Retrospective analysis of outpatients (P) with CTRCD referred to a cardio-oncology outpatient clinic at tertiary centre from April 2021 to December 2023.
Results: 110P were diagnosed with CTRCD, of these 31P underwent permissive cardiotoxicity strategy. 61% were female and median age of 59 years (IQR 54-69). 65% had 2 or more cardiovascular risk factors and 4P presented pre-existing reduced ejection fraction HF. Breast cancer and

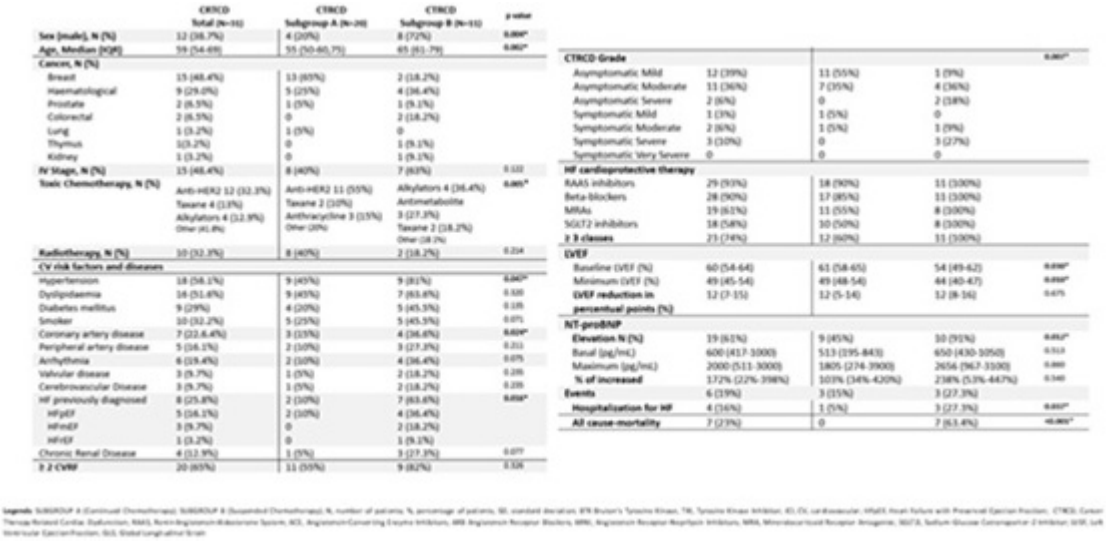


Figure PO 75

haematological malignancies accounted for 77% cases, 48% were stage IV. The majority of cardiotoxic QT regimens included HER2-targeted agents, alkylating agents, and taxanes. 68% developed asymptomatic CTRCD. The baseline median LVEF was 60% (IQR 54-64), which declined to a minimum of 49% (IQR 45-54). All patients started cardioprotective therapy (74% were treated with 3 or 4 classes of foundational HF prognosis-modifying drugs; 29% treated with sacubitril/valsartan). Over a median follow-up of 13 months, 20P continued their planned QT (Subgroup A), while 11 discontinued treatments later (Subgroup B). In Subgroup B, only 3P stopped due to severe symptomatic CTRCD. Comparative analysis showed that older age, male sex, hypertension [VVF1] and pre-existing HF were associated with QT suspension ($p < 0.05$). Although Subgroup B had a higher incidence of NT-proBNP elevation ($p = 0.012$) and lower median minimum LVEF ($p = 0.008$), the relative impairment from baseline did not differ significantly between subgroups. In Subgroup B, 7P (64%) died after QT suspension, with a median survival of 152 days after suspension. In contrast, no deaths or significant cardiac events were reported in Subgroup A, and 13P (42%) already completed prescribed oncological therapy.

Conclusions: In this cohort under permissive cardiotoxicity strategy, 9% experienced severe CTRCD, leading to suspension of QT; 42% resumed oncologic treatment with no mortality. A permissive cardiotoxicity approach enabled more patients to complete life-saving treatments. The current HF guideline-directed medical therapy and specialized cardio-oncology care may facilitate permissive cardiotoxicity strategies for potentially improved outcomes.

PO 76. CANCER THERAPY SUSPENSION DUE TO CARDIOVASCULAR TOXICITY: RISK FACTORS AND OUTCOMES

Isabel Nóbrega Fernandes, Marta Catarina Bernardo, Isabel Martins Moreira, Luís Sousa Azevedo, Alzira Nunes, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Cancer therapies are under permanent development. However, its potential cardiotoxicity presents a limitation in patients with a substantial cardiovascular (CV) risk, which may require cancer therapy suspension (CTS).

Methods: Single-centre retrospective study of consecutive patients presenting with cancer therapy-related cardiovascular toxicity (CTR-CVT), followed in Cardio-Oncology consultation between May 2021 and July 2024,

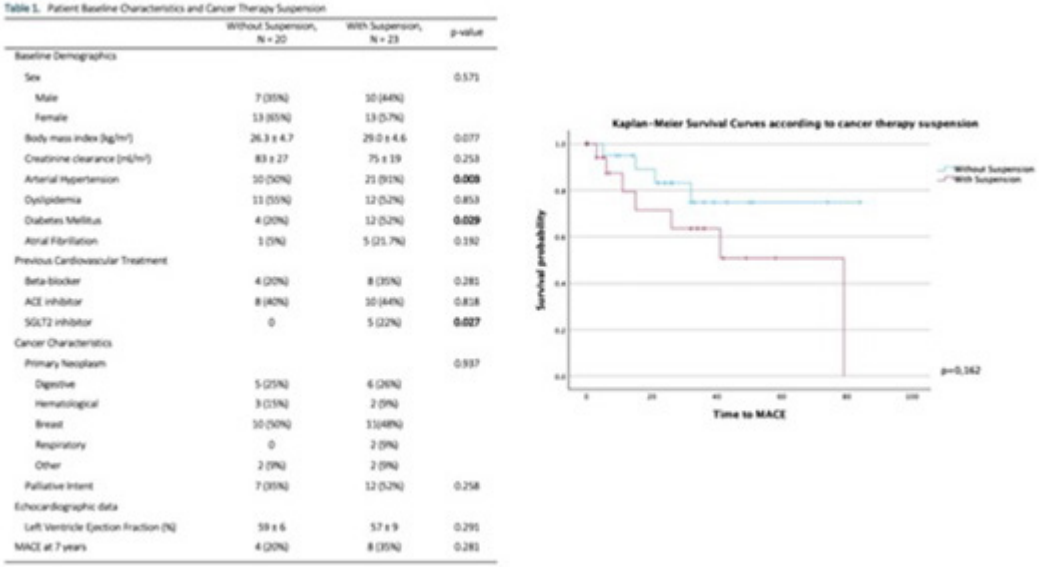


Figure PO 76

were analyzed. We aimed to assess characteristics of the population with CTS and its impact on CV events. Major Adverse Cardiovascular Events (MACE) were defined as the composite of all-cause mortality, CV mortality, heart failure, and acute myocardial infarction.
Results: In a mean follow-up time of 34 months, a total of 43 patients presented CTR-CVT, with 23 patients requiring CTS. Median age (67 versus 64 years) and sex distribution (44 vs. 35% males) were similar between patients with and without CTS. There was a higher prevalence of arterial hypertension (91% versus 50%, p = 0.003) and diabetes (52% versus 20%, p = 0.029) among patients who needed therapy suspension, as well as a tendency towards higher body mass index and higher proportion of preexisting atrial fibrillation (Figure 1). The most prevalent neoplasm in both groups was breast cancer. The CV causes for therapy suspension were vascular toxicity (26%), cardiac dysfunction (57%) and arrythmia (17%). Five patients (11%) were able to resume therapy. CTS group had a higher occurrence of MACE (35% versus 20%, p = 0.281), although the Kaplan-Meier curves did not confirm a statistically significant difference.
Conclusions: Treatment suspension due to CV toxicity occurred in patients with a high burden of comorbidities, yet did not significantly affect clinical outcomes. Preventing CTS through prompt follow-up and a risk-reduction approach can positively impact the morbidity and mortality of these patients.

PO 77. ANTHRACYCLINE CHEMOTHERAPY: IMPACT ON CARDIAC BIOMARKERS AND FITNESS

Margarida de Castro, Luísa Pinheiro, Mariana Tinoco, Emídio Mata, Tamara Pereira, Alexandra Teixeira, Gonçalo Torres, Geraldo Dias, Daniela Ferreira, Olga Azevedo, João Português, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a concern for Breast Cancer (BC) patients undergoing anthracycline chemotherapy (AC). CTRCD rely essentially on echocardiographic parameters. Alternative markers are being explored for their potential in early detection of CTRCD and prediction of impaired cardiorespiratory fitness (CRF) and heart failure (HF). Placental growth factor (PlGF), soluble fms-like tyrosine kinase-1 (sFlt-1) and myeloperoxidase (MPO) have shown to be increased after AC in BC patients, with higher PlGF and MPO levels correlating with risk of systolic dysfunction. Interleukin-6 (IL-6) and β2-microglobulin have been linked to cardiovascular outcomes.
Objectives: We aimed to explore the effects of AC on biomarkers in BC patients, and to assess their association with CRF impairment.
Methods: We conducted a prospective study including women with BC undergoing AC between May 2022 and December 2023. Cardiopulmonary exercise test (CPET) and laboratory analyses were performed at 3 moments: before AC, 1-month and 6-months after completing AC. Functional disability (FD) was defined as a VO2peak ≤ 18.0 mL/kg/min.
Results: We included 32 women. FD increased from 9% pre-AC to 44% at 1-month and 53% at 6-months post-AC. Hemoglobin levels showed a significant drop at 1-month (p < 0.001), with a slight recovery at 6-months (p = 0.001). High-sensitivity troponin significantly increased from 3.3 ± 1.1 to 30.4 ± 5.8 at 1 month (p < 0.001) and recovered at 6-months, remaining higher than pre-AC levels (9.2 ± 4.2, p < 0.001). NT-proBNP levels stayed unchanged. β2-microglobulin, SFlt-1, and IL-6 showed a significant increase at 1-month and normalized at 6-months. PlGF significantly increased at 1-month and remained elevated at 6-months. At 1-month, 44% (n = 14) had FD. Patients with FD had higher IL-6 (2.9 ± 1.4 vs. 1.7 ± 1 pg/mL), PlGF (22.4 ± 5.7 vs. 16.3 ± 3.3 pg/mL) and MPO (1.5 ± 0.7 vs. 1 ± 0.2) levels. At 6-months, 53% (n = 17) had FD. Patients with FD had higher MPO (1.4 ± 0.3 vs. 0.9 ± 0.1) levels than patients without FD. In univariate analysis with biomarkers, only MPO levels significantly influenced Vo2peak during follow-up (FU).
Conclusions: In our cohort, hsTnI and NT-proBNP levels were not linked to Vo2peak. Despite an increase in sFlt-1, IL-6, and β2-microglobulin levels at 1 month and PlGF levels at 1 and 6 months, none were associated with Vo2peak, suggesting they may detect cardiac injury early after AC but do not reflect CRF status. Although MPO did not show significant changes during FU in the overall population, patients with FD exhibited higher levels of MPO at 1 and 6 months, and MPO levels were associated with Vo2peak. Further research is required to confirm the utility of MPO level as a predictor of CRF.

PO 78. CARDIOTOXICITY IN IBRUTINIB-TREATED PATIENTS: INCIDENCE, MANAGEMENT, AND IMPACT ON TREATMENT OUTCOMES

Ricardo Carvalheiro, Leonor Magalhães, Isabel Cardoso, Vera Vaz Ferreira, Luís Almeida Morais, Tânia Mano, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Ibrutinib, a Bruton's tyrosine kinase inhibitor, has revolutionized treatment for various hematologic malignancies but is associated with cardiovascular toxicities (CTR-CVT), particularly atrial fibrillation (AF) and hypertension (HTN). Understanding the incidence, severity, and clinical impact of CTR-CVT is critical for optimizing treatment and improving patient outcomes.
Methods: We retrospectively evaluated a cohort of patients treated with ibrutinib in a single tertiary center.
Results: 54 pts (41% female) with a mean age of 68 ± 12 years were included in the analysis. 18 pts (33%) developed CTR-CVT during a median follow-up of

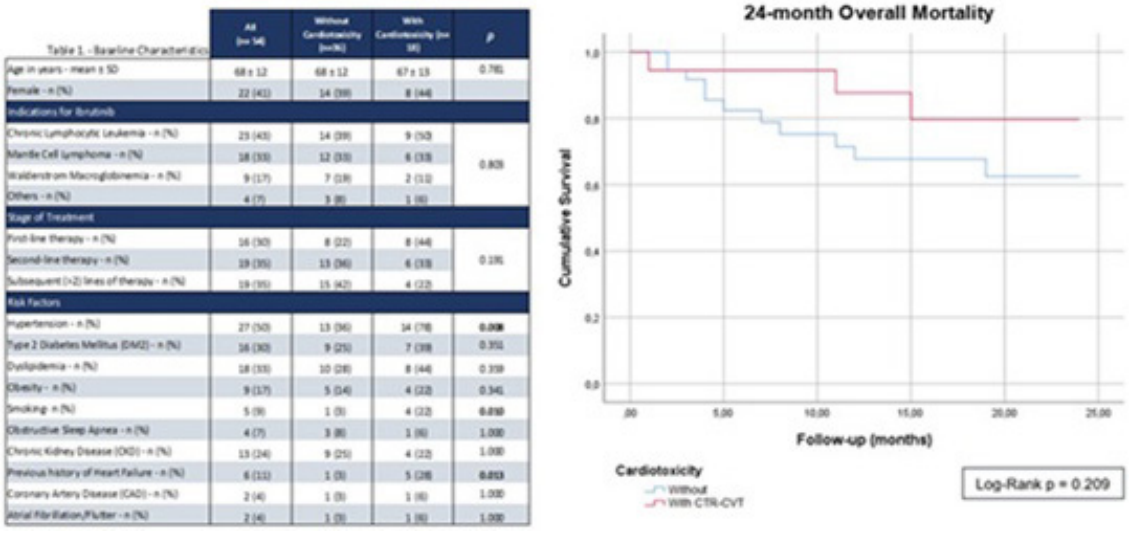


Figure PO 78

15 (IQR: 5-34) months, with a median time to cardiotoxicity of 10 (IQR: 1-19) months. There were 6 pts (13%) with new onset/worsening HTN, 10 pts (10%) with new-onset AF, and 6 pts (13%) with new onset/worsening heart failure (HF). Regarding risk factors for CTR-CVT, HTN, smoking, and previous HF were more frequent in the CTR-CVT group (78 vs. 36%, p = 0.008; 22 vs. 3%, p = 0.010; 28 vs. 3%, p = 0.013, respectively). AF occurred in a median of 8 (IQR: 1, 25) months after treatment initiation, with most of the cases (7-70%) being asymptomatic, and 2 (20%) requiring emergency hospital admission. Despite a mean CHA2DS2-VASc score of 3 ± 2, only 4 pts (40%) were started on oral anticoagulation, all with reduced doses. There were no thromboembolic or haemorrhagic events in this group. Considering other CTR-CVT, most events were mild, with 2 cases of CTCAE-grade > 2 HTN and 1 case of grade 3 HF. 17 pts (32%) suspended ibrutinib after a median of 8 (IQR: 4, 19) months, with only 2 cases directly attributable to CTR-CVT. Kaplan-Meier analysis showed no significant differences between the groups regarding time to suspension of ibrutinib over 24 months (Log-rank p = 0.089). 20 pts (37%) died during follow-up, with a median time to death from ibrutinib initiation of 11 (IQR: 4.26) months, but there were no statistically significant differences between the groups regarding overall mortality over 24 months (Log-Rank p = 0.209).
Conclusions: Cardiotoxicity was a common occurrence in our cohort of pts treated with ibrutinib, with AF being the most frequent event. Despite its prevalence, most cardiotoxic events were mild and manageable and not associated with a shorter time to suspension of ibrutinib (p = 0.089) or with greater overall mortality (p = 0.209).

Sexta-feira, 11 Abril de 2025 | 11:00-12:00

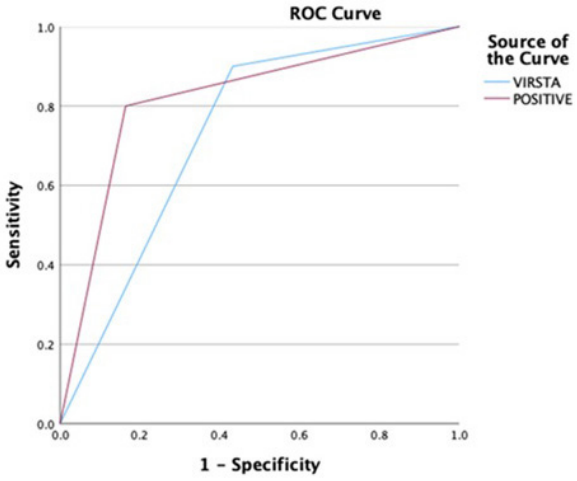
Área de Posters-écran 4 | Sessão de Posters 12 – Endocardite infecciosa 1

PO 79. PERFORMANCE OF GUIDELINE-SUGGESTED RISK SCORES FOR INFECTIVE ENDOCARDITIS IN A REAL-WORLD COHORT

Mariana Duarte Almeida, Gonçalo Marques Ferreira, João Gouveia Fiuza, Oliver Correia Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, Nuno Craveiro

ULS Viseu Dão-Lafões.

Introduction: Infective endocarditis (IE) is a disease with high mortality, in which positive blood cultures are a major criterion. *Staphylococcus aureus* is a common causative microorganism. There remains some uncertainty regarding the routine use of echocardiography in cases of positive blood cultures to investigate signs suggestive of IE. To support the decision to perform echocardiography, recent guidelines suggest the use of clinical scores that identify patients at high risk for *S. aureus* IE and, therefore, candidates for echocardiography. Transthoracic echocardiography (TTE) is the first-line imaging modality, while transesophageal echocardiography (TEE) plays a critical role in cases of high clinical suspicion or inconclusive TTE findings.
Objectives: The aim of this study was to evaluate the applicability of guideline-recommended scores in a real-world cohort of pts, to inform their implementation in clinical practice.
Methods: Retrospective data from pts with *S. aureus* positive blood cultures between January 2021, and December 2022, were analyzed. Data from pts who underwent echocardiography were analyzed and compared based on whether they met the modified Duke criteria for a definitive IE diagnosis or not. Demographic, laboratory, imaging parameters, and clinical outcomes were collected. Statistical analyses included Chi-square tests and Independent t-tests for group comparisons. Binary logistic regression assessed the predictive performance of the scores, and Receiver Operating Characteristic (ROC) curves with corresponding Areas Under the Curve (AUC) were used to analyze model discrimination.
Results: Of the 222 pts included, 77 (mean age: 73.5 ± 13.0 years, range 28-95) underwent echocardiography for IE evaluation, of whom 22 (28.6%) underwent TEE. Among these, 13.0% (n = 10) met criteria for a definitive diagnosis of IE. Compared to pts without IE, those with a definitive diagnosis had significantly higher VIRSTA scores (7.4 ± 3.1 vs. 3.1 ± 2.8, p < 0.001) and POSITIVE scores (5.8 ± 3.3 vs. 0.9 ± 2.0, p < 0.001). The PREDICT score was also higher (2.2 ± 1.1 vs. 1.9 ± 1.0) but without significance (p = 0.173). Positive associations between guideline-recommended cut-offs and the presence of IE were observed for VIRSTA (≥ 3, p = 0.006) and POSITIVE (≥ 4, p < 0.001), but not for PREDICT (≥ 4, p = 0.780). VIRSTA and POSITIVE scores predicted IE diagnosis with odds ratios of 11.8 (p = 0.023) and 20.4 (p < 0.001), respectively. ROC analysis showed AUC values of 0.734 (p = 0.022; 95%CI: 0.581-0.871) for the VIRSTA score and 0.818 (p = 0.001; 95%CI: 0.665-0.971) for the POSITIVE score.



Conclusions: The POSITIVE and VIRSTA scores demonstrated good predictive accuracy for infective endocarditis in our population and may guide the decision to perform echocardiography to assess imaging criteria for IE in clinical practice. Conversely, the PREDICT score did not appear as useful in our reality.

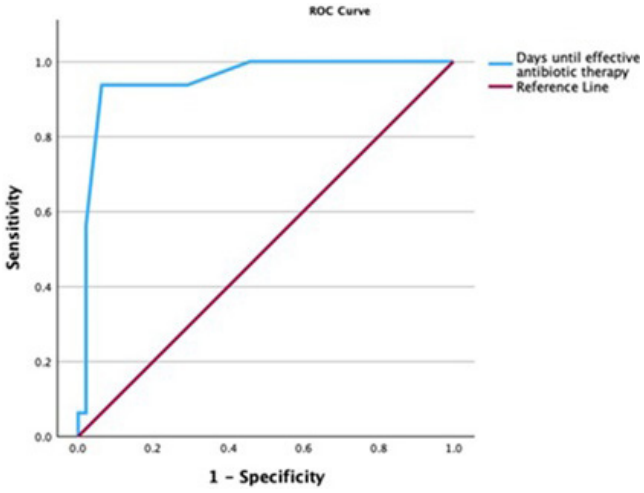
PO 80. IMPACT OF DELAYS IN DIAGNOSIS AND THERAPY ON MORTALITY IN PATIENTS WITH INFECTIVE ENDOCARDITIS

João Gouveia Fiuza, Gonçalo RM Ferreira, Mariana Duarte Almeida, Oliver Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, Luísa Malvar Gonçalves, Júlio Gil Pereira, António Costa

Unidade Local de Saúde de Viseu Dão-Lafões.

Introduction: Infective endocarditis (IE) is a severe condition with high mortality rates, where timely diagnosis and initiation of effective antibiotic therapy are critical for improving outcomes. Despite advancements in management, delays in therapy remain common due to the disease's complex presentation.
Objectives: To assess the impact of delays in effective antibiotic therapy and diagnosis on mortality in patients with IE. Also, to quantify the relationship between these delays and patient outcomes.
Methods: Retrospective study of 64 patients admitted for IE in a Cardiology Department. Baseline characteristics and microbiological findings were analyzed. Patients were divided into two groups based on in-hospital mortality. The variables analyzed were demographic and clinical characteristics, the number of days until effective antibiotic therapy and the number of days until diagnosis. Variables were compared between groups using Chi-square and Mann-Whitney U. Multivariate logistic regression was performed to assess the association between delays and mortality. ROC analysis was used to evaluate the predictive ability of variables.
Results: Mean age was 68 ± 8 years; 67.2% were men. In-hospital mortality was 25%. Patients who died experienced significantly longer delays in both effective antibiotic therapy and diagnosis. The mean delay to effective antibiotic therapy was 13.63 days for patients who died versus 3.77 days for

survivors (p < 0.001). Similarly, the mean delay to diagnosis was 14.94 days for patients who died versus 5.42 days for survivors (p < 0.001). Logistic regression analysis revealed that each additional day of delay to effective antibiotics increased the odds of mortality by 33.8% (OR 1.338, 95%CI: 1.020-1.754, p = 0.035). Delay to diagnosis was not significantly associated with mortality after adjusting for other factors (OR 1.082, 95%CI: 0.860-1.360, p = 0.502). ROC analysis revealed that delays in effective antibiotic therapy are a strong predictor of mortality (AUC of 0.951; p < 0.001). The optimal cutoff for predicting mortality was 8.5 days, with a sensitivity of 93.8% and a specificity of 93.7% (Youden's Index = 0.875).



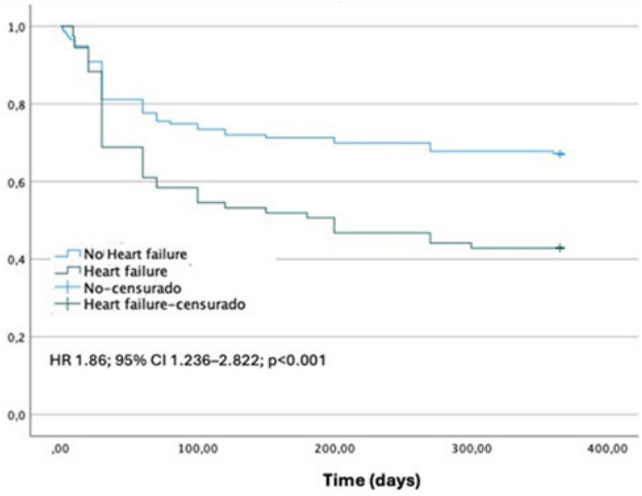
Conclusions: This study highlights the critical importance of minimizing delays in initiating effective antibiotic therapy for patients with IE. Each additional day of delay to effective antibiotic therapy significantly increased the odds of in-hospital mortality underscoring the direct impact of timely therapeutic intervention on patient outcomes. These findings emphasize the need for streamlined clinical pathways and prompt initiation of targeted antibiotic therapy to improve survival in this high-risk population. Future research should focus on identifying and addressing barriers to early antibiotic initiation in clinical practice.

PO 81. INFECTIVE ENDOCARDITIS AND ACUTE HEART FAILURE: A COHORT ANALYSIS OF RISK FACTORS AND MORTALITY

Liliana Brochado, Diogo Cunha, Mariana Martinho, Bárbara Ferreira, Oliveira Baltazar, João Luz, Nazar Ilchyshyn, Adriana Silva, Hélder Pereira, Paula Fazendas

Hospital Garcia de Orta, EPE.

Introduction: Acute heart failure (AHF) is the most frequent complication of infective endocarditis (IE) and the leading indication for urgent/emergent heart surgery. Patients with IE and acute onset of symptoms are at high risk of mortality. Still, the characteristics associated with AHF in those with IE are poorly defined.
Objectives: To characterize a cohort of IE patients, identify risk factors for AHF within this group, and evaluate its impact on mortality.
Methods: We conducted a retrospective, single-center analysis of patients hospitalized with IE (2006-2021). We assessed in-hospital mortality and all causes of mortality over a 1-year follow-up period. Logistic regression and Cox regression analyses were performed to identify risk factors for developing HF and the mortality predictors.
Results: Among 221 EI patients, 79 (35.7%) had acute heart failure (AHF), but only 38% of these patients underwent surgical intervention. Patients with AHF demonstrated significantly higher rates of in-hospital mortality compared to those without AHF (39.2 vs. 22.1%; p = 0.008), as well as increased 1-year mortality (57.0 vs. 33.1%; p < 0.001). The main characteristics among patients who developed AHF in the context of IE included being male (81 vs. 66.9%; p = 0.029), pre-existing valvular heart disease (57 vs. 36.9%; p = 0.005), coronary artery disease (20.3 vs. 6.3%; p = 0.003), and a history of heart failure (38.0 vs. 14.8%; p < 0.001). Additionally, these patients more frequently presented with constitutional symptoms (66.2 vs. 42.2%; p = 0.002), involvement of the aortic valve (65.8 vs. 48.2%; p = 0.016), and a history of invasive procedures in the past 3 months (47.8 vs. 20.8%; p < 0.001). Among local complications of IE, progression to regurgitation was the sole differentiating factor associated with AHF development (75 vs. 50%; p < 0.001). The presence of valvular heart disease (OR 2.54; 95%CI 1.28-5.05; p = 0.008), coronary artery disease (OR 4.49; 95%CI 1.56-12.96; p = 0.005), recent invasive procedures within the past 3 months (OR 2.41; 95%CI 1.19-4.91; p = 0.015), and constitutional symptoms at admission (OR 3.23; 95%CI 1.59-6.52; p < 0.001) were independently associated with an increased likelihood of developing AHF. Multivariable analysis identified AHF, alongside septic shock, as a significant predictor of mortality (HR 1.86; 95%CI 1.236-2.822; p < 0.001).



Survival curves in function due to having Heart Failure and respective mortality predictor results in multivariate analysis

Conclusions: Our study demonstrated a high rate of in-hospital and one-year mortality among patients with IE who developed AHF, associated with a low rate of cardiac surgeries performed. These findings emphasize the critical need for timely and effective management strategies. By identifying patient characteristics associated with an increased risk of AHF, earlier surgical referral and intervention could be facilitated, potentially leading to significantly improved clinical outcomes.

PO 82. INFECTIVE ENDOCARDITIS - PREDICTORS OF CEREBRAL AND PERIPHERAL EMBOLIZATION AND MORTALITY

Fernando Nascimento Ferreira, Francisco Albuquerque, Rita Ilhão Moreira, Bárbara Teixeira, Miguel Figueiredo, Madalena Coutinho Cruz, Ana Galrinho, Ana Teresa Timóteo, Pedro Rio, Luísa Moura Branco, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Infective Endocarditis (IE) is a globally impactful pathology with significant incidence and mortality. Among various complications, cerebral and peripheral embolization bear prognostic significance, therefore, there is a need for the assessment of clinical features associated with an increased risk of these complications.
Objectives: To evaluate potential predictors of cerebral and peripheral embolization and their prognostic value.
Methods: A retrospective study included patients with a definitive diagnosis of IE, according to the 2023 European Society of Cardiology guidelines, who underwent transesophageal echocardiography at a Cardiology Center of a

Characteristics	Peripheral embolization Yes (n: 29)	No (n: 113)	p-value	Cerebral embolization Yes (n: 21)	No (n: 121)	p-value
In-hospital mortality - n (%)	4 (14)	29 (26)	0,177	6 (29)	27 (22)	0,578
All-cause mortality - n (%)	7 (24)	51 (45)	**0,040**	15 (71)	43 (36)	**0,002**

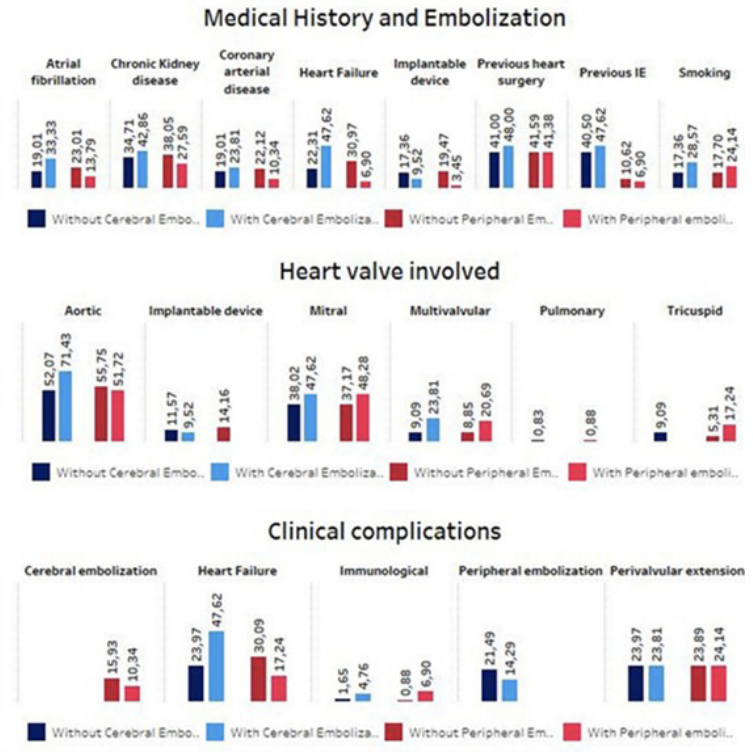


Figure PO 82

tertiary hospital between 2015 and 2020. Clinical, echocardiographic and prognostic characteristics were assessed, and their association with cerebral (CE) and peripheral embolization (PE), as well as their relationship between those complications and mortality.

Results: A total of 142 patients were included in the study. 71.1% were male, with a mean age of 66 years (± 15.6). 41.5% had prior cardiac surgery, 37.3% with valve replacement, 32.4% with recent hospitalization or an invasive procedure within the 3 months preceding diagnosis, and 9.9% with a history of bacterial IE. The aortic valve was the most affected (54.9%), and vegetation was the most frequent echocardiographic finding (93.7%). *Staphylococcus* spp. was the predominant microorganism, present in 26.1% of cases. Complications included heart failure (27.5%), central embolization (CE) (14.8%), 76.2% ischemic, and pulmonary embolism (PE) in 20.4%. Surgical indications were present in 54.2% of patients, and 37% underwent surgery. The in-hospital mortality rate was 23.2%, while the one-year mortality rate was 27.4%. PE was significantly associated with tricuspid valve endocarditis (OR 3.7; CI 1.047-13.186; p = 0.047) and IE related to cardiac devices (OR 0.858; CI 0.796-0.925; p = 0.047), both statistically independent. Additionally, PE was found to be a predictor of mortality, though not independently. CE was significantly associated with a history of HF (OR 3.165; CI 1.215-8.244; p = 0.002), clinically complicated HF (OR 3.7; CI 1.047-13.186; p = 0.047), and IE associated with cardiac devices (OR 2.884; CI 1.112-7.477; p = 0.025), all independent associations. CE was strongly correlated to all-cause mortality (OR 4.535; CI 1.640-12.542; p = 0.002), independently of previous mentioned factors.

Conclusions: The study findings indicate that predictors of PE are tricuspid valve IE and cardiac device-associated IE. Predictors of CE include a history of heart failure, EI complicated with heart failure, and cardiac device-associated IE. Both complications appear to increase mortality. In summary, recognizing clinical features associated with a poorer prognosis allows a meticulous follow-up and early identification of severe IE complications.

PO 83. SPECIFIC PATHOGENS AND PROGNOSTIC OUTCOMES IN INFECTIVE ENDOCARDITIS: A RETROSPECTIVE ANALYSIS

Ana Carolina Pereira Mateus, Rodrigo Brandão, Inês Miranda, Mara Sarmento, Filipa Gerardo, David Roque

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Infective endocarditis (IE) remains a serious condition with adverse clinical outcomes, influenced by the causative pathogen. This study evaluates the impact of specific pathogens on complications and in-hospital mortality in IE.

Methods: A retrospective cohort of 90 patients diagnosed with IE at a secondary care center over six years was analyzed. Pathogens were categorized into Staphylococcus spp., Streptococcus spp., Enterococcus spp., other agents, culture-negative cases, and multiple pathogens. Outcomes included sepsis, acute kidney injury (AKI), in-hospital mortality, and other clinical events.

Results: Patients with *Enterococcus* spp. were older than the cohort average (75.6 vs. 69.9 years, p = 0.023), while patients with other agents were younger (60.3 vs. 69.9 years, p = 0.008). No significant differences were noted for gender, hypertension, diabetes, atrial fibrillation, HIV, or immunosuppression. Native valve, prosthetic valve, or device infections did not show significant statistical differences. Similarly, vegetation size > 10 mm, local complications, embolic events, significant functional impact of IE (e.g., regurgitation/stenosis), vasopressor use, atrioventricular block, *de novo* heart failure, stroke, and surgical indication also showed no significant variation between groups. Sepsis occurred in 46.7% of patients, with significant differences between pathogens (p = 0.002). *Staphylococcus* spp. (66.7%, p = 0.039) and multiple pathogens (100%, p = 0.048) were associated with higher sepsis

rates, while *Streptococcus* spp. showed lower rates (25.0%, p = 0.005). Other pathogen groups showed no significant differences. AKI occurred in 71.3% of patients, with rates higher in *Staphylococcus* spp. (90.5%, p = 0.036) and lower in *Streptococcus* spp. (54.2%, p = 0.008). In-hospital mortality was 32.5%, varying significantly by pathogen (p = 0.014). *Staphylococcus* spp. (57.1%, p = 0.017) and multiple pathogens (100%, p = 0.011) were associated with increased mortality. *Streptococcus* spp. exhibited a trend toward reduced mortality (16.7%, p = 0.07), while other groups showed no significant differences.
Conclusions: This study highlights the significant impact of pathogen type on outcomes in infective endocarditis (IE), particularly regarding sepsis, AKI and mortality. However, further research is needed to understand the underlying mechanisms driving these differences. Given the complexity of IE, including multi-pathogen infections, the establishment of dedicated IE teams could enhance early diagnosis and improve management. These teams are essential for implementing pathogen-specific strategies, which may ultimately lead to better patient outcomes and reduced mortality.

PO 84. AORTIC PROSTHETIC VALVE ENDOCARDITIS: CLINICAL CHARACTERISTICS, MICROBIOLOGICAL PROFILE AND OUTCOMES COMPARISON BETWEEN TRANSCATHETER AND SURGICAL BIOPROSTHESIS

Ana Teresa Timóteo, Ana Galrinho, Pedro Rio, Ana Leal, Fernanda Varela, Inês Rodrigues, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: The frequency of prosthetic infective endocarditis (IE) is increasing, accounting for 30% of cases in EURO-ENDO registry. In this registry, Enterococcal IE frequency was higher, compared to previous studies, and culture negative was also more frequent than expected. Furthermore, there was a high number of embolic events that could occur in up to 40% of cases. Mortality is also high, up to 30%. However, most of the studies reported are related to surgical prosthesis and very few is known regarding infection of transcatheter prosthesis. Our objective was to compare clinical characteristics, microbiological profile and outcome between surgical and transcatheter (TAVI) aortic bioprosthesis.
Methods: We reviewed all transesophageal echocardiograms performed in our institution from 2019 to 2024 for suspicious endocarditis in patients with prosthetic biological valves, either surgically or percutaneously implanted, some of them in other institutions. The electronic records were reviewed and confirmed endocarditis cases were included in the present analysis. Data was collected and this is a descriptive analysis regarding clinical characteristics, microbiological profile and outcomes.
Results: A total of 33 patients were included in the analysis, 19 with surgical valves and 14 percutaneous. Mean age was 77 ± 9 years, 64% males. Age was higher in the TAVI group (83 ± 7 vs. 72 ± 8 years, p = 0.001). The other baseline clinical characteristics were similar between groups. An early endocarditis occurred in 21% of surgical patients and 57% in TAVI patients (p = 0.033). The most common finding at echocardiography was the presence of vegetations, but the presence of abscess was observed in 33% of surgical compared to 7% in TAVI (p = 0.098). Embolization rate was 42% in surgical and 21% in TAVI (p = 0.278). The most frequent bacteria in surgical cases were *Streptococcus* (26%) and Enterococcus (26%), followed by *Staphylococcus* (21%). In 16%, it was culture-negative. In TAVI patients, the most frequent bacteria were *Staphylococcus* (21%) and *Steptococcus* (21%), followed by Enterococcus (14%. However, in 14% it was culture-negative and in 28% of the cases, there were unusual bacteria. One-year all-cause mortality rate was 47% in surgical vs. 64% in TAVI (p = 0.335). At a mean follow up of 401 ± 417 days, the mortality rate was 58% in the surgical group and 86% in the TAVI (p = 0.086).
Conclusions: Although this is an exploratory study, from a single-centre and with a limited number of patients, we observed a similar pattern in endocarditis in surgically implanted valves compared to percutaneous. However, early endocarditis were more frequent in percutaneous valve endocarditis, with a trend to a higher mortality rate.

Sexta-feira, 11 Abril de 2025 | 12:00-13:00

Área de Posters-écran 1| Sessão de Posters 13 - Congénitos e HTP 1

PO 85. THE FAILING FONTAN: FROM THE SUCCESSFUL PALLIATION TO THE UNAVOIDABLE NOT-SO-SLOWLY PROGRESSIVE FAILURE OF THE CIRCUIT

Ana Isabel Pinho, Ana Filipa Amador, Luís Santos, Cátia Oliveira, Carla Sousa, Rui André Rodrigues, Cristina Cruz

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Fontan procedure has expanded considerably as the most common operation performed in patients with a functional or anatomic univentricular heart. Despite its successful palliation for two to three decades, adult Fontan patients experience a unique spectrum of complications, requiring specialized care.

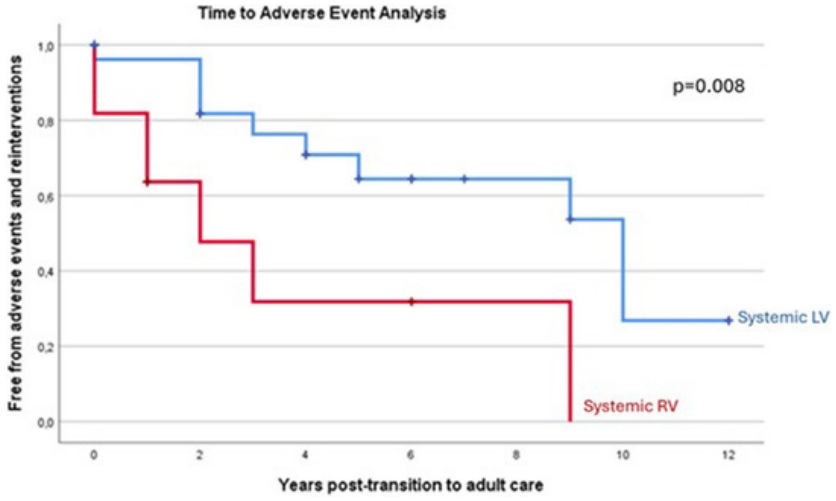


Figure PO 85

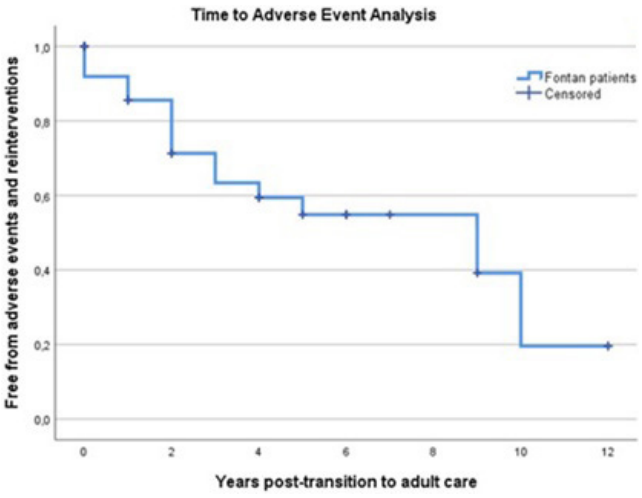
Objectives: This study examines the outcomes, complications, and management strategies of adult patients with Fontan physiology.
Methods: We conducted a retrospective analysis of Fontan patients ≥ 18 years-old managed in a Portuguese congenital heart disease center. Data collected included demographics, clinical outcomes, comorbidities, and interventions. A time to adverse event analysis was performed.
Results: The study cohort consisted of 37 adult Fontan patients (mean age 27 ± 6 years; 38% female); the 2 oldest Fontan patients were 39 years-old. Median duration of Fontan circulation was 19 years (range 7-32 years) and median follow-up duration post-transition to adult care was 6 years (0-14 years), with regular multidisciplinary evaluations involving cardiology, hepatology, and imaging specialists. Fifty-four percent of patients presented with various degrees of hepatic congestion and liver fibrosis, including 1 patient with hepatocarcinoma. Pulmonary hypertension was observed in 8.1%. Common complications also included heart failure (32%), arrhythmias (19%), protein-losing enteropathy (13%), and thrombi in the Fontan circuit (5%). Long-term follow-up revealed stable hemodynamics without complications in 24% of patients, while 30% required additional surgical or catheter-based interventions. One patient died of end stage heart failure, 1 patient endured re-do Fontan, and 2 patients underwent successful heart transplantation. One patient is currently being studied for heart and liver transplantation. Three female patients got pregnant and 2 gave birth to healthy newborns. Regarding the time-to-adverse-events analysis, more than 50% of patents were event-free during the first 16 years of follow-up. However, after 19 years of follow-up, more than 70% of patients presented with a Fontan complication or need for reintervention. Patients with systemic right ventricle had a significantly higher likelihood of adverse events after transitioning to adult care compared to those with systemic left ventricle, with a hazard ratio of 3.56 (95%CI 1.26-10.02), indicating a more than threefold increase in risk (Figure 1).
Conclusions: The Fontan operation has transformed the prognosis for patients with single-ventricle physiology, allowing many to transition into adulthood. As a testimony to the success of the current strategy of care, the proportion of adults with Fontan circulation is increasing. However, adult Fontan patients represent a heterogeneous group that faces considerable morbidity, underscoring the need for lifelong, multidisciplinary care.

PO 86. ADULTS WITH FONTAN CIRCULATION: INSIGHTS FROM A PORTUGUESE ADULT CONGENITAL HEART DISEASE CENTER

Ana Isabel Pinho, Ana Filipa Amador, Cátia Oliveira, Luís Santos, Carla Sousa, Rui André Rodrigues, Cristina Cruz

Centro Hospitalar Universitário de S. João, EPE.

Introduction: The Fontan procedure has significantly improved survival for patients with single-ventricle physiology, allowing many to reach adulthood. Following Fontan procedure, patients face substantial morbidity risk and require lifelong follow-up with a cardiologist experienced in the care of adult congenital heart diseases (ACHD).
Objectives: To understand the diversity of anatomical anomalies and therapy requirements of adult Fontan patients.
Methods: We conducted a retrospective analysis of patients ≥ 18 years-old with Fontan circulation managed in an ACHD center. Data collected included demographic information, clinical outcomes and interventions. A time to adverse event analysis was performed.
Results: Among 37 adult Fontan patients (mean age 27 ± 6 years; 38% female), the underlying diagnosis were pulmonary atresia (35.1%), hypoplastic left heart syndrome (19%), tricuspid atresia (13%), double-outlet right ventricle (RV) (8%), unbalanced atrioventricular (AV) canal defects (5%), Ebstein anomaly (3%), and other anatomic variants with hypoplasia of either ventricle (16%). The most prevalent surgical technique was extracardiac conduit (76%), followed by lateral tunnel (19%) and atriopulmonary connection (5%). The systemic ventricle was morphologically left in 70%. A fenestration or residual shunt persisted in 43%. The mean basal oxygen saturation was 95%; 54% had desaturation with exercise. Most patients were asymptomatic (65% NYHA class I), with normal ventricular function in 62% of those with a systemic left ventricle and impaired function in 73% of those with a systemic RV; more than mild AV valve regurgitation was present in 16%. Rhythm disturbances were common, with atrial arrhythmias observed in 16% and ventricular arrhythmias in 11%. Basal ECG frequently showed AV or intraventricular conduction disturbances (73%); 5% required pacemaker implantation. Medical therapy included ACE inhibitors (46%), spironolactone (35%), SGLT2 inhibitors (24%), beta blockers (30%), diuretics (19%), aspirin (49%), anticoagulation with warfarin (22%) or DOAC (24%). Median follow-up was 6 years since transition to ACHD clinic, with regular multidisciplinary evaluations. More than 50% of patients were event-free during the first 5 years post-transition to adult care and 2 female patients achieved successful pregnancies. However, after 10 years of follow-up in adult care, more than 80% of patients suffered a Fontan complication or needed reintervention. One patient died of heart failure, 1 patient underwent a re-do Fontan and 2 patients underwent successful heart transplantation.



Conclusions: Adult Fontan patients represent a heterogeneous group with diverse anatomical anomalies, comorbidities and clinical trajectories. This single-center experience highlights the importance of individualized long-term follow-up to address unique clinical needs and improve outcomes.

PO 87. SIX-MINUTE WALKING TEST AND CARDIOPULMONARY EXERCISE TEST IN PULMONARY HYPERTENSION RISK ASSESSMENT

Débora Repolho, Filipa Ferreira, Otília Simões, Ana Sofia Alegria, Ana Claúdia Vieira, Bárbara Ferreira, João Luz, Helder Pereira

Unidade Local Saúde Almada-Seixal, EPE.

Introduction: Pulmonary Hypertension (PH) leads to a progressive decline in functional capacity, necessitating thorough evaluation and, when possible, quantification. The 6-minute walk test (6MWT) and cardiopulmonary exercise testing (CPET) are recommended for risk assessment at diagnosis, alongside other variables. During follow-up, a simplified 4-strata tool includes three basic variables such as the 6MWT but excludes CPET. Additionally, CPET is rarely used as an endpoint in clinical trials, raising critical questions about its role in clinical practice.
Objectives: To evaluate the agreement between risk levels determined by 6MWT and CPET and to assess the correlation of 6MWT and CPET with other variables used in the 4-strata follow-up risk assessment: N-terminal pro-brain natriuretic peptide (NT-proBNP) and World Health Organization (WHO) Functional Class (FC).
Methods: This retrospective, cross-sectional study included patients from a pulmonary hypertension clinic who during follow-up, underwent 6MWT, CPET, NT-proBNP measurement, and WHO FC assessment within the same period, without changes in their therapeutic regimen. The 6MWT was conducted following ATS 2002 guidelines, and CPET was performed on a

treadmill. Correlations were analyzed using Pearson's or Spearman's tests based on sample normality.

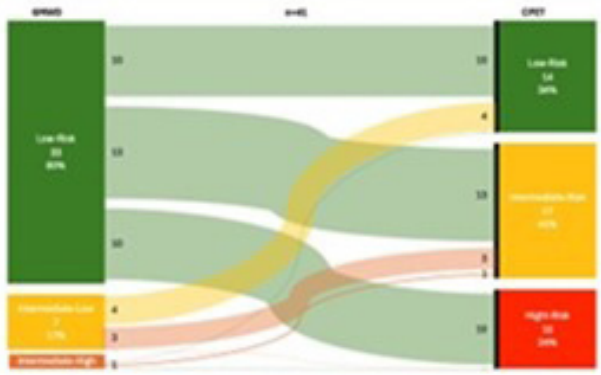


Figure 1 – Sankey diagram depicting the agreement between risk levels determined by 6MWT and CPET

Results: A total of 41 patients were included, 63% with pulmonary arterial hypertension (PAH) and 37% with chronic thromboembolic pulmonary hypertension (CTEPH). The cohort was 75.6% female, with a mean age of 48 ± 15 years. WHO FC distribution was: I - 46.3%; II - 36.6%; III - 17.1%; IV -0. Median NT-proBNP was 166 (IQR 118-318 pg/mL). Although 6MWT correlated with CPET (*rs* = 0.382; p = 0.014), the agreement between their risk levels was not verified. There is limited discriminatory power of 6MWT in patients walking over 440 meters, where CPET often classified these patients at higher risk (Figure 1 A). Conversely, some patients with limited 6MWT performance had lower CPET risk levels, likely reflecting limitations unrelated to pulmonary hypertension. Stronger correlations were found between FC and% predicted 6MWT distance compared to absolute distance (*rs* = -0.515; p = 0.001 vs. *rs* = -0.362; p = 0.02). Moderate correlations were observed between FC and predicted peak VO_2 (*rs* = -0.515; p = 0.001). NT-proBNP showed no significant correlations with either 6MWT distance or peak CPET, possibly due to the younger age and low-risk profile of the cohort.
Conclusions: These findings highlight that there is still a place for CPET in risk stratification at follow-up particularly in low-risk patients and in patients with low functional capacity not in line with the rest of the assessment. The distance alone at 6MWT provides limited data and percentage of predicted distance correlates better with FC.

PO 88. OXYGEN THERAPY IN CTEPH PATIENTS: PREVALENCE AND ASSOCIATED FACTORS

Tiago Miguel Raposo Lobão, Bárbara Ferreira, Sofia Alegria, Filipa Ferreira, Débora Repolho, Liliana Brochado, Diogo Cunha, Oliveira Baltazar, João Luz, Nazar Ilchyshyn, Lourenço Aguiar, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH) is a disease characterized by elevated mean pulmonary artery pressure (mPAP) due to persistent obstruction of the pulmonary vasculature by organized fibrotic material. This condition is associated with significant morbidity and mortality. In patients with resting hypoxemia, need for long-term oxygen therapy (LTOT) is indicated (paO2 < 60 mmHg). However, studies on the prevalence and factors associated with the need for LTOT in this population are still scarce.
Objectives: To characterize patients with CTEPH who are under LTOT and the factors associated with hypoxemia in this population.
Methods: A retrospective study from a referral center for pulmonary hypertension was conducted. All patients with CTEPH who began follow-up in the clinic between 2015 and 2023 were included. Relevant baseline clinical, laboratory, echocardiographic, hemodynamic assessments, respiratory function tests, and pulmonary scintigraphy data were collected. The following tests were used: chi-square test, Mann-Whitney U test, and univariate logistic regression. Continuous data were presented as median and interquartile range (IQR).
Results: Of the 67 patients included in this study, 25 (37%) were on LTOT therapy. The majority were women (72%), with a median age of 72 years (IQR 59.5-79), mostly presenting in NYHA functional class III (60%), with an NT-proBNP of 1995 (IQR 920.5-3716.5), and 76% had a history of pulmonary embolism in the past. The following characteristics were associated with an increased likelihood of requiring O2 (without LTOT vs. with LTOT): NYHA functional class IV [4.9 vs. 40%; p < 0.001; OR 13 (95%CI 2.6-66.4)]; six-minute walk test [360 (275-440) vs. 240 (135-365); p = 0.003; OR 0.0991 (95%CI 0.985-0.997)]; right atrial dilation [51.2 vs. 92%; p < 0.001; OR 10.952 (95%CI 2.280-52.608)]; right ventricular dilation [57.1 vs. 84%; p = 0.024; OR 3.937 (95%CI 1.149-13.492)]; decreased systolic longitudinal function of the RV [20 (16-23) vs. 17 (14-19); p = 0.024; OR 0.875 (95%CI 0.769-0.996)]; estimated pulmonary artery systolic pressure [67 (IQR 47-94.5) vs. 100 (IQR 88.5-112); p < 0.001; OR 1.041 (95%CI 1.017-1.065)]; mPAP [37 (26.5-51.5) vs. 47 (45-54); p = 0.03; OR 1.078 (95%CI 1.026-1.133)]; RVP [6.4 wood U (3.86-10.605) vs. 11.25 (9.02-15.6); p < 0.001; OR 1.206 (95%CI 1.069-1.360)]; cardiac index [2.375 (2.050-2.8175) vs. 2.0 (1.6-2.42); p = 0.013; OR 0.377 (95%CI 0.156-0.911)]; SvO2 [66.7% (62.3%-72.7%) vs. 60% (52.9%-66.1%); p = 0.001; OR 0.894 (95%CI 0.830-0.963)]. Our study did not demonstrate statistically significant differences between groups regarding DLCO assessment, percentage of perfusion defects in scintigraphy or NT-proBNP values.
Conclusions: These results highlight that a significant proportion of CTEPH patients need LTOT. This seems to correlate with disease severity including hemodynamic parameters.

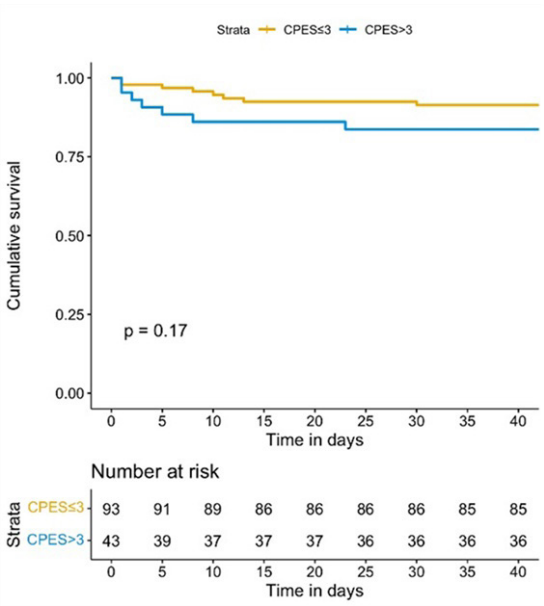
PO 89. PROGNOSTIC VALUE OF THE COMPOSITE PULMONARY EMBOLISM SHOCK SCORE IN ACUTE INTERMEDIATE-RISK PULMONARY EMBOLISM

Inês Amorim Cruz, Tiago Aguiar, Simão Carvalho, Carlos Costa, Joana Ribeiro, Luís Miguel Santos, Ana Briosa

Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro.

Introduction: One of the critical pillars for managing acute pulmonary embolism (PE) is adequate risk stratification, as it may influence decisions for treatment escalation. Although intermediate-risk PE patients may appear stable, they represent a heterogeneous group with high in-hospital mortality. In FLASH Registry, in patients submitted to mechanical thrombectomy, over one-third were in normotensive shock with a low cardiac index and the Composite Pulmonary Embolism Shock (CPES) score has been developed to identify these patients. However, few is known if CPES score predicts adverse clinical outcomes.
Objectives: To explore if the CPES score predicts adverse outcomes in patients with acute intermediate-risk PE.
Methods: All consecutive patients with acute intermediate-risk PE admitted between January 2016 and December 2020 were included. For CPES score, 1 point was attributed for each marker: elevated troponin, elevated B-type natriuretic peptide, concomitant deep vein thrombosis, saddle PE, moderately or severely reduced RV function, and tachycardia. The primary outcome was a composite of in-hospital mortality, resuscitated cardiac arrest, or hemodynamic decompensation. A time-to-event analysis was carried, including Kaplan-Meier analysis and Cox proportional hazard models.
Results: Among the 151 patients with intermediate-risk PE (63% women, median age 77 years [IQR 69-85], and 13% with a history of venous thromboembolism), 31% were classified as intermediate-high risk PE, and 19 (13%) experienced a primary outcome event. Patients with a CPES score > 3 were younger, more frequently obese, and more likely to have undergone systemic thrombolysis. In univariable Cox regression analysis, a higher CPES score was not significantly associated with a worse primary composite outcome (Hazard Ratio = 1.22, [95%CI, 0.85-1.76], p = 0.3). Inspecting Kaplan-Meier curve, while patients with a CPES score > 3 had not a higher risk of adverse outcomes compared to patients CPES score ≤ 3 (Figure 1,

log-rank test p = 0.17), a trend toward curve separation was observed, suggesting that the sample size may be insufficient to demonstrate a definitive effect.



Conclusions: In this cohort of patients with acute intermediate-risk PE, the CPES score did not effectively predict adverse clinical outcomes. However, a trend toward curve separation was observed, indicating that the sample size may have been insufficient and further studies are needed.

PO 90. INCIDENCE OF CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION AFTER SEVERE FORMS OF ACUTE PULMONARY EMBOLISM: SYSTEMATIC REVIEW WITH META-ANALYSIS

Rita Calé, Mariana Martinho, Filipa Ferreira, Sofia Alegria, João Luz, Hélder Pereira, Daniel Caldeira

Hospital Garcia de Orta.

Introduction: The incidence of chronic thromboembolic pulmonary hypertension (CTEPH) after severe forms of pulmonary embolism (PE) is currently unknown and could be clinically relevant.
Objectives: This meta-analysis aimed to estimate the proportion of CTEPH diagnosed following intermediate- or high-risk acute PE and assess the impact of differing diagnostic methods on reported proportions.
Methods: Eligible studies were identified through a systematic search of MEDLINE and Cochrane Central Register of Controlled Trials (CENTRAL) databases in March 2024. Inclusion criteria encompassed studies reporting CTEPH outcomes, confirmed either by right heart catheterization (RHC) or in which the diagnosis of CTEPH was based on other diagnostic criteria (clinical/echocardiography and ventilation/perfusion lung scintigraphy, with or without RHC confirmation) following intermediate- or high-risk acute PE. The pooled prevalence with the respective 95% confidence interval (CI) was derived by random effects meta-analysis. Heterogeneity was assessed using the I^2 metric.
Results: A total of 13 studies (n = 50.109) were included. The median follow-up duration was 26.1 months (IQR: 8.3-38.7). CTEPH confirmed by RHC was reported in 4.31% of patients (95%CI: 1.29-8.76; I^2 = 97%; Figure 1A), while CTEPH assessed by other non-invasive tests than RHC was reported in 6.47% (95%CI: 3.04-10.93; I^2 = 75.55%; Figure 1B). Significant variability in the diagnostic approaches, in study design and follow-up periods contributed to the observed statistical heterogeneity.
Conclusions: CTEPH was diagnosed in about one for every 20 patients that had intermediate- or high-risk acute PE. The findings underscore the

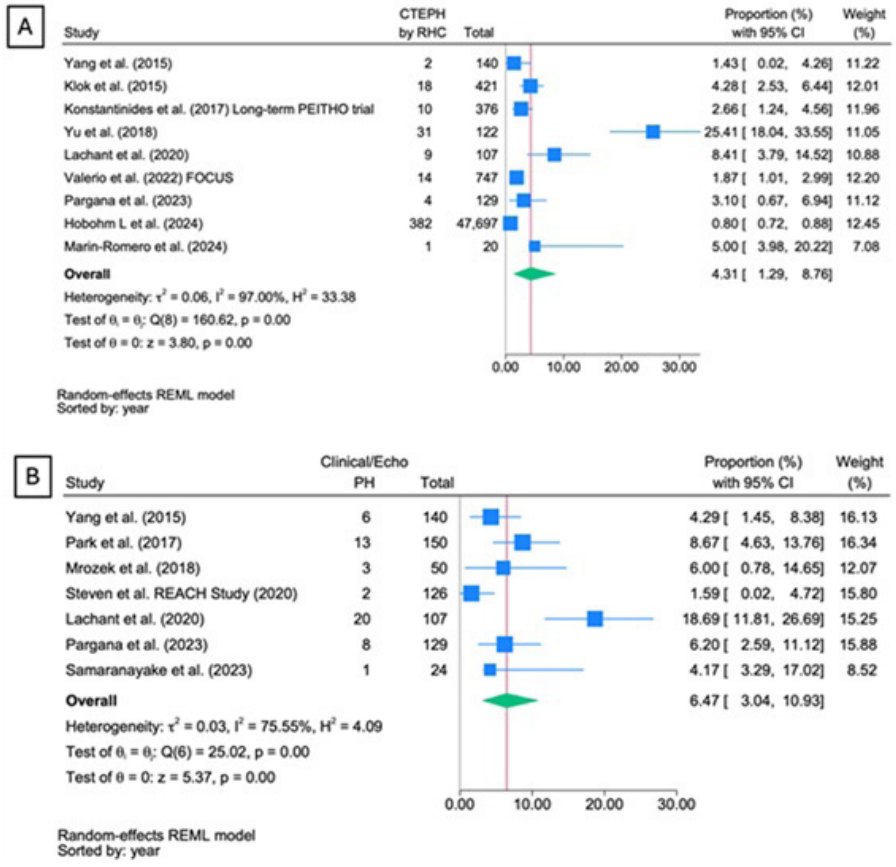


Figure PO 90

importance of systematic follow-up in delivering tailored management strategies, with the aim of improving patient outcomes and mitigating long-term complications in a significant proportion of these patients.

Sexta-feira, 11 Abril de 2025 | 12:00-13:00

Área de Posters-écran 2 | Sessão de Posters 14 – Congénitos e HTP 2

PO 91. RIGHT ATRIAL PRESSURE ESTIMATION BY ECHOCARDIOGRAPHY IN PULMONARY HYPERTENSION – TIME FOR A CHANGE?

Fábio Viveiros[1], Catarina Gregório[1], Miguel Azaredo Raposo[1], Ana Abrantes[1], Daniel Cazeiro[1], Inês Caldeira Araújo[1], Susana Gonçalves[2], Ana Almeida[1], Catarina Sousa[1], Fausto J. Pinto[1], Rui Plácido[1]

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Introduction: Right atrial pressure (RAP) is a valuable measurement for assessing hemodynamic status in pulmonary hypertension (PH) patients (pts). Correct estimation of RAP (eRAP) and management of fluid status is crucial in this challenging population. The current ESC PH guidelines classify RAP estimation into three subgroups based on inferior vena cava (IVC) diameter and inspiratory collapse.
Objectives: To evaluate the correlation between standard eRAP and invasive measurement in right heart catheterization (RHC).
Methods: This is a retrospective, single-center study of consecutive patients diagnosed with PH, who underwent RHC and transthoracic echocardiography on the same day. RAP was estimated according to the guidelines at 3, 8, and 15 mmHg, and using a modified 4-level method at 5, 10, 15, and 20 mmHg. Hemodynamic parameters were recorded from RHC. Statistical analysis was conducted using Pearson's and Spearman's correlations, and Cohen's Kappa was used to assess agreement between invasive measurements and the standard and modified eRAP groups by echo.
Results: A total of 69 patients were included in the study, with a majority being female (64%) and a mean age of 63.7 years. The distribution of PH subgroups was as follows: Group I (43%), Group II (10%), Group III (12%), and Group IV (30%). The mean RAP measured from RHC was 7.59 mmHg, compared to 7.69 mmHg estimated by echo using the standard method. There was a significant positive correlation between RAP and eRAP ($p < 0.001$), albeit not strong ($r = 0.439$). The modified 4-level method did not show any advantage. Inferior vena cava (IVC) diameter showed a significant positive correlation with RAP ($r = 0.571$, $p < 0.001$). When RAP was divided into three groups (< 5 mmHg, > 5 < 10 mmHg, and > 10 mmHg), the agreement assessed with Cohen's Kappa was statistically significant ($p = 0.008$), but minimal with a kappa of 0.235. When RAP was divided into four groups (< 5 mmHg, > 5 < 10 mmHg, > 10 < 15 mmHg, and > 15 mmHg), the agreement assessed with Cohen's Kappa was statistically significant ($p = 0.022$), with a lower kappa of 0.169.
Conclusions: The standard eRAP pressure through echocardiography using IVC diameter and inspiratory collapse showed a weak but significant correlation with invasive measurements. Subdividing into four groups did not improve the agreement between estimated and actual RAP measurements. Imperfect evaluation of IVC collapsibility may contribute to these findings. A more accurate tool for estimating RAP in PH patients is needed.

PO 92. BREAKING NEW GROUND IN PULMONARY ENDARTERECTOMY: INITIAL EXPERIENCE OF A PORTUGUESE SINGLE CENTER

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Introduction: Pulmonary thromboendarterectomy (PEA) is the main treatment option in operable chronic thromboembolic pulmonary hypertension (PH). We developed a PEA program in collaboration with an international surgical reference center and hereby present the results of the first 7 patients (pts) treated.
Methods: Retrospective analysis of all pts submitted to PEA. Diagnosis, operability assessment and referral for PEA were carried out by a

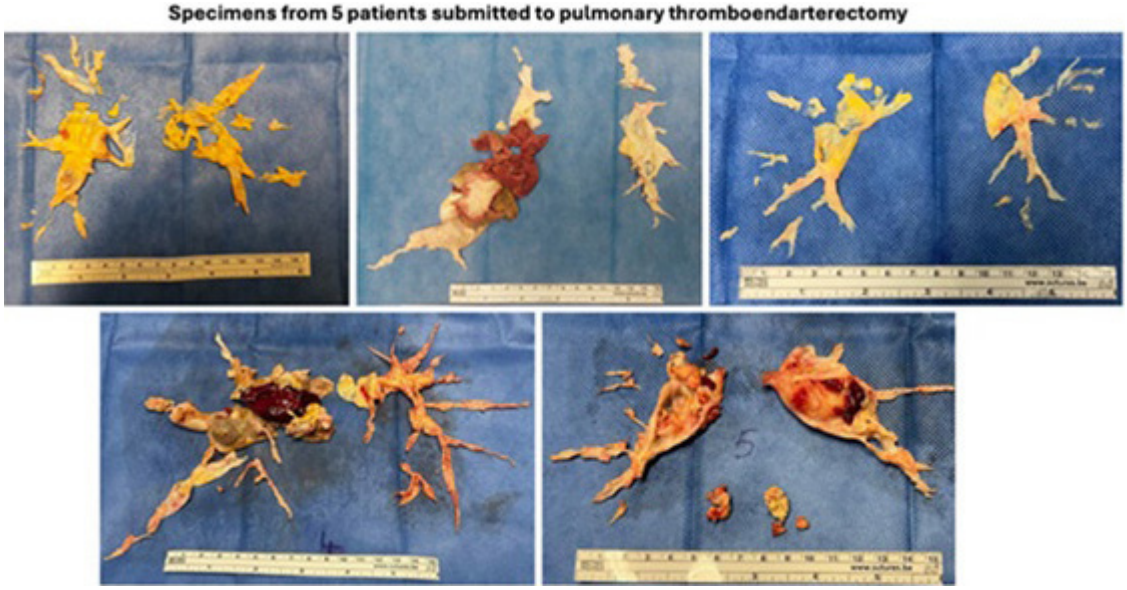

Figure PO 92

multidisciplinary team in our PH center. The same surgical team performed all PEA, using cardiopulmonary bypass and deep hypothermic circulatory arrest. Postoperatively, pts were managed in the Cardiothoracic Surgery Intensive Care Unit (ICU).
Results: Seven pts (71% female, mean age 69 years and BMI 26kg/m^2) underwent PEA. All pts were in WHO functional class (FC) II or III, with a median NTproBNP level of 2,218 pg/mL and mean 6-minute walking distance (6MWD) of 199 m. Seventy-one percent of pts had experienced ≥ 1 acute pulmonary embolism. Four pts were on ≥ 1 vasodilator and 3 were on long-term oxygen therapy. Mean estimated systolic pulmonary artery pressure (sPAP), tricuspid annular plane systolic excursion (TAPSE) and TAPSE/sPAP ratio were 77 mmHg, 18 mm and 0.27 mm/mmHg, respectively. Most pts exhibited a high-risk hemodynamic profile, with mean PAP, pulmonary vascular resistance and cardiac index of 45 mmHg, 9.4WU and 2.26 L/min/m^2, respectively. PEA was performed electively in 6 pts and urgently in 1 pt. Mean bypass time was 281 min, with cross-clamp time of 65 min and circulatory arrest time of 34 min. In the first 6 pts (1 pt still admitted in the ICU), no pulmonary major complications occurred. Two pts experienced major bleeding events and 1 of them had Dressler syndrome, requiring pericardiocentesis. Median ICU and total hospital stay were 5 and 10 days, respectively, with no in-hospital deaths. At present, follow-up consult was performed in 5 pts, with 3 reporting WHO FC improvement and 2 showing decreased NTproBNP levels. Follow-up diagnostic exams were performed in only 1 pt, with an increase in 6MWD (340 > 432 m) and normalization of sPAP and right ventricular function. One pt died 5 months post-surgery from COVID-19 pneumonia.
Conclusions: Seven PEA procedures were carried out successfully in our center, with no in-hospital deaths. Due to the complexity and steep learning curve of the technique, careful patient selection, thorough preoperative planning, and expert collaboration were crucial for a positive outcome.

PO 93. LONG-TERM SURVIVAL WITH PARENTERAL PROSTACYCLIN THERAPY IN PULMONARY HYPERTENSION – INSIGHTS FROM A REFERRAL CENTER IN PORTUGAL

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Introduction: Therapy with parenteral prostacyclin analogues in patients with pulmonary arterial hypertension (PAH) has been established for decades and is an integral component of the current guidelines for the treatment of pulmonary hypertension. However, there are few studies that report long-term experience of its use. Its administration form represents a significant burden either with subcutaneous or intravascular administration.
Objectives: To report the 20 years' experience with parenteral prostacyclin therapy of a Portuguese pulmonary hypertension treatment center.
Methods: A retrospective longitudinal observational study that included all patients followed in single pulmonary hypertension clinic from 2002 who were treated with prostacyclin analogues, administered through subcutaneous and/or intravascular routes. Primary outcome was lung transplantation and death from any cause. The Kaplan-Meier method was employed for survival analysis.
Results: 47 patients were included, with 66% diagnosed with PAH and 34% with chronic thromboembolic pulmonary hypertension (CTEPH). Baseline at diagnosis World Health Organization (WHO) Functional Class (FC) II comprised 12.8%, FC III accounted for 36.2%, and FC IV represented 51.1%. The cohort was predominantly female (78.7%), with a mean age of 45 ± 16 years. Therapeutic options included treprostinil in 34%, epoprostenol in 38.3%, iloprost in 14.9%, while 12.8% alternated between two drugs. 76.6% of patients were adherent to the therapeutic regimen. The longest follow-up period was 21 years. Median time from diagnosis to the initiation of prostacyclin treatment was 0.4 years (IQR: 3.05 years). Seventeen patients (40%) started parenteral prostacyclins as upfront therapy. Twenty-two (46.8%) patients died: 77.2% due to heart failure, 9% sudden death, and 13.6% from other causes. Two patients (4.2%) underwent lung transplantation. Kaplan-Meier survival analysis estimated an overall mean transplant-free survival of 10.4 ± 1.5 years, with a median of 8.0 years (IQR: 6 years). The transplant-free survival rates at 1, 3, and 6 years were 82.1%, 72.2%, and 55.8%, respectively. A sub-analysis was conducted on patients who survived the first year: Kaplan-Meier survival analysis estimated an overall mean transplant-free survival of 12.6 ± 1.6 years, with a median of 10 years (IQR: 7 years). The transplant-free survival rates at 1, 3, and 6 years were 91.2%, 80.7%, and 63.1%, respectively. Epoprostenol demonstrated the best individual transplant-free survival, at 9.86 ± 2.25 years, with a median of 10 years (IQR: 10 years).
Conclusions: Our experience with long-term parenteral prostanoid therapy demonstrate good overall survival free from transplant.

PO 94. QTC INTERVAL INDEPENDENTLY PREDICTS OUTCOMES IN ACUTE PULMONARY EMBOLISM

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Introduction: Multiple electrocardiographic (ECG) findings have been associated with acute pulmonary embolism (APE). Although QT and heart rate corrected QT (QTc) interval prolongation has been associated with APE, their prognostic value remains unclear.
Objectives: To evaluate the prognostic value of QTc in APE patients.
Methods: Single centre cohort analysis of 210 consecutive patients admitted to the Emergency Department with the diagnosis of APE confirmed by computed tomography pulmonary angiogram. QTc was calculated using the Bazett's formula, and analyses were performed separately by gender, due to known gender interaction in QTc. The primary endpoint was in-hospital mortality, and the secondary endpoint was a composite of in hospital death and need for fibrinolysis.
Results: The sample was comprised of 58.6% females (n = 123), with a mean age of 69 years. There was a high frequency of cardiovascular risk factors (51.4% hypertensive, 33.3% dyslipidemic, 18.6% diabetic, 13.3% obese, and 6.2% smoker), with an overall distribution of venous thromboembolic risk factors of 158 minor risk factors (75.2%), 47 moderate risk factors (22.4%), and 47 major risk factors (22.4%). The majority of the population in study presented with an intermediate APE risk score, with 45 having low risk, 65 intermediate-low risk, 45 intermediate-high risk, and 17 with high risk. A prolonged QTc interval was present in 38% of the overall population (56% and 34% of male and female patients, respectively). The mean QTc was 447.05 ± 1.05 ms and was numerically higher in females. In the overall cohort, QTc was not significantly associated with in-hospital mortality, despite being numerically higher in patients meeting the endpoints. When analyzing by gender, QTc was significantly associated with in-hospital mortality in males (470 ± 34 vs. 440 ± 32 ms with vs. without mortality, p < 0.05) but not in females (448 ± 21 vs. 450 ± 39, p = 0.85). We used ROC curves to identify 460 ms as the optimal QTc cut-off point for predicting in-hospital mortality (sensitivity 88% and specificity 65%) and 450 ms for predicting the CE (sensitivity 73% and specificity 65%) in the male population. After multivariate analysis, a QTc ≥ 460 ms remained independently associated with in-hospital mortality (OR 10.40, 95%CI 1.03-107.19, p < 0.05) and there was a non-significant trend towards a positive association with the CE (OR 5.74, 95%CI 0.98-33.50, p = 0.052), even if the same cut-off of 460 ms was used for simplification (accepting a sensitivity of 55% and specificity of 73% for detection of the CE).
Conclusions: These findings suggest that QTc may be an important prognostic tool in male patients presenting with APE, in addition to or in complement of existing risk scores.

PO 95. PULMONARY EMBOLISM IN ANTICOAGULATED PATIENTS: A RETROSPECTIVE SINGLE-CENTERED COHORT COMPARING DATA FROM THE PIOPED II STUDY

Ana Rita de Oliveira Tomás, Maria Carolina Silva, Rodrigo Brandão, Isabel Ribeiro Ferreira, Rúben Costa, Mónica Roxo Iglesias, Carolina Chumbo, Constança Coutinho, Daniela Madeira, Teresa Branco

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Introduction: Pulmonary embolism (PE) is a prevalent and potentially fatal condition representing the third most frequent acute cardiovascular syndrome with an incidence reaching 115/100,000 individuals annually. Although uncommon, cases of acute PE have been reported in patients undergoing anticoagulation (AC).
Objectives: Review the characteristics of PE in patients receiving AC and compare these findings with data from individuals not under this treatment. Materials and methods: We conducted a retrospective single-center study including patients diagnosed with PE from January 2019 to December 2023 in medical wards of our hospital with 18 years or older. Patients whose PE did not represent a current diagnosis were excluded. Socio-demographic data, comorbidities, pharmacological treatments, and clinical outcomes were collected and analyzed using Excel®. The findings were compared with data from the Prospective Investigation of Pulmonary Embolism Diagnosis II (PIOPED II) study which included only patients not undergoing AC therapy.
Results: Of the 1,197 patients evaluated, 74 were excluded and 59 (7%) were anticoagulated at the time of PE diagnosis, mostly with direct oral anticoagulants (DOACs) (78%), specifically rivaroxaban (43%) or apixaban (33%), at appropriate doses, though 19% reported non-compliance. The mean age was 76 ± 13 years vs. 57 ± 17 in PIOPED II ($p < 0.001$). In the AC group, most PE were segmental (54%) but in PIOPED II there was a predominance of lobar PEs (77%) ($p < 0.001$). The most frequently reported signs and symptoms in both groups were dyspnea (56% in the AC group vs. 79% in PIOPED II), chest pain (27 vs. 64%), cough (37 vs. 43%), tachypnea (68 vs. 57%), tachycardia (81 vs. 26%), and respiratory failure (51 vs. 21%). SARS-CoV-2 infection (34%), previous venous embolism (25%), obesity (25%), immobilization (20%) and active cancer (19%) emerged as the most common risk factors (RF) in our cohort. Some patients had no identifiable RF (10% in our study and 6% in PIOPED II). Mortality in our study reached 29%, but equivalent data from PIOPED II was not available.
Conclusions: PE in anticoagulated patients appears to occur in older individuals and in smaller pulmonary artery branches. This population does not exhibit a significantly different prevalence of symptoms or RF, and events may arise even in their absence. The low overall incidence of PE in anticoagulated patients and the predominance of segmental involvement suggests that current treatment strategies remain effective, potentially resulting in less severe outcomes. Due to lack of studies and consensus in literature, patient's management is most often not evidence based. Further and larger studies are needed to identify high risk scenarios and to implement strategies such as DOAC level measurement to better predict recurrence, understand underlying mechanisms of treatment failure and guide appropriate approaches.

Sexta-feira, 11 Abril de 2025 | 12:00-13:00

Área de Posters-écran 3 | Sessão de Posters 15 – Endocardite infecciosa 2

PO 96. CLINICAL RULE FOR INFECTIVE ENDOCARDITIS IN THE EMERGENCY DEPARTMENT SCORE: A PREDICTION TOOL FOR INFECTIVE ENDOCARDITIS AND ITS EMBOLIC EVENTS

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Hospital Garcia de Orta, EPE.

Introduction: Infective endocarditis (IE) is a condition characterized by significant mortality and morbidity. It often presents with non-specific symptoms, leading to delays in recognition. The Clinical Rule for Infective Endocarditis in the Emergency Department (CREED) score is a clinical tool designed for risk stratification of IE in patients presenting with fever at the emergency department.
Objectives: Evaluate whether patients with a definitive diagnosis of IE actually had a high probability of IE as assessed by the CREED score. Also, we aim to assess whether high and very high-risk scores are associated with an increased number of complications, indications for surgery, and in-hospital death.
Methods: Retrospective study analysing the CREED score profiles of patients with a confirmed IE with fever at admission, between 2006 and 2022 in a single center. Then, the study sample was divided into two groups: patients with very low and low risk (group 1), and patients with high and very high risk (group 2). We evaluated whether there were statistical differences in complications (paravalvular complications, embolic events, aneurysms, pseudoneurysms, abscesses, fistulas and septic shock), indication for surgery, and in-hospital death between the two groups.
Results: Of a total of 222 patients diagnosed with IE, 96 (43%) were eligible for the CREED score. Among these, 63 (66%) were classified as having a high or very high risk of IE, while 33 (34%) fell into the low or very low-risk categories. Regarding baseline characteristics (age, sex, and personal medical history), there was a statistically significant difference between group 1 and group 2 only in the history of valvulopathy (27 vs. 56%, $p = 0.008$). There was no statistical difference between groups in complications for all causes (55 vs. 64%, $p = 0.343$), but individually the group 2 was associated with an increased likelihood of developing embolic events (OR 3.17; 95%CI 1.2-8.4; $p = 0.02$). There was no statistical difference between groups in indication for surgery (30 vs. 46%, $p = 0.136$) and in-hospital mortality (21 vs.27%, $p = 0.535$).
Conclusions: Our results indicate that the CREED score effectively identifies patients at high-risk of having infective endocarditis, while a low score does not exclude the diagnosis. However, this score can be useful for predicting embolic events. It is crucial combine risk stratification with clinical judgment for timely diagnosis of infective endocarditis.

PO 97. ANTIBIOTIC THERAPY FOR ENDOCARDITIS IN OUTPATIENT SETTING: IS IT INEFFECTIVE AND SAFE IN LOW RISK PATIENTS?

Lucas Hamann, Sofia Andraz, Joana Guerreiro Pereira, Joana Massa Pereira, Miguel Espírito Santo, Hugo Costa, Pedro de Azevedo, Raquel Fernandes, Dina Bento, Daniela Silva, João Moura Guedes, Jorge Mimoso

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Introduction: Endocarditis remains a challenging condition requiring prolonged treatment. Outpatient antibiotic therapy (OAT), including parenteral (OPAT) or oral (OOAT) regimens, has emerged as a safe, cost-effective alternative to hospital-based antibiotic therapy (HBAT) for low-risk patients. However, the lack of standardized criteria and safety concerns complicates patient selection for OAT.
Objectives: To compare OAT and HBAT patients regarding baseline characteristics, mortality over 2 years (primary outcome), and secondary outcomes such as causes of death, re-hospitalization, and re-operation.
Methods: This retrospective study (2020-2024) included 36 patients diagnosed with endocarditis, divided into OAT (n = 20) and HBAT (n = 16) groups. Baseline characteristics, comorbidities, and outcomes were analyzed. Data were presented as frequencies and percentages or means and standard deviations. Logistic regression was used, with $p < 0.05$ considered significant.
Results: The mean age was 58 ± 16 years, and 67% of patients were male. Among OAT patients, 75% received OPAT and 25% OOAT. Comorbidities included heart failure (10%), hypertension (55%), diabetes (45%), obesity (15%), HIV infection (10%), intravenous drug use (15%), and cancer (25%). No significant differences were observed between groups in comorbidities, infection site, valvular surgery, complications, or cardiovascular device presence. Mortality rates during the follow-up (19.8 ± 16.8 months) were comparable (HBAT: 44 vs. OAT: 15%, $p = 0.829$), with no significant differences in first-year mortality. However, OAT significantly reduced re-hospitalization rates (HBAT: 50 vs. OAT: 15%, $p = 0.023$) and showed differing causes of death, though re-operation rates were similar.

				Hospital-based antibiotic treatment	Outpatient antibiotic therapy	Total	p-value
				n=16 (44%)	n=20 (56%)	36	
Gender	Male		n (%)	9 (56%)	15 (75%)	24 (67%)	0.236
	Female		n (%)	7 (44%)	5 (25%)	12 (33%)	
Age (years)			Mean±SD	57 ± 18	59 ± 14	58 ± 16	0.336
Medical History	Coronary disease		n (%)	2 (13%)	5 (25%)	7 (19%)	0.346
	Heart failure		n (%)	2 (13%)	2 (10%)	4 (11%)	0.813
	COPD		n (%)	0	4 (20%)	4 (11%)	0.058
	Hypertension		n (%)	7 (44%)	11 (55%)		
	Diabetes Mellitus		n (%)	4 (25%)	9 (45%)	13 (36%)	0.214
	Dyslipidemia		n (%)	8 (50%)	7 (35%)	15 (42%)	0.364
	Obesity		n (%)	2 (13%)	3 (15%)	5 (14%)	0.829
	Low weight (IM<18)		n (%)	3 (19%)	1 (5%)	4 (11%)	0.192
	Chronic kidney disease		n (%)	0	3 (15%)	3 (8%)	0.106
	Demencia		n (%)	0	0	0	
	Chronic liver disease		n (%)	1 (6%)	2 (10%)	3 (8%)	0.686
	Atrial fibrillation or flutter		n (%)	4 (25%)	5 (25%)	9 (25%)	1.000
	HIV infection		n (%)	1 (6%)	2 (10%)	3 (8%)	0.686
	Intravenous drug users		n (%)	2 (13%)	3 (15%)	4 (14%)	0.829
	Cancer		n (%)	1 (6%)	5 (25%)	6 (17%)	0.134
	Previous IE		n (%)	0	1 (5%)	1 (3%)	0.364
Cardiovascular device	Total number of patients		n (%)	3 (19%)	5 (25%)	8 (22%)	0.313
	Mechanic heart valve		n (%)	1 (6%)	0	1 (3%)	
	Biologic heart valve		n (%)	1 (6%)	3 (15%)	4 (11%)	
	Transcatether heart valve		n (%)	2 (12%)	0	1 (3%)	
	PM/CRT/ICD		n (%)	0	2 (67%)	2 (6%)	
Charlson index > 5			n (%)	4 (25%)	7 (37%)	11 (31%)	0.576
Ability to perform daily activities	Independent on all activities		n (%)	14 (88%)	20 (100%)	34 (94%)	0.104
	Dependent on some activities		n (%)	2 (13%)	0	0	
	Dependent on most activities		n (%)	0	0	0	
Endocarditis as the 1st diagnosis			n (%)	4 (27%)	10 (50%)	14 (40%)	0.163
Location of the infection	Native heart valves	Aortic valve	n (%)	7 (44%)	10 (50%)	17 (47%)	0.709
		Mitral valve	n (%)	8 (50%)	6 (30%)	14 (39%)	0.221
		Tricuspid valve	n (%)	1 (6%)	1 (5%)	2 (6%)	0.871
		Pulmonary valve	n (%)	0	0	0	
	Mechanic heart valve	Aortic position	n (%)	1 (6%)	0	1 (3%)	0.359
		Mitral position	n (%)	0	0	0	
	Biologic heart valve	Aortic position	n (%)	2 (13%)	3 (15%)	5 (14%)	0.569
		Mitral Position	n (%)	0	1 (5%)	1 (3%)	
	Pacemaker catheter		n (%)	0	1 (5%)	1 (3%)	0.569
	Aortic conduit		n (%)	1 (6%)	1 (5%)	2 (6%)	
Positive blood cultures			n (%)	16 (100%)	18 (90%)	34 (94%)	0.315
Valvular Surgery			n (%)	8 (50%)	14 (70%)	22 (61%)	0.221
At home hospitalization			n (%)	0	15 (75%)	15 (42%)	**<0.001**
Complications	No complications		n (%)	2 (13%)	7 (35%)	9 (25%)	0.211
	Heart Failure		n (%)	7 (44%)	3 (15%)	10 (28%)	0.056
	Severe valve disfunction		n (%)	9 (56%)	10 (50%)	19 (53%)	0.709
	Abcess/ Fistula		n (%)	2 (13%)	0	2 (6%)	0.104
	Emboli		n (%)	7 (44%)	5 (25%)	12 (33%)	0.236

Figure PO 97

Conclusions: When guided by appropriate clinical judgment, OAT is as effective as HBAT in terms of mortality while reducing hospital burden and re-hospitalization rates. OAT represents a viable option for select endocarditis patients, emphasizing the need for standardized patient selection criteria.

PO 98. THE BURDEN OF INFECTIVE ENDOCARDITIS IN A CENTER WITHOUT CARDIAC SURGERY: A RETROSPECTIVE ANALYSIS

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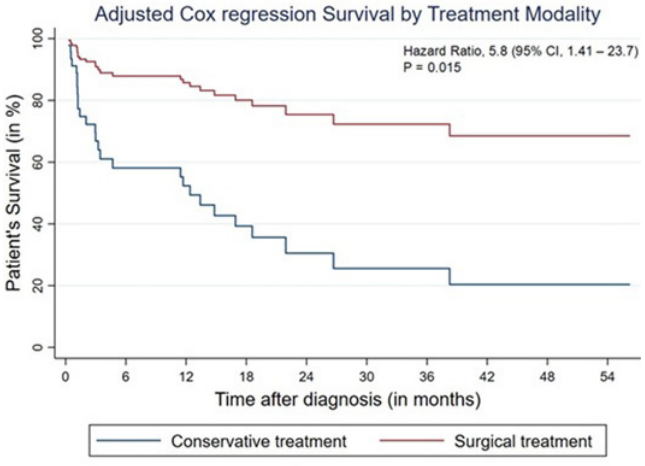
Introduction: Infective endocarditis (IE) is a global public health challenge. While cardiac surgery is recommended to improve outcomes, many patients are treated conservatively with antibiotic therapy alone. Data on IE treatment and outcomes in centers without on-site cardiac surgery remain scarce.

Objectives: To assess treatment strategies and prognosis in patients with IE from a single cardiology center without onsite cardiac surgery.

Methods: Retrospective analysis including consecutive IE patients admitted between January 2020 and December 2023 (mean follow-up 19.8 ± 16.8 months). Data on demographics, microorganisms, infection sites, complications, surgical interventions, and clinical outcomes (IE recurrence, re-hospitalization and mortality) were compared between those undergoing surgery and those treated conservatively with antibiotics. Cox regression was performed to assess the impact of cardiac surgery after adjusting for relevant confounders.

Results: 53 patients (70% male, mean age 62 years) were included. Comorbidities included hypertension (53%), diabetes mellitus (36%), dyslipidemia (43.1%), and atrial fibrillation/flutter (23%). Prosthetic material was present in 26%, most commonly biological (13%) or mechanical (6%) valves or pacemaker leads (6%). The aortic (45%) and mitral (36%) valves

were the most frequently affected sites, with vegetations larger than 10 mm observed in 38% of cases. Positive blood cultures were found in 94%, with *S. aureus* (34%) as the predominant pathogen. 51% received conservative treatment, while 49% underwent surgery. No differences observed between groups in sex, age, comorbidities, pathogen or IE type, except for higher HIV prevalence (33 vs. 0%, p = 0.02) and tricuspid valve involvement in the conservative group (19 vs. 0%, p = 0.02). IE-related complications, including severe valve dysfunction (57%), heart failure (32%), local fistula/abscess (8%) and embolic events (36%), were frequent and similarly distributed between groups. Overall mortality was 51%, with 30% in-hospital mortality and 38% within the first year. Re-hospitalization (35 vs. 7%, p = 0.015), overall mortality (77 vs. 26%, p < 0.001) and first-year mortality (58 vs. 21%, p = 0.030) rates were significantly higher in the conservative group. IE recurrence and in-hospital mortality were not significantly different between groups. Multivariate analysis identified conservative antibiotic treatment as the only variable independently associated with higher mortality (HR 5.8).



Graphic 1 – Kaplan-Meier survival estimates by treatment modality, adjusted for potential confounders* in Cox regression.

* gender, age, Charlson's index, initial diagnosis, local abscess/fistula, severe valvular dysfunction, peripheral embolization and prosthetic valve endocarditis

Conclusions: These results highlight the complexity and high mortality of IE. The underperformed surgical treatment significantly impacted prognosis, as those treated conservatively had about 6 times the mortality risk compared to those who underwent surgery. Optimizing referral pathways is of paramount importance in centers without onsite cardiac surgery.

PO 99. COMPREHENSIVE MANAGEMENT OF INFECTIVE ENDOCARDITIS: CLINICAL FINDINGS AND SURGICAL OUTCOMES

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Unidade Local de Saúde de Santa Maria.

Introduction: Infective endocarditis (IE) is a life-threatening condition characterized by high mortality rates and the potential for severe complications. Effective management requires meticulous and prompt life-saving strategies, often involving surgical intervention.
Objectives: To analyze the current management of IE in a tertiary hospital.
Methods: This study included 82 patients with a definite diagnosis of IE based on transesophageal echocardiography (TOE) findings, from January 2023 to October 2024.
Results: Most patients were male (55; 67.1%) and the overall average age was 67.0 [25 – 89] years old. The main findings in TOE included vegetations (62; 75.6% - average size: 12.6 mm) and abscesses (5; 6.1%). Most involved structures were: mitral valve (37; 45.1%), aortic valve (33; 40.2%), electronic device lead (14; 17.1%) and central venous catheter (6; 7.3%). In the studied population, regarding the valves involved: native (45; 54.9%) and prosthetic (23; 28.0%). IE led to moderate-severe valve regurgitation in 29 (35.4%) of cases. The primary isolated bacteria were *Staphylococcus aureus* (22; 26.8%) and *Enterococcus faecalis* (10; 12.2%). First-line antibiotics included Flucloxacillin (53 patients; 64.6%), Vancomycin (27 patients; 32.9%) and Piperacillin-tazobactam (11 patients; 13.4%). The average antibiotic treatment duration was 29.5 [2-331] days. Overall, 29 (35.4%) patients met the criteria to IE complications requiring surgery and 15 (18.3% of the global population and 51.7% of those eligible for surgery) patients ultimately underwent surgical intervention. Indications for surgery included heart failure (9; 31.0%), uncontrolled infection (17; 58.6%) and high risk of embolism or established embolism (3; 10.3%). The average time from IE diagnosis to surgery was 32 days. Surgical procedures involved valve replacement (12; 80%) or repair (3; 20%) of the aortic (7; 46.7%), mitral (5; 33.3%), aortic and mitral (2; 13.3%); or aortic and tricuspid (1; 6.7%) valves. Among those patients eligible for surgery, there were differences between those that underwent surgery and those that didn't, respectively: male gender (8/11), age (62.6/76.9 years), vegetations size (11.5/22.5 mm), embolization (5/9), ischemic stroke (2/6), deaths (6/11). In patients with cardiovascular implantable electronic devices, extraction was performed in 8 (53.3%) cases. During the analyzed period, in the overall population there were 22 (26.8%) in-hospital deaths; specifically, in those that underwent surgery, 6 (40%) ultimately died.
Conclusions: This study highlights the significant clinical burden of IE. The importance of early diagnosis and prompt treatment, including targeted antibiotics and timely surgery, is underscored. Despite these efforts, the mortality rate remains a concern, emphasizing the need for continued research and improved management to enhance patient outcomes.

PO 100. VANCOMYCIN THERAPY AND ACUTE KIDNEY INJURY IN PATIENTS WITH INFECTIVE ENDOCARDITIS

João Gouveia Fiuza, Mariana Duarte Almeida, Gonçalo RM Ferreira, Oliver Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, Nuno Vicente, Nuno Craveiro, Jorge Bigotte Santos, Júlio Gil Pereira, António Costa

Unidade Local de Saúde de Viseu Dão-Lafões.

Introduction: Infective endocarditis (IE) is a life-threatening condition requiring prompt and effective antimicrobial therapy. Vancomycin is one of the most often used antibiotic drugs to treat IE. However, nephrotoxicity is a concern given the relevant morbidity associated with it, requiring regular dose adjustments.
Objectives: To assess the association between vancomycin treatment and acute kidney injury (AKI) in patients with IE.
Methods: Retrospective study of 30 patients admitted for IE and treated with vancomycin in a Cardiology Department, over a 5-year period. Baseline characteristics, laboratory results, vancomycin dosages and trough levels were obtained. Vancomycin levels ≥ 21 µg/mL were categorized as supratherapeutic. Timely vancomycin dose adjustment was defined as appropriate dose modifications accordingly to drug monitoring results within 24 hours. AKI was diagnosed according to the KDIGO criteria. Statistical analysis included Chi-square and Mann-Whitney U.
Results: Mean age of 70 ± 12 years; 66.7% were male. Chronic kidney disease (CKD) was present in 30% (n = 9) and mean admission creatinine was 1.35 mg/dL. In-hospital mortality was 23.3% (n = 7). AKI occurred in 50% (n = 15) of patients. Only 33.3% (n = 10) of patients had timely vancomycin dose adjustments and 50% had supratherapeutic vancomycin levels on the first measurement. Patients without timely vancomycin dose adjustments (87.5 vs. 10%, χ^2 = 15.143, p < 0.001), atrial fibrillation (76.9 vs. 29.4%; χ^2 = 6.652, p = 0.01), treated with diuretics (75 vs. 35.7%; χ^2 = 4.013, p = 0.045) and with supratherapeutic vancomycin trough levels at the third measurement (91.7 vs. 20.0%; χ^2 = 8.731, p = 0.001) had a significantly higher prevalence of AKI. Additionally, vancomycin levels at the second and third measurements were significantly higher in patients with AKI (32 µg/mL vs. 20 µg/mL, p = 0.037; 30 µg/mL vs. 18 µg/mL, p = 0.019, respectively). Discharge creatinine levels remained increased in the AKI group (2.17 mg/dL vs. 1.39 mg/dL, p = 0.029). Additionally, patients with AKI had a significantly longer duration of

vancomycin therapy (40 vs. 9 days, p = 0.003). While gentamicin use showed a near-significant trend (p = 0.065), no significant associations were observed for previous CKD (p = 0.7), HF (0.251), DM (p = 1) or concomitant radiocontrast use (p = 0.396). In-hospital mortality was 23.3%, and it was not significantly higher in those who developed AKI (p = 0.390).
Conclusions: In patients with IE treated with vancomycin, we observed a higher incidence of AKI than typically reported in the general inpatient population. However, this did not contribute to additional in-hospital mortality. Our findings emphasize the importance of close vancomycin monitoring and timely adjustments to prevent AKI. Future studies should explore alternative monitoring strategies and interventions to minimize nephrotoxicity.

PO 101. IS PROCALCITONIN A GOOD PREDICTOR FOR IN-HOSPITAL MORTALITY IN INFECTIVE ENDOCARDITIS?

Rodrigo Neves Brandão, Filipa Gerardo, Carolina Mateus, Inês Pereira de Miranda, Mara Sarmento, Tiago Mesquita, Márcio Madeira, Miguel Borges dos Santos, Carlos Morais

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Infective endocarditis (IE) is a disease with a high mortality rate. Procalcitonin (PCT) is an important marker of bacterial infection and systemic inflammation, and its potential role as a predictor of mortality for some diseases has been increasingly studied over the years, making it a potentially important future biomarker.
Objectives: This study aimed to assess the role of procalcitonin as a predictor of mortality in patients with infective endocarditis.
Methods: We conducted a retrospective single center analysis of patients hospitalized with infective endocarditis diagnosis from 2017-2022. Binary logistic regression was used to assess the association between procalcitonin levels and mortality, adjusting for other clinical and laboratory variables, including age, comorbidities, presence or absence of local complications and vegetation size. Results and discussion: From a total of 89 patients, 69% were male and the mean age was 69.9 ± 12.6 years. From the latter, 73% had hypertension, 23% type 2 diabetes, 32% atrial fibrillation and 38% history of valve disease (either intervened or not intervened). Our data revealed that procalcitonin levels were not significantly associated with mortality in infective endocarditis (p = 0.35), with an OR of 0.9, indicating a non-significant and even irrelevant decrease in the odds of mortality for each unit increase in procalcitonin levels. The overall model, including procalcitonin and other clinical variables, was also non-significant (p = 0.7), suggesting that none of the predictors included in the model, collectively, could significantly predict mortality in this cohort.
Conclusions: Our findings suggest that procalcitonin does not significantly predict mortality in patients with infective endocarditis, as no statistically significant association was found between PCT levels and patient outcomes. The non-significance of the overall model further indicates that other factors not included in this analysis may be more strongly associated with mortality in this patient population. Further studies with larger sample sizes and consideration of additional biomarkers are warranted to better understand the prognostic role of procalcitonin and other potential predictors in infective endocarditis.

Sexta-feira, 11 Abril de 2025 | 12:00-13:00

Área de Posters-écran 4 | Sessão de Posters 16 – Diagnóstico e prognóstico na estenose aórtica

PO 102. ASSESSING THE ROLE OF AORTIC VALVE CALCIUM SCORE IN PATIENTS WITH SEVERE AORTIC STENOSIS AND CHRONIC KIDNEY DISEASE

C. Santos-Jorge, Rui Miguel Gomes, Márcia Presume, André Moniz Garcia, Ana Rita Bello, Maria Rita Lima, Rita Amador, Rita Almeida Carvalho, Samuel Azevedo, Marisa Trabulo, Rui Campante Teles, Jorge Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Patients with chronic kidney disease (CKD) are at an increased risk of developing aortic valve disease, with an accelerated progression of aortic stenosis (AS). The aortic valve calcium score (AVCS) complements echocardiographic findings in assessing AS severity. This study aimed to investigate the relationship between AVCS, AS severity, and CKD stages to determine whether advancing CKD correlates with increased valvular calcification and stenosis severity.
Methods: Retrospective analysis of 305 non-elective hospitalized patients who underwent TAVI in a single tertiary center between January 2020 and

Table 1: Baseline population characteristics

	Total of patients (n=305)
Females, n (%)	169 (55,4%)
Age (years, mean ± SD)	82 ± 7
Diabetes, n (%)	153 (50,2%)
Peripheral vascular disease, n (%)	33 (10,8%)
Hypertension, n (%)	279 (91,5%)
Obesity, n (%)	62 (20,3%)
Dyslipidemia, n (%)	233 (76,4%)
Non-smoker, n (%)	247 (81%)
Past Smoker, n (%)	50 (16,4%)
Active Smoker, n (%)	8 (2,6%)
Chronic kidney disease, n (%)	124 (40,8%)
Stage I, n (%)	3 (1%)
Stage II, n (%)	27 (8,9%)
Stage III, n (%)	65 (21,3%)
Stage IV, n (%)	22 (7,2%)
Stage V, n (%)	8 (2,6%)

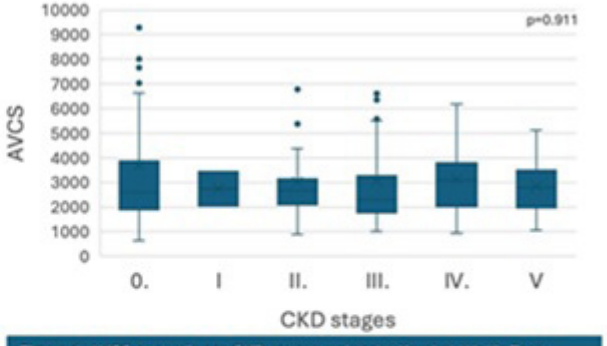


Figure 1: AVCS according to CKD stages, using the Kruskal-Wallis Test, shows no significant difference.

Table 2: Aortic valve characteristics in patients categorized into their respective CKD stage

	No CKD	CKD Stage I	CKD Stage II	CKD Stage III	CKD Stage IV	CKD Stage V
Median mean gradient (mmHg)	47 (40-60)	47 (41-53)	47 (40-60)	43 (35-52)	43 (40-58)	49 (36-60)
Aortic valve area (cm²)	0,6 (0,5-0,9)	0,75 (0,6-0,9)	0,75 (0,6-0,9)	0,7 (0,5-0,9)	0,7 (0,6-1)	0,84 (0,7-0,9)
Aortic valve calcium score (AU)	2617 (1867-3963)	2747 (2052-3442)	2663 (2074-3189)	2310 (1766-3342)	3094 (1797-3967)	2782 (1740-3900)

Figure PO 102

December 2023. Patients were categorized into their respective CKD stage based on clinical records. To access AS severity, we evaluated mean gradient (MG), aortic valve area (AVA) and AVCS.
Results: A total of 305 patients were included, 55% (n = 169) women, age 82 ± 7 years. CKD was present in 124 patients (41%), 3 stage I, 27 stage II, 65 stage III, 22 stage IV and 8 stage V. The median mean gradient, aortic valve area and AVCS were 46 (IQR 39-58) mmHg, 0.7 (0.5-0.9) cm^2 and 2,622 (1,842-3,659) AU, respectively. Our analysis showed no significant difference in mean gradient, aortic valve area and AVCS in patients according to their CKD stage (Figure 1).
Conclusions: Our analysis reveals that patients with CKD do not exhibit worse echocardiographic parameters compared to those without CKD, and that AVCS remains unaffected by renal dysfunction. Consequently, patients with CKD should be assessed using the same AVCS thresholds for severe AS as those used for individuals with normal renal function.

PO 103. SEX DIFFERENCES IN LEFT VENTRICULAR SYSTOLIC FUNCTION IN SEVERE AORTIC STENOSIS

António Afonso Angélico Gonçalves, Rafael Silva Teixeira, Inês Arrobas Rodrigues, Marta Catarina Almeida, André Lobo, Marta Fernandes Leite, Ana Inês Neves, Fábio Sousa Nunes, Ricardo Fontes Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Sex-related differences in left ventricular (LV) remodeling in response to an increased pressure overload imposed by aortic stenosis (AS) may hinder an accurate assessment of LV systolic function.
Objectives: Our aim was to compare LV systolic function between genders in patients with severe AS and preserved LV ejection fraction (LVEF).
Methods: Patients with a first diagnosis of severe AS and preserved LVEF were retrospectively identified. Propensity score matching (1:1 ratio) was employed based on aortic peak velocity (APV), age, cardiovascular risk factors (diabetes, obesity, arterial hypertension, dyslipidemia, smoking), history of coronary artery disease and atrial fibrillation (AF). LV morphology and systolic function (LVEF and global longitudinal strain [GLS]) were compared between genders.
Results: A total of 288 patients were included, with 144 in each gender group, matched for AS severity (mean APV of 4.4 ± 0.3 m/s), age (mean age of 77 ± 9 years), documented CAD (22%), AF (26%) and comorbidities. Women were more likely to have severe LV hypertrophy based on indexed LV mass (51 vs. 35%; p = 0.01), despite similar prevalence of LV dilation (19 vs. 17%; p = 0.76) and relative wall thickness (0.49 ± 0.10 vs. 0.5 ± 0.09; p = 0.77). However, absolute wall thickness was higher in males (mean posterior wall thickness of 13.0 ± 1.6 vs. 11.6 ± 1.8 mm; p = 0.001). Despite similar LVEF (59 ± 5%; vs. 61 ± 5%; p = 0.06), men displayed lower GLS (-20.2 ± 7.3 vs. -22.0 ± 8.0%; p = 0.01).
Conclusions: The findings from this study highlight significant gender differences in LV remodeling and systolic function among patients with severe AS and preserved LVEF. The observation that men have lower GLS despite similar LVEF values suggests that conventional measures like LVEF might not fully capture the nuances of systolic function in the context of severe AS, particularly with LV thickened walls.

PO 104. THE MYOCARDIAL IMPACT OF RAPID PROGRESSION OF AORTIC STENOSIS

Francisca Martins Nunes, Rafael Teixeira, André Lobo, Francisco Sousa, Maria Leonor Moura, Marta Catarina Almeida, Francisco Sampaio, Ricardo Fontes-Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Aortic stenosis (AS) is one of the most prevalent valvular heart diseases in developed countries, driven primarily by degenerative fibrocalcific changes. This progressive condition affects not only the aortic valve but also the myocardium, ultimately leading to significant cardiac damage. AS is a potentially life-threatening disease, characterized by progressive narrowing of the aortic orifice and structural changes that often extend beyond the left ventricle. Notably, retrospective studies have highlighted that the extent of baseline extra-aortic cardiac damage does not necessarily correlate with the baseline hemodynamic severity of AS. This study aimed to evaluate the rate of AS progression and its impact on cardiac damage and survival.
Methods: We retrospectively identified 914 patients (age 76 ± 8 years, 52% female, median follow-up time 6.8 years) with AS who had undergone more than one echocardiogram. Bayesian hierarchical nonlinear models were used to predict aortic peak velocity (APV) as a function of time and estimate individual AS acceleration rates. Patients were then clustered into rapid progressors and slow progressors using machine learning algorithms.
Results: APV was best modelled by a logistic function of time. A total of 483 patients were clustered as rapid progressors (53%) and 431 as slow progressors (47%), with acceleration rate coefficients estimated at 0.14 ± 0.02 years and 0.09 ± 0.02 years, respectively (p < 0.01). No association was found between progression rate and clinical variables. Compared with slow progressors, rapid progressors had significantly higher 5-year incidences of left ventricular damage, combined left atrium and mitral valve damage, and combined tricuspid valve damage with pulmonary hypertension (all p ≤ 0.01). No statistically significant differences were seen in right ventricular damage between the groups due to the low number of events. After multivariate adjustment for age, gender, comorbidities, and baseline AS severity, rapid progression remained an independent predictor for all extra-aortic cardiac damages except right ventricular dysfunction. Importantly, baseline AS severity was not predictive of AS-related cardiac damage. Rapid progression was associated with higher mortality (HR 1.28, p = 0.02), persisting after adjustment for demographics, comorbidities, AS severity, and time-dependent aortic valve replacement (HR 1.36, p < 0.01).
Conclusions: The rapid progression of AS is a critical determinant of premature cardiac damage and reduced survival, independent of baseline disease severity. These findings highlight the importance of identifying and monitoring patients with rapidly progressing AS to enable timely interventions and possibly improve clinical outcomes.

PO 105. THE SODIUM FLUORIDE AORTIC GRADIENT: I NSIGHTS FROM THE ROPPET-NAF STUDY

Mafalda Griné[1], Manuel Oliveira-Santos[1], João Borges-Rosa[1], Rudolfo Silva[1], Andreia Gomes[1], Antero Abrunhosa[2], Miguel Castelo-Branco[2], Lino Gonçalves[1], Maria João Ferreira[1]

[1]ULS Coimbra. [2]Institute for Nuclear Sciences Applied to Health, Coimbra, Portugal.

Introduction: 18F-NaF PET-CT (Positron Emission Tomography-Computed Tomography using 18F-sodium fluoride) detects active microcalcification, an indicator of plaque instability. Variations in 18F-NaF uptake across the coronary, carotid, and aortic territories have been noted. We aimed to explore regional differences in 18F-NaF uptake specifically within the Aorta of individuals at high cardiovascular (CV) risk.
Methods: We conducted a sub-analysis of a prospective study of high-risk individuals without prior CV events using 18F-NaF PET-CT (ROPPET-NAF, NCT 03233243). The uptake of 18F-NaF in the aortic wall was quantified via tissue-to-background ratio (TBR), calculated by dividing the maximum standard uptake value of a region of interest by the baseline blood pool activity in the atria.
Results: We included 30 participants in this analysis (mean age 63.7 ± 9.5 years; 70.0% male), most of whom had diabetes and hypertension (93.3%). The estimated 10-year CV event risk was 10.5% (range: 6.5-15.5) by SCORE2/SCORE-OP and 32.2 ± 18.6% by the ASCVD equation. The Abdominal Aorta showed significantly higher 18F-NaF uptake compared to other aortic segments [p < 0.001; TBR: 1.84 (1.56-2.21) in the Abdominal Aorta vs. 1.63 (1.51-1.84) in the Descending Thoracic Aorta, 1.68 ± 0.25 in the Aortic Arch, and 1.65 (1.43-1.78) in the Ascending Aorta]. No other regional differences were significant. Males exhibited higher Abdominal Aorta TBR compared to females [1.95 (1.68-2.62) vs. 1.56 (1.51-1.79), p = 0.014]. Abdominal Aorta

TBR was positively correlated with estimated 10-year CV event risk by both SCORE2/SCORE-OP (R = 0.49, p = 0.006) and ASCVD (R = 0.43, p = 0.017) systems. No significant associations were found between other baseline characteristics and Abdominal Aorta TBR.
Conclusions: In this high-risk cohort, the Abdominal Aorta demonstrated significantly greater 18F-NaF activity compared to other aortic segments. This increased uptake was more pronounced in males and correlated with higher predicted CV risk. Further large-scale studies are needed to confirm these findings and to establish the role of 18F-NaF PET-CT in CV disease research and management.

PO 106. THE POTENTIAL ROLE OF ELEVATED LIPOPROTEIN(A) IN THE EARLY STAGES OF AORTIC VALVE STENOSIS

Francisco Sousa[1], Maria Isabel Mendonça[2], João Adriano Sousa[1], Débora Sá[1], Matilde Ferreira[1], Gonçalo Abreu[1], Sónia Freitas[2], Eva Henriques[2], Mariana Rodrigues[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Central do Funchal. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: High levels of liproprotein (a) have been linked with atherosclerosis, having a great impact on the entire cardiovascular system and the aortic valve is no exception. Elevated Lp(a) levels have been associated with the development of severe aortic stenosis, but it is still unknown if its pro inflammatory and atherogenic properties are key to initial aortic valve calcification.
Objectives: Determine if elevated Lp(a) levels are associated with aortic valve calcification.
Methods: Aortic valve calcium was measured in 228 individuals under 65 years with no prior diagnosis of cardiovascular disease. Valvular calcium score was measured by CT angiography and reported in Agatston units. The population was divided into two groups: AVC = 0; AVC > 0. Patients with likely severe aortic stenosis were excluded (Men > 2000 A.U; Women > 1,200 A.U). According to current evidence an Lp(a) was considered elevated > 30 mg/dl. Bivariate and multivariate analyses were conducted to understand the influence of Lp(a) levels on aortic valve calcification after adjusting for traditional risk factors.
Results: Individuals with elevated and LPA levels (> 30 mg/dl) were more likely to have aortic valve calcification, 38.0%, when compared with the ones with lower Lpa levels (< 30 mg/dl) 15.8% (p < 0.01). Traditional risk factors such as older age, obesity, male sex and hypertension, were significant in the bivariate analysis. After multivariate analysis, it was clear that Lp(a) > 30 mg/dl remained an independent risk factor for aortic valve calcification (p = 0.015; OR 3.25) along with obesity (p = 0.039; OR 2.62), male sex (p = 0.029; OR 2.58) and older age (p < 0.0001; OR 1.18).
Conclusions: Levels of Lp(a) higher than 30 mg/dl were associated with early aortic valve calcification, supporting its role in the early stages of the development of aortic stenosis. Future studies might shed a light if Lp(a) level control through medication could prevent the progression of aortic stenosis.

PO 107. GENDER DIFFERENCE IMPACT ON TRANSCATHETER AORTIC VALVE REPLACEMENT OUTCOMES: A SYSTEMATIC REVIEW AND META-ANALYSES

Mariana J. Almeida[1], Gonçalo Ferraz Costa[2], Helena Donato[1], Joana Delgado Silva[2], Lino Gonçalves[2]

[1]Faculdade de Medicina da Universidade de Coimbra. [2]ULS Coimbra.

Introduction: Previous studies have associated female sex with worse outcomes after surgical aortic valve replacement (SAVR). However, data on sex-specific differences following transcatheter aortic valve implantation (TAVI) remain conflicting. Since TAVI is more frequently performed in women, understanding the relationship between gender disparities and TAVI outcomes is essential.
Objectives: This study aims to evaluate and summarize all available randomized clinical trial-based evidence regarding the outcomes of transcatheter aortic valve implantation (TAVI) in women compared to men.
Methods: We utilized PubMed, Web of Science and Embase as databases, and our last search was made on 1st of July 2024. We only searched for Randomized Clinical Trials written in English. Following the PICO method, we established our investigation question. We included only studies reporting outcomes with TAVI in women versus men. Mantel-Haenszel random-effect model Odd Ratios were calculated. The main outcome was all-cause mortality. Our measure of effect was Odds Ratio (OR), and we selected the random effects option.
Results: This systematic review included 14 studies, encompassing a total of 15,225 participants. Regarding the primary outcome of all-cause mortality, variations appeared to depend on the type of valve used; however, no significant subgroup differences were observed. Female gender was identified as a protective factor for all-cause mortality among intermediate-risk patients (OR: 0.64; 95%CI: 0.49 to 0.84; Z = 3.27; p = 0.001; I^2 = 0%), but had an increased risk of major bleeding (OR: 1.35; 95%CI: 1.21 to 1.52; Z = 5.22; p < 0.00001; I^2 = 15%). Regarding the outcomes permanent pacemaker implantation after TAVI (OR: 1.05; 95%CI: 0.62 to 1.77; Z = 0.17; p = 0.86; I^2 = 87%), stroke/transient ischemic attack (OR: 0.96; 95%CI: 0.85 to 1.08; Z = 0.69; p = 0.49; I^2 = 0%), and cardiovascular mortality (OR: 0.98; 95%CI: 0.74 to 1.29; Z = 0.15; p = 0.88; I^2 = 58%) there were no statistically significant differences based on sex.
Conclusions: This analysis suggests that female gender serves as a protective factor against all-cause mortality in intermediate-risk patients. However, women demonstrated an elevated risk of major bleeding post-procedure. Future randomized clinical trials should aim for greater objectivity and include larger sample sizes.

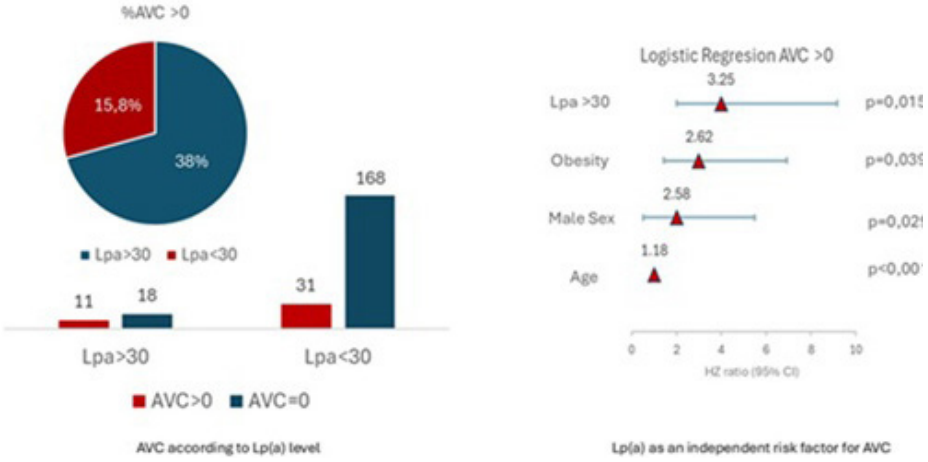


Figure PO 106

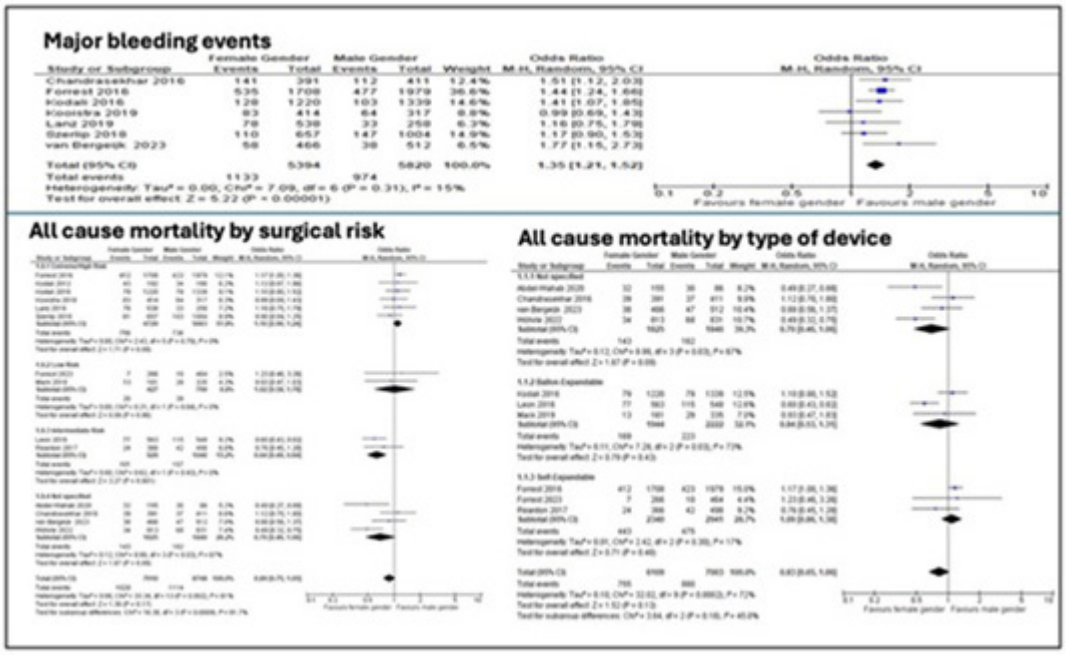


Figure PO 107

Sexta-feira, 11 Abril de 2025 | 14:00-15:00

Área de Posters-écran 1| Sessão de Posters 17 – Diferenças entre sexos em medicina cardiovascular

PO 108. SEX-SPECIFIC DIFFERENCES IN ATRIAL REMODELLING AND RECURRENCE RISK AFTER CATHETER ABLATION FOR ATRIAL FIBRILLATION

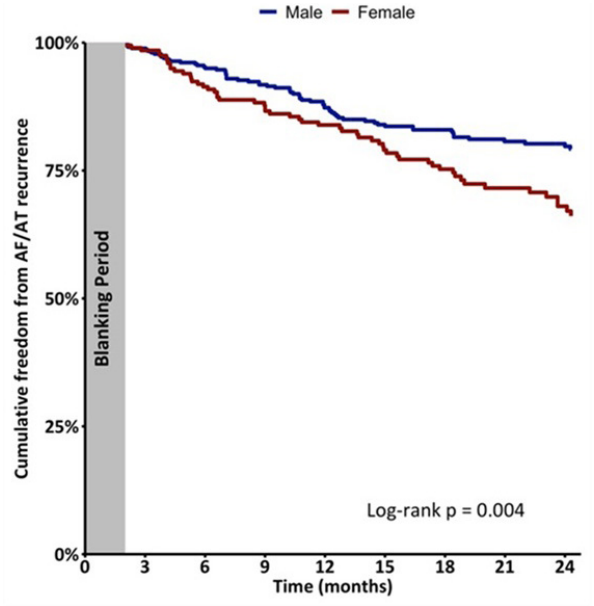
Ana Inês Aguiar Neves[1], Rafael Silva Teixeira[1], Fabiana Duarte[2], João G. Almeida[1], Paulo Fonseca[1], Marco Oliveira[1], Helena Gonçalves[1], José Ribeiro[1], Francisco Sampaio[1], João Primo[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Women undergoing catheter ablation (CA) for atrial fibrillation (AF) tend to experience higher recurrence rates than men. The extent to which these sex differences may be driven by a greater burden of comorbidities or by changes in atrial remodelling remains unclear. This study aimed to evaluate sex-specific differences and predictors of AF recurrence after CA, as well as to assess differences in atrial remodelling in these patients.

Methods: Patients who underwent an index CA procedure for AF at a tertiary centre from January 2019 to June 2023 were retrospectively included. Propensity-score (PS) matching was used to compare baseline characteristics and echocardiographic parameters of left atrial (LA) structure and function between sexes. The primary outcome was defined as any recurrence of AF or atrial tachycardia lasting at least 30 seconds after an 8-week blanking period following CA.

Results: 560 patients (35% women) were included in this analysis. The median follow-up was 19 months (IQR: 10-24 months). Women tended to be older (64 vs. 58 years, p < 0.001) and had more comorbidities than men. The estimated 12-month cumulative freedom from AF recurrence was significantly lower in women compared to men (83.6 vs. 87.1 p = 0.004). The higher incidence of AF recurrence in women remained significant even after adjusting for confounders (HR 1.75, 95%CI 1.21-2.53) and after PS matching (HR 1.73, 95%CI 1.05-2.87). Baseline characteristics did not influence the effect of sex on AF recurrence. In the PS-matched cohort of 113 patient pairs, women had lower peak atrial longitudinal strain (PALS) (21.5 vs. 26.0%, p = 0.010) and higher LA conduit strain (-13.0 vs. -15.7%, p = 0.015), with similar peak atrial contraction strain (PACS) (-8.5 vs. -10.2%, p = 0.106). Women also had a higher LA stiffness index (0.57 vs. 0.39, p = 0.026), despite no significant differences in estimated LV filling pressures (E/e' ratio, p = 0.508) or LA dimensions (p = 0.104). Additionally, women were more likely to have low-voltage areas detected using electroanatomic mapping (27.4 vs. 12.4%, p = 0.042).



Conclusions: Female sex was an independent predictor of AF recurrence. Women exhibit lower LA strain, increased LA stiffness and a greater extent of fibrosis compared to men, suggesting that intrinsic differences in atrial remodelling may contribute to a higher risk of AF recurrence.

PO 109. MYOCARDIAL INFARCTION AND GENDER DIFFERENCES IN ELDERLY PATIENTS

Gonçalo R. Ferreira, João Fiúza Gouveia, Oliver Kungel, Francisco Santos, Mariana Almeida, Vanda Neto, Luísa Gonçalves, Júlio Gil, Bruno Marmelo, António Costa

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Myocardial infarction remains a main cause of death in western countries. Clinical trials that supply scientific evidence behind the guidelines usually exclude the elderly and underrepresent female patients. Furthermore, new studies suggest that these patients are less likely to receive guideline-oriented treatment and therefore are at higher risk of adverse events during hospitalization.
Objectives: Compare gender differences in the initial management of older patients presenting with ST elevation myocardial infarction (STEMI) and non ST elevation myocardial infarction (NSTEMI).
Methods: Enrolled patients with the age of 65 or older, admitted in the cardiology department with the diagnosis STEMI and NSTEMI during 2007 and 2015. Excluded patients who underwent thrombolysis. Patients were divided in two groups: STEMI group and NSTEMI group. In each group, comparison between genders was made in terms of percutaneous coronary intervention (PCI) versus conservative approach, timing of PCI (urgent versus delayed), and in-hospital cardiovascular outcomes (cardiovascular death and heart failure). For statistical analysis, the two groups were compared using Pearson's Chi-Square test and odds-ratio chances, considering p values < 0.05 to be statistically significant.
Results: The study cohort was composed 382 patients in the STEMI group, and 621 patients for NSTEMI group. In the STEMI group, 36.4% of the patients were female. Female patients were older than male patients (mean age of 78.2 years vs. 75.8 years), and cardiovascular risk factors were prevalent in the former. There was no difference in the choice of conservative treatment (17.3% females vs. 16% males, p = 0.78) and in the timing of PCI (delayed PCI in 16.5% females vs. 15.2% males, p = 0.75). In terms of adverse events, no difference between genders in in-hospital mortality or heart failure. In the NSTEMI group, 37.5% of the patients were female. Female patients were older than male patients (mean age of 79 years vs. 76.2 years), and arterial hypertension, dyslipidemia and obesity were prevalent in the former. Female patients were 1.48 times more likely to receive conservative treatment vs. male patients (45.4% females vs. 36% males, p = 0.02). However, there was no difference between genders in in-hospital mortality or heart failure, even in the conservative approach subgroup. There was no difference in the timing of PCI (delayed PCI in 94.1% females vs. 94.4% males, p = 0.91).
Conclusions: There was no difference in the initial management of STEMI elderly patients, regardless of gender. Although female elderly patients presenting with NSTEMI were more likely to receive conservative treatment, there was no difference in adverse outcomes during hospitalization.

PO 110. BRIDGING THE GENDER GAP IN TAVI: REAL-WORLD EVIDENCE FROM A SINGLE-CENTER STUDY

Rita Louro, António Almeida, Orlando Luquengo, Rafael Viana, Marta Figueiredo, Miguel Carias, Marisa Serrano, Gustavo Sá Mendes, David Neves, Ângela Bento, Renato Fernandes, Lino Patrício

Hospital Évora.

Introduction: Women are commonly underrepresented in clinical trials, raising concerns about the applicability of data to the female population. In this analysis, we sought to address whether the results observed in clinical trials align with real-world practice and whether women face distinct challenges or benefits following TAVI compared to men.
Methods: This retrospective analysis assessed 300 TAVI patients from a single centre, without surgical backup. We aimed to assess in-hospital outcomes: periprosthetic leak, high-grade atrioventricular block, vascular and haemorrhagic complications, stroke, acute kidney injury, and death within 7 days. At 1 year follow-up (FUP) outcomes were cardiovascular death, readmission for cardiovascular causes, and clinical improvement following TAVI.
Results: From a total of 300 patients undergoing TAVI, 139 were male and 161 were women. Regarding baseline characteristics, women were older than men. Diabetes was more prevalent in men, as was current smoking. Men had a higher prevalence of coronary artery disease (CAD), previous PCI and previous CABG. Renal dysfunction was more common in women. About clinical presentation, women had higher risk scores, higher mean aortic valve gradients, lower aortic valve area, higher left ventricular ejection fraction and higher median calcium score. Men and women had no significant differences in in-hospital complications, except for acute kidney injury more frequent in women. At 1-year follow-up, no significant differences were found according to sex concerning cardiovascular death, readmissions due to cardiovascular causes, or clinical improvement (p > 0.05 for all).

	Male n=137	Female n=159	p value
Baseline characteristics			
Age, years - median (IQR)	81.4 (9.0)	83.2 (8.0)	0.01
BMI, kg/m2 - mean±SD	26.8 (4.9)	27.3 (6.3)	0.41
Diabetes, n (%)	59 (42.4)	45 (28.0)	<0.05
Dyslipidaemia, n (%)	100 (71.9)	114 (70.8)	0.83
Hypertension, n (%)	120 (86.3)	138 (85.7)	0.88
COPD, n (%)	13 (9.4)	9 (5.6)	0.21
Current smoker, n (%)	29 (20.9)	3 (1.9)	<0.05
GFR < 60 ml/min/1,73m^2, n (%)	57 (41.0)	93 (57.8)	<0.05
CAD, n (%)	43 (30.9)	20 (12.5)	<0.05
Atrial fibrillation, n (%)	32 (23.0)	33 (20.6)	0.62
Previous MI, n (%)	16 (11.5)	11 (6.8)	0.16
Previous PCI, n (%)	33 (23.9)	8 (5.0)	<0.05
Previous CABG, n (%)	23 (16.7)	7 (4.3)	<0.05
Previous SAVR, n (%)	2 (1.4)	5 (3.1)	0.46
Previous Stroke, n (%)	16 (11.5)	9 (5.6)	0.06
Clinical presentation			
Mean AVG, mmHg - median (IQR)	42 (15.0)	47 (13.0)	<0.05
AVA, cm2 - mean±SD	0.79±0.21	0.69±0.22	<0.05
Maximum Velocity, m/s - mean±SD	4.12±0.70	4.4±0.56	<0.05
FEVE, % - median (IQR)	57 (20.0)	60 (9.0)	<0.05
Low Flow - Low Gradient, n (%)	18 (13.7)	13 (8.4)	0.15
Paradoxical LF-LG, n (%)	7 (5.4)	10 (6.6)	0.67
Calcium Score, AU - median (IQR)	3270 (2328.0)	2100 (1324.0)	<0.05
STS score, % - median (IQR)	3.1 (3.8)	4.8 (4.8)	<0.05
Euroscore, % - median (IQR)	2.3 (1.9)	2.9 (3.6)	<0.05
Outcomes			
In-hospital outcomes, n(%)			
Periprosthetic leak	2 (1.4)	5 (3.1)	0.457
High-grade AV block	34 (24.6)	28 (17.4)	0.123
Vascular complication	8 (5.8)	16 (9.9)	0.189
Haemorrhagic Complication	7 (5.0)	18 (11.2)	0.55
Stroke	3 (2.2)	5 (3.1)	0.729
Acute Kidney Injury	4 (2.9)	14 (8.8)	<0.05
Death within 7 days	3 (2.2)	4 (2.5)	1.0
@1yrFUP outcomes, n (%)			
Cardiovascular death	2 (2.1)	5 (4.6)	0.347
Readmission cardiovascular cause	9 (9.3)	15 (13.5)	0.695
Clinical improvement	86 (94.5)	96 (90.6)	0.299

Conclusions: In contrast to clinical trials, women were well-represented in our study population. Women tended to present with more severe valvular disease and higher surgical risk scores compared to men. However, men exhibited a higher prevalence of comorbidities such as coronary artery disease and previous revascularization procedures (PCI and CABG). Despite these baseline differences, no significant disparities were observed between genders in most in-hospital complications and 1-year follow-up outcomes, except for acute kidney injury, which was more frequent in women. This suggests that, despite their higher initial surgical risk, women achieve similar clinical outcomes to men after TAVI.

PO 111. SEX-DIFFERENCES AND LONG-TERM OUTCOMES AFTER AORTIC VALVE REPLACEMENT

Adriana Vazão[1], André Martins[1], Carolina Gonçalves[1], Joana Pereira[1], Mónica Amado[1], Mariana Carvalho[1], Margarida Cabral[1], João Carvalho[1], Catarina Ruivo[1], Sara Fernandes[2], Hélia Martins[1]

[1]ULSR Leiria. [2]ULS de Santo António.

	Total (n=95)	Group 1 (n= 32)	Group 2 (n=63)	p-value
Age at diagnosis (years) – mean ± SD	71 ± 9 years	74 ± 8 years	70 ± 10 years	0,105 (c)
Past medical history				
Hypertension (%)	72 (75,8%)	27 (84,4)	45 (71)	0,164 (a)
Dyslipidemia (%)	*74 (77,9%)*	25 (78)	49 (78)	0,969 (a)
Diabetes Mellitus (%)	*26 (27,4%)*	9 (28)	17 (27)	0,906 (a)
History of smoking (%)	***18 (18,9%)***	**1 (3)**	**17 (27)**	**0,005 (a)**
Atrial fibrillation/atrial flutter (%)	*22 (23,2%)*	10 (31)	12 (19)	0,183 (a)
History of coronary artery disease (%)	*29 (30,5%)*	*8 (25)*	*21 (33)*	*0,405 (a)*
Chronic obstructive pulmonary disease (%)	*3 (3,2%)*	*2 (6)*	*1 (2)*	*0,262 (b)*
History of cancer (%)	*15 (15,8)*	*5 (16)*	*10 (16)*	*0,975 (a)*
Prior implanted pacemaker (%)	*14 (14,7)*	*6 (19)*	*8 (13)*	*0,542 (b)*
New York Heart Association class 3-4 (%)	*20 (21,1)*	8 (25)	*12 (19)*	*0,501 (a)*
Symptoms (%)	*86 (90,5)*	*31 (97)*	*55 (87)*	*0,265 (b)*
Symptoms – exertional angina (%)	*33 (34,7)*	*9 (28)*	*24 (38)*	*0,335 (a)*
Symptoms – heart failure (%)	*73 (76,8)*	*27 (84)*	*46 (73)*	*0,215 (a)*
Symptoms – syncope (%)	*6 (6,3)*	-	*6 (10)*	-
Aortic valve replacement (AVR)				
Surgical AVR (%)	83 (87,4%)	29 (91%)	54 (86%)	0,745 (b)
Transcatheter aortic valve implantation (TAVI) (%)	12 (12,6%)	3 (9%)	9 (14%)	0,745 (b)
Long-term Adverse Outcomes				
Heart Failure Hospitalization	20 (21%)	5 (16%)	15 (24%)	0,355 (a)
All-cause mortality	24 (25,3%)	6 (19%)	18 (29%)	0,298 (a)
Cardiovascular mortality	11 (12%)	1 (3%)	10 (16%)	0,092 (b)

Fig. 1 – Baseline characteristics and long-term adverse outcomes (a – chi-square test; b- Fisher's exact test; c- T-student test)

Figure PO 111

Introduction: Aortic stenosis is the most common valvulopathy, with an increasing incidence attributed to rising life expectancy. While the incidence of severe aortic stenosis (SAS) does not differ between sexes, its pathophysiology varies. Identifying sex-related differences in long-term outcomes among patients (pts) undergoing aortic valve replacement (AVR) may enhance clinical awareness and improve patient prognosis.
Objectives: To evaluate sex-related differences in clinical and echocardiographic predictors of long-term adverse events, in pts who underwent AVR.
Methods: Retrospective cohort study of adult pts with SAS, diagnosed between January 2015 and August 2019, who underwent surgical AVR (SAVR) or transcatheter aortic valve implantation (TAVI). Demographic data, baseline clinical characteristics and transthoracic echocardiography (TTE) parameters at three time points: pre-procedure, short term post-procedure, and late post-procedure were collected. The median follow-up duration was 5 years. Long-term adverse events were defined as heart failure (HF) hospitalization or death from any cause after AVR during the follow-up period. Female pts (group 1) were compared to male pts (group 2). Statistical analysis was performed with SPSS v29.
Results: Ninety-five pts were included in the study, of whom 83 (87%) underwent SAVR and 12 (13%) underwent TAVI. Thirty-two pts (34%) were female (group 1). Baseline clinical characteristics were similar between groups, except for tobacco use, which was less common in women (1 (3%) vs. 17 (27%), p = 0.005). On baseline ECG, left ventricular hypertrophy criteria were less frequently observed in Group 1 (12 (39%) vs. 36 (61%), p = 0.004). Baseline laboratory analysis revealed lower hemoglobin levels (13 ± 2 vs. 14 ± 2 g/dL, p = 0.011), lower creatinine levels (median 66 vs. 81 µmol/L, p = 0.002) and higher LDL cholesterol levels (114 ± 35 vs. 98 ± 31 mg/dL, p = 0.039) in Group 1. Pre-procedural TTE parameters were largely similar between groups, except for a smaller aortic valve area in Group 1 (median 0.65 [0.51-0.79] vs. 0.85 [0.74-0.96] cm^2, p < 0.001). However, this difference was not significant after adjustment for body surface area (0.41 ± 0.11 vs. 0.43 ± 0.08 cm^2/m^2, p = 0.431). Short-term post-procedural TTE (median 10 months) demonstrated improvement in aortic valve parameters in both groups. Nonetheless, Group 1 pts had a higher E/e' ratio (median 15 vs. 12, p = 0.029). Long-term follow-up TTE (median 41 months) revealed no significant differences between groups. Regarding long-term adverse events, 20 HF hospitalizations and 24 deaths were recorded, including 11 CV-related deaths, but no significant differences in adverse events were observed between groups (Figure 1).
Conclusions: This retrospective study did not identify any sex-related differences in long-term outcomes in adult pts following AVR.

PO 112. UNDERINFORMED AND OVERLOOKED: THE STATE OF CARDIOVASCULAR HEALTH LITERACY IN PORTUGUESE WOMEN

Jéni Quintal, Catarina Lagoas Pohle, Rui Antunes Coelho, Patrícia Bernardes, David Campos, Marco Tomaz, Sara Gonçalves, Tatiana Duarte, Quitéria Rato, Filipe Seixo

Unidade Local de Saúde da Arrábida, E.P.E.

Introduction: Cardiovascular diseases (CVD) are the leading cause of death among women. Health literacy –the ability to access, understand, and use health information– is vital for managing cardiovascular risk factors (CVRF). However, women often face overlooked symptoms and treatment disparities, with low health literacy exacerbating delays in care and adverse outcomes. Evaluating their cardiovascular health literacy is key to addressing these gaps and improving outcomes.
Objectives: This study aimed to assess cardiovascular health literacy in a Portuguese female population.
Methods: We conducted a cross-sectional survey with women aged 18 and older, recruited during a cardiovascular screening event in Portugal (May 2023). Participants completed a questionnaire adapted from Hyun-Jin Kim et al.'s, evaluating awareness of CVD risk, recognition of symptoms and signs, as well as knowledge regarding the causes, prevention, and appropriate response to CVD. Primary outcome included cardiovascular health literacy; secondary outcome included identifying independent predictors of health literacy. Statistical analyses were conducted with appropriate tests for data distribution.
Results: This study included 204 women (mean age 55 ± 16 years). The majority of participants (89.2%) resided in urban areas, while only 24.0% had completed a bachelor´s degree or higher. CVFR were present in 64.3%, including a smoking history in 29.9%. CVD affected 6.5% participants, and 62.3% were postmenopausal. Regarding cardiovascular health literacy, 15.5% of participants were unaware of CVD in women, 44.1% had limited knowledge, and only 5.6% felt well-informed. While 27.7% identified CVD as the leading cause of death in women, only 18.8% recognized it as the most prevalent disease, and 26.7% acknowledged worse outcomes in women. Around 40% recognized heart attack symptoms, and 44% identified those of heart failure. Low CVRF knowledge was noted in 22.3%, with 31.1% reporting no prior education on CVD literacy and 24.9% feeling inadequately informed. However, 69.5% had encountered the topic in the past year, and 63.8% found information accessible. Key barriers to lifestyle changes were economic

issues (50%) and lack of time (36.7%). Despite these challenges, 77% felt comfortable discussing their health with their doctor. Higher health literacy correlated with greater CVD knowledge ($p < 0.001$). Age ($p = 0.006$), education ($p < 0.001$), and menopause ($p = 0.008$) independently predicted lower CVD awareness.

Table 1. Characteristics of the study population and cardiovascular disease literacy

Variables	Total Cohort n= 204	
Patient demographics		
Age, mean (± SD), years	55	(±16)
Urbanization level of residence, n (%)		
Urban	181	(89.2)
Rural	22	(10.8)
Education level, n (%)		
Primary education	44	(22.4)
Secondary education	105	(53.6)
Bachelors or superior	47	(24.0)
Cardiovascular risk factors and cardiovascular disease		
Cardiovascular risk factors, n (%)	126	(64.3)
Hypertension	64	(31.2)
Dyslipidemia	30	(15.0)
Diabetes mellitus	21	(10.6)
Smoking history, n (%)		
Never smoked	132	(66.7)
Former smoker	44	(22.2)
Current-smoker	55	(7.7)
Alcohol consumption, n (%)		
Never drinks alcohol	104	(51.0)
More than 1-2 cups a day	9	(9.1)
More than 2 times a week	24	(24.7)
Cardiovascular disease, n (%)	13	(6.5)
Cerebrovascular disease, n (%)	4	(2.0)
Menopause, n (%)	127	(62.3)
Cardiovascular health literacy		
Self-evaluation of knowledge about CVD health literacy, n (%)		
I know very well	11	(5.6)
I know well	68	(34.9)
I know little	86	(44.1)
I do not know	30	(15.4)
Cardiovascular disease, general, n (%)		
Recognizes the main cause of death among women	56	(27.7)
Recognizes the most prevalent disease in women	37	(18.8)
Links menopause to heightened risk of CVD	123	(61.8)
Links depression to heightened risk of CVD	155	(77.9)
Acknowledges worse cardiovascular outcomes in women	52	(26.7)
Acute myocardial infarction, n (%)		
Correctly identifies symptoms	80	(39.6)
Recognizes angina and equivalents	170	(84.2)
Knows how to act in an AMI	129	(68.3)
Stroke, n (%)		
Correctly identifies symptoms	115	(56.7)
Recognizes it as a chronic disease	86	(48.3)
Heart failure, n (%)		
Correctly identifies symptoms	88	(43.6)
Level of knowledge about CVD prevention, n (%)		
Low[1]	38	(18.9)
Medium[2]	28	(13.9)
High[3]	133	(66.2)
Level of knowledge about CVRF, n (%)		
Low[1]	45	(22.3)
Medium[2]	96	(47.5)
High[3]	55	(27.2)
Cardiovascular health education		
Degree of information received about CVD in women, n (%)		
I was well informed	26	(13.5)
I received some information	59	(30.6)
I was not informed	60	(31.1)
I received little information	48	(24.9)
Finds it easy to acess information about CVD in women, n (%)	113	(63.8)
Heard about CVD in women in the last year, n (%)	137	(69.5)
Barriers to a healthy lifestyle, n (%)		
Economic issues	98	(50.0)
Already has a healthy lifestyle	71	(36.2)
Lack of time	72	(36.7)
Does not believe in CVD prevention	14	(7.1)
Lack of information	21	(10.7)
Not interested	10	(5.1)
Others	24	(12.4)
Feels comfortable discussing their illness with the doctor, n (%)	137	(77.0)

AMI - acute myocardial infarction; CVD – cardiovascular disease; CVRF – cardiovascular risk factors; [1] < 50% correct answers; [2] 50-70% correct answers; [3] >70% correct answers.

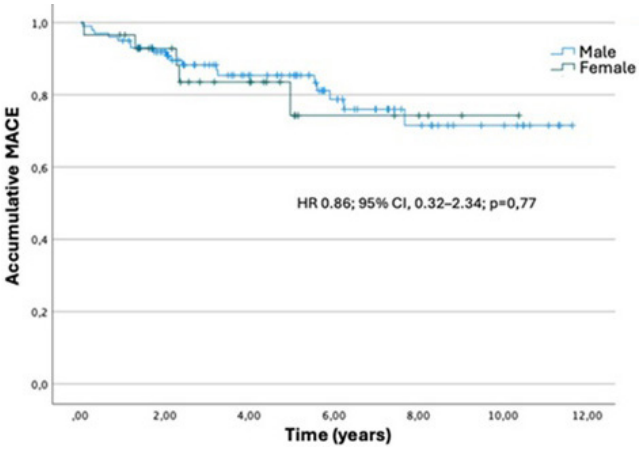
Conclusions: This study highlights significant gaps in cardiovascular health literacy among Portuguese women, with age, education, and menopause influencing awareness. Addressing barriers like economic challenges and strengthening health literacy is essential to empower women in addressing CVRF and improving outcomes.

PO 113. ACUTE CORONARY SYNDROME IN YOUNG WOMEN: RISK FACTORS AND LONG-TERM PROGNOSIS

Liliana Brochado, Oliveira Baltazar, Mariana Martinho, Bárbara Ferreira, Diogo Cunha, João Luz, Nazar Ilchyshyn, Adriana Silva, Ana Rita Pereira, Hélder Pereira, Paula Fazendas

Hospital Garcia de Orta, EPE.

Introduction: Heart disease mortality rates in young women are rising. Despite this, there are significant gaps in knowledge regarding the prevention and treatment of ischemic heart disease in young adults, particularly women, who remain underrepresented in clinical trials.
Objectives: Describe the demographic and clinical characteristics of young women hospitalized with Acute Coronary Syndrome (ACS) and assess major adverse cardiovascular events (MACE).
Methods: We conducted a retrospective, single-center study on all young individuals hospitalized with ACS between January 1, 2013, and October 30, 2023. For women and men, we defined being young as having 45 years or less. The median follow-up period was 4.5 years (SD 2.9). Demographics, clinical characteristics, and outcomes were analyzed, with MACE defined as the composite of total mortality, myocardial infarction, stroke, and hospitalization for heart failure.
Results: Of the 130 patients who experienced ACS, 22.3% were women, with a mean age of 41.1 years (SD 3.9). In the women's group, 93.1% had at least one cardiovascular risk factor: 65.5% were overweight or obese, 62.1% were smokers, 62.1% had dyslipidemia, 27.6% had hypertension, 6.9% had diabetes and 24.1% had a family history of premature ACS. Less frequent comorbidities included drug use (6.9%) and autoimmune diseases (6.9%). Regarding clinical presentation, 69% of women were diagnosed with STEMI, 17.2% with NSTEMI, and 13.8% were admitted with unstable angina. Cardiorespiratory arrest occurred in 3.4% of cases. Upon admission, 41.4% had an ejection fraction (EF) below 50%. Most women had single-vessel disease (79.3%), predominantly affecting the left anterior descending artery (62.1%). Atherosclerosis was the leading cause of ACS (74.9%), followed by embolism (10.3%) and spontaneous coronary artery dissection (10.3%). Comparing men and women, the only statistically significant difference in demographic characteristics, risk factors, and clinical presentation was the proportion of smokers (62.1% in women vs. 84.2% in men, $p = 0.017$). During follow-up, 17.2% of women developed MACE, with cardiovascular mortality at 5.4% and recurrent myocardial infarction at 6.9%. There were no significant differences between sexes regarding the prognosis of developing MACE.



Conclusions: Our study reveals that the clinical presentation and diagnosis of ACS in young women closely resemble that of men when baseline characteristics are similar. However, the prognosis is concerning, with a high incidence of MACE in both sexes. Early intervention targeting cardiovascular risk factors, particularly smoking, is essential, regardless of young age or female sex.

Sexta-feira, 11 Abril de 2025 | 14:00-15:00

Área de Posters-écran 2 | Sessão de Posters 18 – Miocardiopatia dilatada

PO 114. FROM GENES TO OUTCOMES: THE PROGNOSTIC ROLE OF GENETIC MUTATIONS IN DILATED CARDIOMYOPATHY

Inês Pereira de Miranda, Rodrigo Brandão, Filipa Gerardo, Carolina Pereira Mateus, Mara Sarmento, Mariana Passos, Inês Fialho, Ana Oliveira Soares, David Roque, João Bicho Augusto

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Dilated cardiomyopathy (DCM) is a heterogeneous condition with varying disease progression rates. While imaging metrics like left ventricular ejection fraction (LVEF) are established prognostic tools, the role of genetic testing in predicting outcomes remains unclear. Variants of uncertain significance (VUS) and pathogenic/likely pathogenic (P/LP) mutations are found in a significant proportion of DCM patients, but their prognostic value is not well-defined.

Objectives: To evaluate prognostic value of genetic findings, clinical, and imaging characteristics in predicting adverse cardiovascular (CV) outcomes in DCM patients.

Methods: We conducted a single-center, retrospective study of 137 DCM patients who underwent genetic testing between 2018 and 2024. Data were collected on demographics, clinical history, imaging parameters (echocardiogram and cardiac MRI), and genetic testing (gene negative, VUS, or P/LP variant). The primary endpoint was a composite of CV events, including heart failure admission, malignant arrhythmia (ventricular tachycardia/fibrillation), cardiac syncope, cardiovascular death, myocardial infarction, and/or ischemic stroke. Two predictive models were employed to assess the impact of clinical and genetic variables on events: (1) logistic regression and (2) Random Forest. Performance metrics, including accuracy and area under the receiver operating characteristic curve (AUC), were calculated for both models using a train-test split (80% training, 20% testing).

Results: A total of 119 patients were suitable for analysis (mean age 60 ± 13 years, 65% male); 55.5% were gene positive – 46.2% had at least one VUS,

Figure 1. Model performance comparison between logistic regression and random forest.

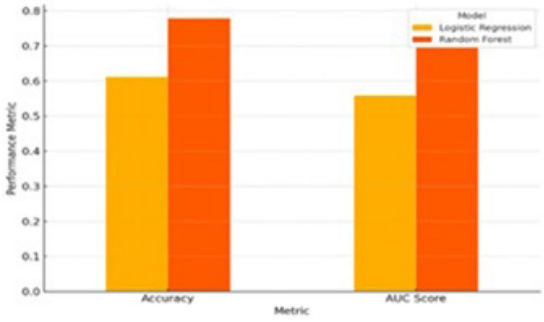
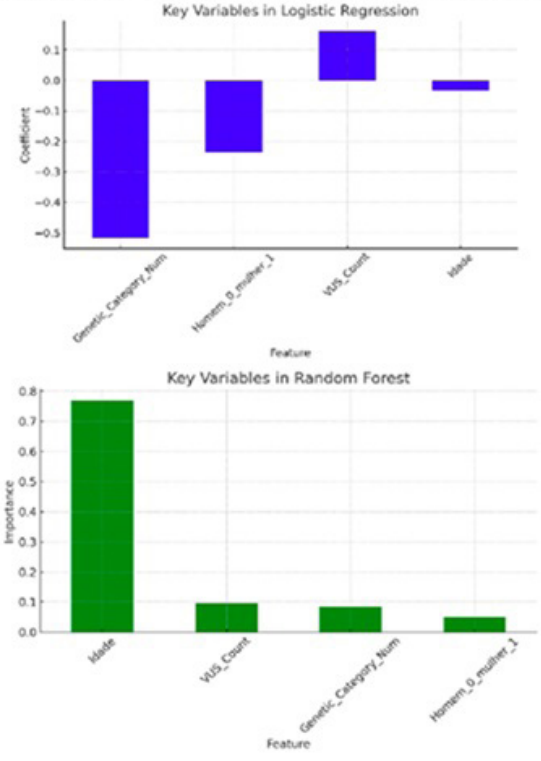


Figure 2. Key variables included in the logistic regression model (top - coefficients represented) and in the random forest model (bottom - feature importance scores).



and 9.3% had P/LP (TTN was the most common gene). The primary outcome was met in 68.1%. In logistic regression, age (coefficient: -0.03, p = 0.09) and imaging variables, including LVEF (coefficient: -0.05, p = 0.01), were the strongest predictors of adverse outcomes. Genetic category was not statistically significant (coefficient: -0.63, p = 0.06). The rate of adverse events increased with more VUSs present: no VUS 69%, 1 VUS 65%, 2 VUS 62%, 3 VUS 86%, 5 VUS 100%, but this trend did not achieve statistical significance (coefficient: 0.31, p = 0.20). In the Random Forest analysis, LVEF accounted for 40% of total feature importance, followed by LV end-diastolic volumes (25%) and age (21%). Genetic data, including VUS count (6%) and genetic category (5%), contributed minimally to the model's predictive performance. The Random Forest model significantly outperformed logistic regression, with an accuracy of 77.8% and an AUC score of 69.5%, compared to logistic regression's accuracy of 61.1% and AUC score of 55.8%.
Conclusions: In this cohort of DCM patients, genetic variables such as P/LP variants and the number of VUS had limited prognostic value. Data limitations prevented assessing specific high-risk genotypes, which could impact outcomes.

PO 115. GENDER DIFFERENCES IN MYOCARDIAL REVERSE REMODELING AFTER GUIDELINE-DIRECTED MEDICAL THERAPY IN DILATED CARDIOMYOPATHY

Pedro Miguel Mangas Neto da Palma[1], Maria Miguel Fernandes[2], Inês Fortuna[2], Luís Santos[1], Ana Pinho[1], Catarina Marques[1], Paulo Araújo[1], Xavier Resende[1], Sandra Amorim[1], Manuel Campelo[1], J. Silva Cardoso[1], Elisabete Martins[1]

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Introduction: The prognosis of patients with dilated cardiomyopathy (DCM) has improved with guideline-directed medical therapy (GDMT), which promotes myocardial reverse remodeling and reduces morbidity and mortality. Male gender is consistently associated with higher rates of sudden cardiac death, heart failure-related mortality, and transplant in DCM cohorts. These gender differences in outcomes are driven by genetic, hormonal and potentially treatment-related factors. Gender differences in response to GDMT may contribute to these disparities, but data on this topic are scarce.
Objectives: To assess and characterize gender-based differences in response to GDMT in patients with DCM.
Methods: We conducted a single-center retrospective cohort study, including patients diagnosed with DCM according to the 2023 ESC Guidelines for the Management of Cardiomyopathies proposed criteria since 2019. Comprehensive data, including clinical evaluations, laboratory findings, echocardiographic parameters, and cardiac MRI results, were collected at baseline and following the initiation of guideline-directed medical therapy (GDMT), with a minimum interval of 12 months between assessments. Left ventricular (LV) remodeling was defined as an increase in left ventricular ejection fraction (LVEF) of ≥ 10 percentage points.
Results: A total of 64 patients (mean age 51.2 ± 15.4 years; 41% female) were followed for an average of 7.3 years. Pathogenic genetic variants were identified in 36% of patients, with TTN (48%) and FLNC (17%) being the most frequent. Atrial fibrillation was observed in 14% of patients, and 18% had complete left bundle branch block. GDMT was widely implemented: 94% of patients received ACE inhibitors or ARNI (57% ARNI), 92% were on beta-blockers, 83% on SGLT2 inhibitors, and 69% on MRA. The mean baseline LVEF was 36.1% (35.50% ± 1.60 in females vs. 36.9% ± 2.16 in males), which improved to 40.1% after GDMT (40.3% ± 1.69 in females vs. 39.7% ± 1.87 in males). Overall, 42% of patients met the criteria for LV reverse remodeling, with a higher prevalence in females (45.9%) compared to males (37.1%). Conversely, 14% of patients experienced significant disease progression (LVEF decrease of ≥ 10 percentage points), predominantly affecting males (60%).
Conclusions: This study highlights gender-based differences in myocardial response to GDMT in DCM. Females showed higher rates of reverse remodeling and lower rates of disease progression compared to males. These findings underscore the need for gender-specific approaches to optimize DCM management and outcomes.

PO 116. PREDICTING ATRIAL FIBRILLATION – CAN ATRIAL PARAMETERS GENERATED BY ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE BE THE KEY IN DILATED CARDIOMYOPATHY?

Marta Paralta de Figueiredo, Rafael Viana, António Almeida, Rita Louro, Miguel Carias, Diogo Brás, Bruno Piçarra, Manuel Trinca

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Introduction: Atrial fibrillation (AF) is frequent in dilated cardiomyopathy (DCM) with a prevalence reported as high as 40% in some cohorts, far superior than the 2% in the general population. It carries a high-risk of stroke as well as increased mortality. Prompt diagnosis and management are essential to minimizing AF-related adverse outcomes in patients with cardiomyopathies.
Objectives: Our aim is to uncover if there are AI-derived CMR parameters differences in DCM that could be associated with AF.

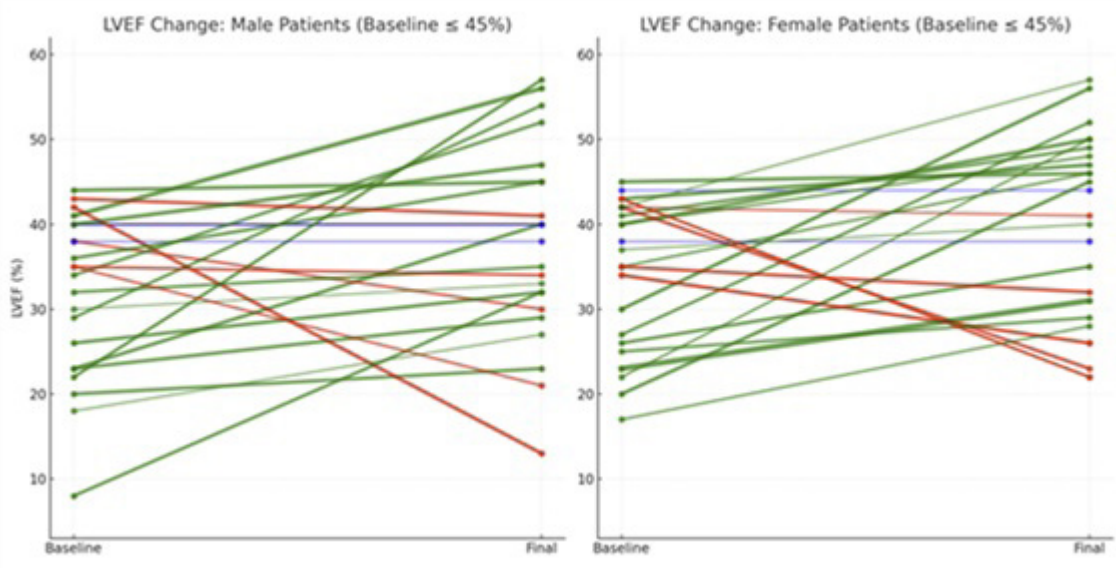

Figure PO 115

Methods: We retrospectively analyzed a population of patients submitted to CMR and divided them in two groups – those with DCM and those without structural disease. We documented demographic factors, left (LAEF) and right (RAEF) atrial ejection fraction, atrial volumes and the longitudinal LA shortening obtained through AI in CMR. We then performed univariate analysis to establish the relationship between variables.
Results: Out of 103 patients, 22.3% (n = 23) had no structural disease that we considered the control group and 39.8% (n = 41) had DCM. 59.4% were male, with mean age of 53 ± 17 years, with no differences between groups. Patients with DCM had twice higher prevalence of AF (4 vs. 2%). When comparing groups, these patients had comparable left (53.7 ± 20.5 mL) and right atrial volumes (30.3 ± 13.6mL) between them. However, patients with DCM had significantly lower LAEF (47 vs. 65%, p = < 0.001), lower RAEF (46 vs. 52%, p = 0.04), lower LA longitudinal shortening (13 vs. 40, p < 0.001) and lower RA longitudinal shortening (22 vs. 40, p < 0.001).
Conclusions: Patients with DCM have a much higher risk of AF than the general population. Atrial ejection fraction and atrial longitudinal shortening generated by AI in CMR could be earlier predictors of AF when comparing with atrial volumes in patients with DCM. These parameters could help earlier diagnosis of AF and improve outcomes.

PO 117. FORECASTING VENTRICULAR ARRHYTHMIAS IN DILATED CARDIOMYOPATHY: A FOCUS ON CARDIAC IMPLANTABLE ELECTRONIC DEVICES PATIENTS

Mariana Rodrigues Simões, Rafaela Fernandes, Diogo Fernandes, Ana L. Silva, Tatiana Pereira Dos Santos, João Ferreira, Luís Paiva, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Ventricular arrhythmias (VA) increase mortality and morbidity in dilated cardiomyopathy (DCM). Since major trials focus on ischemic cardiomyopathy, identifying predictors specific to DCM is crucial.
Methods: We performed a single-centre retrospective, observational study reviewing patients with DCM who received cardiac implantable electronic devices (CIED) between May 2014-October 2018 to evaluate sustained ventricular arrhythmias and associated factors, using clinical records and SPSS software for analysis.
Results: A total of 100 patients were included. Seventy-four percent of patients were men. Sixty-six patients had a CRT (cardiac resynchronization therapy)-defibrillator, 18 patients had a CRT-pacemaker, and 16 patients had an ICD (implantable cardioverter-defibrillator). Ninety-three percent of patients implanted the device as primary prevention and 7% as secondary prevention. Seventy-eight patients had arterial hypertension (HTN) and 23 presented diabetes *mellitus* (DM). At the time of device implantation, 45 patients had atrial fibrillation (AF) and by the end of follow up, that number raised to 65. During a follow-up time of 6.80 ± 3.55 years, 33 patients presented at least one sustained VA detected by the device: 21 patients presented only ventricular tachycardia events, 2 experienced only ventricular fibrillation events and 10 had both events. Patients were divided in VA group and non-VA group. No differences were found related to age (65.36 ± 2.16 in the VA group versus (*vs*) 67.30 ± 1.23 years, p = 0.407). The median creatinine levels were the same across groups [1.22 (IQR 0.49) in the VA vs. 1.09 (IQR 0.57) mg/dl, p = 0.361]. Patients that presented VA had significantly higher values of left ventricular end-diastolic diameter (LVEDD): 70 (IQR 9) *vs.* 66 (IQR 13) mm, p = 0.029; but no differences when it came to left ventricular end-systolic diameter (LVESD): 58.73 ± 1.41 mm in the AV group vs. 55.26 ± 1.20 mm, p = 0.096. Left ventricular ejection fraction (LVEF) was the same among groups: 30 (IQR 9)%, p = 0.919. There were no association between HTN (p = 0.347), DM (p = 0.515) or AF at the time of device implantation (p = 0.351) and the occurrence of VA events. Although by the end of follow up, 25 of the 33 patients in the VA group had atrial fibrillation, that wasn´t statistically significant (p = 0.308).
Conclusions: In patients with DCM undergoing CIED implantation, sustained AV was linked to increased LVEDD, while no significant association was observed with LVEF.

PO 118. GENETIC MUTATIONS AND TESTING PROFILES LANDSCAPE IN DILATED CARDIOMYOPATHY PATIENTS: A DIAGNOSTIC IMPACT ANALYSIS

João Fernandes Pedro[1], Ana Abrantes[1], Catarina Gregório[1], Fátima Salazar[2], Ana Francês[2], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[1]

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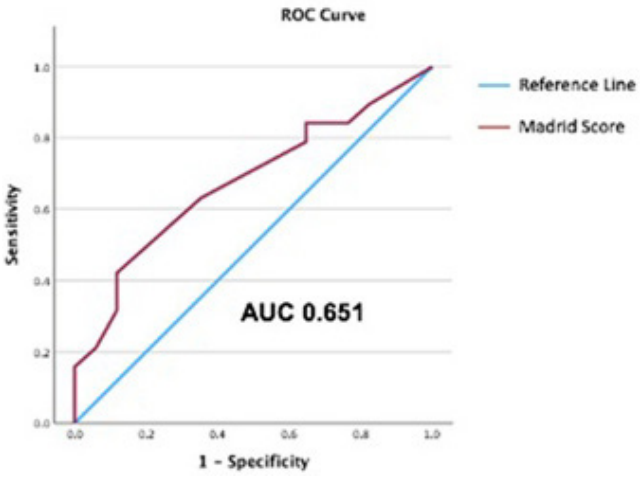
Introduction: Dilated cardiomyopathy (DCM) often has a genetic etiology. The use of genetic testing in this setting seems to be growing but is still limited. The Madrid Score has been proposed to predict the likelihood of a positive genetic test, though its accuracy is not well established.
Objectives: This study aims to evaluate the results of genetic testing in dilated cardiomyopathy patients and the predictive value of the Madrid Score and to identify factors influencing testing decision.
Methods: A prospective cohort study of incident DCM patients was conducted at a single tertiary center over 4 years. Data on patient characteristics, genetic testing usage, results and the reasons for not performing the test were collected. The Madrid Score was calculated for each patient, and its performance was evaluated using receiver operating characteristic (ROC) curve analysis.
Results: 91 patients were included, with a mean age of 61 ± 15 years and a mean left ventricle ejection fraction of 25 ± 8%, 70.3%, and 47.2% were in NYHA class II and 24.7%, in class III. More than half of the patients (50.6%) had an implantable defibrillator, mostly for primary prevention (84.1%). A family history of DCM was present in 15.6% of patients and genetic testing was performed in 58.9% of patients. The main reasons for not performing genetic testing were advanced age/comorbidities (32.4%), presumed alcoholic cardiomyopathy (29.7%) and tachycardia-induced cardiomyopathy (8.1%). Of the patients who underwent genetic testing, 52.8% had a positive result. Identified mutations included TTN (4), DSP (4), FLNC (3), LMNA (2), SCN5A (1), DES (1), RYR2 (1), SGCB (1), DSG2 (1), and BAG3 (1). A second mutation was found in 12.5% of those with a positive result. When applied to the patients that were tested, the Madrid Score predicted a mean 33.02 ± 22.42% likelihood of a positive genetic test, which was inferior to the observed rate (52.8%), indicating that it significantly underestimates the positivity of a test by a mean difference of 19.78% (95%CI 12.41-27.15; p < 0.001). ROC analysis showed an AUC of 0.651 (95%CI: 0.537-0.765), reflecting a moderate to poor performance (Figure 1).

Figure 1



Conclusions: In this cohort the positivity of genetic testing was higher than predicted by the Madrid Score. These results suggest that the Madrid Score seems to underestimate the true probability of a positive result and that the threshold to perform genetic testing in the absence of a known etiology for DCM should be low.

PO 119. REFINING GENETIC PREDICTION IN DILATED CARDIOMYOPATHY: EVALUATING THE MADRID SCORE AND ENHANCED MACHINE LEARNING MODELS WITH CLINICAL AND IMAGING DATA

Inês Pereira de Miranda, Carolina Pereira Mateus, Filipa Gerardo, Mara Sarmento, Rodrigo Brandão, Mariana Passos, Inês Fialho, Ana Oliveira Soares, David Roque, João Bicho Augusto

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Investigating dilated cardiomyopathy (DCM) etiology in clinical practice is challenging, especially when selecting patients who benefit from genetic testing. In 2022 Madrid Score was created to help predict patients who are likely to have pathogenic or likely pathogenic (P/LP) genetic variants.
Objectives: We aimed to evaluate the Madrid Score's applicability in a real-world population of DCM patients.
Methods: We conducted a single-center, retrospective study evaluating 137 DCM patients who underwent genetic testing between 2018 and 2024. Data collected included demographics, clinical history, imaging parameters (echocardiogram and cardiac MRI), and genetic testing results (gene negative, variant of uncertain significance [VUS], or P/LP variant). The Madrid Score (variables include family history of DCM, skeletal muscle disease, left bundle branch block, low QRS voltage in limb leads, hypertension) was calculated for all patients. Logistic regression models were developed to evaluate Madrid Score's predictive power, with additional clinical and imaging variables tested to enhance predictions. Advanced machine learning models, including Gradient Boosting, were also tested. Performance metrics such as accuracy, precision, recall, F1 score, and area under the receiver operating characteristic curve (AUC) were calculated. Feature importance analysis was performed on the Gradient Boosting model to identify key predictors. The dataset was manually oversampled to address class imbalance in patients with P/LP variants.
Results: Of 119 suitable patients (mean age 60 ± 13 years, 65% male), 55.5% were gene positive - 46.2% VUS, 9.3% P/LP (TTN was the most common gene). Patients with P/LP mutations had significantly higher Madrid Scores than those with VUS or no mutation (35.5 ± 19.6 vs. 33.3 ± 19.6 vs. 30.6 ± 19.1; p = 0.03). Logistic regression confirmed the Madrid Score as an independent P/LP mutation predictor (odds ratio per unit increase: 1.03; 95%CI: 1.01-1.06; p = 0.03) with moderate discriminatory ability (AUC = 0.67). Logistic regression incorporating clinical and imaging features showed limited performance (AUC = 0.43, accuracy = 70.6%, recall = 66.7%, precision = 57.1%). In contrast, the Gradient Boosting model significantly outperformed others, achieving AUC = 0.91, accuracy = 85.3%, recall = 86.7%, and precision = 81.3%. Feature importance analysis revealed age, left ventricular ejection fraction, and LV end-diastolic volume as top predictors above the Madrid Score.
Conclusions: The Madrid Score is a useful predictor of P/LP genetic variants in DCM, but its discriminatory ability is moderate. Advanced machine learning models integrating clinical and imaging data significantly improve predictive accuracy. These findings highlight the potential of combining data-driven approaches to enhance genetic testing yield, though further validation is needed.

Figure 1. Distribution of Madrid score by genetic test result

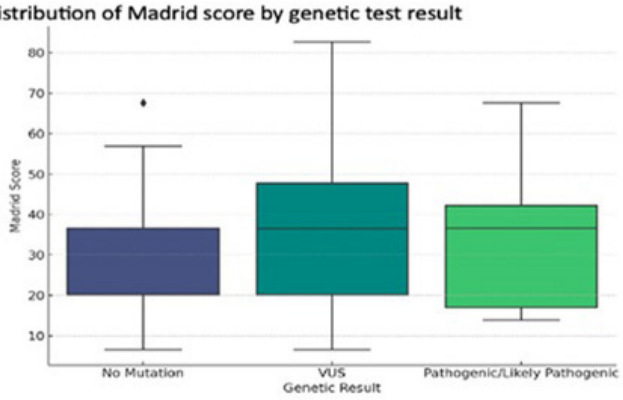
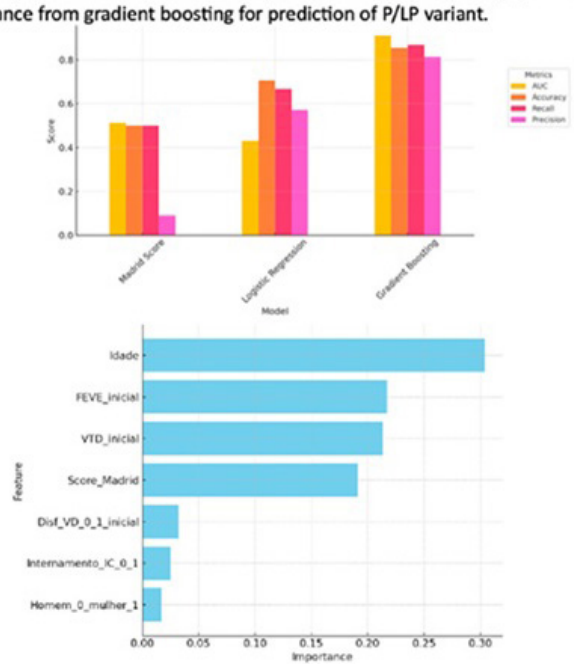


Figure 2. (A) Performance metrics comparison across models, and (B) corrected feature importance from gradient boosting for prediction of P/LP variant.



Sexta-feira, 11 Abril de 2025 | 14:00-15:00

Área de Posters-écran 3 | Sessão de Posters 19 – Imagem nas miocardiopatias

PO 120. THE SPECTRUM OF HYPERTROPHIC CARDIOMYOPATHIES – WHERE IS FABRY?

Marta Miguez Vilela[1], Miguel Raposo[1], João Cravo[1], Daniel Cazeiro[1], Diogo Ferreira[1], Catarina Sousa[1], Patrício Aguiar[2], João Agostinho[3], Fausto Pinto[1], Dulce Brito[1]

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Introduction: Fabry cardiomyopathy (Fabry-CM) is a lysosomal storage disorder that can lead to left ventricular hypertrophy (LVH), often mimicking other forms of hypertrophic cardiomyopathy (HCM). Several studies have attempted to identify distinct features of Fabry-CM using routine diagnostic methods but differentiating it from other forms of HCM remains a diagnostic challenge.

Objectives: Assess key echocardiographic (echo) and electrocardiographic (EKG) features to differentiate Fabry-CM from other forms of HCM.

Methods: A retrospective, single-center study included patients with Fabry-CM and compared them to patients with other conditions associated with LVH - sarcomeric HCM, cardiac amyloidosis (CA), and aortic stenosis (AS). Patients in the Fabry-CM group were matched for age, gender, and comorbidities. Data from echo and EKG at the time of diagnosis were collected.

Results: A total of 14 patients with Fabry-CM were compared to 15 with CA, 12 with HCM, and 12 with AS. The groups were similar in terms of age and gender distribution. The mean age was 59.4 ± 3.4 years, 69.2 ± 2.8 years, 62.2 ± 5.5 years, 65 ± 1.5 years, respectively (p = 0.1). Males accounted for 64%, 66%, 58%, and 50% of each respective group (p = 0.4). Fabry-CM was associated with a significantly lower interventricular septum/posterior wall thickness ratio (IVS/LVPW) compared to HCM (1.06 ± 0.03 vs. 1.57 ± 0.11; p < 0.001) and similar to CA and AS (1.13 ± 0.03 and 1.05 ± 0.03; p = 0.2 and p = 0.5, respectively). LVPW thickness was greater in Fabry-CM compared to HCM (14.9 ± 0.9 mm vs. 11.5 ± 0.6 mm; p = 0.01), amyloidosis-CM (13.6 ± 0.5 mm; p = 0.018) and AS (13.1 ± 0.1 mm; p = 0.06). Ejection fraction (EF) and global longitudinal strain (GLS) were lower in Fabry-CM compared to HCM (EF: 56% ± 1.8 vs. 67.2% ± 0.9, p < 0.001; GLS: -13% ± 1.1 vs. -16% ± 0.9, p = 0.02) and AS (EF: 61.3% ± 1.4, p = 0.02; GLS: -15.45% ± 0.6, p = 0.06).

	Fabry	Amyloidosis	HCM	AS
n (%)	14 (26%)	15 (28%)	12 (23%)	12 (23%)
Age years (mean ±SD)	59.4 (± 3.4)	69.2 (± 2.8)	62,2 (± 5.5)	65 (± 1.5)
Male, n (%)	9 (64%)	10 (66%)	7 (58%)	6 (50%)
Echocardiogram				
Ratio IVS/LVPW (mean ±SD)	1.06 (± 0.03)	1.13 (± 0.03)	1.57 (± 0.11)	1.05 (± 0.03)
Septum mm (mean ±SD)	15.1 (± 1)	14.9 (± 0.5)	14.1 (± 0.7)	12.9 (± 0.2)
Anterior wall mm (mean ±SD)	14.5 (± 0.88)	14.3 (± 0.44)	13.8 (± 0.63)	13.4 (± 0.11)
Lateral wall mm (mean ±SD)	14.9 (± 0.9)	14.1 (± 0.4)	13.4 (± 0.7)	13.1 (± 0.12)
Inferior wall mm (mean ±SD)	14.8 (± 0.9)	14.01 (± 0.5)	10.7 (± 0.65)	13.2 (± 0.14)
Infero-lateral wall mm (mean ±SD)	14.9 (± 0.9)	13.6 (± 0.5)	11.5 (± 0.6)	13.1 (± 0.1)
FEVE % (mean ±SD)	56 (± 1.8)	54.1 (± 1.5)	67.2 (± 0.9)	61.3 (± 1.4)
GLS % (mean ±SD)	13 (± 1.1)	11.4 (± 0.5)	16.18 (± 0.9)	15.45 (± 0.6)
Strain anterior wall % (mean ±SD)	10.7 (± 2.1)	11.5 (± 0.6)	12.5 (± 1.5)	12.54 (± 1.6)
Strain lateral wall % (mean ±SD)	12.2 (± 1.5)	11.4 (± 0.7)	16 (± 1.1)	13.8 (± 1.1)
Strain Infero-lateral wall % (mean ±SD)	11.3 (± 1.4)	8.9 (± 0.8)	16 (± 1.6)	13.1 (± 0.9)
Strain inferior wall % (mean ±SD)	13.4 (± 1.7)	11.6 (± 0.7)	17.6 (± 1.6)	15.6 (± 0.7)
Strain septum wall % (mean ±SD)	12.6 (± 1.5)	9.1 (± 0.7)	17 (± 1.7)	15.7 (± 1.5)
Apical sparing n (%)	4 (29%)	8 (53%)	1 (8,3%)	0
RV free wall % (mean ±SD)	17.7 (± 2.9)	16.1 (± 1.1)	23.43 (± 1.3)	23.43 (± 1.3)
E/E (mean ±SD)	13.4 (± 1.2)	18.1 (± 0.3)	14.2 (± 2.7)	13.9 (± 1.4)
Derrame pericardico	1 (7%)	3 (21%)	1 (8%)	0
Electrocardiogram				
PR ms (mean ±SD)	128 (± 8.4)	183 (± 5.3)	155 (± 6.4)	163 (± 6.9)
R AVL mV (mean ±SD)	1.6 (± 0.7)	0.4 (± 0.06)	0.8 (± 0.1)	0.6 (± 0.09)
criterios HVE (mean ±SD)	7 (50%)	0	10 (83%)	4 (33%)
Low voltage membros (mean ±SD)	0	7 (46%)	0	0

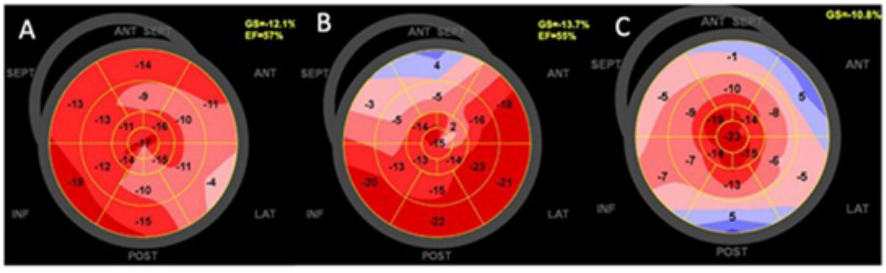

Figure 1: Comparison of echocardiographic and electrocardiographic features across Fabry cardiomyopathy, hypertrophic cardiomyopathy, cardiac amyloidosis and aortic Stenosis. (A) Fabry cardiomyopathy; (B) Sarcomeric hypertrophic cardiomyopathy; (C) Cardiac amyloidosis.

LVPW strain was reduced in Fabry-CM compared to HCM (-11.3 ± 1.4 vs. -16 ± 1.6%, p = 0.019). Apical sparing was observed in 29% of Fabry-CM patients vs. 53% in CA (p = 0.1). Fabry-CM also showed reduced right ventricular (RV) free wall strain compared to HCM (-17.7 ± 2.9 vs. -23.43 ± 1.3%, p = 0.019) and a lower RV free wall strain/RV global strain ratio compared to CA (1.1 ± 0.01 vs. 1.3 ± 0.1, p = 0.03). Regarding EKG, Fabry-CM was strongly associated with a short PR interval and a prominent R wave in aVL (> 1.1 mV) compared to other hypertrophic entities (short PR: 7 (13%) in Fabry-CM patients compared to none in the remaining groups (p < 0.001); R wave in aVL > 1.1 m: 9 (17%) vs. 1 (2%), (p < 0.001).
Conclusions: Routine exams can play a key role in identifying Fabry-CM among patients with other forms of HCM. Key features include a lower IVS/LVPW ratio, increased LVPW thickness, reduced LVPW strain and RV free wall strain, shorter PR interval and a prominent R wave in aVL.

PO 121. ECHOCARDIOGRAPHIC DIFFERENTIATION OF CARDIAC AMYLOIDOSIS SUBTYPES

João Mendes Cravo[1], Ana Abrantes[1], Marta Vilela[1], Catarina Gregório[1], Catarina Campos[2], Isabel Conceição[2], Catarina Sousa[1], Fausto J. Pinto[1], Dulce Brito[1], João Agostinho[3]

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Introduction: Cardiac amyloidosis (CA) presents significant diagnostic challenges due to the overlapping echocardiographic (echo) features observed among its subtypes. Differentiating transthyretin wild-type (wtATTR), transthyretin hereditary (hATTR) and light chain (AL-CM) cardiac amyloidosis remains complex, especially when relying solely on echo criteria.
Objectives: To compare echo features that can distinguish wtATTR, hATTR and AL-CM and to evaluate their progression over time.
Methods: A retrospective, single-center study included patients with CA. Three groups of patients - wtATTR, hATTR and AL-CM - matched for age, gender and comorbidities were established. Echo parameters at diagnosis and 2-year follow-up were collected and analyzed.
Results: A total of 120 patients with CA were initially screened and 45 were selected for the study: 14 (31%) with hATTR, 20 (44%) with wtATTR and 11 (25%) with AL-CM. Baseline characteristics were comparable across groups in terms of mean age: 82 ± 1.1 years for wtATTR, 77 ± 2.6 years for hATTR and 68 ± 3.1 years for AL-CM (p = 0.06). Most patients were male: 13 (92%) vs. 17 (85%) vs. 9 (81%) respectively (p = 0.2). At baseline, significant differences were observed between wtATTR and hATTR. Patients with wtATTR-CM had higher left ventricular (LV) mass (182 ± 47 g/m^2 vs. 138 ± 44 g/m^2, p = 0.01), reduced global longitudinal strain (GLS) and segmental strain (-10% ± 0.6 vs. -13% ± 0.9, p = 0.01), higher left atrial (LA) volume (49 ± 10 mL/m^2 vs. 39 ± 11 mL/m^2, p = 0.15) and a higher right ventricle (RV) free wall strain to RV global strain ratio (1.4 ± 0.1 vs. 1.2 ± 0.1, p = 0.01). Apical sparing was present in both groups, with higher prevalence in wtATTR, although the difference was not statistically significant (p = 0.07). Comparatively, wtATTR and AL-CM were similar, except for septal thickness, greater in wtATTR (16 ± 0.5 mm vs. 13 ± 0.8 mm, p = 0.02), and LA volume, which was higher in wtATTR (49 ± 10 mL/m^2 vs. 36 ± 9 mL/m^2, p = 0.001). The mean time to echo re-evaluation was 21 ± 1.6 months, during which all patients with ATTR were on tafamidis 61 mg and all AL-CM patients were treated with standard of care. In the wtATTR group, re-evaluation demonstrated a significant reduction in LV mass (mean decrease of 26 ± 3 g/m^2, p = 0.023) and a worsening in GLS (mean reduction of 1.2% ± 1.3, p = 0.01). There were no other statistically significant changes. Patients with hATTR, had significant improvement in the E/e' ratios (mean reduction of 3.7 ± 1.3, p = 0.01). Among AL-CM no significant changes were observed.
Conclusions: Echo remains a challenge in differentiating cardiac amyloidosis subtypes. In this cohort, wtATTR showed more advanced features at diagnosis, likely due to the higher time from symptom onset to diagnosis when compared to the other CA types. At two years, treatment seems to lead to stabilization of most echo parameters but, strikingly, in patients with wtATTR LV mass reduction was observed.

	hATTR-CM	wtATTR-CM	AL-CM	
N= 45	14 (31)	20 (44)	11 (24)	
Age years (mean ±SD)	77.6 (± 2.6)	82.3 (± 1.1)	68.1 (± 3.1)	NS
Male, n (%)	11 (78)	17 (85)	8 (72)	NS
Echocardiogram at diagnosis				
Ratio IVS/LVPW (mean ±SD)	1.18 (± 0.04)	1.16 (± 0.05)	1.03 (± 0.02)	NS
LV mass g/m² (mean ±SD)	137.7 (±44.6)	182 (±47.2)	152 (±38.5)	p=0.02
RWT (mean ±SD)	0.67 (±0.15)	0.66 (±0.2)	0.64 (±0.1)	NS
Septum mm (mean ±SD)	12.3 (± 0.8)	15.5 (± 0.5)	13.7 (± 0.8)	p=0.01
Anterior wall mm (mean ±SD)	11.6 (± 0.7)	14.5 (± 0.52)	13.7 (± 0.7)	p=0.01
Lateral wall mm (mean ±SD)	11.7 (± 0.7)	13.7 (± 0.4)	13.8 (± 0.4)	p=0.05
Inferior wall mm (mean ±SD)	11.4 (± 0.6)	14.1 (± 0.7)	13.4 (± 0.9)	NS
FEVE % (mean ±SD)	55.9 (± 2.2)	50.5 (± 2.4)	56 (± 2.8)	NS
GLS % (mean ±SD)	13.4 (± 0.8)	10.1 (± 0.6)	11 (± 1.1)	p=0.01
Strain anterior wall % (mean ±SD)	12.6 (± 0.9)	10.3 (± 0.9)	12.2 (± 1.5)	NS
Strain lateral wall % (mean ±SD)	14.3 (± 0.9)	8.8 (± 0.9)	12.4 (± 1.8)	p=0.004
Strain Infero-lateral wall % (mean ±SD)	12.1 (± 1.4)	7.5 (± 0.9)	7.2 (± 1.3)	p=0.02
Strain inferior wall % (mean ±SD)	14.3 (± 1)	9.4 (± 1.1)	11.9 (± 1.4)	p=0.01
Strain septum wall % (mean ±SD)	14 (± 1.1)	10 (± 1)	11.4 (± 1.1)	p=0.03
Apical sparing n (%)	3 (21)	11 (55)	7 (64)	NS
TAPSE mm (mean ±SD)	20.5 (±2.5)	18.3 (±3-7)	18.9 (±3.7)	NS
RV free wall % (mean ±SD)	15 (± 1.3)	15.7 (± 1.4)	17.1 (± 2.6)	NS
RV global strain % (mean ±SD)	12 (±0.9)	11.4 (±1.3)	13.7 (±1.9)	NS
LA volume mL/m² (mean ±SD)	39.3 (±11.4)	49.1 (±10.1)	35.5 (±8.6)	NS
E/E (mean ±SD)	18.5 (± 2)	19.62 (± 1.6)	15.6 (± 2.5)	NS
PSAP mmHg (median, IQR)	29 (IQR 16-42)	41 (IQR 33-49)	33 (IQR 22-44)	NS
Pericardial effusion n (%)	1 (7)	3 (15)	3 (27)	NS
Echocardiogram after 2 years				
Ratio IVS/LVPW (mean ±SD)	1.23 (± 0.3)	1.17 (± 0.18)	1.07 (± 0.2)	NS
LV mass g/m² (mean ±SD)	120 (±36)	139 (±52.3)	137 (±17.6)	NS
RWT (mean ±SD)	0.65 (±0.2)	0.68 (± 0.2)	0.67 (±0.2)	NS
Septum mm (mean ±SD)	11.7 (±2.5)	13.9 (±1.8)	14 (±1.9)	p=0.019
Anterior wall mm (mean ±SD)	11.1 (±2.1)	13.3 (±1.8)	14.1 (±1.5)	p=0.01
Lateral wall mm (mean ±SD)	11.5 (±1.9)	12.8 (± 2.8)	14.1 (±1.6)	P=0.05
Inferior wall mm (mean ±SD)	11.4 (±1.8)	14.1 (±2.19	13.4 (±2.6)	p=0.04
FEVE % (mean ±SD)	59 (±5.1)	53.1 (±8.1)	55.1 (±8.1)	NS
GLS % (mean ±SD)	13.9 (±2.3)	11.2 (±2.4)	11.1 (±3.2)	p=0.03
Apical sparing n (%)	10 (71)	14 (70)	9 (81)	NS
TAPSE mm (mean ±SD)	20.3 (±2.7)	18.4 (±4.7)	18 (±4.7)	NS
RV free wall % (mean ±SD)	18 (±4.8)	15.2 (±4.3)	16.8 (±5.7)	NS
RV global strain % (mean ±SD)	14.4 (±3.1)	11.6 (±3.7)	13 (±4.9)	NS
LA volume mL/m² (mean ±SD)	36.9 (±11)	45 (±11)	41.9 (±11.5)	NS
E/E (mean ±SD)	13.8 (±1.1)	20.9 (±3.4)	15.3(±1.62)	NS
PSAP mmHg (median, IQR)	24 (IQR 10-29)	42.2 (IQR 32-52)	40 (IQR 32-48)	p=0.04
Pericardial effusion n (%)	2 (14)	4 (20)	3 (27)	NS

PO 122. GENOTYPE-PHENOTYPE CORRELATIONS WITH LATE GADOLINIUM ENHANCEMENT PATTERNS IN PRIMARY CARDIOMYOPATHY

Maria Rita Giestas Lima, Rita Amador, Sérgio Maltês, Pedro Lopes, Pedro Freitas, Sara Guerreiro, João Abecasis, Catarina Brízido, Christopher Strong, Carlos Aguiar, António Ferreira, Bruno Rocha

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Introduction: Late gadolinium enhancement (LGE) is commonly observed in primary cardiomyopathy. However, limited data exist regarding its prevalence and distribution in relation to specific genes. This study aimed to assess the genotype-phenotype correlations with LGE patterns in primary cardiomyopathy.
Methods: This is a single-centre study of consecutive patients with dilated cardiomyopathy (DCM) and non-dilated left ventricular cardiomyopathy who are followed in our centre (at least yearly) undergoing cardiac magnetic resonance (CMR) plus DCM-related genes testing. Baseline clinical, laboratory, ECG and CMR data were systematically collected. Patients were categorized into 3 groups based on genetics: pathogenic/likely pathogenic variants (P/LPV), variants of uncertain significance (VUS) and negative test (NT).
Results: Overall, 119 patients [71% female, 51 ± 16 years, 85% with dilated left ventricle (LV), LV ejection fraction (LVEF) 34%] were included. Genetic testing revealed potential causative variants in DCM-related genes in 89 (75%) patients, of whom 46 were identified with a P/LPV and 43 with a VUS. The most common P/LPV were LMNA (20%), PKP2 (17%), FLNC (13%) and TTN (11%). Compared with patients with VUS or a NT, patients with P/LPV were younger (45 *vs.* 53 *vs.* 59 years for P/LPV, VUS and NT, respectively; p

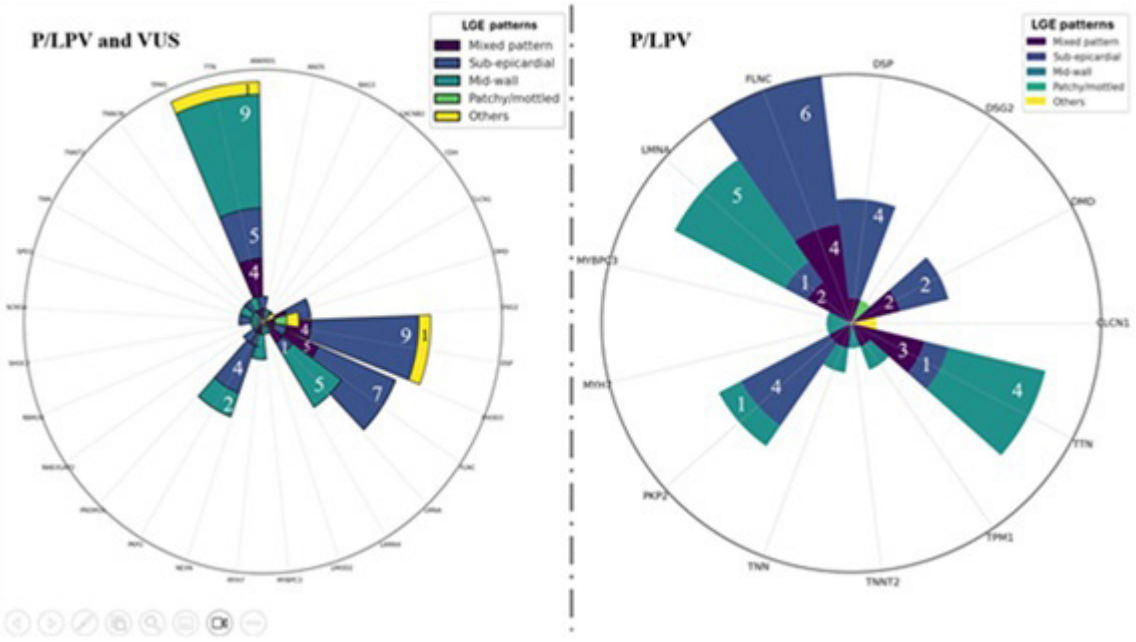

Figure PO 122

< 0.001), and presented with lower NT-proBNP (186 *vs.* 225 *vs.* 459pg/mL, respectively; p = 0.003) and higher LVEF (41 *vs.* 32 *vs.* 34%; p = 0.036). Figure 1 illustrates the distribution of patients according to the LGE patterns, categorized by genes (P/LPV+VUS and P/LPV). No differences were found in the prevalence, extensiveness and pattern of LGE between genetic groups. Patients with PV/LPV in FLNC/PKP2 genes more often had a sub-epicardial pattern (p = 0.018), while TTN/LMNA had numerically more patients with mid-mural LGE when compared to VUS and NT (82 *vs.* 44%; p = 0.124). Those with P/LPV in DSP more often had a sub-epicardial pattern (100 *vs.* 33%, p = 0.009) and "ring-like" LGE (100 *vs.* 17%, p < 0.001), while TTN patients showed lower LVEF (29 *vs.* 42%; p < 0.001) and more often mid-wall LGE (80 *vs.* 27%; p = 0.017), when compared with other patients with P/LPV.

Conclusions: CMR may exhibit a specific LGE distribution in patients with familial DCM/non-dilated LV cardiomyopathy according to the mutated gene. These findings support the correlation of genotype with LGE-phenotype in primary cardiomyopathy.

PO 123. IMPACT OF NOVEL MAXIMAL WALL THICKNESS ADJUSTMENTS ON ARRHYTHMIC EVENT PREDICTION IN HYPERTROPHIC CARDIOMYOPATHY

Rita Amador[1], Rita Carvalho[1], Pedro Freitas[1], Rita Lima[1], Pedro Lopes[1], Francisco Gama[1], Sara Guerreiro[1], Edmundo Arteaga[2], Pedro Carmo[1], Pedro Adragão[1], Carlos Rochite[2], António Ferreira[1]

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Introduction: A recent study from the UK Biobank proposed individualized maximal wall thickness (MWT) thresholds (adjusted for age, sex, and body surface area) to replace the classic 15 mm criterion and improve diagnostic accuracy in patients with suspected hypertrophic cardiomyopathy (HCM). Our study aimed to assess whether this novel approach can also strengthen

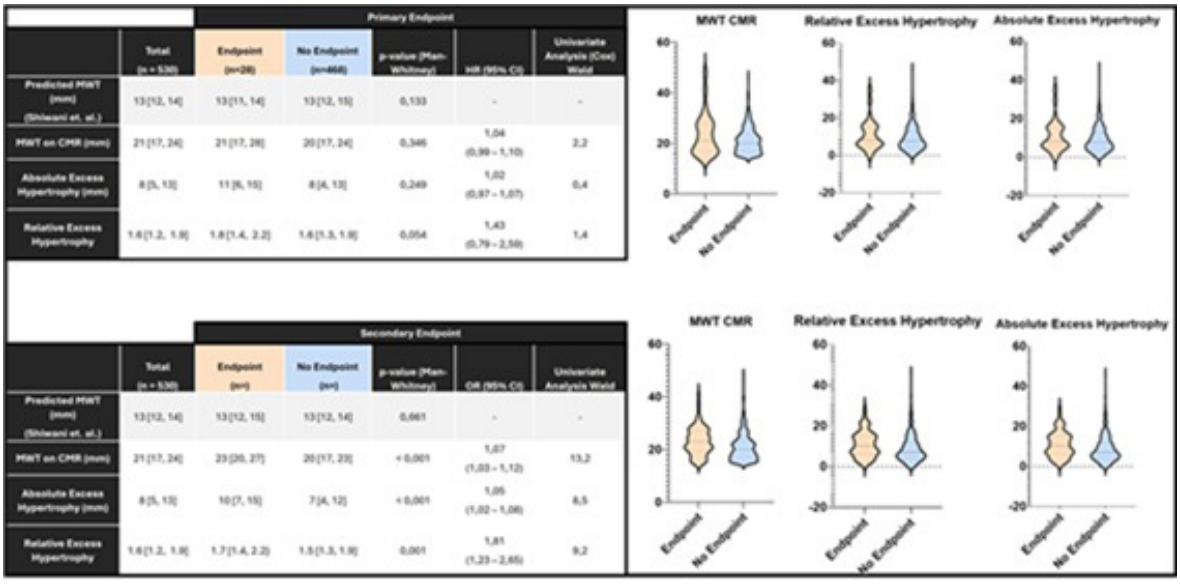


Figure PO 123

the association between MWT and arrhythmic events in patients with established HCM.
Methods: We conducted a multicenter international retrospective analysis of HCM patients who underwent cardiac magnetic resonance (CMR) for diagnostic confirmation and risk stratification. MWT was measured using both echocardiography and CMR. For each patient, the individualized upper limit of normal (ULN) for MWT was calculated and compared with the measured MWT using two different metrics: absolute excess hypertrophy (measured – ULN) and relative excess hypertrophy (measured/ULN). The primary composite endpoint included SCD, appropriate implantable cardioverter-defibrillator (ICD) discharges, and sustained ventricular tachycardia (VT). The secondary endpoint was the presence of non-sustained VT on Holter monitoring.
Results: A total of 530 HCM patients (mean age 49 ± 17 years; 44% male) were included. Mean MWT was 20 ± 5 mm on transthoracic echocardiography and 21 ± 5 mm on CMR, with a theoretical individualized ULN of 13 mm (IQR 12-14 mm). Clinical risk factors included a family history of SCD (13%), unexplained syncope (12%), and NSVT (19%). Over a median follow-up of 50 months, 28 patients experienced a primary endpoint event (15 SCDs, 6 ICD discharges, and 7 sustained VTs). No significant differences in MWT were observed between patients with and without primary endpoint events. Similarly, neither absolute nor relative excess hypertrophy improved predictive value for SCD-related outcomes. For NSVT, significant differences in MWT, absolute, and relative excess hypertrophy were noted. However, hypertrophy indexing methods showed no advantage over raw MWT measurements in prognostic performance (Wald 9 vs. 13, respectively).
Conclusions: In this cohort, novel adjustments to MWT values, including indexing to body surface area and the use of predicted MWT thresholds, did not improve the prediction of SCD-related events or appropriate device therapies. These findings suggest limited utility for these methods in HCM risk stratification.

PO 124. MYOCARDIAL STRAIN CHANGES AS ASSESSED BY FEATURE TRACKING CMR IN PATIENTS WITH ACUTE MYOCARDITIS AND PRESERVED EJECTION FRACTION. IMPACT ON PROGNOSIS

João Mendes Cravo, Marta Vilela, Miguel Menezes, Margarida Martins, Ana Beatriz Garcia, Catarina Gregório, Joana Rigueira, Fausto J. Pinto, Ana G. Almeida, Ana Abrantes

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Acute myocarditis is in most cases a benign condition presenting with preserved ejection fraction. However, its long-term evolution is still largely unknown. Despite most patients presenting with preserved EF, we believe myocardial deformation changes may be present along with late gadolinium enhancement (LGE) in cardiovascular magnetic resonance (CMR).
Objectives: To assess myocardial strain using feature tracking CMR analysis, in patients with acute myocarditis and normal EF and evaluate its relationship with ventricular function and adverse events at 3-year follow-up.
Methods: 111 consecutive patients (36 ± 12 years, 89 males) with acute myocarditis were included. Diagnosis was based in clinical data, typical ECG and biomarkers rise, normal coronary arteries and CMR study based on the Lake Louise criteria. Inclusion criteria included an EF > 55% in the acute phase and a yearly follow-up for 3 years. A control group of 27 individuals was included. The CMR study, at baseline and follow-up, included a conventional SSFP and LGE assessment. Applying a feature tracking analysis method (cvi42, Circle), peak global longitudinal (GLS), circumferential and radial strain were obtained. The amount of LGE was quantified from a stack of short axis as a percentage of mass from the global myocardial mass.
Results: During a follow-up of 2.7 ± 1.8 years, 4 patients were hospitalized for myocarditis recurrence. Patients remained in NYHA Class I. EF at follow-up showed no difference from the baseline study (62.8 ± 2.6% versus 61.3 ± 4.5%, p = 0.81). In comparison with controls, there was a lower GLS at baseline, showing improvement at 3-year follow-up (-13.5 ± -2.3 versus -18.1 ± -4.5%). The circumferential strain was significantly lower at the baseline and at follow-up. Mean values of baseline circumferential strain were significantly associated with the LGE% (R = 0.66, p = 0.004). At follow-up, a group of 22 patients showed a decrease of > 10% of circumferential strain, maintaining a preserved EF, which was associated with a larger LGE% (p = 0.003) and a lower baseline circumferential strain (p = 0.01).
Conclusions: In patients with acute myocarditis and preserved EF, tissue tracking CMR showed subclinical changes in myocardial deformation. Circumferential strain in the acute phase was inversely associated with the myocardial lesion extent and was associated with lower circumferential strain at follow-up despite preserved EF, corresponding to a subclinical marker of dysfunction.

PO 125. CARDIAC MAGNETIC RESONANCE FINDINGS IN FABRY DISEASE

Joao Santos Fonseca, João Cravo, Ana Abrantes, Beatriz Garcia, Margarida Martins, Catarina Gregório, João Inácio, Joana Rigueira, Rui Plácido, Patrício Aguiar, Fausto J. Pinto, Ana G. Almeida

Unidade Local de Saúde de Santa Maria.

Introduction: Cardiac Magnetic Resonance (CMR) is a key non-invasive diagnostic method to diagnose and stage Fabry disease related cardiovascular involvement. Our study aimed to assess CMR parameters in patients with and without evidence in cardiac involvement at baseline and follow-up.
Methods: Retrospective study of patients, with Fabry disease, followed in a tertiary center. Patients underwent CMR at baseline and follow-up and CMR parameters such as: Left ventricle (LV) end-diastolic volume (EDV), LV mass, LV segmental wall thickness, LV and RV ejection fraction (EF); late gadolinium enhancement (LGE); native T1 and T2 relaxation times were analyzed.

MRI Baseline (n=36)	Total	MRI FUP (n=13)	Total
EDV LV (mL)	130.8±5.2	EDV LV (mL)	133±9.3
EDV LVi (mL/m2)	75.2±3.7	EDV LVi (mL/m2)	77.7±3.6
Dilated LV	2 (6)	Dilated LV	1(8)
LV Mass (g)	127±20.1	LV Mass (g)	155±34
LVi Mass (g/m2)	67.2±8.2	LVi Mass (g/m2)	79±11
IVS (mm)	11.6±1.2	IVS (mm)	14.9±1.8
PW (mm)	8±0.6	PW (mm)	10±1.3
Hypertrophy Pattern		Hypertrophy Pattern	
No hypertrophy	25(71)	No hypertrophy	5(42)
Concentric	4(12)	Concentric	4(33)
Assymetric	6(17)	Assymetric	3(25)
EF LV (%)	62.6±1.1	EF LV (%)	64±1.8
EDV RV (mL)	135.3±7.9	EDV RV (mL)	124±17.5
EDV RVi (mL/m2)	74.1±4	EDV RVi (mL/m2)	82.4±5.2
Dilated RV	0(0)	Dilated RV	0(0)
RV Hypertrophy	0(0)	RV Hypertrophy	2(28)
EF RV (%)	59.6±1.7	EF RV (%)	60.3±2
T1 (ms)	1070±36	T1 (ms)	1029±55
Normal	9(64)	Normal	4(50)
Elevated	1(7)	Elevated	1(12)
Decreased	4(29)	Decreased	3(38)
PseudoNormalization		PseudoNormalization	3(7)
T2 (ms)	41.8±1.5	T2 (ms)	47±0.9
Normal	11(93)	Normal	2(50)
Elevated	1(7)	Elevated	1(25)
LGE	7(20)	LGE	7(58)
LGE - IL Wall	7(20)	LGE - IL Wall	5(42)

Figure 1: Cardiac MRI in Fabry patients at Baseline and FUP

Results: Thirty-six patients were included, 17 (47%) males. Time between the first CMR and the last one was 5.4 ± 0.8 years. Fifty-three percent of patients were on enzyme replacement/chaperone therapy. The CMR variables at baseline were: LVEDV 75.2 ± 3.7 mL/m^2, LV mass 67.2 ± 8.2 g/m^2, interventricular septum 11.6 ± 1.2 mm, posterior wall 8 ± 0.6 mm. Seventy-one percent of patients had no left/right ventricle hypertrophy. Eleven percent of patients had concentric/symmetric hypertrophy and 17% had asymmetric hypertrophy (mainly septal). LV and RV ejection fraction were 62.6 ± 1.1% and 59.6 ± 1.7%, respectively. Twenty percent of patients had late gadolinium enhancement (LGE), all in the classical inferior-lateral wall of the LV. T1 value was normal in 64% of patients and reduced in 29%. No pseudo normalization was observed. T2 value was normal in most patients (93%). There was a statistically significant difference in the

posterior wall thickness between men and women: 9.3 ± 1.3 *vs.* 6.8 ± 0.4 mm (p = 0.04) with no difference in the frequency of therapy between genders. At follow-up, despite therapy, there were changes in several parameters: LVEDV 77.7 ± 3.6 mL/m^2, LV mass 79 ± 11 g/m^2, IVS 14.9 ± 1.8 mm, posterior wall 10 ± 1.3 mm. Thirty-three percent of patients had concentric/symmetric hypertrophy and 25% had asymmetric hypertrophy. Two patients presented right ventricular hypertrophy. T1 relaxation was decreased in 38% of patients. Pseudo normalization was observed in 7% of patients. LGE was present in 58% of patients, mainly in the inferior-lateral wall, but also in other segments such as the septal and anterior wall of the LV. We observed a higher progression of LV hypertrophy in men: interventricular wall thickness of 19.2 ± 2.1 *vs.* 10.6 ± 0.7 mm (p = 0.004) and inferolateral wall thickness of 12.5 ± 0.6 *vs.* 6.7 ± 0.6 mm (p = 0.002).
Conclusions: Our study shows the utility of CMR in tracking Fabry disease progression, demonstrating increase in LV hypertrophy, increase in the frequency of focal fibrosis and reduced T1 values, with greater LV hypertrophy progression in men comparing to women.

Sexta-feira, 11 Abril de 2025 | 15:00-16:00

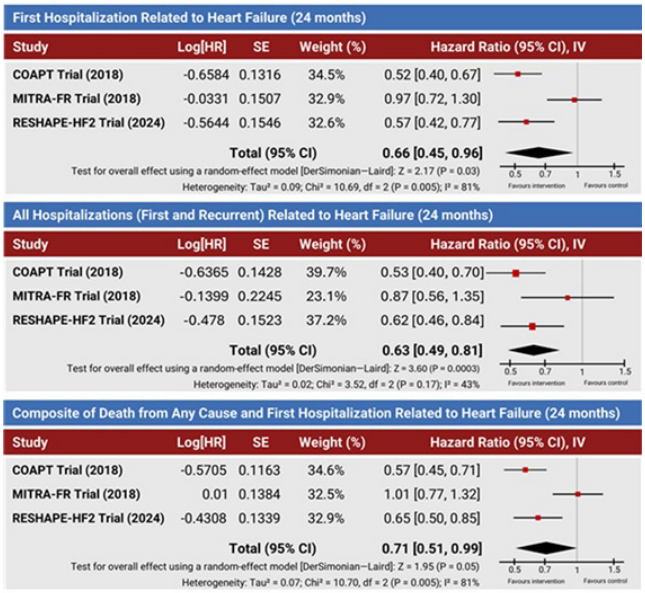
Área de Posters-écran 1| Sessão de Posters 20 – IC e intervenção valvular

PO 126. TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR: A META-ANALYSIS OF HOSPITALIZATION OUTCOMES IN HEART FAILURE AND SECONDARY MITRAL REGURGITATION

Emídio Mata, Bárbara Lage Garcia, Margarida Castro, Luisa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Lucy Calvo, Sílvia Ribeiro, António Lourenço

Unidade Local de Saúde do Alto Ave.

Mitral regurgitation (MR) is the most common valvular disease in heart failure (HF), with secondary mitral regurgitation (SMR) as the dominant type. SMR exacerbates HF prognosis, increasing hospitalizations. Transcatheter mitral valve edge-to-edge repair (MTEER), has been investigated in recent years as an adjunct to guideline-directed medical therapy (GDMT). This meta-analysis assesses the effects on hospitalizations of MTEER plus GDMT versus GDMT alone. A systematic search (September 2024) of PubMed, Cochrane, Scopus, and Web of Science was performed to identify randomized controlled trials (RCTs) comparing hospitalizations of patients with HF and SMR randomized to MTEER plus GDMT or GDMT alone. Data was pooled using an inverse variance random-effects model, with hospitalizations expressed as hazard ratios (HR) and 95% confidence intervals (CI). Among 1,558 entries, three RCTs (COAPT, MITRA-FR, and RESHAPE-HF2) were included in the final analysis, with a total of 1423 patients. At 24 months, first HF hospitalization rate was significantly higher in the GDMT group in both COAPT and RESHAPE-HF2. The pooled analysis confirmed a significant benefit favouring MTEER (HR 0.66, CI 0.45-0.96). Similarly, when all HF hospitalizations (first and recurrent) were considered, both individual trials and the pooled analysis demonstrated consistent results at 24 months (HR 0.63, CI 0.49-0.81). Additionally, for the composite outcome of death and first HF hospitalization at 24 months, M-TEER showed significantly fewer events than GDMT (HR 0.71, CI 0.51-0.99). This analysis highlights the significant benefits of MTEER in reducing HF hospitalizations and composite outcomes of death and first HF hospitalization at 24 months compared to GDMT alone. Across trials there were differences in MR severity, GDMT adherence, medication availability and ventricular remodeling that could affect the outcomes. The consistency results across both COAPT and RESHAPE-HF2 with MITRA-FR as an outlier underscores the need for standardized patient selection criteria. These findings affirm MTEER as an effective intervention for HF and SMR patients, improving clinical outcomes and reducing the burden of hospitalizations, supporting its integration into treatment strategies for those already on GDMT.

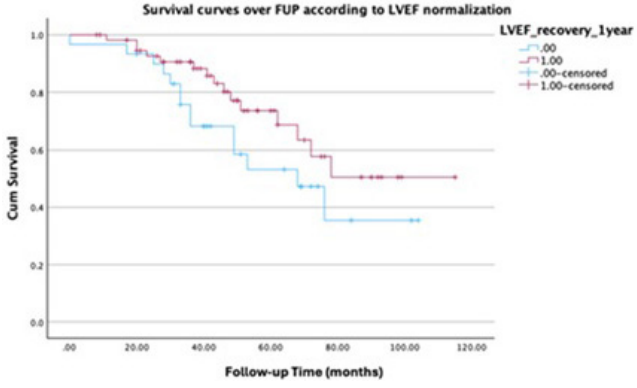


PO 127. LEFT VENTRICULAR DYSFUNCTION AND TAVI – PREDICTORS OF RECOVERY AND OUTCOMES

Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, João Cravo, Marta Vilela, Diogo Ferreira, Daniel Cazeiro, Pedro Carrilho Ferreira, João Silva Marques, Miguel Nobre Menezes, Cláudia Jorge, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Left ventricular ejection fraction (LVEF) recovery after TAVI influences long-term outcomes, being linked to better functional capacity and reduced mortality. However, not all patients experience significant recovery, highlighting the need to identify predictors to optimize patient selection and post-procedural care.
Objectives: We aimed to identify predictors of post-TAVI LVEF normalization at 1-year follow-up (FUP) and compare outcomes of these patients (pts) with those who had persistent LV dysfunction.
Methods: We selected pts from a single center TAVI registry –pts submitted to the procedure from 2012 to 2023– who had baseline LVEF < 50%. Clinical and echocardiographic data were analyzed. For statistical analysis, independent t-test and Chi-square were applied. Kaplan-Meier curves were drawn and cox regressions performed to analyze mortality.



Results: We included 158 pts, 52.5% were male, with mean age of 80.8 ± 6.7 years. Mean time of FUP was 38.9 ± 26 months. Mean EF prior to TAVI

was 37.7 ± 8%, with 20% of pts with LVEF < 30%. Regarding cardiovascular risk factors, 90% had hypertension, 74% dyslipidemia, 40% diabetes mellitus, and 38% CKD. 33% of pts had coronary heart disease, with 22% having underwent percutaneous angioplasty and 11.5% CABG. Median NTproBNP at baseline was 4755 (IQR 7,747) ng/L. 54.4% of pts had a balloon-expandable valve implanted and 45.6% a self-expandable. Regarding predictors of LVEF at FUP, we found female sex to be a protective factor (p = 0.03 OR 4.2). Coronary artery disease (p = 0.05 OR 0.49) and baseline LVEF < 30% were found to be associated with smaller odd of normalization. Patients who recovered LVEF by at least 10% had a 56.2% lower hazard of death at FUP comparing to the remaining population (p = 0.023; HR 0.438). LVEF recuperation to > 50% was also associated with a lower hazard of death at FUP (p = 0.05; HR 0.569).
Conclusions: LVEF recovery post TAVI significatively impacts survival. An increase of 10% or higher by 1-year post-procedure reduced hazard of death at a mean FUP of 39 months by 56%. Women have an increased odd of recovering LVEF and pts with a baseline EF < 30% and those with coronary disease have a decreased odd of normalizing LV function.

PO 128. PERCUTANEOUS MITRAL VALVE REPAIR VS. SURGERY ON 12-MONTH MORTALITY/HOSPITALIZATIONS IN MITRAL REGURGITATION: A META-ANALYSIS OF CLINICAL TRIALS AND PROPENSITY-MATCHED COHORTS

Emídio Mata, Bárbara Lage Garcia, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Lucy Calvo, Sílvia Ribeiro, António Lourenço

Unidade Local de Saúde do Alto Ave.

Surgery remains the standard treatment for severe mitral valve regurgitation (MR), but growing evidence highlights the potential role of mitral valve percutaneous edge-to-edge repair (MTEER). This meta-analysis aims to compare 12-month all-cause mortality and hospitalizations between MTEER and surgical intervention (SMVI). A systematic search (October 2024) of PubMed, Cochrane, Scopus, and Web of Science identified randomized control trials (RCT) and propensity-matched observational studies comparing 12-month all-cause mortality and hospitalizations in MR patients treated with MTEER or SMVI. An inverse variance random-effects meta-analysis assessed event prevalence, with risk ratios (RR) and 95% confidence intervals (CI). From 1482 entries, two RCTs (MATTERHORN and EVEREST II) and three observational studies, totalling 1,787 patients, met the inclusion criteria. Pooled RCT data showed no significant difference in 12-month mortality (RR 0.92; CI 0.46-1.81). Among observational studies, Amabile (2023) reported a significant benefit of SMVI, while Koschutnik (2022) (analyzing only primary MR) and Silaschi (2024) favored surgery without statistical significance. Reported data on 12-month hospitalizations could not be pooled statistically. The MATTERHORN trial reported cardiovascular hospitalization rates of 6.9% (MTEER) versus 11.9% (SMVI). Silaschi (2024) showed similar rates between groups: 8.7% (MTEER) vs. 8.5% (SMVI). Kaplan-Meier curves from Koschutnik (2022) for composite endpoint of death and heart failure hospitalization rates reported 20% for MTEER and 16% for SMVI. MTEER is associated with increased 12-month mortality, mainly driven by observational studies. As for 12-month hospitalizations, data remains inconclusive due to variability across studies and inability to pool results statistically. It is important to note that this meta-analysis, while including both observational studies and RCTs, observational studies utilized propensity score-matched data to minimize selection bias inherent to clinical practice, when assigning patients to each intervention. Nevertheless, RCTs excluded patients with right ventricular dysfunction or other severe valve disorders, such as tricuspid regurgitation, which were not excluded in the observational studies. Furthermore, the analysis combined populations with both primary and secondary mitral regurgitation (MR), which contributes to heterogeneity and may have influenced outcomes.

PO 129. A META-ANALYSIS OF QUALITY OF LIFE OUTCOMES AFTER TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR IN SECONDARY MITRAL REGURGITATION

Bárbara Lage Garcia, Emídio Mata, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Sílvia Ribeiro, Lucy Calvo, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: Secondary mitral regurgitation (SMR) often complicates heart failure (HF), worsening quality of life (QoL) outcomes. Transcatheter edge-to-edge mitral valve repair (MTEER) offers a minimally invasive alternative to address SMR. This meta-analysis evaluated the impact of MTEER on QoL in SMR patients compared to guideline-directed medical therapy (GDMT).
Methods: On September, 2024, PubMed, Cochrane Central Register of Controlled Trials, Scopus, and Web of Science were searched for randomized controlled trials (RCTs) of patients with HF and SMR, randomized to receive either MTEER with GDMT or GDMT alone assessing QoL outcomes. Pooled data were analyzed using an inverse variance random-effects model, calculating standardized mean differences (SMD) for changes from baseline to compare different QoL questionnaires.
Results: From 1,558 identified articles, the final analysis included three trials: COAPT, MITRA-FR, and RESHAPE-HF2, totalling 1,423 patients. Both

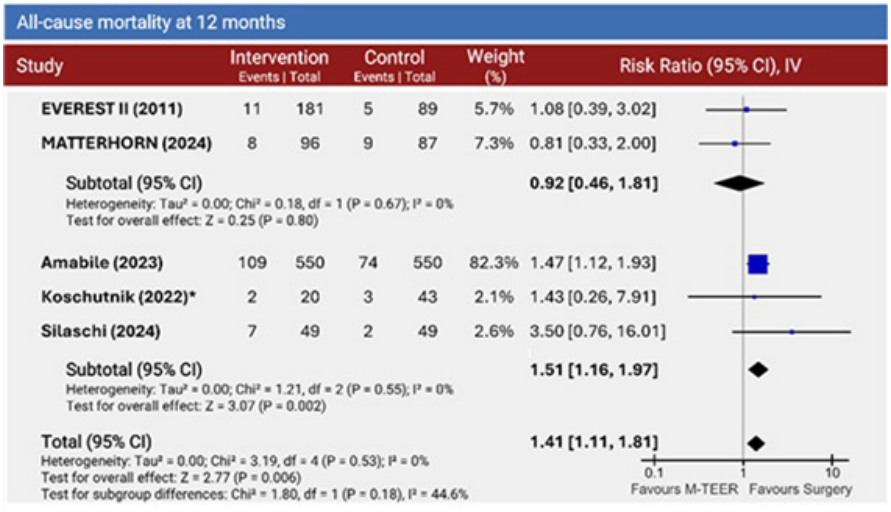


Figure PO 128

COAPT and RESHAPE-HF2 measured QoL using the Kansas City Cardiomyopathy Questionnaire and reported changes from baseline at 12 months. COAPT demonstrated significant QoL improvements in the MTEER group (MD 15.4, CI 9.92; 20.88), with benefits persisting for up to 5 years, a similar finding observed in RESHAPE-HF2 (10.9 [CI: 6.8-15.0]). In contrast, MITRA-FR assessed QoL using the EuroQol 5-Dimension questionnaire, reporting baseline and endpoint scores. No significant improvements in QoL were observed at 12 months (MD 4.2, CI -1.43; 9.83), a trend that persisted at 2 years. To integrate MITRA-FR into the meta-analysis, estimates of change from baseline were calculated using the difference between the reported baseline and endpoint scores. When pooled with data from COAPT and RESHAPE-HF2, the meta-analysis showed a moderate-to-large overall effect size favouring MTEER (SMD 0.84, CI: 0.33; 1.36, $p < 0.001$).

Conclusions: It's important to note that the use of different QoL assessment tools contributes to heterogeneity. A considerable amount of missing follow-up data limits the analyses. However, the pooled analysis highlights the potential of MTEER to improve QoL in patients with HF and SMR, mainly driven by the findings of COAPT and RESHAPE-HF2. These results support MTEER as an effective intervention for improving QoL in SMR with HF patients when compared with GDMT, with sustained benefits over time.

PO 130. RIGHT BUNDLE BRANCH BLOCK AND THE RISK OF PACEMAKER IMPLANTATION AFTER TAVI: AN OBSERVATIONAL STUDY

Luís Santos, Cátia Oliveira, Ana Pinho, Pedro Palma, Helena Moreira, Miguel Rocha, Joana Gonçalves, Emanuel Oliveira, Bernardo Cruz, Elisabete Martins, Rui André Rodrigues

ULS São João.

Conduction disturbances are among the most common and concerning complications following transcatheter aortic valve implantation (TAVI), with new-onset left bundle branch block (LBBB) being the most frequently observed. This issue is particularly critical in patients with pre-existing right bundle branch block (RBBB), as it increases the risk of advanced heart block and need for pacemaker implantation. In this study, we investigated patients with RBBB who underwent TAVI to identify potential predictive factors for pacemaker implantation. We reviewed all TAVI procedures performed at our center between January 1, 2023, and June 30, 2024 (18 months). The minimum follow-up period was 6 months post-TAVI. Statistical analysis was conducted using the Chi-square test of independence via SPSS software. Among 317 patients, 24 (8%) had pre-existing RBBB (mean age: 80 years). Of these, 10 had atrial fibrillation (AF), and 9 presented with additional conduction disturbances, such as first-degree atrioventricular (AV) block or left anterior/posterior hemiblock. Following guideline recommendations, 16 of the 24 patients (67%) required pacemaker implantation after TAVI. No significant association was found between the need for pacemaker implantation and additional conduction disturbances, AF, or the type of valve used ($p > 0.05$). Our findings indicate that two-thirds of patients with RBBB required pacemaker implantation following TAVI. However, the lack of significant associations with the variables analyzed highlights the challenge of predicting pacemaker necessity in this population. Notably, all pacemaker implantations occurred during the same hospitalization as the TAVI procedure, suggesting that conduction disturbances are most likely to emerge in the immediate postoperative period, potentially influenced by valve characteristics. In conclusion, RBBB patients undergoing TAVI require close monitoring, as more than half will need pacemaker implantation. Larger studies are warranted to identify potential predictive factors for pacemaker implantation in this high-risk cohort.

PO 131. STRATEGIC TIMING IN TEER: SURVIVAL IMPLICATIONS FOR MITRAL REGURGITATION IN HEART FAILURE

Marta Leite, Fábio Nunes, Inês Neves, Diogo Ferreira, Gualter Santos Silva, Pedro Teixeira, Gustavo Pires-Morais, José Ribeiro, Bruno Melica, Pedro Braga, Ricardo Fontes-Carvalho

ULSGE.

Introduction: Transcatheter edge-to-edge repair (TEER) is a minimally invasive strategy for treating moderate-to-severe mitral regurgitation (MR) in patients with heart failure, improving quality of life and reducing heart failure hospitalizations. This study compares survival outcomes in patients undergoing elective TEER versus those treated urgently during hospitalization for acute decompensated heart failure.

Methods: A retrospective cohort study was conducted, including 178 patients with moderate-to-severe MR who underwent TEER at our

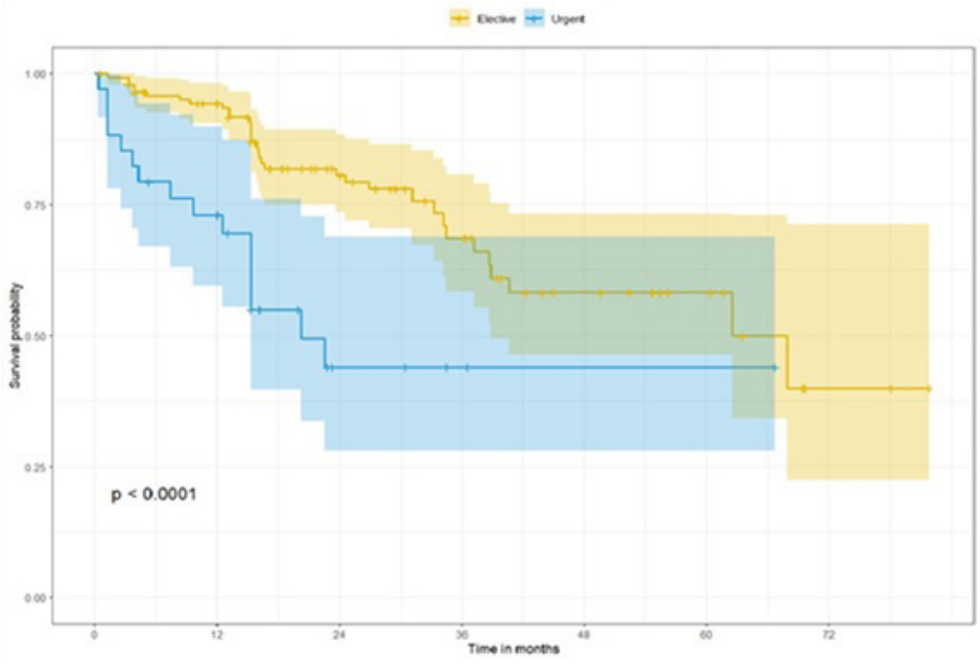


Figure PO 131

center. Patients were categorized into elective (n = 144) and urgent (n = 34) groups. Baseline characteristics, including demographics, cardiovascular comorbidities, echocardiographic findings, and biomarkers (e.g., NTproBNP, EuroSCORE II), were recorded. Survival was assessed using the Cox proportional hazards model, with urgency of intervention as the primary predictor. Kaplan-Meier curves were generated to compare survival probabilities visually between groups.

Results: Urgent TEER was associated with significantly higher mortality compared to elective TEER (Figure 1). The Cox model yielded a hazard ratio (HR) of 3.19 (95%CI: 1.74-5.85, p < 0.001), indicating a threefold increase in mortality risk for urgent procedures. Model fit statistics, including likelihood ratio, Wald, and log-rank tests, were all highly significant (p < 0.001), supporting the robustness of the findings. The model's concordance index was 0.633, suggesting moderate discrimination. Kaplan-Meier analysis revealed a stark contrast in survival curves, with the urgent group showing significantly reduced survival probabilities over time (log-rank p < 0.0001).

Conclusions: Urgent TEER during acute heart failure hospitalization is associated with markedly higher mortality compared to elective procedures. These findings underscore the value of early MR detection and proactive intervention planning to avoid urgent settings, which are linked to poorer outcomes. Clinical compensate and discharge patients when possible, performing TEER electively in an ambulatory context can improve survival and reduce the clinical burden of acute heart failure. This evidence supports timely decision-making to enhance outcomes in high-risk MR patients.

Sexta-feira, 11 Abril de 2025 | 15:00-16:00

Área de Posters-écran 2 | Sessão de Posters 21 – IC e prognóstico

PO 132. THE ABCDE SCORE: A SIMPLE TOOL FOR PREDICTING 3-MONTH MORTALITY IN ACUTE HEART FAILURE PATIENTS

Diogo Rosa Ferreira[1], Ana Abrantes[1], João Lucas Temtem[2], Fátima Salazar[3], Ana Francês[3], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto Pinto[1], Dulce Brito[1], João Agostinho[1]

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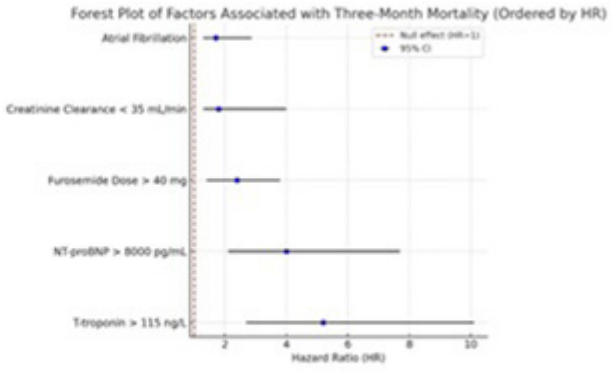
Introduction: Acute heart failure (HF) is a leading cause of morbidity and mortality, with diverse clinical presentations complicating risk prediction and the identification of patients needing hospitalization. Early recognition of high-risk patients is crucial for guiding management and improving

Baseline Patient Characteristics	
Number of patients	187
Age (years) - mean ± SD	82.4 ± 9,5
Female sex (%)	62
Ischemic cardiac disease (%)	27
Hypertension (%)	80
Dyslipidemia (%)	63
Diabetes (%)	36
Atrial Fibrillation (%)	52
LVEF (%) - mean ± SD	50 ± 14
Baseline NTproBNP (pg/mL) - mean ± SD	14831± 6534
Creatinine Clearance (mL/min) mean ± SD	44 ± 21
T Troponin (ng/L) mean ± SD	103 ± 203



	Condition	Description	Points
A	Atrial Fibrillation	Presence of atrial fibrillation	1
B	BNP > 800 pg/mL	NTproBNP>800pg/mL	2
C	Cardiac Damage (Troponin T)	Troponin T > 115 ng/L	2.5
D	Diuretic Dose (Furosemide)	Furosemide > 40 mg	1.5
E	Estimated Glomerular Filtration Rate (eGFR)	eGFR < 35 mL/min	1

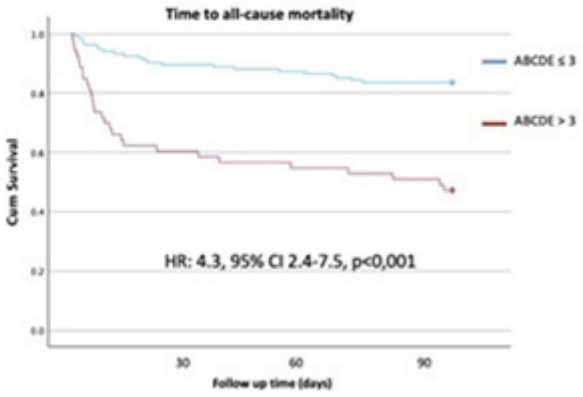


Figure PO 132

outcomes. This study aimed to identify clinical and biomarker-based predictors of 3-month mortality in HF patients and to develop a simple risk score to aid in mortality risk stratification and admission decisions.
Methods: This retrospective, single-center study included 187 consecutive patients diagnosed with acute HF who presented to a tertiary care emergency department between January and March of 2023. Cox regression and Receiver operating characteristics (ROC) analysis were used to identify predictors of short-term mortality and to develop a scoring system for identifying high-risk patients who may benefit from inpatient care.
Results: The cohort had a mean age of 82.4 years, with 62% of female patients and a baseline mean left ventricular ejection fraction of 50%. Among patients, 28% presented with peripheral congestion, 13%, with pulmonary congestion and 59% with both. Of the total, 57% were hospitalized, and 27% had died by the 3-month follow-up. Significant predictors of mortality included atrial fibrillation (HR: 1.7; 95%CI: 1.3-2.87; p = 0.04), estimated glomerular filtration rate (eTGF) < 35 mL/min/1.73 (HR: 1.8; 95%CI: 1.3-4.0, p = 0.004), NT-proBNP level > 8000 pg/mL (HR: 4.0; 95%CI: 2.1-7.7; p < 0.001), T-troponin > 115 ng/L (HR: 5.2; 95%CI: 2.7-10.1; p < 0.001), and a furosemide dose > 40 mg (HR: 2.4; 95%CI: 1.4-3.8; p = 0.03). Based on these factors, the ABCDE scoring system was developed, assigning: 1 point for Atrial fibrillation or Creatinine clearance < 35 mL/min; 2 points for NT-proBNP > 8,000 pg/mL; 2.5 points for Cardiac damage, defined by T-troponin > 115 ng/L; 1.5 points for furosemide Dose > 40 mg; 1 point for EGFR < 35 ml/min/1.73. We calculated individual scores for each patient and identified an optimal cutoff point to best predict 3-month mortality risk. Patients with a score greater than 3 were found to have a 4.3-fold higher risk of mortality at 3 months (HR: 4.3; 95%CI 2.4-7.5, p < 0.001). Among patients with a score greater than 3, 53% of those discharged died, while only 28% of those admitted died during the follow-up period.
Conclusions: The ABCDE scoring system effectively stratifies mortality risk in acute HF patients using key and readily available predictors such as atrial fibrillation, impaired renal function, elevated NT-proBNP and T-troponin and high usual furosemide doses. Patients with scores > 3 had significantly increased 3-month mortality, with discharged patients showing a higher mortality rate than those admitted. This scoring system provides clinicians with a practical tool for identifying high-risk patients that can benefit from being admitted.

PO 133. PORTUGUESE VERSION VALIDATION AND PREDICTIVE PERFORMANCE OF THE HEART FAILURE SYMPTOM TRACKER (HFAST) FOR 3- AND 6-MONTH HOSPITALIZATIONS

Inês Antunes Perez[1], Joana Seringa[2], Teresa Magalhães[2], Ana Teresa Timóteo[1]

[1]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [2]Escola Nacional de Saúde Pública.

Introduction: Heart Failure (HF) is a global public health challenge with high morbidity and mortality rates. Effective symptom management tools, such as the Heart Failure Symptom Tracker (HFaST), improve early detection of worsening symptoms and support the prediction of hospitalisation risk, as the European Cardiology Society recommends. This study aimed to validate a translated version of the HFaST tool in a Portuguese sample of patients with HF and confirm its ability to predict HF hospitalisations at 3 and 6 months.
Methods: This single-centre Portuguese cross-sectional study was conducted at one Outpatient HF Consultation. Inclusion criteria were adult patients diagnosed with HF and followed up at this consultation. Exclusion criteria were applied to individuals unable to read, answer, or complete questionnaires. A baseline demographic and clinical assessment were collected, along with the Portuguese versions of the HFaST tool and the KCCQ-23. HF-related hospitalisations were monitored at 3- and 6-months post-questionnaire completion.
Results: This study included 60 participants (24 females and 36 males, mean age 63.8 ± 11.8 years). Ischaemic heart disease was the leading cause of HF (43.3%), with most in NYHA classes I (36.7%) and II (50%) and 23.4% reported prior HF-related hospitalisations. The Portuguese HFaST version demonstrated acceptable reliability, with a Cronbach's Alpha of 0.724 and showed moderate to strong inter-item correlations. Significant inverse correlations were observed between the HFaST and corresponding KCCQ-23 items, supporting its psychometric validity in assessing symptoms in HF patients. Univariable linear regression analysis revealed a significant association between higher HFaST scores and the likelihood of hospitalisation at both 3 months (β = 0.218, p = 0.014, Exp(B) = 1.243) and 6 months (β = 0.247, p = 0.023, Exp(B) = 1.280). ROC curve analysis demonstrated moderate to high predictive power, with AUC = 0.803 for 3 months and AUC = 0.822 for 6 months, confirming the HFaST scores' capacity to predict hospitalisation risk over both periods.
Conclusions: The Portuguese version of the HFaST demonstrated reliable psychometric validity and predictive capacity for short-term HF-related hospitalisations in the Portuguese population. Despite the limitation of not adjusting for confounders in the regression analysis, this study supports the HFaST as an effective screening tool for identifying high-risk HF patients, guiding personalised interventions for better disease management, and preventing hospitalisations.

PO 134. EJECTION FRACTION IN HEART FAILURE AND INTENSIVE CARE ADMISSION: WHAT IS THE PROGNOSTIC IMPACT?

Rita Bertão Ventura, Mafalda Griné, Inês Brito e Cruz, Maria João Primo, Didier Martinez, Tomás Carlos, Luísa Rocha, Bernardo Resende, Catarina Mendes Silva, Manuel Oliveira-Santos, Lino Gonçalves

ULS Coimbra.

Introduction: The impact of ventricular dysfunction on the prognosis of heart failure (HF) patients admitted to the Intensive Care Unit remains unclear. This study aimed to characterize ICU HF patients and assess the prognostic impact of ventricular dysfunction stratified by ejection fraction (EF).

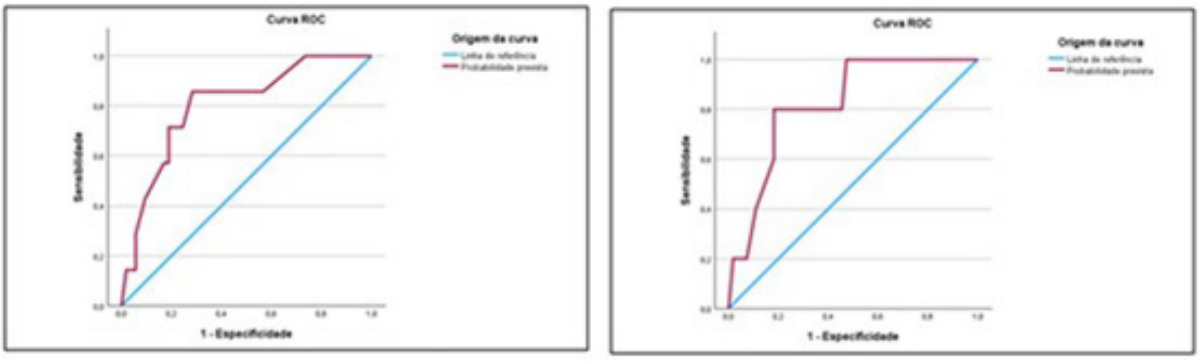
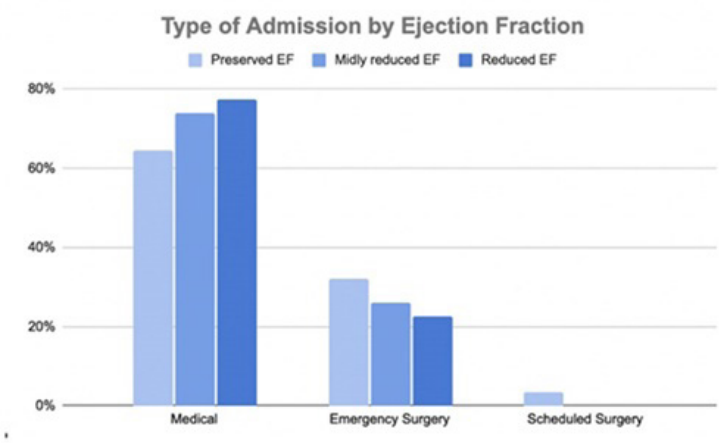


Figure 1. ROC curves evaluating the predictive capacity of HFaST scores for HF-related hospitalisations at 3 months (left) and 6 months (right). The areas under the curve (AUC) were 0.803 and 0.822, respectively, indicating moderate to high predictive power for both timeframes.

Figure PO 133



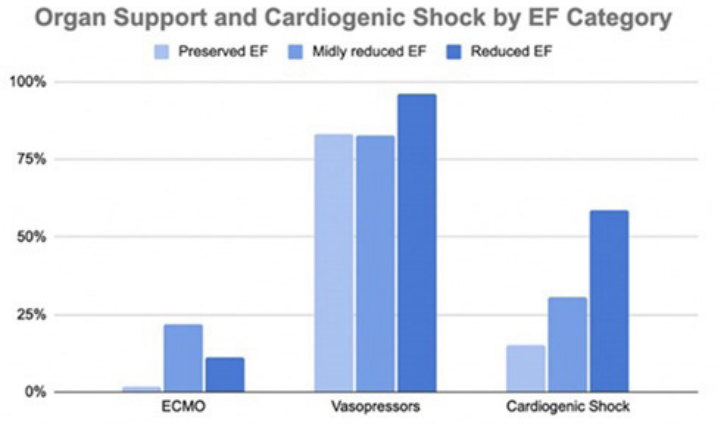


Figure PO 134

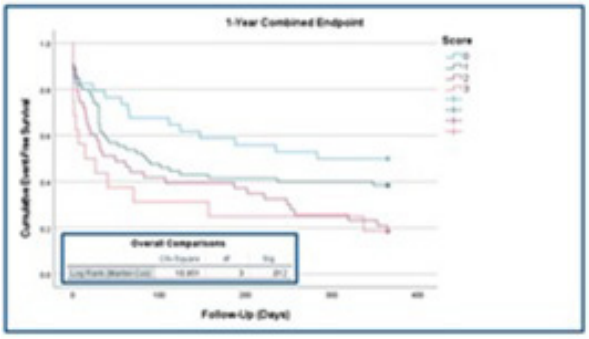
Methods: This was a single-centre retrospective cohort study analyzing patients admitted to the ICU with HF at admission between 2020 and 2023. Patients were categorized into three groups based on EF: preserved EF (pEF), mildly reduced EF (mrEF), and reduced EF (rEF). A descriptive analysis of the study population was conducted. This included the type of admission, the need for organ support (such as ECMO and vasopressors), the presence of cardiogenic shock, and laboratory parameters, like lactate and BNP levels. The primary endpoint was all-cause mortality at 30 days and 1 year. Secondary endpoints included rehospitalization rates at 30 days and 1 year, ICU length of stay, and total hospital length of stay.
Results: A total of 135 patients (mean age 66.5 ± 13.0 years, 68.1% male) were included in the study. Of these, 96 (71.1%) were admitted for medical reasons, 37 (27.4%) for emergency surgery, and 2 (1.5%) for scheduled surgery. The patients were categorized into 3 groups: pEF (n = 59, 43.7%), mrEF (n = 23, 17.0%), and rEF (n = 53, 39.3%). The use of ECMO differed significantly between the groups (p = 0.012), being more frequent in rEF (n = 6, 11.3%; p = 0.036) and mrEF (n = 5, 21.7%; p = 0.006) compared to pEF (n = 1, 1.7%). Similarly, vasopressor use showed significant differences (p = 0.043), with rEF (n = 51, 96.2%) using vasopressors more frequently than pEF (n = 49, 83.1%; p = 0.032). Significant differences were observed in lactate (p = 0.008) and BNP (p = 0.046) levels. Cardiogenic shock was significantly more common in rEF (n = 31, 58.5%) than in pEF (n = 9, 15.3%; p < 0.001) and mrEF (n = 7, 30.4%; p = 0.045). No statistically significant differences were found in 30-day mortality (p = 0.631) or 1-year mortality (p = 0.085) between groups. Likewise, rehospitalization rates at 30 days (p = 1.000) and 1 year (p = 0.716) were comparable. Additionally, ICU and total hospital length of stay did not differ significantly (p = 0.316 and p = 0.185).
Conclusions: The study suggests that while ventricular dysfunction was associated with increased use of advanced therapies such as ECMO and vasopressors, as well as more severe clinical presentation, it did not significantly affect short- or long-term survival.

PO 135. A NOVEL RISK SCORE COMBINING BIOMARKERS OF HYPERVOLEMIA PREDICTS 1-YEAR OUTCOMES IN HEART FAILURE PATIENTS WITH PRESERVED EJECTION FRACTION

Tiago Filipe Aguiar

Unidade local de saúde Região de Aveiro.

Introduction: Heart failure (HF) with preserved ejection fraction (HFpEF) encompasses a wide range of phenotypes with different prognostic implications. There is a need for biomarkers and score systems that can identify which patients are at highest risk and require closer follow up and more intensive treatment.
Objectives: To evaluate the independent prognostic value of biomarkers indictive of hypervolemic status, and to create a novel risk score to predict future events.
Methods: We performed a cohort analysis of HFpEF patients admitted to the cardiology ward due to acute/chronic decompensated HF. We selected the following variables to assess the volemic status: 1) high estimated plasma volume status (ePVS), calculated from hematocrit and hemoglobin values, with a cut-off of ≥ 5 ml/g ; 2) hyponatremia, with a cut off of ≤ 134 mmol;



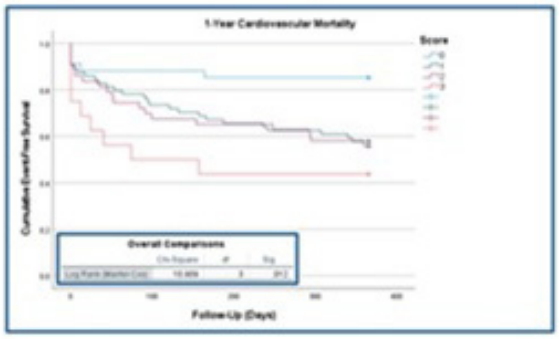


Table 1 - Risk Factors and Co-Morbidities Distribution

Major CV Risk Factors			Important Co-Morbidities		
Hypertension	90	56,60%	Atrial Fibrillation	71	44,70%
Diabetes Mellitus	61	38,40%	Chronic lung disease	40	25,20%
Dyslipidemia	47	29,60%	Coronary artery disease	32	20,10%
			Chronic kidney disease	23	14,50%
			Liver cirrhosis	4	2,50%

Figure PO 135

3) high NTpro-BNP levels, with a cut-off of ≥ 1,000 pg/mL; 4) high blood urea to creatinine (BUN/Creat) ratio with high serum creatinine levels, with a combined cut-off of creatinine ≥ 1.5 mg/dL and BUN/Creat ≥ 30 mg/dL. A composite endpoint CE of cardiovascular mortality and hospital admissions at 1 year was utilized. With these variables, a novel score system was created and tested against the CE with Kaplan-Meier survival curve and multivariate Cox Regression analysis.
Results: Our cohort included 159 patients with HFpEF with at least one hospital admittance due to HF, of which 60% were male, with a mean age of 77 years old. There was a high frequency of cardiovascular risk factors (CVRF) and co-morbidities (Table 1). In our analysis, ePVS had the strongest association with the CE (log-rank 4.25, p = 0.39); HypoNa and BUN/Creat were also positively associated with the CE (log-rank 3.67, p = 0.05 and 3.86, p = 0.05, respectively). NTpro-BNP was strongly associated with cardiovascular death alone, but not with the CE. A novel score system was created, where high ePVS, hyponatremia and high BUN/Creat were each awarded 1 point. There was a strong association between this score and the CE (log-rank 10.95, p = 0.01), confirmed in a multivariate adjustment for cardiovascular risk factors and comorbidities (hazard ratio 1.35, p = 0.01) (Figure 1). Interestingly, this score was also strongly associated with cardiovascular mortality alone (log-rank 10.91, p = 0.01).
Conclusions: The biomarkers of hypervolemia and the novel scoring system were independent predictors of future cardiac events and could serve as an effective tool to identify high-risk patients in this population.

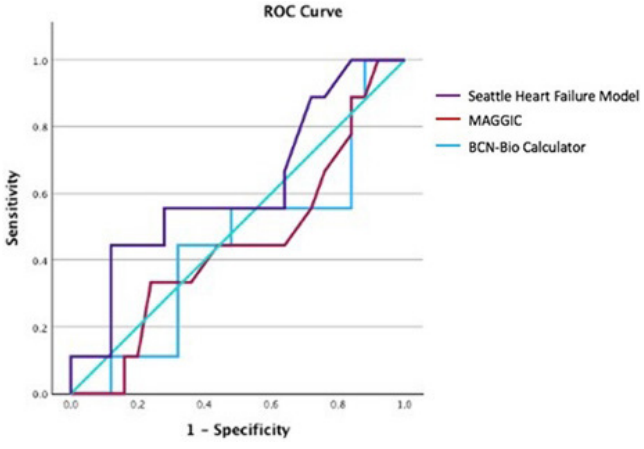
PO 136. PERFORMANCE OF MORTALITY RISK SCORES IN ADVANCED HEART FAILURE PATIENTS: A RETROSPECTIVE COHORT STUDY

Francisco Salvaterra[1], Catarina Gregório[1], João Fernandes Pedro[1], Fátima Salazar[2], Ana Francês[2], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[3], Nuno Lousada[1], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Cardiology, Hospital de Santa Maria (ULSSM). [3]Serviço de Medicina Intensiva e Equipa de Insuficiência Cardíaca - Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Heart failure (HF) prognostic scores to predict mortality risk are widely used, however their predictive accuracy may be reduced in certain subsets of patients. Patients with advanced HF who are receiving intermittent inotropic therapy were not used to derive these score models, so their accuracy to predict mortality in this population is unknown.

Objectives: This study aims to evaluate the performance of three commonly used heart failure prognostic scores for predicting 1-year mortality in a population of advanced HF patients receiving intermittent inotropic therapy.
Methods: Retrospective, single-centre study of patients with advanced HF receiving intermittent levosimendan infusions. Three mortality risk scores - Seattle HF Model, BCN Bio-HF Calculator and MAGGIC Risk Calculator - were used to calculate the predict 1-year mortality. The predictive accuracy of each score was evaluated using the area under the curve (AUC) derived from receiver operating characteristic (ROC) curve analysis using the observed mortality. AUCs were compared using the DeLong method.
Results: Among a cohort of 34 patients with advanced HF receiving intermittent levosimendan, with a median age of 68 (IQR 63-73) years, a median left ventricle ejection fraction of 24% (IQR 16-27%), the majority in NYHA Class III or IV (97.1%), the observed 1-year mortality rate was 26.5%. All the three prognostic scores showed insufficient predictive accuracy for 1-year mortality. The Seattle HF Model demonstrated the highest predictive accuracy with an AUC of 0.618 (95%CI: 0.395-0.841; p = 0.301) (Figure 1). The AUCs for the BCN-Bio HF Calculator and the MAGGIC Risk Calculator were both 0.419 (95%CI: 0.226-0.671; p = 0.652) (Figure 1). No statistically significant difference was found between the AUCs of each of the three scores as assessed by the DeLong test, supporting the fact that the prognostic ability of each score was very limited.



Conclusions: The findings of this study suggest that current scoring systems may not fully capture the whole clinical spectrum of advanced heart failure patients under supportive therapies that are still not fully proven. Future studies should explore the development of more tailored prognostic tools.

PO 137. CLINICAL CHARACTERISTICS AND OUTCOMES OF DE NOVO VERSUS ACUTE DECOMPENSATED HEART FAILURE: ARE THEY SIMILAR?

Ana Rodrigo Costa, José Luís Ferraro, Mauro Moreira, Bruno Bragança, Rafaela G. Lopes, Inês Gomes Campos, Joel Ponte Monteiro, Liliana Reis, Aurora Andrade

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Acute heart failure (AHF) is a heterogeneous clinical syndrome and it's the number one cause of unplanned hospitalization among individuals above 65 years old. AHF carries a high risk of morbidity and mortality. One of the existing classifications divides acute HF into de novo (DNHF) or acute decompensated chronic heart failure (ADCHF). Understanding these subgroups characteristics and outcomes may have important implications for treatment and prognosis.
Objectives: The aim of this study was to evaluate clinical characteristics and long-term outcomes of patients hospitalized with AHF according to DNHF and ADCHF.
Methods: Retrospective single-center cohort study of patients admitted for AHF throughout 2022, divided into two groups: DNHF and ADCHF. The primary composite outcomes were readmission for AHF, cardiovascular death and all-cause death.
Results: In a total of 265 patients, 152 were included in DNHF group (74.6% male, 25.7% female) and 113 were included in ADCHF group (59.3% male, 40.7% female). Prevalence of patients with DNHF was higher under 65 years old (p = 0.039). Comorbidities, such as hypertension, diabetes, dyslipidemia, atrial fibrillation and chronic coronary syndrome were more frequent in ADCHF. Conversely, this study also revealed that acute coronary syndrome was present as a precipitating factor in 27.6% of DNHF, versus 7.1% in ADCHF (< 0.001). For ADCHF, laboratory findings revealed lower haemoglobin (p < 0.001) and lower estimated glomerular filtration rate (p = 0.009) compared to DNHF. In terms of combined endpoint, ADCHF was associated with a worse outcome (p < 0.001). On the other hand, in DNHF there was a statistically significant improvement in terms of ejection fraction 1 year after discharge (p = 0.005). ADCHF patients had more urgent HF visits (p = 0.002), greater needs for oral diuretic up-titration (p = 0.007) and more unplanned HF hospitalizations (p = 0.025). There were no significant differences in cardiovascular or all-cause mortality between groups.
Conclusions: Our study has revealed several clinical characteristics and outcomes between DNHF and ADCHF, with the latter demonstrating a worse prognosis. These findings highlighted the need for individualized treatment strategies for better patient care. Therefore, we need to continue researching strategies that can help prevent episodes of decompensation.

Sexta-feira, 11 Abril de 2025 | 15:00-16:00

Área de Posters-écran 3 | Sessão de Posters 22 – LVAD/Transplantação cardíaca

PO 138. HEART TRANSPLANT IN ACUTELY ILL PATIENTS: TIME ON WAITING LIST AND 1-YEAR MORTALITY

Ana Rita Bello, Rita Almeida Carvalho, Márcia Presume, Rita Amador, Sérgio Maltês, Bruno ML Rocha, Catarina Brízido, António Tralhão, Christopher Strong, Marta Marques, Carlos Aguiar

Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: In selected advanced heart failure (HF) patients, heart transplant (HT) can improve both symptoms and prognosis. Improvements in HF therapy and the growing recognition of advanced HF, have led to an increasing number of HT candidates and longer waiting list times.
Objectives: We aimed to assess waiting list times for HT, comparing different groups of severity of patients who underwent a HT, and the impact on patient outcomes.
Methods: This retrospective, single-center study included HT recipients from January 2018 to September 2024. Patients were classified according to their status before HT: outpatient setting (group A), admission due to acute HF (group B), and cardiogenic shock under short-term mechanical circulatory support (MCS) (group C). Demographic characteristics, waiting list times, and outcomes were compared using non-parametric analysis and Kaplan-Meier survival curves.
Results: A total of 76 patients were included (68% male), with a mean age of 50 years (± 11). The most common HF etiology was ischemic heart disease (39%). A total of 34 (45%) patients were in class INTERMACS 1-3. The cohort comprised 42 patients who were electively admitted for HT (4 under intermittent levosimendan, 7 with durable LVAD), 18 patients who underwent HT in the setting of acute decompensated HF (4 on intravenous furosemide, 5 on intermittent levosimendan, and 9 on continuous iv inotropes), and 16 patients who were being treated in the cardiac intensive care unit and required MCS at the time of HT (8 on VA-ECMO, 5 on BiVAD, 3 on IABP). In-hospital mortality during HT admission was 8% (6 patients). Overall survival after HT was 85% during the first 12 months. The median time on waiting list for HT was 128 days (IQR 63-314) for elective patients (group A), 26 days (IQR 12-128) for patients with acute HF (group B), and 7 days (IQR 3-17) for those dependent on short-term MCS (group C). Despite prolonged hospitalizations and a higher incidence of complications (including infections and ICU-acquired weakness, p = 0.003), patients in groups B and

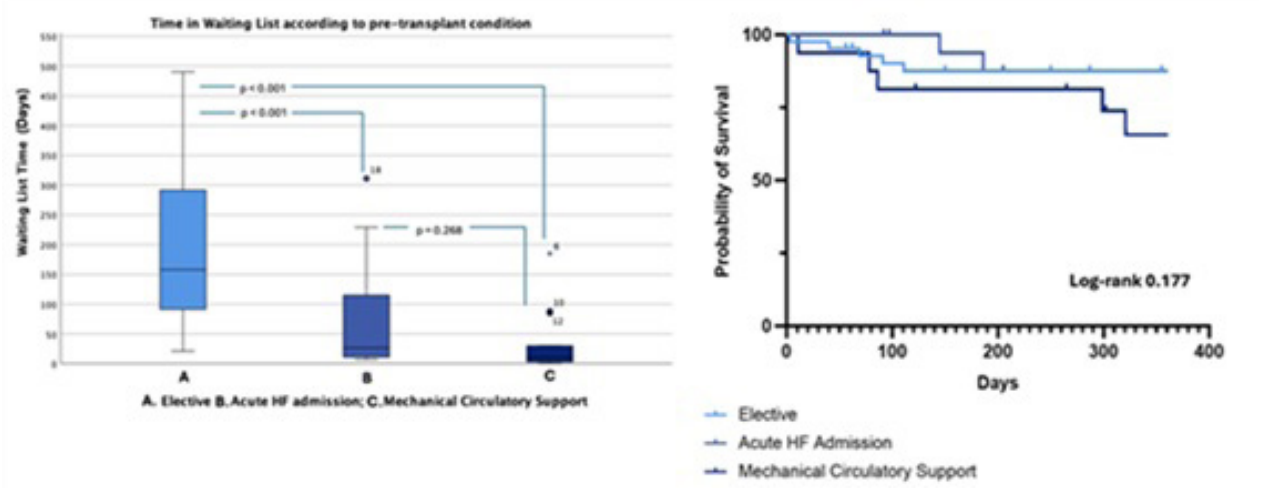


Figure PO 138

C had similar 12-month survival compared with elective patients (log-rank 0.177, p = 0.151) (Figure 1).
Conclusions: Patients with advanced HF admitted for acute decompensation, with or without need for short-term MCS, had significantly shorter waiting list times compared with elective HT candidates. Despite having a higher complication burden during their admission, these patients had similar 12-month survival rates compared to those admitted electively for a HT.

PO 139. IMPACT OF THE HEARTMATE 3 ON QUALITY OF LIFE IN HEART FAILURE: A STUDY USING EQ-5D-5L

Inês Coutinho Dos Santos[1], Márcia Presume[2], Cátia Sampaio[2], Sérgio Maltês[2], Bruno Rocha[2], Catarina Brízido[2], Christopher Strong[2], Marta Marques[2], Carlos Aguiar[2]

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Introduction: Advanced heart failure (HF) significantly impairs quality of life (QoL) due to severe symptom burden and functional limitations. Implantation of durable left ventricular assist devices (LVADs) such as HeartMate 3™ (HM3) has been shown to prolong life and improve QoL in eligible patients.
Objectives: To assess and compare QoL in advanced HF patients before and after HM3 implantation using the EuroQoL-5 Dimensions-5 Levels (EQ-5D-5L) questionnaire.
Methods: This cohort study included all patients currently or previously under HM3 support, followed at our center. QoL was assessed with the Portuguese telephone version of EQ-5D-5L, and responses were converted into scores using the Portuguese value set. Normality tests guided the selection of paired-samples t-test and Wilcoxon Signed Rank test for comparisons of pre- and post-HM3 scores. The latter was also compared with the societal values that serve as a reference score for the Portuguese population. Statistical significance was set at $p < 0.05$.
Results: Fourteen patients (mean age 55.9 years) with severe cardiac dysfunction (mean LVEF 20.0% ± 7.1%) were included. The most frequent etiology was ischaemic (57.1%), followed by dilated (28.6%) cardiomyopathy. Most patients were in INTERMACS profiles 2 or 3 at implantation, with 57.1% receiving HM3 as a bridge to transplantation and 14.3% with the goal of destination therapy. After a median LVAD duration of 19.5 months [16.0-32.0] months, QoL showed significant improvement: median EQ-VAS rose from 20.0 to 70.0 (p = 0.008), and mean EQ-5D-5L index increased from 0.347 to 0.895 (p = 0.001, 95%CI 0.230-0.867). Domain analysis revealed significant reductions in problems related to mobility (p = 0.006), usual day activities (p = 0.003), pain/discomfort (p = 0.044) and anxiety/depression (p = 0.041), while self-care limitations remained unchanged. Post-HM3 implantation QoL was comparable to the general Portuguese population (p = 0.388) and superior to the chronic disease subgroup (p = 0.011).
Conclusions: Advanced HF patients receiving HM3 experience significant QoL improvements, achieving levels similar to the general Portuguese population and exceeding those of patients with chronic diseases. These findings align with existing literature, including the HM3 ELEVATE registry.

PO 140. ASSESSMENT OF PALLIATIVE CARE NEEDS IN ADVANCED HEART FAILURE PATIENTS WITH LEFT VENTRICULAR ASSIST DEVICES

Inês Coutinho dos Santos[1], Márcia Presume[2], Cátia Sampaio[2], Sérgio Maltês[2], Bruno Rocha[2], Catarina Brízido[2], Christopher Strong[2], Marta Marques[2], Carlos Aguiar[2]

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Introduction: Durable left ventricular assist device (LVAD) implantation is a well-recognized trigger for specialist palliative care (PC) referral, as recognized by international guidelines. Despite the well-documented PC needs of this population, longitudinal PC integration remains rare in advanced heart failure (HF). Proper screening for these needs is critical to reduce suffering and improve quality of life.
Objectives: To evaluate the prevalence and characteristics of PC needs in patients under HeartMate 3™ (HM3) support, using the Integrated Palliative care Outcome Scale (IPOS).
Methods: This cross-sectional study included all patients on HM3 support at a single center. The Portuguese patient version of IPOS was administered once to assess holistic symptom burden over the preceding week. Clinically significant unmet needs were defined as items scored ≥ 2 and required feedback to the attending physician for further assessment or referral.
Results: Eleven patients (mean age 58.2 years) with HM3 support were included. LVAD was implanted for ischemic cardiomyopathy in 63.6% of cases and as a bridge to transplantation in 54.5%, with other goals including bridge to candidacy (27.3%) and destination therapy (18.2%). At a mean LVAD duration of 23.2 ± 10.6 months, 72.7% exhibited unmet PC needs, with a mean overall score of 7.73 ± 6.54 (out of 68). As main problems, two patients identified anxiety about future transplantation. 36.4% presented at least one clinically relevant physical symptom with weakness being the most troublesome. As additional symptoms, 63.6% of patients spontaneously described slight-to-moderate dizziness. Psychological needs were dominated by health-related anxiety, with a minority reporting mild depression (18.1%). On the other hand, 27.3% reported moderate spiritual distress. All patients felt adequately informed about their condition. Family anxiety (45.5%) and only partly addressed practical issues such as financial concerns (27.3%) represented the most common social challenges. Interventions following IPOS screening included one hospitalization for symptom management, three referral suggestions for social worker (n = 2) and psychological (n = 1) intervention. There were no significant differences between the IPOS overall score and NYHA functional classes (p = 0.088).

EQ-5D-5L	Prior to HeartMate 3 (n=14) mean±SD or median [IQR]	Under HeartMate 3 (n=14) mean±SD or median [IQR]	p	95% CI
Mobility	0,182 [0,000-0,356]	0,000 [0,000-0,048]	**0,006**	–
Self-care	0,024 [0,000-0,294]	0,000 [0,000-0,070]	0,242	–
Usual activities	0,199 [0,063-0,263]	0,022 [0,000-0,044]	**0,003**	–
Pain/discomfort	0,000 [0,000-0,254]	0,000 [0,000-0,000]	**0,044**	–
Anxiety/depression	0,060 [0,000-0,212]	0,000 [0,000-0,036]	**0,041**	–
EQ-5D-5L index	0,347±0,520	0,895±0,106	**0,001**	0,230 – 0,867
EQ-VAS	20,0 [10,0-30,0]	70,0 [65,0-70,0]	**0,008**	–

	HeartMate 3	Portuguese general population	p	95% CI	Portuguese chronic disease subgroup	p	95% CI
EQ-5D-5L index, mean	0,895	0,887	**0,388**	-0,527 – 0,069	0,822	**0,011**	0,012 – 0,134

Figure PO 139

IPOS Dimensions	Patients under HM3 (n=11)				
	Subscore		Palliative Care Needs, n (%)		
	median (IQR)	min-max	Yes	Moderate	Severe or Overwhelming
Physical [0-40]	2,0 (0,5-3,0)	0-20	4 (36,4)	2 (18,2)	2 (18,2)
Psychological [0-8]	1,0 (0,0-2,0)	0-4	5 (45,5)	3 (27,3)	2 (18,2)
Spiritual [0-4]	0,0 (0,0-1,0)	0-2	3 (27,3)	3 (27,3)	0 (0,0)
Information [0-4]	0,0 (0,0-0,0)	0-0	0 (0,0)	0 (0,0)	0 (0,0)
Social [0-12]	1,0 (0,5-4,5)	0-8	5 (45,5)	1 (9,1)	4 (36,4)

IPOS Score	Patients under HM3 (n=11)	
	mean ± SD	min-max
Overall IPOS score [0-68]	7,73 ± 6,54	0-31
Transformed IPOS score [0-100]	11,36 ± 9,62	0-21

Figure PO 140

Conclusions: To the best of our knowledge, IPOS had never been applied to patients under LVAD support before, although clinically validated in advanced HF. While LVADs enhance survival and quality of life, significant unmet PC needs persist in this population. This study highlights the utility of IPOS in identifying these needs. Repeated use of IPOS may provide valuable insights for tracking changes over time and tailoring interventions. Further research is needed to assess the impact of systematic PC screening on quality of life in LVAD-supported patients.

PO 141. CAUSES AND PROGNOSTIC IMPLICATIONS OF HOSPITAL ADMISSIONS FOLLOWING SUCCESSFUL HEART TRANSPLANTATION

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Introduction: Hospitalizations after successful heart transplantation (HT) are common and can occur for several reasons. However, there is limited data regarding their leading causes, timing and potential prognostic impact.
Methods: We conducted a single-center retrospective study of patients who underwent HT between 2018 and 2024 and survived to discharge. Patients with subsequent hospitalizations were characterized with respect to cause of admission, associated immunosuppression (IS), and total number of days spent in hospital. Additionally, the association between hospitalizations and all-cause mortality was evaluated and stratified according to the time elapsed since HT.
Results: The study population comprised 70 HT recipients (mean age 51 ± 11 years; 33% women). During the median follow-up of 646 days [IQR 327-1412], 10 patients died (14.3%). Overall, 31 patients (44%) were hospitalized at least once during follow-up (17 patients had ≥ 2 hospitalizations; maximum 8 hospitalizations per patient). Median time from HT to first hospitalization was 109 days [IQR 27-464]. Median length-of-stay was 16 days [IQR 9-52]. The first hospitalization occurred in the first year post-HT in 21 patients. Infections were the leading cause of hospitalization in this group (62%) (Figure 1), and 46% of these infections were linked to supratherapeutic IS. Rejection accounted for 24% of the remaining hospitalizations, and 40% of these were linked to subtherapeutic IS. Other causes of hospitalization included IS toxicity (9%). In-hospital mortality for the first hospitalization in the first year post-HT was 2.9%. The first hospitalization occurred after the first year post-HT in 10 patients. The cause of these admissions was infection in 30% of cases, of which 50% were linked to supratherapeutic IS. IS toxicity was the cause of another 20% of hospitalizations after the first year post-HT. No cases of acute allograft rejection were reported. In-hospital mortality for hospitalizations beyond the first year post-HT was 0%. All-cause mortality was higher among patients hospitalized within the first year post-HT compared with those without any hospitalization during follow up [HR 5.49; 95%CI 1.42-21.27, p = 0.014] (Figure 2). Patients with a first hospitalization after the first year post-HT had similar mortality compared with those without any hospitalization. Infection-related hospitalizations any time after HT were also associated with higher all-cause mortality [HR 5.43; 95%CI 1.40-21.04; p = 0.014] (Figure 3). Other causes of hospitalization did not impact subsequent survival.

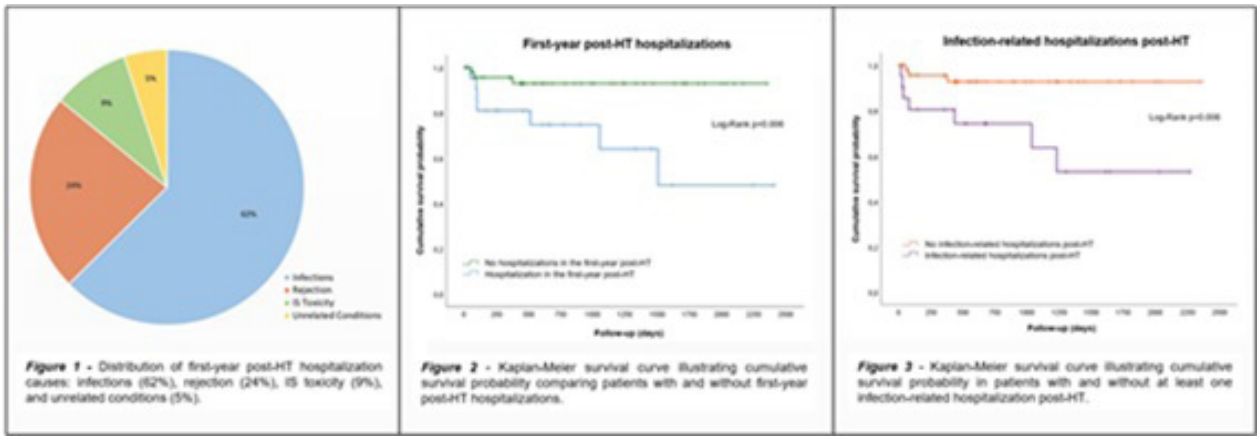

Figure 1 - Distribution of first-year post-HT hospitalization causes: infections (62%), rejection (24%), IS toxicity (9%), and unrelated conditions (5%).

Figure 2 - Kaplan-Meier survival curve illustrating cumulative survival probability comparing patients with and without first-year post-HT hospitalizations.

Figure 3 - Kaplan-Meier survival curve illustrating cumulative survival probability in patients with and without at least one infection-related hospitalization post-HT.

Figure PO 141

Conclusions: Infections are a major cause of hospitalization post-HT, particularly in the first year, and may contribute to increased all-cause mortality. These results underscore the delicate balance between IS and infectious risk, highlighting the need for optimized post-HT care strategies.

PO 142. THE ROLE OF MULTIDISCIPLINARY HEART FAILURE OUTPATIENT CLINICS IN THE MANAGEMENT AND PROGNOSIS OF PATIENTS WITH ADVANCED HEART FAILURE

Patrícia Bernardes, Sara Gonçalves, Jéni Quintal, Tatiana Duarte, Hugo Viegas, Pedro Carreira, Ana Sousa, Crisálida Ferreira, Andreia Soares, Dina Ferreira, Ermelinda Pedroso, Filipe Seixo

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Introduction: Advanced heart failure (AHF) is defined as the persistence of severe symptoms despite optimized medical, surgical, and device therapies with a high risk of adverse outcomes. Nevertheless, not all pts are eligible for advanced treatments, such as heart transplantation or long-term mechanical circulatory support. Multidisciplinary HF outpatient clinics may help improving outcomes in these complex pts.
Objectives: To demonstrate the impact of our multidisciplinary HF unit on HF hospitalizations and emergency department visits in pts with advanced HF in a real-world setting.
Methods: This retrospective observational study included 74 outpatients with AHF followed at our HF unit, between September 2020 - September 2024. A "same day clinic" philosophy is provided with a 5 days/week open access clinic. Hospitalizations, HF events and all-cause mortality were analysed. AHF was defined according to the 2018 *Position statement from Heart Failure Association of the European Society of Cardiology for Advanced Heart Failure.*

Table 1: Baseline characteristics and clinical data of individuals with advanced HF

Characteristics	
Mean age - yr	72 ± 12,4
Sex - no (%)	
Male	50 (67,6)
Female	24 (32,4)
Mean body-mass index	26,2 ± 3,8
Mean ejection fraction at screening - %	38,5 ± 13,5
LVEF < 40% - no (%)	44 (59,5)
LVEF 40 - 49% - no (%)	12 (16,2)
LVEF ≥ 50% - no (%)	18 (24,3)
NYHA functional class - no (%)	
II	5 (6,8)
III	62 (83,8)
IV	7 (9,5)
Implantable device - no (%)	34 (45,9)
Hypertension - no (%)	54 (73)
Diabetes mellitus - no (%)	41 (55,4)
Chronic kidney disease	30 (40,6)
Levosimendan infusion - no (%)	33 (44,6)
Palliative care - no (%)	19 (25,7)
Outcomes	
Hospitalization for HF - no (%)	17 (23)
Programmed visits - mean	26,8 ± 17,5
Urgent HF visit to our unit - no (%)	68 (91,9)
Urgent HF visit to our unit - mean	5,9 ± 5,3
Death from any cause - no (%)	36 (48,6)
Death from cardiovascular cause	7 (9,5)

Results: This cohort included 74 pts with a mean age of 72 years (SD = 12.4), and a 68% male predominance. The mean follow-up was 18.5 months (± 9.2). Most pts (93%) had a current NYHA functional class of III or IV. A high prevalence of cardiovascular comorbidities was observed, including hypertension (73%), diabetes mellitus (55%), chronic kidney disease (39%), and obesity (32%). Ischemic cardiomyopathy was the etiology of HF in 46% of pts. The mean NT-proBNP level was 10,685 pg/mL and mean serum creatinine was 2.2 mg/dL. Regarding HF subtypes, 59.5% had HFrEF, 16.2% had HFmEF, and 24.3% had HFpEF. Although 68 outpatients (91.9%) required an urgent visit for intravenous diuretic therapy (mean 5.9 ± 5.3 visits per pt), only 17 pts (23%) were hospitalized for HF. Approximately 44.6% of pts were on levosimendan, which was associated with lower mortality (p = 0.005). Death from any cause occurred in 36 pts (48.6%), traducing pt severity, nevertheless death from cardiovascular causes only occurred in 7 pts (9.5%).
Conclusions: Our cohort demonstrated high rates of all-cause mortality and decompensation, consistent with those reported in pts with advanced or worsening HF. However, hospitalizations for HF were low. The role of our HF unit and multidisciplinary team was crucial, as most episodes of worsening HF were managed without hospitalization. We conclude that open access to specialized HF care can significantly improve outcomes in pts with AHF.

PO 143. PREDICTORS OF CARDIAC ALLOGRAFT VASCULOPATHY AND DYSFUNCTION IN HEART TRANSPLANTATION: A SINGLE-CENTER STUDY

Rita Almeida Carvalho, Ana Rita Bello, Márcia Presume, Sérgio Maltês, Bruno Rocha, Gonçalo Cunha, Sara Ranchordas, Catarina Brízido, Christopher Strong, Marta Marques, Carlos Aguiar

Hospital Santa Cruz ULSLO.

Introduction: Heart transplantation (HT) is the gold-standard treatment for selected patients with advanced heart failure. However, long-term outcomes may be significantly influenced by complications, particularly cardiac allograft vasculopathy (CAV) and late graft dysfunction (LGD). We aimed to evaluate the predictors of CAV and LGD following HT.
Methods: Retrospective single-center cohort study including all patients who underwent orthotopic heart transplantation between 2019 and 2023. Post-HT monitoring included endomyocardial biopsies (EMBs) to detect acute rejection, as well as blood tests to assess renal function and cardiac biomarkers at predefined intervals (1, 2, 3, 4, 6, 8, and 12 weeks; 4, 6, 8, 10, and 12 months). CAV was assessed by coronary angiography or cardiac CT and patients were classified as per the ISHLT Guidelines into CAV score 0-1 and score ≥ 2. LGD was evaluated by transthoracic echocardiography and defined as left ventricular ejection fraction (LVEF) < 55%. CAV and LGD were assessed at 1-year post-HT.
Results: The study included 57 patients (mean age 51 ± 11 years; 74% male). During the first year post-HT, cardiovascular risk factors were prevalent, including dyslipidemia (60%), diabetes mellitus (44%) and hypertension (40%). Among 595 EMBs, there were 54 (9%) rejection episodes in 25 (44%) patients, comprising of 18 acute cellular rejections (ACR) in 13 patients and 36 antibody-mediated rejections (AMR) in 16 patients. At 1-year post-HT, 6 patients (11%) had moderate-to-severe (ISHLT ≥ 2) CAV. These were all male (100 vs. 34%, p = 0.076) with a higher prevalence of cardiovascular risk factors [e.g., hypertension (83 vs. 36%, p = 0.030), higher median total cholesterol (188 ± 25 *vs.* 163 ± 25 mg/dL, p = 0.028), with a trend towards more patients with type 2 diabetes mellitus (83 *vs.* 42%, p = 0.058)] and renal dysfunction (mean creatinine 1.5 ± 0.5 *vs.* 1.1 ± 0.3 mg/dL, p = 0.025). Half of the patients with CAV experienced AMR episodes beyond the first month post-HT (50 vs. 17%, p = 0.065). There were no differences in cardiac biomarkers or ACR episodes between CAV 0-1 vs. score ≥ 2. At 1-year post-HT, the mean LVEF was 58 ± 5%. LGD was identified in 12 patients (21%). These patients were older (mean age 55 ± 49 years, p = 0.082) and had a higher body mass index (27 ± 3 *vs.* 24 ± 4 kg/m^2, p = 0.044). One in every three patients with LGD experienced ACR episodes beyond the first month post-HT (33 vs. 6%, p = 0.015). We found no differences in cardiac biomarkers levels or AMR episodes between patients with and without LGD.
Conclusions: In a contemporary cohort of HT patients, CAV was associated with sex (male), traditional cardiovascular risk factors and AMR episodes, and LGD was associated with age (older), body mass index (higher) and ACR episodes (Figure 1), thus reproducing older studies. These findings underscore that both non-modifiable and potentially modifiable markers may associate with CAV and LGD.

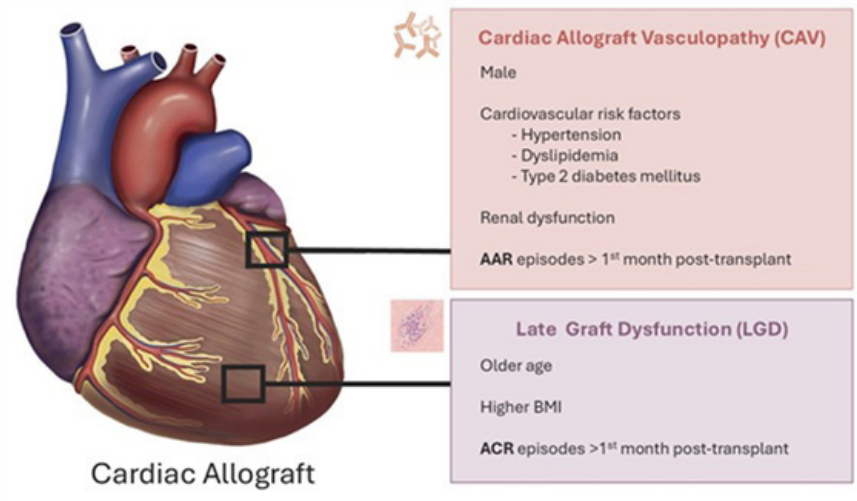

Figure 1. Risk factors associated with cardiac allograft vasculopathy (CAV) and late graft dysfunction (LGD) in our cohort of heart transplant recipients during the first-year post-transplant.

Figure PO 143

Sexta-feira, 11 Abril de 2025 | 16:15-17:15

Área de Posters-écran 1| Sessão de Posters 23 – Insuficiência cardíaca e hipertensão pulmonar: duas áreas de intensos avanços científicos

PO 144. CLINICAL AND BIOCHEMICAL CHARACTERISTICS ASSOCIATED WITH IMPROVED HEART FAILURE OUTCOMES FOLLOWING A TELEMONITORING PROGRAM

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Introduction: Telemonitoring (TM) is a method that leverages telecommunications to track patient health from a distance, playing a key role in the follow-up and preventive medicine of chronic heart failure (HF) patients. Currently there is a lack of robust evidence for which patients would benefit the most from such programs, and such better help clinicians decide who to refer.
Objectives: To identify patient characteristics associated with improved cardiovascular outcomes in HF patients enrolled in a TM program, to help optimize patient selection and improve program effectiveness.
Methods: Data was obtained and analysed from 31 HF patients in a TM program, comparing several biochemical and clinical endpoints in the year prior and after joining the program.
Results: The sample included 24 males (77%) with a mean age of 67 years, with multiple cardiovascular risk factors (CVRF) (61% hypertensive; 74% dyslipidaemic; 36% diabetic; 16% obese; 16% smoker) and multiple co-morbidities (23% chronic kidney disease; 19% atrial fibrillation; 16% sleep apnoea; 7% chronic obstructive lung disease). The majority of patients had ischaemic heart disease (81%) and a mean left ventricular ejection fraction (LVEF) of 34%. The most frequent TM alert was body-weight increase (59%), and the majority of the alerts were resolved without the need for a hospital visit (67%). After one year of follow-up, patients showed a mean decrease in hospitalizations (-0.7 mean; 0.95 SD), admission days (-5.8 mean; 11.0 SD), emergency room visits (-0.3 mean; 1.4 SD), NYHA class (-0.4 mean; 0.7 SD), diuretic dose (-0.7 mean; 33.3 SD), BNP levels (-1,542.3 mean; 5,000 SD), LDL levels (-30.6 mean; 51.9 SD), and an increase in LVEF (6.4 mean; 8.4 SD). Significant differences were found in number of hospitalizations ($p < 0.01$), days in hospital ($p < 0.01$), NYHA class ($p < 0.01$), LDL levels ($p < 0.01$), and LVEF ($p < 0.01$) (Table 1). Multivariate analysis was performed to identify which characteristics best correlate with positive clinical and biochemical outcomes. A significant reduction in clinical outcomes was observed in patients with higher previous hospitalizations, prolonged admissions, emergency room visits, NYHA functional class, diuretic dose, and lower LVEF, indicating that clinically worse patients with multiple recent events seem to benefit the most from this program.
Conclusions: HF patients with advanced disease showed the most benefit from telemonitoring, with reductions in hospitalizations and improvements in NYHA class and LVEF. The presence of additional risk factors or comorbidities alone did not predict better outcomes, suggesting instead telemonitoring is particularly beneficial for patients with multiple recent cardiac events.

PO 145. TELECONSULTATION: A TOOL TO SUPPORT PEOPLE WITH HEART FAILURE

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Introduction: Teleconsultation aims to offer a specialized evaluation that promotes proximity and ensures the accessibility of care in order to respond to the needs of patients. Heart failure (HF) is a public health problem with a high incidence and is the first cause of hospitalization after the age of 65 in industrialized countries. In order to create strategies that facilitate quick and personalized management in case of decompensation, adherence to treatment and support for the management of the person with HF, our outpatient HF clinic team created a direct contact for the person/family with HF and the primary health care (PHC) health team.
Objectives: To demonstrate the importance of unscheduled teleconsultation in the management of decompensations of people with HF.
Methods: Retrospective evaluation of teleconsults provided by HF outpatient nursing team, from January 2020 to November 2024. Clinical cases were discussed with HF specialists whenever necessary.
Results: We analyzed 5,551 telephone contacts, 3,057 (55%) of clinical acts. Contacts related to symptoms of congestion and low output were 29% (n = 880), clarification of doubts 37% (n = 1,122) (mainly about the therapeutic regimen), 24% (n = 730) related to other pathologies, 1.5% (n = 46) related to dysrhythmias and ICD shocks, 6.4% (n = 188) about therapeutic complications. We also receive contacts from primary care, 3% (n = 79), for clinical discussion or urgent referral to HF clinic. In 1,654 clinical contacts (86%) an action was taken: 35% (n = 570) were forwarded for urgent

Table 1. Paired Sample T-Tests of Clinical & Biochemical Differences After 1-Year Follow-Up

	Mean Difference	Standard Deviation	Two-Sided P-Value
Hospitalizations	0.68	0.95	<0.01
Days in Hospital	5.84	11.01	<0.01
Emergency Room Visits	0.32	1.35	0.19
NYHA Functional Class	0.42	0.67	<0.01
Diuretic Dose	0.65	33.26	0.92
LDL Serum Levels	30.55	51.88	<0.01
HbA1c Serum Levels	0.10	0.90	0.30
Left Ventricule Ejection Fraction	4.41	8.44	<0.01

Table 2. P-Values of One-Way ANOVA for Clinical & Biochemical Differences After 1-Year Follow-Up

Characteristics	Hospitalizations	Days in Hospital	ER Visits	NYHA Class	Diuretic Dose	BNP	LDL	HbA1c	LVEF
Hypertension	0.74	0.56	0.82	0.29	0.34	0.72	0.59	0.54	0.65
Dyslipedimia	0.27	0.22	0.31	0.11	0.59	0.74	0.15	0.77	0.12
Diabetes	0.32	0.47	0.68	0.19	0.42	0.41	**0.01**	0.78	0.98
Obesity	0.06	0.26	**0.02**	0.44	0.60	0.62	0.35	0.76	0.21
Alcohol	0.06	0.18	0.07	0.12	0.30	0.83	**0.02**	0.31	**< 0.01**
Smoking	0.06	0.18	0.89	0.95	0.13	0.49	0.66	0.76	0.89
Nº Cardiovascular Risk Factors	0.33	0.80	0.63	0.16	0.93	0.70	0.16	0.64	0.27
Atherosclerotic Disease	0.66	0.84	0.31	**0.02**	0.31	0.93	**< 0.01**	0.97	**0.05**
Chronic Kidney Disease	0.58	0.91	0.48	0.56	0.11	0.44	0.31	0.41	0.95
Chronic Pulmonary Disease	0.63	0.12	**0.05**	0.21	0.69	0.86	0.10	0.38	0.36
Sleep Apnea	0.41	0.66	0.57	0.95	0.96	**0.02**	0.06	0.02	0.21
Atrial Fibrillation	0.98	0.69	0.33	0.75	0.63	**0.01**	0.33	0.95	0.72
Nº Comorbidities	0.68	0.40	0.54	0.85	0.89	**0.03**	0.08	0.23	0.74
Hospitalizations	**< 0.01**	**< 0.01**	**< 0.01**	0.44	0.50	0.45	0.25	0.10	0.20
Days in Hospital	**< 0.01**	**< 0.01**	**< 0.01**	**< 0.01**	**0.05**	0.79	0.58	0.41	0.32
Emergy Room Visits	0.81	0.84	0.10	**< 0.01**	**0.04**	0.10	0.19	0.23	**0.08**
NYHA Functional Class	0.52	0.66	0.76	**< 0.01**	0.67	0.54	**0.04**	0.62	0.73
Diuretic Dose	0.07	0.06	**< 0.01**	0.90	**0.05**	0.32	**0.04**	0.06	0.52
Left Ventricule Ejection Fraction	**0.03**	0.47	0.68	0.72	0.54	0.83	**0.01**	0.70	0.21

Figure PO 144

HF outpatients clinic visits, 16% (n = 271) were sent for primary health care evaluation and 4% (n = 62) to the emergency room. In 45% (n = 751) of calls, immediate therapeutic adjustment was performed, and posterior in-person or non-face-to-face reassessment was made when necessary. Of the 343 contacts due to congestion and low output requiring urgent visit, 41% received intravenous therapy in the HF clinic and the remaining 59% underwent therapeutic adjustment. Only 6% (21) of these were sent to E.R. or to direct hospitalization and 33% (7) were non cardiac reasons.
Conclusions: Direct access to the HF multidisciplinary team with "an open-door philosophy" is crucial in the management of HF patients preventing emergency room visits and hospitalizations.

PO 146. PREVENTION OF HEART FAILURE HOSPITALIZATION BASED ON REMOTE MONITORING AND EARLY INTERVENTION

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Introduction: Remote monitoring (RM) has emerged as a critical tool in managing heart failure (HF) patients (P). HF algorithms can identify P with high risk of 30-day decompensation by combining parameters such as thoracic impedance, arrhythmia burden, percentage of right ventricular pacing, night ventricular rate, or patient activity levels. A multidisciplinary approach in RM leads to earlier therapeutic interventions, possibly impacting patient outcomes. We analyzed data from patients with HF and cardiac electronic implantable devices, under RM, focusing on high-risk alerts and examining the relationship between therapeutic interventions and hospitalization outcomes.
Methods: The sample included 49 P (69.4% male, median age 76 years), with various HF etiologies. A single-center retrospective analysis of high-risk alerts using two different algorithms (Triage HF, Medtronic®; and HeartLogic, Boston Scientific®) was conducted. We sought to study 30-day hospitalizations in P with high-risk alerts and their correlation with therapeutic interventions using chi-square tests.
Results: There were 55 high-risk alerts from January 2023 to November 2024. Of these high-risk alerts, 72.7% were related to increased thoracic impedance, 56.4% to low patient activity, and 52.7% to increased night ventricular rates. Therapeutic interventions occurred in 56.4% of these cases, while 43.6% were maintained under regular surveillance. Of all interventions, 71% were based on increasing diuretics. In two years, there were only 2 hospitalizations in 30-day follow-up of the alerts, suggesting that most interventions were successful, and the surveillance strategy was well identified and applied.
Conclusions: RM provides valuable insights into HF decompensation risk, with congestion and low activity being predominant triggers for high-risk alerts. From a total of 55 high-risk alerts only 3.6% required hospitalization. This suggests the important role of a RM programme in HF P in lowering hospitalizations.

PO 147. THE HIDDEN COST OF ANTHRACYCLINES: CARDIAC DYSFUNCTION AND FUNCTIONAL IMPAIRMENT IN BREAST CANCER

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Unidade Local de Saúde do Alto Ave.

Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a prevalent and serious concern for Breast Cancer (BC) patients undergoing anthracycline chemotherapy (AC). However, current methods to detect CTRCD rely on resting echocardiographic parameters, such as left ventricular ejection fraction (LVEF) and global longitudinal strain (GLS), which have

Table 1.

CTRCD was defined as:
(i) new LVEF <40%;
(ii) new LVEF reduction by ≥10% to 40-49%;
(iii) new LVEF reduction by <10% to 40-49% with either a new GLS decline >15% from baseline or a new rise in cardiac biomarkers*
(iv) LVEF ≥50% with a new GLS decline >15% from baseline and/or a new rise in cardiac biomarkers*

*A rise in cardiac biomarkers was considered when hsTnI was above the 99th percentile or a new significant rise >20 pg/mL was observed from baseline (beyond biological and analytical variation), or in the presence of NT-proBNP values ≥125pg/mL

Figure PO 147

limited sensitivity in early stages of cardiac damage. Cardiorespiratory fitness (CRF) is a strong predictor of quality of life (QoL), heart failure (HF) and mortality in cancer patients, and is being explored for its potential to detect post-AC cardiac damage in BC patients.

Objectives: To evaluate the effects of AC on CRF in BC patients and to compare the value of impaired CRF to CTRCD criteria as a marker of cardiac damage in these patients.

Methods: Prospective study including women with early-stage BC undergoing AC, who underwent CPET and resting echocardiographic evaluation at three visits: before AC, 1-month and 6-months after completing AC. CTRCD was defined according to ESC cardio-oncology guidelines (Table 1). CRF was evaluated by cardiopulmonary exercise test (CPET). CPETs were considered maximal if at least two criteria were met: (1) reaching the maximal predicted HR, (2) achieving a respiratory exchange ratio (RER) of 1.05 or higher, or (3) experiencing respiratory exhaustion. Functional disability (FD) was defined as a VO2peak ≤ 18.0 mL/kg/min.

Results: We included 32 women with a mean age of 50.8 ± 9.3 years. Significant reductions were observed in both 2D and 3D LVEF at 1-month (2D: 63.3 ± 3.0% to 61.0 ± 4.0%, p = 0.007; 3D: 62.8 ± 4.9% to 61.0 ± 4.4%, p = 0.020) and at 6-months (2D: 60.9 ± 5.0%, p = 0.031; 3D: 59.5 ± 5.9%, p = 0.003). LV 2D-GLS showed a reduction from -19.9 ± 1.9% to -18.5 ± 1.9% at 1-month (p = 0.003) and to -18.4 ± 2.1% at 6-months (p < 0.001). LV 3D-GLS decreased from -19.5 ± 1.8% to -17.4 ± 2.7% at 1-month (p < 0.001) and to -18.2 ± 2.9% at 6-months (p = 0.002). CTRCD was detected in 68.8% (n = 22) (LVEF/GLS/biomarker criteria: n = 0/6/17) at 1 month and in 18.8% (n = 6) at 6 months (LVEF/GLS/biomarker criteria: n = 0/5/3). FD increased from 9% pre-AC to 44% at 1-month and 53% at 6-months post-AC. Patients with FD exhibited higher frequency of CTRCD at 1 month (85.7 vs. 55.5%; p < 0.05) and at 6-months (35.3 vs. 0%; p < 0.05). In univariate analysis, GLS and LVEF were not related to CRF.

Conclusions: CTRCD criteria detect cardiac damage in 68.8% at 1 month, while FD detects in only 44%, so CTRCD seems more sensitive for cardiac damage detection in an early stage. At 6-months post-AC, 53% of the patients had FD, while only 18.8% were diagnosed with CTRCD, suggesting that, with the current definition of CTRCD, many cases with potential long-term HF risk and morbimortality may be missed. Therefore, our study shows that CTRCD and FD criteria may have a complementary role in the evaluation of cardiac damage of AC in BC patients.

PO 148. ANÁLISE CUSTO-EFETIVIDADE DA ANGIOPLASTIA PULMONAR SOB TERAPÊUTICA VASODILATADORA PULMONAR VERSUS TERAPÊUTICA VASODILATADORA PULMONAR ISOLADA EM DOENTES COM HPTEC

Patrícia Araújo[1], Rita Calé[1], Ernesto Pereira[1], Filipa Ferreira[1], Sofia Alegria[1], Hélder Pereira[1], André Coelho[2]

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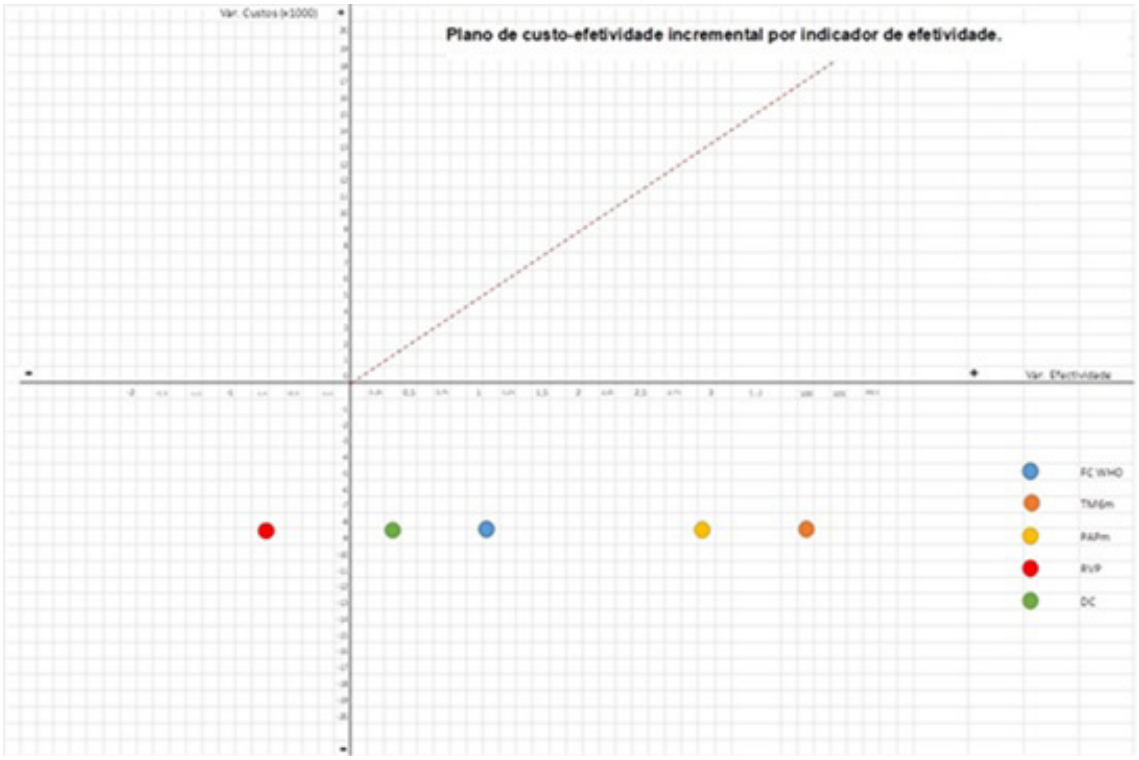

Figure PO 148

Introdução: A hipertensão pulmonar tromboembólica crónica (HPTEC) é uma doença progressiva, que se caracteriza pela obstrução da vasculatura arterial pulmonar por material trombótico organizado, limitando significativamente a vida dos doentes. A estratégia terapêutica para os doentes diagnosticados com HPTEC inoperável ou persistente/recorrente pós cirurgia, passa pela angioplastia pulmonar de balão (BPA) e/ou terapêutica vasodilatadora pulmonar (TVP). No entanto, até aos dias de hoje, não foi publicada nenhuma análise de custo-efetividade que comparasse estas opções de tratamento.
Métodos: Estudo de coorte retrospetivo em centro único, que incluiu dois grupos de doentes: um com 19 doentes que realizaram BPA e concomitantemente TVP (BPAT) e outro grupo de 16 doentes que realizaram TVP isolada (TVPi), comparando os custos diretos e indicadores de efetividade funcionais e hemodinâmicos a um ano de seguimento.
Resultados: A classe funcional da Organização Mundial de Saúde (CF-OMS) teve uma melhoria mais preponderante no grupo BPAT do que no da TVPi (BPAT: Δ = -1.3 e TVPi: Δ = -0.3), tal como o teste de marcha dos 6 minutos (TM6m) (BPAT: Δ = -73.8 m e TVPi: Δ = 26.4 m), a pressão da artéria pulmonar média (PAPm) (BPAT: Δ = -6.9 mmHg e TVPi: Δ = -4.7 mmHg) e o débito cardíaco (DC) (BPAT: Δ = 0.60 L/min e TVPi: Δ = 0.01 L/min). Já as resistências vasculares pulmonares (RVP), tiveram uma variação superior no grupo da TVPi em comparação com o grupo da BPAT (BPAT: Δ = -2.4 U Wood e TVPi Δ = -3.7 U Wood). Em relação aos custos anuais por doente, a BPAT demonstrou ser menos dispendiosa (61,836€ ± 30,492€) que o grupo da TVPi (70,695€ ± 30,524€).
Conclusões: Os nossos resultados sugerem que a BPAT é mais custo-efetiva do que a TVPi em quatro dos indicadores de efetividade avaliados, sabendo que os custos despendidos nesta opção são sensíveis aos fármacos vasodilatadores selecionados.

PO 149. ARTIFICIAL INTELLIGENCE-DRIVEN PHONOCARDIOGRAM ANALYSIS FOR NONINVASIVE DETECTION OF PULMONARY HYPERTENSION

André Lobo[1], Marta Catarina Almeida[1], Cátia Costa[1], Cristina Oliveira[1], Alex Gaudio[2], Noemi Giordano[3], Miguel Coimbra[4], Samuel Schmidt[5], Francesco Renna[4], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

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Introduction: The detection of pulmonary hypertension (PH), particularly by non-specialized personnel, remains a significant challenge in clinical practice. Developing noninvasive, accessible, and cost-effective solutions to aid in PH diagnosis is critical, especially in resource-limited settings. Automated analysis of cardiac auscultation and electrocardiogram (ECG), combined with advancements in telemedicine and artificial intelligence (AI), holds potential to improve the early identification of PH and make diagnostic tools more widely accessible. With this work, we aimed to evaluate the feasibility of using a bimodal stethoscope integrated with a machine learning (ML) algorithm for PH detection.
Methods: Phonocardiogram (PCG) data were collected from 12 patients using the Rijuven Cardiosleeve, a bimodal stethoscope capable of recording both heart sounds and electrocardiogram signals. As a reference standard, mean pulmonary artery pressure (mPAP) was measured via right heart catheterization (RHC). PH suspicion was assessed using echocardiography by measuring the maximum velocity of tricuspid regurgitation (TR). A velocity exceeding 2.8 m/s was considered suspicious for PH. A machine learning (ML) algorithm was applied to PCG data collected at the pulmonary auscultation site, focusing on the analysis of the S2 fundamental heart sound to differentiate patients with elevated pressures (mPAP > 20 mmHg, 10 subjects) from those with normal pressures (mPAP ≤ 20 mmHg, 2 subjects).
Results: The automated PCG analysis, when compared to the gold standard RHC measurements, achieved an average area under the Receiver Operating Characteristic (ROC) curve (AUC) of 0.80, demonstrating a promising ability to differentiate between elevated and normal pulmonary pressures. In the same cohort, echocardiographic analysis identified at least a moderate probability of PH (TRvmax > 2.8 m/s) in 6 of the 10 elevated pressure cases but failed to do so in 4 out of 10 cases (TRvmax ≤ 2.8), yielding a recall of 0.60.
Conclusions: This study highlights the potential of AI-driven analysis of cardiac auscultation and ECG as a noninvasive and accessible method for detecting PH. Its ease of use and ability to be performed by non-specialized personnel make it a promising tool for early PH identification, particularly in resource-constrained or telemedicine settings. In the future, this approach could also be combined with echocardiographic evaluation to enhance the accuracy of PH estimation. Further validation with larger, more representative datasets is required to confirm these findings and enhance clinical applicability.

Sexta-feira, 11 Abril de 2025 | 16:15-17:15

Área de Posters-écran 2 | Sessão de Posters 24 – Complicações na intervenção valvular aórtica percutânea

PO 150. PREDICTORS OF ACUTE KIDNEY INJURY AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Miguel Abrantes de Figueiredo, Inês Rodrigues, Bárbara Teixeira, André Grazina, Francisco Albuquerque, Ricardo Carvalheiro, Tiago Mendonça, Rúben Ramos, António Fiarresga, Rui Cruz Ferreira, Duarte Cacela

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Introduction: Transcatheter Aortic Valve Replacement (TAVR) is an increasingly more frequent treatment for severe aortic valve stenosis, particularly in high surgical risk patients. Acute Kidney Injury (AKI) is a common complication associated with TAVR.
Objectives: This study aims to identify clinical, analytical and procedure-related risk factors associated with AKI after TAVR.
Methods: This was a retrospective study of all patients undergoing TAVR since January 2012 to November 2023 in one high-volume tertiary care center in Portugal. AKI was identified and categorized according to the Valve Academy Research Consortium (VARC)-2 criteria. Independent-samples t-test and chi-square were used to identify statistical significance between potential risk factors and AKI. Independent risk factors for AKI following TAVR were derived using binary logistic regression.
Results: AKI was present in 18.2% of patients after TAVR. Of the several variables analyzed, age, history of chronic kidney disease (CKD), hypertension, diabetes, vascular access complications, clinically significant hemorrhage and fall in hemoglobin were statistically significantly (p-value < 0.05) associated with AKI following TAVR. Binary logistic regression showed that history of CKD (OR: 2.909; 95%CI: 1.998-4.235; p < 0.001) and fall in hemoglobin (OR: 1.540; 95%CI: 1.352-1.754; p < 0.001) were very strong independent risk factors for AKI after TAVR. Additionally, the association between contrast volume and AKI was not statistically significant (p-value = 0.064).
Conclusions: AKI is a frequent complication after TAVR, with an incidence of 18.2% in this patient cohort. History of CKD and a decrease in hemoglobin are very strong independent predictors of AKI in patients undergoing TAVR.

PO 151. ATRIOVENTRICULAR VALVE REGURGITATION PROGRESSION AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

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Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Aortic stenosis is the most frequent heart valve disease requiring intervention in the developed world. Transcatheter Aortic Valve Replacement (TAVR) is an excellent treatment modality for patients with high surgical risk or prohibitive surgical anatomy. In this population, the prevalence of multiple valvular heart disease (VHD) is high, and the persistence of atrioventricular valve regurgitation (AVVR) post-procedure is associated with higher mortality.
Objectives: To evaluate the predictors and the extent of change in AVVR after TAVR in patients with multiple VHD.
Methods: A retrospective analysis of all patients who underwent TAVR until November 2024 in one tertiary care center in Portugal was conducted. VHD was diagnosed and its evolution after TAVR was documented and classified by transthoracic echocardiogram according to the current guidelines. The predictors of AVVR improvement and deterioration were derived with t-test and chi-square analysis, followed by binary logistic regression to determine the independent predictors and their potency.
Results: Of the 831 patients included, mitral regurgitation (MR) had a prevalence of 69.07% and tricuspid regurgitation (TR) of 71.00%. A global reduction in the burden of AVVR was noticed (Figure 1), with 27.68% of patients experiencing an improvement in MR and 18.77% of patients with reductions in the degree of TR. MR improvement was significantly associated with mildly reduced left ventricular ejection fraction (LVEF) (p = 0.024), as well as with a lower body mass index (p = 0.021), while higher values of estimated pulmonary artery pressure (ePASP) were the sole independent predictor (OR 1.017 [95%CI: 1.003-1.030], p = 0.017) for MR reduction. TR improvement was found in patients with left ventricular disfunction (p = 0.001 for LVEF < 50% and p = 0.004 for LVEF < 40%), while non-elective TAVR was the sole independent predictor (OR 1.591 [95%CI: 1.008-2.511], p = 0.046) for TR reduction. Significant paravalvular leakage was associated with worsening MR (OR 4.196 [95%CI: 1.616-10.891], p = 0.003), while chronic kidney disease (OR 2.249 [95%CI: 1.140-4.435], p = 0.019) and higher ePASP (OR 1.031 [CI 95% 1.009-1.053], p = 0.005) were associated with worsening TR.
Conclusions: AVVR is prevalent but can be improved after TAVR in patients with multiple VHD. Acknowledging the risk factors for improvement and deterioration of AVVR is important to recognize which patients may be at a greater risk for worse clinical outcomes.

PO 152. CONDUCTION ABNORMALITIES POST-TAVI: IMPACT ON LVEF RECOVERY AND SURVIVAL

André Lobo, Marta Catarina Almeida, Marta Leite, Inês Neves, Inês Rodrigues, António Gonçalves, Ricardo Fontes-Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Transaortic Valve Implantation (TAVI) has demonstrated significant benefits in patients with true severe aortic stenosis and left ventricular dysfunction. However, the development of left bundle branch block (LBBB), right bundle branch block (RBBB), or the need for pacemaker (PM) implantation is associated with a potential decrease in left ventricular ejection fraction (LVEF). The prevalence and impact of conduction abnormalities in the TAVI context are relevant. We aim to assess the effect of new-onset LBBB, PM implantation, and RBBB after TAVI on LVEF progression and overall survival in patients undergoing TAVI with reduced LVEF (< 50%).
Methods: Single-center retrospective cohort analysis including patients with reduced LVEF undergoing TAVI from January 2010 to January 2022. The primary outcomes evaluated were 1-year LVEF variation and all-cause mortality.
Results: A total of 148 patients underwent evaluation, with a median LVEF of 40%. Prior to TAVI, 10.8% exhibited pre-existing LBBB, 10.8% demonstrated RBBB, and 13.5% had undergone PM implantation. At 1-month post-TAVI follow-up, 22.3% exhibited LBBB, 8.1% RBBB, and 31.7% PM presence, encompassing both prior and new-onset conduction abnormalities. At 1-year follow-up, patients with new-onset conduction abnormalities showed a 6.7% lower LVEF variation compared to those without conduction abnormalities (95%CI: -10.1%, -3.9%; p < 0.001). For patients with new-onset conduction abnormalities, median survival was 48 months (95%CI: 24.1, 72.0) compared to 82 months (95%CI: 52.5, 111.5) in those without previous or new conduction abnormalities (p = 0.007). This difference was also seen when evaluating only patients with new-onset LBBB (p = 0.035).
Conclusions: Conduction abnormalities in TAVI patients extend beyond the consideration of PM implantation, impacting LVEF recovery and overall survival. Our findings underscore the significant influence of conduction

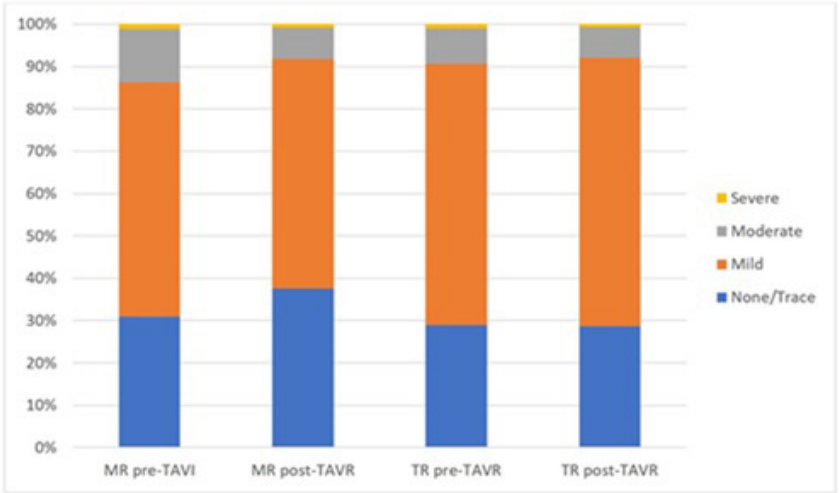

Figure 1: Atrioventricular valve regurgitation classification and evolution after TAVR. MR (mitral regurgitation); TAVR (transcatheter aortic valve replacement); TR (tricuspid regurgitation)

Figure PO 151

abnormalities on TAVI benefits, highlighting the need to explore strategies for post-TAVI conduction abnormality mitigation. Close monitoring of this population is essential to evaluate the potential advantages of resynchronization therapy.

PO 153. KIDNEY FUNCTION FOLLOWING PERCUTANEOUS TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI) IN HOSPITALIZED PATIENTS

C. Santos-Jorge, Samuel Azevedo, Maria Rita Lima, Márcia Presume, Rui Miguel Gomes, André Moniz Garcia, Rita Amador, Joana Certo Pereira, Miguel S. Domingues, Marisa Trabulo, Rui Campante Teles, Jorge Ferreira

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Introduction: Severe aortic stenosis leads to reduced renal perfusion, which can impact renal function, particularly in elderly patients with pre-existing chronic kidney disease (CKD). The impact of renal function on the prognosis of percutaneous transcatheter aortic valve implantation (TAVI) is significant and can influence short- and long-term outcomes. This study evaluated the impact of TAVI on kidney function in patients with severe aortic stenosis presenting with critical symptoms requiring hospital admission.
Methods: Retrospective observational cohort study of 171 hospitalized patients who underwent non-elective TAVI in a single tertiary center between January 2020 and December 2023. Median hospital stay was 12 days (IQR 3-21) and TAVI was performed at a median of 12 days post-admission (IQR 1-14). We evaluated estimated glomerular filtration rate (eGFR), calculated using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula at admission, discharge and follow-up. Patients were divided according to their baseline estimated glomerular filtration rate (eGFR) (mL/min/1.73 m^2) into 3 groups: Group 1 with eGFR ≥ 60; Group 2 with 30 ≤ eGFR < 60; and Group 3 with eGFR < 30. Patients undergoing dialysis prior to the procedure and those without a follow-up of at least six months were excluded.
Results: A total of 171 patients (83 ± 6 years, 54% women) were included. Patients in group 1 showed no significant change in eGFR between six months and one year after the procedure compared to baseline (76.82 ± 10.94 to 75.73 ± 14.33 mL/min/1.73 m^2). Group 2 and group 3 experienced significant improvement in mean eGFR at discharge and sustained improvement at six months to one-year post-TAVI ($p < 0.001$). At six months to one-year post-TAVI, mean eGFR in group 2 increased from 43.98 ± 8.57 to 51.73 ± 16.42 mL/min/1.73 m^2, while in group 3, it increased from 21.86 ± 5.25 to 32.59 ± 13.06 mL/min/1.73 m^2.
Conclusions: In high-risk patients hospitalized urgently for TAVI, renal dysfunction is highly prevalent. Optimizing renal function and minimizing contrast use should be prioritized. Our study demonstrated a significant improvement in post-procedure renal function in patients with CKD at stage 3 or higher. These findings suggest a potential for renal function recovery, which may influence therapeutic decision-making in this population.

PO 154. EARLY AND LATE PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION

Tomás M. Carlos, Bernardo Resende, Diogo Fernandes, Joana Guimarães, Gonçalo Terleira Batista, Tatiana Santos, Luísa Gomes Rocha, Mafalda Griné, Luís Leite, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Pacemaker implantation (PI) is a common complication of transcatheter aortic valve implantation (TAVI), due to the proximity of the implanted valve to the heart's conduction system. The European Society of Cardiology recommends at least 7 days of surveillance for conduction disturbances, leading to prolonged hospitalizations. This study aimed to assess differences between early and late PI, based on our centre's median time to PI, and to identify predictors of late PI.
Methods: We conducted a retrospective, single-centre study of TAVI patients from March 2020 to September 2023. Patients were categorized in three groups: early-PI (≤ 2 days), late-PI (3-30 days), and no PI within 30 days of follow-up. Those with prior pacemaker were excluded. Baseline characteristics were compared, and binary logistic regression was performed to identify predictors of late PI, after excluding early PI cases.

Table 1: Baseline population characteristics

	All patients (n=171)	Group 1 (n=66)	Group 2 (n=83)	Group 3 (n=22)
Females, n (%)	93 (54,4%)	32 (48,5%)	46 (55,4%)	15 (68,2%)
Age (years, mean ± SD)	82,53±5,85	81,68±6.63	82,43±5,44	85,45±3,75
Diabetes, n (%)	85 (49,7%)	32 (48,5%)	46 (55,4%)	7 (31,8%)
Peripheral vascular disease, n (%)	24 (14%)	4 (6,1%)	16 (19,3%)	4 (18,2%)
Hypertension, n (%)	157 (91,8%)	59 (89,4%)	77 (92,8%)	21 (95,5%)
Obesity, n (%)	33 (19,3%)	11 (16,7%)	19 (22,9%)	3 (13,6%)
Dyslipidemia, n (%)	134 (78,4%)	53 (80,3%)	66 (79,5%)	15 (68,2%)
Non-Smoker, n (%)	141 (82,5%)	56 (84,8%)	67 (80,7%)	18 (81,8%)
Past Smoker, n (%)	24 (14%)	9 (13,6%)	12 (14,5%)	3 (13,6%)
Active Smoker, n (%)	6 (3,5%)	1 (1,5%)	4 (4,8%)	1 (4,5%)

Table 2 – Changes in Kidney Function Following TAVI

	N patients	eGFR pre-TAVI (mL/min/1.73m^2)	eGFR at discharge (mL/min/1.73m^2)	eGFR at 6 months to 1 year (mL/min/1.73m^2)	p value
Group 1	66	76,82 ± 10,94	73,10 ± 18,31	75,73 ± 14,33	0,160
Group 2	83	43,99 ± 8,58	50,86 ± 14,65	51,73 ± 16,42	< 0,01
Group 3	22	21,86 ± 5,25	28,09 ± 12,60	31,59 ± 13,06	< 0,01

eGFR: estimated glomerular filtration rate; TAVI: transcatheter aortic valve implantation

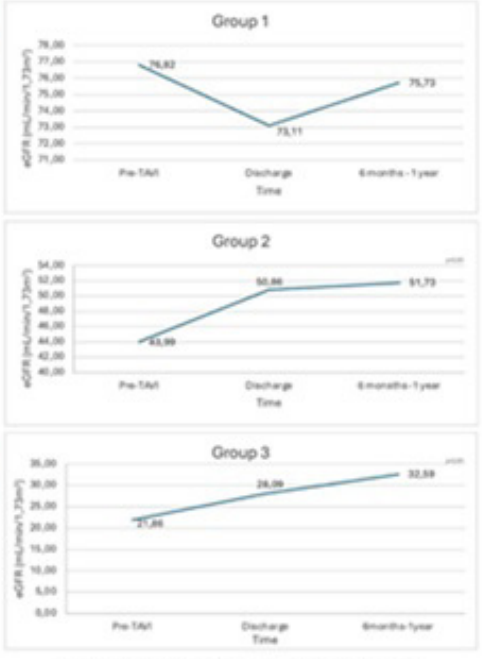

Figure 1 – Changes in Kidney Function Following TAVI

Figure PO 153

Table 1. Baseline characteristics of patients submitted to transcatheter aortic valve implantation, according to the need for pacemaker implantation and its timing.

	Early-PI (n = 67)	**Late-PI** (n = 51)	**No – PI** (n = 424)	***p*-value**
Age (years), mean (SD)	83.1 (5.4)	81.2 (5.1)	80.9 (6.2)	**0.021**
Male sex, n (%)	39 (58.2)	27 (52.9)	199 (46.9)	0.191
LVEF (%), mean (SD)	54.6 (13.5)	54.1 (15.7)	54.0 (13.2)	0.956
CV risk factors, n (%)				
Diabetes				
Type 1	1 (1.5)	0 (0.0)	2 (0.5)	0.522
Type 2 non-insulin treated	25 (37.3)	18 (35.3)	113 (26.7)	0.112
Type 2 insulin treated	1 (1.5)	5 (9.8)	18 (4.2)	0.093
Dyslipidaemia	45 (67.2)	31 (60.8)	301 (71.0)	0.294
Arterial Hypertension	55 (82.1)	45 (88.2)	350 (82.9)	0.605
Smoking habits				
Previous	4 (6.0)	6 (11.8)	39 (9.2)	0.538
Present	1 (1.5)	0 (0.4)	10 (2.4)	0.857
Previous Myocardial Infarction	5 (7.5)	3 (5.9)	42 (10.0)	0.882
Chronic kidney disease				
Stage IV	5 (7.5)	6 (11.8)	39 (9.2)	0.726
Stage V under dialysis	0 (0.0)	2 (3.9)	3 (0.7)	0.114
Kidney transplant	0 (0.0)	0 (0.0)	2 (0.5)	1.000
Conduction disturbances, pre-TAVI, n (%)				
LBBB	3 (5.2)	2 (4.2)	36 (10.9)	0.160
RBBB	22 (37.9)	7 (14.6)	33 (10.0)	**<0.001**
1st degree AVB	15 (30.0)	12 (29.3)	83 (28.7)	0.982
Conduction disturbances, post-TAVI, n (%)				
De novo LBBB	19 (34.5)	24 (52.2)	100 (34.1)	0.058
De novo 1st degree AVB	5 (14.3)	8 (27.6)	37 (18.0)	0.361
De novo 1st degree AVB + LBBB	3 (4.5)	4 (7.8)	18 (4.2)	0.463
AV Calcium score (UH), median (IQR)	3564 (2875)	3077 (2861)	3067 (1943)	0.964
Self-expanding valve, n (%)	54 (80.6)	40 (78.4)	352 (83.0)	0.668
TAVI prosthesis, n (%)				
Evolut	33 (49.3)	17 (33.3)	182 (42.9)	0.222
Sapien 3 Ultra	13 (19.4)	11 (21.6)	72 (17.0)	0.668
Accurate Neo2	6 (9.0)	5 (9.8)	95 (22.4)	**0.007**
Navitor	15 (22.4)	17 (33.3)	57 (13.4)	**0.001**
Portico	0 (0)	1 (2.0)	18 (4.2)	0.225

AV – aortic valve; AVB – atrioventricular block; CV – cardiovascular; IQR – interquartile range; LBBB – left bundle branch block; LVEF – left ventricle ejection fraction; n – number; RBBB – right bundle branch block; SD – standard deviation; TAVI – transcatheter aortic valve implantation. Statistically significant results are highlighted in **bold**.

Figure PO 154

Results: Among 542 patients, 67 (12.4%) underwent early PI, while 51 (9.4%) required late PI. Patients in early PI group were older (83.1 ± 5.4 years, $p = 0.021$) and had a higher prevalence of right bundle branch block (RBBB) (37.9%, $p < 0.001$). Late PI patients showed trends toward higher rates of type 2 insulin-treated diabetes and chronic kidney disease under dialysis. Notably, while the presence of pre-existing left bundle branch block (LBBB) did not influence the likelihood of PI, post-TAVI *de novo* LBBB was strongly associated with late PI. Regarding valve types, the *Accurate Neo2*® prosthesis showed no significant association with PI, while the *Navitor*® valve was linked to late PI and the *Evolut*® valve with early PI. Comparing early and late PI cases, early PI was primarily associated with pre-existing RBBB and use of the *Evolut*® valve, whereas late PI group correlated with post-TAVI *de novo* LBBB and use of the *Navitor*® valve. After excluding early PI patients, binary logistic regression identified *de novo* LBBB (OR 1.926, CI 1.001-3.706, $p = 0.050$), *Navitor*® valve use (OR 3.152, CI 1.495-6.644, $p = 0.003$) and chronic kidney disease under dialytic treatment (OR 18.048, CI 1.530-212.878, $p = 0.022$) as significant predictors of late PI.

Conclusions: Optimizing discharge timing after TAVI requires careful evaluation of conduction disturbances. Our findings suggest that patients with *de novo* LBBB and with *Navitor*® valve implanted, as well as dialysed patients, should warrant closer monitoring and potentially extended observation periods.

PO 155. PREDICTORS OF LEFT VENTRICULAR DYSFUNCTION RECOVERY ONE YEAR AFTER TAVR IN PATIENTS WITH PRE-EXISTING LEFT VENTRICULAR DYSFUNCTION (LVEF > 50%)

Fernando Nascimento Ferreira, Francisco Albuquerque, Inês Rodrigues, Miguel Figueiredo, Bárbara Teixeira, Francisco Cardoso, Mariana Caetano Coelho, Tiago Mendonça, Ruben Ramos, António Fiarresga, Rui Cruz Ferreira, Duarte Cacela

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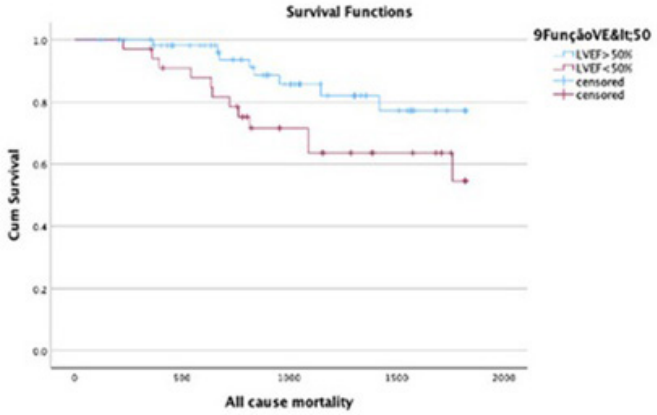
Introduction: Transcatheter aortic valve replacement (TAVR) has emerged as an effective treatment for patients with severe aortic stenosis. Although TAVR has been shown to improve left ventricular ejection fraction (LVEF), left ventricular dysfunction, often defined by a reduced LVEF, is a significant predictor of poor outcomes. Identifying factors that predict the maintenance of reduced LVEF (rLVEF) following TAVR is crucial, as persistent LVEF reduction is associated with poorer long-term outcomes.

Objectives: To identify pre-procedural predictors of sustained rLVEF in the medium term after TAVR and assess its prognostic impact.

Methods: A retrospective cohort study including patients who underwent echocardiographic re-evaluation one year after TAVR at a tertiary hospital

Variables	Univariate		Multivariate	
	OR (95% CI)	p value	OR (95% CI)	p value
Age in years	0,883 (0,816 - 0,955)	**0,002**	0,882 (0,803 - 0,969)	**0,009**
Aortic Valve mean gradient	0,939 (0,903 - 0,977)	**0,002**	0,957 (0,917 - 0,999)	**0,047**
Left Ventricular ejection fraction pre TAVR	0,919 (0,871 - 0,970)	**0,002**	0,945 (0,890 - 1,003)	0,062



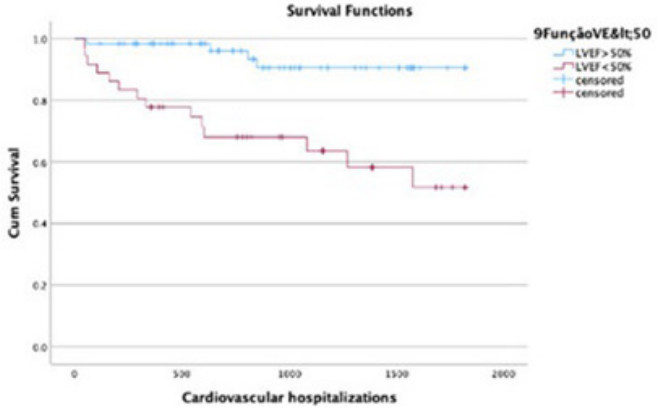


Figure PO 155

between 2018 and 2023, with pre-existing left ventricular dysfunction (LVEF < 50%). Baseline clinical characteristics and echocardiographic measurements were collected at the time of the procedure. Follow-up echo were performed to reassess LVEF. Univariate analysis, including chi-square and Independent t-tests, as well as a logistic regression model, Kaplan-Meier survival curves and Cox proportional hazards regression were used. A p-value < 0.05 was considered statistically significant.

Results: A total of 97 patients were included in the analysis, to groups were formed based on LVEF < 50% on midterm follow up. 36 (37.1%) pt had an LVEF < 50%. Patients who maintained rLVEF were significantly younger and male (mean age 77 ± 8.4 vs 82 ± 5.5 years, p = 0.048; male sex 33 vs 54%, p = 0.048). There were no significant differences the 2 groups regarding sex, comorbidities, and medication use. Additionally, patients with sustained reduced LVEF had a lower pre-TAVR LVEF (35.4 ± 9.5 vs. 40.7 ± 7.4%, p = 0.001) and mean aortic valve gradient (35.4 ± 12 mmHg vs. 45 ± 13.4 mmHg, p = 0.001). Logistic regression analysis identified age (OR = 0.882, 95%CI: 0.803-0.969, p = 0.009) and mean AV gradient (OR = 0.957, 95%CI: 0.917-0.999, p = 0.47) as independent factors associated with a lower likelihood of maintaining rLVEF. Kaplan-Meier survival analysis demonstrated that patients with sustained rLVEF had significantly higher all-cause mortality (HR 2.68 (1.052-6.811), p = 0.039) and cardiovascular hospitalizations (HR 9.195 (2.037-18.843), p = 0.001).

Conclusions: This study found that patients who maintained reduced LVEF post-TAVR had worse long-term outcomes, including higher all-cause mortality and cardiovascular hospitalizations. Younger age and a lower mean AV mean gradient were identified as factors linked to sustained rLVEF. These results highlight the importance of assessing pre-procedural characteristics to predict which patients are at risk for persistent reduced LVEF. Further research is needed to refine these predictors and improve post-procedural management strategies.

Sexta-feira, 11 Abril de 2025 | 16:15-17:15

Área de Posters-écran 3 | Sessão de Posters 25 - Além da recuperação - Avançando as fronteiras da reabilitação cardíaca

PO 156. BRIDGING THE GENDER GAP IN CARDIAC REHABILITATION: LONGITUDINAL PATTERNS OF PHYSICAL ACTIVITY ENGAGEMENT

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Introduction: Physical activity (PA) is a cornerstone of cardiovascular risk reduction and improved outcomes in cardiac rehabilitation (CR). Gender-specific differences in PA engagement remain underexplored, particularly

across the structured phases of CR programs. Understanding these patterns within single-centre settings can provide valuable insights into patient progress and program impact.
Objectives: This study aimed to evaluate gender-specific differences in PA levels, measured using the International Physical Activity Questionnaire (IPAQ), at baseline (T0), at the end of Phase 2 (T1), and three months after the conclusion of CR (Phase 3).
Methods: This single-centre longitudinal study included 307 participants (212 men and 95 women) who completed a standardized CR program. PA levels were categorized using the IPAQ into low, moderate, high, and very high activity levels. Assessments were conducted at baseline (T0), following Phase 2 (T1), and during Phase 3 (three months after the conclusion of CR). Chi-squared tests were performed to evaluate gender-specific differences at each time point.
Results: At baseline (T0), no significant differences in PA levels were observed between men and women (p = 0.148). By T1 (end of Phase 2), significant gender-specific differences emerged (p = 0.002). Women were more likely to achieve "high" PA levels (23.3%) compared to men (12.3%), while men predominantly engaged in "moderate" activity levels. By Phase 3 (three months post-CR), these trends persisted (p = 0.001), with women showing further improvements, reaching "high" (25%) and "very high" (2.2%) PA levels, while men exhibited stagnation with no representation in the "very high" category. Longitudinally, women consistently progressed to higher activity levels, while men showed minimal changes.
Conclusions: Gender-specific differences in PA engagement were evident by the end of Phase 2 and persisted during Phase 3. Women demonstrated significant improvements in PA levels, while men showed limited progression. These findings underscore the importance of tailored CR strategies to address gender-specific barriers and enhance PA engagement in men while reinforcing progress in women. Future research should investigate the physiological, cultural, and structural factors contributing to these disparities to optimize the long-term benefits of CR.

PO 157. ASSESSMENT OF BALANCE AND PHYSICAL CONDITION AS MEASURES: EVALUATE EFFECTIVENESS OF A CARDIAC REHABILITATION PROGRAMME IN IMPROVING CARDIAC FUNCTION AND FUNCTIONAL CAPACITY

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Introduction: Patients with reduced LVEF experience daily limitations, impaired mobility, and increased dependency, promoting frailty and comorbid risks. Exercise inertia exacerbates physical decline and cardiovascular vulnerability. We review studies supporting balance as a quantitative marker of functional capacity in phase 1 cardiac rehabilitation to identify the most correlated variables.
Objectives: To assess if balance and physical condition of patients are tools to evaluate the efficacy of the program aimed at improving their cardiac condition and functional capacity.
Methods: Longitudinal, prospective, experimental study of inpatients hospitalized with coronary artery disease. Dynamic balance and mobility (Fullerton battery of tests), upper body strength (handgrip strength test), cardiorespiratory fitness was used to evaluate physical fitness. Also were submitted to Morisky Medication Adherence Scale, STOP-Bang scale, and IPAQ. Using R version 4.2.2, simple linear regression, multiple linear regression with and without multiple variable selection/elimination (based on Akaike information criterion - AIC) approaches were applied. p-values less than 0.05 are considered as significant.
Results: On the day of discharge, 212 patients were evaluated, 79% were male, with a median age of 66 and interquartile range (57, 74), of which 35% had LVEF ≤ 40%; 73% had high blood pressure, 75% had dyslipidemia. The Shapiro-Wilk normality test, Durbin-Watson test and Breusch-Pagan studentized test were used to assess normality, independence and homogeneity assumptions, respectively. The variance inflation factor (VIF) was used to assess multicollinearity. The following table 1 shows that there was a significant association (p < 0.05) between the Fullerton Balance Assessment Battery score and: male gender, LVEF ≤ 40, hemoglobin, lower limb strength, flexibility of right upper limb, up and go test, 6MWT, average right-hand strength, IPAQ and HADS-Depression.
Conclusions: People with a low balance score have a high cardiovascular risk profile, reduced exercise capacity and higher levels of disability. This is a promising group to target for cardiac rehabilitation (CR) to help improvement. We propose that balance assessment could become a key indicator for evaluating the effectiveness of CR, as disability is strongly associated with reduced functional capacity. The authors believe that the balance assessment model can be applied to.

PO 158. CARDIAC REHABILITATION: IMPROVING FITNESS AND PERFORMANCE METRICS IN CORONARY ARTERY DISEASE

Bernardo Manuel Lisboa Resende, Ana Luísa Silva, Rafaela Fernandes, Luísa Gomes Rocha, Tomás Carlos, Mafalda Griné, Mariana Simões, Gonçalo Batista, Miguel Vicente, João Gameiro, Paulo Dinis, Lino Gonçalves

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Introduction: Current guidelines strongly recommend Cardiac Rehabilitation (CR) for patients with coronary artery disease (CAD). While beneficial effects

Tabel 1 – Simple and multiple linear regression with and without multiple variable selection/elimination (based on Akaike information criterion - AIC)

Characteristic	Simple		Multiple		Step AIC	
	95% CI1	p-value	95% CI1	p-value	95% CI1	p-value
Male	0.03, 5.0	**0.047**	-4.1, 1.3	0.295	-3.9, -0.57	**0.009**
LVEF ≤40	4.8, 8.7	**<0.001**	0.48, 4.0	**0.013**	0.69, 3.6	**0.004**
Hemoglobin	1.4, 2.4	**<0.001**	0.18, 0.98	**0.005**	0.32, 0.97	**<0.001**
Lower limb strength	1.7, 2.2	**<0.001**	-0.11, 0.69	0.150	0.10, 0.67	**0.009**
Flexibility of right upper limb	0.27, 0.42	**<0.001**	0.00, 0.24	0.054	0.03, 0.14	**0.004**
Up and go test	-1.2, -0.82	**<0.001**	-0.55, -0.13	**0.001**	-0.49, -0.14	**<0.001**
6MWT	0.07, 0.09	**<0.001**	0.00, 0.03	0.092	0.00, 0.03	**0.015**
Average right hand strength	0.26, 0.43	**<0.001**	-0.02, 0.24	0.103	0.01, 0.16	**0.020**
IPAQ	0.00, 0.00	**<0.001**	0.00, 0.00	0.063	0.00, 0.00	**0.011**
HADS-Depression	-1.1, -0.62	**<0.001**	-0.37, 0.02	0.084	-0.38, -0.11	**<0.001**

[1]CI = Confidence Interval

Figure PO 157

Cardiorespiratory fitness variables	Pre CRP	Post CRP	p-value
Maximum HR achieved (bpm) - mean ± SD	122.0 ± 19.9	125.4 ± 20.3	p=0.129
Percentage of predicted maximum HR (%) - mean±SD	77.2 ± 10.8	78.8 ± 11.2	p=0.191
Heart rate decreased by 12 bpm or more after one minute of recovery - n (%)	39 (73.6)	45 (84.9)	p=0.370
Maximum systolic blood pressure (mmHg) - mean ± SD	169.6 ± 25.9	174.2 ± 25.4	p=0.185
Maximum diastolic blood pressure (mmHg) - mean ± SD	87.8 ± 15.7	86.5 ± 13.0	p=0.519
Peak VO2 (mL/kg/min) - mean ± SD	20.8 ± 6.4	21.7 ± 6.4	p=0.190
Percentage of predicted maximum VO2 (%) - mean ± SD	77.9 ± 19.6	83.2 ± 17.3	**p=0.035**
VO2 at the first anaerobic threshold (mL/kg/min) - median (IQR)	11.6 (3.2)	11.0 (3.2)	p=0.145
Percentage of VO2 at the first anaerobic threshold relative to the reference value (%) - median (IQR)	48.6 (18.8)	43.6 (9.8)	p=0.130
VO2 at the second anaerobic threshold (mL/kg/min) - mean ± SD	19.4 ± 5.9	19.2 ± 4.7	p=0.897
Oxygen pulse (mL/min) - mean ± SD	14.2 ± 3.9	13.5 ± 2.6	p=0.196
Respiratory reserve (%) - mean ± SD	45.6 ± 13.6	41.7 ± 15.1	p=0.051
VE/CO2 slope (mL/kg/min) - median (IQR)	25.2 (7.4)	25.6 (7.9)	p=0.623
Resting PETCO2 (mmHg) - median (IQR)	36.5 (6.3)	36.0 (6.3)	p=0.446
HR at the first anaerobic threshold (bpm) - mean ± SD	97.7 ± 13.8	93.2 ± 13.2	p=0.082
HR at the second anaerobic threshold (bpm) - mean ± SD	119.9 ± 17.5	119.1 ± 15.6	p=0.706
OUES - mean ± SD	2.0 ± 0.6	1.8 ± 0.5	p=0.108
Physical performance (W) - mean ± SD	110.8 ± 39.8	132.5 ± 48.9	**p<0.001**
Percentage of watts relative to physical performance (%)- mean ± SD	71.2 ± 20.1	85.9 ± 25.1	**p<0.001**
Qualitative characterization of physical performance			
Normal or elevated - n (%)	20 (37.7)	34 (64.2)	**p=0.005**
Reduced - n (%)	25 (47.2)	16 (30.2)	
Metabolic Equivalent (METs) - median (IQR)	6.3 (2.2)	6.0 (2.7)	p=0.444
VO2/Work Rate slope (mL/kg/min/W) - median (IQR)	11.6 (2.9)	11.7 (1.8)	p=0.525

Table 2. Cardiorespiratory fitness analysis before and after Phase II Exercise-Based Cardiac Rehabilitation.
Bpm - Beats per minute. CRP - Cardiac Rehabilitation Program. HR – Heart rate. IQR - Interquartile Range. METs - Metabolic Equivalent of Task. OUES - Oxygen Uptake Efficiency Slope. PETCO2 - partial pressure of end-tidal CO2. SD - Standard deviation.

Figure PO 158

are well-established, continuous monitoring of CR program outcomes is essential to optimize patient care and ensure ongoing quality improvement.
Objectives: Compare cardiorespiratory fitness parameters before and after a phase II exercise-based CR program in patients with established CAD.
Methods: This single-center, retrospective observational study analyzed consecutive patients who successfully completed a supervised exercise-based CR program between January 2023 and September 2024. The program duration was at least 12 weeks. Data were collected by a specialized multidisciplinary team. Continuous variables were analyzed using paired T-Test or Wilcoxon signed-rank tests, as appropriate. Categorical variables were analyzed using Chi-Square test.
Results: The cohort comprised a total of 53 patients, primarily males (44/83.3%), with a mean age of 59.6 ± 11.1 years. The average program duration was 20.0 ± 8.0 weeks. A statistically significant improvement was observed in the mean percentage of predicted maximum VO2 (77.9 ± 19.6 vs. 83.2 ± 17.3%, *p-value* = 0.031). Significant improvements were also found in quantitative physical performance (110.8 ± 39.8 vs. 132.5 ± 48.9 W, *p*-value < 0.001) and in the percentage of watts relative to physical performance (71.2 ± 20.1 vs. 85.9 ± 25.1%, *p*-value < 0.001). A statistically significant association was also observed between program participation and qualitative assessments of physical performance (reduced physical performance: 25/47.2 vs. 16/30.2%, *p*-value = 0.005).
Conclusions: This study demonstrates that a structured phase II CR program significantly improves cardiorespiratory fitness and physical performance in patients with CAD. These findings highlight the importance of ongoing monitoring and evaluation of CR programs to optimize patient outcomes and enhance the quality of care.

PO 159. HIGH-INTENSITY INTERVAL AND CONTINUOUS TRAINING FOR HEART TRANSPLANT PATIENTS AND ITS IMPACT ON HEART RATE RECOVERY

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Introduction: Heart rate recovery (HRR) during cardiopulmonary exercise testing (CPET) is a critical marker of autonomic function and cardiorespiratory fitness. Understanding its role in predicting functional gains during cardiac rehabilitation (CR) and the influence of training modalities, such as high-intensity interval training (HIIT) versus continuous training (CT), can optimize rehabilitation outcomes, particularly in heart transplant recipients.
Methods: We retrospectively analyzed data from heart transplant recipients undergoing a structured CR program. HR metrics (baseline HR, maximum HR, and first-minute HR recovery during CPET) were assessed pre- and post-rehabilitation. Fitness improvements were evaluated using changes in 6-minute walk test (6MWT) distance and VO2 max. Correlations between HRR and fitness improvements were calculated for the overall cohort and stratified by training modality (HIIT vs. CT).
Results: A total of 15 patients (HIIT: 5, CT: 10) were included. In the HIIT group, HRR metrics demonstrated strong correlations with fitness

	High Intensity Interval Training - Pearson correlation (r)	Continuous Training - Pearson correlation (r)
Baseline HRR x VO2 max	-0.98	
Baseline HRR x 6MWT		-0.58
Maximum HRR x VO2 max	0.83	0.48
Maximum HRR x 6MWT	1	0.09
1st minute HHR x 6MWT	1	0.16

HRR – Heart rate recovery; VO2 max - maximal oxygen consumption; 6MWT - 6 Minute Walk Test

Figure PO 159

improvements. Maximum HRR was perfectly correlated with 6MWT distance improvement (r = 1.00) and had a strong positive correlation with VO2 max improvement (r = 0.83). Baseline HRR was inversely correlated with VO2 max improvement (r = -0.98), indicating that patients with poorer baseline autonomic function derived greater benefits. In contrast, the CT group exhibited weaker correlations. Maximum HRR was moderately associated with VO2 max improvement (r = 0.48), while baseline HRR showed a negative correlation with 6MWT improvement (r = -0.58).

Conclusions: In heart transplant recipients, HIIT demonstrated stronger associations between HRR metrics and fitness improvements compared to CT, underscoring its effectiveness in enhancing autonomic recovery and functional capacity in this unique population. Transplant recipients with impaired baseline autonomic function benefited the most, particularly from HIIT, as reflected by improvements in VO2 max and 6MWT distance. HRR metrics, are valuable predictors of fitness improvements and should be routinely monitored in cardiac rehabilitation programs tailored for heart transplant patients.

PO 160. RESTING ENERGY EXPENDITURE AS A SURROGATE OF MUSCLE MASS QUANTIFICATION IN PATIENTS WITH HEART FAILURE AND REDUCED EJECTION FRACTION: A PILOT PROSPECTIVE COHORT STUDY

Miguel Sobral Domingues[1], Débora Correia[1], Raquel Alves[2], Rita Barbosa Sousa[1], Maria Clarissa Rodrigues[1], Manuel Pedro[2], Sara Henriques[2], Vanessa Santos[2], Helena Santa-Clara[2], Gonçalo Cunha[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Faculdade de Motricidade Humana, Universidade de Lisboa.

Introduction: Sarcopenia is associated with poorer prognosis in heart failure patients. However, measuring muscle mass in clinical practice remains challenging. Given the significant role of muscle mass in energy expenditure among healthy individuals, we hypothesized that resting energy expenditure (REE) could serve as a surrogate for muscle mass quantification in patients with heart failure and reduced ejection fraction (HFrEF), a hypothesis not previously tested.

Objectives: To evaluate the relationship between REE and muscle mass quantification in HFrEF patients.

Methods: In this prospective cohort study, we recruited consecutive patients with HFrEF. Participants underwent dual-energy X-ray absorptiometry (DEXA) and a 30-minute resting metabolism test (RMT) at the same day. Muscle mass was quantified using DEXA, by subtracting bone mineral composition from the obtained whole-body lean mass and adjusted for body surface area. REE was estimated via indirect calorimetry based on the most stable 10-minute period over a 30-minute assessment. Statistical analysis was conducted using Pearson correlation and linear regression to assess the strength and direction of the relationship between these variables and determine the extent to which REE could predict muscle mass quantification.

Results: We recruited 24 patients (79% male, mean age 66; mean LVEF 38 ± 7%). This cohort included patients with ischemic heart disease (n = 14), dilated cardiomyopathy (n = 5), valvular heart disease (n = 4) and burnout hypertrophic cardiomyopathy (n = 1). The mean muscle mass adjusted for body surface area was 23.4 ± 2.5 kg/m^2, and the mean REE was 1.56 ± 0.35 kcal/min. Notably, there was a considerable disparity in the relationship between muscle mass and REE, with muscle mass ranging from 18.9 to 28.9 kg/m^2 and REE ranging from 1.07 to 2.23 kcal/min. A significant correlation was observed between REE and muscle mass (Pearson coefficient 0.752, p < 0.001).

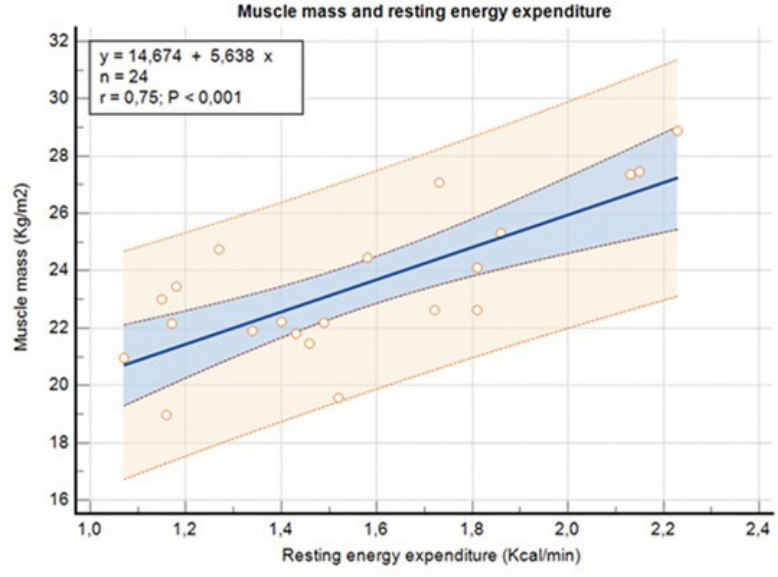

Figure 1. Relationship between muscle mass (Kg/m2) and resting energy expenditure (Kcal/min). The regression line (y = 14.674 + 5.638x) shows a significant positive correlation (r = 0.75, P < 0.001, n = 24), with shaded areas representing confidence (in blue) and prediction (in orange) intervals.

Figure PO 160

Linear regression demonstrated a strong relationship between these two variables (Muscle mass = 14.67 + 5.7*REE; R^2 = 0.57) (Figure 1).
Conclusions: Resting energy expenditure showed a significant correlation with muscle mass quantification in patients with HFrEF, suggesting it could serve as a viable surrogate. Given the promising results of this pilot study, further validation of these findings in real-world settings is warranted. The next phase of this study will involve integrating a simplified resting metabolism protocol during the resting phase of cardiopulmonary exercise testing (CPET) to assess its applicability in a routine clinical practice scenario.

PO 161. THE ROLE OF CPET FOR THE ASSESSMENT OF PATIENTS WITH TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

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Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Cardiopulmonary exercise testing (CPET) is a well-established tool for assessing functional capacity but is underutilized in Transthyretin Amyloid Cardiomyopathy (ATTR-CM). We aimed to evaluate the correlation between CPET parameters and ATTR-CM disease stage and the potential prognostic value of CPET in these patients.
Methods: This is a single-centre study of ATTR-CM patients diagnosed followed in our dedicated rare disease program which underwent CPET since November 2019. ATTR-CM was confirmed as per the recommended non-invasive algorithm. Patients performed CPET on a treadmill using an exercise protocol with progressive increase in workload. The test was considered to be maximal if a respiratory exchange ratio (RER) ≥ 1.05 was obtained. ATTR-CM severity was classified as per the Gilmore staging system and patients were grouped as follows: stage I [NT-proBNP ≤ 3,000 ng/L and estimated glomerular filtration rate (eGFR) ≤ 45 mL/min) or stage II/III (NT-proBNP > 3,000 ng/L and/or eGFR < 45 mL/min). The primary endpoint of interest was a composite of all-cause death, cardiovascular hospitalization or emergency room visits.
Results: We analysed CPET data from 47 patients (mean age 83 ± 6 years, 85% male, 53% stage I) diagnosed with ATTR-CM. The mean duration of CPET was 7.7 ± 3.2 minutes and it was maximal in 43% (n = 20) of patients. Compared to those in stage I, patients in stage II/III had worse CPET parameters, as noted by a lower peak oxygen consumption (pVO_2) (13 ± 3 *vs.* 15 ± 4 mL/kg/min, p = 0.025) and the presence of exercise oscillatory ventilation (EOV) (41 vs. 8%, p = 0.008), lower percentage of predicted peak heart rate (82 ± 19 vs. 99 ± 2%, p = 0.004) and reduced heart rate reserve (9 [IQR 12] vs. 14 [IQR 26] bpm, p = 0.008). A total of 20 (43%) patients met the composite outcome at a median follow-up of 21 months. Stage II/III patients had higher rates of death (4 vs. 1%, p = 0.002) and cardiovascular hospitalization (46 vs. 16%, p = 0.042). Univariable analysis identified pVO2 < 16 ml/kg/min (Weber class C and D) and O_2 pulse as predictive of the primary endpoint.
Conclusions: CPET in feasible in patients with ATTR-CM and correlates well with disease severity, as per the Gillmore staging system. The role of CPET in the prognostic evaluation warrants further investigation in a properly conducted multicentre prospective study.

Sexta-feira, 11 Abril de 2025 | 17:15-18:15

Área de Posters-écran 1| Sessão de Posters 26 – Cardiogenética em ação!

PO 162. ASSOCIATION OF SLC30A8 RS1326634 GENE VARIANT WITH CENTRAL FAT DISTRIBUTION IN OVERWEIGHT AND OBESE WOMEN

Ana Débora Câmara de Sá[1], Maria Isabel Mendonça[2], Francisco Sousa[1], Gonçalo Abreu[1], Matilde Ferreira[1], Sónia Freitas[2], Eva Henriques[2], Sofia Borges[2], Graça Guerra[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Centro de Investigação Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Epidemiological studies suggest that the location and distribution of excess fat, rather than overall adiposity, provide better insights into the risk of cardiometabolic diseases. Fat distribution, often

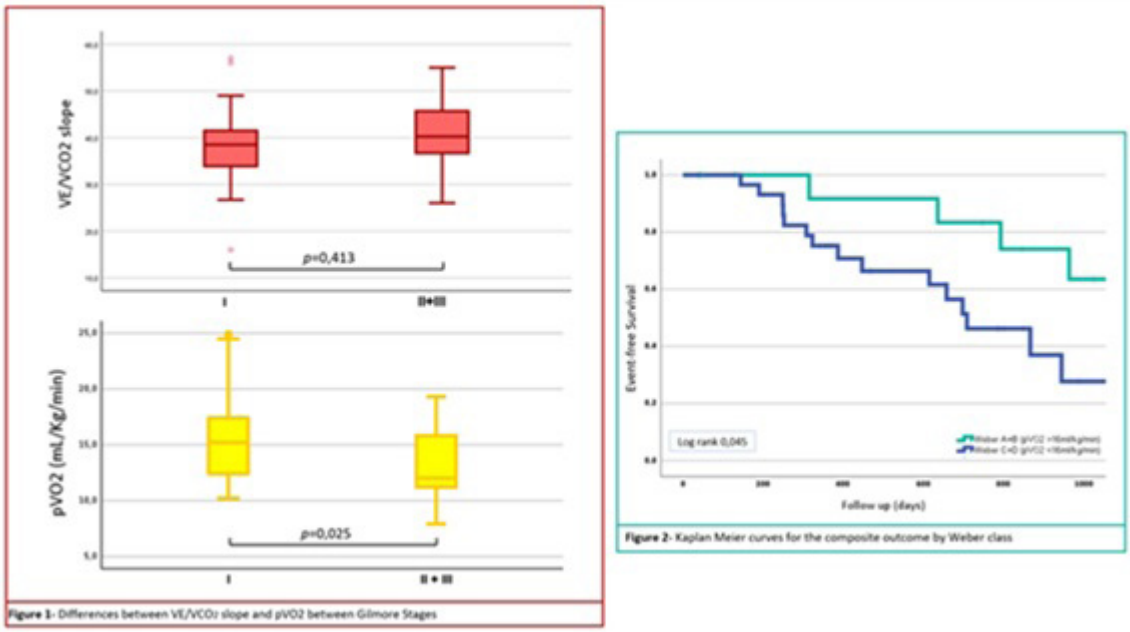
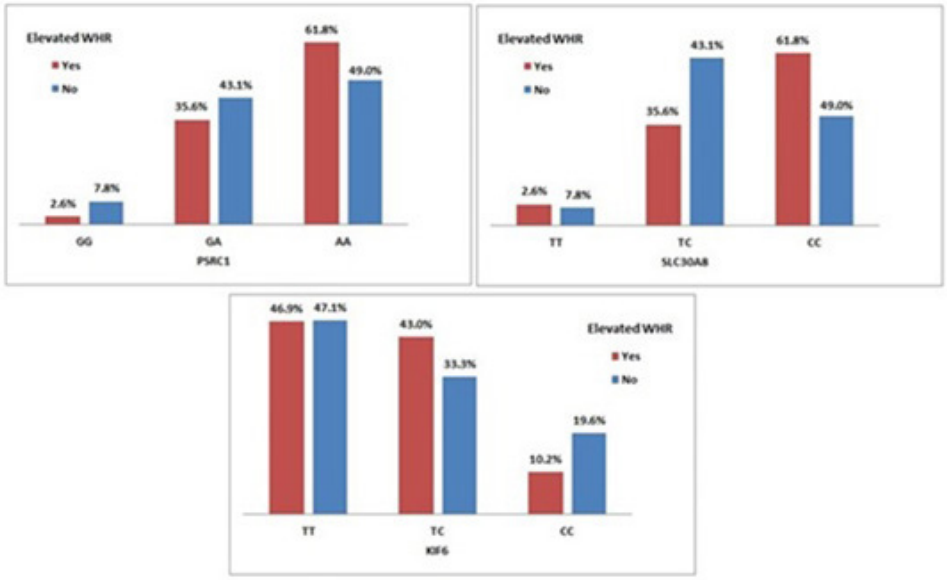


Figure PO 161



PSRC1, SLC30A8 and KIF6 genotype distribution

Variables independently associated with elevated WHR

Variables	B	S.E.	Wald	df	Odds ratio (95% CI)	P value
Diabetes	1.290	0.449	8.263	1	3.63 (1.51 – 8.75)	0.004
SLC30A8 (CC)	0.917	0.308	8.876	1	2.50 (1.37 – 4.57)	0.003
Constant	1.499	0.204	53.926	1	4.475	<0.0001

Variables excluded from the equation: age; smoking; hypertension; dyslipidemia; physical inactivity; PSRC1 (AA+GA) and KIF6 (TT).

Figure PO 162

assessed through waist-to-hip ratio (WHR), has been shown to have a heritable component, with twin-based heritability estimates ranging from 30-60% and narrow-sense heritability estimated at approximately 50% in women and only around 20% in men. However, which genetic factors influence fat distribution in overweight and obese women remain poorly understood.

Objectives: Assess the relationship between a set of single nucleotide polymorphisms previously associated with obesity and the WHR in overweight and obese women.

Methods: A cohort study was conducted in 512 women (aged 56.1 ± 6.4 years) with Body Mass Index (BMI) > 25 kg/m^2. Waist-to-Hip Ratio (WHR) was calculated as the ratio of waist circumference (measured at the narrowest point between the lower rib and the iliac crest) to hip circumference (measured at the widest point of the hips). Two groups were composed according WHR values: WHR > 0.85 (android/central fat distribution) and WHR ≤ 0.85 (gynoid fat distribution). Fifteen single nucleotide polymorphisms previously linked to obesity and lipid metabolism abnormalities were genotyped using TaqMan real-time PCR. The association of these SNPs with WHR was achieved by bivariate and multivariate logistic regression analysis, and the dominant or recessive genetic model were considered for comparison.

Results: After bivariate analysis, PSRC1 variant rs599839 (AA+GA vs. GG) showed a significant association with android type obesity (OR = 3.18; 95%CI 0.99-10.27; p = 0.041), together with SLC30A8 rs1326634 (CC vs. TT+TC) (OR = 2.38; 95%CI 1.31-4.33; p = 0.004). KIF6 rs20455 (TT vs. CC+CT) showed an association with gynoid type obesity (OR = 0.47; 95%CI 0.22-0.99; p = 0.043) in bivariate analyses. After multivariate logistic regression with these three significant genes adjusted for the traditional risk factors, only SLC30A8 rs1326634 (CC vs. TT+TC) that encodes the secretory granule-resident and largely endocrine pancreas-restricted zinc transporter ZnT8, remained in the equation as independently associated with an increased WHR (OR = 2.50; 95%CI 1.37-4.57; p = 0.003).

Conclusions: A significant association between the SLC30A8 rs1326634 gene variant and android/central fat distribution was found in overweight and obese women. Understanding the genetic basis of obesity and central fat distribution can enable lifestyle changes or pharmacologic interventions to attenuate risk of cardiometabolic complications.

PO 163. CAN THE GENE VARIANT ZC3HC1 RS11556924 C > T INCREASE ESSENTIAL HYPERTENSION RISK? INFLUENCE OF SMOKING IN THE RELATIONSHIP

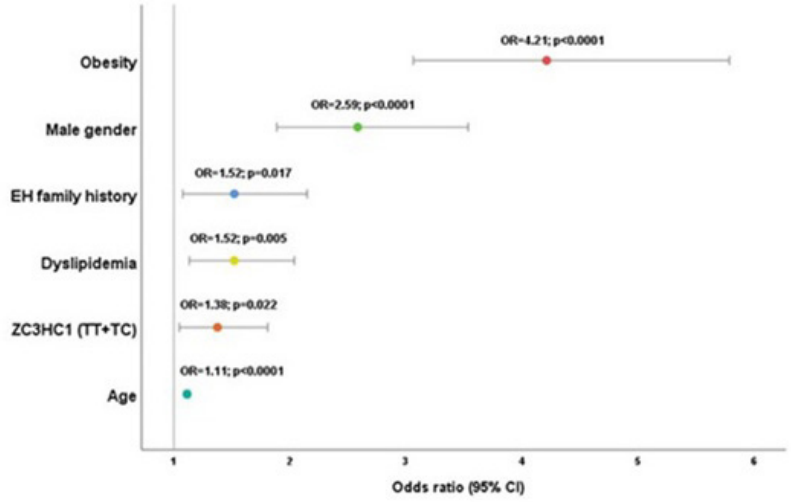
Carolina Olim[1], Maria Isabel Mendonça[1], Débora Sá[1], Francisco Sousa[1], Gonçalo Abreu[1], Matilde Ferreira[1], Eva Henriques[1], Sónia Freitas[1], Sofia Borges[1], Graça Guerra[1], Ana Célia Sousa[1], Roberto Palma dos Reis[2]

[1]Hospital Dr. Nélio Mendonça. [2]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Essential Hypertension (EH) is a multifactorial disorder resulting from environmental and genetic factors and a primary factor for morbidity and mortality worldwide. A genetic variant in the ZC3HC1 gene, resulting in an arginine-to-histidine at the 363 position of the NIPA protein, has been associated with coronary artery disease (CAD). Still, its relationship with EH remains less clear.

Objectives: Investigate whether ZC3HC1 rs11556924C>T was associated with Essential Hypertension in a Portuguese Population without apparent CAD.

Methods: A prospective study included 1421 participants from our Research Center dataset on a normal Portuguese population without apparent CAD. Participants were followed during an extended period (average ± 7.0 ± 5.7 years), and all demographic, biochemical, CV risk factors and clinical data were performed. ZC3HC1 rs11556924 was genotyped by TaqMan assays



Multivariate logistic regression analysis with variables associated with Essential Hypertension.

Figure PO 163

real-time polymerase chain reaction (PCR). The allelic and genotypic frequency distribution were estimated, and the Hardy-Weinberg equilibrium was tested. Data were displayed as absolute numbers, means and standard deviations (SD). The Student's t-test compared numerical variables, and the Chi-square was analyzed categorically. Multivariate logistic regression adjusted to confounders was performed. Statistical significance was defined as $p < 0.05$, and all analyses were performed using SPSS statistical software, 25.0 version.

Results: The population was in the Hardy-Weinberg equilibrium either in the group with EH (p = 0.438) or without EH (p = 0.768). In the overall population, the frequencies of the CC, CT, and minor TT genotypes were, respectively, 38.4%, 48.2% and 13.4% in the EH group and 43.9%, 45.1% and 11.0% in the non-EH group (p = 0.074). In bivariate analysis, the dominant model (TT+TC vs. CC) presented an OR = 1.255; p = 0.031 and the recessive model (TT vs. TC+CC) had an OR = 1.249; p = 0.162. The dominant model was also risk against EH in the non-smoking population, with statistical significance (p = 0.016). In this population (non-smoking), after multivariate logistic regression adjusted for all other co-variables, ZC3HC1 also remained in the equation, with an OR = 1.376 (CI: 1.047-1.809; p = 0.022).

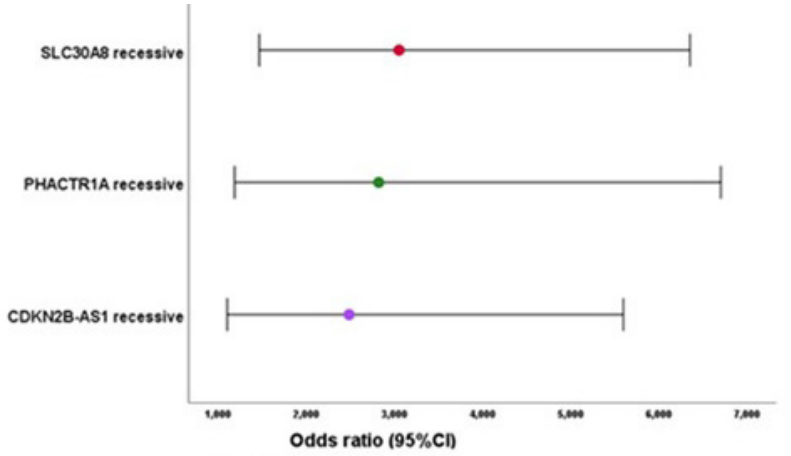
Conclusions: ZC3HC1 rs11556924 was shown to be a risk factor for essential hypertension. However, this variant may no longer be independently significant in the general population. Meanwhile, in non-smokers, this variant increases EA risk, either in bivariate or in multivariate model. Smoking, through vascular damage or inflammation pathways, can act as a confounder or modifier of EH in the general population. Removing smokers may reduce noise, unmasking the proper relationship between the variant and hypertension.

PO 164. GENETIC CONTRIBUTION TO CAD IN PATIENTS WITH FEW TRADITIONAL RISK FACTORS BUT A SEDENTARY LIFESTYLE

Matilde Ferreira[1], Maria Isabel Mendonça[2], João Adriano Sousa[1], Débora Sá[1], Francisco Sousa[1], Gonçalo Abreu[1], Sónia Freitas[2], Eva Henriques[2], Graça Guerra[2], António Drumond[1], Ana Célia Sousa[1], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Physical inactivity has mainly been recognised as a risk factor for coronary arterial disease (CAD), an essential modifiable risk impacting public health. Although there is a significant correlation between physical inactivity and the incidence of cardiovascular disease (CV), a considerable proportion of people with sedentary lifestyles remain CAD-free. This



Genetics variables independently and significantly associated with susceptibility to CAD

Figure PO 164

disparity prompts fascinating inquiries into the intricate interactions among environmental, epigenetic, and genetic factors contributing to CAD.
Objectives: Evaluate which genetic polymorphisms are responsible for a higher probability of occurrence of CAD in individuals with physical inactivity but without other CV risk factors.
Methods: A case-control study was conducted involving individuals with physical inactivity, with a few traditional risk factors: density lipoprotein (LDL) levels < 100 mg/dL, non-diabetic, and non-hypertensive. Of 3.157 participants, 152 (77.6% men; aged 50.8 ± 8.9) were enrolled and subdivided into two groups: 100 patients with CAD (defined as having at least 70% stenosis in one major coronary artery) and 52 controls without CAD. Four polymorphisms previously associated with CAD by GWAS but not with TRFs (CDKN2B-AS1 G > C, PHACTR1 C > T, ACE I > D and SLC30A8 T > C) were genotyped using TaqMan real-time PCR. Then, we performed a bivariate analysis to evaluate genotype distribution in case and controls and a multivariate regression analysis to assess what genotype or genetic models were significant and independently associated with CAD.
Results: After bivariate analysis, PHACTR1 rs1332844 variant, ACE I/D rs4340, CDKN2B-AS1 rs1333049 and rs497757 variants, and SLC30A8 rs1326634 were significantly more prevalent in the CAD cohort. After multivariate regression analysis entering the four variants in the recessive genetic models, PHACTR1 C > T remained in the equation significantly associated with CAD (OR 2.82; p = 0.019) together with SLC30A8 T > C (OR 3.05; p = 0.003) and CDKN2B-AS1 T > C (OR 2.49; p = 0.028).
Conclusions: Although the variation in physical activity and sedentariness is likely to be determined by many factors, the genetics influence is significant. Our findings suggest three genetic variants related to the cellular cycle, apoptosis, endothelial dysfunction, and inflammation, which are significantly associated with CAD in sedentary people with few traditional risk factors. A synergistic effect of a sedentary lifestyle and genetic influence may explain CAD susceptibility.

PO 165. HOW GENETIC VARIANTS AND EXCESS OF WEIGHT INFLUENCE RISK OF CORONARY ARTERY DISEASE

Matilde Ferreira[1], Maria Isabel Mendonça[2], João Adriano Sousa[3], Débora Sá[1], Francisco Sousa[1], Gonçalo Abreu[1], Graça Guerra[2], Eva Henriques[2], Mariana Rodrigues[2], António Drumond[1], Ana Célia Sousa[1], Roberto Palma dos Reis[4]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Hospital Dr. Nélio Mendonça. [4]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Excessive weight is a significant risk factor for coronary artery disease (CAD), contributing to the development of cardiovascular events through complex metabolic and inflammatory mechanisms. While advancements have been made in understanding this relationship, the genetic basis underlying the link between excessive weight and CAD remains incomplete.
Objectives: Evaluate which genetic polymorphisms are responsible for a higher probability of occurrence of CAD in patients with excessive weight without other traditional risk factor.
Methods: A case-control study was conducted involving individuals with excessive weight but a few of the other traditional risk factors as it is with low-density lipoprotein (LDL) levels < 100 mg/dL, non-diabetic, and non-hypertensive. From 3,157 individuals of our dataset, a total of 202 (77.7% men; aged 51.0 ± 8.5 years) were selected, comprising 120 patients with CAD (defined as having at least 70% stenosis in one major coronary artery) and 82 controls without CAD. Thirty-three genetic polymorphisms previously associated with CAD were genotyped using TaqMan real-time PCR. From these, five were selected not associated with the traditional risk factors: SLC30A8 rs1326634, PHACTR1 rs1332844, MTHFR rs1801131, APOE rs7412/rs429358 e o TCF21 rs12190287. The bivariate analysis evaluated differences between genotypes, and after this, a multivariate logistic regression analysis showed which variants were significant and independently associated with CAD, using the appropriated genetic model.
Results: SLC30A8, PHACTR1, MTHFR, APOE and TCF21 were significantly more prevalent in the CAD cohort. After multivariate logistic regression analysis of these five polymorphisms, three remained in the equation: PHACTR1 (OR = 1.90; p = 0.047), MTHFR (OR = 6.28; p = 0.021) on the recessive model and APOE (OR = 2.66; p = 0.011) on the dominant genetic model as independent and significantly associated with CAD risk in our population.
Conclusions: Obesity is a multifactorial disease with complex interactions among genes and environments. Our finding showed that three genetic variants (PHACTR1, MTHFR1298, and APOE) were associated with an increased risk of CAD in individuals with excessive weight and without other main CV risk factors. These genetic variants that influence inflammatory pathways and oxidative stress may interfere with overweight conditions, synergistically contributing to subclinical atherosclerosis and CAD.

PO 166. THE ADDITION OF A POLYGENIC RISK SCORE TO A CLINICAL RISK SCORE IN THE PREDICTION OF CARDIOVASCULAR DISEASE

Débora Sá[1], Maria Isabel Mendonça[2], Francisco Sousa[1], Gonçalo Abreu[1], Matilde Ferreira[1], Sónia Freitas[3], Mariana Rodrigues[3], Sofia Borges[3], Graça Guerra[3], António Drumond[1], Ana Célia Sousa[3], Roberto Palma dos Reis[4]

[1]Hospital Dr. Nélio Mendonça. [2]Centro de Investigação Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Centro de Investigação Dra. Maria Isabel Mendonça, SESARAM EPERAM. [4]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

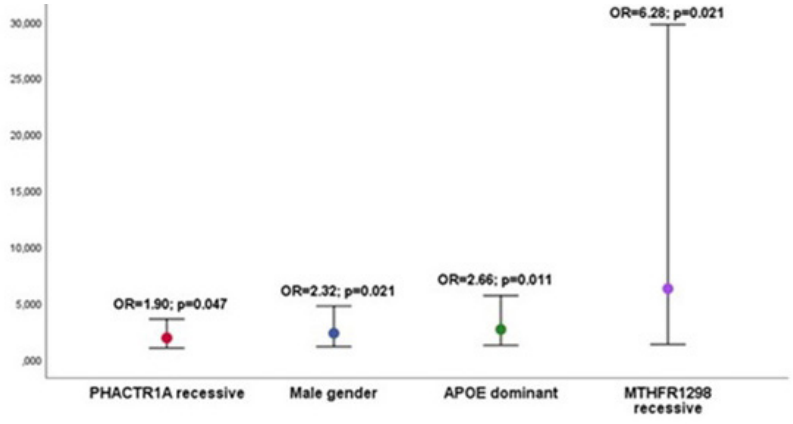
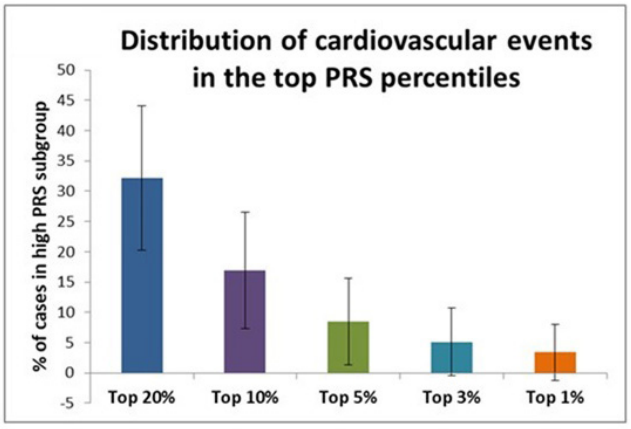
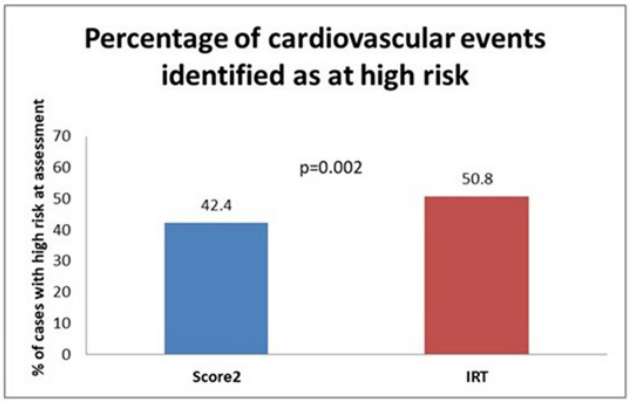


Figure PO 165

Introduction: Recent research showed that adding a polygenic risk score (PRS) for cardiovascular disease (CVD) to clinical risk tools has improved risk prediction for CVD. It has been proved that this addition enhances the identification of individuals at increased risk for CV events in a real-world clinical setting.
Objectives: Investigate in a regular cohort of a Southern European population whether adding a CVD-PRS to clinical SCORE2, in the form of an integrated risk tool (IRT), increased the proportion of high-risk individuals with, at least, one major CV event compared with the SCORE2.
Methods: An asymptomatic Southern European population composed of 1103 individuals (53.4 ± 6.9 years; 74.2% male) was analysed in this study. From the 33 genetic variants mostly used in our CVD-PRS, only 13 variants that presented a Hazard Ratio > 1 for events were included. The additive PRS is the product sum of each individual's risk alleles, weighted by its effect size (HR). We constructed IRT using the formula W1*SCORE2 + W2*PRS, where W1 and W2 are weights determined through AUC curves validation. So, IRT = 0.6*Score2 + 0.4*PRS. We divided IRT in three categories < 5%, 5%-10% e > 10% we used the higher. When about 60 individuals (cases) had a major event, NRI reclassification (with PRS added to SCORE2) was performed. Statistical analysis was done using R package "survIDINRI" and SPSS version 25.
Results: From the 59 events occurred in the end of follow-up, 32.2% occurred in the top 20%, i.e. in the highest percentile of PRS; 16.5% occurred in the top 10%; 8.5% in the top 5%; 5.1% in the top 3% and 3.4% in the top 1%. 42.4% of individuals in the highest category in SCORE2 presented cardiovascular events. When we used the integrated risk tool (combination of SCORE2 and polygenic risk score), there was a significant increase in events (8.4%) in the high-risk population.





Conclusions: In a clinical situation, adding genetic information to clinical risk assessment significantly aids in identifying those at high risk for events, allowing preventive measures to be applied to a higher proportion of such individuals at high risk who went on to have a major CV event.

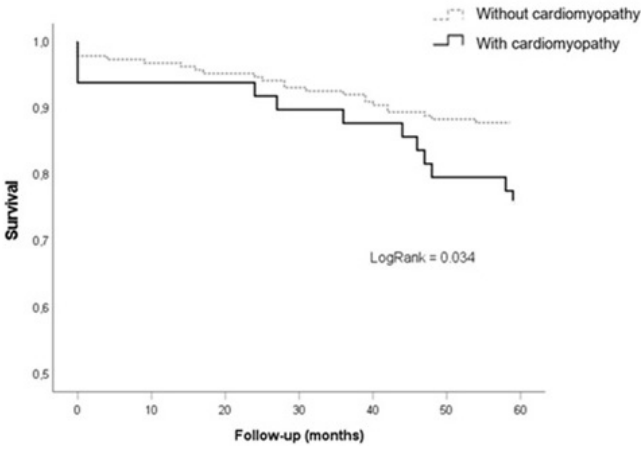
PO 167. PREDICTORS AND OUTCOMES OF AMYLOID CARDIOMYOPATHY CAUSED BY TRANSTHYRETIN V30 MUTATION

Mariana Pereira Santos[1], Alexandra Pinto Pires[2], David Sá Couto[1], Diana Ribeiro[1], Pedro Monteiro[1], Tiago Peixoto[1], Andreia Campinas[1], Marta Fontes Oliveira[1], Sara Fernandes[1], Hipólito Reis[1], Severo Torres[1], Patrícia Rodrigues[1]

[1]ULS Santo António. [2]Instituto de Ciências Biomédicas Abel Salazar.

Introduction: Transthyretin-related amyloid cardiomyopathy (ATTR-CM) results from mutations in the TTR gene (vATTR) or conformational changes in wild-type TTR protein (wtATTR). Regarding TTR mutations, a particular early-onset phenotype, presenting predominantly as a peripheral neuropathy (named Familial Amyloid Polyneuropathy) is endemic in Portugal, with the V30M being the most common pathogenic variant. The aim of this study was to characterize the occurrence of V30M ATTR-CM, as well as its predictors and outcomes.
Methods: We conducted a retrospective study including patients diagnosed with TTR V30M mutation, with and without amyloid cardiomyopathy, consequently seen in Cardiology appointments in 2019 at our center and followed for at least 5 years. Diagnostic criteria for ATTR-CM were considered according to ESC recommendations. Multiple linear regression was used to identify independent predictors for ATTR-CM. Death rates were plotted as Kaplan-Meier curves.
Results: We enrolled a total of 248 TTR V30M patients, mean age of 54 years old, 53% males, 68% with early onset disease (< 50 years); 49 (21%) patients fulfilled the criteria for ATTR-CM diagnosis (with an additional 10% possibly having cardiomyopathy without fulfilling all diagnostic criteria). V30M ATTR-CM was associated with male gender (78 vs. 46%, p < 0.001), older age (62.4 ± 13.7 years vs. 52.1 ± 13.4 years, p < 0.001), late-onset disease (40 vs. 18%, p = 0.002), liver transplantation (49 vs. 28%, p = 0.004), orthostatic hypotension (55 vs. 30%, p < 0.001), ophthalmologic manifestations (31 vs. 16%, p = 0.019), and lower creatinine clearance (81.5 ± 25.3 ml/min vs. 94.0 ± 30.4 ml/min, p = 0.009). There was no difference between groups regarding neurological involvement (present in 90 vs. 82%) or GI, renal and urological manifestations. In multivariate analysis, male gender (OR 4.69; 95%CI 1.85-11.93; p < 0.001) and liver transplant (OR 6.41; 95%CI 1.93-21.24; p = 0.002) were the only independent predictors of CM identified. Median follow-up time was 57 (5) months. ATTR-CM was associated with worse outcomes (survival 78.5 vs. 91.3%, LogRank = 0.034) (Figure 1).

Figure I – Kaplan-Meier survival curve showing the probability of death according to the presence of cardiomyopathy



Conclusions: ATTR-CM affects more than one fifth of our TTR V30M patients and is independently predicted by male gender and liver transplantation. It is associated with worse outcomes, highlighting the need for early detection and management to improve prognosis.

Sexta-feira, 11 Abril de 2025 | 17:15-18:15

Área de Posters-écran 2 | Sessão de Posters 27 – Formação em cardiologia e farmacoterapia

PO 168. TRAINING ON A BUDGET: INDUSTRY SPONSORSHIPS IN CARDIOLOGY RESIDENCY

Inês Brito e Cruz[1], Tomás Carlos[1], Rita Bertão Ventura[1], Mafalda Griné[1], Luísa Gomes Rocha[1], Maria João Primo[1], Didier Martinez[1], Vanda Devesa Neto[2], Gonçalo Ferraz Costa[1], Luís Leite[1], Rui Baptista[3]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio. [3]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.

Introduction: Since 2013, Portuguese legislation has required entities within the pharmaceutical and medical device sectors to publicly declare all economic advantages granted or received through the *Plataforma de Comunicações – Transparência e Publicidade* (PCTP) managed by *Infarmed*. Although industry payments to physicians may raise concerns regarding potential conflicts of interest, these funds play a crucial role in supporting residents' medical training. This study aimed to assess the evolution of the number and monetary value of sponsorships received by Portuguese cardiology residents over the last decade.
Methods: A cross-sectional analysis was conducted by integrating data from the Administração Central do Sistema de Saúde with records from the PCTP regarding cardiology residents. The primary outcomes were the number and monetary value of sponsorships received by each resident throughout their five-year training period, stratified by entry-year cohort. Secondary analyses explored the influence of geographical region, number of residents per hospital per year, and hospital affiliation per cohort.
Results: 127 cardiology residents who began their training in 2013 (n = 29), 2015 (n = 29), 2017 (n = 35), and 2019 (n = 34) were included. The mean number of sponsorships was 20.24 ± 7.93 with a mean monetary value of €9,223.37 ± 4,490.42 during their training period. Although the number of sponsorships increased significantly from 2013 to 2019 ($p < 0.001$), this wasn't reflected in the total sponsorship values. In fact, the highest mean values were observed in 2013 (€10,413.86) and 2015 (€10,772.01) cohorts, with significant differences noted between the 2017 and both the 2013 ($p = 0.026$) and 2015 ($p = 0.010$) cohorts. Despite an increasing number of residents per year, the overall total sponsorship value decreased over time. Sponsorship numbers varied significantly by region ($p = 0.040$), while the total value approached statistical significance ($p = 0.067$). Conversely, neither the number of residents per hospital per year nor hospital affiliation significantly influenced sponsorship patterns.
Conclusions: This study highlights the significant variations in the number and value of sponsorships received by cardiology residents over the years, revealing notable decline in the average sponsorship per resident. As curriculum demands continue to grow, sponsorships remain vital for residents to achieve academic and professional milestones.

PO 169. CARDIOLOGY IN DECLINE: UNVEILING THE DOWNWARD TREND IN RESIDENT PREFERENCES

Luísa Gomes Rocha[1], Tomás M. Carlos[1], Mafalda Oliveira Griné[1], Bernardo Lisboa Resende[1], Susana Costa[1], Vanda Devesa Neto[2], Rui Baptista[3], Gonçalo Ferraz Costa[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio, EPE. [3]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.

Introduction: Cardiology has long been regarded as one of the most sought-after medical specialties. However, evolving preferences among medical graduates and advancements in other fields may have influenced its appeal. Understanding these trends is essential to assess shifts in specialty selection over time.
Objectives: This study aimed to analyze trends in entry positions for Cardiology from 2016 to 2024 and to assess disparities between Cardiology and other highly chosen specialties —Dermatology and Ophthalmology— as well as Gastroenterology, which shares a medical and technical complexity similar to Cardiology.
Methods: Utilizing data from Administração Central do Sistema de Saúde (ACSS), this observational study focused on normalized entry positions from 2016 to 2024, using the Kruskal-Wallis test for longitudinal analysis and Mann-Whitney U tests for 2024 comparisons. Given the substantial variability in exam scores year over year, the analysis concentrated on normalized entry positions rather than scores. A Normalized Attractiveness Index (NAI) was formulated to assess each specialty's relative appeal, calculated as: 1 minus the product of the median entry position divided by the total number of candidates in that year and the ratio of the number of vacancies in the specialty to the total number of vacancies across the four specialties in that year.

Figure PO 168

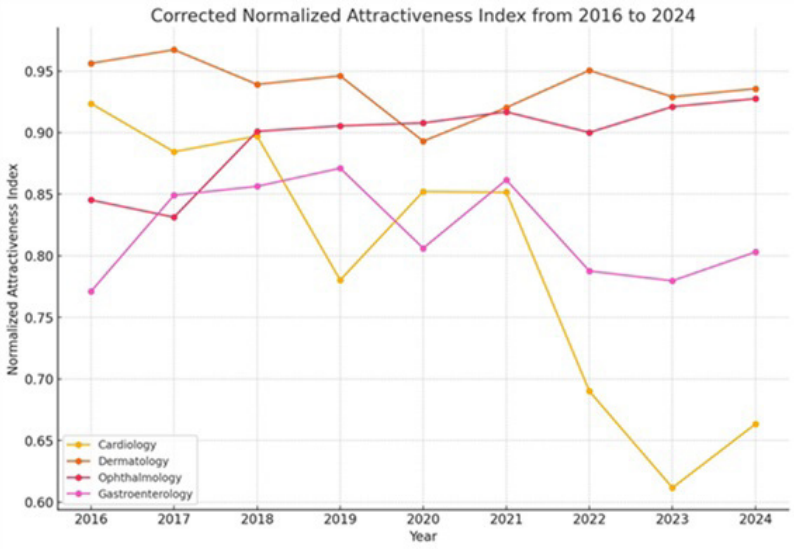


Figure PO 169

Results: Cardiology's median entry positions rose from 61st in 2016 to 362nd in 2023, with no significant differences in positions over the years (p = 0.394). Comparisons in 2024 revealed no significant differences between Cardiology and the other specialties, with p-values of 0.840, 0.523, and 0.947. However, NAI showed Dermatology (average 0.937) and Ophthalmology (average 0.895) as more attractive than Cardiology, which notably declined, reaching its lowest index at 0.612 in 2023. Gastroenterology maintained moderate attractiveness (average 0.821).
Conclusions: Despite the statistical analyses not yielding statistically significant differences in the entry positions among the specialties, several factors could account for this outcome. Conversely, the NAI indicates a notable decline in Cardiology's appeal relative to others. This trend, requiring further investigation, suggests the need for targeted interventions and strategic adjustments in medical training and recruitment.

PO 170. THE FIRST YEAR OF GENERIC NOACS: IMPLICATIONS FOR PATIENTS AND THE HEALTHCARE SYSTEM

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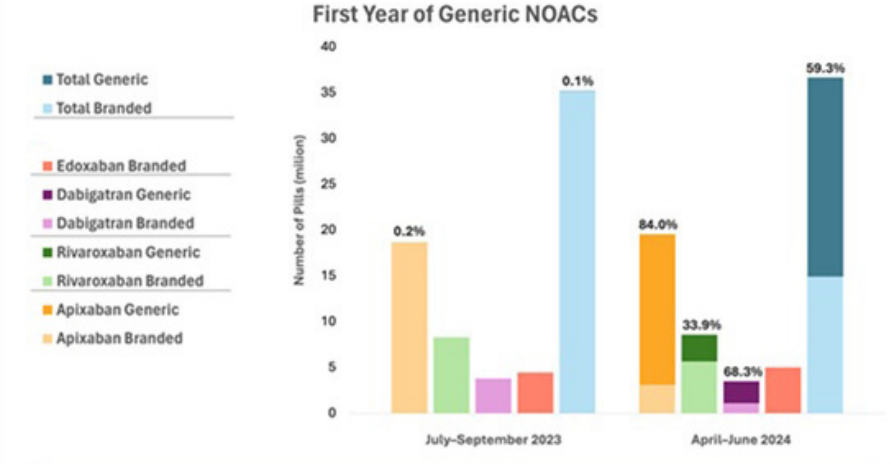
Introduction: In Portugal, non-vitamin K antagonist oral anticoagulants (NOACs) have become standard of care in the management of non-valvular atrial fibrillation (NVAF) since their approval for reimbursement in 2014. Generic versions of NOACs were introduced in September 2023 for apixaban, followed by dabigatran in January 2024 and rivaroxaban later in April 2024. Our study describes the adoption of generic NOAC versions and the economic impact on patient and healthcare spending.



Number of pills (million)	35.2	36.7
Public healthcare co-payment (million)	30.5 €	27.0 €
Patient costs (million)	13.7 €	12.1 €
Total costs (million)	44.3 €	39.1 €

Figure 1 – Comparison of the number of NOACs pills sold (branded and generic) and their associated costs to patients (out-of-pocket expenses) and the national healthcare system (co-payment) from the first to the last trimester of the study period. NOACs, non-vitamin K antagonist oral anticoagulants.

Figure PO 170

Methods: We reviewed data from the public database on medications commercialized and their associated expenses in Portugal. We analyzed the number of NOAC pills sold –branded and generic– and their costs to patients (out of pocket) and the national healthcare system (co-payment) between July 2023 and June 2024. We have divided the study period in trimesters where appropriate.
Results: In the study period, €142 million (M) NOAC pills –branded and generic– were sold in Portugal corresponding to a total expense of €167.4M. The total out of the pocket expense – patient's costs – was €51.9M and the total co-payment was €115.5M. Among NOACs – branded and generic - sold during the study period, apixaban accounted for 53.2%, rivaroxaban 23.5%, edoxaban 13.2% and dabigatran 10.2%. Generics corresponded to 33.2% of all NOACs sold. There was a strong trend towards the adoption of generic NOACs representing 0.1% in the first trimester, 26.5% in second trimester, 45.9% in third trimester and 59.3% in the last trimester. By the last trimester, 84.0% of apixaban pills sold were generics. A similar pattern was seen with dabigatran and rivaroxaban. Despite being introduced later, generic versions of dabigatran and rivaroxaban accounted for 68.3% and 33.9% respectively (Figure 1). In 2023, the national healthcare system allocated €1 593.8M to medications, with patients contributing €859.8M. Anticoagulants ranked as the second-highest drug class in terms of total costs, with apixaban and rivaroxaban being the second and third active substances associated with the highest expenses, respectively. In the first trimester of the study period, expenses for NOACs amounted to €13.7M for patients and €30.5M for public healthcare co-payment. By the final trimester, patient costs had decreased to €12.1M and public healthcare co-payment to €27.0M, reflecting reductions of 11.7% and 11.5%, respectively.
Conclusions: Generic have been widely adopted by patients in Portugal leading to a significant decrease in costs for patients and the public healthcare system. Economic factors and previous experience with generic drugs likely influenced patient choice.

PO 171. THE EFFICACY AND SAFETY OF DIRECT ORAL ANTICOAGULANTS COMPARED TO WARFARIN FOR LV THROMBUS RESOLUTION

Samuel Azevedo, Mariana Sousa Paiva, Carla Reis, Pedro Lopes, Sara Guerreiro, Pedro Freitas, João Abecasis, Marisa Trabulo, António Ferreira, Regina Ribeiras, Jorge Ferreira, Francisco Gama

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction and objectives: Left ventricular thrombus (LVT) is a frequent complication of myocardial infarction (MI) and heart failure with reduced ejection fraction (HFrEF). Once diagnosed, anticoagulation with vitamin K antagonists (VKA) up to 6-months is recommended. Clinical experience with direct oral anticoagulation (DOAC) in this setting is scarce and contradicting. Our aim is to describe the effectiveness and safety of DOAC for LVT resolution compared to warfarin.
Methods: Single-centre retrospective cohort study of consecutive patients with recently diagnosed LVT, either after MI or HFrEF, conducted from January 2010 to May 2024. Primary endpoint was LVT resolution whereas safety endpoints were major bleedings and thromboembolic events, both evaluated at 24 months. Diagnosis and subsequent assessments were performed with echocardiography and complemented with cardiac magnetic resonance and computed tomography when appropriate. Decisions regarding anticoagulant type, dose and duration and any simultaneous antiplatelet therapy were left to physician's discretion.
Results: In a cohort of 171 patients (82.5% male; mean age 59.8 ± 14.7 years), 99 received DOAC therapy, while the remaining received warfarin (Figure 1). Primary endpoint occurred in 111 patients (64.9%). At 24 months, LVT resolution occurred significantly more in patients treated with DOAC (66.7%, n = 66) compared to those on warfarin (50%, n = 36), with a hazard ratio (HR) of 2.0 (95%CI: 1.07-3.73; p = 0.029). Thrombus tended for faster resolution on DOAC (185 days [IQR: 97-377] vs. 220 days [IQR: 128-378], p = 0.214). DOAC remained a significant predictor of LVT resolution, independently of simultaneous antiplatelet use (HR: 3.0, 95%CI: 1.414-6.131; p = 0.004). During a median nine months period (IQR 5-23) 5 (2.9%) major bleeding, 9 (5.3%) thromboembolic events, and 9 (5.3%) deaths were recorded, without significant differences between therapeutic arms.
Conclusions: In this cohort, DOAC use for LVT showed improved resolution with similar safety profile compared to warfarin. Further randomized clinical trials are needed to confirm these findings.

PO 172. ASSESSING THE BEST ANTICOAGULATION STRATEGY FOR LEFT VENTRICLE THROMBUS AFTER ANTERIOR MYOCARDIAL INFARCTION

Francisco Rodrigues Dos Santos, Oliver Kungel, Gonçalo Ferreira, João Gouveia Fiúza, Mariana Duarte Almeida, Vanda Devesa Neto, António Costa, Inês Fiúza Pires

USL Viseu Dão-Lafões.

Figure 1 - Retrospective cohort study: The efficacy and safety of direct oral anticoagulants compared to warfarin for LV thrombus resolution

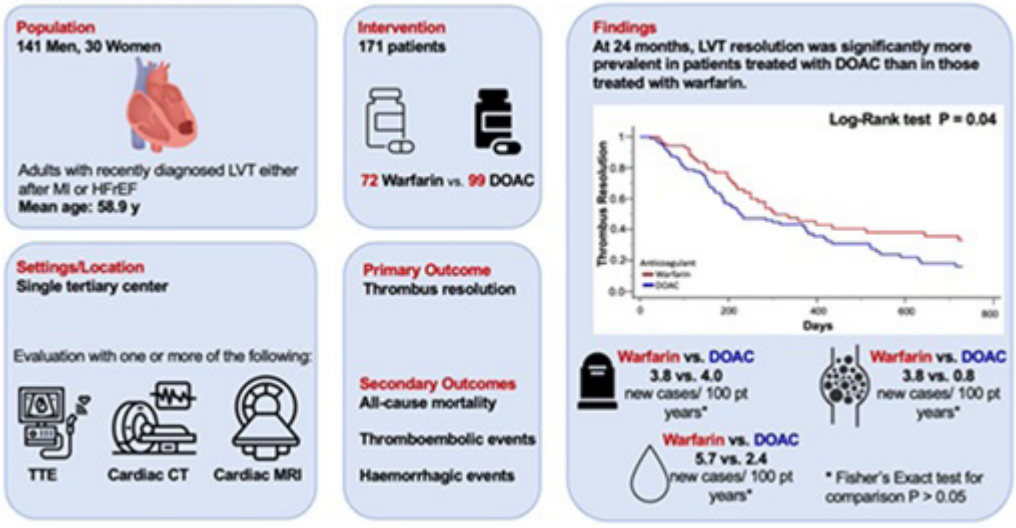


Figure PO 171

Introduction: There is a lack of prospective randomized data on the optimal anticoagulation regimen for treatment of Left Ventricle Thrombus (LVT) following Acute Myocardial Infarction (AMI). The choice of therapy should be tailored to the patient's clinical status and the results of follow-up investigation. The aim of this study is to evaluate the impact of Vitamin K Antagonists (VKAs) comparing to Direct Oral Anticoagulants (DOAC) in patients with LVT after AMI.
Methods: Retrospective analysis of patients diagnosed to LVT after anterior STEMI between January 2019 and December 2023. All patients underwent treatment with Percutaneous Coronary Intervention (PCI). LVT diagnosis was made by transthoracic echocardiography (TTE) in the first 2 weeks after AMI. Anticoagulation strategy was adopted by the clinician, considering patient's clinical status. Patients were divided into two groups (DOAC vs. VKA) and the following outcomes were considered in the follow-up period: major haemorrhagic events, stroke, all-cause mortality and LVT resolution in following TTE, 3-6 months after LVT diagnosis. Chi-square and Mann-Whitney U tests were used for group comparisons and Cox regression analysis was used for multivariable analysis.
Results: The study sample included 90 patients, with a mean age of 65.9 ± 12.2, 81.1% (n = 73) male, with a mean LVEF of 37.6%. 62.2% (n = 56) of patients were on DOAC therapy. Over a mean follow-up period of 2.4 years, the following outcomes were observed: stroke in 12.2% (n = 11) patients, hospitalizations in 55.6% (n = 50) patients, haemorrhagic events in 14.4% (n = 13) patients, thrombus resolution in 51.0% (n = 46) patients and mortality in 15.6% (n = 14) patients. Patients on DOACs showed a reduced risk of stroke (5.4 vs. 23.5%; χ^2 = 6.512, p = 0.018), a reduced risk of haemorrhagic events (5.4 vs. 29.4%; χ^2 = 9.905, p = 0.004) and an increased rate of thrombus resolution on 3 to 6-month follow-up TTE (60.7 vs. 35.3%; χ^2 = 7.421 p = 0.024). No statistically significant impact was observed on mortality (p = 0.136) or hospitalizations (p = 0.258). Multivariate logistic regression analysis supported previous results showing a reduced risk of stroke (OR: 0.184, 95%CI: 0.045-0.752, p = 0.018), haemorrhagic events (OR: 0.136, 95%CI: 0.034-0.539, p = 0.005) and an increased rate of thrombus resolution on TTE (OR: 3.643, 95%CI: 1.395-9.511, p = 0.008) in the DOAC group.
Conclusions: This analysis suggests that DOAC are viable option for LVT treatment, with best safety profile. These findings support recent evidence favouring DOACs over VKAs. However, despite their potential relevance to daily clinical practice, these results should be validated in randomized controlled trials.

PO 173. LOW DOSE COLCHICINE FOR SECONDARY PREVENTION IN PATIENTS WITH PREVIOUS ATHEROSCLEROTIC EVENT: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED TRIALS

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Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Colchicine is now recommended for secondary prevention in the latest European Cardiology Society guidelines for managing chronic coronary syndromes. Previously, two major trials and several meta-analyses, which included smaller randomised controlled trials (RCTs), showed that colchicine reduced major cardiovascular events (MACE), though it did not reduce cardiovascular (CV) mortality. Over the past year, three major trials have been published, all demonstrating no significant reduction in cardiovascular events. Two of these trials included patients with ischemic cerebrovascular events, broadening the context for colchicine's in atherosclerotic disease.
Objectives: To evaluate the efficacy and safety profile of low dose colchicine in secondary prevention among patients with a prior cardiovascular or cerebrovascular event.
Methods: A systematic search of electronic databases, including Medline and the Cochrane Library, was conducted to identify RCTs comparing colchicine with placebo or usual care in secondary prevention. The primary outcome was a composite measure of CV death, myocardial infarction or stroke. Risk of bias was assessed using the Cochrane quality assessment tool and outcomes were analyzed using an inverse-variance random-effects model.
Results: A total of 11 RCTs, involving 30,753 patients with a follow-up period exceeding one month met the inclusion criteria. Of these, 15 381 patients (50.0%) received colchicine, showing a lower risk of the primary outcome (6.2 vs. 7.2%; relative risk (RR) = 0.80; 95%CI, 0.67-0.94; I^2 = 56%), reported MACE (7.4 vs. 9.0%; RR = 0.70; 95%CI, 0.57-0.85; I^2 = 72%) and myocardial infarction (2.2 vs. 2.7%; RR = 0.76; 95%CI, 0.61-0.94; I^2 = 30%). There is a trend suggesting a potential benefit of colchicine in stroke prevention, but it did not reach statistical significance (2.8 vs. 3.2%; RR = 0.79; 95%CI, 0.61-1.04; I^2 = 49%). No significant benefit was found for CV mortality (1.3 vs. 1.4%; RR = 0.91; 95%CI, 0.70-1.17; I^2 = 0%) or all-cause mortality (2.5 vs. 2.6%; RR = 0.98; 95%CI, 0.79-

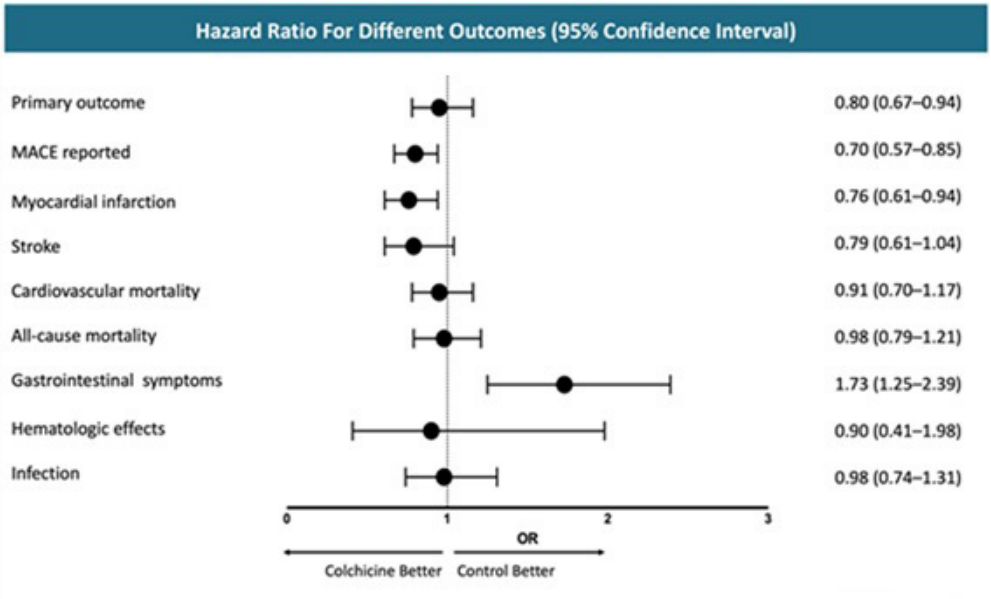

Figure 1 - Meta-analysis summary plot of colchicine for secondary prevention outcomes. MACE, major cardiovascular events.

Figure PO 173

1.21; I^2 = 39%). The colchicine group reported a higher incidence of gastrointestinal symptoms (12.7 vs. 9.6%; RR = 1.73; 95%CI, 1.25-2.39; I^2 = 91%). Other adverse events, including hematologic effects (0.4 vs. 0.4%; RR = 0.90; 95%CI, 0.41-1.98; I^2 = 58%) and infections (2.2 vs. 2.2%; RR = 0.98; 95%CI, 0.74-1.31; I^2 = 55%) were similar across groups, showing no statistically significant differences. As limitations, we should point out the presence of high heterogeneity across studies and the possibility of publication bias.
Conclusions: While colchicine did not reduce CV and all-cause mortality, it still demonstrated significant efficacy in secondary prevention of MACE and myocardial infarction, maintaining a relatively favourable safety profile. High heterogeneity and the possibility of publication bias are important limitations to consider.

Sexta-feira, 11 Abril de 2025 | 17:15-18:15

Área de Posters-écran 3 | Sessão de Posters 28 – Ecocardiografia de *stress*

PO 174. UNVEILING THE IMPACT OF ANTHRACYCLINE CHEMOTHERAPY ON RESTING AND EXERCISE ECHOCARDIOGRAPHY

Margarida de Castro, Luísa Pinheiro, Mariana Tinoco, Tamara Pereira, Mário Rui Lourenço, Filipa Castro, Filipa Cordeiro, Marina Fernandes, Alexandra Teixeira, Olga Azevedo, João Português, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a prevalent concern for Breast Cancer (BC) patients (pts) undergoing anthracycline chemotherapy (AC). Current methods to detect CTRCD rely on resting echocardiographic (echo) parameters, such as LVEF or GLS, which have limited sensitivity in early stages.
Objectives: To evaluate AC impact on echo parameters at rest and exercise in order to identify ones with better sensitivity than LVEF and GLS to detect post-AC cardiac damage.
Methods: Prospective study including women with early-stage BC between May 2022 and December 2023. Each pt had 3 visits: before starting AC, 1-month after and at 6-months after completing AC. During each visit, they performed cardiopulmonary exercise test (CPET), resting and exercise echo. During CPET, exercise echo images were obtained with the pt on the treadmill at different stages. An experienced echocardiographer, blinded to prior results, performed image acquisition. All echo measurements were performed offline by a single blinded interpreter. Inter- and intra-observer variabilities were assessed in 30% of randomized pts using an intraclass correlation coefficient (ICC).
Results: We included 32 women, with a mean age of 50.8 ± 9.3 years. Significant reductions were observed in LVEF at 1-month (2D: 63.3 ± 3.0% to 61.0 ± 4.0%, p = 0.007; 3D: 62.8 ± 4.9% to 61.0 ± 4.4%, p = 0.020) and at 6-months (2D: 60.9 ± 5.0%, p = 0.031; 3D: 59.5 ± 5.9%, p = 0.003) comparing to baseline. During peak exercise, 2D LVEF decreased from 70.3 ± 5.3% to 66.6 ± 5.8% at 1-month (p < 0.001) and to 64.4 ± 4.3% at 6-months (p < 0.001). LV 2D-GLS showed a reduction from -19.9 ± 1.9% to -18.5 ± 1.9% at 1-month (p = 0.003) and to -18.4 ± 2.1% at 6-months (p < 0.001) and LV 3D-GLS from -19.5 ± 1.8% to -17.4 ± 2.7% at 1-month (p < 0.001) and to -18.2 ± 2.9% at 6-months (p = 0.002). During exercise, LV 2D-GLS dropped from -19.0% to -17.3 ± 1.5% at 1-month and -17.3 ± 1.8 at 6-months (p < 0.001). Myocardial work (MWI) parameters (global work index (GWI) and global constructive work (GCW)) changed significantly at rest and during exercise at both 1 and 6-months (Table 1). At rest, GWI showed a reduction from 1,839 ± 260 to 1,607 ± 288 at 1-month (p < 0.001) and to 1,588 ± 277 at 6-months (p < 0.001) and GCW from 2,142 ± 311 to 1,899 ± 300 at 1-month (p < 0.001) and to 1,874

Table 1. Effect of anthracycline chemotherapy (AC) on resting and exercise echocardiography parameters.

	Pre-AC	1-month	6-months	p-value*	p-value#
Resting echocardiography parameters					
2D LVEF (%)	63.3±3.0	61.0±4.0	60.9±5.0	**0.007**	**0.031**
Stroke volume (ml)	60±9	54±11	53±13	**0.003**	**0.004**
Cardiac output (L/min)	4.8±0.9	4.3±0.9	3.9±1.1	**0.007**	**<0.001**
2DSTI and MWI					
LV GLS (%)	-19.9±1.9	-18.5±1.9	-18.4±2.1	**0.003**	**<0.001**
GWI (mmHg*%)	1839±260	1607±288	1588±277	**<0.001**	**<0.001**
GCW (mmHg*%)	2142±311	1899±300	1874±311	**<0.001**	**<0.001**
GWW (mmHg*%)	100±49	96±42	93±59	0.706	0.534
GWE	95.6±1.8	95.2±1.8	95.4±2.5	0.309	0.580
3D EF and 3DSTI					
3D LVEF (%)	62.8±4.9	61.0±4.4	59.5±5.9	**0.020**	**0.003**
LV 3D-GLS (%)	-19.5±1.8	-17.4±2.7	-18.2±2.9	**<0.001**	**0.002**
LV 3D-GRS (%)	54.5±9.4	48.0±12.6	49.9±10.7	**0.022**	**0.009**
LV 3D-GCS (%)	-18.6±2.9	-17.3±3.1	-16.8±3.5	**0.043**	**0.004**
LV 3D-GAS (%)	-31.7±3.2	-29.9±6.1	-29.7±4.9	**0.049**	**0.006**
Exercise echocardiography parameters (at peak)					
2D LVEF (%)	70.3±5.3	66.6±5.8	64.4±4.3	**<0.001**	**<0.001**
Contractile reserve (%)[£]	7.0±2.8	5.6±3.1	3.5±1.9	0.232	**0.010**
Stroke volume (ml)	87±27	79±22	76±24	**0.028**	**0.016**
Cardiac output (L/min)[£]	12.8±4.5	11.9±4.1	10.5±4.0	**0.031**	**<0.001**
Cardiac reserve (L/min)[¥]	7.9±4.6	7.6±4.2	6.5±4.1	0.320	**0.016**
2DSTI and MWI					
LV GLS (%)	-19.0±1.1	-17.3±1.5	-17.3±1.8	**<0.001**	**<0.001**
GWI (mmHg*%)	1926±501	1519±437	1473±444	**<0.001**	**<0.001**
GCW (mmHg*%)	2521±509	2276±433	2212±496	**0.001**	**<0.001**
GWW (mmHg*%)	348±237	275±144	308±201	**0.034**	0.430
GWE	89.2±4.5	89.1±4.6	87.8±6.2	0.938	0.249

Data provided as mean ± standard deviation. AC: anthracycline chemotherapy; FWLS: Free Wall Longitudinal Strain; GAS: Global Area Strain; GCS: Global Circumferential Strain; GCW: Global Constructive Work; GLS: Global Longitudinal Strain; GRS: Global Radial Strain; GWE: Global Work Efficiency; GWI: Global Work Index; GWW: Global Wasted Work; LAVi: Left Atrial Volume Index; LVEF: Left Ventricle Ejection Fraction; MWI: Myocardial Work Index; PACS: Peak Atrial Contraction Strain; PALS: Peak Atrial Longitudinal Strain; RVEF: Right Ventricular Ejection Fraction; STI: Speckle Tracking Imaging; [£]Contractile reserve: absolute difference between peak exercise LVEF and resting LVEF. [£]Cardiac output: calculated using 2-D pulsed wave Doppler echocardiography as stroke volume times heart rate. [¥]Cardiac reserve: absolute difference between peak exercise and resting cardiac output. *Pre-AC vs 1-month. #Pre-AC vs 6-months

Figure PO 174

± 311 at 6-months (p < 0.001). The intra- and inter-observer reproducibility of echocardiographic parameters was generally good or excellent.
Conclusions: Our study support the results of others showing that BC patients exposed to AC present significant reductions in LVEF, LV GLS and MWI both at rest and exercise. Peak exercise LVEF and GLS may be more sensitive and earlier markers of cardiac damage than LVEF and GLS at rest in these pts. Beyond, AC cardiotoxicity is very early, being immediately visible in the first month and remaining sustained on FU. Further research is necessary to fully understand the effects of AC on cardiac function.

PO 175. EVALUATION OF MYOCARDIAL WORK DURING EXERCISE ECHOCARDIOGRAPHY IN A HEALTHY POPULATION

António Carvalho[1], Rita Santos[2], Luís Cotrim[1], Lígia Mendes[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital da Luz Setúbal.

Introduction: Exercise echocardiography (ExE) is an essential diagnostic tool for evaluating ischemia, heart failure with preserved ejection fraction (HFpEF), and the underlying causes of symptoms like dyspnea. Recently, the myocardial work index (MWI), derived from speckle-tracking echocardiography, has emerged as a promising marker of cardiac performance. This study aims to assess the impact of exercise on myocardial work parameters in a healthy population.
Methods: We conducted a single-center retrospective analysis of 845 patients referred for ExE between January 2022 and November 2024. Of these, 280 individuals (aged 30-65 years) without known coronary artery disease and with normal ExE results (no wall motion abnormalities, good functional capacity > 80% predicted work, and ≥ 6 minutes of exercise) were included. Myocardial work (MW) parameters—global longitudinal strain (GLS), global work efficiency (GWE), global work index (GWI), global constructive work (GCW), and global wasted work (GWW)—were evaluated at rest and at a heart rate of 100 bpm.
Results: The cohort consisted of 59% male, mean age 59 ± 4.5 years, BMI 27.5 ± 3.8 kg/m^2, 21% obese, 14% with diabetes, 65% with hypercholesterolemia, and 39% current or former smokers. Baseline MW parameters were within normal ranges (NORRE study): GLS = -16.4% ± 2.5%, GWE = 92% (IQR 5%), GWI = 1501 (IQR 389 mmHg%), GCW = 1,856 (IQR 444 mmHg%), GWW = 134 (IQR 118 mmHg%). Multivariable analysis identified age as the only independent factor influencing MW parameters, with a modest effect on GWE (p = 0.038, partial eta squared = 0.085). During exercise, all MW parameters significantly increased compared to baseline (p < 0.001). No demographic or clinical factors were associated with exercise-induced changes in MW parameters.
Conclusions: In individuals without known coronary artery disease and with normal ExE results, myocardial work parameters significantly increase during exercise, reflecting the heart's adaptive response to physiological stress. Baseline age was the only demographic factor affecting myocardial work efficiency, suggesting a potential impact of aging on cardiac performance. These findings provide reference values for myocardial work during exercise and establish a foundation for future studies examining myocardial work in pathological conditions.

PO 176. THE ATHLETE'S HEART: INSIGHTS INTO ATRIAL AND VENTRICULAR PERFORMANCE

António Carvalho[1], Luís Cotrim[1], Lígia Mendes[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital da Luz Setúbal.

Introduction: Structural and functional adaptations in the athlete's heart can mimic cardiomyopathies, necessitating precise cardiac assessment. Both right ventricular (RV) function and left atrial (LA) strain are critical components of this evaluation. Traditional parameters, such as TAPSE for RV function and volumetric assessments for LA size, may fail to capture subtle cardiac remodeling. Advanced techniques like RV free wall strain (RVFWS) and LA strain provide deeper insights into myocardial mechanics and physiological adaptations in athletes.
Objectives: This study aimed to comprehensively evaluate RV and LA remodeling and function in professional soccer players compared to healthy controls, assessing the utility of strain imaging in distinguishing physiological adaptations from potential dysfunction.
Methods: A retrospective analysis was conducted on echocardiographic data, including RV free wall strain (RVFWS) and LA strain, from professional male soccer players and healthy male controls. Imaging was performed using the GE Vivid E95 ultrasound system, with data analyzed via EchoPAC V.206

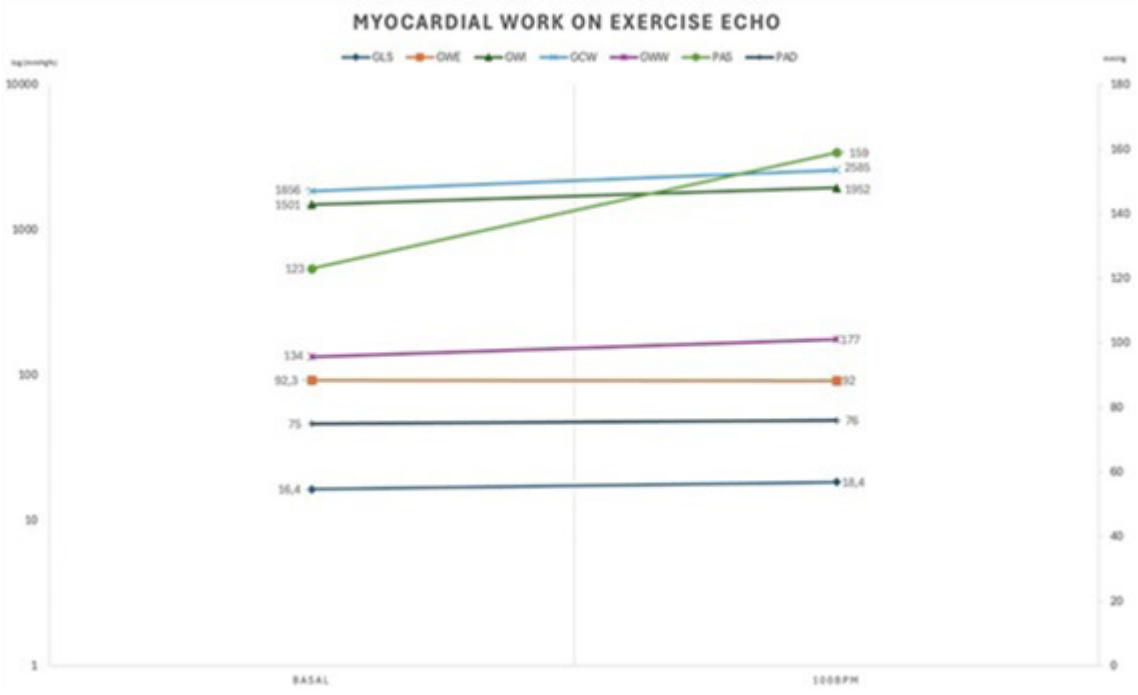

Figure PO 175

Table nr. 1 – descriptive analysis	Athletes (N=111)	Control (N=70)	*p* value
Age (years)	24 (21-31)	26 ± 4	0.013
Indexed Left atrial end-systolic volume (mL/m²)	41 ± 9	31 ± 7	<0.001
E/e' ratio	4.4 ± 0.9	5.0 (4.5–5.8)	<0.001
Left atrial reservoir strain - LASr (%)	34 ± 8	34 (31–41)	0.151
Left atrial conduit strain - LAScd (%)	-25 ± 7	-23 ± 9	0.123
Left atrial contraction strain - LASc (%)	-9 (-11 – -8)	-12 ± 4	<0.001
Indexed right atrial end-systolic volume (mL/m²)	32 ± 9	21 ± 6	<0.001
Tricuspid annular plane systolic excursion – TAPSE (mm)	27 ± 4	25 ± 4	<0.001
Pulmonary artery acceleration time (ms)	154 ± 27	137 (123–152)	<0.001
Right ventricle free wall longitudinal strain – GLS FW (%)	-23.4 ± 3.6	-23.8 (-25.9 – -21.7)	0.898

Figure PO 176

software (GE Vingmed Ultrasound AS, Horten, Norway). Statistical analyses were conducted using SPSS v.27.

Results: The study included 111 professional male athletes (median age: 24 [21-31] years) and 71 healthy male controls (median age: 26 ± 4 years). Right ventricular free wall strain (RVFWS) did not significantly differ between groups (p = 0.898), measuring -23.4 ± 3.6% in athletes and -23.8 (-25.9 - -21.7%) in controls. However, both pulmonary acceleration time and indexed right atrium volume were significantly higher in athletes (p < 0.001). Athletes had a significantly higher indexed left atrial end-systolic volume compared to the control group (41 ± 9 ml/m² vs. 31 ± 7 ml/m², p < 0.001). Despite the difference in volume, the early and late diastolic tissue velocities were similar in both groups and E/E' was lower (4.4 ± 0.9 vs. 5.0 (4.5-5.8), p < 0.001). There were no significant differences between athletes and the control group in Left Atrial Reservoir Strain (LASr) and Left Atrial Conduit Strain (LAScd). The active contraction of the left atrium during atrial systole is reduced in athletes, which had a significantly lower left atrial contraction strain compared to the control group (-9 (-11 – -8) vs. -12 ± 4%, p < 0.001).

Conclusions: In professional athletes, RV free wall strain (RVFWS) was comparable to controls, indicating preserved RV function despite remodeling, such as increased pulmonary acceleration time and right atrial volume. LA remodeling showed increased size and reduced contraction strain, while reservoir and conduit strain remained normal. These findings suggest that observed changes reflect physiological adaptations to the high cardiac output demands of chronic exercise. Strain imaging offers valuable insights into the cardiac remodeling of athletes' hearts.

PO 177. THE INFLUENCE OF RESTING, EXERCISE-INDUCED HYPERTENSION AND CARDIAC REMODELING ON MYOCARDIAL WORK INDICES

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Introduction: Hypertension is a leading risk factor for cardiovascular disease and can subtly affect myocardial function before clinical manifestation. Advanced myocardial mechanics, such as Myocardial Work (MW) indices – Global Work Efficiency (GWE), Global Work Index (GWI), Global Constructive Work (GCW), and Global Wasted Work (GWW)– offer sensitive measures of cardiac performance. The impact of hypertension left ventricular (LV) remodeling and hypertensive responses to exercise on these parameters remains underexplored.

Objectives: This study aimed to: 1. Compare MW parameters between hypertensive and normotensive individuals; 2. Investigate the impact of elevated resting blood pressure (BP) and hypertensive response during exercise on myocardial function; 3. Assess the influence of left ventricular remodeling on MW indices.

Methods: We conducted a single-center study of 822 patients without known cardiovascular disease who underwent exercise echocardiography. Of these, 583 patients completed the test (achieving predicted METs > 85%). Participants were stratified by hypertension status, baseline BP, exercise-induced hypertensive response and LV echocardiographic remodeling patterns, including concentric remodeling and concentric left ventricle hypertrophy (LVH).

Results: Hypertension did not limit test completion. Hypertensive patients had higher E/e' and significantly lower GWI compared to normotensive individuals. Left ventricular remodeling patterns, except for concentric hypertrophy, did not significantly affect MW indices. Concentric hypertrophy was associated with higher GWW (p = 0.022). The most significant determinants of MW parameters were elevated baseline (BP) and hypertensive responses during exercise (p < 0.05). Multivariate analysis identified concentric LVH and elevated baseline BP as the sole independent predictor of impaired MW indices, significantly affecting GWI, GCW, and GWW.

		Total (n = 583)	No HTN	HTN	p-value
Exercise Echocardiography					
	Predicted METs >85%	583	218 (37%)	365 (63%)	**<0.001**
	HTN response	395	175	220	0,726
	E/e'	8.35 IQR 3.09	8.03 IQR 2.95	8.56 IQR 3.19	**0,002**
	GLS (%)	-18.5 ± 2.7	-18 ± 2.6	-18.2 ± 2.6	0,407
	GWE (%)	92.1 ± 4	93 IQR 2.5	92.8 ± 4.4	0,799
	GWI (mmHg%)	1885.8 ± 453.2	1864.3 ± 404.5	1043 ± 393.9	**0,044**
	GCW (mmHg%)	2596 ± 485	2595.9 ± 501.3	2722.3 ± 476	0,248
	GWW (mmHg%)	220.5 ± 127	163 IQR 99	176 IQR 159	0,447

	Exercise Echography				
	Structural normal (325)	Concentring remodeling (162)	p-value	Concentric Hypertrophy (41)	p-value
GWE (%)	92.8 ± 3.4	92.8 ± 3.4	0,369	88 ± 5.9	0,048
GWI (mmHg%)	1951.6 ± 408.1	2016.9 ± 377	0,693	1761 IQR 684	0,556
GCW (mmHg%)	2647.2 ± 484	2707.4 ± 472.1	0,9	2758.7 ± 535.2	0,533
GWW (mmHg%)	164 IQR 115	154.7 ± 165.9	0,668	356.2 ± 193.1	**0.022**

	Exercise Echography					
	Normal BP	Elevated Blood pressure	p-value	Non-HTN response	Hypertensive response	p-value
GWE (%)	92.8 ± 3.8	91.6 ± 4.1	**0,041**	92.7 ± 3.6	92.4 ± 4.1	0,211
GWI (mmHg%)	1908.3 ± 393.4	2043.7 ± 376.1	**<0.001**	1869.6 ± 357	2009 ± 419.5	**<0.001**
GCW (mmHg%)	2565.7 ± 473.8	2814.2 ± 460	**0.003**	2531.6 ± 429.3	2709.1 ± 518.5	**0.04**
GWW (mmHg%)	195.3 ± 128	204.5 IQR 121.7	**<0.001**	165.5 IQR 142	187 IQR 139	**0,043**

Conclusions: Elevated baseline blood pressure and hypertensive responses during exercise significantly impair myocardial work, as evidenced by reductions in GWI and GCW and increases in GWW. Left ventricle remodeling also impacts myocardial efficiency by increasing wasted work. These findings underscore the importance of addressing blood pressure management to mitigate early myocardial dysfunction, even in the absence of overt cardiovascular disease.

PO 178. LEFT VENTRICULAR OUTFLOW TRACT OBSTRUCTION DURING DOBUTAMINE STRESS TEST ECHOCARDIOGRAPHY – PREDICTORS AND PROGNOSTIC IMPACT

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Introduction: Dynamic left ventricular outflow tract obstruction (DO) is a recognized phenomenon during dobutamine stress echocardiography (DSE), but its predictors and prognostic significance remain poorly understood.

Table 1. Comparative results of patients with and without dynamic left ventricle outflow tract obstruction (gradient ≥30mmHg)

	Without gradient (n=307)	With gradient (n=48)	p value
Age - yr	70.5 ± 10.7	68.7 ± 10.4	0.26
Female sex – no. (%)	34.2	60.0	**<0.001***
Cardiovascular Risk Factors			
• Hypertension (%)	76.5	83.3	0.36
• Diabetes (%)	34.3	33.3	1.0
• Dislipidemia (%)	60.6	62.5	0.87
• Smoking (%)	29.3	29.2	0.72
• Alcohol (%)	10.7	8.3	0.61
• Chronic Kidney Disease (%)	36.8	19.6	**0.03***
Patient Characteristics			
• Left Bundle Branch Block (%)	14.7	4.2	**0.05***
• Atrial Fibrilation (%)	20.5	18.8	0.85
• Beta-blockers use (%)	60.7	43.8	**0.001***
Basal and DSE Echocardiogram			
• Basal septal thickness (mm)	12.0 ± 2.2	12.6 ± 3.0	0.08
• Left atrial volume (mL/m2)	32.9 ± 8.0	30.4 ± 7.4	0.23
• Diastolic dysfunction (%)	44.9	45.8	0.91
• Baseline LVEF (%)	55.7 ± 12.7	63.6 ± 8.4	**<0.001***
• Baseline systolic blood pressure (mmHg)	122.6 ± 24.2	128.5 ± 19.7	0.16
• Peak systolic blood pressure (mmHg)	167.3 ± 40.2	149.5 ± 31.3	0.06
• Hypertensive response (%)	9.5	2.0	**<0.001***
• Baseline heart rate (bpm)	67.7 ± 13.9	67.7 ± 13.8	0.99
• Peak Heart Rate (bpm)	140.6 ± 18.5	144.4 ± 11.4	0.06
• Arrhythmias during exam (%)	64.1	81.3	**0.04***
Follow-up			
5-point-MACE (%)	17.6	12.5	0.38

Figure PO 178

Objectives: To evaluate the predictors and prognostic implications of DO during DSE.

Methods: Single-center retrospective study including 355 consecutive patients (P) undergoing DSE for ischemia evaluation. P were stratified into two groups based on the presence or absence of DO, defined as a gradient ≥ 30 mmHg during DSE. Comparative analysis was performed to identify potential predictors of DO and P were followed for 2 years to evaluate 5-point MACE (defined as death, myocardial infarction, stroke, heart failure hospitalisation and urgent revascularization). Statistical analyses, including the t-Test, Chi-square, and Logistic Regression, were performed using SPSS.

Results: A total of 355 DSE cases were analyzed, with 48 P (13.5%) presenting DO. The mean age was 70.3 ± 10.7 years, with 62.3% being male. Cardiovascular risk factors were present in 87.6%, with hypertension (77.5%) and dyslipidemia (60.8%) being the most common. Comparative analysis showed no differences in age (70.5 ± 10.7 vs. 68.7 ± 10.4; p = 0.26), hypertension prevalence (76.5 vs. 83.3%; p = 0.36), diabetes (34.3 vs. 33.3%; p = 1.0), dyslipidemia (60.6 vs. 62.5%; p = 0.87), smoking (29.3 vs. 29.2%; p = 0.72), alcohol use (10.7 vs. 8.3%; p = 0.61), or atrial fibrillation (20.5 vs. 18.8%; p = 0.85). P with DO were more likely to be female (60.0 vs. 34.2%; p < 0.001) and less likely to have left bundle branch block (4.2 vs. 14.7%; p = 0.05), chronic kidney disease (19.6 vs. 36.8%; p = 0.03), or beta-blocker use (43.8 vs. 60.7%; p = 0.001). Echocardiographic findings showed no differences in basal septal thickness (12.0 ± 2.2 mm vs. 12.6 ± 3.0 mm; p = 0.08), left atrial volume (32.9 ± 8.0 vs. 30.4 ± 7.4 mL/m^2; p = 0.23), or diastolic dysfunction (44.9 vs. 45.8%; p = 0.91). However, P with DO had a significantly higher LVEF (63.6 ± 8.4 vs. 55.7 ± 12.7%; p < 0.001), fewer hypertensive responses (2.0 vs. 9.5%; p < 0.001), and more arrhythmias (81.3 vs. 64.1%; p = 0.04). In P with DO, there was a lower probability of a positive DSE result compared to those without DO (10.4 vs. 29.2%; p = 0.02). At two years, 5-point MACE rates were similar (17.6 vs. 12.5%; p = 0.38). Logistic regression identified predictors of DO: female sex (HR = 2.65, CI 1.28-5.48; p = 0.009), beta-blocker use (HR = 0.36, CI 0.18-0.73; p = 0.005), LVEF (HR = 1.05, CI 1.01-1.09; p = 0.007), and basal septal thickness (HR = 1.24, CI 1.07-1.43; p = 0.004). The model explained 23% of the outcome variance with 79% accuracy.

Conclusions: According to this study, DO during DSE is associated with female sex, higher baseline LVEF, increased basal septal thickness, and absence of beta-blocker therapy, and has no impact on short-term prognosis.

PO 179. SYSTOLIC FUNCTION PREDICTORS IN PATIENTS WITH TAKOTSUBO SYNDROME

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Introduction: Takotsubo syndrome (TS) is characterized by segmental systolic dysfunction. Usually, but not always, systolic disfunction is transitory.
Objectives: This study aims to characterize global systolic function (SF) predictors in patients with TS.
Methods: This retrospective study analysed patients with diagnosis of TS between 2018 and 2024 admitted in a cardiology unit. SF at admission, at discharge and at revaluation was registered. Normal SF was considered when left ventricular ejection fraction was equal to or above 55%. Comorbidities, ST segment elevation, QT duration, apical ballooning on admission, edema on cardiac magnetic resonance imaging (CMR) and evolution of cardiac and inflammatory biomarkers during hospitalization were collected. Kruskal-Wallis, Mann-Whitney and Chi-Square tests were used to test the correlations. Logistic regression was used to predict systolic disfunction at discharge.
Results: The study enrolled 74 patients with a median age of 69.5 [19] years and 62 (83.8%) females. At admission, 21 patients (28.4%) had normal SF and 49 (66.2%) reduced SF [4 (5.4%) missing]. Patients with reduced SF tended to have higher levels of C-reactive protein (CRP) at admission ($p = 0.016$) and a higher maximum level of high sensitivity troponin (MT) ($p = 0.004$). At discharge, 28 patients (37.9%) maintained an abnormal cardiac function. Reduced SF at discharge was associated with history of cardiomyopathy ($p = 0.023$), higher levels of troponin at admission (AT) ($p = 0.047$) and MT ($p < 0.001$) and apical ballooning on echocardiogram at admission ($p = 0.026$). Reduced SF at discharge was predicted (R^2 0.782, $p = 0.012$) by SF at admission ($p = 0.021$), AT ($p = 0.013$), MT ($p < 0.001$), NTproBNP ($p = 0.029$) and apical ballooning at admission ($p = 0.011$). SF was reevaluated in 48 patients and only 5 patients (6.9%) had systolic dysfunction. Reduced SF after discharge was associated with lower levels of AT ($p = 0.048$), smoking ($p = 0.027$) and history of ischemic cardiopathy ($p = 0.010$).
Conclusions: In this study, there was a low prevalence of abnormal SF in patients with TS. Cardiac biomarkers (troponin and NTproBNP) and CRP were associated with systolic dysfunction. Apical ballooning was also associated with systolic disfunction at discharge and during follow-up. This highlights the importance of considering laboratorial biomarkers, as well as identifying patients with apical ballooning at admission, since these TS patients are more likely to have reduced SF.

Sábado, 12 Abril de 2025 | 08:00-09:00

Área de Posters-écran 1| Sessão de Posters 29 – Fibrilhação auricular: da prevenção à intervenção

PO 180. LEFT ATRIAL APPENDAGE OCCLUSION IN CKD: A SAFE OPTION FOR STROKE PREVENTION OR JUST A PIPE DREAM?

Francisco Salvaterra, Miguel Nobre Menezes, Catarina Gregório, Ana Abrantes, Ana Rita Francisco, Catarina Oliveira, Tiago Rodrigues, João Silva Marques, Gustavo Lima da Silva, João de Sousa, Pedro Cardoso, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Atrial fibrillation (AF) and chronic kidney disease (CKD) often coexist, both increasing thromboembolism risk. While non-vitamin K oral anticoagulants (NOACs) are preferred over vitamin K antagonists (VKAs), their safety and efficacy in severe CKD are less established and are often used off-label. Left atrial appendage occlusion (LAAO) may offer a viable alternative for stroke prevention in these patients.
Objectives: To evaluate the efficacy and safety of LAAO in severe CKD patients with AF.
Methods: A single-center study was conducted on consecutive patients undergoing percutaneous LAAO. Procedure details, complications, CHA2DS2-VASc and HAS-BLED scores were recorded. Efficacy was defined as the absence of stroke, cardiovascular death, or systemic embolism, while safety endpoints included procedural complications and major bleeding events. Severe CKD was defined as an eGFR < 30 ml/min/1.73 m^2, using the CKD-Epidemiology Collaboration equation. Kaplan-Meier survival analysis was performed to evaluate the efficacy and safety endpoints.
Results: A total of 215 patients undergoing LAAO were included (mean age 74.5 ± 8.1 years, 63.7% male), with 25 patients having CKD. CKD patients had a significantly higher history of stroke (75 vs. 5%, $p = 0.03$), acute myocardial infarction (35 vs. 10%, $p = 0.015$), and peripheral arterial disease (14 vs. 5%, $p = 0.04$) compared to non-CKD patients. There were no differences regarding age, sex, CHA2DS2-VASc or HAS-BLED scores between groups. The main reason for referral to LAAO in CKD patients was gastrointestinal bleeding (62 vs. 16%, $p = 0.003$), while ischemic or hemorrhagic stroke under OAC was the primary indication in non-CKD patients (40 vs. 0%, $p = 0.005$). No differences were

Fig 1 – Survival analysis for the efficacy and safety endpoints according to presence of severe CKD

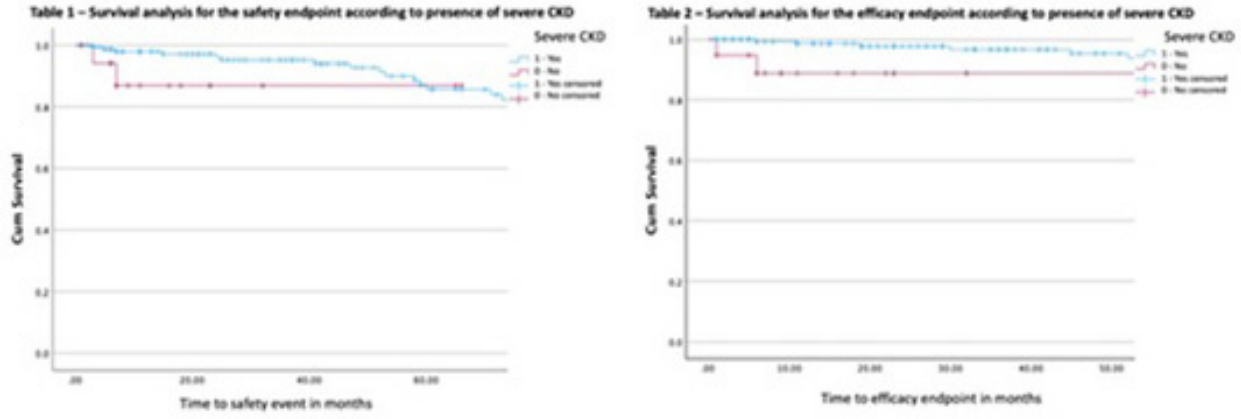

Figure PO 180

found in procedure time, type of device implanted, or procedural success. After LAAO, most CKD patients received mono or dual antiplatelet therapy, while non-CKD patients were more commonly treated with VKA and aspirin ($p < 0.001$). The presence of CKD was not associated with acute procedural complications, with only one minor vascular access-related complication observed (1.6 vs. 4.2%, p = NS). Additionally, no major bleeding events were observed in CKD patients during follow-up (3 minor bleeds in CKD vs. 3 major bleeds and 25 minor bleeds in non-CKD patients, p = NS). During a mean follow-up of 18.3 ± 4.2 months, there were 7 strokes (1 CKD patient, 6 non-CKD patients), 1 systemic embolism, and 5 cardiovascular deaths, none of which occurred in CKD patients. No statistically significant differences were found between CKD and non-CKD patients regarding either safety (LogRank p = 0.177) or efficacy endpoints (LogRank p = 0.054).
Conclusions: In this cohort, percutaneous LAAO demonstrated similar safety and efficacy outcomes in both CKD and non-CKD patients. Therefore, LAAO should be considered as a therapeutic strategy for stroke prevention in CKD patients.

PO 181. DEVELOPMENT OF ATRIAL FIBRILLATION AFTER CAVOTRICUSPID ISTHMUS-DEPENDENT ATRIAL FLUTTER ABLATION: ANALYSIS OF INCIDENCE AND RISK FACTORS IN A PORTUGUESE TERTIARY CARE CENTER

Maria João Primo, Natália António, Carolina Saleiro, Pedro Sousa, Inês Brito e Cruz, Rita Bertão Ventura, Didier Martinez, Luís Elvas, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Cavotricuspid isthmus (CTI) ablation is a highly successful procedure for the treatment of typical atrial flutter (AFL). However, these patients have a high incidence of new onset atrial fibrillation (AF) post-ablation. This study aims to evaluate the incidence, timing and predictors of AF development following successful ICT ablation.
Methods: We conducted a retrospective cohort study involving patients who underwent successful catheter ablation for typical AFL at a tertiary hospital, between January 2019 and December 2023. Patients with prior history of AF or incomplete follow-up information were excluded. Only patients with a minimum follow up period of 12 months after FLA ablation were included in the study. Baseline characteristics, procedural details, and follow-up outcomes were collected from electronic health records. The primary outcome was the development of new-onset AF, assessed through routine follow-up visits and ECG and 24-hours Holter monitoring. Secondary endpoints were determining the predictors of AF development post ICT ablation. Non-parametric statistical tests, as well as logistic regression were used to estimate AF incidence and to try to identify associated risk factors.
Results: Overall, 121 patients were included, with a mean age of 65.0 ± 10.6 years, the majority being male (85.1%). Persistent typical AFL was documented in 68% of patients, while 25.6% had records of paroxysmal AFL. Three-dimensional electroanatomical mapping systems were used in only 24% of the procedures and all CTI ablations employed radiofrequency energy. During follow up, 14 patients (11.6%) developed atrial fibrillation. The median time to AF onset was approximately 18 months post-ablation (interquartile range: 6-50 months). Eleven of these patients developed paroxysmal AF and 3 of them showed persistent AF. Univariate analysis of comorbidities showed an association between hypertension ($x^2(1) = 6.927$, $p = 0.013$) and dyslipidaemia ($x^2(1) = 9.185$, $p = 0.003$) and the development of AF post FLA ablation. However, adjusting for confounders, logistic regression did not identify significant independent predictors of AF development.
Conclusions: Despite successful ablation of typical AFL, a significant proportion of patients develop AF. AFL patients with hypertension and dyslipidaemia should benefit from a closer follow up for early detection of AF. However, further investigation is needed to determine significant risk factors that influence AF development.

PO 182. ANTICOAGULATION AFTER CAVOTRICUSPID ISTHMUS-DEPENDENT ATRIAL FLUTTER ABLATION: ESSENTIAL OR OVERUSED?

Helena Sofia Santos Moreira, Pedro Mangas Palma, Miguel Rocha, Ana Isabel Pinho, Luís Santos, Cátia Oliveira, Rui André Rodrigues, Ana Lebreiro

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Introduction: Catheter ablation is the standard treatment for cavotricuspid isthmus-dependent atrial flutter (AFL), however, the benefit of long-term anticoagulation post-AFL ablation, particularly in low thromboembolic risk patients (pts), remains uncertain.
Objectives: To describe the thromboembolic risk and anticoagulation status in pts post-AFL catheter ablation and their association with relevant clinical outcomes.

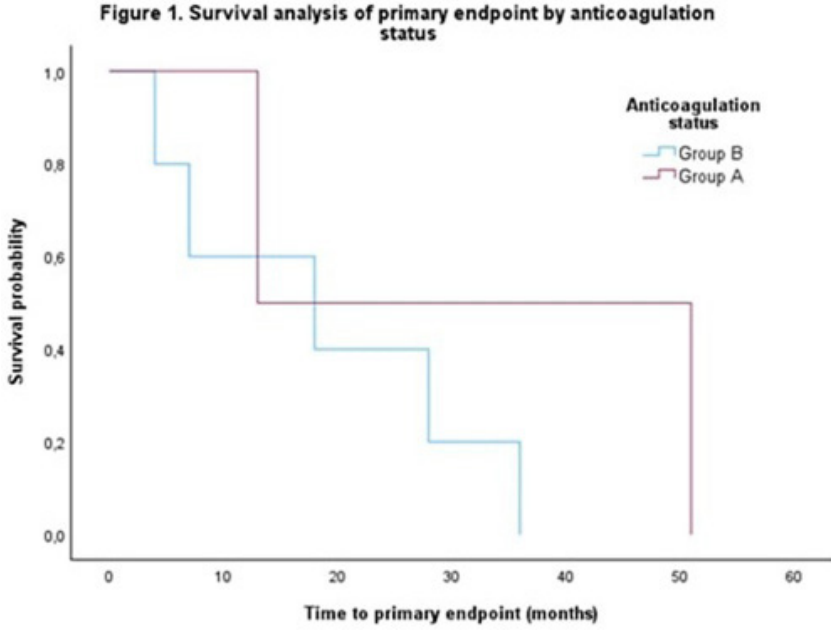

Figure PO 182

Methods: Retrospective single-center analysis of pts who underwent first-time typical AFL radiofrequency ablation between 2017 and 2024. Data was based on medical records review. The primary composite endpoint included all-cause mortality, cardiovascular hospitalizations, major bleeding or ischemic events.
Results: A total of 187 pts were included, mostly male (n = 136, 72.7%) with a mean age of 64 ± 13 pts. Cardiovascular risk factors were predominant: most pts had arterial hypertension (n = 101, 54%) and more than one-fourth had diabetes mellitus (n = 53, 28.3%). Nearly half had structural heart disease (n = 75, 41.1%; p = 0.55), with congenital heart disease as the most common diagnosis (n = 26, 37.7%). Regarding other comorbidities, 4.3% (n = 8) had advanced chronic kidney disease and 10.2% (n = 19) had an history of malignancies. Only one case of acute unsuccessful ablation was reported, and no major peri-procedural complications occurred. Mean CHA_2DS_2-VA score at discharge was 2 ± 1 points: 26.7% (n = 50) with 0 points, 19.3% (n = 36) with 1 point and 59.4% (n = 101) with ≥ 2 points. All pts were discharged on anticoagulation regardless of CHA_2DS_2-VA score, 92.5% (n = 173) with direct oral anticoagulants. At the time of first clinical revaluation, anticoagulation was only discontinued in 8.6% (n = 16), 8 ± 6 months post-ablation, with clinicians' decision to suspend anticoagulation solely driven by evidence of sinus rhythm (in standard 12-lead electrocardiogram) and a CHA_2DS_2-VA score of 0 points in all pts. At mean follow-up of 27 ± 22 months, the primary endpoint occurred in 11% (n = 20), similarly across all CHA_2DS_2-VA scores (p = 0.53). Notably, there were no significant differences between anticoagulation status regarding the primary outcome (p = 0.26) or the time to its occurrence (log-rank 0.92) (Figure 1) (group A: discontinued anticoagulation; group B: on anticoagulation). Analysing individual components, similar results were observed, including ischemic (n = 1, 1.1%; p = 0.83) and bleeding events (n = 5, 2.7%; p = 0.06).
Conclusions: In our cohort only a slight proportion of pts discontinued anticoagulation post-AFL ablation, however, CHA_2DS_2-VA score and anticoagulation status after typical AFL ablation did not significantly impact clinical outcomes. These findings suggest that current risk stratification tools and the benefit of long-term anticoagulation in this population may benefit from further evaluation and refinement.

PO 183. SEMAGLUTIDE AND ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Maria João Primo, Luísa Gomes Rocha, Gonçalo Ferraz Costa, Rita Bertão Ventura, Didier Martinez, Inês Brito e Cruz, Lino Gonçalves

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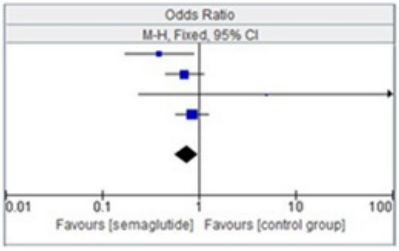
Introduction: Semaglutide is a glucagon-like peptide-1 receptor agonist that has been highly recommended for glycemic control and weight reduction. Obesity can also increase the risk of developing atrial fibrillation (AF).
Objectives: To assess the association of semaglutide with cardiac arrhythmias, primarily AF.
Methods: We performed a systematic searched PubMed, Embase and Cochrane database, encompassing studies published between the 1st of January 2010 and October 2024, to identify semaglutide's randomized controlled trials (RCTs) with or without diabetic patients that reported new-onset AF. A Mantel-Haenszel method and fixed and random-effects model were used to calculate the odds ratio (OR) and 95% confidence interval (CI).
Results: 4 RCTs were included, 3 of them using subcutaneous semaglutide and 1 oral semaglutide. A total of 9116 patients were included, providing 215 new-onset AF. Our meta-analysis revealed a lower incidence of new-onset AF in semaglutide patients (pooled OR, 0.75; 95%CI 0.57, 0.98, p = 0.03; I^2 = 32%). The pooled analysis for subcutaneous semaglutide yielded an OR of 0.73 (95%CI: 0.55-0.96, p = 0.02), indicating a significant reduction in the odds of new onset AF. Heterogeneity was low to moderate (I^2 = 30%, p = 0.24). In contrast, a single study evaluating oral semaglutide reported an OR of 5.02 (95%CI: 0.24-104.88), with wide confidence intervals and no statistical

Studies included	Semaglutide		Comparator		Weight	Odds ratio
	Events (AF)	Total	Events (AF)	Total		M-H Fixed, 95% CI
Butler et al. 2024	8	573	20	573	16.3%	0.39 [0.17, 0.90]
Kosiborod et al. 2024	33	1914	44	1829	36.6%	0.71 [0.45, 1.12]
Rosenstock et al. 2019	2	465	0	465	0.4%	0.86 [0.58, 1.26]
Marso et al. 2016	50	1648	58	1649	46.6%	5.02 [0.24, 104.88]
Total (95% CI)		4600		4516	100.0%	0.75 [0.57, 0.98]
Total events	93		122			
Heterogeneity: $Chi^2 = 4.39$, $df = 3$ ($P = 0.22$); $I^2 = 32\%$						
Test for overall effect: $Z = 2.11$ ($P = 0.03$)						

Table 1:Meta-analysis of atrial fibrillation (AF) events in patients receiving semaglutide versus comparator across four studies. Heterogeneity was low to moderate (I^2=32%, P=0.22), and the overall effect was statistically significant (Z=2.11, P=0.03).



Graph 1: Forrest plot of atrial fibrillation (AF) events in patients receiving semaglutide versus comparator across four studies.

Figure PO 183

significance. The pooled analysis of four studies regarding prevention of new-onset heart failure yielded an odds ratio (OR) of 0.57 (95%CI: 0.21-1.54). While this suggests a potential reduction in heart failure odds in the semaglutide group, the result is not statistically significant (p = 0.27). Notably, there was substantial heterogeneity among the studies (I^2 = 91%, p < 0.00001), indicating considerable variability in the reported effect sizes. The analysis was conducted using a random effects model to account for this heterogeneity. The wide confidence interval and high heterogeneity highlight the need for further studies to clarify this association.
Conclusions: Our study suggests that in patients with or without diabetes, semaglutide reduces the risk of new-onset atrial fibrillation. This analysis provides an additional cardiovascular benefit of this drug besides the major adverse cardiovascular events protection.

PO 184. UNMASKING THE HEART'S RESPONSE: ATRIAL FIBRILLATION IN IBRUTINIB-TREATED PATIENTS

Inês Caldeira Araújo, Miguel Nobre Menezes, Catarina Gregório, João Fonseca, Ana Abrantes, Miguel Azaredo Raposo, Marta Vilela, João Cravo, Diogo Ferreira, Andreia Magalhães, Fausto J. Pinto, Manuela Fiuza

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Introduction: Ibrutinib (IBT), a Bruton's tyrosine kinase inhibitor, is a targeted therapy widely used in the treatment of B-cell malignancies. While effective in improving survival outcomes, ibrutinib has been increasingly associated with cardiovascular toxicities, particularly atrial fibrillation (AF).
Objectives: To characterize the incidence, risk factors, and clinical outcomes of ibrutinib-induced atrial fibrillation (IRAF) in patients with hematologic malignancies.
Methods: A retrospective, single-center study analyzed patients treated with ibrutinib between 2010 and 2024. Demographic, clinical, and treatment data were collected. Statistical analyses were performed to identify potential predictors of AF and its impact on patient outcomes.
Results: Among 93 patients receiving IBT, 14 (15.1%) developed new-onset AF, with a median time to onset of 33.5 months (IQR 15-82) from therapy initiation. Patients with IRAF were older (75.6 ± 5.0 vs. 69.5 ± 10.8 years; *p* = 0.002) and had a higher prevalence of arterial hypertension (71.4 vs. 59.5%; *p* = 0.398) and diabetes (35.7 vs. 19.0%; *p* = 0.172). Regarding cancer type, the majority of patients who experienced IRAF were diagnosed with chronic lymphocytic leukemia (9, 64.3%), followed by Waldenstrom's macroglobulinemia (3, 21.4%). Additionally, patients who underwent other forms of cancer therapy were significantly more likely to develop IRAF (92.8 vs. 64.6%; *p* = 0.035) than ibrutinib as first line therapy. Ibrutinib dose did not impact the risk of developing IRAF (p = 0.100). Among baseline echocardiographic parameters, left atrial volume was larger in patients who presented with IRAF (42.5 mL vs. 30.2 mL; *p* = 0.09), though baseline and post-therapy left ventricular ejection fractions were comparable. Median follow-up time was 37 (IQR 13-62) months. In the IRAF cohort, 3 patients (21.4%) discontinued ibrutinib therapy, while 1 patient (7.1%) required a dose reduction. Of the 14 patients who developed IRAF, 8 were started on anticoagulation - 2 of which received full-dose therapy and 6 of which received reduced-dose therapy due to high hemorrhagic risk. One thromboembolic event occurred in the group that did not receive anticoagulation, while no such events were reported in the anticoagulated group. The incidence of hemorrhagic events was comparable between the two groups. Mortality rates were slightly higher in the IRAF group (28.6 vs. 20.3%; *p* = 0.491), with cardiovascular-related deaths occurring in 7.1% of IRAF patients versus 1.3% without (*p* = 0.405).
Conclusions: Patients who developed IRAF tended to be older, have a higher burden of cardiovascular risk factors, and larger left atrial volumes. These findings underscore the need for vigilant cardiac monitoring in high-risk patients receiving ibrutinib to optimize management strategies and minimize complications.

PO 185. IMPACT OF CANCER THERAPIES ON ATRIAL FIBRILLATION: INCIDENCE, RISK FACTORS, AND CLINICAL IMPLICATIONS

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Introduction: Atrial fibrillation (AF) is a common arrhythmia associated with significant morbidity and mortality. Cancer therapies, while improving survival rates, are increasingly recognized as contributing to cardiac toxicity and to the development of AF.
Objectives: To investigate the incidence, risk factors, and clinical implications of AF induced by cancer therapies.

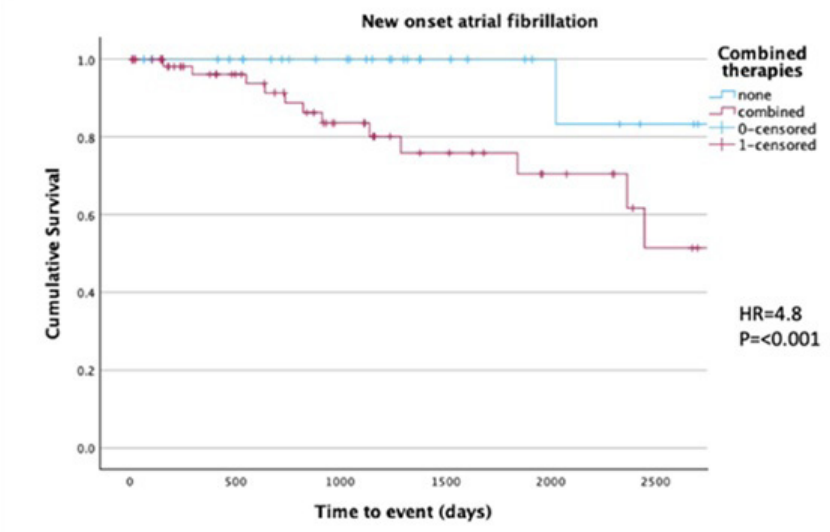

Figure 2. New-onset atrial fibrillation in patients that received prior cancer therapy prior to ibrutinib (combined therapies) and ibrutinib alone.

Figure PO 184

Methods: A retrospective, single-center, observational study was conducted, including patients seen in a cardio-oncology consultation at a tertiary university hospital between 2022 and 2023. Statistical analyses were performed using parametric and non-parametric tests.

Baseline characteristics	Without new-onset AF	With new-onset AF	p
n (%)	168 (90.8)	17 (9.2)	
Age, years (mean ±SD)	64±15	71 ±11	0.057
Male, n (%)	76 (45.2)	11 (64.7)	0.125
Co-morbidities			
Arterial hypertension, n (%)	85 (50.6)	11 (64.7)	0.278
Dyslipidemia, n (%)	58 (34.5)	6 (35.3)	0.949
Smoker or former smoker, n (%)	24 (14.3)	2 (11.8)	0.309
Diabetes, n (%)	43 (25.6)	3 (17.6)	0.462
Chronic Kidney disease, n (%)	17 (10.1)	3 (17.6)	0.341
Heart failure, n (%)	18 (10.7)	1 (5.9)	0.532
Coronary artery disease n (%)	15 (8.9)	2 (11.8)	0.700
Cancer treatment			
Chemotherapy, n (%)	77 (45.8)	6 (35.3)	0.405
Anthracyclines, n (%)	21 (12.5)	0 (0.0)	0.122
Antimetabolite drugs, n (%)	39 (23.2)	3 (17.6)	0.602
Alchilant drugs, n (%)	40 (23.8)	3 (17.6)	0.566
Mitose inhibitors, n (%)	27 (16.1)	2 (11.8)	0.642
Tyrosine kinase inhibitors, n (%)	12 (7.1)	1 (5.9)	0.846
Target therapy, n (%)	65 (38.7)	8 (47.1)	0.501
Immune checkpoint inhibitors, n (%)	13 (7.7)	0 (0.0)	0.234
Hormone therapy, n (%)	30 (17.9)	7 (41.2)	0.022
Radiotherapy, n (%)	50 (29.8)	6 (35.3)	0.636
Follow-up			
Mean time months (mean ±SD)	15.9±9.4	16.7±9.0	0.434
Events, n (%)			
Hospitalization for CV cause, n (%)	17 (10.1)	4 (23.5)	0.097
Death, n (%)	34 (11.6)	4 (23.5)	0.932
CV cause, n (%)	3 (1.8)	1 (5.9)	0.268

Figure 1. Baseline characteristics and follow-up in patients that did and did not develop new-onset AF after cancer therapy

Results: A total of 185 patients (48% male, mean age 64 ± 15 years) were included. Of these, 22 patients had previous AF (12%). During follow-up, 17 patients (9.2%) developed AF after initiating cancer treatment (prevalence of 9.1%). Patients who developed AF were older with a mean age of 71 ± 11 versus 64 ± 15 years in patients without AF (p = 0.057). The most prevalent comorbidities amongst this group of patients were arterial hypertension (64.7%), dyslipidemia (35.3%), diabetes (17.6%) and chronic kidney disease (17.6%). There was no statistical association between comorbidities and new-onset AF. Regarding cancer therapies, 47.1% underwent target therapy, 41.7% hormone therapy, 35.3% of patients' chemotherapy and 35.3% radiotherapy. Hormone therapy was highly associated with the development of AF (p = 0.022). There was no statistical association with other types of cancer therapy and new-onset AF. During a mean follow-up time of 15.9 ± 9.3 months, 23.5% of patients with new-onset AF had at least one hospitalization for cardiovascular causes versus 10.1% of patients without AF (p = 0.097). However, this did not translate into an increase in mortality (p = 0.932). Amongst the 17 patients with new-onset AF, 16 initiated anticoagulation. This was not related to an increase in hemorrhagic complications (p = 0.797).

Conclusions: New-onset AF is a common event in patients undergoing cancer therapies, particularly hormone therapy. Although AF did not increase mortality, it was associated with higher hospitalization rates for cardiovascular causes. These findings emphasize the need for proactive cardiovascular monitoring and management in cancer patients to reduce AF-related complications and improve overall outcomes.

Sábado, 12 Abril de 2025 | 08:00-09:00

Área de Posters-écran 2 | Sessão de Posters 30 – IC crónica: tratamento

PO 186. INTRARENAL VENOUS DOPPLER-GUIDED DIURETIC MANAGEMENT ON HOSPITAL STAY

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Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: In acute heart failure (AHF), intravascular congestion and elevated central venous pressure cause renal parenchymal congestion. Kidney interstitial oedema reduces renal perfusion pressure, leading to hypoxia. Excessive diuretic therapy poses a risk of hypotension and renal hypoperfusion. Detecting euvolemia and determining the optimal time for reducing and transitioning to oral administration are crucial for effective decongestion without inducing acute kidney injury.

Objectives: Assessing the value of intrarenal venous doppler (IRVD) to guide diuretic therapy versus usual standard of care and its impact on total hospital duration time.

Methods: We conducted a single-center, prospective, observational cohort study from September 2022 to November 2023 on AHF patients (pts) with hemodynamic profile B. Pts were randomized into two groups: IRVD group, guiding diuretic management with IRVD alongside standard congestion evaluation; control group, guided by standard congestion assessment alone with physician blinding to IRVD results. Daily IRVD was performed in both

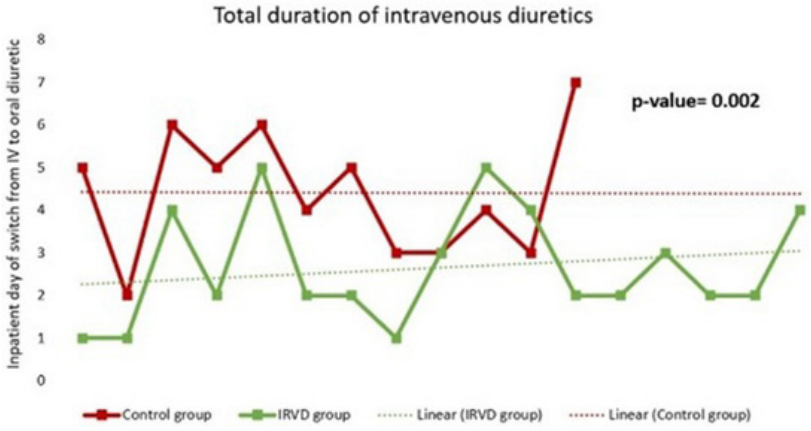

Figure PO 186

groups. In the IRVD group, continuous trace presence prompted switching IV diuretics to oral.
Results: A total of 29 pts were included (33.3% female; mean age 68.4 ± 11.7 years); 12 pts were randomized to the control group and the remaining 17 to the IRVD group. At admission, in both groups, the mean ADVOR congestion score was 3 ± 2 (p = 0.939) and there were no differences on the IV furosemide dose administrated on the first day (p = 0.910). According to the study protocol, on average, IV furosemide was switched to oral in the second day of hospitalization in the IRVD group vs. the fourth day in the control group (p = 0.002). There was no difference in total hospitalization stay because most of the patients stayed hospitalized besides euvolemia for other reasons (p = 0.402). There were no differences in NTproBNP, haematocrit or serum creatinine variation between admission and the end of the study protocol. If the IRVD was known in the control group it had led to 9 different decisions: in 5 patients (41.7%) the doppler was continuous in the previous days which means the transition to oral could have been done earlier; in 4 patients (33.3%) the doppler was still discontinuous by the end of the study protocol, and half of those patients was readmitted 30 days after discharge. However, there were no differences between groups regarding 30 and 90-day readmission rate (p = 0.125 and 0.675 respectively).
Conclusions: The IVRD, combined with standard congestion evaluation, reduces IV diuretic duration by half. In our small cohort, no differences in total hospitalization time or readmission rates were observed. Nevertheless, IRVD-guided diuretic management may reduce overall hospitalization time, potentially mitigate hospital-associated complications, enhancing quality of life, with the prospect of reducing readmission rates.

PO 187. INTERMITTENT LEVOSIMENDAN IN ADVANCED PALLIATIVE HEART FAILURE IMPROVES QUALITY OF LIFE AND REDUCES HEART FAILURE DECOMPENSATIONS: A SINGLE CENTER-EXPERIENCE

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Introduction: Levosimendan, with its unique pharmacological profile, offers prolonged inotropic effects and can be administered in an outpatient setting, making it a valuable option for advanced heart failure (AHF) patients not eligible for advanced therapies. Pulsed levosimendan infusion may improve symptoms and reduce hospitalizations, though evidence remains limited, warranting further research.
Objectives: This study aimed to assess the impact of intermittent levosimendan cycles on quality of life and outcomes in AHF patients, who are not candidates for advanced therapies, in an outpatient setting.
Methods: We conducted a retrospective single-center cohort study, including AHF patients who were not candidates for advanced therapies, referred for intermittent intravenous administration of levosimendan in an outpatient setting between 1 July 2020 and 30 May 2024. Baseline and follow-up evaluations included clinical assessments, laboratory tests, and analysis of HF hospitalizations and HF decompensations. Outcomes were assessed at 6 months and 1-year post-initiation of levosimendan treatment. Statistical analyses were conducted with appropriate tests for data distribution.
Results: A total of 16 patients were included, with a mean age of 70 (± 12) years, 63.5% of whom were male. The most common etiologies for heart failure were ischemic cardiomyopathy (43.8%) and non-ischemic dilated cardiomyopathy (31.3%). The population had a high prevalence of cardiovascular risk factors, atrial fibrillation, and coronary artery disease. The median LVEF before levosimendan initiation was 30% (13-38%), with all patients in NYHA class III or higher. Comparing the need for ICD shocks or therapies before and 6 months and 1 year after levosimendan, a significant reduction was observed (18.8 vs. 0 vs. 0%, p < 0.001) (Table 1). NYHA classes and functional capacity (assessed by the 6-minute walk test) showed significant improvement over the course of levosimendan cycles (p < 0.001 and p = 0.018, respectively). Additionally, levosimendan significantly reduced hospitalizations due to heart failure and unplanned day hospital visits for HF decompensations (p < 0.001 and p = 0.051, respectively). There were no significant differences regarding NT-proBNP levels. After a median follow-up of 17 (1-37) months and an average of 6 (± 4) cycles, with an average duration of 18 (± 15) months, 7 deaths were verified.
Conclusions: Our center's experience reinforces that intermittent levosimendan therapy in patients with advanced heart failure in the palliative phase not only enhances quality of life and functional capacity but also leads to a significant reduction in heart failure decompensations, hospitalizations, and the need for ICD therapies. These findings underscore its potential as a valuable therapeutic option in this patient population.

Table 1. Characteristics of the study population during levosimendan cycles

Variables	0 Months	6 Months	1 Year	p value
Pharmacological therapy				
ICD shocks in the previous year	3 (18.8)	0	0	p< 0.001
ICD therapy in the previous year	3 (18.8)	0	0	
Clinical characteristics				
NYHA class, n (%)				
NYHA I		1 (6.3)	- -	
NYHA II		9 (60.0)	3 (45.5)	p< 0.001
NYHA III	9 (56.3)	4 (26.7)	5 (54.5)	
NYHA III-IV	6 (37.5)	1 (6.7)	- -	
NYHA IV	1 (6.3)			
NT-proBNP, median (Q1-Q3), pg/mL	17 817 (3 336-35 000)	4 451 (546-24 925)	16 438 (1 172-35 000)	0.500
6-meter walking test, median (Q1-Q3), m	198 (191-394)	248 (214-304)	268 (194-359)	**0.018**
Total score in EQ-5D/VAS score, median (Q1-Q3), %	30 (20-55)	58 (30-90)	55 (45-55)	0.102
Systolic blood pressure, median (Q1-Q3), mmHg	101 (78-120)	100 (69-135)	100 (72-149)	0.232
Outcomes				
HF admissions, n (%)	10 (62.5)	1 (6.3)	- -	
0	6 (37.5)	14 (93.3)		
1	8 (50.0)	1 (6.3)		p< 0.001
2	1 (6.3)			
> 3	1 (6.3)			
Unplanned HF visits, n (%)	16 (100)	3 (20.0)	3 (27.3)	p= 0.051
0		12 (80.0)	8 (72.7)	
1	3 (18.8)	1 (6.7)	2 (18.2)	
2	5 (31.3)	2 (13.3)	- -	
> 3	8 (50.0)		1 (9.1)	
Death, n (%)		3 (18.8)	- -	

ICD – Implantable Cardioverter-Defibrillator; HF – Hear Failure.

Figure PO 187

PO 188. IMPROVEMENT OF FUNCTIONAL STATUS AND ENHANCED SURVIVAL ESTIMATES AFTER 330 LEVOSIMENDAN ADMINISTRATIONS

Ana Filipa Mesquita Gerardo, Inês Miranda, Mariana Passos, Inês Fialho, Célia Henriques, Ana Oliveira Soares, Mara Sarmento, Rodrigo Brandão, David Roque, Carolina Mateus

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Levosimendan, a calcium sensitizer with inotropic and vasodilatory effects, is utilized in advanced heart failure (adHF) for palliation or as a bridge to advanced therapies. With increasing real-world experience, evidence supporting its impact on adHF outcomes is growing.
Objectives: To evaluate changes in functional status, hospital admissions, and survival estimates in patients receiving intermittent intravenous (IV) levosimendan infusions in a dedicated heart failure (HF) unit.
Methods: We conducted a single center study of consecutive adHF patients with reduced ejection fraction, integrated in the ambulatory intermittent levosimendan infusion program of our Institution. Patients were included if: 1) they were in New York HF Association (NYHA) class III-IV; 2) they had recurrent hospital admissions; 3) they were on maximum tolerated doses of guideline directed medical therapy. Exclusion criteria were acute infections, systolic arterial pressure less than 80 mmHg or severe hepatic dysfunction. They received levosimendan by continuous infusion (0.05-0.2 µg/Kg/min) for 24 hours once a month or fortnightly, with no bolus dose. Vital signs, hemogram and biochemistry were evaluated before and up to 2 hours after the end of infusion.
Results: From January 2021 to August 2024 a total of 44 patients with 330 administrations were included. The median age was 67 (IQR 56-75) years, 84% were males (n = 34). Ischemic HF was present in 64% (n = 28) of patients, median ejection fraction was 23% (IQR 19-30) and 95% (n = 42) were in NYHA class III. Six months after levosimendan infusion it was observed a significant reduction in hospital admissions (mean of 1.36 vs. 0.53 before and after levosimendan program, respectively; $p < 0.001$), a reduction in functional NYHA class (95 vs. 22% of NYHA III, $p < 0.001$). There was a trend towards lower NTproBNP after each cycle, although it was not significant (mean difference -2223, $p = 0.141$) and creatinine showed a non-significant slight increase (1.58 to 1.72 g/dL; 9%). Survival estimated by the SEATTLE-HF model was higher after 6 months of levosimendan treatment, possibly reflecting disease stabilization - SEATTLE-HF at 5 years 46 vs. 57% before and after levosimendan treatment, respectively; $p = 0.01$ and SEATTLE-HF at 1 year 84 vs. 88%; $p = 0.043$.
Conclusions: Intermittent levosimendan infusions are associated with improved functional status, reduced hospital admissions, and enhanced survival estimates in patients with adHF. A favorable trend in NT-proBNP reduction could further support its role in stabilizing disease progression.

PO 189. A REAL WORLD EXPERIENCE OF 330 LEVOSIMENDAN ADMINISTRATIONS

Filipa Gerardo, Inês Miranda, Carolina Mateus, Mariana Passos, Inês Fialho, Célia Henriques, Ana Oliveira Soares, Mara Sarmento, Rodrigo Brandão, David Roque

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Levosimendan is a positive inotrope used in advanced heart failure (adHF) as a bridge to heart transplant, to decision, to recovery or as a palliative therapy. As the experience with this calcium sensitizer increases, real world data is becoming more robust about the benefits on adHF.
Objectives: To describe the experience of intermittent intravenous (IV) administration of 24-hour levosimendan infusions in adHF patients.
Methods: We conducted a single center study of consecutive adHF patients with reduced ejection fraction, integrated in the ambulatory intermittent levosimendan infusion program of our HF unit. Patients were included if: 1) they were in New York HF Association (NYHA) class III-IV; 2) they had recurrent hospital admissions; 3) they were on maximum tolerated doses of guideline directed medical therapy. Exclusion criteria were acute infections, systolic arterial pressure less than 80 mmHg or severe hepatic dysfunction. They received levosimendan by continuous infusion (0.05-0.2 µg/Kg/min) for 24 hours once a month or fortnightly, with no bolus dose. Vital signs, hemogram and biochemistry were evaluated before and up to 2 hours after the end of infusion.
Results: From January 2021 to August 2024, 44 patients underwent 330 levosimendan infusions. Median age was 67 years (IQR 56-75), and 84% (n = 34) were male. Ischemic HF was observed in 64% (n = 28), median ejection fraction was 23% (IQR 19-30), and 95% (n = 42) were in NYHA class III. Most patients were chronically medicated with guideline directed medical therapy: beta-blockers (89%), ACE inhibitors/ARNI (100%), MRAs (89%), and SGLT2 inhibitors (86%). Palliation was the treatment goal in 41% (n = 20) whereas 32% (n = 14) were candidates for heart transplant or left ventricle assistant device (LVAD). The initial infusion frequency was monthly for 84% (n = 37) of patients, with 18% (n = 8) requiring an increase to fortnightly dosing due to clinical deterioration. The mean treatment duration was 7 ± 5 months. NT-proBNP decreased by 30% (7,660 ng/dL to 5,436 ng/dL) over 6 months. Notably, 60% of patients discontinued levosimendan due to improved functional status and HF stabilization. Four patients underwent heart transplantation, and one received LVAD. By December 2024, there were 7 deaths (16%): 4 from advanced HF, 2 of unknown causes, and 1 from meningitis.

Baseline charateristics	**N=44 (%)**
Age, years	67 years (IQR 56-75)
Male sex	34 (84%)
Hypertension	29 (66%)
Dyslipidemia	24 (55%)
Diabetes Mellitus	18 (41%)
Smoker	4 (9%)
Previous smoker	18 (41%)
Atrial Fibrillation	26 (59%)
Etiology	
Ischemic heart disease	28 (64%)
Idiopatic Cardiomyopathy	12 (27%)
Hereditary Cardiomyopathy	12 (27%)
NYHA Class	
3	42 (95%)
4	2 (5%)
Cardiac implantable devices	
ICD	19 (43%)
CRT-P	5 (11%)
CRT-D	9 (20%)
Vital Signs	
Systolic blood Pressure, mmHg	105 (+/- 15)
Heart Rate, bpm	78 (+/- 11)

Conclusions: Intermittent 24-hour IV levosimendan infusions were safe and effective in stabilizing advanced heart failure, improving functional status, and reducing NT-proBNP levels. These findings support levosimendan as a valuable option in advanced heart failure management.

PO 190. OPTIMAL INITIAL FUROSEMIDE DOSING IN ACUTE HEART FAILURE: IMPACT ON HOSPITALIZATION AND 1-YEAR MORTALITY

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Introduction: Despite the lack of prognostic impact, intravenous loop diuretic, mainly furosemide, is still the mainstay of acute heart failure (HF) treatment, being a widely used and effective choice to alleviate congestive symptoms. Paradoxically, there is no consensus regarding the best initial furosemide dose and its impact in the need for hospitalization or post-

Table 1. Population Baseline Characteristics

N	186
Age (years)	82,6 ± 9,1 years
Atrial Fibrillation	63,8%
Hypertension	82,8%
Smoking history	12,9%
Dyslipidemia	65,5%
Type 2 Diabetes	37,9%
Left Ventricular Ejection Fraction	50% ± 14
Estimated Glomerular Filtration Rate (mL/min/1,73m²)	42,9 ± 18,5
NTproBNP (pg/mL)	15239 ± 24846
Ischemic Heart Disease	26,7%
Signs on presentation	
Peripheral congestion	77,6%
Pulmonary oedema	80,2%

Table 2. Groups Comparison

	Hospitalization group	Discharge group	p-value
Age (years)	83,2 ± 8,0	81,8 ± 10,0	NA
Left Ventricular Ejection Fraction	52% ± 13,6	46% ± 15,0	0,027
Estimated Glomerular Filtration Rate (mL/min/1,73m²)	41,9 ± 19,6	43,9 ± 17,2	NS
NTproBNP (pg/mL)	12454 ± 17388	19262 ± 33097	NS
Daily loop diuretic dose	47,8 ± 22,2	45,8 ± 19,3	NS

Figure 1. Survival Analysis

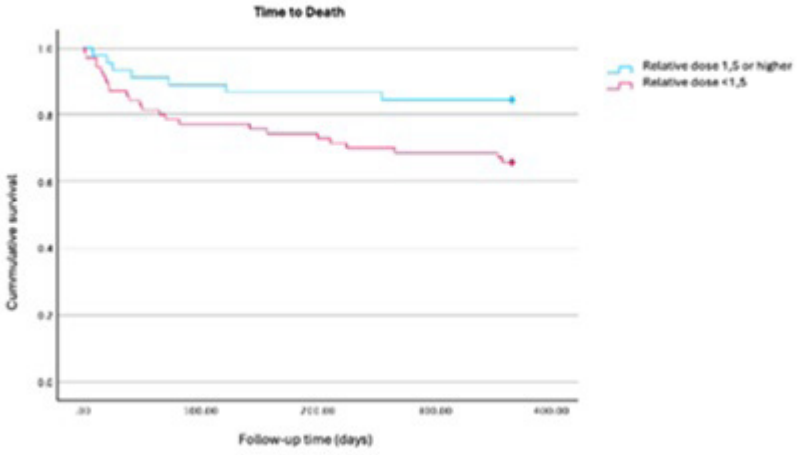

Figure PO 190

discharge mortality. This study aims to establish the best initial dose of furosemide to avoid hospitalization and to reduce post-discharge mortality. **Methods:** A retrospective analysis was performed including 186 consecutive patients, already on oral loop diuretics, admitted to the emergency department of a tertiary hospital between January and March of 2023 due to acute HF. The initial doses of loop diuretic (defined as the ratio between the intravenous dose and the patient's previous oral daily dose) used in patients that were hospitalized following the emergency department and in those discharged were compared. Receiver operating characteristic (ROC) curve was used to establish the best minimum relative dose of furosemide to avoid post-discharge mortality. Kaplan-Meier survival analysis was performed to assess whether treatment with a higher initial relative dose of furosemide had an association with 1-year survival. **Results:** Both the discharge and the hospitalization groups were similar in age, estimated glomerular filtration rate, NT-proBNP levels at initial evaluation and ambulatory dose of loop diuretic, the exception being the mean baseline left ventricular ejection fraction, which was lower in the discharged group (45.8 vs. 52.2% respectively; p = 0.027). In comparison to the hospitalization group, the discharged group was treated with a significantly higher first dose of furosemide (64.20 vs. 40.31 mg, p = 0.01) and, consequently, a higher relative dose (1.54 vs. 1.03, respectively; p = 0.032). Using the ROC curve analysis, the lower relative furosemide dose to avoid post-discharge mortality was 1.416 (AUC: 0.632). To simplify, survival analysis was performed using a relative dose cut-off of 1.5 or higher, based on the previous findings. A significant decrease in 1-year mortality was observed in those treated with a higher initial relative dose (HR 2.4; 95%CI 1.054-5.683; p = 0.037) (Figure 1). **Conclusions:** Individuals presenting with acute HF who were hospitalized had a less aggressive initial diuretic strategy. A higher initial loop diuretic dose (at least 1.5 times the usual oral daily dose) was associated with a lower rate of hospitalization and post-discharge mortality in patients with acute heart failure. Adjustment of diuretic dose to each patient's usual dose could be used as a rule-of-thumb for choosing the initial strategy.

PO 191. INTERMITTENT LEVOSIMENDAN THERAPY IN ADVANCED HEART FAILURE PATIENTS AWAITING HEART TRANSPLANTATION: A SINGLE-CENTER EXPERIENCE

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Introduction: Advanced heart failure patients often require bridging strategies to heart transplantation (HTx) due to their clinical instability. Levosimendan, a calcium sensitizer with inotropic and vasodilatory properties, has emerged as a potential option to optimize hemodynamic status while reducing the need for frequent hospitalizations. We aimed to evaluate the impact of intermittent levosimendan therapy in a cohort of patients with advanced heart failure awaiting HTx.

Methods: This retrospective study included patients categorized as INTERMACS 3, receiving intermittent levosimendan infusions at a single tertiary center. Baseline and pre-transplant hemodynamic and biomarker parameters were analyzed. Clinical stability and short-term survival outcomes were assessed.

Table 1 - Baseline characteristics (n=21)

Age (years)	49 (IQR: 32-67)
Male gender	14 (67%)
Ischemic Etiology	7 (33%)
Systolic Arterial Pressure (mmHg)	92 ± 11
Heart Rate (bpm)	65 ± 13
Daily furosemide dose (mg)	80 (IQR: 50-160)
Glomerular filtration rate (mL/min)	63.4 ± 26.9
NTproBNP (pg/mL)	4269 (IQR: 1836-7595)
End diastolic LV diameter (mm)	65 ± 12
End systolic LV diameter (mm)	53 ± 13
LV ejection fraction (%)	31 ± 10
Global longitudinal strain (-%)	9.0 (IQR: 11.2-3.7)
Cardiac output (L/min)	3.7 ± 0.9
Cardiac index (L/min/m2)	2.0 ± 0.5
PCWP (mmHg)	21 ± 7
RA pressure (mmHg)	11 ±
mPAP (mmHg)	30 ± 8
PVR (WU)	2.8 ± 1.6
PAPi	3.1 (IQR: 1.4-5.4)
CPO (W)	0.3 ± 0.1
pVO2 (mL/kg/min)	12.8 ± 2.7
Predicted pVO2 (%)	44 ± 8
VE/VCO2 Slope	42 ± 9
Respiratory Exchange Ratio	1.0 ± 0.1

Results: The cohort consisted of 21 pts (median age 42 [IQR : 32-67] years, 67% male). The main etiology for heart failure was ischemic heart disease (7pts, 33%). Pt characteristics are displayed in table 1. Levosimendan was administered in 6-hour infusions every two weeks, for a median of 111 (IQR: 54-257) days until HTx. During treatment, median NTproBNP levels showed a decrease from 4269.0 to 3112.5 (p = 0.286) and troponin levels slightly declined from 33.40 to 29.85 (p = 0.758), but the changes were not statistically significant. Mean glomerular filtration rate (GFR) also remained stable during treatment (63.4 vs. 63.8, p = 0.887). Despite 67% of pts having history of hospital admission for heart-failure in the 6 months prior to levosimendan initiation, only 3 pts (14%) required emergency admission during treatment. All pts successfully underwent HTx with no evidence of inotrope-dependent vasoplegia related to prior levosimendan administration. 2 pts died during the first 30 days after transplantation due to severe graft dysfunction.

Conclusions: Intermittent levosimendan therapy demonstrated utility as a bridging strategy for heart transplantation in advanced heart failure patients, providing hemodynamic stability and reducing emergency hospitalizations. Our findings support the use of intermittent levosimendan as a safe and effective adjunctive therapy in carefully selected INTERMACS 3 patients, optimizing pre-transplant stability without adversely affecting transplant outcomes.

Sábado, 12 Abril de 2025 | 08:00-09:00

Área de Posters-écran 3 | Sessão de Posters 31 – Valvulopatia mitral e tricúspide – Diagnóstico e intervenção valvular

PO 192. PREDICTORS OF MORTALITY IN A LEAD-RELATED TRICUSPID REGURGITATION POPULATION – IS THE RIGHT VENTRICLE THE KEY?

João Mendes Cravo, Catarina Gregório, Joana Rigueira, Marta Vilela, Pedro Alves Silva, Daniel Caldeira, Rui Plácido, Fausto J. Pinto, Catarina Sousa

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: The hemodynamic effects of cardiac implantable electronic device (CIED) related tricuspid regurgitation (TR), in the right heart

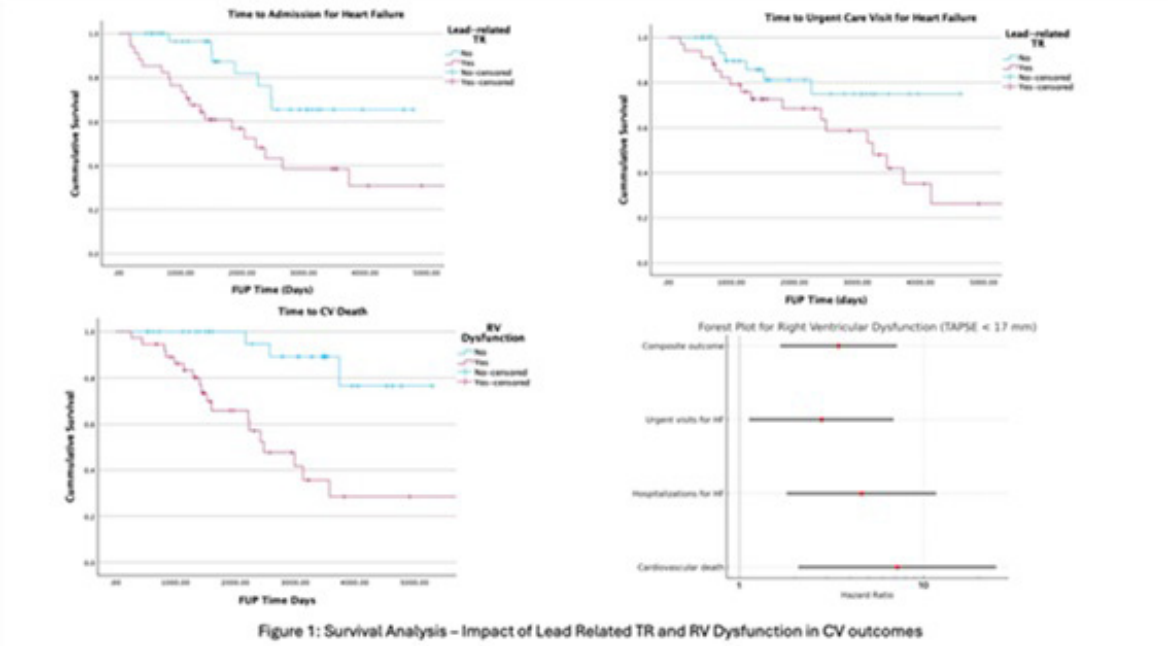

Figure 1: Survival Analysis – Impact of Lead Related TR and RV Dysfunction in CV outcomes

Figure PO 192

chambers is already established. Continuous volume overload leads to right ventricle (RV) adverse remodeling with dilation/dysfunction. Our study aimed to identify predictors of development of severe lead-related TR and assess if development of RV dysfunction has a prognostic impact.
Methods: Pre/post procedural echocardiographic data was collected in patients (pts) submitted to CIED implantation in the prior 10 years. Only pts who fulfilled criteria for lead-related TR were included. Predictors for development of severe lead-related TR were evaluated. The impact of severe TR and RV dysfunction on the composite outcome (admission for heart failure, time to first urgent care visit and death) was evaluated with Kaplan–Meier estimates and Cox proportional-hazards mode with multivariable analysis. A Forest Plot was constructed to visually represent these results.
Results: We included 68 pts, 57% male, mean age 77 years. 34 pts (50%) developed severe TR after CIED implantation, and 37 (54%) developed RV dysfunction. The mean TAPSE was 18.5 mm, mean right atrium area was 20 cm^2 and median LV ejection fraction was 54%. Median follow-up time was 8.4 years. On univariate analysis we observed that an increase in the QRS interval of 1 ms was associated with a 2% increased risk of developing severe related TR. Baseline TAPSE was inversely associated with the risk of developing severe related TR, and the effect was consistent after adjusting for other variables (OR 0.701, 95%[CI], 0.555-0.885, p = 0.003). At follow-up severe TR was associated with an increased risk for unplanned urgent care visit for heart failure (HF) (HR 4.667, 95%[CI] 1.540-14.143, p = 0.005) and HF hospitalization (HR 5.510, 95%[CI] 1.879-16.159, p = 0.001). Development of RV dysfunction was associated with increased risk for a composite outcome of CV death, hospitalization/unplanned urgent care visits for HF on univariate analysis. It remained an independent predictor of CV mortality after adjusting for other factors: age, gender, device, NYHA class, Ejection Fraction (HR 8.199, 95%[CI] 1.033-65.092, p = 0.047).
Conclusions: In a patient population with lead-related TR, severe TR and development RV dysfunction are strongly associated with adverse cardiovascular outcomes. Our work highlights the role of RV function and CIED-related TR severity in determining prognosis and the need for close monitoring of this population.

PO 193. SECONDARY MITRAL REGURGITATION SUBTYPES: LINKING ETIOLOGY, LEFT ATRIAL MECHANICS, AND CLINICAL PHENOTYPES

Ricardo Carvalheiro, Miguel Marques Antunes, Isabel Cardoso, José Miguel Viegas, Vera Vaz Ferreira, Pedro Rio, Ana Teresa Timóteo, Ana Galrinho, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Secondary mitral regurgitation (SMR) arises from diverse mechanisms impacting the mitral apparatus. Ventriculogenic SMR (SMR-V) is driven by left ventricular (LV) dysfunction or dilation, whereas atriogenic SMR (SMR-A) stems from atrial remodeling, frequently linked with atrial fibrillation (AF) or HFpEF. We aimed to characterize SMR patients and compare clinical and echocardiographic features, focusing on left atrial (LA) mechanics, diastolic parameters, and survival outcomes between SMR-V and SMR-A groups.
Methods: We retrospectively examined 96 pts with SMR diagnosed with transesophageal echocardiogram in a single tertiary center between 2018 and 2023. Pts were categorized as having SMR-V if they showed LV dilation or systolic dysfunction, and as having SMR-A otherwise.
Results: Of 96 pts (mean age 67 ± 14 years, 62% female), 73 (76%) presented SMR-V and 23 (24%) SMR-A. Pts with SMR-A were less symptomatic (mean NYHA 2 vs. 3, p = 0.043) and had less severe MR by EROA (24.7 vs. 33.9 cm^2, p = 0.016), although there were no differences in regurgitant volume (41.3 vs. 47.0 mL, p = 0.23). Pts were more frequently female (p = 0.003), with a higher prevalence of atrial fibrillation (65 vs. 22% p = 0.001). They had lower E/e' (10.0 vs. 15.5, p = 0.015) and a longer deceleration time (169.0 vs. 144.5 ms, p = 0.028), suggesting less severe diastolic dysfunction. They had higher conduit LAS (10.0 vs. 7.0%, p =0.001) and a trend towards higher reservoir strain (11.0 vs. 9.0%, p = 0.078), along with significantly lower LA stiffness (0.8 vs. 1.7, p = 0.002). In multivariate analysis, patient rhythm didn't account for the differences shown in LA strain. Overall survival over 60 months did not differ between the SMR-V and SMR-A groups (p = 0.391), despite slightly higher mean survival estimates in the SMR-A group (47.98 vs. 42.63 months). Notably, although pts with SMR-A seemed to have less severe mitral regurgitation, EROA alone did not fully explain the differences found in LA strain and mortality trends in multivariate analysis, suggesting other pathophysiological factors underlie the divergent LA mechanics and prognosis.
Conclusions: In our cohort, while patients with SMR-A presented with less symptomatic disease, lower EROA, and more favorable diastolic parameters, they ultimately shared similar long-term survival with SMR-V patients. Recognizing the distinct remodeling pathways of pts with SMR may aid in clarifying the prognosis for the different subtypes.

PO 194. DEVELOPMENT OF TRICUSPID REGURGITATION AFTER LEFT-SIDE HEART SURGERY

Mónica Dias, Rodrigo Silva, Carolina Ferreira, Sofia Fernandes, Inês Conde, Carla Ferreira, Filipe Vilela, Nuno Salomé, Carla Marques Pires

Hospital de Braga.

Introduction: The current practices for diagnosing, managing, and treating right-sided heart valve disease vary greatly. There is a lack of robust information regarding the incidence and predictors of tricuspid regurgitation (TR) development following left-sided heart surgery.

Laboratory and Echocardiographic Variables	All (n= 96)	Ventriculogenic MR (n=73)	Atriogenic MR (n=23)	p
Laboratory Variables				
NTproBNP - median (IQR)	2798.0 (1289.0-6802.3)	3164.0 (1380.5-7816.5)	1744.0 (1161.5-3120.0)	0.161
I-Troponin - median (IQR)	17.0 (9.3-26.4)	19.1 (10.7-28.4)	6.8 (2.8-11.3)	**0.028**
Echocardiographic Variables				
EROA - mean ± SD	31.8 ± 18.1	33.9 ± 18.5	24.7 ± 14.8	**0.016**
Regurgitant Volume - mean ± SD	45.7 ± 24.5	47.0 ± 24.4	41.3 ± 24.9	0.233
LVTDVI - median (IQR)	84.9 (58.6-111.1)	93.8 (71.8-123.9)	55.3 (39.5-66.3)	**<0.001**
LVEF - mean ± SD	41.6 ± 12.1	36.9 ± 9.2	57.2 ± 5.9	**0.041**
TAPSE - mean ± SD	18.6 ± 4.7	18.1 ± 4.8	19.9 ± 4.2	0.359
Peak TR velocity - mean ± SD	3.0 ± 0.5	3.0 ± 0.5	3.1 ± 0.6	0.162
LAVI - median (IQR)	57.6 (48.0-74.1)	57.3 (48.0-73.5)	58.7 (44.1-78.1)	0.761
E velocity - mean ± SD	104.2 ± 26.3	104.4 ± 26.4	103.4 ± 26.6	0.870
E/A ratio - median (IQR)	2.1 (1.4-2.9)	2.2 (1.3-3.0)	2.0 (1.8-2.6)	0.919
Deceleration time - median (IQR)	152.5 (130.5-191.8)	144.5 (126.5-189.0)	169.0 (145.0-196.5)	**0.028**
E/e' - median (IQR)	14.0 (10.0-21.0)	15.5 (11.0-21.0)	10.0 (8.0-15.0)	**0.015**
LAS-CD (-%) - median (IQR)	7.0 (5.0-9.0)	7.0 (5.0-8.0)	10.0 (13.0-7.0)	**0.001**
LAS-CT (-%) - median (IQR)	1.0 (5.0-0.0)	1.5 (5.0-0.0)	0.0 (3.0-0.0)	0.347
LAS-R (%) - median (IQR)	9.0 (7.0-13.0)	9.0 (60-12.0)	11.0 (9.0-14.0)	0.078
LA stiffness - median (IQR)	1.5 (1.0-2.6)	1.7 (1.1-2.8)	0.8 (0.6-1.5)	**0.002**
LA-LV coupling - median (IQR)	0.6 (0.4-0.8)	0.5 (0.3-0.7)	0.9 (0.7-1.1)	**<0.001**

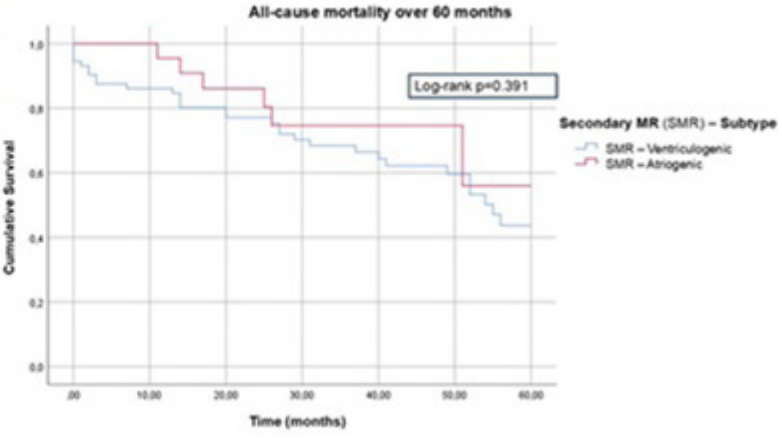

Figure PO 193

Objectives: To evaluate the incidence and predictors of TR development after left-sided surgery in patients without an indication for tricuspid valve (TV) intervention at the time of surgery; to assess the prognostic impact of TR development in these patients.
Methods: We conducted a retrospective observational study including patients from inpatient care in our center who underwent heart surgery between 2011 and 2019. "Group T" consisted of patients who underwent TV intervention, while "group no-T" included those who did not. Unadjusted (Kaplan-Meier) and adjusted (Cox regression) survival analyses were performed to evaluate the occurrence of a composite endpoint (mortality and/or heart failure (HF) hospitalization).
Results: The study included 320 patients (60.3% male, median age 74 [IQR 16] years). 73 patients underwent TV annuloplasty (group T), while 247 did not. Of these, 245 had no indication for TV intervention (group no-T). The median follow-up period was 3.92 years [IQR 4.3]. During this time, 48.6% died from any cause and 23.4% required hospitalization due to a deterioration of their heart failure status, with no differences between the groups. A worsening of preoperative TR was observed in 12.4% of patients, with a higher prevalence in the no-T group (14.5 vs. 5.9%, p < 0.001). Patients with worsening TR were more likely to be female, older at the time of surgery, have a higher prevalence of COPD, and experience a higher incidence of atrial fibrillation (AF). In multivariate analysis, COPD was the only significant predictor of worsening TR (p = 0.047; OR = 3.43). Patients with worsening TR had significantly higher rates of heart failure hospitalization (50 vs. 19%, p < 0.001), mortality (52 vs. 29%, p = 0.039), and composite endpoint (72 vs. 49%, p = 0.004). On multivariate analysis, COPD (p = 0.025; OR = 8.137), left ventricular ejection fraction deterioration (p = 0.029; OR = 13.943), and worsening TR (p = 0.041; OR = 4.538) were identified as predictors of the composite endpoint. However, Kaplan-Meier curves showed no significant difference in time to event between groups (p = 0.091).
Conclusions: TR may progress in a significant proportion of patients following left-side cardiac surgery. As TR progression is associated with a worse late prognosis, a more liberal approach to addressing TR during left-sided surgery, or at least closer clinical and echocardiographic monitoring postoperatively, may be justified in patients with risk factors.

PO 195. THE IMPACT OF TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR ON FUNCTIONAL OUTCOMES IN SECONDARY MITRAL REGURGITATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Emídio Mata, Bárbara Lage Garcia, Luísa Pinheiro, Margarida Castro, Mariana Tinoco, João Português, Francisco Ferreira, Lucy Calvo, Sílvia Ribeiro, António Lourenço

Unidade Local de Saúde do Alto Ave.

Secondary mitral regurgitation (SMR) frequently complicates heart failure (HF) and is associated with poor functional status and outcomes. Transcatheter edge-to-edge mitral valve repair (MTEER) has emerged as a minimally invasive strategy to address SMR. This meta-analysis aimed to evaluate the impact of MTEER on functional outcomes in patients with HF and SMR. PubMed, Cochrane Central Register of Controlled Trials, Scopus, and Web of Science were searched on September 2024, to identify randomized controlled trials (RCTs) comparing MTEER plus guideline-directed medical therapy (GDMT) versus GDMT alone in patients with HF and SMR reporting functional outcomes. Pooled data were analyzed using an inverse variance random-effects model, with continuous outcomes expressed as mean differences (MD) and categorical outcomes as risk ratio (RR). Among 1,558 entries, three RCTs (COAPT, MITRA-FR, and RESHAPE-HF2) were included, with a total of 1,423 patients. At 12 months, COAPT and RESHAPE-HF2 showed a significantly higher proportion of patients in NYHA class I/II in the MTEER group compared to the control group, whereas MITRA-FR did not observe this difference. COAPT was the only trial to sustain this benefit at 24 months. The pooled meta-analysis confirmed this benefit at both 12 months (RR 1.25 [1.04; 1.50]) and 24 months (RR 1.28 [1.05; 1.56]). Regarding the six-minute walk test, COAPT and RESHAPE-HF2 reported significant improvements in the MTEER group at 12 months, but MITRA-FR did not show similar results. The pooled estimate for the change in six-minute walk test distance did not reach statistical significance (MD 26.31 [-3.71; 56.33]). A sensitivity analysis using an alternative endpoint for MITRA-FR also confirmed the lack of significance (MD 24.94 [-8.96; 58.84]). This meta-analysis highlights the potential of MTEER to improve functional status measured by NYHA classification. However, its impact on

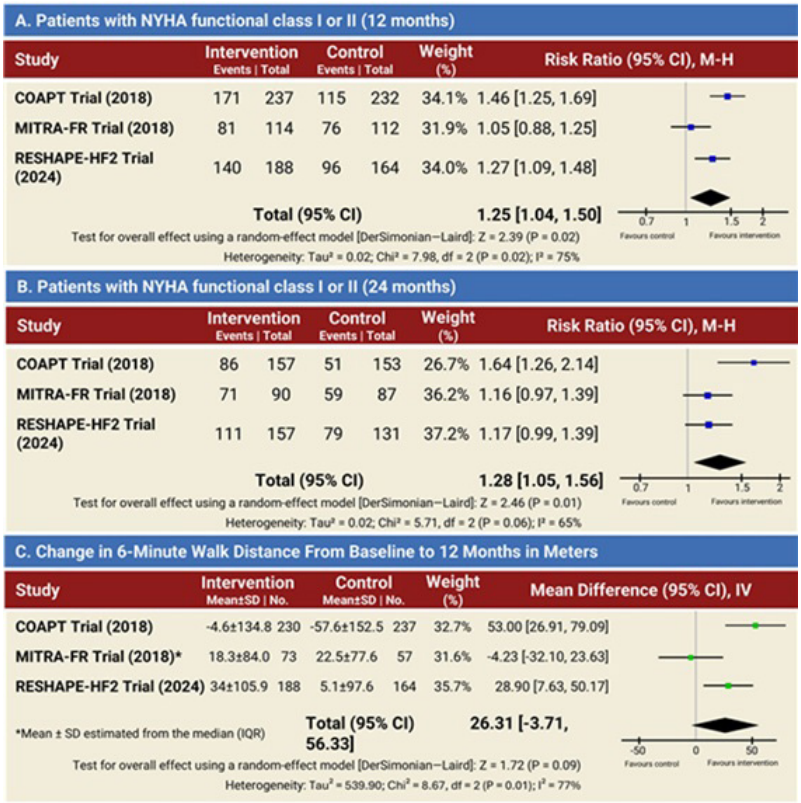

Figure PO 195

exercise capacity, as measured by the six-minute walk test, remains inconclusive. These discrepancies may reflect differences in patient populations, the severity of mitral regurgitation, and left ventricular remodeling across the included trials. The high heterogeneity observed in the meta-analysis warrants caution in interpreting these results. Future patient-level meta-analyses are needed to better understand the benefits of MTEER and identify patient subgroups most likely to experience functional improvement from this intervention.

PO 196. IMPACT OF LEFT VENTRICULAR VOLUME AND EFFECTIVE REGURGITANT ORIFICE AREA ON MORTALITY EFFECTS OF TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR: A META-REGRESSION ANALYSIS

Emídio Mata, Bárbara Lage Garcia, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Lucy Calvo, Sílvia Ribeiro, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: The effectiveness of transcatheter edge-to-edge mitral valve repair (MTEER) in reducing mortality in patients with secondary mitral regurgitation (SMR) remains debated. This meta-regression evaluates how baseline left ventricular end-diastolic volume (LVEDV) and effective regurgitant orifice area (EROA) influence mortality effects of MTEER when compared to guideline-directed medical therapy (GDMT).
Methods: On September 2024, PubMed, Cochrane Central Register of Controlled Trials, Scopus, and Web of Science was search for randomized controlled trials (RCTs) of patients with SMR, randomized to MTEER plus GDMT or GDMT alone, reporting on mortality. Hazard ratios (HR) between the two groups for all-cause mortality at 24 months were pooled using a mixed-effects meta-regression model (DerSimonian-Laird) with EROA and LVEDV as moderators.
Results: From 1,558 identified articles, the final analysis included the COAPT, MITRA-FR, and RESHAPE-HF2 trials with a total of 1,423 patients. The pooled mean LVEDV showed a significant effect on HR. Meta-regression revealed a baseline HR of 24-month all-cause mortality for a reference LVEDV of 180 mL of 0.583 [0.429-0.793], with an increase by a factor of 1.076 [1.002-1.157] per additional 10 mL ($p = 0.045$, pseudo-R^2 1.0). As for pooled mean EROA, meta-regression estimated a HR for 24-month all-cause mortality of 0.921 [0.416-2.037] for a patient with an EROA of 0.2 cm^2, with an increase by a factor of 0.860 [0.484-1.527] per 0.1 cm^2 increment in EROA. The pseudo-R^2 was -1.13, and the p-value was 0.606, indicating no significant association.
Conclusions: Although baseline EROA did not appear to influence the effects of MTEER on 24-month all-cause mortality, the model demonstrated a significant association between LVEDV and mortality. This finding suggests that MTEER may be significantly more beneficial in patients with less dilated ventricles. However, the perfect fit for LVEDV (pseudo-$R^2 = 1.0$) may indicate overfitting, likely due to the small number of included studies (n = 3). Caution is warranted when interpreting these results, as the limited number of trials reduces the robustness of the conclusions. Future studies with larger sample sizes and additional trials are needed to validate the observed relationship between LVEDV and the outcomes of MTEER versus GDMT.

PO 197. SAFETY AND EFFICACY OF TRANSCATHETER EDGE-TO-EDGE REPAIR IN ATRIAL FUNCTIONAL MITRAL REGURGITATION

Mafalda Griné[1], Rita Bertão Ventura[1], Diogo Matias[2], Diana de Campos[1], Luísa Rocha[1], Tomás Carlos[1], Bernardo Resende[1], Manuel Oliveira-Santos[1], Lino Gonçalves[1]

[1]ULS Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

Introduction: The optimal treatment strategy for atrial functional mitral regurgitation (AFMR) remains unclear. We sought to evaluate the safety and efficacy of mitral transcatheter edge-to-edge repair (M-TEER) in this patient subset.
Methods: We conducted a single-center retrospective analysis of consecutive M-TEER cases from November 2018 to November 2023. Patients were divided into two groups: those with and without AFMR (non-AFMR), according to baseline echocardiographic characteristics. Clinical and echocardiographic outcomes up to one year were analyzed.
Results: Of the total of 93 patients that underwent M-TEER during the study period, 29 (31%) met AMFR criteria. AFMR patients were older (median age of 80 years [interquartile range (IQR): 77-84] vs. 76 years [IQR: 68-82] in the non-AFMR group; $p = 0.01$) and displayed greater left atrial volume (74 mL/m^2 (IQR: 50-98) vs. 58 mL/m^2 (47-72), $p = 0.047$) and left ventricular ejection fraction (55% (IQR: 53-58) vs. 42% (IQR: 31, 57), $p = 0.002$). Procedural success was achieved in 96.8% of cases, with no difference between groups ($p = 0.8$). There was one device detachment at 12 months. MR grade = II was achieved in 100% and 90.2% at 3 months ($p = 0.5$) and in 86.2% and 82.8% at 1 year ($p = 0.8$) in patients with AFMR and non-AFMR, respectively. All-cause mortality and heart failure hospitalization rates at 1 year did not differ between groups (6.9 vs. 6.3%, $p = 0.7$; 17.2 vs. 15.6%, $p = 0.3$, respectively). Periprocedural complications were infrequent (6.5%) and rarely severe (3 bleeding events, 2 atrial arrythmias, 1 acute heart failure decompensation). There were no periprocedural deaths nor urgent conversions to open heart surgery.
Conclusions: M-TEER was equally safe and effective in AFMR and non-AFMR. Considering contemporary evidence, M-TEER appears to be a viable treatment strategy for AFMR.

Sábado, 12 Abril de 2025 | 09:00-10:30

Área de Posters-écran 1| Sessão de Posters 32 - Doenças cardiovasculares - EAMCSST

PO 198. THE SAFETY OF EARLY DISCHARGE FOR LOW-RISK STEMI PATIENTS IDENTIFIED BY ZWOLLE RISK SCORE

Marta Catarina Bernardo[1], Isabel Martins Moreira[1], Luís Sousa Azevedo[1], Isabel Nóbrega Fernandes[1], Pedro Mateus[1], Sofia Silva Carvalho[1], José Ilídio Moreira[1], em nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[2]

[1]Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real. [2]CNCDC.

Introduction: Early discharge of patients (pts) with low-risk ST elevation myocardial infarction (STEMI) may be associated with better prognosis and increases efficiency of health care. The Zwolle Risk Score (ZRS) was designed to identify STEMI pts at risk of in hospital complications and has been validated for selection of pts for early discharge (Figure 1).
Objectives: To identify the safety of early discharge (< 72 h) in a population of pts with low-risk STEMI identified by Zwolle risk score.
Methods: Retrospective study of low-risk STEMI pts enrolled in a multicentre registry from 2010-2024, identified by a Zwolle risk score ≤ 3 points. Pts were categorized into two groups: ED (early discharge group, < 72h) and LD (Late discharge group, > 72 h). The primary endpoint was death/hospital readmission during 1 year of follow-up (FUP).
Results: A total of 5,977 pts were included: 22.1% (1319) ED group, 77.9% (4,658) LD group, mean age of 59.6 years, 80.1% males. LD pts were significantly older (57.7 (± 11.3) years vs. 60.1 (± 12.1) years, $p < 0.001$), had higher prevalence of arterial hypertension (55.5 vs. 49.9%, $p < 0.001$) and diabetes mellitus (21.7 vs. 15.2%, $p < 0.001$) and less prevalence of past/active tobacco use (67.8 vs. 58.6%, $p < 0.001$). LD pts had higher burden of comorbidities, namely chronic kidney disease (2.0 vs. 1.1%, $p = 0.03$), neoplasia history (3.9 vs. 2.7%, $p = 0.04$) and chronic obstructive pulmonary disease (2.5 vs. 1.5%, $p = 0.04$). The median ZRS was 1 (IQR 0-2) for ED group

and 2 (IQR 1-3) for LD group. During FUP, LD group had a significantly higher rate of the primary endpoint (14.8 vs. 10.8%, log-rank p = 0.009). In the multivariate analysis, age (HR 1.01, 95%CI 1.0-1.1, p = 0.006), arterial hypertension (HR 1.3, 95%CI 1.0-1.7), diabetes mellitus (HR 14.4, 95%CI 2.0-104, neoplasia (HR 2.1, 95%CI 1.4-3.2) and dementia (HR 3.0, 95%CI 1.5-5.9) were associated with higher risk of the primary endpoint, whilst early discharge was not. In fact, early discharge remained associated with lower risk of primary endpoint (HR 0.74, 95%CI 0.58-0.98, p = 0.042).

	Points
Killip class	
1	0
2	4
3–4	9
TIMI flow post	
3	0
2	1
0–1	2
Age, y	
<60	0
≥60	2
3-vessel disease	
No	0
Yes	1
Anterior infarction	
No	0
Yes	1
Ischemia time >4 hours	
No	0
Yes	1

Figure 1- Zwolle Risk Score. TIMI- Thrombolysis in myocardial infarction

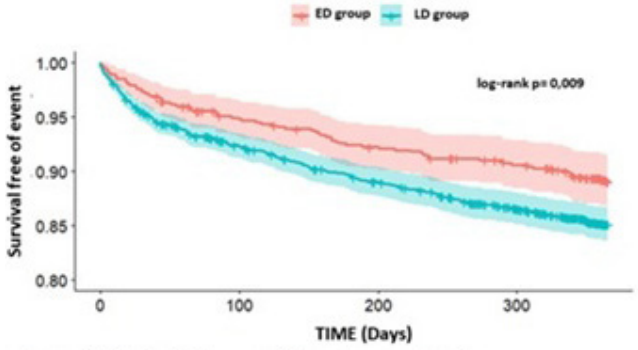

Figure 2- Kaplan-Meier curve for primary endpoint.

Conclusions: In our cohort of low-risk STEMI patients identified by ZRS, early discharge was a feasible and safe option, potentially reducing hospitalization costs without compromising long-term outcomes. However, even in this subgroup of low-risk, there was an association between worse prognosis and adverse baseline characteristics, highlighting the need to integrate scores with clinical judgment.

PO 199. TRENDS IN PRIMARY ANGIOPLASTY OUTCOMES: MORTALITY, PROCEDURAL ADVANCEMENTS, AND LESION TYPE EVOLUTION OVER TIME

Ana Raquel Carvalho Santos, André Ferreira, André Grazina, Pedro Brás, Tiago Mendonça, Luis Morais, Ruben Ramos, António Fiarresga, Lídia de Sousa, Inês Rodrigues, Duarte Cacela, Rui Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Primary angioplasty has advanced over the past two decades, with improvements in procedural techniques, patient care, and post-procedural strategies. This study analyzes trends in mortality, procedural changes, lesion characteristics, and the use of mechanical support over time. We conducted a retrospective analysis of primary angioplasty data from 2002 to 2023, grouped into three periods: 2002-2009, 2010-2019, and 2020-2023. Data were analyzed for mortality rates (30-day [30d], 1-year [1y], 3-year [3y], and 5-year [5y]), procedural changes (complete revascularization, access route, IIb/IIIa inhibitors), lesion types (including bifurcation lesions), usage of IABP, Impella, ECMO, mechanical ventilation [MV] and cardiac arrest. 30d Mortality remained stable, with slight reduction in 2020-2022. 1y Mortality showed significant reduction (p < 0.0001), reflecting advancements in PCI. 3y and 5y Mortality showed substantial decreases in 2020-2022 (p < 0.01), indicating long-term survival improvements. Complete Revascularization increased, reducing follow-up interventions. A significant shift from trans-femoral to trans-radial access was observed (p < 0.0001), reflecting safer techniques. The use of IIb/IIIa inhibitors declined significantly, aligned with evolving guidelines. Major complications decreased (p < 0.01). The use of IABP and Impella was more frequent in earlier periods, reflecting higher reliance on mechanical circulatory support. However, in 2020-2022, both devices were used less frequently. ECMO use also declined, reflecting improvements in patient stabilization techniques and a reduced need for invasive mechanical support. MV and cardiac arrest incidents decreased across periods (p < 0.01). Regarding Lesion Types, proximal right coronary artery remained the most common lesion, while proximal circumflex artery and proximal left anterior descending artery increased in 2010-2019 before declining in 2020-2022, reflecting changes in treatment approaches. The incidence of bifurcation lesions decreased. This study demonstrates significant improvements in mortality, procedural safety, and patient outcomes in primary angioplasty over the past two decades. Advances in PCI, including trans-radial access and complete revascularization, have reduced complications and improved survival. The decline in IIb/IIIa inhibitors, IABP, Impella, ECMO, and MV, along with evolving lesion management, highlights continued progress in PCI techniques and post-procedural care.

PO 200. ACUTE HEART FAILURE FOLLOWING ST-ELEVATION MYOCARDIAL INFARCTION: PATIENT PROFILING

Miguel Abrantes de Figueiredo, Ana Rita Teixeira, André Ferreira, Inês Rodrigues, João Ferreira Reis, António Fiarresga, Ana Teresa Timóteo, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Acute heart failure (AHF) is a major complication following ST segment elevation myocardial infarction (STEMI), significantly impacting patient outcomes.
Objectives: To clarify the disparities between patients who develop AHF following STEMI and those without AHF, potentially identifying risk factors and clinical markers.
Methods: A retrospective analysis of patients admitted with STEMI between 2015 and 2021 in one high-volume center in Portugal was conducted. Patients were categorized in two groups based on the presence or absence of AHF (Killip class greater than 1) during the post-infarction period. Demographic, clinical, and laboratory data were collected and compared between the two groups. Logistic regression was performed to assess predictors of new-onset AHF.
Results: Of the 1,050 STEMI patients included, 16.2% had AHF either on admission or during hospitalization. These patients were more likely to be older (p < 0.001) and female (32.9 vs. 21.9%, p = 0.002). Cardiovascular risk factors, including diabetes (30.6 vs. 18.9%, p < 0.001), arterial hypertension (47.6 vs. 57.6%, p = 0.017), dyslipidemia (39.4 vs. 25.9%, p < 0.001) and chronic kidney disease (7.6 vs. 3.1%, p = 0.004) were more prevalent among the AHF group, while smoking (28.8 vs. 46.5 vs. p < 0.001) and family history (3.5 vs. 8.8%, p = 0.021) were less prevalent. AHF rate was higher with a positive history of previous coronary artery bypass grafting (p = 0.001). Anterior STEMI was more prevalent in the AHF group (53.5 vs. 44.8%, p = 0.036) as well as involvement of the right ventricle (2.9 vs. 0.2%, p < 0.001). Patients with AHF had a higher concentration of leucocytes (p < 0.001), cardiac troponins (p < 0.001) and natriuretic peptides (p < 0.001), with a lower hemoglobin (p = 0.047) concentration. Patients with AHF were more likely to have multivessel disease (p = 0.022), more

likely not to receive complete revascularization (p = 0.020) and had higher in-hospital mortality (p < 0.001) through multivariate analysis. Independent predictors of AHF in patients with STEMI included old age, higher troponin and natriuretic peptides at presentation and right ventricle infarction (p < 0.001, all).
Conclusions: Elevated levels of troponin and natriuretic peptides at presentation along with right ventricle infarction were predictors of new onset AHF in hospitalization for STEMI. The association of AHF with higher in-hospitality mortality underscores its clinical relevance, suggesting the need to closely monitor these high-risk patients.

PO 201. CLINICAL PROFILE AND PREDICTORS OF 30-DAY ALL-CAUSE MORTALITY OF STEMI PATIENTS RECEIVING FIBRINOLYTIC THERAPY IN AN ULTRA-PERIPHERAL REGION

Margarida Câmara Farinha, Inês Coutinho dos Santos, Fabiana Duarte, André Viveiros Monteiro, Luís Oliveira, António Fontes, Santos Serena, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: In remote locations, fibrinolysis remains a valuable intervention in ST-Elevation Myocardial Infarction (STEMI) patients. Despite its effectiveness, mortality rates remain high among these patients. Despite its timely administration, some patients still face poor outcomes. Understanding the factors associated with mortality is crucial for improving care and enhancing clinical outcomes.
Objectives: To assess demographics and outcomes of STEMI patients who underwent fibrinolysis in an ultra-peripheral center and to determine key predictors of 30-day mortality.
Methods: We retrospectively enrolled consecutive STEMI patients who underwent fibrinolysis and were subsequently transferred to our center for facilitated or rescue percutaneous coronary intervention (PCI) between 2020 and 2023. Demographic information and mortality outcomes were examined. A logistic regression analysis was conducted to determine the key factors associated with 30-day all-cause mortality.
Results: The study included 154 patients with an average age of 61.3 ± 12.6 years, of whom 71.0% were men. Overweight or obesity was observed in 73.4% of the cohort, while 69.7% had hypertension, 65.7% presented with dyslipidaemia, and 30.3% had diabetes. Additionally, 56.0% were active smokers, and 13.4% reported a prior history of acute coronary syndrome. Tenecplase was the fibrinolytic agent used in 83.8% of cases. The antiplatelet of choice in the peri-thrombolytic phase was clopidogrel in 50.6%. The infarct-related artery was the left anterior descending artery in 48.3% of patients, and multivessel disease was present in 33.3%. Killip class III/IV was found in 18.3% of patients. Reperfusion criteria were met in 65.1% of patients after fibrinolysis. The median time from symptoms to fibrinolysis was 3.01 hours (IQR 1.63-5.65) and from fibrinolysis to PCI was 6.38 hours (IQR 3.23-11.07). Mortality occurred in 6.5% of patients and 28.5% had haemorrhagic complications. The analyses revealed that age ≥ 75 years (OR 2.066, p = 0.003), a prior history of acute coronary syndrome (OR 1.674, p = 0.016), peripheral arterial disease (OR 1.748, p = 0.022), chronic kidney disease (OR 2.127, p = 0.007) and Killip class ≥ II (OR 3.619, p < 0.001) were independent predictors of 30-day mortality. Following fibrinolysis, congestive heart failure (OR 3.415, p < 0.001) and atrial fibrillation (OR 1.748, p = 0.022) were found to also effect mortality.
Conclusions: Despite challenges, fibrinolysis remains a valuable and impactful treatment option for STEMI patients in remote locations without timely access to PCI. Advanced age, previous coronary disease, and Killip class were identified as independent predictors of 30-day mortality.

PO 202. EFFECT OF AIR TEMPERATURE ON ACUTE MYOCARDIAL INFARCTION INCIDENCE: A STUDY IN THE CENTRE-SOUTH REGION OF PORTUGAL

Diogo Santos da Cunha[1], José Costa[2], Oliveira Baltazar[1], João Mirinha Luz[1], Gonçalo Morgado[1], Nazar Ilchyshyn[1], Adriana Silva[1], Liliana Brochado[1], Lourenço Aguiar[1], Tiago Lobão[1], Hélder Pereira[1]

[1]Hospital Garcia de Orta, EPE. [2]Universidade de Lisboa.

Introduction: Previous literature has linked acute coronary syndrome (ACS) incidence and atmospheric features. The aim of this study is to study the correlation between myocardial infarction (MI) incidence and ambient temperature in the centre-south region of Portugal, a temperate climate.
Methods: A retrospective cohort study of 1,880 patients (949 NSTEMI, 939 STEMI) was conducted from January 1 of 2017 to December 31 of 2021 in a region with a Mediterranean temperate climate characterized by hot summers and mild winters. Daily data of air temperature derived from a

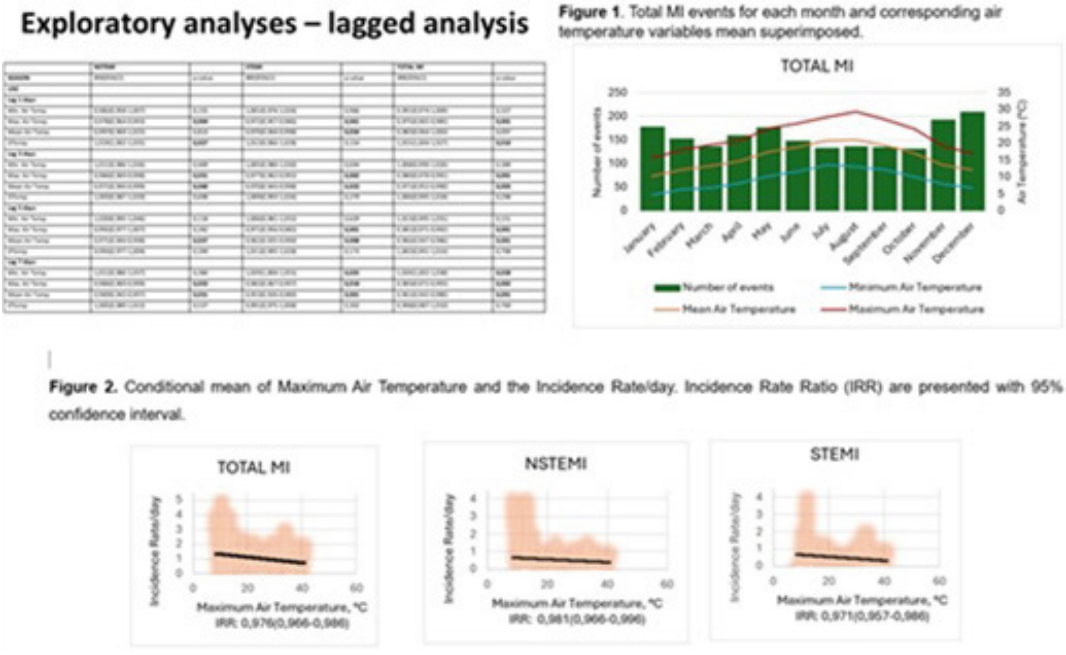

Figure 1. Total MI events for each month and corresponding air temperature variables mean superimposed.

Figure 2. Conditional mean of Maximum Air Temperature and the Incidence Rate/day. Incidence Rate Ratio (IRR) are presented with 95% confidence interval.

Figure PO 202

single station of a government-led institute. Patients were selected from a hospital database that included all patients referred for coronary angiography because of suspected MI. The date of symptom onset was recorded for every patient and merged with the data on daily air temperature. Analysis was done using Poisson regression models.
Results: Decreasing maximum air temperature was associated with an increase in both types of MI incidence, with the STEMI group having the strongest association (1 °C decrease in maximum air temperature leading to a 2.9% increase in incidence rate - IRR, 0.971; 95%CI, 0.957-0.986; p <.001). On lagged analysis (for days 1, 3, 5, and 7), the same negative association was seen between mean and maximum air temperature and total MI, STEMI and NSTEMI.
Conclusions: We concluded that in the center-south region of Portugal, there is a positive association between the decrease in maximum temperature and the increase of MI. That relationship remains present on lagged analysis, also for mean temperature.

PO 203. EVALUATING THE BENEFITS OF HIGH-DOSE STATIN LOADING IN STEMI MANAGEMENT: INSIGHTS FROM A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Bernardo Manuel Lisboa Resende, Tomás Carlos, Luísa Gomes Rocha, Mafalda Griné, Miguel Vicente, Ana Luísa Silva, Mariana Simões, Gonçalo Batista, Tatiana Santos, Rafaela Fernandes, João Gameiro, Lino Gonçalves

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Introduction: Acute ST-Elevation Myocardial Infarction (STEMI) is a medical emergency that requires prompt reperfusion therapy. Although percutaneous coronary intervention (PCI) is recognized as the standard treatment, the periprocedural pharmacological management of STEMI remains a topic of debate, with potential for improvement. Several observational studies and randomized clinical trials (RCTs) on patients with STEMI suggest that prior high-dose statin loading may enhance coronary blood flow, evidenced by the Thrombolysis In Myocardial Infarction (TIMI) frame count after PCI, and is also associated with improved short-term clinical outcomes.
Objectives: Conduct a Systematic Review and Meta-Analysis to evaluate the efficacy of high-dose statin loading in STEMI patients undergoing PCI.
Methods: We systematically searched the Cochrane Controlled Register of Trials, EMBASE, and PubMed for RCTs. The primary outcome was post-PCI TIMI flow 3, while the secondary endpoint was a composite of 30-day Major Adverse Cardiovascular Events (MACE), defined as cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke within 30 days. Loading strategies of 40-80 mg of atorvastatin or 20-40 mg of rosuvastatin were admitted. We pooled dichotomous data using odds ratios (OR) to describe effect sizes, employing a Mantel-Haenszel procedure in a random-effects model, with a 95% confidence interval. Heterogeneity was assessed statistically using the I^2 index (< 25% low, 25%-50% moderate, > 50% high heterogeneity).
Results: Of the 1.085 records identified, six studies were included, providing data on a total of 1.599 patients. Our meta-analysis revealed a higher incidence of post-PCI TIMI flow 3 in the high-dose statin group (pooled OR 2.08 [1.28, 3.38], p = 0.63, I^2 = 0). Additionally, the experimental strategy demonstrated a lower rate of 30-day MACE (pooled OR 0.55 [0.37, 0.82], p = 0.55; I^2 = 0%). Although we included only RCTs, we acknowledge that the outcomes analyzed in our meta-analysis may encompass endpoints that were not utilized for calculating the sample size.
Conclusions: Our results indicate that high-dose statin loading prior to PCI in STEMI patients is associated with a significant improvement in post-PCI TIMI flow 3 and a reduction in the incidence of 30-day MACE. These findings support the clinical benefit of implementing high-dose statin loading in the acute management of STEMI. Therefore, we consider that further research is warranted with larger-scale RCTs.

PO 204. UNCOATING NEW STRATEGIES: DRUG-COATED BALLOONS AS A PROMISING CHOICE

Fábio Viveiros, Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, Marta Vilela, Diogo Rosa Ferreira, João Mendes Cravo, João Fernandes Pedro, Ana Rita Francisco, João Silva Marques, Fausto J. Pinto, Pedro Pinto Cardoso

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Drug-eluting stents (DES) are still the default treatment of coronary artery disease. However, drug-coated balloons (DCB) represent a new alternative in certain anatomic conditions. Although their use is

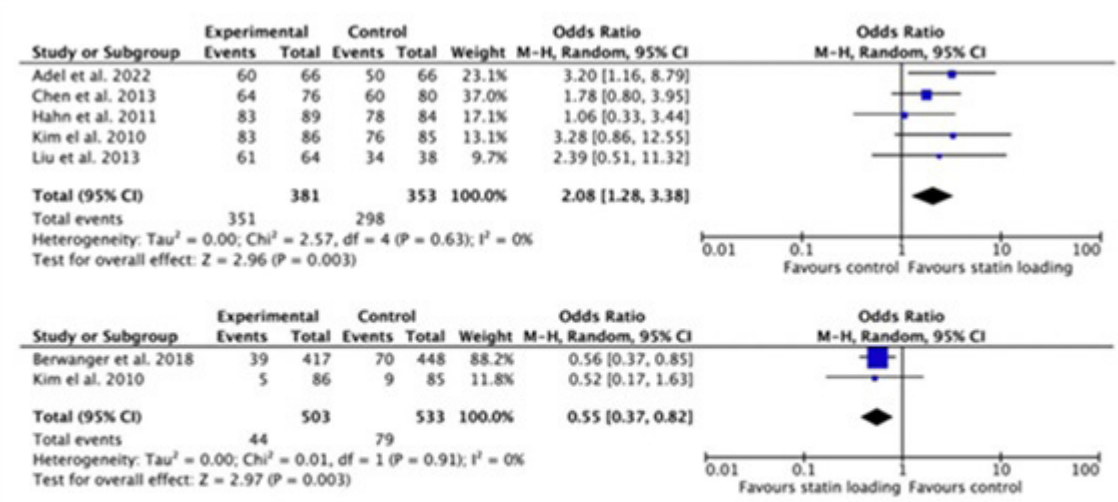

Image 1. Forest plot graphics of the analysed outcomes. 1.1 Post-percutaneous coronary intervention Thrombolysis In Myocardial Infarction flow 3; 1.2 Major Adverse Cardiovascular Events, defined as cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke within 30 days.
CI – Confidence interval. M-H – Mantel-Haenszel.

Figure PO 203

established for in-stent restenosis of both bare-metal and DES, there are other emerging indications.
Objectives: To evaluate DCB angioplasty outcomes.
Methods: Single-center observational study of patients (pts) submitted to DCB percutaneous intervention (PCI). Clinical characteristics and procedure-related data were collected at baseline and primary endpoint, defined as same vessel stenosis, was evaluated at follow-up (FUP).
Results: Two hundred and one pts (75.6% male; mean age 68 ± 11.5 years) were submitted to PCI, with a mean FUP of 31 months. In terms of comorbidities: 87.1% had arterial hypertension, 81.6% hypercholesterolemia and 40.3% smoking habits. Clinical reasons to perform PCI included stable angina in 55.8% of pts, unstable angina in 13.7%, NSTEMI in 25.4% and STEMI in 5.1%. DCB were most frequently applied in the left anterior descending artery (40.3%, $p < 0.001$), followed by the right coronary artery (18.4%), circumflex (14.9%) and marginal artery (10.4%). Two arteries angioplasty was performed in 6 pts and 58 pts treated a second vessel with DES. Regarding the indications for a DCB PCI, most pts had stent restenosis (58.2%), 23.4% small caliber vessel disease and 8.5% a bifurcation lesion. From a technical point of view, pre-dilation was performed in 83% of pts, 80% of which with non-compliant balloons. InPact Falcon was the most frequently used DCB (63.7%) followed by Pantera Lux (33.3%), Sequent Please (2%) and Pantera Leo (1%). DES implantation after DCB PCI was performed in 14.5% of pts due to residual lesion (42.9%) or stenosis (14.3%), 14.3% due to dissection and for optimal final result in 7.1%. TIMI III post-procedure flow was obtained in the vast majority of pts (97%). During FUP, 38 pts were submitted to a new PCI, mainly due to stable angina. Primary outcome was observed in 7.5% of pts: 9 of them with a conservative approach (mild stenosis), 1 submitted to balloon PCI and 5 underwent DES PCI. 64% of pts underwent a new vessel PCI. Regarding pts previously submitted to DES implantation after DCB angioplasty, 5 repeated coronarography at FUP and a good angiographic result of the former procedure was verified, with statistically significant association between DES implantation at baseline and good angiographic results at FUP ($p = 0.047$). At baseline, 4 of these pts were submitted to angioplasty of the same lesion treated with DCB and 1 to proximal PCI. Stenosis didn't correlate with the treated vessel ($p = 0.177$) nor with balloon diameter or length.
Conclusions: Although DCBs are mainly used in restenosis, new indications and clinical benefits are emerging. Final result optimization, as with DES implantation, was associated with good angiographic results at FUP.

PO 205. TEMPORAL TREND OF DRUG ELUTING BALLOON OVER THE LAST 10 YEARS

Rita Louro, Gustavo Sá Mendes, David Neves, Lino Patrício, Pedro Jerónimo Sousa, Rita Calé

Hospital Évora.

Introduction: Drug-eluting balloons (DEBs) delivered antiproliferative drugs to the lesions without leaving foreign material behind, avoiding the caveats of stent thrombosis, accelerated atherosclerosis, impossibility of surgical revascularization and disruption of vessel dynamics. Initially indicated for in-stent restenosis, DEBs have expanded to application in large-calibre vessels, diffuse disease, ostial lesions and in some cases chronic total occlusions (CTO).
Methods: Registry data were collected in collaboration with the Portuguese Association of Interventional Cardiology (APIC), with contributions from each participating centre. The national publication of this review was acknowledged by the CNCD- National Center for Cardiology Data Collection.
Results: This registry evaluates the use of DEB procedures performed between 2014 and 2023 across 13 Portuguese centres, totalling 3.198 interventions (Figure). DEB usage rose significantly from 209 procedures in 2014 to 703 in 2023 ($p < 0.001$), reflecting an increase in DEB as a percentage of total percutaneous coronary interventions (PCIs) from 3.5% to 9.6% over the same period ($p < 0.001$). This trend was independent of the number of PCI per year/centre. Despite this tendency, the penetrance of DEB per region remains different, with a positive gradient from North to South: North 4.34%, Center 10.39%, Lisbon and Tagus Valley 9.64%, and South + Islands 12.35%.

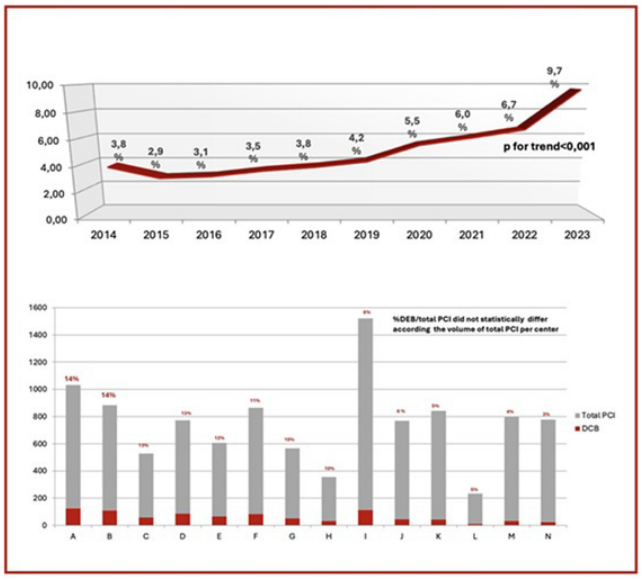

Figure: The graph above represents the trend of DEB/ PCI (%) per year and the graph bellow represents the penetrance of DEB in 2023 per center.

Conclusions: These findings indicate a growing adoption of DEBs in diverse clinical and anatomical contexts. This highlights the importance of long-term follow-up to ensure the quality and durability of treatment outcomes.

PO 206. EXPERIENCE WITH DRUG-ELUTED BALLOONS: INSIGHTS FROM A TERTIARY CARE CENTRE

João Reis Sabido, Miguel Azaredo Raposo, Miguel Nobre Menezes, Cláudia Moreira Jorge, João Silva Marques, Pedro Carrilho Ferreira, Tiago Rodrigues, Ana Rita Francisco, José António Duarte, José Marques da Costa, Pedro Cardoso, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Drug-eluting balloons (DEBs) are semi-compliant catheters coated with antiproliferative drugs, delivered to vessel walls during inflation. They are effective for in-stent restenosis and show promise in small vessel disease, bifurcation lesions, and high bleeding-risk patients.
Objectives: To characterize the experience with DEBs at a tertiary centre.
Methods: Observational, single-center study on percutaneous coronary intervention (PCI) with DEB. Clinical and procedural data were prospectively recorded in hospital clinical records from May 2011 to December 2023.
Results: A total of 266 PCIs using DEBs were performed. DEB use increased from 0.09% of angioplasties in 2011 to 5.71% in 2023 (CAGR 41%). Among patients, 74.4% were male, and the mean age was 68.1 years. Key comorbidities included smoking (39.8%), diabetes (55.3%), hypertension (86.1%), hypercholesterolemia (80.8%), and chronic kidney disease (37.2%). Prior interventions included PCI (57.1%) and surgical revascularization (4.5%). Angiographies were performed due to chronic coronary syndrome (51.5%), NSTEMI (29.7%), unstable angina (10.9%), and STEMI (6.4%). The main indication for DEB use was stent restenosis (53.1%), followed by small vessel disease (26.3%) and bifurcation lesions (12.2%). DEBs were used in the left anterior descending artery (38%), right coronary artery (18.8%), and circumflex artery (15%). Paclitaxel DEBs were more prevalent, representing 98.5% of all (PANTERA-LUX 32.3%, IN-PACT Falcon 49.6%, SeQuent Please 8.3%, PREVAIL 8.3%). Sirolimus DEBs were used in 1.5% (SELUTION SRL). The mean diameters and lengths were 2.7 mm and 21 mm, respectively. Imaging was performed in 16.1% of interventions (IVUS 10.5%, OCT 5.6%). Lesion preparation involved balloon angioplasty in 85.3% and calcium-modifying techniques in 13.2% (cutting balloon 3.8%, lithotripsy 4.5%, and rotational atherectomy 1.1%). TIMI 3 flow was achieved in 97.4%. Rescue drug-eluting stents were used in 14.7% for significant residual lesions or dissection. At

Baseline characteristics	
Male, n (%)	198 (74.4)
Age, mean±SD	68.1±11.4
Comorbidities	
Arterial hypertension, n (%)	229 (86.1)
Diabetes, n (%)	147 (55.3)
Dyslipidemia, n (%)	215 (80.8)
Chronic kidney disease, n (%)	99 (37.2)
Previous CAD	
PCI, n (%)	152 (57.1)
CABG, n (%)	21 (7.9)
Angiography indication	
Chronic coronary syndrome, n (%)	137 (51.5)
Unstable angina, n (%)	29 (10.9)
NSTEMI, n (%)	79 (29.7)
STEMI, n (%)	17 (6.4)
Interventioned artery	
Left anterior descending artery, n (%)	101 (38.0)
Right coronary artery, n (%)	50 (18.8)
Circumflex artery, n (%),n (%)	40 (15.0)
Obtuse marginal artery	31 (11.7)

DEBs characteristics	
Type	
Pantera Lux, n (%)	86 (32.3)
In-Pact Falcon, n (%)	132 (49.6)
SeQuent Please, n (%)	22 (8.3)
PREVAIL, n (%)	22 (8.3)
SELUTION SRL, n (%)	4 (1.5)
DEB diameter, mean±SD	2.7±0.5
DEB length, mean±SD	21.0±7.8
Intracroronary imaging	
OCT, n (%)	15 (5.6)
IVUS, n (%)	28 (10.5)
Lesion preparation	
Ballon angioplasty, n (%)	227 (85.3)
Calcium-modifying techniques	
Cutting ballon, n (%)	10 (3.8)
Lithotripsy , n (%)	12 (4.5)
Rotational atherectomy, n (%)	3 (1.1)
Post-procedure TIMI	
2, n (%)	7 (2.6)
3, n (%)	259 (97.4)

Follow-up	
Time, mean±SD	33.7±34.2
Target lesion failure	
Restenosis, n (%)	18 (6.8)
Thrombosis, n (%)	2 (0.8)
Heart failure admissions, n (%)	20 (7.5)
Death, n (%)	61 (22.9)
Cardiovascular cause, n (%)	40 (15.0)

Figure PO 206

discharge, 30.8% were on DAPT (66.2% aspirin/clopidogrel) for a median of 12 months. Final therapy included aspirin (62.9%), clopidogrel (21%), and DOACs (13.3%). Over 33 months of follow-up, 16.9% had repeat angiography (7.6% target lesion failure: 6.8% restenosis, 0.8% thrombosis). Heart failure admissions were 7.5%, and mortality was 22.9%, with 15% due to cardiovascular causes.
Conclusions: DEBs show high success, safety, and efficacy in real-world use, with low restenosis and thrombosis rates.

Sábado, 12 Abril de 2025 | 09:00-10:30

Área de Posters-écran 2 | Sessão de Posters 33 - Doenças cardiovasculares - MINOCA e síndrome de Takotsubo

PO 207. THE PORTUGUESE PERSPECTIVE ON THE MANAGEMENT OF MINOCA PATIENTS

Margarida G. Figueiredo[1], Sofia B. Paula[2], Mariana Santos[3], Hélder Santos[1], Samuel Almeida[2], Lurdes Almeida[3]

[1]Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta. [2]Hospital Garcia de Orta, EPE. [3]Centro Hospitalar Barreiro/Montijo, EPE/ Hospital Nossa Senhora do Rosário.

Introduction: In January 2017, the European Society of Cardiology (ESC) published a position paper introducing the diagnostic criteria for MINOCA (Myocardial infarction with non-obstructive coronary artery disease). The prevalence of MINOCA varies between 1-14% and can have different causes. Currently, there is still great variability in the management of this entity.
Objectives: To compare the differences between patients (P) hospitalised in Portugal with a diagnosis of MINOCA before and after the publication of the ESC position paper, regarding the management of these P, namely in terms of pharmacological treatment.
Methods: Multicentre retrospective study, based on the Portuguese Registry of ACS, from 1/10/2010 to 7/05/2024. Only P hospitalized with a diagnosis of MINOCA (coronary stenosis < 50%) were included. P were then divided into two groups: A – before 2017 – and B – from 2017.

Table 1A. Patients' pharmacological treatment before hospitalisation according to group.

	Group A	Group B	p value
Acetylsalicylic acid (%)	35	34	0.937
Clopidogrel (%)	17	13	<0.001
Ticagrelor (%)	4	9	<0.001
B-Blocker (%)	26	22	0.002
ACEi/ARB (%)	44	38	<0.001
Statins (%)	41	11	<0.001
Nitrates/Nitrates-like (%)	10	6	<0.001
CCB (%)	16	15	0.442

Table 1B. Patients' pharmacological treatment during hospitalisation according to group.

	Group A	Group B	p value
Acetylsalicylic acid (%)	78	94	<0.001
Clopidogrel (%)	78	29	<0.001
-Before coronary angiography (%)	91	61	<0.001
-After coronary angiography (%)	8	29	<0.001
-Loading dose 300mg (%)	60	37	<0.001
-Loading dose 600mg (%)	15	43	<0.001
Ticagrelor (%)	7	58	<0.001
-Before coronary angiography (%)	86	83	0.592
-After coronary angiography (%)	7	11	0.436
AAS + Clopidogrel (%)	61	28	<0.001
AAS + Ticagrelor (%)	7	58	<0.001
UFH (%)	12	34	<0.001
Enoxaparin (%)	72	39	<0.001

Table 1C. Patients' pharmacological treatment at discharge according to group.

	Group A	Group B	p value
Acetylsalicylic acid (%)	81	88	<0.001
Clopidogrel (%)	37	35	0.299
Ticagrelor (%)	3	43	<0.001
AAS + Clopidogrel (%)	35	30	0.026
AAS + Ticagrelor (%)	3	43	<0.001
B-Blocker (%)	70	76	0.006
ACEi/ARB (%)	73	79	0.002
Statins (%)	88	78	<0.001
Nitrates/Nitrates-like (%)	18	15	0.062
CCB (%)	17	17	0.992

Results: Group A had 1,905 P (39%) while group B had 3,004 P (61%). 58% of P were male in group A vs. 71% in group B (p < 0.001), mean age was 65.8 ± 12.8 vs. 66.3 ± 12.7 years, and the majority of patients were 45 to 55 years old in both groups (39.4 vs. 39.9%, p = 0.760). 24% of P in group A had diabetes mellitus comparing to 28% of P in group B (p = 0.013), 63% of P had dyslipidaemia vs. 58% (p < 0.001), and 21% of P were smokers vs. 24%

(p = 0.006). The most common clinical presentation was chest pain (94% in both groups); 45% of P in group A and 28% in group B had a normal ECG (p < 0.001), with the main alterations in ECG being T wave inversion (18 vs. 10%, p < 0.001). Elevation of cardiac troponins was presented in 15% of P in group A vs. 25% of P in group B (p < 0.001) and 78% of P had preserved ejection fraction (LVEF ≥ 50%) vs. 68% in group B (p < 0.001). All P of both groups performed coronary angiography, 4% of P in group A performed > 1 coronary angiography vs. 18% in group B (p < 0.001). Pharmacological treatment of both groups before hospitalisation, during hospitalisation and at discharge is described in tables 1A, 1B and 1C, respectively. There was no information in the Registry of ACS regarding cardiac magnetic resonance imaging (MRI) or invasive coronary function testing. In which concerns complications during hospitalisation, P in group A developed more heart failure (8 vs. 4%, p < 0.001) while intrahospital mortality was higher in P in group B (2.0 vs. 0.8%, p < 0.001).

Conclusions: MINOCA is a term that encompasses a heterogeneous group of underlying causes, making it crucial to perform further assessments and investigations to establish the underlying cause of the MINOCA, which allows appropriate management of P, since failure to identify the underlying cause of MINOCA may result in inadequate therapy. In our study, a significant number of P in group B was discharged under dual antiplatelet therapy. Functional coronary assessment and cardiac MRI would have been important tools to make a decision regarding pharmacological therapy of these patients.

PO 208. TAKOTSUBO SYNDROME IN THE 21ST CENTURY: A PORTUGUESE PICTURE FROM A TERTIARY CENTER

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Introduction: Takotsubo syndrome (TTS) is a cause of acute heart failure (AHF), and its presentation mimics an acute coronary syndrome. Despite its classical presentation as an acute transient left ventricular dysfunction preceded by a specific trigger, a variety of clinical courses and outcomes have been described. We aimed to characterize a contemporary cohort of patients with TTS.

Methods: Retrospective analysis of patients diagnosed with TTS admitted to a tertiary care center between 2009-2024. Baseline characteristics, clinical presentation and in-hospital complications, serial cardiac imaging and short-term outcomes at first outpatient follow-up appointment were analyzed.

Results: A total of 107 patients (72 ± 12 years, 86% women) were included. The most common presenting symptom was chest pain (66%; n = 71), with an identified trigger in 50% of patients. A recurrent episode was present in 5 patients. ST-segment elevation was the most frequent finding on ECG (47%, n = 40), accompanied by troponin (peak 719 ng/L [IQR 280-1,478]) and NTproBNP (peak 5,162 pg/ml [IQR 2,399-11,204]) elevation. Regional wall motion abnormalities were identified by TTE (n = 100) and/or ventriculography (n = 48), with apical ballooning by TTE and ventriculography on 86% and 81% of patients, respectively. Left ventricular ejection fraction (LVEF) was preserved in around 1/3 of patients, mildly reduced in 1/3 and reduced in 1/3. Obstructive CAD was evaluated in 87% (n = 93) and excluded in 88% (n = 82) of patients; no percutaneous coronary intervention was performed. Most patients had an uncomplicated clinical course and LVEF improved significantly before discharge (Figure 1). However, 15% of patients presented with AHF, including 6.5% in cardiogenic shock. Cardiac arrest occurred in 5.6%, and in-hospital mortality was 3.8% (n = 4). LVEF < 50% at admission was a predictor of in-hospital complications (OR 0.20, 95%CI 0.06-0.73, p = 0.014). At discharge, 69% of patients were on angiotensin converting enzyme inhibitors and 73% were on beta-blocker. The first follow-up appointment (median 3 months [IQR 1-4]) was attended by 67 patients, with no TTS recurrences or readmissions in this timeframe. LVEF was reassessed in 47 patients at follow-up, maintaining significant improvement (Figure 1).

Conclusions: TTS represents a relevant cause of cardiac hospitalization, and despite a benign course, some patients still have worse outcomes. Long-term follow-up with routine multimodality imaging might shed light on pathophysiology and predictors of worse outcomes.

PO 209. CLINICAL FEATURES AND OUTCOMES OF TAKOTSUBO SYNDROME

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Table 1 – Baseline population characteristics

	All patients (n=107)
Females, n (%)	99 (92,5%)
Age (years, mean ± SD)	72 ± 12
Diabetes, n (%)	32 (29,9%)
Coronary artery disease, n (%)	10 (9,3%)
Hypertension, n (%)	79 (73,8%)
Obesity, n (%)	17 (15,9%)
Dyslipidemia, n (%)	52 (48,6%)
Non-Smoker, n (%)	82 (76,6%)
Past Smoker, n (%)	9 (8,4%)
Active Smoker, n (%)	15 (14%)
Psychiatric condition, n (%)	26 (24,3%)
Neurologic condition, n (%)	7 (6,5%)

Table 2 – In-hospital complications

	All patients (n=107)
Acute cardiac failure	16 (15%)
Supraventricular arrhythmias	10 (9,3%)
Cardiogenic shock	7 (6,5%)
Cardiac arrest	5 (4,7%)
Ventricular arrhythmias	4 (3,7%)
Left ventricular thrombus	3 (2,8%)
Interventricular septal rupture	1 (0,9%)

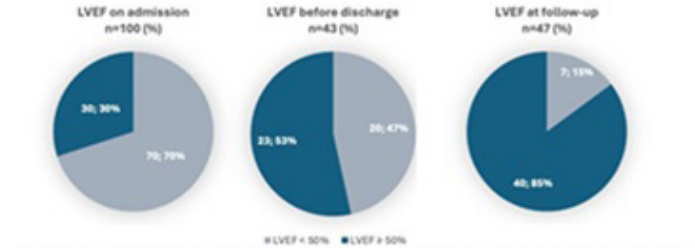

Figure 1: Graphic representations of LVEF evaluation at admission, before discharge and at follow-up, demonstrating sustained significant improvement in LV function.

Figure 2: Comparison of LVEF on admission with reevaluation at follow-up in 47 patients demonstrates most patients recover LVEF (p<0,001).

Figure PO 208

Introduction: Takotsubo syndrome (TS) is characterized by a transient systolic and diastolic left ventricular dysfunction with a variety of wall-motion abnormalities. It has been increasingly recognized, but a comprehensive understanding of its clinical approach remains incomplete.
Objectives: To describe the clinical characteristics, triggering factors and outcomes of TS.
Methods: A retrospective analysis of TS patients admitted to a tertiary hospital between 2008 and 2023 was conducted. We collected patient data, including baseline characteristics, laboratory values, results on electrocardiography (ECG), cardiac imaging and coronary angiography (CA), and major adverse outcomes – defined as a composite outcome of cardiogenic shock, acute pulmonary oedema (APE), ventricular arrhythmias (VA), high-grade atrioventricular block (HGAVB) and stroke. Descriptive statistic and univariate analysis were performed.
Results: Ninety-eight patients were included (86% women, mean age 77 ± 11 years). Of them, 83% had arterial hypertension, 29% diabetes, 53% dyslipidaemia, and 38% neuropsychiatric disorders (mainly anxiety and depression). The predominant symptom on admission was chest pain (76%). A trigger was identified in 61% of patients, being physical triggers more frequent than emotional (63 vs. 37%). ECG on admission showed ST-segment elevation in 52% of cases, T-wave inversion in 60%, and ST-segment depression in 12%; the mean QTc interval was 463 ms. Mean NT-proBNP and troponin T maximum levels were 4,483 pg/mL and 511 ng/L, respectively. A reduced left ventricular ejection fraction (LVEF) was observed in 82% of patients (mean value 42 ± 8%) at admission. Apical TS was identified in 95% of patients, whereas the midventricular form was found in 3%, and left ventricular outflow tract obstruction in 2 cases. Cardiac magnetic resonance revealed oedema in 29% of patients and late gadolinium enhancement was absent in 83% of cases. All patients performed CA, obstructive coronary artery disease was diagnosed in 9% and percutaneous intervention was done in 4%. Left ventriculography identified apical ballooning pattern in 76% of patients. During hospital admission, the rate of major adverse events was 23%, being HGAVB, APE and VA the most frequent. Physical triggers and reduced LVEF on admission were predictors of adverse events (p = 0.001 and p = 0.045, respectively).
Conclusions: TS represents an acute heart failure syndrome in which psychological and physical factors interplay, with substantial morbidity associated.

PO 210. HIGH-SENSITIVITY TROPONIN I PEAK IN MINOCA – A USEFUL TOOL IN THE RIGHT CLINICAL CONTEXT?

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Introduction: Myocardial infarction with nonobstructive coronary arteries (MINOCA) is defined by a clinical diagnosis of Myocardial Infarction (MI) and exclusion of significant epicardial stenosis on coronary angiography. In the presence of clinical suspicion, the decision to perform coronary angiography is based on biomarker levels.
Objectives: To evaluate if high-sensitivity troponin-I (hsTnI) in patients with myocardial infarction and elevated cardiac biomarkers has a good discriminative power to predict MINOCA.
Methods: A retrospective analysis of consecutive AMI patients who underwent coronary angiography admitted to the Cardiology Department from November 2021 to October 2022 was conducted. We analysed demographic and cardiovascular risk factors, initial and peak hsTnI, index-hospitalization data and evaluated the presence of significant coronary artery stenosis at coronary angiography. Univariable and multivariable analysis was performed to obtain the Odds Ratio (OR, 95%CI, p-value) for significant coronary artery disease (CAD). ROC curve and area under the curve (AUC) were obtained to determine the discriminative power of peak hsTnI as predictor of a positive coronary angiography. Optimal cut-point value was obtained (Youden index) and patients were divided according to this value.
Results: A total of 375 patients (72.0% males) with a mean age of 66.4 ± 12.3 years were submitted to coronary angiography. MINOCA was present in 18 patients (4.8%). When comparing patients with or without significant CAD at coronary angiography, the groups differed in relation to male sex (p = 0.033), regional wall motion abnormalities at admission (p = 0.039) and peak hsTnI (p = 0.001). Optimal cut-point value for predicting the presence of significant coronary artery stenosis at coronary angiography was a peak hsTnI of 7010 pg/mL (AUC 0.724, p-value 0.001, 95%CI 0.593-0.855). The characteristics of the two groups are described in Table 1. In the hsTnI > 7010 group, mean age was 65.6 ± 12.9 years and 61% were male; 58% had a diagnosis of hypertension, 55% had dyslipidemia, 55% had type 2 diabetes mellitus and 66% were smokers. The two groups differed significantly in the presence of dyslipidemia (p = 0.033), type 2 Diabetes mellitus (p = 0.033), and presence of regional wall motion abnormalities at admission (p < 0.001) (Table). After adjustment, peak hsTnI > 7010 pg/mL was the only independent predictor of significant CAD (OR 4.732, 95%CI 1.469-15.243, p-value 0.009).

Table 1: Comparison between groups based on peak hs-TnI levels above or below the optimal cut-off value (7010 pg/mL)

	hsTnI >7010 pg/mL (n=225)	hsTnI <7010 pg/mL (n=150)	p value
Age in years, mean±SD	65.6±12.9	67.6± 11.3	0.120
Male, n (%)	165 (61.1)	105 (38.9)	0.481
Hypertension, n (%)	153 (58.0)	111 (42.0)	0.212
Dyslipidemia, n (%)	106 (54.9)	87 (45.1)*	**0.033**
Type 2 Diabetes Mellitus, n (%)	106 (54.9)	87 (45.1)*	**0.033**
Obesity, n (%)	47 (56.0)	37 (44.0)*	0.371
Smokers, n (%)	75 (66.4)	38 (33.6)	0.098
Family history of AMI, n (%)	5 (55.6)	4 (44.4)	1.000
Regional wall motion abnormalities on admission, n (%)	200 (67.3)	97 (32.7)	**<0.001**
LDL-cholesterol, mean±SD	114.1±45.1*	116.0± 43.8*	0.696
Total cholesterol, mean±SD	178.2±49.5*	182.0±52.0*	0.498
Lipoprotein (a), median (IQR)	25.2 (10.4-53.0)*	26.1 (10.4-56.6)*	0.797
Glycosylated hemoglobin, median (IQR)	5.8 (5.4-6.5)*	5.9 (5.5-6.9)*	0.044

Footnote: AMI – acute myocardial infarction. MINOCA - Myocardial infarction with non-obstructive coronary arteries. hsTnI – High-sensitivity troponin-I. IQR - Interquartile Range. SD - Standard deviation. *Missing values

Conclusions: In the right clinical context where there is high suspicion for MINOCA, decision to perform and/or timing of coronary angiography could be based on peak hsTnI values. In this population, patients with hsTnI < 7010 pg/mL without established cardiovascular risk factors, namely dyslipidemia and type 2 diabetes mellitus and without region wall motion abnormalities at admission, are more likely to have MINOCA.

PO 211. THE HIDDEN THREAT OF SEPTIC CARDIOMYOPATHY: UNMASKING ITS IMPACT ON ICU SURVIVAL

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Introduction: Septic cardiomyopathy (SC) is characterized by myocardial dysfunction in patients with sepsis, leading to severe hemodynamic instability. Many uncertainties still remain regarding mechanisms, characteristics, treatment and even prognosis of this condition.
Objectives: To compare intensive care unit (ICU) mortality between patients with septic cardiomyopathy (SC) and patients without septic cardiomyopathy (controls). Also, to compare clinical, laboratory and echocardiographic characteristics of SC patients who survived (SCs) and those who did not (SCd).
Methods: Retrospective, observational, single-center study of patients admitted in ICU during 2022 and 2023 due to sepsis, with or without a diagnosis of SC. Kaplan-Meier survival analysis was performed.

Results: We included 58 SC patients (mean age 66.7 ± 15.4 years, 62.1% male) and 248 controls (mean age 65 ± 16.2 years, 61.3% male). Regarding SC patients, in-hospital mortality was 56.9%, with 55.2% of deaths occurring during ICU stay. The mean time to death was 3.5 days for SC patients and 5 days for non-SC patients. ICU mortality was significantly higher in SC patients than controls (p = 0.01, log rank test) (Figure 1). Regarding SC patients, length of ICU stay was similar between survivors and non-survivors. However, infection source control was significantly better in survivors (SCs: 80 vs. SCd: 46%, p = 0.01). Inotrope and vasopressor doses were higher in non-survivors (peak noradrenaline dose SCd: 220 µg/min vs. SCs: 60 µg/min, p < 0.001). Organ dysfunction was similar between groups, except for KDIGO III acute renal failure, which was higher in non-survivors, though not statistically significant (SCd: 83.3 vs. SCs: 70%, p = 0.052). Non-survivors had higher troponin (SCs: 48 ng/L vs. SCd: 103 ng/L, p = 0.015) and peak lactate levels (SCd: 95 mg/dL vs. SCs: 45 mg/dL, p = 0.05), at ICU admission. Left ventricular ejection fraction recovery at ICU discharge was significantly higher in survivors (SCd: 10.3 vs. SCs: 93.3%, p < 0.001).

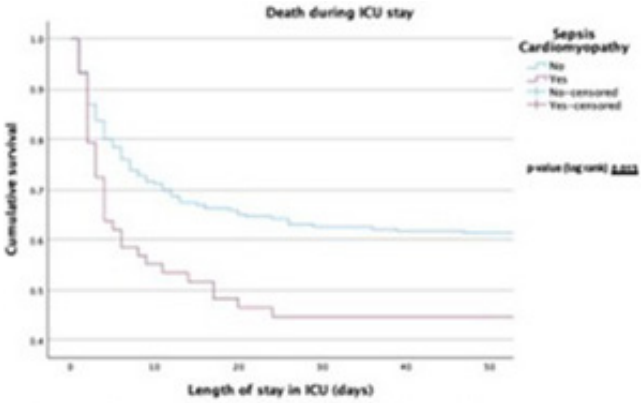

Figure 1: Kaplan-Meier Curve for ICU Survival of Patients with and without Septic Cardiomyopathy

Conclusions: SC was linked to higher ICU mortality. Infection source control was better in SC survivors. Non-survivors had higher doses of inotropes/vasopressors and higher troponin and lactate levels, at ICU admission. Early recognition and management are crucial for SC prognosis improvement.

PO 212. DIAGNOSTIC PERFORMANCE OF BIOMARKERS IN PREDICTING SEPTIC CARDIOMYOPATHY: A STUDY ON PROCALCITONIN, NT-PROBNP, AND TROPONIN T IN SEPSIS PATIENTS

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Introduction: Sepsis-induced myocardial dysfunction is a major cause of morbidity and mortality in critically ill patients and early identification of patients at risk can significantly impact prognosis. Various biomarkers have been investigated as potential predictors of this condition, but none is well defined.
Objectives: To assess the ability of procalcitonin, NT-proBNP, troponin, and their peak values to predict the occurrence of septic cardiomyopathy in septic patients.
Methods: Retrospective, observational study of consecutive patients with sepsis diagnosis, admitted in a Polivalent Intensive Care Unit. The area under the curve (AUC), sensitivity, specificity, and diagnostic accuracy were calculated to assess the predictive value of the 3 biomarkers.
Results: A total of 306 patients were included, of which 19% had septic cardiomyopathy (SC) and 81% did not. The prevalence of cardiovascular comorbidities and prior structural heart disease was comparable between the two groups (SC: 20.4 vs. no SC: 22.2%). Procalcitonin, NT-proBNP and troponin T levels were investigated as potential predictors of SC. At admission, procalcitonin exhibited an area under the curve (AUC) of 0.608, with an optimal cutoff value of 38.55, yielding a sensitivity of 48.3%, specificity of 74.2%, and diagnostic accuracy of 1.225. These results suggest that procalcitonin has limited diagnostic utility for septic cardiomyopathy, with relatively low sensitivity. NT-proBNP at admission demonstrated a slightly higher AUC of 0.653, with a cutoff of 11072, resulting in a sensitivity of 58.5%, specificity of 75.2%, and diagnostic accuracy of 1.337. While NT-proBNP showed better performance than procalcitonin, its diagnostic accuracy remains moderate. Troponin T at peak levels showed the highest AUC (0.684), with a cutoff value of 238, sensitivity of 46.6%, specificity of 85.3%, and diagnostic accuracy of 1.319. Despite its lower sensitivity, peak troponin T exhibited excellent specificity, indicating its potential role in ruling out septic cardiomyopathy. Peak procalcitonin demonstrated an AUC of 0.630, with a sensitivity of 63.8% and specificity of 63.3%, yielding a diagnostic accuracy of 1.271. This suggests a moderate performance but does not outperform the other markers. Finally, peak NT-proBNP showed an AUC of 0.663, with a cutoff value of 11,180.5, sensitivity of 60%, specificity of 72.8%, and diagnostic accuracy of 1.328, making it the most promising marker in this study for predicting septic cardiomyopathy.
Conclusions: While none of the biomarkers demonstrated high diagnostic accuracy, peak NT-proBNP and peak troponin T showed the best diagnostic performance. These findings suggest that a strategy of biomarkers combination, especially of their peak values, may enhance the diagnosis of septic cardiomyopathy in septic patients.

PO 213. UNVEILING THE POPULATION DYNAMICS OF SEPSIS CARDIOMYOPATHY: A COMPREHENSIVE EVALUATION

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Introduction: Sepsis cardiomyopathy (SC) is a condition marked by ventricular dilation, reduced ejection fraction (EF) and normal filling pressures, typically resolving within 7-10 days in septic patients. Despite its clinical importance, SC is poorly understood, with limited research and an unclear prognosis.
Objectives: This study aims to characterize patients diagnosed with SC between 2022 and 2023 and compare their clinical profiles and Intensive Care Unit (ICU) outcomes with those of patients without SC (noSC).
Methods: Retrospective, observational, single-center study of consecutive patients with SC diagnosis, between January 2022 and December 2023.
Results: 306 patients were included, 19% with SC and 81% without SC. Cardiovascular comorbidities and previous structural heart disease were comparable between groups (SC: 20.4 vs. noSC: 22.2%). Median ICU length of stay did not differ significantly between the two groups (SC: 4 vs. noSC: 5 days). However, in-hospital cardiac arrest occurred more frequently in SC patients (20.7 vs. 8.1%; p = 0.005). ICU mortality was significantly higher in the SC group (55.2 vs. 39.3%; p = 0.027), although overall in-hospital mortality showed no significant difference (SC: 56.9 vs. noSC: 52%). Infection source control and time to effective source control were similar between the two groups. Regarding end-organ dysfunction, SC patients exhibited higher rates of encephalopathy (56 vs. 36.6%; p = 0.014), hepatocellular injury (78 vs. 57.7%; p = 0.009), and renal dysfunction (6.9 vs. 9.9%; p = 0.017). Analogously, inotrope and vasopressor use was higher in SC patients, being noradrenaline and dobutamine the most used drugs (peak

Baseline Characteristics	Sepsis Cardiomyopathy (n=58)	No Sepsis Cardiomyopathy (n=248)	p-value
Male sex - n (%)	36 (62.1)	152 (61.3)	0.913
Age - mean ± SD	66.7 ± 15.4	65.0 ± 16.2	0.477
Comorbidities - n (%)			
Arterial hypertension	36 (64.3)	141 (61.3)	0.680
Diabetes	18 (32.7)	71 (31.7)	0.883
Dyslipidemia	20 (37.0)	103 (46.4)	0.215
Smoking history	6 (11.5)	53 (25.5)	**0.032**
Atrial fibrillation	7 (13.7)	28 (14.4)	0.908
Structural heart disease - n (%)	11 (20.4)	48 (22.2)	0.768
Clinical Characteristics and Evolution	**Sepsis Cardiomyopathy (n=58)**	**No Sepsis Cardiomyopathy (n=248)**	**p-value**
Length of ICU stay (days) - median [IQR]	4 [2-9]	5 [3-11]	0.204
In-hospital cardiac arrest - n (%)	12 (20.7)	20 (8.1)	**0.005**
In-hospital death - n (%)	33 (56.9)	116 (52.0)	0.507
During ICU stay	32 (55.2)	97 (39.3)	**0.027**
Site of infection - n (%)			
Gastrointestinal tract	24 (41.4)	127 (51.6)	
Urinary tract	12 (20.7)	33 (13.4)	0.098
Respiratory tract	8 (13.8)	50 (20.3)	
Other	14 (24.1)	36 (14.6)	
Infection source control - n (%)	35 (61.4)	144 (63.4)	0.776
Initial appropriate antimicrobial therapy - n (%)	36 (67.9)	146 (69.5)	0.822
Time to infection source control (days) - median [IQR]	0 [0-1]	0 [0-2]	0.501
Organ dysfunction			
Cardiovascular - n (%)			
Inotrope and vasopressor use			
Peak dobutamine (mcg/kg/minute) - median [IQR]	5 [2.5-5]	5 [4.5-10]	0.225
Peak noradrenaline dose (mcg/minute) - median [IQR]	165 [60-240]	80 [38-180]	**0.002**
Respiratory			
Invasive mechanical ventilation (days) - median [IQR]	2.0 [0.8-6.3]	2.0 [1.0-7.0]	0.993
Renal - n (%)	58 (100)	213 (91.8)	**0.017**
KDIGO I	4 (6.9)	23 (9.9)	
KDIGO II	7 (12.1)	48 (20.7)	
KDIGO III	21 (36.2)	69 (29.7)	
KDIGO III + Renal replacement therapy	26 (44.8)	73 (31.5)	0.055
Hepatocellular - n (%)	39 (78.0)	97 (57.7)	**0.009**
Hematological - n (%)			
Thrombocytopenia	40 (72.7)	133 (63.9)	0.222
Disseminated intravascular coagulation	9 (18.0)	18 (10.9)	0.185
Neurological (encephalopathy) - n (%)	28 (56.0)	64 (36.6)	**0.014**

Figure 1: Baseline characteristics of a sepsis cardiomyopathy population.

Figure PO 213

noradrenaline dose 165 mcg/min in SC vs. 80 µg/min, peak dobutamine 5 µg/Kg/min in both groups). Mean SvO2 at admission was significantly lower in SC patients (63.3 vs. 69.6%; p = 0.010), while peak lactate levels were significantly higher (SC: 64 mg/dL vs. noSC: 46 mg/dL; p = 0.011). Patients in both groups had similar CRP peak (26.1 mg/dL in both groups), but SC patients had higher peak troponin T (SC: 62 ng/L vs. noSC: 49 ng/L, p value 0.070) and NTproBNP levels (SC: 15,434 pg/mL vs. noSC: 4,887 pg/mL, p value 0.004).

Conclusions: SC worsens septic patient outcomes by impairing hemodynamic stability and organ dysfunction, emphasizing the need for early detection and treatment.

PO 214. MANAGEMENT OF NEW-ONSET ATRIAL FIBRILLATION IN THE INTENSIVE CARE UNIT: WHERE DO WE STAND?

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Introduction: New-onset atrial fibrillation (NOAF) is frequently observed in patients (pts) treated in an intensive care unit (ICU), yet the long-term impacts on patient outcomes remain unclear. While various management strategies are utilized, the evidence available is limited and primarily derived from non-ICU populations.

Objectives: To characterize the population of pts with NOAF admitted to the ICU and evaluate the preferred management strategies.

Methods: Observational, single-center, retrospective study of pts with NOAF admitted to a multidisciplinary ICU between January 2020 and June 2022. Clinical and demographic data were collected.

Results: Of the 3,692 patients (pts) admitted in the ICU, NOAF was observed in 161 pts (4.4%) (101 males, 69.5 ± 11.8 years). Among these patients, 67% had hypertension, 35% diabetes, 21% obesity, 13% ischemic heart disease, and 15% a history of heart failure. 30% of pts were previously on therapy with beta-blockers (BB) and 4% on antiarrhythmics. The main reasons for ICU admission were sepsis/septic shock (73%), trauma (10%), and cardiogenic shock (7%). During hospitalization, 79% developed cardiovascular dysfunction. The preferred first-line strategy for managing NOAF was rhythm control (85%), observation (7.5%) or rate control (7.5%). Among the subgroup managed with rhythm control, 27 pts underwent electrical cardioversion combined with amiodarone, 5 received electrical cardioversion alone, and the remaining 104 were treated with amiodarone therapy. Other antiarrhythmics were not used. There was no difference between BB and digoxin use, among frequency control strategy. Anticoagulation was initiated in only 72 pts (39% enoxaparin, 6% unfractionated heparin). A recurrent episode of AF occurred in half of the pts during hospitalization. 33% of pts died during their ICU stay; however, AF recurrence was not a predictor of ICU mortality. No predictors of ICU mortality were identified in the NOAF cohort. At discharge, only 45% of pts were on anticoagulation therapy. Among these, 24% were on BB, and 14% were on a combination of amiodarone and BB. During a follow-up (Fup) period of 428 days (1-1,705), 47% of pts

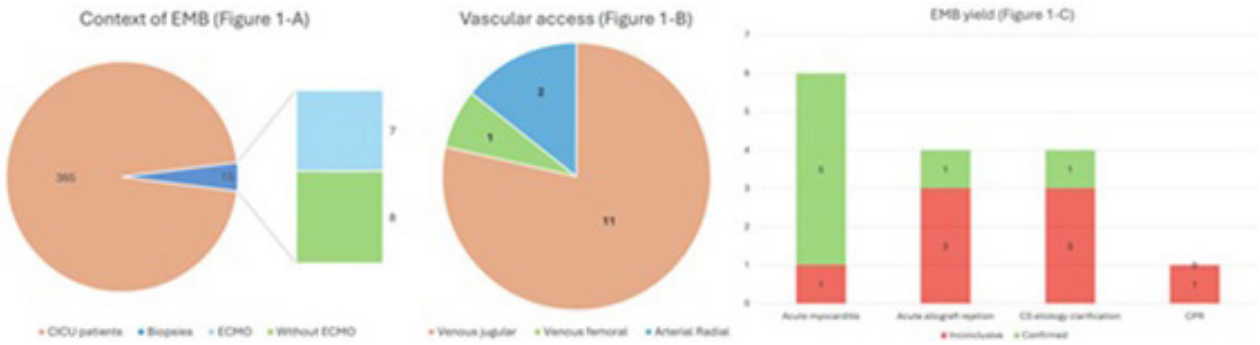

Figure PO 215

experienced AF recurrence, and 35% of pts died (13 from cardiovascular causes). 10 pts were readmitted to the hospital for cardiovascular causes (2 pts for heart failure decompensation due to AF with a high ventricular rate, and 1 patient for cardioembolic stroke).
Conclusions: In ICU pts with NOAF, rhythm control is the preferred strategy. Recurrence rates of AF remain high during ICU stay and in the Fup, despite the limited initiation of anticoagulation therapy. The acute severe illness that led to ICU admission may act as a trigger for pre-existing atrial disease, underscoring the importance of continuous monitoring and Fup of these pts.

PO 215. ENDOMYOCARDIAL BIOPSY IN CARDIOGENIC SHOCK: EXPERIENCE FROM A CONTEMPORARY CICU PORTUGUESE COHORT

Rui Miguel Gomes, Débora da Silva Correia, Márcia Presume, C. Santo-Jorge, André Moniz Garcia, Ana Rita Bello, João Presume, Catarina Brízido, Christopher Strong, António Tralhão, Carlos Aguiar, Jorge Ferreira

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Introduction: Endomyocardial biopsies (EMB) are a useful diagnostic tool in the etiological investigation of patients presenting with cardiogenic shock (CS). They assist in determining the underlying cause, such as myocarditis, cardiac allograft rejection, or other rare conditions, which can guide management and treatment strategies.
Methods: Retrospective analysis of CS patients admitted to a Cardiac Intensive Care Unit (CICU) from 2017 to 2024, who underwent EMB for CS etiology clarification. Data on demographics, diagnosis, procedure details and safety outcomes were analyzed.
Results: Out of 365 patients, 15 (4%) underwent EMB during CICU admission for CS. EMB was performed at bedside in the CICU in 60% (n = 9) of cases, with the remaining performed at the catheterization laboratory. Notably, 47% of patients (n = 7) were under veno-arterial extracorporeal membrane oxygenation (VA-ECMO) support, with anticoagulation being temporarily interrupted at the time of the procedure (Figure 1-A). Main indications were suspected acute myocarditis (40%, n = 6), clarification of CS etiology (26%, n = 4) and exclusion of acute cardiac allograft rejection (26%, n = 4). Venous jugular access was used in 11 patients (73%), while venous femoral access and arterial radial access were used in 1 and 2 patients, respectively (Figure 1-B). Eighty-seven percent (n = 13) of samples were obtained from the right ventricle, with 5 (IQR 3-6) myocardial tissue fragments obtained per procedure. In terms of safety, there were no recorded major complications, such as ventricular tachycardia, pericardial effusion or cardiac tamponade, stroke, or pneumothorax. For patients with suspected acute myocarditis, 83% of EMB yielded a positive result; additionally, viral nucleic acid testing by RT-PCR identified Parvovirus B19 in one patient. CS etiology was only clarified in 1 patient diagnosed with AL amyloidosis; another patient had Parvovirus B19 identified, but no Dallas criteria for acute myocarditis were met. Furthermore, acute cardiac allograft rejection was confirmed in 1 of the 3 EMB performed in suspected cases (the 4th being a control EMB after treatment for acute cellular and humoral allograft rejection) (Figure 1-C).
Conclusions: EMB was a safe and valuable diagnostic procedure in patients with CS, particularly in confirming acute myocarditis and excluding acute cardiac allograft rejection. The absence of major complications, even when performed at the bedside at the CICU and with ongoing VA-ECMO support underscores the procedure's safety and feasibility in this setting.

Sábado, 12 Abril de 2025 | 09:00-10:30

Área de Posters-écran 3 | Sessão de Posters 34 – TAVI 2

PO 216. TAVI OUTCOME ANALYSIS IN OFF-LABEL ANATOMIC SETTINGS

António Maria Rocha de Almeida, Rafael Viana, Marta Paralta Figueiredo, Rita Louro, Renato Fernandes, Ângela Bento, David Neves, David Brás, Kisa Congo, Manuel Trinca, Álvaro Laranjeira Santos, Lino Patrício

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Introduction: Transcatheter aortic valve implantation (TAVI) has expanded the treatment options for severe aortic stenosis (AS). Still, in anatomic settings, such as bicuspid aortic valve, severe aortic valve (AV) calcification, and horizontal aorta, TAVI is considered off-label. These features pose challenges and may impact procedural outcomes. This study evaluates the outcomes of TAVI in normal versus off-label anatomic settings.
Methods: A retrospective cohort of 300 TAVI procedures with self-expandable Evolut Core Valve was analyzed. Off-label was defined as bicuspid AV, severe AV calcification (calcium score [AVCS] > 3,000 A.U.), or horizontal aorta (angle of aortic annulus > 60°). Standard anatomic settings were verified in 169 and off-label in 131, of which 90 had AVCS > 3,000 A.U., 41 had horizontal aortas, and 17 had bicuspid AV. Baseline characteristics and outcomes of death at 30 days, 1 year, stroke, and hospital readmission were analyzed.
Results: Mean age was similar across groups (81-83 years, p = 0.1). Female patients were more common in the on-label (71%) compared to the off-label group (33%, p < 0.001). There were no significant differences in STS scores, with 19% of on-label patients and 14% of off-label having STS > 8 (p = 0.4). Clinical characteristics, including NYHA > II and previous hospitalization for AS, were similar. Left ventricular ejection fraction, transaortic mean gradient, AV area, and systolic pulmonary artery pressure showed no significant differences. The AVCS was higher in the severe AV calcification group (4,308 ± 1,214 vs. 1,984 ± 642, p < 0.001). Creatinine and NT-proBNP tended to be higher in off-label subgroups, particularly in bicuspid AV. There were no significant differences in events between groups. Death at 30 days occurred in 2% of on-label and 3% of off-label patients (p = 0.9), and 1-year death rates of 9% and 12%, respectively (p = 0.4). Stroke rates were similar, with 4% in on-label and 3% in off-label

Baseline characteristics	On-label anatomy group (n=169)	Off-label anatomy group (n=131)	High Aortic Ca²⁺ score group (n=90)	Horizontal Aorta (n=41)	Bicuspid aortic valve (n=17)
Age, (y, SD)	83±5	82±6, p=0,1	82±5 P=0,2	83±6 P=0,5	81±7 P=0,4
Female, (%)	71% (n=93)	33% (n=34) P=0,001	27% (n=24), p=0,001	56% (n=18) P=0,8	53% (n=9) P=0,9
STS > 8, (%)	19% (n=24)	14% (n=14) P=0,4	14% (n=12) P=0,3	19% (n=6) P=0,7	31% (n=5) P=0,1
BMI, (kg/m2, SD)	26,7±4,8	27,4±4,4 P=0,6	27,5±4,3 P=1	27,0±5,2 P=0,5	27,4±4,1 P=0,9
NYHA > II, (%)	50% (n=65)	52% (n=54) P=0,7	56% (n=50) P=0,3	44% (n=14) P=0,4	60% (n=10) P=0,5
AS hospital admission, (%)	18% (n=23)	26% (n=26) P=0,1	27% (n=24) P=0,2	16% (n=5) P=0,5	29% (n=5) P=0,4
GFR < 60ml/kg/m2, (%)	46%(n=60)	47% (n=48) P=0,9	46% (n=44) P=0,8	59% (n=19) P=0,2	59% (n=10) P=0,4
ECG					
LBBB (%)	9% (n=12)	12% (n=12) P=0,5	12% (n=11) P=0,4	13% (n=4) P=0,6	6% (n=1) P=0,6
RBBB (%)	6% (n=8)	8% (n=8) P=0,6	9% (n=8) P=0,3	1% (n=3) P=0,4	6% (n=1) P=0,9
LVEF, (%, SD)	56±11	56±11 P=0,7	55±11 P=0,9	56±10 P=0,4	55±13 P=0,4
LVEF < 40% (%)	13% (n=16)	15% (n=14) P=0,6	15% (n=12) P=0,7	10% (n=3) P=0,8	27% (n=4) P=0,09
Mean Gradient (%, SD)	46±14	50±12 P=0,2	50±12 P=0,1	51±13 P=0,9	47±11 P=0,3
AVA (cm2, SD)	0,74±0,20	0,71±0,22 P=0,9	0,71±0,22 P=0,8	0,68±0,21 P=0,7	0,76±0,24 P=0,5
SPAP (mmHg, IQR)	36, 18	32, 21 P=0,2	31, 21 P=0,06	32, 22 P=0,6	37, 28 P=0,5
Aortic Ca²⁺ score (U.A., SD)	1984±642	3956±1406 P<0,001	4308±1214 P<0,001	3000±1143 P=0,2	3231±1649 P=0,3
Min femoral artery diameter (mm, SD)	7,0±1,4	7,2±1,2 P=0,5	7,4±1,2 P=0,4	7,3±1,4 P=0,6	7,1±1,0 P=0,2
Hemoglobin, (g/dL, SD)	12,0±1,8	12,6±2,0 P=0,3	12,5±2,1 P=0,2	12,6±2,0 P=0,9	12,0±2,0 P=0,7
Serum creatinine (mg/dL, IQR)	1,0, 0,6	1,1, 0,4 P=0,08	1,1, 0,5 P=0,09	1,1, 0,5 P=0,3	1,2, 0,5 P=0,1
NTproBNP (pg/dL, IQR)	1360, 1988	1090, 2581 P=0,6	1010, 2018 P=0,3	1700, 3526 P=0,5	3050, 4020 P=0,6

Outcomes	On-label anatomy group (n=169)	Off-label anatomy group (n=131)	High Aortic Ca²⁺ score group (n=90)	Horizontal Aorta (n=41)	Bicuspid aortic valve (n=17)
Death, stroke and readmission	31%(n=29)	22% (n=16) P=0,2	26% (n=16) P=0,7	14% (n=3) P=0,2	27% (n=3) P=0,9
Death and stroke	5% (n=7)	4% (n=4) P=0,7	6% (n=5) P=0,6	3% (n=1) P=0,8	0% (n=0) P=0,4
Death at 30 days	2% (n=2)	3% (n=3) P=0,9	4% (n=3) P=0,4	0% P=0,4	0% (n=0) P=0,6
Death a 1 year	9% (n=8)	12% (n=9) P=0,4	11% (n=7) P=0,9	17% (n=4) P=0,4	20% (n=2) P=0,4
Stroke	4% (n=5)	2,9% (n=3) P=0,7	3% (n=3) p=1	3% (n=1) P=0,9	0% (n=0) P=0,5
Hospital readmission	30% (n=28)	18%(n=13) P=0,09	19% (n=12) P=0,2	9% (n=2) P=0,1	27% (n=3) P=0,7
Vascular complication	8% (n=10)	8% (n=8) P=1	6% (n=5) P=0,4	9% (n=3) P=0,8	6% (n=1) P=0,8
Hemorrhage	5,3% (n=7)	8% (n=8) P=0,5	10% (n=9) P=0,2	6% (n=2) P=0,7	6% (n=1) P=0,8
Pacemaker implantation	17% (n=22)	22% (n=23) P=0,3	24% (n=22), p=0,2	19% (n=6) P=0,9	29% (n=5) P=0,3

Figure PO 216

groups (p = 0.7). Hospital readmissions tended to be lower in off-label patients (18 vs. 30%, p = 0.09). Combined death and stroke rates were 5% in on-label and 4% in off-label groups (p = 0.7). Vascular (8 vs. 8%, p = 1) and major bleeding complications (5.3 vs. 8%, p = 0.5) were like. There was no significant difference in pacemaker implantation between on-label and off-label patients (17 vs. 22%, p = 0.3), with the highest rate in the bicuspid subgroup (29%, p = 0.3).

Conclusions: Despite the challenges posed by off-label anatomic features, like bicuspid, severe AV calcification, and horizontal aorta, TAVI with self-expandable Evolut Core Valve demonstrated comparable safety and efficacy outcomes to standard settings. There were no significant differences in mortality, stroke, or major complications at 30 days and 1 year. These findings support TAVI as a viable option even in anatomically complex cases, broadening its applicability to previously considered higher-risk cases.

PO 217. TAVI IN PURE AORTIC INSUFFICIENCY: OUR CASE SERIES

Francisco Rocha Cardoso, Francisco Albuquerque, Mariana Coelho, Fernando Ferreira, Miguel Figueiredo, Inês Rodrigues, André Grazina, Tiago Mendonça, Rúben Ramos, António Fiarresga, Rui C. Ferreira, Duarte Cacela

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Introduction: Transcatheter Aortic Valve Implantation (TAVI) is widely used for the treatment of aortic stenosis in high-risk surgical patients. Recently, its off-label use for moderate to severe pure aortic insufficiency (AI) has been explored as an alternative in patients deemed inoperable or with contraindications to conventional surgery. This study analyses our clinical

Clinical and Safety Outcomes	
Mortality	
30-day all-cause	0
30-day cardiovascular	0
12 month all-cause	2
12-month cardiovascular	1
Mortalaty during hospitalization	1
Major stroke(30days)	0
Major bleething	3
Acute kidney injury(stage 2 or 3)	2
Myocardial infarction	0
Accesssite or vascular complications	2
Major	1
Minor	1
PM Definitive	3
SAVR pos TAVI	1
2º Valve during procedure	2
Wrong Valve Position	3
Migration for Left Ventricule	1
Embolization	2
Procedure success	4

BASE LINE CHARACTERISTICS (N=7)	
Medium Age	79
Female	3
Diabetes	2
Previous CABG	2
Previous PCI	1
Medium creatinine	2,27
Chronic renal failuire	5
Previous stroke	0
Hypertension	5
Coronary artery disease	3
Atrial fibrilation	3
Previous myocardial infarction	1
LVEF <50 %	2
Moderate aortic stenosis	1
NYHA functional class	
II	3
III	4

Figure PO 217

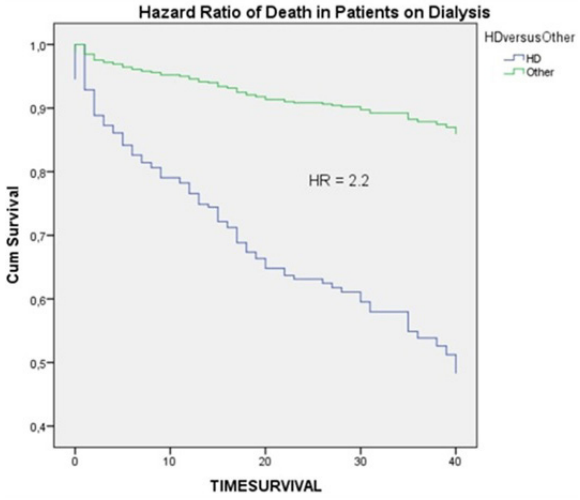
experience with TAVI for moderate to severe pure AI, highlighting the technical challenges associated with this procedure.
Methods: We retrospectively analysed 7 patients who underwent TAVI for moderate to severe pure AI at a central hospital in Portugal. Baseline characteristics, complications, and clinical outcomes at 30 days and 12 months were assessed.
Results: The mean age was 79 years, with a predominance of male patients (57%). The mean STS score was 4.3. Five patients had chronic renal failure, three atrial fibrillation, and three had a history of coronary artery disease. The procedure was technically successful in 57% of cases. Complications included three cases of valve malposition: one migration into the left ventricle and two embolization to a supra-annular position with subsequent ectopic implantation and required a second valve during the procedure. In one patient no valve was implanted and needed an urgent surgical aortic valve replacement (SAVR) due to rapid clinical deterioration after TAVI attempt. Vascular complications occurred in 29% of cases (one major, one minor). There were no reported cerebrovascular events. Two patients experienced major bleeding, and two developed acute kidney injury. In-hospital mortality was 14%, while overall mortality at 12 months was 29%.
Conclusions: TAVI implantation in pure AI presents significant technical challenges. The absence of calcification in the annulus reduces prosthesis anchoring, increasing the risk of migration and malposition. Additionally, the frequent dilation of the aortic root and ascending aorta in these patients complicates device stabilization, while the elliptical geometry of the annulus and severe regurgitant flow further challenge accurate positioning. These challenges explain the occurrence of complications such as valve migration, the need for a second valve, and conversion to open surgery. Despite these technical difficulties, our results align with previous studies confirming the feasibility of the procedure in carefully selected patients. TAVI represents a promising alternative for patients with moderate to severe AI who are not candidates for conventional surgery. However, the inherent technical challenges of the implantation, including anchoring difficulties and vascular complications, underscore the need for technological advancements, meticulous planning, and technical expertise to optimize outcomes.

PO 218. TRANSCATHETER AORTIC VALVE REPLACEMENT IN DIALYSIS PATIENTS: SURVIVAL AND COMPLICATION RATES - A SINGLE CENTER EXPERIENCE

Tatiana Pereira dos Santos, Andreia Rita Henriques, Ana L. Silva, Mariana Rodrigues Simões, Gonçalo Terleira Batista, Elisabete Jorge, Emanuel Ferreira, Marco Costa, Rui Alves, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Transcatheter aortic valve replacement (TAVR) is one of the standard procedures for treatment of severe aortic stenosis. Patients with end-stage renal disease on dialysis are associated with higher mortality rates and adverse outcomes in surgical substitution. Regarding TAVR they are unrepresented.
Methods: Retrospective analysis of TAVR patients (March 2020-June 2024) at a tertiary hospital. Evaluate outcomes, procedure complications in dialysis patients (HD) submitted to TAVR in comparison to non-HD patients.
Results: Among the 903 patients subjected to TAVR, 20 patients were on hemodialysis (2.2%). The group was composed of 70% of men with a median age of 77.5 (71-84) years. The median follow-up time was 274 (IQR 207) days. The EuroSCORE II had a mean of 5.12 ± 3.8%. Among cardiovascular risk factors, 55% had diabetes, 90% dyslipidemia, 95% hypertension, 15% were smokers. Also 10% had a previous myocardial infarction (MI), and 30% a previous heart failure hospitalization. All used transfemoral access with 55% balloon-expandable valves. HD patients had a higher risk (OR 3.7, 95%CI 1.3-10.6, p = 0.022) of procedure and access complications. There were 5 vascular complications on HD patients: 2 immediate occlusions of the right common femoral artery and 1 perforation, promptly resolved; 2 pseudoaneurysms, 1 requiring surgery. No episodes of stroke or MI occurred. There was no statistical difference in major adverse cardiovascular events post-TAVR. There were 5 deaths in the HD group (1 case of sepsis and the remaining unknown). At 12 months the HD group versus non-HD patients presented a survival of 80 vs. 94% and at 24 months 75 vs. 91%, respectively. Importantly, HD patients had a 2.2 higher risk of all-cause mortality (HR 2.2, 95%CI 1.4-3.5, p = 0.001), even after controlling for potential confounders (age, coronary artery disease, heart failure, CV risk factors). At the time of follow-up, 1 patient was hospitalized for TAVR structural deterioration 1 year after implantation and is currently being studied for a valve-in-valve procedure.



Conclusions: TAVR in dialysis patients appears to be associated with a higher risk of procedure-related complications and all-cause mortality. Evaluation of valve durability was limited due to low survival and short follow-up. A better representation of this subgroup is needed.

PO 219. OUTCOMES OF TRANSCATHETER AORTIC VALVE IMPLANTATION IN YOUNG LOW-RISK PATIENTS: A COMPREHENSIVE META-ANALYSIS OF EFFICACY AND SAFETY

António Maria Rocha de Almeida[1], Maria Rita Lima[2], Daniel Gomes[2], Renato Fernandes[1], Eduardo Infante Oliveira[2], Pedro Araújo Gonçalves[2], Rui Campante Teles[2], Manuel Almeida[2], Lino Patrício[1]

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Introduction: Severe aortic stenosis (AS) was traditionally managed with surgical aortic valve replacement (SAVR). Transcatheter aortic valve implantation (TAVI) emerged as a less invasive alternative, originally for high-risk patients. Its use expanded to intermediate- and low-risk older patients based on promising results. This meta-analysis evaluates TAVI's outcomes in younger, low-risk patients, where SAVR is currently the gold standard.
Methods: Following PRISMA guidelines, we systematically searched randomized controlled trials (RCTs) comparing TAVI with SAVR in young (i.e. mean age < 75 years) low-risk patients (i.e. STS score < 4%) with severe symptomatic AS. The primary endpoint was a composite of death or disabling stroke. Secondary endpoints included all-cause mortality, disabling stroke, atrial fibrillation (AF), permanent pacemaker implantation (PPI), bleeding, functional class (NYHA), and quality of life (KCCQ score) improvements and prosthesis-related outcomes.
Results: Four RCTs were included with 4,252 patients (2,125 TAVI and 2,127 SAVR). At a mean follow-up of 16 ± 5 months, TAVI had a non-significantly lower incidence of death or disabling stroke (2.8 vs. 5.1% logRR 0.02 [0.00-0.04] p = 0.11), and all-cause mortality (2.1 vs. 3.7%, logRR 0.01 [0.00-0.03] p = 0.15). Disabling stroke was significantly lower in the TAVI group (0.9 vs. 2.1 logRR 0.01 [0.00-0.02] p < 0.01). Hospital readmission (7.1 vs. 9.5% logRR 0.03 [0.01-0.04] p < 0.01), and bleeding rates (4.7 vs. 16%, logRR 0.14 [0.07-0.20] p < 0.01) were significantly lower in the TAVI group. On the other hand, TAVI had a higher PPI rate (14 vs. 6%, logRR -0.08 [-0.13; -0.02], p < 0.01) and significant paravalvular leak (2.5 vs. 0.5% logRR -0.02 95%CI [-0.04; -0.00] p < 0.01 I2 = 77%). There were no statistically significant differences in the other prosthesis-related outcomes between both groups. Faster symptomatic and quality of life improvements were sustained in the TAVI group.

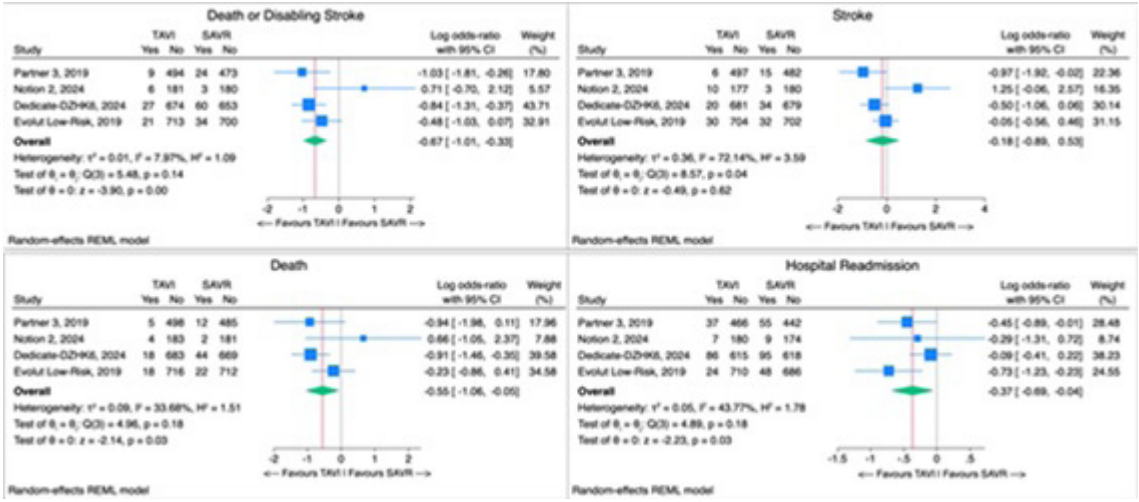

Figure PO 219

Conclusions: TAVI is a viable option for young low-risk patients with severe AS, being non-inferior to SAVR in all short-term outcomes. The benefits of TAVI included a lower risk of disabling strokes, reduced rates of readmission and bleeding, and faster and sustained improvements in symptoms and quality of life. The higher PPI and paravalvular leak rates in the TAVI group highlight the need for careful patient selection.

PO 220. ADDRESSING SMALL ANNULUS IN TAVR: PROCEDURAL SUCCESS AND CLINICAL OUTCOMES

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Introduction: Transcatheter aortic valve replacement (TAVR) is a key treatment for severe aortic stenosis (AS). Patients with small aortic annuli (SAA) present unique challenges, including higher risks of PVL and elevated gradients, which may reduce its hemodynamic, symptomatic, and prognostic benefits. Outcomes in this group require further study.
Objectives: To evaluate the echocardiographic and clinical outcomes of AS patients with SAA (defined as area ≤ 4.3 cm^2 by CT), submitted to TAVR.
Methods: Single-center, retrospective study on patients submitted to TAVR between 2017 and 2023. Clinical and echocardiographic data were collected from hospital records. Kaplan-Meier (KM) survival analysis was performed.
Results: A total of 530 patients were included (55% female, median age 81.9 years), of which 287 had SAA. There were no significative differences in demographic characteristics, comorbidities or baseline echocardiographic assessment between the two groups. 51% of patients received a self-expandable valve and 49% received a balloon-expandable valve. Transthoracic echocardiogram (TTE) at discharge revealed higher maximum (20.2 mmHg vs. 17.2 mmHg, p < 0.01) and mean aortic gradients (11.3 mmHg vs. 9.8 mmHg, p < 0.01) for SAA, despite similar doppler velocity index (DVI) in both groups (0.6). At 1 year follow up, there was a significant higher mean AV gradient in SAA patients (19.2 mmHg vs. 9.8 mmHg, p = 0.03) and similar maximum AV gradients (19.2 mmHg vs. 19 mmHg, p = 0.07) and DVI. There were no significant differences regarding clinical outcomes: death at 1 year (9 vs. 13% p = NS); cardiovascular hospitalization (12% in both groups) ; stroke (4 vs. 11% p = NS); moderate to severe aortic regurgitation (2 vs. 3% p = NS) and valvular dysfunction, defined as mean AV gradient of at least 20 mmHg at 1 year (3 vs. 2% p = NS). Kaplan-Meier curve and Cox regression analysis showed similar rates of death during a mean FUP of 41 ± 22 months (p = NS)
Conclusions: TAVR in patients with SAA is associated with higher post-procedural and 1-year mean AV gradients, despite similar DVI. No significant differences in clinical outcomes were observed. Further research is needed to understand the implications of these findings and optimize TAVR outcomes in this important subgroup of patients submitted to TAVR.

Table 1. Small annuli characteristics and outcomes

Discharge TTEcho	Small annuli (n=287)	Normal annuli (n= 243)	p value
Maximum AV gradient (mmHg) - mean±SD	20.2±8.7	17.2±8.4	<0.01
Mean AV gradient (mmHg) - mean±SD	11.3±5.1	9.8±4.7	<0.01
Doppler velocity index - mean±SD	0.6±0.11	0.6±0.11	NS
Mean gradient >20mmHg - %	5%	5.3%	NS
Moderate leak - %	3.5%	2.7%	NS

1 year TTEcho	Small annuli (n=287)	Normal annuli (n= 243)	p value
Maximum AV gradient (mmHg)- mean±SD	19.2±8.3	19±9.7	NS
Mean AV gradient (mmHg) - mean±SD	11.2±5.5	9.8±5.4	0.026
Doppler velocity index - mean±SD	0.64±0.16	0.59±0.18	NS
Mean gradient >20mmHg - %	5.5%	5.7%	NS
Moderate leak - %	3.3%	3.7%	NS

Outcomes	Small annuli (n=287)	Normal annuli (n= 243)	p value
Death at 1 year n(%)	25 (9%)	33 (13%)	NS
Stroke n(%)	12 (4%)	11 (4%)	NS
CV hospitalization n(%)	34 (12%)	30 (12%)	NS
Mean gradient >20mmHg at 1year - n(%)	10(3%)	6 (2%)	NS
> moderate regurgitation	5 (2%)	7 (3%)	NS

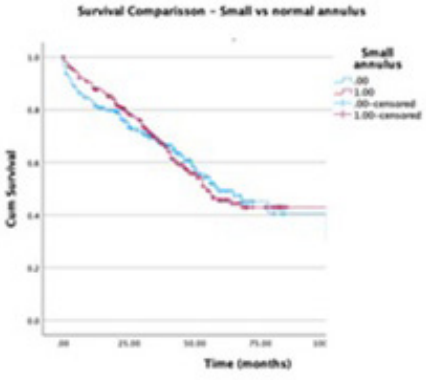

Figure PO 220

PO 221. CHALLENGES AND OUTCOMES OF AORTIC VALVE INTERVENTION: INSIGHTS FROM A SINGLE-CENTER STUDY ON SEVERE HIGH-GRADIENT AORTIC STENOSIS

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ULS Viseu Dão-Lafões.

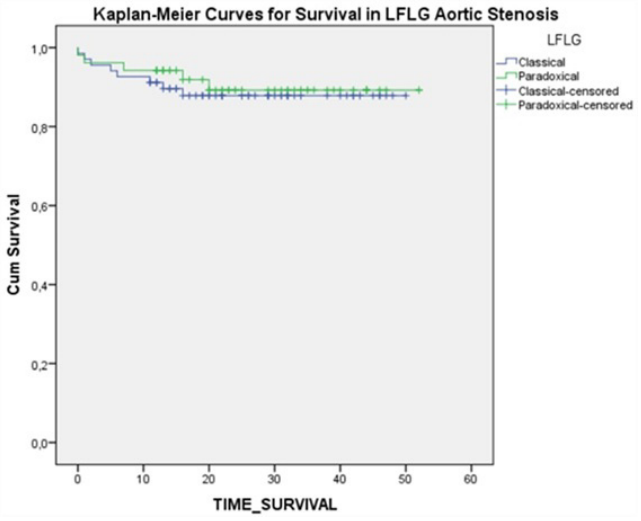
Introduction: Severe high-gradient aortic stenosis (AS) is a life-threatening condition associated with a life expectancy of less than 2 years if symptomatic and untreated. Treatment options include surgical aortic valve replacement (SAVR) or transcatheter aortic valve implantation (TAVI). However, a growing disparity between the number of pts requiring intervention and healthcare system capacity has led to prolonged waiting lists. The Portuguese Society of Cardiology recommends that high-priority pts undergo intervention within 2 weeks of being added to the surgical list and priority pts within 6 weeks.
Objectives: This study aimed to characterize pts referred for aortic valve intervention at our center, analyze the referral process, and outcomes of pts on the waiting list.
Methods: Pts who underwent transthoracic echocardiography between January and September 2022 with documented severe high-gradient AS and referred for intervention were included. Demographic and clinical data were collected. Adverse outcomes were defined as all-cause mortality, unplanned hospitalizations, or emergency visits due to significant cardiovascular symptoms or events within 1 year after the initial evaluation or until the intervention, if performed within 1 year. Group-wise comparisons were performed using Independent t-tests.
Results: Of 85 identified pts, 65 were referred for intervention, of those 50.8% females, with a mean age of 74.4 ± 8.3 years (58-89). Among these, 50.8% underwent SAVR, 29.2% underwent TAVI, 12.3% remained on the waiting list on December 15th 2024, 3.1% died while awaiting intervention, 3.1% declined intervention, and 1.5% was deemed unsuitable for interventional treatment. Twenty patients (32.8%) initially proposed for SAVR were later redirected to TAVI by the surgical team. The mean time from the first surgical evaluation to intervention was 9.3 ± 6.5 months (1-30). Time to intervention was significantly longer for TAVI compared to SAVR (13.0 ± 8.7 vs. 7.4 ± 4.0 months, p = 0.001) and for pts whose initial treatment strategy was modified to TAVI compared to those whose initial strategy was followed (16.0 ± 7.9 vs. 7.2 ± 4.2 months, p < 0.001). Adverse outcomes occurred in 23.1% of pts during follow-up. Although time to intervention was longer for pts with adverse outcomes (9.6 ± 5.8 months) than for those without (9.2 ± 6.7 months), this difference was not significant (p = 0.432).
Conclusions: Waiting times for valve intervention in severe AS at our center far exceed the recommendations of scientific societies, highlighting the need for optimization of patient pathways and priorization, particularly for TAVI. Despite the high rate of adverse outcomes, longer waiting times were not significantly associated with increased events. This study underscores the importance of adequate referral and multidisciplinary discussion to address delays caused by changes in therapeutic strategy.

PO 222. CLASSIC CLARITY, PARADOXICAL PUZZLE: PROGNOSTIC EVALUATION IN LOW FLOW LOW GRADIENT AORTIC STENOSIS AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Tatiana Pereira dos Santos, Mariana Rodrigues Simões, Ana L. Silva, Gonçalo Terleira Batista, Rafaela Fernandes, Tomás M. Carlos, Bernardo Lisboa Resende, Luísa Gomes Rocha, Mafalda Griné, Elisabete Jorge, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: In severe aortic stenosis (AS), patients with reduced ejection fraction have worse prognosis than those with preserved ejection fraction. Paradoxical AS is defined as severe AS with an aortic valve area (AVA) < 1.0 cm^2, mean gradient (MG) < 40 mmHg, indexed systolic volume (SVi) ≤ 35 ml/m^2, and preserved left ventricular ejection fraction (LVEF ≥ 50%).
Methods: Retrospective analysis of patients undergoing transcatheter aortic valve replacement (TAVR) for severe AS (March 2020-December 2023) at a tertiary hospital, with a median follow-up of 777 (IQR 579) days. The main objective was to compare patients with paradoxical low flow, low gradient (paradoxical LFLG) and classic low flow, low gradient (classic LFLG) with reduced ejection fraction (LVEF < 50%).
Results: Of 719 TAVR patients, 52 (7.3%) were treated for paradoxical LFLG, and 68 (9.5%) for classic LFLG. The paradoxical LFLG group was 53.8% male with a median age of 84 years (IQR 7), whereas the classic LFLG group was 69.1% male with a median age of 82 years (IQR 9). Age distribution differed significantly (p = 0.001), with paradoxical LFLG patients being older. No gender difference was found. Regarding cardiovascular (CV) risk factors: 25.0 vs. 42.6% (p = 0.054) had diabetes, 75.0 vs. 61.8% (p = 0.132) had dyslipidemia, 90.4 vs. 79.4% (p = 0.169) had hypertension, and 7.7 vs. 19.1% (p = 0.112) were smokers in paradoxical LFLG and classic LFLG, respectively, with no significant difference. Also, 9.6 vs. 19.1% (p = 0.199) had a history of myocardial infarction, 5.8 vs. 10.3% (p = 0.51) of stroke. Univariate analysis showed that the classic LFLG group was associated with more renal disease (OR 2.4, 95%CI 1.1-5.2, p = 0.017) and acute congestive heart failure (OR 1.9, 95%CI 1.2-3.2, p = 0.007), but after multivariate analysis, lost its significance. Both groups had similar rates of major adverse events, like stroke or myocardial infarction. Kaplan-Meier curves showed comparable all-cause mortality between the two groups. Survival at 12 months was 94.2% for paradoxical LFLG and 89.6% for classic LFLG, with no significant difference (p = 0.705). At three years, survival curves also showed no significant differences.



Conclusions: Patients with paradoxical AS undergo TAVR at an older age than those with classic AS, likely due to delayed diagnosis. The similar mortality outcomes suggest that TAVR provides a prognostic benefit, with both groups sharing the same mortality risk despite different pathophysiological features.

PO 223. LEFT VENTRICULAR EJECTION FRACTION IMPROVEMENT AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT - PREDICTORS AND PROGNOSIS

Marta Paralta de Figueiredo, António Almeida, Rafael Viana, Rita Louro, Miguel Carias, Orlado Luquengo, Filipe Alpalhão, Bruno Piçarra, David Neves, Ângela Bento, Renato Fernandes, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

Introduction: Transcatheter aortic valve replacement (TAVI) has become an effective and safe approach towards patients with severe aortic stenosis (AS). While severe AS is known to negatively impact left ventricular ejection fraction (LVEF), previous studies have suggested that TAVI can lead to an improvement in LVEF and outcomes. However, predictors of improvement are not clearly identified.
Objectives: Our aim is to characterize a population of patients submitted to TAVI with LVEF < 40%, verify if there is an improvement in LVEF after TAVI and determine possible predictors.

Methods: We retrospectively analyzed patients submitted to TAVI in our institution between 2021 and 2024 and selected those with LVEF < 40%. We documented demographic characteristics, clinical presentation, risk scores, echocardiographic data pre-TAVI and 3 months after, CT-scan data, TAVI-procedure details, complications and follow-up. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 300 patients, we selected 12.3% (n = 37) that had LVEF < 40%, with a mean LVEF of 32 ± 5.7%. In terms of demographic factors - 62% were male (n = 23) with a mean age of 82 ± 4.6 years, 81% were hypertense and has dyslipidemia, 49% were diabetic, 19% were smokers and 32% had established coronary artery disease (CAD). At a 3-month reassessment post-TAVI, 67.6% had a statistically significant increase in LVEF of 17.3 ± 10.8% (p < 0.001). History of CAD was associated with lack of improvement (62.5 vs. 24%, p = 0.044), as was pacemaker implantation after TAVI (PM) (43 vs. 4%, p = 0.006), with only the latter remaining an independent predictor in multivariate analysis (p = 0.033). There were no differences regarding rehospitalization and no deaths were observed during the follow up period (317 ± 75 days).
Conclusions: In patients with AS and reduced LVEF submitted to TAVI there was a significant early improvement in LVEF after the procedure. Those with CAD or definitive PM were less likely to experience LVEF recovery. Although no differences regarding rehospitalization and no deaths were observed during the follow up period, further studies with a larger population are required.

PO 224. INTRA-HOSPITAL OUTCOMES FOR TAVR UNDER 75: CAN IT HOLD A CANDLE TO SAVR?

João Reis Sabido, Ana Abrantes, Miguel Azaredo Raposo, Catarina Gregório, Diogo Ferreira, Daniel Inácio Cazeiro, Tiago Rodrigues, Cláudia Moreira Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Carrilho Ferreira, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: In light of recently published studies supporting non-inferiority of transcatheter aortic valve replacement (TAVR) versus surgical aortic valve replacement (SAVR) in low-risk patients, real-world evidence supporting the use of TAVR for younger patients under 75 years of age is still building.
Objectives: To compare in hospital outcomes of TAVR to surgical aortic valve replacement (SAVR) previously published results.
Methods: Retrospective single center study, analyzing a population of non-consecutive patients who underwent TAVR between 2014 and 2023, aged under 75 years. We compared the baseline characteristics and intra-hospital outcomes with results previously published with data from the German Quality Assurance Registry on Aortic Valve Replacement (AQUA), from a similar group of patients under 75 years of age, submitted do SAVR between 2013 and 2014[1].

Table 1. Comparisson of our <75y TAVR cohort with a previously described cohort of <75y SAVR patients

Baseline characteristics	TAVR (n=113)	SAVR (reported) (n= 624)
Age* - mean±SD	69.8±5.6	70.5±2.8
Males - %	57%	49,00%
Hypertension - %	87%	70%
Atrial fibrillation - %	39%	9%
Diabetes mellitus (insulin dependent) - %	12%	13%
COPD - %	34%	12%
LV function <30% - %	8%	6%
EuroSCORE 2 - mean±SD	2.4±2.6	4±3.8

Complications	TAVR (n=113)	SAVR (reported) (n= 624)
Post-Op days in hospital	8.8±9.9	12.5±10.7
In-hospital death	2.7%	2%
Neurologic events	1%	2%
Arterial vascular complications	8%	1.3%
Renal failure requiring dyalisis	1%	5%
New pacemaker implantation	16%	3.5%

Results: We analyzed a population of 113 patients submitted to TAVR. 57% were male, mean age was 69.8 ± 5.6 years. Regarding comorbidities, 87% had hypertension, 80% dyslipidemia, 55% diabetes *mellitus*, 32% chronic kidney disease, 22% peripheral arterial disease and 39% atrial fibrillation. 41% were at NYHA class II, and 55% class III at time of TAVR. Mean EuroSCORE was 2.4 ± 2.6. Ejection fraction was preserved in 68% of patients, with a mean of 53 ± 13%, with 8% of patients having a LVEF of under 30%. Median admission time was shorter in patients who underwent TAVR, with 8.8 ± 9.9 days, comparing to 12.5 ± 10.7 days for SAVR. Intra-hospital death was similar, with 2.7 vs. 2%. Procedural related arterial vascular complications were more common in TAVR – 8 vs. 1.3% - as was the need for permanent pacemaker implantation – 16% for TAVR vs. 3.5% for SAVR. Renal failure requiring dialysis and acute neurologic events were more common for patients who underwent SAVR – 1 vs. 5% and 1 vs. 2%, respectively.
Conclusions: Our findings suggest TAVR vs. SAVR in patients under 75 years may provide similar results to SAVR, with reduced in-hospital stay, acute kidney injury requiring dialysis and neurologic complications. Rate of pacemaker implantation and arterial vascular complications are, however, higher, as would be expected due to technical differences between techniques.

Sábado, 12 Abril de 2025 | 11:00-12:30

Área de Posters-écran 1| Sessão de Posters 35 – Doenças cardiovasculares – Choque cardiogénico 1

PO 225. EFFICACY AND SAFETY OF IMPELLA VERSUS STANDARD OF CARE IN CARDIOGENIC SHOCK SECONDARY TO ACUTE MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW

Gonçalo Terleira Batista[1], Dulce Iolanda Gonçalves[2], Ana L. Silva[1], Marian Rodrigues Simões[1], Tiana Pereira dos Santos[1], Bernardo Resende[1], Mafalda Griné[1], Luisa Gomes Rocha[1], Tomás M. Carlos[1], Joana Delgado Silva[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

Introduction: Cardiogenic shock (CS) remains associated with high mortality rates. The introduction of the microaxial pump device, commonly known as Impella, has introduced an innovative yet debated approach in this critical context. However, only a limited number of randomized controlled trials (RCT) have rigorously evaluated the efficacy of this device.
Objectives: To compare the Impella device with standard of care (SC) in patients with CS secondary to acute myocardial infarction (AMI).
Methods: A systematic review was conducted using PubMed, Embase, the Cochrane Central Register of Controlled Trials, and grey literature to identify observational and interventional studies published up to August 2024 that compared Impella to standard of care (SC). The primary endpoint was all-cause mortality. Secondary outcomes included major adverse cardiovascular events (MACE: death, myocardial infarction, or stroke), bleeding, renal replacement therapy and vascular complications. The Cochrane Risk of Bias tool was used to assess the quality of the studies, and data analysis was performed using RevMan 2.0.
Results: After initial screening, a total of five observational studies and one RCT were included, comprising 101,823 participants (14,163 in the Impella arm and 87,660 in the standard of care [SC] arm). Regarding all-cause mortality, a trend towards lower mortality was observed in the SC arm, though this difference was not statistically significant. Significant heterogeneity was noted between the included studies (57.7 vs. 45.1%; Odds Ratio [OR]: 1.35; 95% Confidence Interval [CI]: 0.95-1.92; p = 0.09; I^2 = 97%) Similarly, for MACE the SC arm showed lower event rates than the Impella arm, but the difference remained statistically non-significant (62.9 vs. 49.0%; OR: 1.47; 95%CI: 0.74-2.93; p = 0.27; I^2 = 98%). In contrast, the Impella arm showed significantly higher rates of bleeding (OR: 2.60; 95%CI: 2.04-3.31; p < 0.001) and a greater need for renal replacement therapy (OR: 3.31; 95%CI: 2.16-5.07; p < 0.001). No data were available to analyze vascular complications.

Conclusions: Although observational studies suggest a trend favoring standard of care (SC), conflicting results from the single included RCT highlight the need for further investigation. Large, rigorously conducted RCTs are essential to define the role of the Impella device in managing CS.

PO 226. VASCULAR COMPLICATIONS IN INTRA-AORTIC BALLOON PUMP PATIENTS: INSIGHTS FROM A 20-YEAR SINGLE-CENTER EXPERIENCE

Jéni Quintal[1], André Lobo[2], Marta Catarina Almeida[2], Daniel Caeiro[2], Marta Ponte[2], Marisa Passos Silva[2], Pedro Gonçalves Teixeira[2], Adelaide Dias[2], Pedro Braga[2], Ricardo Fontes-Carvalho[2]

[1]Unidade Local de Saúde da Arrábida, E.P.E. [2]Unidade Local de Saúde de Gaia/Espinho.

Introduction: Intra-aortic balloon pump (IABP) is a valuable intervention for managing acute myocardial infarction (AMI) in carefully selected patients. However, its broader application is hindered by a significant risk of vascular complications. To enhance patient selection and reduce adverse events, a comprehensive understanding of the clinical predictors of major vascular complications is essential yet remains limited.

Objectives: We aimed to assess the incidence of vascular complications and to identify predictors of major vascular complications (MVC) in patients with AMI implanted with IABP in a tertiary center.

Methods: We conducted a retrospective single-center cohort study. Patients with AMI who received IABP support between 1 January 2005 and 31 May 2023 were included. Patients with missing data on vascular complications were excluded. Demographic data, comorbidities, clinical characteristics, vascular complications, and outcomes were assessed. The sample was divided into two groups based on the presence (group B) or absence (group A) of MVC. Statistical analyses, including multivariable logistic regression, were used to compare the groups, and identify independent predictors of MVC.

Results: A total of 694 patients were included (73.2% male, mean age 67 ± 12 years, mean BMI 27 ± 4 kg/m²). There was a high prevalence of cardiovascular risk factors and heart failure (Table 1). The main indications for IABP implantation were cardiogenic shock (40.6%) and hemodynamic support until CABG (27.4%). Most patients had severely reduced left ventricle ejection fraction (27.7%). The overall rate of MVC rate was 4.8% (n = 33), including cases of lower limb ischemia (2.2%), 11 of major hemorrhage (1.6%), 8 vascular lesions requiring vascular surgery (1.2%), and 2 of intra-arterial balloon rupture (0.3%). Minor vascular complications occurred in 7.5% (n = 52), with 43 local hematomas (6.2%) and 9 minor hemorrhages (1.3%). Group B had a higher proportion of severely depressed LVEF (45.5 vs.

Table 1. Baseline profile and outcomes of the study cohort

Variables	Total cohort	Group A	Group B	P-value
	n=694	n= 661 (95.2)	n = 33 (4.8)	
Patient demographics				
Age, mean (± SD), years	67 (±12)	68 (±12)	64 (±19)	0.831
Male gender, n (%)	508 (73.2)	486 (73.5)	22 (66.7)	0.385
BMI, mean (± SD), m²	27 (±4)	27 (±4)	27 (±3)	0.543
Comorbidities				
Hypertension, n (%)	462 (66.7)	442 (67.0)	20 (60.6)	0.449
Diabetes mellitus, n (%)	223 (32.2)	212 (32.1)	11 (33.3)	0.884
Dyslipidemia, n (%)	446 (64.4)	426 (64.5)	20 (60.6)	0.645
Smoking history, n (%)	259 (37.4)	243 (36.8)	16 (48.5)	0.176
Obesity, n (%)	200 (30.7)	193 (31.2)	7 (21.9)	0.266
CAD, n (%)	241 (34.7)	231 (34.9)	10 (30.3)	0.584
History of Stroke, n (%)	55 (7.9)	52 (7.9)	3 (9.1)	0.740
PAD, n (%)	49 (7.1)	47 (7.1)	3 (12.0)	1.000
Valvular heart disease, n (%)	41 (5.9)	39 (5.9)	2 (6.1)	1.000
Heart Failure, n (%)	154 (22.2)	146 (22.1)	8 (24.2)	0.771
Clinic characteristics				
LV ejection fraction, n %				
Normal EF	156 (22.5)	156 (22.7)	6 (18.2)	0.545
Mildly reduced EF	71 (10.2)	70 (10.6)	1 (3.0)	0.239
Moderately reduced EF	141 (20.3)	137 (20.7)	4 (12.1)	0.231
Severely reduced EF	192 (27.7)	177 (26.8)	15 (45.5)	**0.019**
PCI	378 (54.5)	360 (54.5)	18 (54.5)	0.173
CABG	262 (37.9)	249 (37.8)	13 (39.4)	0.852
IABP indication, n (%)				
Cardiogenic shock	280 (40.6)	264 (40.2)	16 (48.5)	0.343
High risk PCI	124 (18.0)	121 (18.4)	3 (9.1)	0.173
Hemodynamic support until CABG	189 (27.4)	179 (27.2)	10 (30.3)	0.701
Refractory angina	96 (13.9)	92 (14.0)	4 (12.1)	1.000
Initial Killip class				
I	44 (21.2)	42 (21.8)	2 (13.3)	0.742
II	25 (12.0)	24 (12.4)	1 (6.7)	1.000
III	25 (12.0)	22 (11.4)	3 (20.0)	0.399
IV	105 (50.5)	97 (50.3)	8 (53.3)	0.819
CrCl, mean (± SD), mL/min	60 (±26)	61 (±29)	51 (±26)	0.193
Clinical outcomes				
Duration of in-hospital stay, median (Q1-Q3), days	8 (0-156)	8 (0-156)	8 (1-84)	0.579
Duration of IABP support, median (Q1-Q3), days	2 (0-27)	2 (0-27)	3 (1-10)	0.836
Need for inotropes/vasopressors, n (%)	112 (53.6)	17 (65.4)	11 (73.3)	0.111
AMI mechanical complications, n (%)	83 (12.0)	80 (12.1)	3 (9.4)	1.000
Minor complications, n (%)	63 (10.4)	59 (10.1)	4 (16.0)	0.316
In-hospital mortality, n (%)	169 (24.4)	154 (23.3)	15 (45.5)	**0.004**

AMI - acute myocardial infarction; BMI – body mass index; CABG – coronary artery bypass grafting; CAD – coronary artery disease; CrCl – creatinine clearance; EF – ejection fraction; IABP - intra-aortic balloon pump; LV – left ventricle; PAD – peripheral artery disease; PCI - percutaneous coronary intervention.

Table 2. Final multivariable logistic regression

Variables	Multivariate analysis		P-value
	OR	95% C.I.	
Severely reduced EF, n (%)	2.57	1.18-5.62	0.018
In-hospital mortality, n (%)	2.23	1.01-4.88	0.036

Figure PO 226

26.8%, p = 0.019) and a trend toward lower creatinine clearance (51 ± 26 vs. 61 ± 29 mL/min, p = 0.193), and greater vasopressor use (73.3 vs. 65.4%, p = 0.111). In-hospital mortality was higher in group B (45.5 vs. 23.3%, p = 0.004). No differences in-hospital stay or duration of IABP support were observed between the groups. Multivariate analysis showed that severely depressed EF (OR 2.57; CI 1.8-5.62, p = 0.018) and in-hospital mortality (OR 2.23; CI 1.01-4.88, p = 0.036) were independently associated with MVC (Table 2).

Conclusions: Major vascular complications were infrequent in AMI patients with IABP support but linked to higher in-hospital mortality. Severely depressed LVEF and in-hospital mortality were independently associated with the complications. These findings underscore the importance of careful patient selection for IABP therapy.

PO 227. PREDICTORS OF MORTALITY IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION MANAGED WITH INTRA-AORTIC BALLOON ASSISTANCE: A 20-YEARS SINGLE-CENTER EXPERIENCE

Jéni Quintal[1], Marta Catarina Almeida[2], André Lobo[2], Daniel Caeiro[2], Marta Ponte[2], Marisa Passos Silva[2], Pedro Gonçalves Teixeira[2], Adelaide Dias[2], Pedro Braga[2], Ricardo Fontes-Carvalho[2]

[1]Unidade Local de Saúde da Arrábida, E.P.E.. [2]Unidade Local de Saúde de Gaia/Espinho.

Introduction: Intra-aortic balloon (IABP) counterpulsation improves coronary perfusion and decreases left ventricular (LV) workload, thereby

Table 1. Characteristics and clinical outcomes of in-hospital survivors versus non-survivors

Variables	Total cohort n = 717	A – Survivors n= 543 (75.8)	B – Non-Survivors n = 173 (24.2)	P-value
Patient demographics				
Age, mean (± SD), years	67 (±12)	66 (±12)	69 (±12)	**0.011**
Male gender, n (%)	524 (73.1)	412 (75.9)	111 (64.2)	**0.002**
BMI, mean (± SD), m²	27 (±4)	27 (±4)	28 (±4)	**0.031**
Comorbidities				
Hypertension, n (%)	478 (66.9)	365 (67.2)	112 (65.9)	0.747
Diabetes mellitus, n (%)	230 (32.2)	163 (30.0)	66 (38.8)	**0.032**
Dyslipidemia, n (%)	457 (64.0)	353 (65.0)	103 (60.6)	0.295
Smoking history, n (%)	266 (37.3)	216 (39.8)	50 (29.4)	**0.015**
Obesity, n (%)	205 (30.5)	154 (30.1)	50 (31.4)	0.743
CAD, n (%)	250 (34.9)	191 (35.2)	58 (33.7)	0.727
History of Stroke, n (%)	55 (7.7)	32 (5.9)	23 (13.4)	**0.001**
PAD, n (%)	49 (6.8)	36 (6.6)	12 (7.0)	0.874
Valvular heart disease, n (%)	44 (6.1)	28 (5.2)	16 (9.3)	**0.049**
Heart Failure, n (%)	161 (22.5)	111 (20.4)	49 (28.5)	**0.027**
Clinic characteristics				
LV ejection fraction, n %				
Normal EF	159 (22.2)	150 (27.6)	9 (5.2)	**<0.001**
Mildly reduced EF	75 (10.5)	69 (12.7)	6 (3.5)	**0.001**
Moderately reduced EF	146 (20.4)	124 (22.8)	22 (12.7)	**0.004**
Severely reduced EF	196 (27.3)	96 (17.7)	100 (57.8)	**<0.001**
IABP indication, n (%)				
Cardiogenic shock	291 (41.3)	143 (26.8)	147 (86.0)	**<0.001**
High risk PCI	127 (18.0)	122 (22.9)	5 (2.9)	**<0.001**
Hemodynamic support until CABG	189 (26.8)	175 (32.8)	14 (8.2)	**<0.001**
Refractory angina	98 (13.9)	93 (17.4)	5 (2.9)	**<0.001**
Postprocedural TIMI flow grade, n (%)				
0	20 (12.3)	9 (9.4)	10 (15.4)	0.080
1	28 (17.3)	12 (12.5)	16 (24.6)	0.246
2	22 (13.6)	13 (13.5)	9 (13.8)	**0.047**
3	92 (56.8)	62 (64.6)	30 (46.2)	**0.020**
PCI	396 (55.7)	284 (52.3)	112 (64.7)	**0.020**
CABG	263 (36.9)	245 (45.4)	18 (10.4)	**0.006**
Complete revascularization	53 (62.4)	37 (63.8)	16 (59.3)	0.688
Initial Killip class				**<0.001**
I	44 (21.2)	38 (28.8)	6 (8.0)	**0.025**
II	25 (12.0)	21 (15.9)	4 (5.3)	0.361
III	25 (12.0)	18 (13.6)	7 (9.3)	**<0.001**
IV	105 (50.5)	46 (34.8)	58 (77.3)	
CrCl, median (Q1-Q3), mL/min	58 (4-146)	67 (10-146)	47 (4-121)	**<0.001**
Clinical outcomes				
Duration of in-hospital stay, median (Q1-Q3), days	8 (0-156)	9 (0-117)	4 (0-156)	**<0.001**
Duration of IABP support, median (Q1-Q3), days	2 (0-27)	2 (0-16)	2 (0-27)	0.060
Need for inotropes/vasopressors, n (%)	111 (53.4)	43 (32.3)	68 (90.7)	**<0.001**
AMI mechanical complications, n (%)	83 (11.6)	47 (8.7)	36 (20.8)	**<0.001**
Major vascular complications of IABP, n (%)	33 (4.8)	18 (3.4)	15 (8.9)	**0.004**
Severe complications, n (%)	29 (4.8)	14 (3.0)	15 (11.0)	**<0.001**

AMI - acute myocardial infarction; BMI – body mass index; CABG – coronary artery bypass grafting; CAD – coronary artery disease; CrCl – creatinine clearance; EF – ejection fraction; IABP - intra-aortic balloon pump; LV – left ventricle; PAD – peripheral artery disease; NSTEMI – non-ST-elevation myocardial infarction; PCI - percutaneous coronary intervention; STEMI – ST-elevation myocardial infarction.

Table 2. Final multivariable logistic regression for in-hospital mortality

Variables	Multivariate analysis OR	95% C.I.	P-value
Heart Failure, n (%)	1.78	1.1-2.89	0.002
LV ejection fraction, n %	1.18	1.02-1.36	0.027
IABP indication, n (%)	0.37	0.29-0.47	<0.001
Postprocedural TIMI flow grade 3, n (%)	0.22	0.09-0.55	0.001
Need for inotropes/vasopressors, n (%)	14.45	6.39-32.68	<0.001

Figure 1 PO 227

enhancing oxygen delivery and stabilizing hemodynamics. While current guidelines primarily recommend its use in patients with mechanical complications of acute myocardial infarction (AMI), some studies suggest clinical benefits in cardiogenic shock, refractory angina, and severe ischemia in the setting of AMI. However, research on mortality predictors in AMI patients treated with IABP is still limited.
Objectives: We sought to evaluate the predictors of in-hospital mortality in patients with AMI implanted with IABP in a tertiary center.
Methods: We performed a retrospective single-center cohort study. Patients with AMI who received IABP support between 1 January 2005 and 31 May 2024 were enrolled. Basal characteristics of the population were determined. The sample was divided in 2 groups (g) according to in-hospital mortality: survivors (gA) and non-survivors (gB). Patient's demographics, comorbidities, clinical characteristics and outcomes were compared. According to the data distribution, appropriate statistical tests were conducted to compare independent samples. Multivariable logistic regression was used to analyze independent predictors of in-hospital mortality.
Results: This cohort included 717 patients (mean age 67 ± 12 years, 73.1% male). In-hospital mortality was 24.2% (173 patients). Non-survivors were older (69 ± 12 vs. 66 ± 12 years, p = 0.011), with higher BMI (28 ± 4 kg/m^2, p = 0.031) and a greater prevalence of diabetes (38.8 vs. 30%, p = 0.032), HF (28.5 vs. 20.4%, p = 0.027), valvular disease (9.3 vs. 5.2%, p = 0.049), and stroke (13.4 vs. 5.9%, p = 0.001). They had worse LVEF (severely depressed in 57.8 vs. 17.7%, p < 0.001), more frequent Killip IV presentation (77.3 vs. 34.8%, p < 0.001), lower creatinine clearance (47 vs. 67 mL/min, p < 0.001) and more severe IABP-related complications (11 vs. 3%, p < 0.001). The length of in-hospital stay was significantly shorter in gB (4 vs. 9 days). Cardiogenic shock was the primary indication for IABP in non-survivors (86 vs. 26.8%, p < 0.001), explaining a higher need of inotropic support (90.7 vs. 32.3%, p < 0.001 in this group. In the multivariate analysis the presence of HF (OR 1.78; CI 1.1-2.89, p = 0.002), LEVF (OR 1.18; CI 1.02-1.36, p = 0.027), IABP indication (OR 0.37; CI 0.29-0.47, p < 0.001), postprocedural TIMI flow grade 3 (OR 0.22; CI 0.09-0.55, p = 0.001) and inotropes use (OR 14.45; CI 6.39-32.68, p < 0.001) were independent predictors of in-hospital mortality (Table 2).
Conclusions: Our study suggest that severely depressed EF, cardiogenic shock, and the need for inotropes are associated with a higher risk of in-hospital mortality, whereas TIMI 3 flow is linked to improved survival. These factors may help identify the patients most likely to benefit from IABP in the context of AMI.

PO 228. OUTCOMES OF EXTRACORPOREAL MEMBRANE OXYGENATION VS. INTRA-AORTIC BALLOON PUMP IN STEMI PATIENTS UNDERGOING PRIMARY PCI: A RETROSPECTIVE COMPARATIVE ANALYSIS

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In patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI), mechanical circulatory support devices, such as intra-aortic balloon pump (IABP) and extracorporeal membrane oxygenation (ECMO), play a critical role in select cases. While existing studies suggest potential benefits of ECMO over IABP, detailed comparative analyses of outcomes and patient characteristics remain essential to inform clinical decisions. This retrospective analysis compared clinical outcomes and baseline characteristics between patients treated with IABP-only (n = 104) and ECMO-only (n = 24). Variables included demographics, revascularization completeness, stent use, number of vessels treated, complications, mechanical ventilation, provisional pacemaker use, and mortality outcomes. Patients in the ECMO-only group were younger (mean age 56.3 vs. 62.7 years, p = 0.032) and more frequently presented with cardiac arrest before intervention (41.7 vs. 12.5%, p = 0.003), reflecting a higher severity of illness. Complete revascularization was achieved in 65% of IABP-only patients compared to 50% of ECMO-only patients (p = 0.097). Stent use was similar (97.1 vs. 95.8%, p = 0.623). ECMO-treated patients had fewer vessels treated (1.83 vs. 2.31, p = 0.045) with no significant differences in the number of lesions addressed. Provisional pacemaker use was more frequent in the ECMO group (37.5 vs. 19.2%, p = 0.049), as was the need for invasive ventilation (58.3 vs. 36.5%, p = 0.042). Thirty-day mortality was higher in ECMO-only patients (29.2 vs. 11.5%, p = 0.006). However, this group also experienced more cardiac arrests and had greater overall risk, suggesting that patient selection influenced outcomes. Complications, including angiographic and clinical events, and rates of 30-day rehospitalization did not differ significantly between groups. Among STEMI patients undergoing PCI, ECMO-only support was associated with higher 30-day mortality compared to IABP-only support, but this likely reflects the severity of illness in ECMO patients. Younger age and greater cardiac arrest prevalence in the ECMO group highlight the importance of patient selection. While ECMO may benefit high-risk cases, careful evaluation is required to optimize outcomes. These findings align with prior studies suggesting ECMO benefits in selected populations, though further trials are needed to clarify its role.

	Intra-aortic ballon pump	Veno-arterial Extracorporeal membrane oxygenation	p-value
Age (mean, standard deviation)	62.7 ± 10.5	56.3 ± 12.1	0.032[1]
Number of lesions (mean, standard deviation)	2.1 ± 0.7	1.8 ± 0.8	0.056[1]
Complete revascularization (%)	65.1	50.3	0.097[2]
Stent implantation (%)	97.1	95.8	0.0623[2]
Number of treated vessels (mean, standard deviation)	2.31 ± 0.5	1.83 ± 0.6	0.045[1]
Cardiac arrest (%)	12.5	41.7	0.003[2]
Provisional pacemaker (%)	19.2	37.5	0.049[2]
Mechanical ventilation (%)	36.5	58.3	0.042[2]
30-day mortality (%)	11.5	29.2	0.006[2]

1- T-test; 2 - Chi-squared test

PO 229. PREDICTORS OF MORTALITY IN VA-ECMO PATIENTS: A RETROSPECTIVE COHORT ANALYSIS USING LASSO REGRESSION

Marta Leite, Inês Neves, Fábio Nunes, Mariana Brandão, Pedro Teixeira, Marisa Silva, Gustavo Pires-Morais, Marta Ponte, Adelaide Dias, Pedro Braga, Daniel Caeiro, Ricardo Fontes-Carvalho

ULSGE.

Introduction: Venoarterial extracorporeal membrane oxygenation (VA-ECMO) serves as a critical rescue support in patients with refractory cardiogenic shock (CS), yet mortality rates remain high. Identifying clinical predictors of mortality in this population could aid in optimizing patient selection and timing of intervention.
Methods: We conducted a retrospective observational study, encompassing patients admitted with cardiogenic shock and treated with VA-ECMO from 2011 to 2023 in our center. Key patient data, including demographics, comorbidities, clinical presentation, ECMO-related complications, and outcomes, were extracted from medical records. This single-center study analyzed clinical predictors of mortality in a cohort of VA-ECMO patients, utilizing a LASSO logistic regression model for feature selection and risk estimation. LASSO regularization was used to enhance the model's predictive accuracy, with hyperparameters optimized via cross-validation. Model performance was evaluated by metrics such as accuracy, sensitivity, specificity, and area under the receiver operating characteristic curve (ROC AUC).
Results: From January 2011 to October 2023 our center treated a total of 85 patients in VA-ECMO (mean age 54.5 ± 11.9 years-old; 61.2% male). The final model is resumed in Figure 1 and identified several significant predictors of mortality, including gender, use of an unloading device, invasive mechanical ventilation, and a higher SAVE score. Notably, the SAVE score exhibited the largest association with mortality, with an odds ratio of 1.46 (46% increase in odds), followed by male gender (odds ratio: 1.26, 26% increase). Model performance showed moderate discriminative ability, with an ROC AUC of 0.638, accuracy of 44.4%, and a Brier score of 0.243. Sensitivity analysis indicated a slight improvement in mortality prediction when stratifying patients by SAVE score and use of mechanical ventilation.
Conclusions: This study highlights specific clinical features, notably the SAVE score and the presence of invasive ventilation, as significant clinical

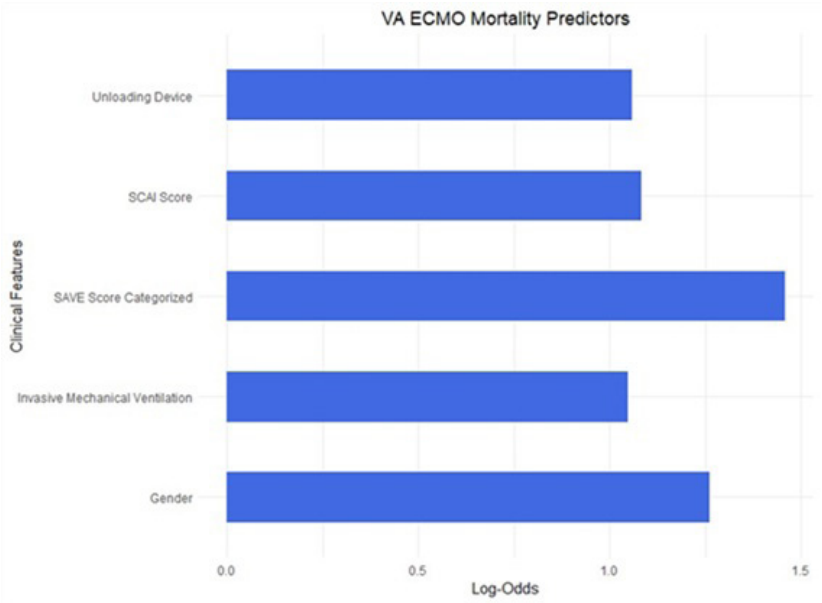

Figure PO 229

predictors of mortality in VA-ECMO patients with cardiogenic shock. Although model accuracy was moderate, these findings underscore the importance of early risk stratification and may guide candidate selection.

PO 230. SCAI CLASSIFICATION AS A PREDICTOR OF MORTALITY IN CARDIOGENIC SHOCK: WHAT IS THE BEST TIME TO CLASSIFY PATIENTS?

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Introduction: Cardiogenic shock (CS) can be categorized by severity as proposed by the Society for Cardiovascular Angiography and Interventions (SCAI). When applied retrospectively for research purposes, SCAI classification poses challenges, particularly regarding timing of the classification.
Objectives: The aim of the study was to compare the time of SCAI classification and its correlation with mortality.
Methods: A retrospective study of 175 patients with CS in a tertiary intensive cardiac care unit between 2018 and 2022 was done. SCAI classification based on information at admission (SCAI 0) and with data up to six hours after admission (SCAI 6) was done. Mortality outcomes at 30 days and 1 year were registered. Chi-square test was used to test the association between SCAI classifications and mortality at 30 days and 1-year and logistic regression was used to predict mortality.
Results: At SCAI 0, 38 patients (21.7%) were classified as stage A, 36 (20.6%) at stage B, 54 (30.9%) at stage C, 7 (4.0%) at stage D and 40 (22.9%) at stage E. Based on SCAI 6, 14 patients (8.0%) were on a stage A, 28 (16.0%) at stage B, 65 (37.1%) at stage C, 41 (23.4%) at stage D and 27 (15.4%) at stage E. There was a statistically significant difference between the distribution of SCAI classification at SCAI 0 and SCAI 6 ($p < 0.001$), exposed in Graph 1. SCAI 0 did not correlate with mortality at 30 days (p 0.938) nor 1-year (p 0.863). SCAI 6 was associated with mortality at 30 days ($R^2 = 0.135$, $p < 0.001$) and with mortality at 1-year ($R^2 = 0.129$, $p = 0.002$).
Conclusions: SCAI classification has challenges related to the retrospective collection of data, with frequent missing information or omission of the real timing of the data registered. Doing a classification based on data from the admission and evolution during the first six hours showed a significant difference and only using data up to six hours after admission was correlated

Graph 1. Relationship map of changes in SCAI classification at admission and with data up to six hours after admission

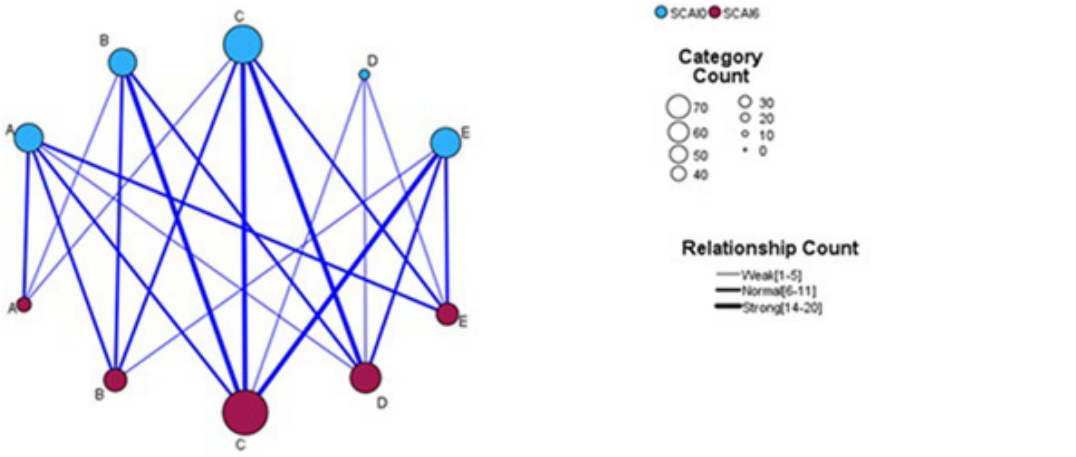

Figure PO 230

with mortality. This study may suggest that assignment of the SCAI shock stage done later after admission may help better classify and predict mortality in patients with cardiogenic shock.

PO 231. CLASSIC VERSUS NORMOTENSIVE CARDIOGENIC SHOCK: A SINGLE CENTER COMPARISON ANALYSIS

Marta Catarina Almeida[1], André Lobo[1], Catarina Pohle[2], Jéni Quintal[2], Marta Leite[1], Inês Neves[1], Adelaide Dias[1], Daniel Caeiro[1], Marisa Silva[1], Marta Ponte[1], Pedro Teixeira[1], Ricardo Fontes-Carvalho[1]

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Introduction: In cardiogenic shock (CS), severe impairment in cardiac output results in organ hypoperfusion. In normotensive shock, this occurs with blood pressure still equal to or above 90 mmHg.

Objectives: The aim of the study was to compare classic with normotensive CS, namely critical care support used and mortality.

Methods: Retrospective data of 175 CS patients admitted to an intensive cardiac unit for 5 years was analyzed. Patients in cardiac arrest at admission were excluded (n = 34). Comorbidities, diagnosis, left ventricular ejection fraction (LVEF) and analytic data at admission, SCAI classification, critical care support and mortality at 30 days and 1 year were registered. Chi-square and Mann-Whitney tests were used to compare patients with classic and normotensive CS.

Results: This study included 141 patients, 36 (25.5%) with classic and 105 (74.5%) with normotensive CS, as characterized in table 1. Median blood pressure in patients with classic CS was 80 [10] mmHg and 112 [36] mmHg in patients with normotensive CS. There were no differences regarding comorbidities, diagnosis or LVEF at admission. SCAI classification was different between groups (p 0.017), with no patients in stage A and almost half of the patients in stage C (16 patients, 44%) in classic CS and a wider distribution in patients with normotensive CS [14 patients (13.3%) in stage A, 23 (21.9%) in stage B, 33 (31.4%) in stage C, 26 (24.8%) in stage D and 9 (8.6%)

Table 1. Baseline characteristics, diagnosis, left ventricular ejection fraction, SCAI classification, intensive care support and mortality outcomes in patients with cardiogenic shock

Characteristics	Total (n = 175)	Classic (n = 101)	Normotensive (n = 74)	p value
Female sex, n (%)	39 (27.7%)	10 (27.8%)	29 (27.6%)	0.985
Age, years, median [interquartile range]	70 [20]	69 [18]	72 [21]	0.483
Hypertension, n (%)	85 (60.3%)	21 (58.3%)	64 (61.0%)	0.844
Dyslipidemia, n (%)	81 (57.4%)	20 (55.6%)	61 (58.1%)	0.846
Diabetes, n (%)	54 (38.3%)	14 (38.9%)	40 (38.1%)	0.933
Active smoking, n (%)	58 (41.1%)	14 (38.9%)	44 (41.9%)	0.845
Obesity, n (%)	42 (29.8%)	8 (22.2%)	34 (32.4%)	0.296
Heart failure, n (%)	32 (22.7%)	6 (16.7%)	26 (24.8%)	0.365
Coronary artery disease, n (%)	33 (23.4%)	10 (27.8%)	23 (21.9%)	0.473
Valvular heart disease, n (%)	14 (9.9%)	3 (8.3%)	11 (10.5%)	0.765
Atrial fibrillation/flutter, n (%)	20 (14.2%)	6 (16.7%)	14 (13.3%)	0.782
Chronic kidney disease, n (%)	27 (19.1%)	11 (30.6%)	16 (15.2%)	0.052
Peripheral artery disease, n (%)	15 (10.6%)	4 (11.1%)	11 (10.5%)	0.915
Diagnosis				0.957
Acute coronary syndrome, n (%)	85 (60.3%)	24 (66.7%)	61 (58.1%)	
Acute heart failure, n (%)	31 (22.0%)	7 (19.4%)	24 (22.9%)	
Electrical storm, n (%)	6 (4.3%)	2 (5.6%)	4 (3.8%)	
Myocarditis, n (%)	5 (3.5%)	1 (2.8%)	4 (3.8%)	
Progression of valvular disease, n (%)	5 (3.5%)	1 (2.8%)	4 (3.8%)	
Complete atrioventricular block, n (%)	4 (2.8%)	1 (2.8%)	3 (2.9%)	
Tachycardiomyopathy, n (%)	3 (2.1%)	0 (0%)	3 (2.9%)	
Cardiomyopathy (other), n (%)	2 (1.4%)	0 (0%)	2 (1.9%)	
SCAI classification				**0.017**
Stage A, n (%)	14 (9.9%)	0 (0%)	14 (13.3%)	
Stage B, n (%)	27 (19.1%)	4 (11.1%)	23 (21.9%)	
Stage C, n (%)	49 (34.8%)	16 (44.4%)	33 (31.4%)	
Stage D, n (%)	34 (24.1%)	8 (22.2%)	26 (24.8%)	
Stage E, n (%)	17 (12.1%)	8 (22.2%)	9 (8.6%)	
Left ventricular ejection fraction				0.918
Preserved, n (%)	22 (15.6%)	7 (19.4%)	15 (14.3%)	
Mildly reduced, n (%)	8 (5.7%)	2 (5.6%)	6 (5.7%)	
Moderately reduced, n (%)	42 (29.8%)	11 (30.6%)	31 (29.5%)	
Severely reduced, n (%)	69 (48.9%)	16 (44.4%)	53 (50.5%)	
Analytic data				
Hemoglobin, g/dL, median [IQR]	13.4 [4]	12.65 [4]	13.5 [4]	0.333
Creatinine, mg/dL, median [IQR]	1.3 [9]	1.5 [1.7]	1.2 [0.9]	**0.025**
NTproBNP, pg/mL, median [IQR]	13453 [15979]	7193 [1321]	7690 [16161]	0.730
High S. T troponin, ng/L, median [IQR]	423 [2521]	931 [4332]	326 [2143]	0.254
Lactate, U/L, median [IQR]	2.4 [3]	3.2 [6]	2.3 [3]	0.060
C reactive protein, mg/dL, median [IQR]	2.2 [8]	3.1 [9]	2.2 [8]	0.615
Intensive care support				
Mechanical ventilation, n (%)	59 (41.8%)	18 (50%)	41 (39.0%)	0.328
Renal replacement therapy, n (%)	19 (13.5%)	3 (8.3%)	16 (15.2%)	0.402
Temporary pacemaker, n (%)	25 (17.7%)	10 (27.8%)	15 (14.3%)	0.080
IABP / Impella®, n (%)	56 (39.7%)	11 (30.6%)	45 (42.9%)	0.238
ECMO, n (%)	15 (10.6%)	5 (13.9%)	10 (9.5%)	0.532
Noradrenaline, n (%)	112 (79.4%)	33 (91.7%)	79 (75.2%)	0.054
Dobutamine, n (%)	60 (42.6%)	16 (44.4%)	44 (41.9%)	0.846
Levosimendan, n (%)	34 (24.1%)	9 (25.0%)	25 (23.8%)	0.885
Mortality outcomes				
Death at 30 days, n (%)	56 (39.7%)	13 (36.1%)	43 (41.0%)	0.695
Death at 1 year, n (%)	60 (42.6%)	14 (38.9%)	43 (41.0%)	0.697

Figure PO 231

in stage E]. Only creatinine was significantly different between patients with classic and normotensive CS [1.5 [1.7] vs. 1.2 [0.9] mg/dL, p 0.025]. Lactate levels were higher in classic CS but without statistically significant differences (3.2 [6] vs. 2.3 [3] U/L, p 0.060). There were no statistically significant differences regarding critical care support use, although noradrenaline use was higher in patients with classic CS [33 (92%) vs. 79 (75%), p 0.054]. Mechanical circulatory support, mechanical ventilation and renal replacement therapy were used similarly in classic and normotensive CS. Mortality outcomes at 30 days and 1 year were similar between groups.
Conclusions: Only SCAI classification and creatinine levels were significantly different between patients with classic and normotensive CS. No differences regarding critical care support were verified and mortality in classic and normotensive CS were similar, enhancing the importance of recognition and adequate support of CS even when there is no hypotension at presentation.

PO 232. A SINGLE CENTER ANALYSIS EXPLORING MECHANICAL CIRCULATORY SUPPORT IN CARDIOGENIC SHOCK

Marta Catarina Almeida[1], Jéni Quintal[2], André Lobo[1], Inês Neves[1], Marta Leite[1], Adelaide Dias[1], Daniel Caeiro[1], Marisa Silva[1], Marta Ponte[1], Pedro Teixeira[1], Ricardo Fontes-Carvalho[1]

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Introduction: Mechanical circulatory support (MCS) is an invasive support strategy in patients with cardiogenic shock (CS).
Objectives: The aim of the study was to compare CS patients with or without MCS and to identify predictors of implantation.
Methods: Retrospective analysis of CS patients in an intensive cardiac unit submitted to MCS between 2018 and 2022 was conducted. Comorbidities, diagnosis, left ventricular ejection fraction (LVEF) and analytic data at presentation, SCAI classification, intensive care support and mortality at 30 days and 1 year were registered. Chi-square, t-test and Mann-Whitney tests were used to test the associations. Logistic regression was used to predict implantation of MCS.
Results: In 175 patients with CS, 74 patients (42%) had MCS, namely 63 (36%) with intra-aortic ballon pump or Impella® heart pump and 25 (14.3%) with extracorporeal membrane oxygenation (ECMO). A comparison of patients with and without MCS use is presented in Table 1. Mean age didn't show statistically significant differences (68 ± 14.6 in patients without MCS versus 64 ± 13.9 years in patients with MCS, p 0.055). Active smoking (OR 2.218, p 0.013), history of heart failure (OR 0.16, p < 0.001), valvular heart disease (OR 0.08, p 0.005) and atrial flutter/fibrillation (OR 0.11, p < 0.001) were associated with MCS implantation. Diagnosis (R^2 = 0.128, p < 0.001), SCAI classification (R^2 = 0.198, p < 0.001), high sensitivity T troponin levels (z = -2.178, p 0.029), invasive ventilation (OR 2.01, p 0.032) and renal replacement therapy (OR 2.71, p 0.038) correlated with MCS implantation". The above data predicted MCS use (R^2 = 0.426, p < 0.001). Mortality outcomes at 30 days and 1 year weren't significantly different between patients with or without MCS.

Table 1. Baseline characteristics, diagnosis, left ventricular ejection fraction, SCAI classification, intensive care support and mortality outcomes

Characteristics	Total (n = 175)	No MCS (n = 101)	MCS (n = 74)	p value
Female sex, n (%)	47 (26.9%)	27 (26.7%)	20 (27.0%)	0.965
Hypertension, n (%)	101 (57.7%)	59 (58.4%)	42 (56.8%)	0.826
Dyslipidemia, n (%)	99 (56.6%)	57 (56.4%)	42 (56.8%)	0.966
Diabetes, n (%)	61 (34.9%)	36 (35.6%)	25 (33.8%)	0.873
Active smoking, n (%)	75 (42.9%)	35 (34.7%)	40 (54.1%)	**0.013**
Obesity, n (%)	52 (29.7%)	29 (28.7%)	23 (31.1%)	0.741
Family history of CV disease, n (%)	9 (5.1%)	5 (5.0%)	4 (5.4%)	0.893
Heart failure, n (%)	37 (21.1%)	32 (31.7%)	5 (6.8%)	**<0.001**
Coronary artery disease, n (%)	39 (22.3%)	22 (21.8%)	17 (23.0%)	0.856
Valvular heart disease, n (%)	15 (8.6%)	14 (13.9%)	1 (1.4%)	**0.005**
Cardiomyopathy (other), n (%)	8 (4.6%)	6 (5.9%)	2 (2.7%)	0.470
Atrial fibrillation/flutter, n (%)	22 (12.6%)	20 (19.8%)	2 (2.7%)	**<0.001**
Cerebrovascular disease, n (%)	18 (10.3%)	10 (9.9%)	8 (10.8%)	0.845
Chronic kidney disease, n (%)	29 (16.6%)	17 (16.8%)	12 (16.2%)	0.914
Peripheral artery disease, n (%)	17 (9.7%)	9 (8.9%)	8 (10.8%)	0.797
Alcohol consumption, n (%)	21 (12%)	14 (13.9%)	7 (9.5%)	0.482
Diagnosis				**<0.001**
Acute coronary syndrome, n (%)	112 (64.0%)	53 (52.5%)	59 (79.7%)	
Acute heart failure, n (%)	32 (18.3%)	26 (25.7%)	6 (8.1%)	
Electrical storm, n (%)	9 (5.1%)	6 (5.9%)	3 (4.1%)	
Myocarditis, n (%)	5 (2.9%)	1 (1.0%)	4 (5.4%)	
Progression of valvular disease, n (%)	5 (2.9%)	5 (5.0%)	0 (0%)	
Complete atrioventricular block, n (%)	5 (2.9%)	5 (5.0%)	0 (0%)	
Tachycardiomyopathy, n (%)	3 (1.7%)	3 (3.0%)	0 (0%)	
SCAI classification				**<0.001**
Stage A, n (%)	14 (8.0%)	7 (6.9%)	7 (9.5%)	
Stage B, n (%)	28 (16.0%)	19 (18.8%)	9 (12.2%)	
Stage C, n (%)	65 (37.1%)	51 (50.5%)	14 (18.9%)	
Stage D, n (%)	41 (23.4%)	15 (14.9%)	26 (35.1%)	
Stage E, n (%)	27 (15.4%)	9 (8.9%)	18 (24.3%)	
Left ventricular ejection fraction				0.116
Preserved, n (%)	28 (16.0%)	16 (15.8%)	12 (16.2%)	
Mildly reduced, n (%)	13 (7.4%)	9 (8.9%)	4 (5.4%)	
Moderately reduced, n (%)	48 (27.4%)	21 (20.8%)	27 (36.5%)	
Severely reduced, n (%)	86 (49.1%)	55 (54.5%)	31 (41.9%)	
Intensive care support				
Mechanical ventilation, n (%)	89 (50.1%)	44 (43.6%)	45 (60.8%)	**0.032**
Renal replacement therapy, n (%)	22 (12.6%)	8 (7.9%)	14 (18.9%)	**0.038**
Temporary pacemaker, n (%)	29 (16.6%)	14 (13.9%)	15 (20.3%)	0.306
Noradrenaline, n (%)	144 (82.3%)	83 (82.2%)	61 (82.4%)	0.965
Dobutamine, n (%)	75 (42.9%)	38 (37.6%)	37 (50.0%)	0.123
Levosimendan, n (%)	34 (19.4%)	22 (21.8%)	12 (16.2%)	0.440
Mortality outcomes				
Death at 30 days, n (%)	70 (40.0%)	36 (35.6%)	33 (44.6%)	0.274
Death at 1 year, n (%)	79 (45.1%)	38 (37.6%)	37 (50.0%)	0.123

Figure PO 232

Conclusions: Smokers had higher odds of having MCS support, opposite to patients with history of heart failure, valvular heart disease or atrial flutter/fibrillation. Diagnosis, SCAI classification and troponin levels at admission predicted the implantation of MCS. Patients submitted to invasive ventilation and renal replacement therapy had more than twice the odds of having MCS. Mortality outcomes were similar irrespective of MCS use. Almost half of the prediction of MCS implantation was explained by SCAI classification and it was also associated with mortality, enhancing the focus on staging these patients to assist in timely decision on MCS implantation.

PO 233. PREDICTORS OF MORTALITY IN CARDIOGENIC SHOCK: CLINICAL STAGING AND CARDIOVASCULAR SUPPORT

Marta Catarina Almeida, Inês Neves, André Lobo, Marta Leite, Rafael Teixeira, Fábio Nunes, Adelaide Dias, Daniel Caeiro, Marisa Silva, Marta Ponte, Pedro Teixeira, Ricardo Fontes-Carvalho

Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Cardiogenic shock (CS) is a condition in which cardiac output isn't enough to meet organ demands. Factors related to mortality are inconsistent in literature.
Objectives: The aim of the study was to assess comorbidities, clinical presentation, diagnosis, analytic data and CV support in patients with CS and its impact on mortality.
Methods: A retrospective study of patients admitted to an intensive cardiac unit in 5 years was conducted (n = 6,950). Patients with CS were included (n = 175). Comorbidities, diagnosis, left ventricular ejection fraction (LVEF) and analytic data at admission, SCAI classification, CV support and mortality at 30 days and 1 year were registered. Chi-square, t-test and Mann-Whitney tests were used to test the associations. Logistic regression was used to predict mortality.

Table 1. Baseline characteristics

Characteristics (n = 175)	Frequency (%)
Hypertension, n (%)	101 (57.7%)
Dyslipidemia, n (%)	99 (56.6%)
Diabetes, n (%)	61 (34.9%)
Active smoking, n (%)	75 (42.9%)
Obesity, n (%)	52 (29.7%)
Family history of cardiovascular disease, n (%)	9 (5.1%)
Heart failure, n (%)	37 (21.1%)
Coronary artery disease, n (%)	39 (22.3%)
Previous coronary intervention, n (%)	27 (15.4%)
Valvular heart disease, n (%)	15 (8.6%)
Previous valvular intervention, n (%)	4 (2.3%)
Cardiomyopathy (other than previous), n (%)	8 (4.6%)
Atrial fibrillation/flutter, n (%)	22 (12.6%)
Peripheral artery disease, n (%)	17 (9.7%)
Cerebrovascular disease, n (%)	18 (10.3%)
Dementia, n (%)	6 (3.4%)
Chronic kidney disease, n (%)	29 (16.6%)
Chronic pulmonary disease, n (%)	8 (4.6%)
Alcohol consumption, n (%)	21 (12%)
Diagnosis, n (%)	
Acute coronary syndrome	112 (64.0%)
Heart failure	32 (18.3%)
Electrical storm	9 (5.1%)
Myocarditis	5 (2.9%)
Valvular heart disease	5 (2.9%)
Complete atrioventricular block	5 (2.9%)
Cardiomyopathy (other)	4 (2.3%)
Tachycardiomyopathy	3 (1.7%)

Results: Mean age was 66 years and 73% were male. Comorbidities and diagnosis are described in Table 1. Half of the patients had severely reduced LVEF at admission. SCAI classification was A in 14 patients (8%), 28 (16%) in stage B, 65 (37%) in stage C, 41 (23%) in stage D and 27 (15%) in stage E. Vasoactive drugs mainly used were noradrenaline in 144 patients (82%), dobutamine in 75 (46%) and levosimendan in 34 (19%). Mechanical circulatory support used was intra-aortic balloon pump or Impella® in 63 (36%) and extracorporeal membrane oxygenation (ECMO) in 25 (14%) patients. Mortality rate at 30 days was 40% and 45% at 1 year. Mortality at 30 days was associated with age (OR 1.02, p 0.014), SCAI classification (R^2 0.135, p < 0.001), ECMO (OR 2.67, p 0.028), noradrenaline (OR 2.59, p 0.043) and dobutamine (OR 3.44, p < 0.001). Except for the ECMO support, 1-year mortality had the same associations [age (OR 1.04, p < 0.001), SCAI classification (R^2 0.129, p 0.002), noradrenaline (OR 3.07, p 0.016) and dobutamine (OR 2.34, p 0.009)] and temporary pacemaker implantation was also associated (OR 3.05, p 0.008). Aforementioned factors predicted mortality at 30 days and 1-year (p < 0.001). Diagnosis, LVEF and analytic data weren't associated with mortality.
Conclusions: Most patients were SCAI C to E. A high mortality rate was observed and SCAI classification was the strongest predictor. Age and vasoactive drugs were also associated with mortality. ECMO support was associated with 30-day and temporary pacemaker implantation with 1-year mortality. This study emphasizes the importance of staging shock, on top of age, to help decide which and how much CV support to use.

Sábado, 12 Abril de 2025 | 11:00-12:30

Área de Posters-écran 2 | Sessão de Posters 36 – Tudo sobre lípidos

PO 234. FIBRINOGEN IS A PREDICTOR OF CEREBROVASCULAR DISEASE RISK IN A PORTUGUESE POPULATION

Cátia A. Martins[1], Ana Célia Sousa[1], Patrícia Nunes[1], João Gouveia[1], Sofia Almada[1], Mónica Jardim[1], Sofia Borges[1], Maria João Oliveira[1], Mariana Rodrigues[1], Eva Henriques[1], Maria Isabel Mendonça[1], Roberto Palma dos Reis[2]

[1]Hospital Dr. Nélio Mendonça. [2]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Several studies report that markers of systemic inflammation, such as fibrinogen, are involved in atherosclerosis and endothelial dysfunction and associated with cardiovascular disease. However, the role of these inflammatory markers in the pathophysiology of cerebrovascular disease (CVD) is still incompletely understood.
Objectives: With the present work, we intend to evaluate whether a marker of inflammation, fibrinogen is a predictor of cerebrovascular disease.
Methods: A study with 1,390 individuals (74% male, mean age of 52.2 ± 8.3 years), without diagnosed cardiovascular or cerebrovascular disease at study entry were followed during 7.2 ± 5.2 years. Demographic and biochemical factors (e.g., fibrinogen) were evaluated, as well as CVD risk factors (diabetes, hypertension, dyslipidemia, obesity, smoking and sedentary lifestyle). We evaluated the individuals who, during the follow-up period, had ischemic CVD namely stroke or transient ischemic attack (TIA). A case-control study was performed comparing the cases group with stroke/TIA (n = 33) with the normal control group (n = 1,357), in relation to serum fibrinogen. A ROC curve was performed, and a cut-off point was calculated for fibrinogen in relation of having a stroke/TIA. Subsequently, a Cox regression analysis was performed with fibrinogen, adjusted for other traditional CVD risk factors (diabetes, hypertension, dyslipidemia, obesity, smoking, sedentary lifestyle). Finally, Kaplan Meier estimated the events-free survival.
Results: Fibrinogen was higher in the stroke/TIA group than in the control group, with statistical significance (p = 0.035). Cut-off point for fibrinogen risk

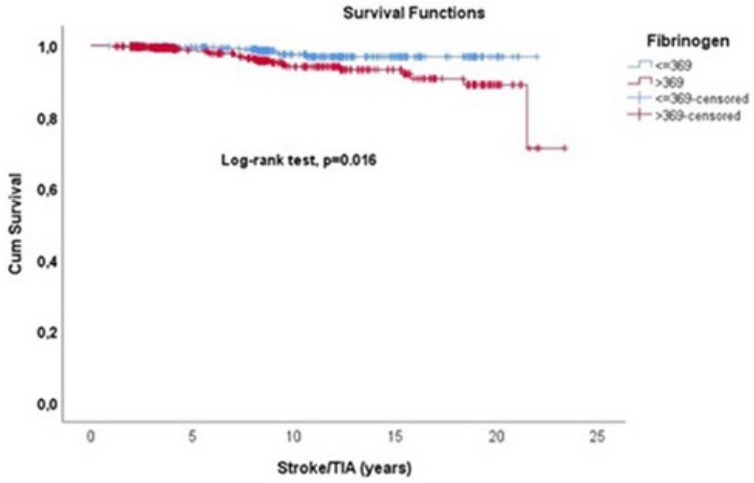


Figure: Kaplan-Meier survival analysis of fibrogen groups in relation of having stroke/TIA

Figure PO 234

was 369 mg/dL. After Cox analysis adjusted for traditional risk factors, fibrinogen remained in the equation, as well as smoking, being both significantly and independently associated with stroke/TIA (HR = 2.513, 95%CI 1.164-5.428; p = 0.019 and HR = 3.039, 95%CI 1.533-6.026; p = 0.001, respectively). Kaplan-Meier curves demonstrated that, during the follow-up period, individuals with higher fibrinogen are more likely to have a stroke/TIA.
Conclusions: According to the results obtained, it is noteworthy that the serum values of the inflammatory biomarkers such as fibrinogen are predictors of stroke/TIA risk. Given the importance of these markers in the involvement of atherosclerosis, endothelial dysfunction and their knowledge, it will help us in the future to find new therapeutic approaches.

PO 235. THE IMPORTANCE OF FIBRINOGEN AS A CARDIOVASCULAR RISK FACTOR

Alexandra S. Rodrigues[1], Ana Célia Sousa[1], João Gouveia[1], Patrícia Nunes[1], Sara Gomes[1], Sofia Almada[1], Débora Sá[1], Gonçalo Abreu[1], Mariana Rodrigues[1], Sónia Freitas[1], Maria Isabel Mendonça[1], Roberto Palma dos Reis[2]

[1]Hospital Dr. Nélio Mendonça. [2]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Several epidemiological studies have shown that an increase in serum fibrinogen levels is associated with a higher risk of cardiovascular disease (CVD), as well as a higher risk of organ damage and poor cardiovascular outcomes. However, the value of fibrinogen cut-point to increased CVD risk is not yet well established.
Objectives: We intend to evaluate whether fibrinogen is a CVD risk factor and establish the value from which it represents CVD risk, in a Portuguese population.
Methods: In 1,390 individuals (74% male, mean age of 52.2 ± 8.3 years), without CVD diagnosed at study entry, a follow-up was carried out over an extended period (7.2 ± 5.2 years). We studied the occurrence of CVD (acute myocardial infarction, angina pectoris, stroke, transient stroke and peripheral arterial disease). We evaluated demographic and biochemical variables (e.g. fibrinogen) and classic CVD risk factors (diabetes, hypertension, dyslipidemia, obesity, smoking and sedentary lifestyle). A case-control study compared the group that had CVD during the follow-up (n = 61) with the controls (n = 1,329), in relation to fibrinogen levels. We made a ROC curve and calculated the cut-off point of fibrinogen, to find the optimal point of specificity and sensitivity in relation to having CVD. A multivariate analysis was performed with fibrinogen, adjusted for traditional CV risk factors.
Results: Significant differences were obtained in CVD and control groups in relation to serum fibrinogen levels (p = 0.035). The cut-off point for fibrinogen in relation to having CVD was 416 mg/dL. After multivariate regression analysis, adjusted for CVD risk factors, fibrinogen remained in the equation (OR = 2.137; p = 0.005), as well as smoking (OR = 2.913; p < 0.0001) and arterial hypertension (OR = 1.908; p = 0.020) as significantly and independently associated with CVD.

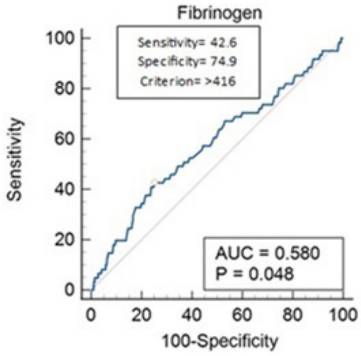


Figure 1 - ROC curve for fibrinogen in relation to CVD.

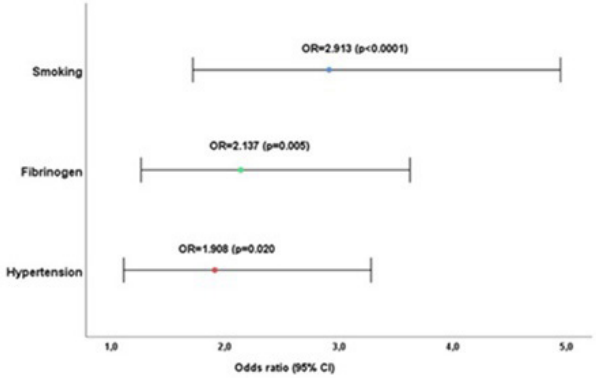


Figure 2 – Multivariate regression analysis with fibrinogen, adjusted for traditional risk factors.

Conclusions: With the present work, we proved that serum fibrinogen is a predictor of CVD risk and established the value above which fibrinogen is a risk of cardiovascular events in our population: 416 mg/dL. The determination of the optimal value with greater specificity and sensitivity of fibrinogen in relation to CVD risk may contribute to establish a risk parameter in the future and can be used in clinical practice to estimate CVD risk.

PO 236. THE ROLE OF THE TRIGLYCERIDE-GLUCOSE INDEX AS A PREDICTOR OF CORONARY ARTERY DISEASE SEVERITY IN YOUNG PATIENTS

André Manuel Faustino Martins, Mónica Amado, Joana Pereira, Adriana Vazão, Carolina Gonçalves, Mariana Carvalho, Margarida Cabral, Jorge Guardado, Hélia Martins

ULSR Leiria.

Introduction: The triglyceride-glucose (TyG) index has emerged as a reliable marker of insulin resistance, a recognized risk factor for coronary artery disease (CAD). Elevated TyG index values have been consistently linked to increased CAD severity. While this association is well-documented in older populations, evidence in younger patients (pts) remains scarce.
Objectives: Evaluate the association between the TyG index and the extent of CAD in young adults, based on the number of stenosed coronary arteries (CA) detected through coronary angiography.
Methods: Retrospective single-center study of adult pts under 45 yrs of age who were admitted to our center, either electively or urgently, for cardiac catheterization due to suspected CAD between 2017 and 2023. We included only pts with significant coronary artery stenosis (≥ 70% in epicardial vessels or ≥ 50% in the left main CA). Pts were classified in the single-vessel disease group (Group 1) or multi-vessel disease group (Group 2). The presence of cardiovascular risk factors and potential analytical predictors of CAD was assessed. The TyG index was calculated as ln [TG (mg/dL) × FBG (mg/dL)/2]. Comparative analyses were performed.
Results: 152 pts were included; median age was 42 yrs (IQR 5) and 132 pts (86.8%) were male. 132 pts (86.8%) were urgently admitted for suspected acute coronary syndrome, with 65.2% presenting as ST-segment elevation myocardial infarction. Angiographic findings showed 95 pts (62.5%) with single-vessel disease (SVD) (Group 1), while 57 pts (37.5%) presented with multi-vessel disease (MVD) (Group 2). Group 1 pts were younger (42 [IQR 7] vs. 43 [IQR 4] yrs, p = 0.013), with a lower prevalence of diabetes (3.2 vs. 12.3%, p = 0.041) and higher smoking rates (73.1 vs. 57.4%, p = 0.049). They also exhibited significantly lower HbA1c, fasting blood glucose (FBG), triglycerides and TyG index levels (Table 1A). Through the ROC curve analysis, the TyG index had strong predictive value for MVD (AUC 0.847, p < 0.001; 95%CI 0.773-0.920), with an optimal cutoff at 8.991 (80% sensitivity, 83% specificity). After multivariate logistic regression, triglycerides (OR 3.82, 95%CI 1.03-14.13) and TyG index (OR 10.93, 95%CI 2.85-41.88) were independent predictors of MVD.
Conclusions: Consistent with previous studies in older populations, we confirmed that elevated triglycerides and TyG index independently predict complex CAD in young pts, highlighting TyG index's potential as a high-risk marker in this group.

PO 237. COST-EFFECTIVENESS ANALYSIS AND BUDGET IMPACT MODEL OF LIPOPROTEIN (A) TESTING IN PORTUGUESE PATIENTS WITH ATHEROSCLEROTIC CARDIOVASCULAR DISEASE IN SECONDARY PREVENTION

Sara Monge, Joana Gomes da Costa, César Ferreira

Novartis Farma.

Objectives: Elevated Lipoprotein (a) [Lp(a)] is a genetically inherited condition that has been causally associated with an increased risk for cardiovascular disease (CVD). Despite guidelines recommendation of broad Lp(a) testing, this is not implemented in real-world clinical practice. Absence of targeted therapies and economic concerns have been indicated as barriers on general Lp(a) testing. This study aims to assess the cost-effectiveness and budget impact of implementing Lp(a) testing for secondary prevention in an atherosclerotic cardiovascular disease (ASCVD) population

(A)

	Total (n=152)	Group 1 (n=95)	Group 2 (n=57)	p-value
Male gender – n (%)	132 (86.8)	83 (87.4)	49 (86.0)	0.804[a]
Age at diagnosis (yrs) – median (IQR)	42 (5)	42 (7)	43 (4)	**0.013[b]**
Type of admission – n (%)				
Urgent	132 (86.8)	84 (88.4)	48 (84.2)	0.457[a]
Elective	20 (13.2)	11 (11.6)	9 (15.8)	0.585[a]
Past medical history – n (%)				
Overweight (BMI 25-29.9 kg/m²)	63 (43.8)	35 (39.3)	28 (50.9)	0.173[a]
Obesity (BMI ≥30 kg/m²)	45 (41.3)	26 (29.2)	19 (34.5)	0.502[a]
Hypertension	47 (30.9)	25 (26.3)	22 (38.6)	0.113[a]
Dyslipidemia*	70 (46.4)	43 (45.7)	27 (47.4)	0.846[a]
History of CAD	13 (8.6)	5 (5.3)	8 (14.0)	0.076[a]
Diabetes mellitus	10 (6.6)	3 (3.2)	7 (12.3)	**0.041[a]**
History of smoking*	99 (67.3)	68 (73.1)	31 (57.4)	**0.049[a]**
Family history of CVD*	30 (31.9)	21 (35.0)	9 (26.4)	0.394[a]
Analytical variables				
Total cholesterol (mg/dl)* – mean (SD)	197.6 (45.2)	194.4 (42.3)	204.4 (52.6)	0.426[c]
HDL-C (mg/dl)* – median (IQR)	40.0 (10.0)	40.5 (12.0)	40.0 (11.0)	0.138[b]
LDL-C (mg/dl)* – mean (SD)	128.1 (40.4)	125.6 (36.5)	131.4 (48.9)	0.697[c]
Triglycerides (mg/dl)* – median (IQR)	147.0 (84.0)	119.0 (60.0)	181.5 (88.0)	**<0.001[b]**
Fasting blood glucose (mg/dl)* – median (IQR)	101.0 (20.0)	95.5 (19.0)	103.0 (16.0)	**<0.001[b]**
TyG index* – median (IQR)	8.86 (0.65)	8.73 (0.48)	9.19 (0.54)	**<0.001[b]**
HbA1c (%)* – median (IQR)	5.5 (0.5)	5.4 (0.4)	5.6 (0.5)	**0.005[b]**

(B)

Variables	OR	CI 95%	p-value
Diabetes mellitus	0.514	0.066 - 3.990	0.524
History of smoking	0.365	0.119 - 1.117	0.077
Fasting blood glucose (≥100 mg/dl)	1.135	0.324 - 3.981	0.843
HbA1c (≥5.7%)	1.173	0.339 - 5.060	0.801
Triglycerides (≥150 mg/dl)	3.821	1.034 - 14.128	**0.044**
TyG index (≥8.991)	10.925	2.851 - 41.875	**<0.001**

Table 1. (A) Patient baseline characteristics and analytical variables. (B) Multivariate logistic regression.
Statistical analysis: [a]Chi-square test, [b]Mann-Whitney U test, [c] t-student test. Abbreviations: **BMI** - body mass index, **CAD** - coronary artery disease, **CI** - confidence interval, **CVD** – cardiovascular disease, **HbA1c** - glycated hemoglobin, **HDL-C** - high-density lipoprotein-cholesterol, **LDL-C** - low-density lipoprotein-cholesterol, **OR** - odds ratio, **TyG** - triglyceride-glucose. *Missing values for the variables analyzed in the total population: 8 for "Overweight" and "Obesity", 1 for "Dyslipidemia", 5 for "History of smoking", 58 for "Family history of CV disease", 2 for "Fasting blood glucose"; 13 for "Total cholesterol", "HDL-C", "LDL-C", "Triglycerides", and "TyG index"; 28 for "HbA1c".

Figure PO 236

in absence of targeted therapies, adopting the perspective of the Portuguese National Health Service (P-NHS).
Methods: A decision tree economic model followed by a Markov model and the UK Biobank's (UKBK) predictive risk equations were used to develop the economic model. The costs and outcomes with and without Lp(a) testing were compared, with the assumption that testing might induce a behavioural change which in turn might impact other cardiovascular (CV) risk factors.
Results: Different scenarios were considered, and Lp(a) testing is deemed to be a cost-effective strategy in most of the scenarios with a minimal change (< 2%) in two CV risk factors. When considering a sizeable change in a single CV risk factor such as LDL-C as previously observed, Lp(a) testing is dominant. In this scenario, the budget impact model showed that testing was able to generate cost savings in a Portuguese secondary prevention ASCVD population.
Conclusions: Testing for Lp(a) in a secondary prevention population can be a cost-effective approach. When considering a significant change in CV risk factors, testing can be cost saving, potentially leading to relevant benefits to the P-NHS, even in the absence of target therapies. Although Lp(a) testing may contribute towards an optimization of CV risk management, the unmet need of reducing Lp(a) associated CV risk remains.

PO 238. LIPOPROTEIN(A) AND ACUTE CORONARY SYNDROME: ASSOCIATIONS WITH SEX, AGE AND TRADITIONAL CARDIOVASCULAR RISK FACTORS

Catarina Carrapa[1], Marta Leite[2], Francisca Saraiva[1], Sílvia O. Diaz[1], Inês Neves[2], Marta Almeida[2], Eduardo Vilela[2], Ricardo Fontes-Carvalho[2]

[1]Faculdade de Medicina da Universidade do Porto. [2]ULSGE.

Introduction: Lipoprotein(a) [Lp(a)] is an independent risk factor for coronary disease due to its atherogenic, proinflammatory, and prothrombotic properties. Current guidelines recommend a single measurement in adults to refine the risk of acute coronary events.
Objectives: We aim to characterize Lp(a) levels in patients presenting with acute coronary syndrome (ACS) and explore associations with sex, age, comorbidities, and traditional cardiovascular risk factors (TCVRF).
Methods: We included all patients admitted with ACS from January 2022 to December 2023 in our center who had Lp(a) levels measured at admission. Patients were stratified into two groups based on Lp(a) levels: elevated (> 100 nmol/L) vs. normal (≤ 100 nmol/L). Premature coronary disease was defined as occurring in men aged ≤ 55 years and women aged ≤ 60 years. Demographic and clinical data, including TCVRF (dyslipidemia, diabetes, hypertension, smoking, and obesity), were collected from hospital records. Chi-square and independent t or Mann-Whitney tests were used to compare categorical and quantitative variables between groups, respectively.
Results: A total of 388 patients were included in our analysis: 238 (61.3%) with normal Lp(a) levels and 150 (38.7%) with high Lp(a) levels. The cohort comprised 19.6% women and 80.4% men, with a median age of 63 years (IQR 55-73); 32.5% had premature coronary disease. Women tended to have higher Lp(a) levels [47% of women had high Lp(a) vs. 37% of men with high Lp(a)] although not significant (p = 0.082). There were no significant differences in age distribution (p = 0.4) [Figure 1]. There were no significant differences in comorbidities, event characteristics, or complications between groups. A higher percentage of patients in the high Lp(a) group were treated with ezetimibe (14 vs. 8.4%; p = 0.081). No correlation was found between Lp(a) and LDL-c, HDL-c, total cholesterol, or triglycerides (p = 0.312, 0.514, 0.208, 0.162, respectively). Overall, 10.7% of patients had no TCVRF, while 89.3% had at least one. Lp(a) levels did not differ significantly across TCVRF categories, and no specific risk factor was associated with elevated Lp(a). Among patients without TCVRF, women had higher Lp(a) levels than men. In those with ≥ 1 TCVRF, older women exhibited a tendency for higher Lp(a) levels.
Conclusions: Lp(a) levels show heterogeneous distribution with no significant associations with TCVRF, age, lipid parameters, or other comorbidities, However, a trend indicating higher Lp(a) levels in women presenting with ACS compared to men was noted. These findings highlight Lp(a) as an independent cardiovascular risk factor and underscore the need for larger, more comprehensive studies to explore the potential relation between Lp(a) levels and sex.

PO 239. THE HIGH HDL CONTROVERSY CONTINUES: THE PROGNOSIS FOR WOMEN WITH A HIGH HDL PROFILE IS SERIOUSLY UNFAVOURABLE

Francisco Sousa[1], Maria Isabel Mendonça[2], Débora Sá[1], Gonçalo Abreu[1], Matilde Ferreira[1], Eva Henriques[2], Sónia Freitas[2], Mariana Rodrigues[2], Sofia Borges[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

[1]Hospital Central do Funchal. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Elevated HDL-c has been associated with increased all-cause mortality in conditions like cancer or liver disease. The traditional "more HDL is better" paradigm is no longer universally accepted. Understanding prognosis is crucial in evaluating cardiovascular and overall risk, especially in women.
Objectives: To investigate the association between HDL-c levels and all causes of events and mortality in a Southern European Population.
Methods: 1,421 normal individuals from a Southern European population (aged 52.2 ± 8.3 years, 73.6% male) were followed during an extended follow-up (mean of 7.3 ± 5.2 years). Demographic data, smoking status, alcohol intake, physical activity and clinical risk factors were collected from questionnaires

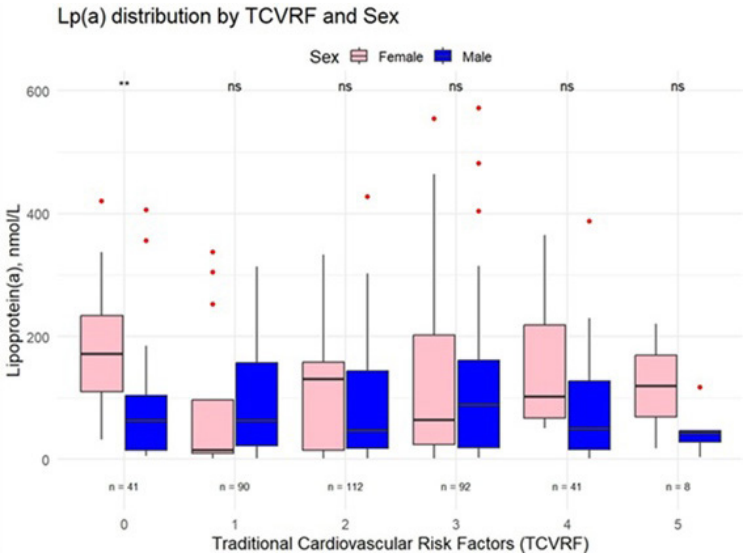
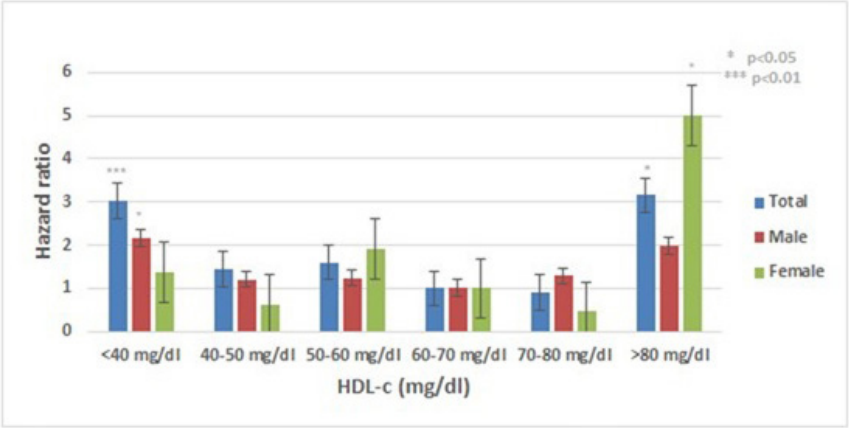


Figure PO 238



Risk of total events (vascular and non-vascular) in the six HDL-cholesterol groups

Figure PO 239

at baseline in 2000. Continuous data were expressed as the mean ± SD and compared using t Student test. Categorical variables were described by percentages and compared using the Chi-square test. The population was stratified into six groups based on HDL-c levels in mg/dl (< 40, 40 to 49, 50 to 59, 60 to 69, 70 to 79, and ≥ 80). To investigate the association between HDL-c levels and events, we subdivided each category level into three subgroups (overall population, male and female). In an adjusted multivariate model, Cox regression tested the association between HDL-c levels and all-cause events and mortality (vascular and non-cardiovascular) adjusted for potential confounders.

Results: At the end of follow-up, 156 total events (vascular and nonvascular) were identified (event rate, 15.3 per 1,000 person-years). In the lower category of HDL, the general population subgroup and men were significantly associated with an increase in total events compared to the reference group. However, in the highest HDL profile (≥ 80 mg/dl), the women have a much higher risk of events (5 times more risk than the reference and, approximately, 2.5 times above men).

Conclusions: Our findings highlight the importance of appropriate HDL-C levels in reducing the risk of events and death and challenge the conventional notion that higher HDL-c levels are better. More studies are necessary to clarify whether the associations observed in our study are causal and to elucidate the potential mechanisms.

PO 240. LDL ON TARGET - STRIKE EARLY AND STRIKE STRONG… JUST STRIKE!

Sofia Andraz, Lucas Hamann, Joana Massa Pereira, Miguel Espírito Santo, Joana Guerreiro Pereira, Hugo Costa, Pedro de Azevedo, Jorge Mimoso

Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro.

Introduction: Current ESC guidelines recommend stepwise, LDL-guided lipid-lowering therapy (LLT) in post-acute coronary syndrome (ACS) patients, but this approach often fails to achieve target LDL levels, leaving patients at residual risk. An alternative "strike early and strike strong" strategy[1], combining high-intensity (HI) statins with ezetimibe upfront, may improve lipidic control and outcomes.

Table 1 – Baseline clinical characteristics of post-ACS patients.

			LDL < 55 mg/dL	LDL ≥ 55 mg/dL	Total	P-value
			(n=76, 36%)	(n=135, 64%)	(n=211, 100%)	
Gender	Male	n (%)	60 (79%)	97 (72%)	157 (74%)	0.257
	Female	n (%)	16 (21%)	38 (21%)	54 (26%)	
Age (years)		*Mean±SD*	65 ± 12	64 ± 12	65 ± 12	0.284
Foreign nationality		n (%)	11 (15%)	18 (13%)	29 (14%)	0.393
Diagnosis at admission	STEMI	n (%)	39 (51%)	58 (43%)	97 (46%)	0.712
	NSTEMI	n (%)	33 (43%)	69 (51%)	102 (48%)	
	Unstable Angina	n (%)	1 (1%)	2 (2%)	3 (1.4%)	
	MI of unknown location	n (%)	3 (4%)	6 (4%)	9 (4.3%)	
Medical History	MI	n (%)	14 (18%)	37 (27%)	51 (24%)	0.143
	Stroke/TIA	n (%)	4 (5%)	9 (7%)	13 (6.2%)	0.684
	Dyslipidemia	n (%)	40 (53%)	77 (57%)	117 (56%)	0.537
	Hypertension	n (%)	57 (74%)	82 (61%)	139 (66%)	**0.036**
	Diabetes Mellitus	n (%)	31 (40%)	40 (30%)	71 (34%)	0.100
	Chronic kidney disease	n (%)	3 (4%)	9 (7%)	12 (6%)	0.413
	Cancer	n (%)	5 (7%)	9 (7%)	14 (7%)	0.980
Previously medicated with HI-statin		n (%)	21 (27%)	41 (30%)	62 (29%)	0.675
Active smokers		n (%)	22 (31%)	58 (43%)	71 (34%)	0.313

Figure PO 240

Objectives: To provide a comprehensive analysis of the lipid profile and discharge medication of post-ACS patients treated at our center.
Methods: This single-center retrospective study included ACS patients admitted between January 2020 and October 2020, with a mean follow-up of 42 months. The patients were grouped by follow-up LDL (< 55 mg/dL and ≥ 55 mg/dL). Data on demographics, admission diagnosis, medical history, metabolic profile, and discharge lipid-lowering therapy (LLT) were collected.
Results: This cohort included 211 patients (74% male, mean age 65 ± 12 years), with 36% achieving LDL < 55 mg/dL at follow-up. Hypertension was more common in the LDL < 55 mg/dL group (74 vs. 61%, p = 0.036). There were no significant differences between the groups in other baseline characteristics. NSTEMI was the most frequent diagnosis (48%), with similar distributions across groups. During hospitalization, patients with LDL < 55 mg/dL had lower levels of total cholesterol (184 ± 55 vs. 209 ± 51 mg/dL, p < 0.001) and LDL cholesterol (124 ± 48 vs. 146 ± 48 mg/dL, p < 0.001). High-intensity statins combined with ezetimibe were more commonly prescribed to the LDL < 55 mg/dL group at discharge (46 vs. 31%, p = 0.05), and adherence was higher in this group (94 vs. 81%, p < 0.001). At follow-up, LDL cholesterol was significantly lower in the LDL < 55 mg/dL group (44 ± 9 vs. 97 ± 43 mg/dL, p < 0.001) with a greater LDL reduction (80 ± 48 vs. 49 ± 53 mg/dL, p < 0.001). BMI, smoking, diastolic BP, and HbA1c were similar between groups, while systolic BP was lower in the LDL < 55 mg/dL group (p = 0.045).
Conclusions: In this cohort, only 36% of post-ACS patients achieved LDL levels < 55 mg/dL at follow-up, highlighting the challenge of achieving optimal lipid control. Patients in this group were more likely to have received a combination of HI-statins and ezetimibe at discharge, with better adherence and greater LDL reductions. These findings support the "strike early and strike strong" approach to LLP as a more effective strategy for achieving LDL targets in very high-risk patients.

PO 241. ASSOCIATION BETWEEN LIPOPROTEIN(A) AND RENAL FUNCTION: INSIGHTS FROM A CROSS-SECTIONAL STUDY

Samuel Azevedo, Débora Silva Correia, Rita Barbosa Sousa, André Silva, André Jorge Garcia, Rui Gomes, Ana Rita Bello, Ana Catarina Ribeiro, Gonçalo Cunha, Marisa Trabulo, João Figueira, Jorge Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Lipoprotein(a) [Lp(a)] is a genetically regulated risk marker of atherosclerotic cardiovascular disease (ASCVD). Elevated Lp(a) levels have been linked to chronic kidney disease (CKD), potentially indicating impaired renal clearance and associated metabolic imbalances. This study aims to explore the relationship between Lp(a) levels and estimated glomerular filtration rate (eGFR), shedding light on its clinical relevance in renal function assessment.
Methods: This cross-sectional study included 301 patients recruited between May 2023 and October 2024. Plasma Lp(a) levels were categorized based on European Atherosclerosis Society thresholds: Lp(a) < 75 nmol/L and Lp(a) > 100 nmol/L. eGFR was calculated using the Cockcroft-Gault equation. Correlations between Lp(a) and eGFR were assessed using Spearman's rank coefficient, with p < 0.05 considered statistically significant.
Results: The mean age of the cohort was 63 ± 1 years, with 79.1% male. Comorbidities included hypertension (65.1%), dyslipidemia (64.8%), and diabetes (24.6%). Median Lp(a) levels were 65 nmol/L (IQR: 22-180 nmol/L), and mean eGFR was 83 ± 2 mL/min/1.73 m^2. A significant inverse correlation was observed between Lp(a) and eGFR (r = -0.112, p = 0.027). Patients with Lp(a) > 100 nmol/L had lower mean eGFR (77 ± 3 mL/min/1.73 m^2) compared to those with Lp(a) < 75 nmol/L (85 ± 3 mL/min/1.73 m^2; p = 0.033). An incremental rise in Lp(a) levels with declining eGFR was noted across CKD stages, although significance in advanced stages was limited by small sample sizes.
Conclusions: Elevated Lp(a) levels were associated with reduced eGFR. While cross-sectional data limit causal inference, Lp(a) may contribute for the increased risk of ASCVD in patients with renal impairment. Future longitudinal studies are warranted to confirm these findings and explore therapeutic strategies targeting Lp(a).

PO 242. LONG-TERM LIPID TARGET ACHIEVEMENT AFTER ACUTE MYOCARDIAL INFARCTION AND ISCHEMIC STROKE: A REAL-WORLD ANALYSIS

Anabela Raimundo, Hélder Dores, Joana Costa, Bernardo Neves

Hospital da Luz Lisboa.

Introduction: Despite clear guidelines for lipid management after acute cardiovascular events, real-world achievement of he recommended targets remains elusive. Contemporary European Society of Cardiology (ESC) guidelines set ambitious lipid goals, particularly for LDL-cholesterol, yet their attainment in clinical practice is poorly characterized.
Objectives: To evaluate the achievement of ESC recommended lipid targets in patients after acute myocardial infarction and ischemic stroke.
Methods: In a single-center retrospective study, we analyzed lipid control in 966 consecutive patients following acute myocardial infarction (58.0%) or ischemic stroke (42.0%). The cohort (65.6% male, median age 71.0 years

Table 1 – Baseline Characteristics

Baseline Characteristics	All patients (n=301)	Lp(a)<75nmol/L (n=161)	Lp(a) >100nmol/L (n=124)
Age	63+-1	63+-1	65+-1
Male	238 (79.1%)	132 (82%)	94 (75.8%)
BMI	27 (24-29)	27 (24-30)	26 (24-29)
Hypertension	196 (65.1%)	104 (64.6%)	84 (67.7%)
Dyslipidemia	195 (64.8%)	100 (62.1%)	85 (68.5%)
Diabetes	74 (24.6%)	40 (24.8)	33 (26.6%)
Current smoker	113 (37.5%)	70 (43.5%)	35 (28.2%)
Previous ACS	76 (25.2%)	34 (21.1%)	39 (31.5%)
Previous CABG	19 (6.3%)	5 (3.1%)	14 (11.3%)
Previous Stroke	10 (3.3%)	3 (1.9%)	6 (4.8%)
Peripheral Arterial Disease	14 (4.7%)	6 (3.7%)	8 (6.5%)
Creatinine	1 (0.8-1.2)	1 (0.8-1.2)	1 (0-8-1.2)
eGFR mL/min/1.73m2	83+-2	85+-3	77+-3
Lp(a), nmol/L	65 (22-180)	24 (11-46)	199 (150-239)
Total Cholesterol, mg/dL	159 (123-199)	149 (122-197)	162 (119-201)
LDL, mg/dL	90 (57-131)	83 (56-123)	95 (57-132)
TG, mg/dL	114 (86-161)	125 (87-179)	103 (83-142)
HDL, mg/dL	43 (36-53)	43 (35-53)	45 (38-53)

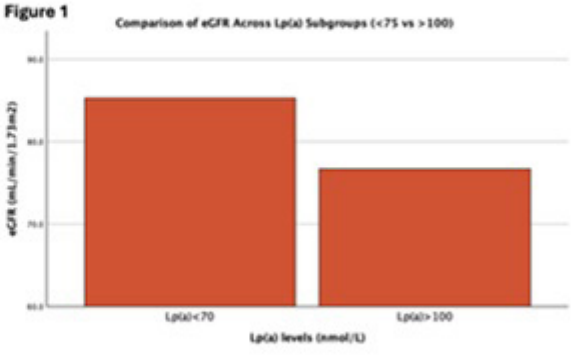


Figure PO 241

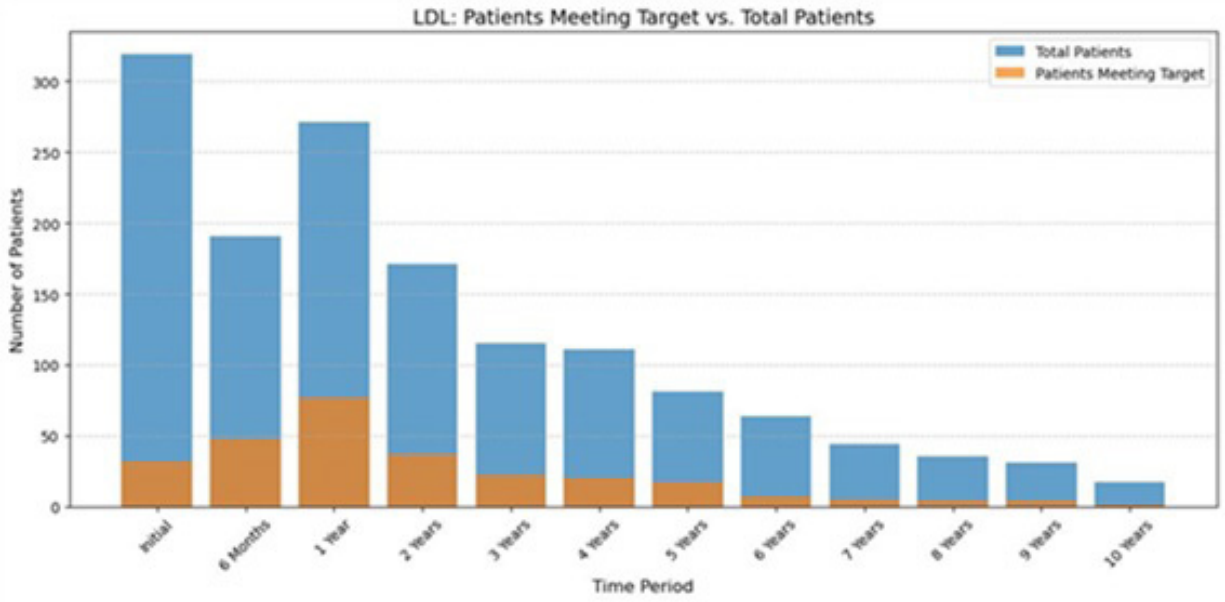


Figure PO 242

[IQR: 21.8]) was followed for up to 5 years. Electronic health records were scrutinized for lipid measurements, evaluating achievement of guideline targets: LDL-C < 55 mg/dL, non-HDL-C < 85 mg/dL, triglycerides < 150 mg/dL, and HDL-C > 40/50 mg/dL for males/females.

Results: Initial LDL-C target achievement at baseline was remarkably low at 10.0% (32/319), improving to 25.1% (48/191) at 6 months and reaching its peak at 27.9% (79/283) at 1 year. Subsequently, target achievement declined: 22.4% (35/156) at 2 years, 19.1% (22/115) at 3 years, 18.0% (20/111) at 4 years, and 21.0% (17/81) at 5 years. In contrast, triglyceride targets were consistently achieved by most patients, ranging from 76.8% (235/306) initially to 80.5% (66/82) at 5 years. While HDL-C levels showed achievement rates between 53.6% (187/349) and 64.0% (57/89) throughout follow-up.

Conclusions: Our findings reveal a striking gap between guideline recommendations and reaching real-world LDL-C targets after major cardiovascular events. The transient peak in reaching target LDL-C at one year, followed by declining success rates, suggests that maintaining long-term lipid control remains a very significant challenge in clinical practice. These results underscore the urgent need for more effective strategies to optimize lipid management in high-risk cardiovascular patients.

Sábado, 12 Abril de 2025 | 11:00-12:30

Área de Posters-écran 3 | Sessão de Posters 37 – Doenças cardiovasculares - terapêutica antitrombótica

PO 243. EFFICACY AND SAFETY OF TICAGRELOR VERSUS CLOPIDOGREL IN ACUTE MYOCARDIAL INFARCTION-ASSOCIATED CARDIOGENIC SHOCK: A PROPENSITY SCORE-MATCHED ANALYSIS

Márcia Presume, Samuel Azevedo, João Presume, Ana Rita Bello, C. Santos-Jorge, Rui Miguel Gomes, André Moniz Garcia, Catarina Brízido, Christopher Strong, António Tralhão, Manuel Almeida, Jorge Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Cardiogenic shock secondary to acute myocardial infarction (AMICS) is a critical condition with significant hemostatic challenges. Despite the widespread use of P2Y12 inhibitors, current evidence comes primarily from stable populations. This study aimed to compare the efficacy and safety of ticagrelor versus clopidogrel in a propensity-matched cohort of AMICS patients.

Methods: We conducted a single-center retrospective study to evaluate the impact of ticagrelor versus clopidogrel in AMICS patients receiving dual antiplatelet therapy (DAPT), hospitalized between 2016 and 2024. Propensity score matching was performed on a cohort of 151 patients (103 on clopidogrel; 48 on ticagrelor) using a 1:1 matching protocol without replacement (matching tolerance 20%). Matching variables included age, sex, chronic kidney disease (CKD), peak troponin levels (pTn), occurrence of cardiac arrest, and initial SCAI shock classification. The primary endpoint was 30-day all-cause mortality. Secondary endpoints included major adverse cardiovascular events (MACE), defined as a composite of cardiovascular death, myocardial reinfarction, stroke or transient ischemic attack, and embolic events, as well as major bleeding events, defined as BARC ≥ 3.

Results: A total of 88 patients were included, 44 within each group, with a mean age of 60.5 ± 11 years, 71.6% male, 44.3% presenting in SCAI-C, and 47.7% on mechanical circulatory support (MCS), including IABP, VA-ECMO, and/or Impella. At 30-day follow-up, 39 patients (44.3%) had died. Baseline characteristics were well balanced between groups, including age (p = 0.138), sex (p = 0.813) and SCAI shock classification (p = 0.910) (Table 1). Although not statistically significant, other antithrombotic therapies showed numerical variations between groups. Anticoagulation was more common in clopidogrel-treated patients (70.5 vs. 56.8%), whereas Gp IIb/IIIa antagonists were more frequent in those receiving ticagrelor (20.5 vs. 11.4%). Ticagrelor was associated with a significantly lower 30-day mortality rate (34.1 vs. 54.6%; Log-rank p = 0.018) (Figure 1), and reduced MACE incidence (34.1 vs. 56.8%; Log-rank p = 0.018) (Figure 2). In the subgroup with MCS the magnitude of benefit was similar (OR 0.419 [95%CI = 0.159-1.101]; p = 0.078), despite not reaching statistical significance. No significant differences were observed between groups regarding the incidence of major bleeding events (63.6 vs. 59.1%; OR 1.212 [95%CI = 0.513 - 2.861]; p = 0.662).

Conclusions: In this propensity score-matched analysis of AMICS patients receiving DAPT, ticagrelor was associated with significantly lower 30-day mortality and MACE rates compared to clopidogrel, without a corresponding increase in major bleeding risk. These findings may suggest a potential benefit of ticagrelor in this high-risk population; however, further prospective studies are needed.

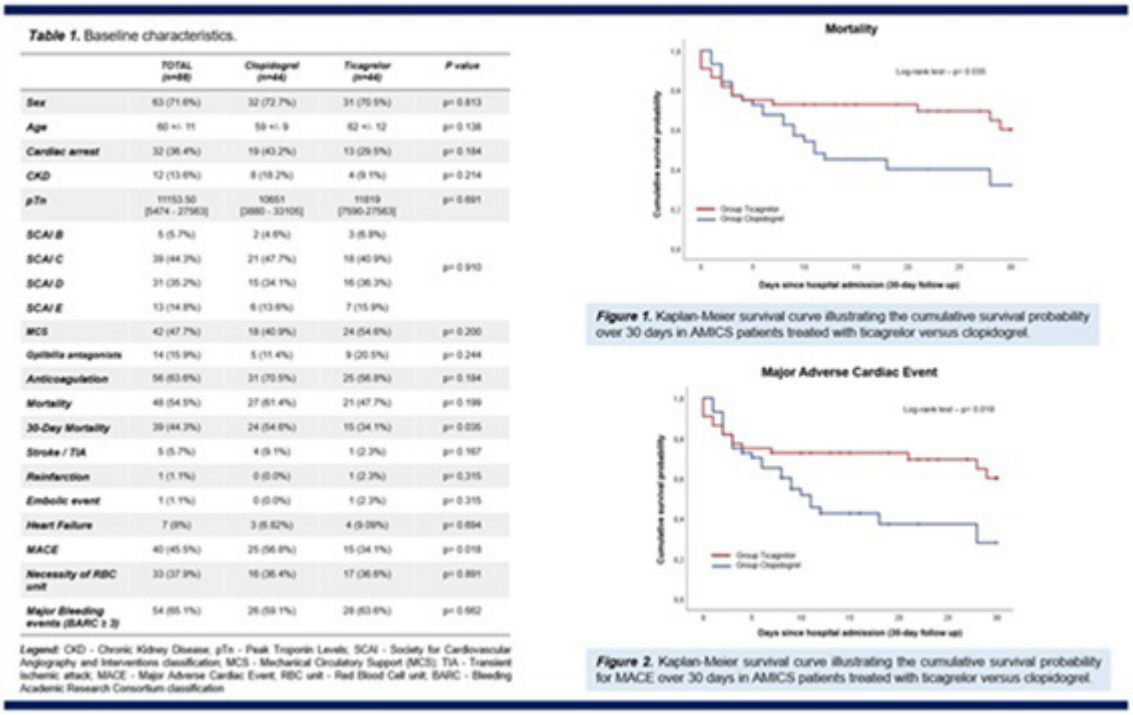


Table 1. Baseline characteristics.

	TOTAL (n=88)	Clopidogrel (n=44)	Ticagrelor (n=44)	P value
Sex	63 (71.6%)	32 (72.7%)	31 (70.5%)	p= 0.813
Age	60 +/- 11	59 +/- 9	62 +/- 12	p= 0.138
Cardiac arrest	32 (36.4%)	19 (43.2%)	13 (29.5%)	p= 0.184
CKD	12 (13.6%)	8 (18.2%)	4 (9.1%)	p= 0.214
pTn	11153.50 [5474 - 27563]	10651 [3680 - 33105]	11819 [7590-27563]	p= 0.691
SCAI B	5 (5.7%)	2 (4.6%)	3 (6.8%)	p= 0.910
SCAI C	39 (44.3%)	21 (47.7%)	18 (40.9%)	
SCAI D	31 (35.2%)	15 (34.1%)	16 (36.3%)	
SCAI E	13 (14.8%)	6 (13.6%)	7 (15.9%)	
MCS	42 (47.7%)	18 (40.9%)	24 (54.6%)	p= 0.200
Cytibilin antagonists	14 (15.9%)	5 (11.4%)	9 (20.5%)	p= 0.244
Anticoagulation	56 (63.6%)	31 (70.5%)	25 (56.8%)	p= 0.184
Mortality	48 (54.5%)	27 (61.4%)	21 (47.7%)	p= 0.199
30-Day Mortality	39 (44.3%)	24 (54.6%)	15 (34.1%)	p= 0.035
Stroke / TIA	5 (5.7%)	4 (9.1%)	1 (2.3%)	p= 0.167
Reinfarction	1 (1.1%)	0 (0.0%)	1 (2.3%)	p= 0.315
Embolic event	1 (1.1%)	0 (0.0%)	1 (2.3%)	p= 0.315
Heart Failure	7 (8%)	3 (6.82%)	4 (9.09%)	p= 0.694
MACE	40 (45.5%)	25 (56.8%)	15 (34.1%)	p= 0.018
Necessity of RBC unit	33 (37.9%)	16 (36.4%)	17 (38.6%)	p= 0.891
Major Bleeding events (BARC ≥ 3)	54 (65.1%)	26 (59.1%)	28 (63.6%)	p= 0.662

Legend: CKD - Chronic Kidney Disease; pTn - Peak Troponin Levels; SCAI - Society for Cardiovascular Angiography and Interventions classification; MCS - Mechanical Circulatory Support (MCS); TIA - Transient Ischemic attack; MACE - Major Adverse Cardiac Event; RBC unit - Red Blood Cell unit; BARC - Bleeding Academic Research Consortium classification

Figure 1. Kaplan-Meier survival curve illustrating the cumulative survival probability over 30 days in AMICS patients treated with ticagrelor versus clopidogrel.

Figure 2. Kaplan-Meier survival curve illustrating the cumulative survival probability for MACE over 30 days in AMICS patients treated with ticagrelor versus clopidogrel.

Figure PO 243

PO 244. ANTI-THROMBOTIC THERAPY FOR AMI-CS ON MECHANICAL CIRCULATORY SUPPORT: DO WE NEED DAPT?

Rita Almeida Carvalho, Rita Lima, C. Santos-Jorge, Márcia Presume, Rui Miguel Gomes, André Moniz Garcia, Ana Rita Bello, João Presume, Catarina Brízido, Christopher Strong, Jorge Ferreira, António Tralhão

Hospital Santa Cruz ULSLO.

Introduction: Acute myocardial infarction complicated by cardiogenic shock (AMI-CS) is a critical condition with high morbidity and mortality. After primary percutaneous coronary intervention (PCI), short-term mechanical circulatory support (ST-MCS) can achieve hemodynamic stability in refractory cases. While anticoagulation (AC) is essential to mitigate ST-MCS-related thromboembolism, the concurrent use of dual antiplatelet therapy (DAPT) after PCI poses challenges regarding bleeding risk. This study assesses the spectrum of antithrombotic therapies employed and their related adverse events in AMI-CS patients undergoing ST-MCS.

Methods: This retrospective single-center study included all AMI-CS patients requiring ST-MCS admitted to our Cardiac Intensive Care Unit between January 2017 and October 2024. Only PCI-treated patients were included. Anticoagulant and antiplatelet regimens were documented from MCS initiation until resolution of cardiogenic shock, defined as the cessation of ST-MCS and/or vasoactive support. Ischemic and hemorrhagic complications during this period were analyzed.

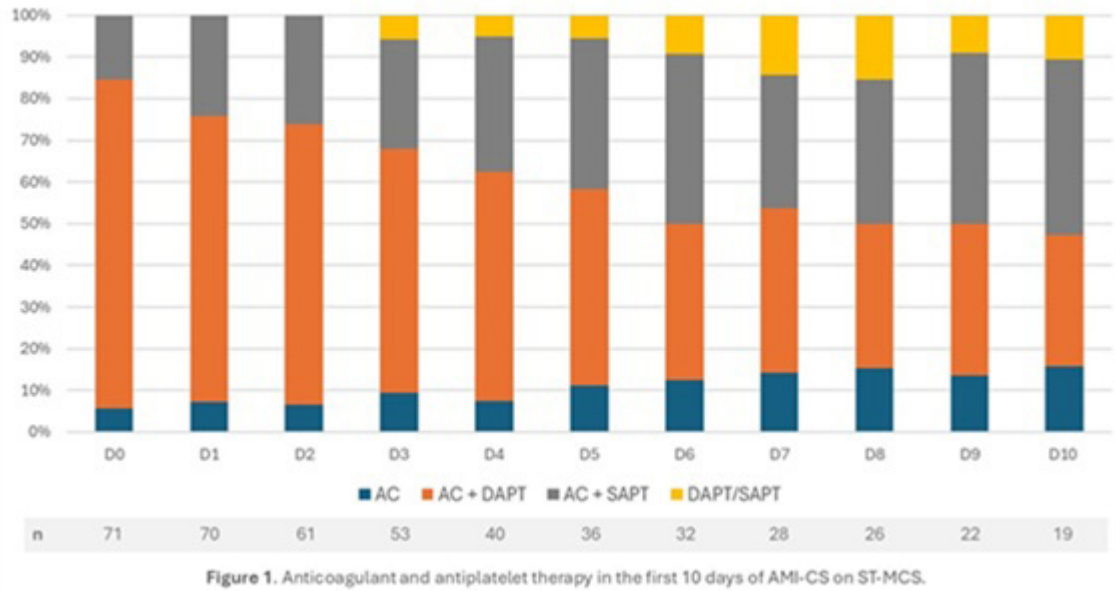


Figure 1. Anticoagulant and antiplatelet therapy in the first 10 days of AMI-CS on ST-MCS.

Figure 1 PO 244

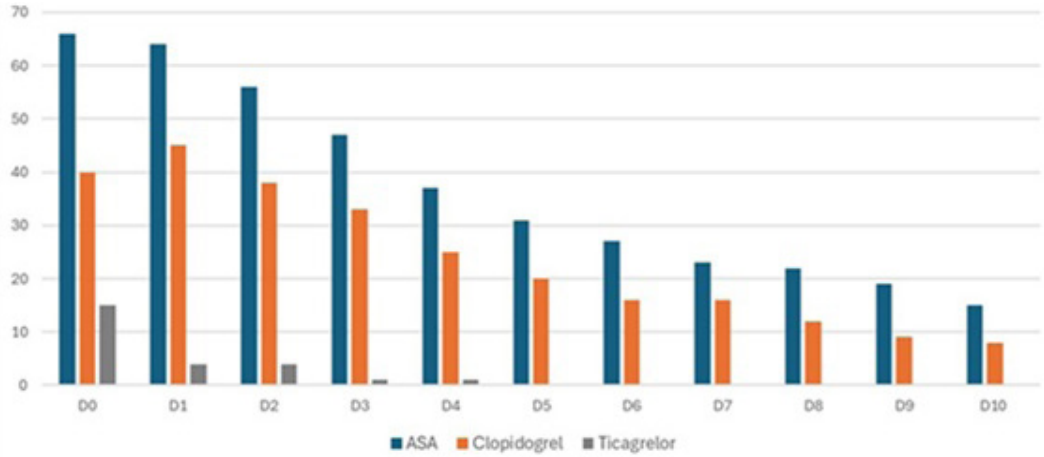


Figure 2 PO 244

Results: From 181 AMI-CS patients, 71 on ST-MCS were included (mean age 62 ± 12 years, 68% male). Sixty patients received an intra-aortic balloon pump, 11 received extracorporeal membrane oxygenation (ECMO) and 3 received an Impella CP, with 28 (39%) patients receiving more than one type of device. Ten-day and 30-day mortality rates were 32% (n = 23) and 45% (n = 32), respectively. Among the survivors, the mean time from ST-MCS implantation until resolution of cardiogenic shock was 6.7 ± 6.5 days. On Day 0 (D0), 79% (n = 56) of patients were on triple therapy (AC + DAPT) (Figure 1). After one week (D7), this proportion declined to 39% (n = 11), with 32% (n = 9) on AC with single antiplatelet therapy (SAPT) and 14% (n = 4) on AC alone. By Day 10 (D10), fewer patients remained on triple therapy, with an increasing proportion of patients on AC + SAPT (n = 8, 42%) and AC alone (n = 3, 16%). Though ticagrelor was common on D0 (n = 15, 21%), from D1 onward aspirin (ASA) and clopidogrel were the most frequently used agents (Figure 2). Ischemic complications occurred in 13% (n = 9) of patients, with ST-MCS-related limb ischemia accounting for five cases. Despite the early de-escalation of antiplatelet therapy, no cases of stent thrombosis were recorded. Hemorrhagic complications were more frequent, with 32% (n = 23) of patients presenting with Bleeding Academic Research Consortium (BARC) Grade 3 or higher events. The mean time from ST-MCS implantation to first bleeding event was 1.6 ± 1.7 days, with ECMO patients being disproportionately affected (n = 14, 61%).
Conclusions: Our findings indicate that early de-escalation of antiplatelet therapy may be safe to reduce bleeding risk. This underscores the critical importance of tailoring antithrombotic therapy for patients with AMI-CS on ST-MCS.

PO 245. PREDICTORS OF HEMORRHAGIC EVENTS IN PATIENTS WITH MYOCARDIAL INFARCTION COMPLICATED BY CARDIOGENIC SHOCK UNDERGOING DUAL ANTIPLATELET THERAPY

Samuel Azevedo, Márcia Presume, João Presume, Débora Silva Correia, Rita Barbosa Sousa, Ana Rita Bello, Rita Almeida Carvalho, Catarina Brízido, Christopher Strong, Manuel Sousa Almeida, Jorge Ferreira, António Tralhão

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Acute myocardial infarction complicated by cardiogenic shock (AMI-CS) is associated with considerable morbidity and mortality. Despite advancements in the management of these patients, bleeding complications remain prevalent and represent a critical challenge in this clinical context.
Objectives: To evaluate the incidence, etiology, and predictors of hemorrhagic events in AMI-CS patients treated with dual antiplatelet therapy (DAPT).
Methods: A retrospective analysis was performed on 154 patients with AMI-CS admitted to a cardiac intensive care unit between January 2017 and October 2024. Baseline demographics, clinical characteristics, bleeding events, and transfusion requirements were collected. Major bleeding events were defined according to Bleeding Academic Research Consortium (BARC) criteria, class ≥ 3. Univariate logistic regression analysis was used to identify

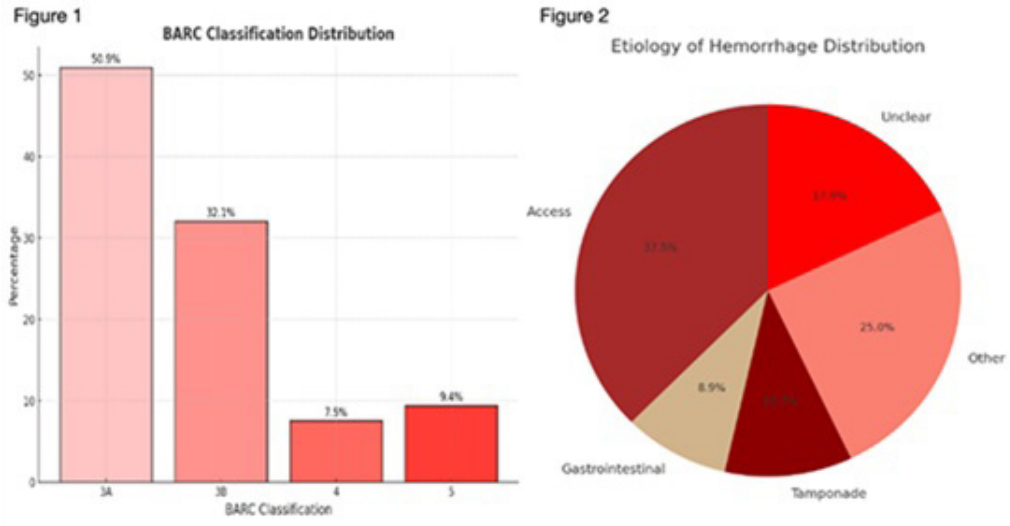


Figure PO 245

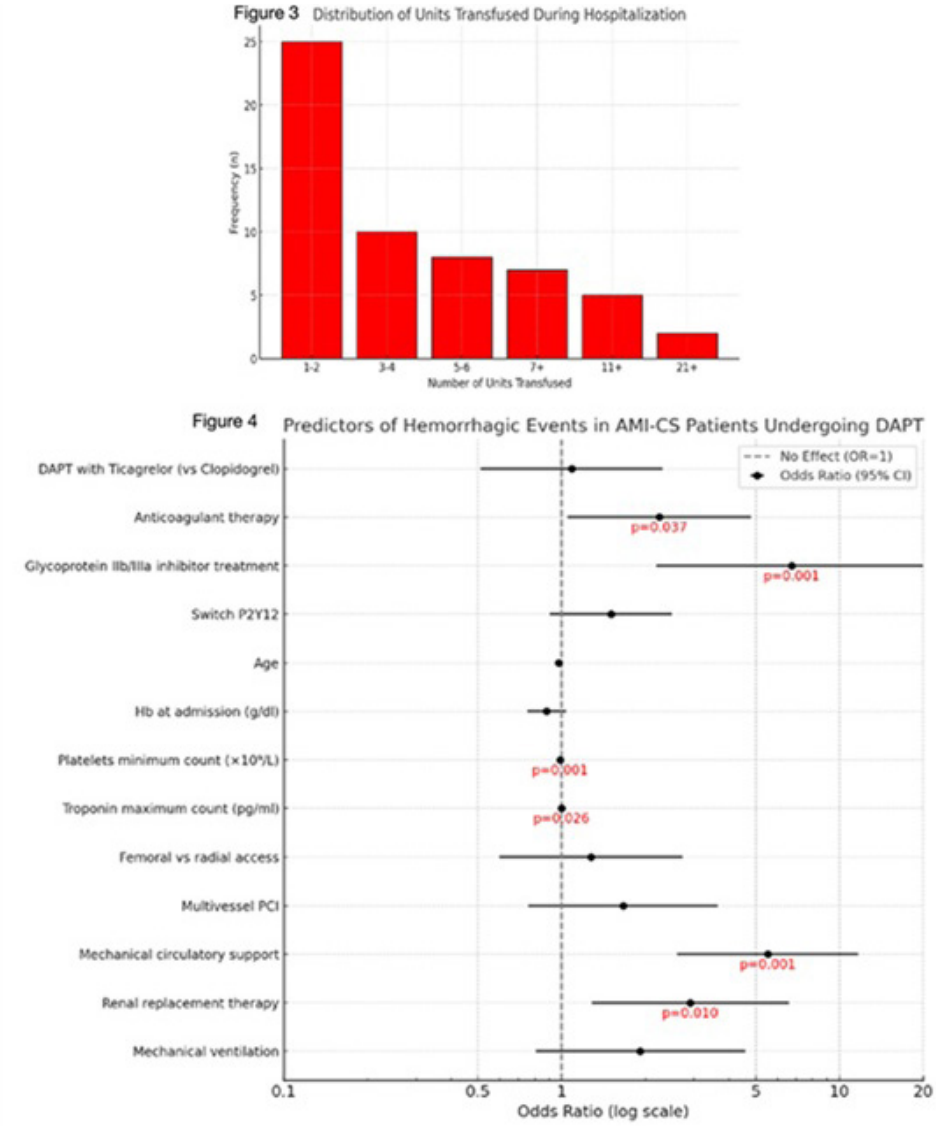


Figure PO 245 ***(cont.)***

predictors of hemorrhagic events, including demographic, clinical, laboratory, and procedural variables.

Results: The cohort had a median age of 67 years, with 65.6% male. The most prevalent comorbidities included hypertension (74%), diabetes mellitus (44.2%), and dyslipidemia (63%). Major bleeding events occurred in 29.2% of patients, with BARC3A (Figure 1) and access-site hemorrhages (Figure 2) accounting for 50.9% and 37.5%, respectively. Patients experiencing major bleeding events frequently required red blood cell transfusions, with 43.4% receiving more than four units (figure 3). Independent predictors included lower minimum platelet count [(for each 1 × 10^9/L decrease in platelet count, OR 0.986 (95%CI: 0.979-0.993; p < 0.001)], the use of mechanical circulatory support (OR: 5.517; 95%CI: 2.602-11.697 p < 0.001) and renal replacement therapy (OR: 2.906; 95%CI: 1.285-6.571 p = 0.010). Antithrombotic therapy with glycoprotein IIb/IIIa inhibitors (OR: 6.729; 95%CI: 2.183-20.745 p < 0.001) and anticoagulants (OR: 2.246; 95%CI: 1.049-4.806 p = 0.037) were strongly associated with an increased risk of major bleeding. The choice of ticagrelor (29.9%) [vs. clopidogrel (70.1%)] was not identified as a significant predictor of hemorrhagic events (Figure 4).

Conclusions: Hemorrhagic events are common in AMI-CS patients on DAPT, influenced by preexisting conditions and procedural factors. Antithrombotic therapy with glycoprotein IIb/IIIa inhibitors and anticoagulants significantly increased risk, underscoring the need for tailored strategies to manage bleeding in this high-risk population.

PO 246. ANTI-THROMBOTIC AND GLUCOSE LOWERING THERAPY IN PATIENTS WITH DIABETES AND CORONARY ARTERY DISEASE UNDERGOING PCI. FINAL REPORT ON TWO-YEAR OUTCOMES OF THE ARTHEMIS STUDY

Luís Raposo[1], Gustavo Pires Morais[2], Luís Almeida Morais[3], João Costa[4], Hugo Vinhas[5], Gustavo Campos[6], Pedro Carrilho Ferreira[7], Filipe Seixo[8], Cristina Martins[9], Diogo Rodrigues Brás[10], André Alexandre[11], Sérgio Bravo Baptista[12]

[1]Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho. [3]Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta. [4]Hospital de Braga. [5]Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro. [6]Centro Hospitalar e Universitário de Coimbra/Hospitais da Universidade de Coimbra. [7]Centro Hospitalar de Lisboa Norte, EPE/Hospital de Santa Maria. [8]Centro Hospitalar de Setúbal/ACES Arrábida. [9]Hospital Garcia de Orta. [10]Hospital do Espírito Santo, EPE, Évora. [11]Centro Hospitalar do Porto, EPE/Hospital Geral de Santo António. [12]Hospital Fernando Fonseca.

Introduction and objectives: In a nationwide prospective registry, anti-platelet and glucose-lowering prescription regimens, treatment compliance and clinical outcomes were evaluated in unselected patients with type-2

diabetes (DM) undergoing PCI with stent implantation. Current analysis reports on the final 2-year results.
Methods: Patients (N = 1,000, 68 ± 13 yo, 55.5% ACS) were recruited between January and November 2021 in 12 centres. Information on recommended therapy (namely anti-thrombotic strategy), compliance, vital status, as well as ischemic, heat failure and bleeding events were captured at 6, 12, 18 and 24-months at each participating centre, and summarized at 12 and 24-months as appropriate.
Results: Data on vital status was available for 98.2% and 96.6% of pts at 12 and 24-months, respectively. Total and cardiovascular mortality rates were 7.4% and 2.3% at 2-years. Ischemic MACE (death+MI+revasc) occurred in 17.7% of pts (mostly repeat revascularizations [9.7%]) and the rate of admission for heart failure was 3.9%. Baseline ischemic DAPT-Score (≥ 2) was not associated with MACE (17.6 vs. 18.5% in High vs. Low risk; p = 0.75). Haemorrhagic events were reported in 11.4% of pts (15.6 vs. 9.3% in High vs. Low baseline PRECISE-DAPT bleeding risk; p = 0.007), being mostly BARC-1 (n = 41/99), and one fatal bleeding (0.1%). At the 12-months landmark, anti-platelet regimens were consistent with baseline strategy in 71.6% of cases. In the remaining, 5.8% were on (or changed to) a less aggressive regimen; conversely, 19.2% changed in the opposite direction (more aggressive treatment), a proportion that rose to 40.9% at 2-years. Change was mostly driven by medical decision (66% of cases). Use of SGT2 and GLP-1 inhibitors (but not other glucose-lowering drugs), increased steadily over time. As compared to baseline, metabolic control consistently improved over the observation period (HbA1c 7.6% at inclusion vs. 7.1% at 1 and 2-years; p = 0.002 Related-Samples Friedman's Ranked Two-Way ANOVA).
Conclusions: In this cross-sectional study of a representative population of patients with DM and CAD warranting stent implantation, both ischemic and bleeding event rates were significant. Maintenance of potent anti-platelet regimens remained frequent over time, likely as a consequence of recurrent ischemic events. Prescription of prognosis-modifying drugs for diabetes increased steadily, and metabolic control improved significantly over the study period.

PO 247. TRENDS IN P2Y12 INHIBITOR USE AFTER ACUTE CORONARY SYNDROMES IN PORTUGAL: A DECADE OF INSIGHTS FROM THE PROACS REGISTRY

Ana Inês Aguiar Neves[1], Marta Leite[1], Rafael Silva Teixeira[1], Fábio Sousa Nunes[1], Marta Ponte[1], Marisa Passos-Silva[1], Adelaide Dias[1], Daniel Caeiro[1], Ricardo Fontes-Carvalho[1], Portuguese Registry of Acute Coronary Syndromes Investigators[2]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]CNCDC.

Introduction: The choice of P2Y12 inhibitors, namely clopidogrel, ticagrelor, and prasugrel, in dual antiplatelet therapy (DAPT) is critical following percutaneous coronary intervention (PCI) for acute coronary syndromes (ACS). This study examines trends in P2Y12 inhibitor prescription from 2010 to 2023, focusing on shifts in utilization across different patient demographics and clinical presentations.
Methods: Patients with a diagnosis of acute coronary syndrome upon hospital admission who were enrolled in the ProACS registry between January 2011 and December 2023 were included if they underwent PCI and received DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, ticagrelor or prasugrel) during the index hospitalization. Patients treated conservatively, referred for surgical revascularization, or with missing data concerning the therapeutic strategy were excluded. P2Y12 prescription patterns were stratified by age, sex, clinical diagnosis, and in-hospital outcomes. Changes in prescription patterns over time were assessed using p-trend analysis.
Results: Among 12 147 patients (24.3% female), clopidogrel was the most commonly prescribed P2Y12 inhibitor (67%), followed by ticagrelor (32%) and prasugrel (1%). Significant changes in prescription patterns were observed: clopidogrel use decreased progressively, with ticagrelor becoming the preferred agent post-2015, although a downtrend was noted after 2021. Prasugrel use remained low but increased slightly in 2022-2023. Clopidogrel use was more common in older patients (median age 65.7 [IQR 55.7-75.7] years) with comorbidities such as diabetes and hypertension. In comparison, ticagrelor and prasugrel were predominantly used in younger patients (median age 62.8 [IQR 53.9-71.5] years and 57.3 [IQR 52.1-64.7] years, respectively) and those presenting with ST-elevation myocardial infarction. Clopidogrel showed a relative increase in prescription rates among female patients after ACS from 2017 onwards, with women making up a maximum of 35% of patients prescribed clopidogrel in 2019 (p-value for trend < 0.001). When stratified by sex, no significant differences were observed in prescription trends for ticagrelor, prasugrel, or overall P2Y12 inhibitor use.
Conclusions: This study highlights evolving trends in P2Y12 inhibitor prescriptions, driven by patient demographics, clinical factors, and updated guidelines. In this Portuguese registry, clopidogrel was the most frequently prescribed second antiplatelet agent in patients who underwent PCI after ACS. However, a notable decline in clopidogrel use was observed over time, coinciding with an increase in ticagrelor prescriptions, which has since become the predominant choice.

PO 248. TICAGRELOR VERSUS CLOPIDOGREL IN PATIENTS WITH STEMI TREATED WITH FIBRINOLYSIS: A RETROSPECTIVE REAL-WORLD ANALYSIS

Margarida Câmara Farinha, Inês Coutinho dos Santos, Fabiana Duarte, André Viveiros Monteiro, Maria Inês Barradas, Luís Oliveira, António Fontes, Santos Serena, Carina Machado, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: In remote locations, thrombolytic therapy provides a critical alternative for patients with ST-segment elevation myocardial infarction (STEMI) when percutaneous coronary intervention (PCI) is not immediately accessible.

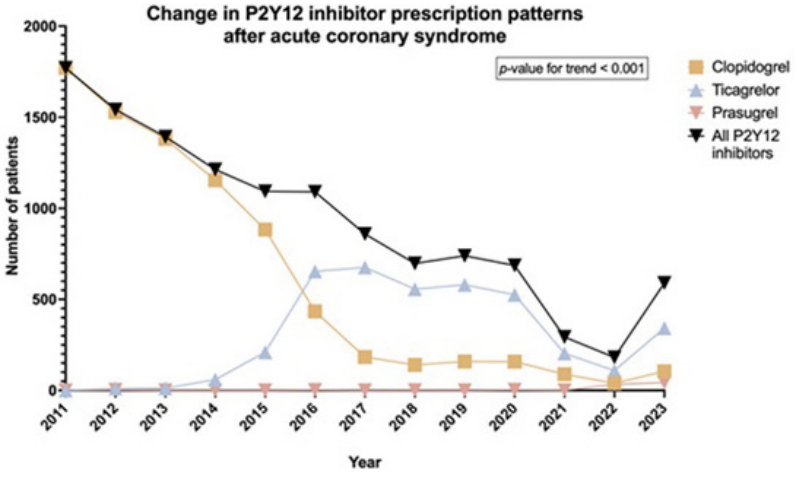


Figure PO 247

Clopidogrel remains the recommended choice during the peri-thrombolytic phase, primarily due to concerns regarding haemorrhagic complications. However, data on the use of ticagrelor in this setting remain limited.
Objectives: To compare outcomes between STEMI patients who underwent fibrinolysis with clopidogrel and ticagrelor.
Methods: We conducted a retrospective study of STEMI patients who underwent fibrinolysis between 2020 and 2023 and were subsequently transferred to our center for facilitated or rescue PCI. Patients were divided into two groups based on antiplatelet therapy: Group 1 with clopidogrel and Group 2 with ticagrelor. The primary endpoint was a combined outcome of cardiovascular mortality, myocardial infarction or stroke. The secondary endpoint was intrahospital haemorrhagic complications according to TIMI definition.
Results: A total of 154 patients were included (mean age 61.3 ± 12.6 years, 29% women): 78 with clopidogrel (Group 1) and 76 with Ticagrelor (Group 2). No differences were found between groups regarding hypertension (75.6 vs. 64.5%, p = 0.13), diabetes (29.5 vs. 30.3%, p = 0.92), dyslipidaemia (71.8 vs. 58.7%, p = 0.09), smoking (62.8 vs. 71.1%, p = 0.28), overweight (71.8 vs. 75%, p = 0.65), and previous coronary disease (12.8 vs. 13.2%, p = 0.95). Primary endpoint was observed without significant difference in 10.3% of patients in Group 1 and 9.2% in Group 2 (p = 0.83). Regarding haemorrhagic complications, TIMI minimal bleeding was more frequent in Group 2 (16.7 vs. 31.6%, p = 0.03). However, rates of TIMI bleeding requiring medical attention and major bleeding were comparable between the groups (3.8 vs. 3.9%, p = 0.97 and 1.3 vs. 1.3%, p = 0.99 respectively).
Conclusions: In our real-world remote setting, ticagrelor demonstrated a similar efficacy and safety profile compared to clopidogrel as adjunctive therapy of fibrinolysis in STEMI patients. Its use in the peri-thrombolytic phase could potentially simplify treatment protocols by eliminating the need to switch antiplatelet therapy.

PO 249. COMPARATIVE IN-HOSPITAL OUTCOMES OF P2Y12 INHIBITORS FOLLOWING ACUTE CORONARY SYNDROMES: EVIDENCE FROM THE PROACS REGISTRY

Ana Inês Aguiar Neves[1], Marta Leite[1], Rafael Silva Teixeira[1], Fábio Sousa Nunes[1], Marta Ponte[1], Marisa Passos Silva[1], Adelaide Dias[1], Daniel Caeiro[1], Ricardo Fontes-Carvalho[1], Portuguese Registry of Acute Coronary Syndromes Investigators[2]

[1]*Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.* [2]*CNCDC.*

Introduction: The choice of P2Y12 inhibitor in dual antiplatelet therapy (DAPT) following percutaneous coronary intervention (PCI) may influence in-hospital outcomes in patients with acute coronary syndromes (ACS). This study aims to retrospectively evaluate the comparative effectiveness of the second antiplatelet agent with regard to in-hospital mortality, reinfarction and bleeding events using data from a Portuguese registry.
Methods: Patients with a diagnosis of ACS upon hospital admission who were enrolled in the ProACS registry between January 2011 and December 2023 were included if they underwent PCI and received DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, ticagrelor or prasugrel) during the index hospitalization. Patients treated conservatively, referred for surgical revascularization, or with missing data regarding the therapeutic strategy were excluded. Incidences of reinfarction, cerebrovascular events, bleeding complications, and arrhythmias were compared across the three groups.
Results: Among 12 147 patients (24.3% female), clopidogrel was the most commonly prescribed P2Y12 inhibitor (67%), followed by ticagrelor (32%) and prasugrel (1%). In comparison with ticagrelor or prasugrel, clopidogrel was more frequently prescribed in older patients (median age 65.7 [IQR 55.7-75.7] years for clopidogrel, 62.8 [IQR 53.9-71.5] years for ticagrelor and 57.3 [IQR 52.1-64.7] years for prasugrel) and in patients with comorbidities including diabetes and hypertension. When compared to the ticagrelor group, patients on clopidogrel were more likely to have significant left main disease (6.6 vs. 4.9%), have a reduced left ventricular ejection fraction (40.5 vs. 28.1%), have a higher median BNP level (267 [IQR 114, 641] pg/ml vs. 111.5 [IQR 43, 288] pg/ml), require inotropic therapy (4.6 vs. 2.8%) and to have undergone femoral access for invasive coronary angiography (37.9 vs. 10.0%; $p < 0.001$ for all). Clopidogrel use was associated with higher rates of in-hospital mortality (2.2 vs. 1.2%, p < 0.001), cerebrovascular events (0.6 vs. 0.3%, p = 0.032), and major bleeding events (0.9 vs. 0.3%, p = 0.001) when compared to ticagrelor. No major bleeding events, cerebrovascular accidents or in-hospital mortality events were observed in the prasugrel group. Patients prescribed clopidogrel also experienced more frequent complications, including acute heart failure, arrhythmias, and cardiogenic shock, compared to those on ticagrelor or prasugrel ($p < 0.05$ for all).
Conclusions: In this cohort, patients prescribed clopidogrel after ACS tended to be older and present more comorbidities than those prescribed prasugrel or ticagrelor. Clopidogrel use was associated with worse in-hospital outcomes, which may reflect higher baseline risk and a greater number of comorbidities in these patients.

PO 250. EARLY DOAC THERAPY AFTER INVASIVE ACUTE PULMONARY EMBOLISM THERAPY: FAST TRACK PE?

Débora da Silva Correia, Rita Barbosa, Rita Bello, João Brito, Afonso Félix de Oliveira, João Presume, Christopher Strong, Catarina Brízido, António Tralhão, Sílvio Leal, Manuel de Sousa Almeida, Pedro Adragão

Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Percutaneous invasive therapies, including catheter-directed thrombolysis (CDT) and mechanical thrombectomy (MT), have emerged as treatment options for high-risk and selected intermediate high-risk PE.

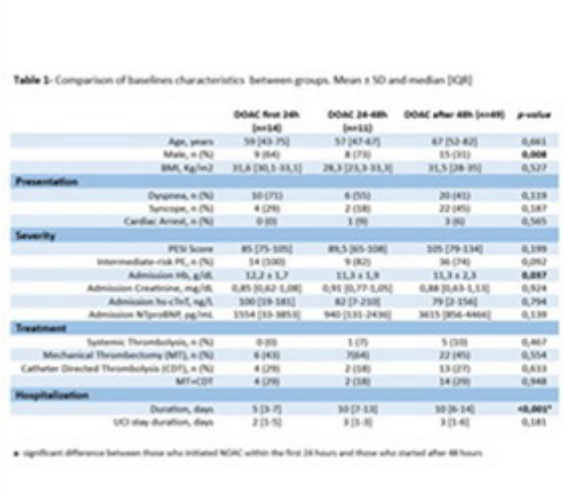


Table 1- Comparison of baselines characteristics between groups. Mean ± SD and median [IQR]

	DOAC first 24h (n=114)	DOAC 24-48h (n=11)	DOAC after 48h (n=19)	p-value
Age, years	59 [43-75]	57 [47-67]	67 [52-82]	0,661
Male, n (%)	9 (64)	8 (73)	15 (31)	**0,008**
BMI, Kg/m2	31,6 [30,1-33,1]	28,3 [23,3-33,3]	31,5 [28-35]	0,527
Presentation				
Dyspnea, n (%)	10 (71)	6 (55)	20 (41)	0,119
Syncope, n (%)	4 (29)	2 (18)	22 (45)	0,187
Cardiac Arrest, n (%)	0 (0)	1 (9)	3 (6)	0,565
Severity				
PESI Score	85 [75-105]	89,5 [65-108]	105 [79-134]	0,199
Intermediate-risk PE, n (%)	14 (100)	9 (82)	36 (74)	0,092
Admission Hb, g/dl	12,2 ± 1,7	11,3 ± 1,9	11,3 ± 2,3	**0,037**
Admission Creatinine, mg/dl	0,85 [0,62-1,08]	0,91 [0,77-1,05]	0,88 [0,63-1,13]	0,924
Admission hs-cTnT, ng/L	100 [19-181]	82 [7-210]	79 [2-156]	0,794
Admission NTproBNP, pg/mL	1554 [33-3853]	940 [131-2436]	3615 [856-4466]	0,139
Treatment				
Systemic Thrombolysis, n (%)	0 (0)	1 (7)	5 (10)	0,467
Mechanical Thrombectomy (MT), n (%)	6 (43)	7(64)	22 (45)	0,554
Catheter Directed Thrombolysis (CDT), n (%)	4 (29)	2 (18)	13 (27)	0,633
MT+CDT	4 (29)	2 (18)	14 (29)	0,948
Hospitalization				
Duration, days	5 [3-7]	10 [7-13]	10 [6-14]	**<0,001***
UCI stay duration, days	2 [1-5]	3 [1-3]	3 [1-6]	0,181

* significant difference between those who initiated NOAC within the first 24 hours and those who started after 48 hours

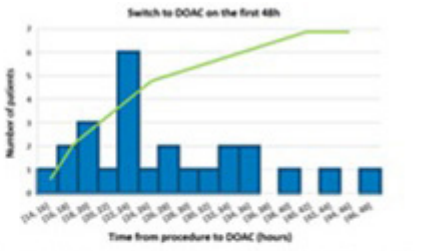


Figure 1- Distribution of NOAC Initiation Timing Within the patients that switched to NOAC on the first 48 Hs

Table 2- Multivariate analysis of predictors of early switch to DOAC (first 48h)

	Adjusted Hazard Ratio	95% CI	p-value
Male	0,340	0,124-0,936	**0,037**
Syncope at presentation	0,739	0,172-3,142	0,685
Dyspnea at presentation	0,947	0,234-3,336	0,939
Systolic BP at presentation	1,025	1,002-1,048	**0,031**
Admission Hb	1,031	0,795-1,338	0,816
Intermediate-risk PE	0,935	0,248-3,524	0,921
Saddle Thrombus	0,323	0,114-0,914	**0,033**

Figure PO 250

Patients undergoing these procedures were excluded from the landmark DOAC trials, so the safety and efficacy of early DOAC therapy in this setting remains unexplored. We aimed to access these outcomes in a cohort of invasively treated PE patients.
Methods: Retrospective cohort study analysing PE patients who underwent CDT and/or MT at a tertiary centre from 2020 to 2024. Patients were grouped based on the timing of DOAC initiation: within 24 hours (group 1), between 24-48 hours (group 2), and after 48 hours (group 3). The primary safety outcome was major bleeding events according to International Society on Thrombosis and Haemostasis (ISTH) criteria, and the primary effectiveness outcome was venous thromboembolism recurrence.
Results: A total of 74 patients (mean age 59 ± 16 years; 43% male) underwent percutaneous interventions for PE, 47% with MT, 26% with CDT using recombinant tissue-type plasminogen activator (rt-PA), and 27% with both. All patients received unfractionated heparin post-procedure. A total of 14 patients initiated DOAC (apixaban or rivaroxaban) within 24 hours, and 11 additional patients within 48 hours (Figure 1). No significant baseline differences were observed between groups, except for higher admission haemoglobin in Group 1 and male gender in group 2 (Table 1). However, group 3 had more patients with syncope or cardiac arrest, and higher PESI scores and NTproBNP levels. Systemic rt-PA was administered in 1 patient in group 2 and 5 patients in group 3 (p = 0.47). The type of invasive PE therapy was comparable across groups. The low number of bleeding complications (9 major bleeding events) occurred mostly in group 3, and all during index hospitalization. At 30-days follow-up, no venous thrombosis recurrence had occurred. Patients on group 1 experienced a significantly shorter hospital stay compared to those on group 3 (5 days [3-7] vs. 10 days [6-14], p < 0.001). No differences were noted between groups 1 and 2. On multivariate analysis, female sex, higher systolic blood pressure, and the absence of a saddle thrombus were identified as predictors of an early switch to DOAC within the first 48 hours (Table 2).
Conclusions: Early initiation of DOACs following MT and/or CDT for acute PE appears to be a safe approach. Moreover, no signs of lower efficacy were raised by this analysis and is additionally associated with a shorter hospital stay. Patient selection criteria for this treatment strategy should be further analysed, to allow shorter hospitalizations and improve patient outcomes.

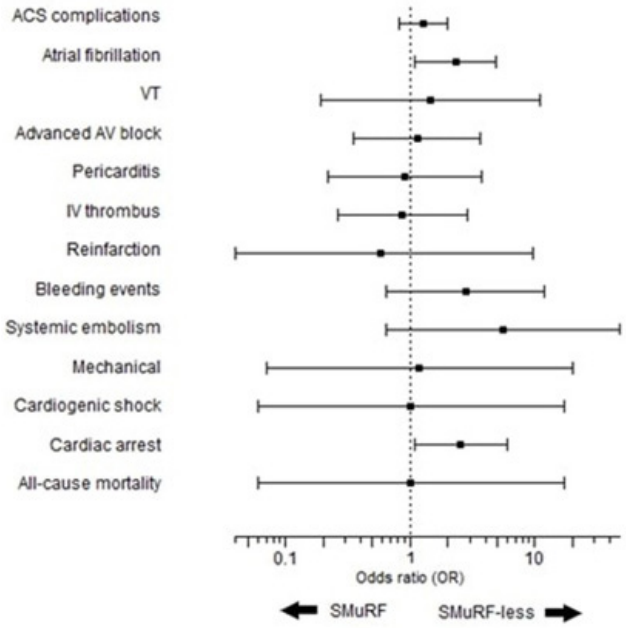
PO 251. ACUTE CORONARY SYNDROMES WITHOUT THE USUAL SUSPECTS: PREVALENCE AND CLINICAL OUTCOMES OF PATIENTS WITHOUT STANDARD MODIFIABLE RISK FACTORS (SMURF-LESS)

Helena Sofia Santos Moreira, Pedro Mangas Palma, Miguel Rocha, Cátia Oliveira, Ana Isabel Pinho, Luís Santos, Joana Gonçalves, Bernardo Cruz, Emanuel Oliveira, Rui André Rodrigues, Ana Lebreiro

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Clinical outcomes of acute coronary syndromes (ACS) in patients (pts) without standard modifiable risk factors (SMuRF) are reportedly comparable, yet this population remains underrepresented in major clinical trials, raising the need for further research.
Objectives: To describe and compare the prevalence and clinical outcomes of SMuRF and SMuRF-less pts hospitalized with ACS.
Methods: We conducted a retrospective analysis on pts admitted due to ACS in our centre from 2009 to 2023. Pts were categorized as SMuRF (≥ 1 risk factor: arterial hypertension, dyslipidemia, overweight, smoking and diabetes mellitus) or SMuRF-less (no standard risk factors). The primary individual endpoints included in-hospital all-cause mortality and ACS complications. Comprehensive data was collected via medical records review.
Results: A total of 3,539 pts were included, with 96.5% (n = 3,415) classified as SMuRF and 3.5% (n = 124) as SMuRF-less. SMuRF-less pts were mostly female (52.4% in SMuRF-less vs. 32.3% in SMuRF; p < 0.001; OR 2.3, 95%CI: 1.6-3.3). Other baseline characteristics, including mean age (64 ± 13 years; p = 0.074), family history of premature cardiovascular (CV) disease (7.3%; p = 0.97), and prior coronary revascularization (12%; p = 0.89), were similar. Arterial hypertension and dyslipidemia were the most prevalent risk factors in SMuRF pts (68%). Non-ST segment elevation myocardial infarction (NSTEMI) was the most common diagnosis in both groups (45.1% in SMuRF vs. 45% in SMuRF-less; p = 0.26). SMuRF-less pts presented more frequently with cardiac arrest (4.8% in SMuRF-less vs. 1.96% in SMuRF; p = 0.041; OR 2.4, 95%CI: 1.08-5.98) while SMuRF pts tended to have more multivessel disease (56.8%; p = 0.001; OR 1.8, 95%CI: 1.26-2.69). Most pts had percutaneous coronary intervention (56.4% in SMuRF vs. 54.8% in SMuRF-less; p = 0.59).

Figure 1. Forest plot illustrating the primary endpoints.



ACS: Acute coronary syndrome; AV: Atrioventricular; IV: Intraventricular; SMuRF: Standard Modifiable Risk Factors; VT: Ventricular tachycardia.

Figure PO 251

Approximately one-fourth of the pts had ACS complications (16.7% in SMuRF vs. 20.2% in SMuRF-less; p = 0.31) (Figure 1). Rhythm disturbances were the most frequent, with new-onset of atrial fibrillation (AF) being more common in SMuRF-less pts (32% in SMuRF-less vs. 17.4% SMuRF; p = 0.032; OR 2.3, 95%CI 1.10-4.86). Cardiogenic shock and mechanical complications accounted for 2% of the SMuRF complications, with no cases in SMuRF-less pts (p = 0.68 and p = 0.63, respectively). In-hospital mortality was low (0.4% in SMuRF vs. no deaths in SMuRF-less; p = 0.63). Both groups had median discharge at 6 days (IQR 5; p = 0.89).
Conclusions: SMuRF-less pts represented a small subset of the ACS population in our study, likely reflecting the high prevalence of CV risk factors. Within the SMuRF-less pts there was a notable predominance of female pts, as well as higher rates of cardiac arrest at presentation and new-onset of AF during hospitalization. These findings highlight the need for targeted research and tailored strategies to optimize care for this underrepresented population.

Sábado, 12 Abril de 2025 | 12:30-13:30

Área de Posters-écran 1| Sessão de Posters 38 – Análise de deformação miocárdica

PO 252. MYOCARDIAL WORK BY SPECKLE-TRACKING ECHOCARDIOGRAPHY IN PACEMAKER CARRIERS ACCORDING TO PACING SITE

Diana Ribeiro, Andreia Campinas, Ricardo Costa, André Alexandre, David Sá Couto, Mariana Pereira Santos, Bruno Brochado, Maria João Sousa, Pinheiro Vieira, Hipólito Reis, Sofia Cabral, Severo Torres

Unidade Local de Saúde de Santo António.

Introduction: The optimal lead position for right ventricle (RV) pacing remains unclear. Myocardial work (MW) has emerged as a more sensitive tool for assessing left ventricular (LV) systolic function.
Objectives: To compare MW and global longitudinal strain (GLS) between right ventricular non-apical pacing (RVNAP), RV apical pacing (RVAP) and patients without pacemaker (PMK).
Methods: A cross-sectional single-center study on double-chamber PMK carriers categorized by RV pacing site according to fluoroscopic and electrocardiographic criteria. Moderate/severe valvular disease, LV ejection fraction (LVEF) < 50%, segmental wall-motion abnormalities, pulmonary hypertension, cardiomyopathies, or RV dysfunction were exclusion criteria. RVNAP and RVAP groups (30 and 25 patients, respectively) were compared against 26 age-matched patients. GLS and MW parameters (GWI: Global Work Index; GCW: Global Constructive Work; GWW: Global Wasted Work; GWE: Global Work Efficiency) using speckle tracking imaging were compared between groups. RV pacing was required at imaging acquisition.
Results: The baseline data of the three groups were well-matched (all p = NS). Regarding echocardiography analysis, aside from GCW, which had no differences between groups, GWE and GLS were higher in the control group, whereas GWI was significantly higher in the control group but only in relation to the RVAP group (all p < 0.05). Contrarily, GWW was statistically higher in pacing groups (p < 0.05).
Conclusions: Our findings indicate a reduced efficiency in LV deformation and myocardial energy management in PMK carriers, without a significant influence of the pacing site. These results establish a proof of concept for the detrimental impact of right ventricular (RV) pacing on LV performance.

PO 253. GLOBAL LONGITUDINAL STRAIN AND STRAIN RATE AS MARKERS OF SUBCLINICAL SYSTOLIC DYSFUNCTION IN PATIENTS WITH MODERATE AORTIC STENOSIS

Inês Arrobas Rodrigues[1], Rafael Teixeira[1], António Santos[2], António Gonçalves[1], Leonor Moura[1], Marta Almeida[1], André Lobo[1], Inês Neves[1], Marta Leite[1], Fábio Nunes[1], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Aortic stenosis (AS) induces an adaptative ventricular remodeling leading to left ventricular (LV) hypertrophy as a compensatory response to increased afterload. While this adaptation temporarily preserves normal ejection fraction (EF), significant myocardial dysfunction may already be developing. Once LVEF begins to decline, it may not recover even after aortic valve replacement (AVR). Therefore, identifying alternative markers to detect subclinical dysfunction before EF deterioration is crucial to improving patient outcomes.
Objectives: To explore the role of baseline left ventricle global longitudinal strain (GLS) and strain rate (SR) as markers of subclinical LV dysfunction, predictors of LVEF decline, and their impact on survival of patients with moderate AS.
Methods: Patients with moderate AS and LVEF ≥ 50% in at least 2 previous echocardiograms were retrospectively identified. Prosthetic and bicuspid valves were excluded. Baseline LV GLS and SR were used as covariates in cox regression models to predict the cumulative incidence of LVEF depression over 5 years and overall survival after multivariable adjustment including time-dependent AVR.
Results: A total of 574 patients were included (age 76 ± 9 years; 51% female; median follow-up time of 8.97 years). The average baseline aortic peak velocity was 3.4 ± 0.8 m/s, mean pressure gradient was 25 ± 9 mmHg, aortic valve area was 1.1 ± 0.3 cm^2, and LVEF 60 ± 5%. The mean GLS was -17 ± 7% and the peak systolic SR was 1.2 ± 0.5/s. Both baseline GLS (HR = 0.88 for each -1%; 95%CI = 0.79-0.99; p = 0.04) and SR (HR = 0.89 for each +0.1/s; 95%CI = 0.80-0.99; p = 0.03) were associated with a 5-year incidence of LVEF depression (< 50%). Incorporating SR to GLS improved risk discrimination (increase in area under curve from 0.78 to 0.84; 95%CI = 0.01-0.10; p = 0.04). Furthermore, a nonlinear relation was found between GLS (optimal boundary < -15.8%; p = 0.35) and SR (optimal boundary > 0.96/s; p = 0.34) and overall survival.
Conclusions: This study establishes baseline GLS and SR as predictors of LVEF depression in moderate AS emphasizing their role in detecting subclinical LV dysfunction. The combined use of GLS and SR may enhance the prediction of LV function decline, supporting their potential utility in planning early interventions strategies. Although their direct relationship with survival needs further exploration, these findings highlight the importance of incorporating GLS and SR in AS management to enable timely AVR and improve patient outcomes.

PO 254. IMPACT OF CARDIOVASCULAR RISK FACTORS IN MYOCARDIAL WORK

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[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital da Luz Setúbal.

Introduction: Myocardial work (MW) is an emerging echocardiographic tool that quantifies left ventricular function through pressure–strain loops. Validated against invasive pressure–volume measurements, MW provides a comprehensive assessment of myocardial performance. In this study, we evaluated the prevalence and severity of subclinical left ventricular dysfunction in a general population and examined its association with cardiovascular (CV) risk factors.
Methods: We conducted a retrospective, single-center analysis of patients with no known cardiovascular disease, who underwent MW assessment between January 2022 and November 2024. Participants were characterized based on traditional CV risk factors, and MW parameters were analyzed,

Impact of Cardiovascular Risk Factors in Myocardial Work - Univariable Analysis									
		GWE (%)	p-value	GWI (mmHg%)	p-value	GCW (mmHg%)	p-value	GWW (mmHg%)	p-value
Sex	Male	92.2 ± 4.3	**0.002**	1536.4 ± 303	0.287	1900.8 ± 312	0.904	148.2 ± 93	**<0.001**
	Female	91.2 ± 4.5		1566 ± 307		1907.4 ± 379		182.8 ± 95	
BMI ≥25	Yes	91.5 ± 4.5	**0.014**	1543.5 ± 314	0.368	1891.9 ± 335	0.472	166 ± 96	0.696
	No	92.4 ± 4		1571.5 ± 280		1936 ± 365		161.7 ± 94	
BMI ≥30	Yes	90.7 ± 4.9	**0.007**	1557.4 ± 300	0.380	1924.8 ± 333	0,121	158.7 ± 109	**0.028**
	No	92 ± 4.3		1526.8 ± 325		1819.7 ± 373		189.1 ± 91	
HTN	Yes	91.8 ± 4.4	0.546	1563.1 ± 311	0.338	1937.3 ± 343	0.079	161.3 ± 98	0.425
	No	91.6 ± 4.3		1536.2 ± 298		1836.1 ± 336		169.2 ± 92	
Diabetes	Yes	91.3 ± 4.4	0.274	1492.5 ± 315	0.065	1826.6 ± 308	0.147	160.4 ± 85	0.695
	No	91.8 ± 4.4		1562.5 ± 303		1923.8 ± 350		165.6 ± 97	
Hypercholesterolemia	Yes	92.0 ± 4.3	**0.033**	1553.4 ± 296	0.842	1920.9 ± 328	0.304	155.2 ± 94	**0.016**
	No	91.2 ± 4.5		1547.7 ± 321		1858.4 ± 378		179.2 ± 96	
Smokers	Yes	92.4 ± 4	**0.009**	1528.1 ± 289	0.268	1886.6 ± 305	0.639	150 ± 83	**0.037**
	No	91.4 ± 4.6		1561.5 ± 312		1913.3 ± 363		170.9 ± 99	

Figure PO 254

including global constructive work (GCW), global wasted work (GWW), global work index (GWI), and global work efficiency (GWE).

Results: A total of 822 patients were included (52.8% male, mean age 63 ± 11 years, BMI 27.5 ± 3.8 kg/m²). Among them, 21% were obese, 14% had diabetes, 65% had hypercholesterolemia, and 39% were smokers or recent quitters. Only 15% had no CV risk factors. Basal clinical and echocardiographic parameters were withing the normal range: SBP 124 ± 16 mmHg, DBP 74 ± 10, LVEF 59.7 ± 7, E/e' 7.3 ± 2.5, PASP 23 ± 6 mmHg, GWE 91.7 ± 4.4%, GWI 1551 ± 305 mmHg%, GCW 1903 ± 343 mmHg% and GWW 165 ± 95 mmHg%. Univariable analysis revealed that GWW and GWE were significantly associated with sex, age, obesity, hypercholesterolemia, and smoking (Table 1). Multivariable analysis identified obesity and hypercholesterolemia as independent predictors of GWW and GWE, explaining 8% of the variance (partial $\eta^2 = 0.08$). After adjusting for age and sex, obesity remained the sole independent determinant of GWW and GWE. Obese patients had higher GWW (189 ± 109 vs. 159 ± 91 mmHg%, p = 0.028) and lower GWE (90.7 ± 4.9 vs. 92.0 ± 4.3%, p = 0.007).

Conclusions: This study highlights that obesity is a key, independent contributor to impaired myocardial efficiency, reflected by higher GWW and lower GWE. These findings underscore the importance of targeting obesity as a modifiable risk factor to mitigate early left ventricular dysfunction and improve cardiovascular outcomes.

PO 255. OPTIMIZED MEDICAL THERAPY ENHANCES LEFT ATRIAL STRAIN IN HFREF PATIENTS: A NOVEL PROGNOSTIC INDICATOR

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Introduction: Left atrial strain (LAS) has emerged as a precise method to evaluate left atrial (LA) function, and recent studies suggest that LAS correlates with NTproBNP levels and adverse outcomes in heart failure (HF) patients (pt). However, the impact of optimized medical therapy (OMT) on LAS remains unclear.

Objectives: To evaluate differences in LAS after OMT and to investigate the correlation between LAS and NTproBNP levels at follow-up (FUP).

Methods: Single-center retrospective study included pts with HF with reduced ejection fraction (HFrEF) from 2021 to January 2024. Echocardiography data were collected at baseline and at least 3 months after OMT. Speckle tracking LAS was performed using General Electric's post-processing system by two different operators, calculating Reservoir (LASr), Conduit (LASc), and Contractile (LASct) strain. The left atrioventricular coupling index (LACi) was calculated by dividing end-diastolic LA and left ventricular (LV) volumes. For statistical analysis, Chi-square tests, Pearson correlation and t Student test were used as appropriate.

Results: We included 23 pts, 41% men, with a mean age of 64 ± 9 years. Most pts had dilated cardiomyopathy (50%) followed by ischemic cardiomyopathy (36%). At baseline, 94.5% of pts were in NYHA class II or higher, mean NTproBNP levels were 2721 ± 4756 pg/ml. Differences in treatment at baseline, OMT and FUP are presented in Table 1. At baseline, LAS correlated with LV dysfunction and filling pressures: lower LASct strongly correlated with higher E/E' ratio and LACi (p = 0.009, r = 0.64; p = 0.034, r = 0.53, respectively), lower LASc strongly correlated with lower EF (p = 0.006, r = -0.596), and lower LASr strongly correlated with lower EF, higher E/E', and LACi (p = 0.023, r = 0.507; p = 0.013, r = -0.706; p = 0.007, r = -0.646, respectively). After OMT, there was a significant improvement in LAS (LASc -5.6 ± 3 vs. -10.2 ± 7%, p = 0.015; LASct -5.5 ± 5 vs. -11 ± 6%, p = 0.002; LASr 10.8 ± 3 vs. 21.8 ± 11%, p < 0.001), independent of sex, atrial fibrillation, and HF etiology. A strong correlation was observed between LAS improvement and reduction of diuretic dose (LASc p = 0.049, r = 0.54; LASct p = 0.43, r = 0.55; LASr p = 0.031, r = -0.57) as well as reduction of NTproBNP levels (LASc p < 0.001, r = 0.717; LASct p = 0.001, r = 0.657; LASr p < 0.001, r = -0.79) during a mean FUP of 13 ± 4 months. Additionally, higher LAS strongly correlated with a reduction of LACi (LASct p = 0.021, r = 0.63; LASc p = 0.02, r = 0.63; LASr p < 0.001, r = -0.82), indicating improved LA-LV coupling after OMT. The low event incidence prevented assessing LAS-event correlation.

	Beta-blocker				IACE/ARA				ARNI				Spironolactone				SGLT2i	
Dose	No	Low	Middle	Target	No	Low	Middle	Target	No	Low	Middle	Target	No	Low	Middle	Target	No	Target
Baseline	23.8%	29.4%	38.1%	4.8%	52.4%	14.3%	14.3%	19%	66.7%	19%	9.5%	4.8%	28.6%	19%	42.9%	9.5%	19%	81%
At MOT	9.1%	22.7%	54.5%	13.6%	86.4%	0%	9.1%	4.5%	18.2%	22.7%	22.7%	36.4%	4.5%	91.%	77.3%	18.2%	0%	100%
Follow-up	4.8%	4.8%	61.9%	28.5%	86.7%	4.8%	4.8%	4.8%	4.8%	4.8%	66.7%	3.8%	14.3%	19%	23.8%	42.9%	4.8%	95.2%

Table 1: Distribution of patients according to prognostic modifying drug and dosage at baseline, optimized medical therapy and follow-up

Figure PO 255

Conclusions: In our population, OMT significantly improved LAS, which strongly correlated with NTproBNP levels at FUP. LAS appears to be an important additional parameter in pts with HFrEF, that might provide additional prognostic value but further studies are required.

PO 256. LEFT ATRIUM STRAIN ANALYSIS IN WILD-TYPE TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: A PREDICTIVE TOOL FOR ATRIAL FIBRILLATION

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Introduction: Left atrial (LA) deformation analysis using speckle tracking echocardiography has been established as a useful tool for predicting atrial fibrillation (AF) in the general population. Patients with wild-type transthyretin amyloid cardiomyopathy (wtATTR-CM) have a notably higher prevalence of AF, making it important to identify those at increased risk. LA strain analysis could serve as a valuable method to predict AF in this patient population.
Objectives: This study aimed to evaluate the predictive value of LA strain analysis in determining the occurrence of AF in wtATTR-CM patients.
Methods: Retrospective, single-center study of patients with the diagnosis of wtATTR-CM between 2014 and 2024 in sinus rhythm at the time of the diagnosis. The primary analysis focused on baseline echocardiographic parameters, including Peak Atrial Longitudinal Strain (PALS), Peak Atrial Contraction Strain (PACS), and Peak Atrial Conduit Strain (PCS). We analyzed the relationship between these baseline strain measures and the occurrence of AF. The optimal cutoff values for strain measures were determined using the Youden index, and their predictive accuracy was assessed using Odds Ratios (OR).
Results: Of a total of 111 patients, 59 patients were in sinus rhythm at the time of the diagnosis (73% males, mean age 80 ± 6 years). Median follow up was 30 [IQR 16-36] months. During follow-up 30 patients (51%) developed AF. Mean PALS value was lower in patients who developed AF (12.13 ± 4.76 vs. 15.22 ± 6.13%, p = 0.034). PACS had significant worst values in patients that did not maintain sinus rhythm (-6.29 ± 3.84 vs. -9.05 ± 5.54%, p = 0.030). PCS value did not differ between the groups (-5.85 ± 2.66 vs. -6.17 ± 3.37%, p = 0.688). The optimal cutoff value for PACS was identified as -11.4%, with an OR of 7.368 (95%CI 1.449-37.462, p = 0.016). For PALS, with a cutoff value of 14.6%, an OR of 0.339 (95%CI 0.114-1.008, p = 0.052).
Conclusions: LA strain analysis, particularly PACS, shows promise as a tool for assessing the risk of AF development in wtATTR-CM patients. Although PALS demonstrated a trend toward significance, further studies with larger sample sizes are necessary to validate these findings.

PO 257. ASSESSMENT OF LEFT VENTRICULAR MYOCARDIAL WORK PERFORMANCE IN PATIENTS WITH ESSENTIAL HYPERTENSION

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Introduction: Myocardial work (MW) is an advanced echocardiographic tool that evaluates left ventricular (LV) function by integrating afterload and myocardial deformation. Hypertension (HTN), a major cardiovascular risk factor, is associated with LV remodeling and dysfunction. This study aimed to characterize global MW indices in hypertensive and non-hypertensive individuals.
Methods: A retrospective, single-center study was conducted, including patients without known cardiovascular disease who underwent MW assessment between January 2022 and November 2024. Echocardiographic parameters, including global constructive work (GCW), global wasted work (GWW), global work index (GWI), and global work efficiency (GWE), were analyzed. Patients were stratified by hypertension status (HTN diagnosis and elevated blood pressure [BP] during the exam). LV remodeling patterns (concentric remodeling [CR] vs. left ventricular hypertrophy [LVH]) were also evaluated. Multivariate analyses adjusted for age and sex identified predictors of MW parameters.
Results: Among 822 patients (43.7% with HTN), hypertensive individuals exhibited more cardiovascular risk factors, higher resting BP, greater LV remodeling (CR and LVH), and larger left atrial volumes (all p < 0.05). MW parameters were comparable between hypertensive and non-hypertensive groups (p > 0.05), and LV remodeling patterns did not significantly influence MW indices. However, patients with elevated resting BP (≥ 140/90 mmHg) demonstrated significantly higher GWI, GCW, and GWW (p < 0.05). Multivariate analysis identified elevated resting BP as the sole independent predictor of MW parameters, strongly influencing GWI, GCW, and GWW.

Characteristics		Total (n = 822)	No HTN	HTN	p-value
Total no. (%)		822	356 (43.7)	463 (56.3)	
Female no (%)		396	195	201	**0.002**
Age (yo)		62.9 ± 11.2	61 ± 12.9	66 ± 8.9	**<0.001**
BSA (m^2)		1.86 ± 0.2	1.86 ± 0.2	1.89 ± 0.2	**<0.001**
BMI (Kg/m^2)		27.2 ± 3.6	26.4 ± 3.5	27.5 ± 3.2	**<0.001**
Blood Pressure	SBP rest (mmHg)	124.4 ± 15.6	120.6 ± 17	125.2 ± 14.4	**<0.001**
	DBP rest (mmHg)	73.6 ± 9.8	66.5 ± 10.2	73.4 ± 8.3	0.128
	Basal HTN	160	97	63	0.222
Echocardiographic Findings					
	RWT	0.40 ± 0.1	0.34 ± 0.05	0.40 ± 0.1	**0.003**
	Mass (g/m^2)	83.6 ± 26.5	80.9 ± 13.9	95.5 ± 25.4	**<0.001**
	Concentric Remodeling (%)	162 (30.6)	54 (10.2)	108 (20.4)	**0.005**
	Concentric LVH (%)	41 (7.7)	11 (2)	30 (5.7)	**0.037**
	LA vol (mL/m^2)	38.8 IQR 11	39.3 ± 6.7	40.6 ± 11.4	**0.004**
	E/e'	7.33 IQR 2.84	6.97 IQR 2.64	7.69 IQR 2.95	**<0.001**
	LVTDV (mL/m^2)	103.3 ± 28.5	103.9 ± 27.4	108 ± 28.4	0.06
	LVEF	59.7 ± 7	57.8 ± 5.3	57.2 ± 9	0.679
	GLS (%)	-16.5% ± 2.5	-15.9 ± 2.3	-16.8 ± 2.5	0.444
	GWE (%)	91.7 ± 4.4	93 ± 2.4	92.3 ± 4.7	0.341
	GWI (mmHg%)	1551.3 ± 305.3	1529.8 ± 314.2	1586.4 ± 265.6	0.331
	GCW (mmHg%)	1903.7 ± 342.8	2595.9 ± 501.3	2722.3 ± 476	0.06
	GWW (mmHg%)	164.8 ± 95.4	210 IQR 99	203 IQR 15.9	0.263

	Structural normal	Concentric Remodeling	P value	Concentric Hypertrophy	P value
GWE	93 IQR 5	94 IQR 3.7	0,1	89 ± 4.6	0,319
GWI	1536.3 ± 262.8	1673.3 ± 350.1	0,311	1624.7 ± 258.5	0,792
GCW	1892.9 ± 282.8	2097.3 ± 376.3	0,1391	1936.1 ± 278.3	0,639
GWW	121 IQR 84	125 IQR 67.5	0,260	204.7 ± 91	0,153

	Normal BP at rest	Elevated BP at rest	P value
GWE	92.1 ± 4.1	91.1 ± 4.3	0,327
GWI	1503.3 ± 260.9	1759.2 ± 360	**<0.001**
GCW	1853.2 ± 289.2	2214 ± 351.5	**<0.001**
GWW	130 IQR 101	197.3 ± 289.1	**<0.001**

Conclusions: In this unselected cohort, MW indices derived from deformation imaging were similar between hypertensive and non-hypertensive patients and across LV remodeling patterns. However, elevated resting BP was independently associated with increased myocardial workload, reflected by higher GWI, GCW, and GWW, underscoring the augmented afterload on the LV. These findings emphasize the importance of BP control to mitigate excessive myocardial strain and preserve LV performance.

PO 258. EXPLORING RV-ARTERIAL COUPLING: COMPARING CMR-DERIVED RV STRAIN AND ECHO-BASED MYOCARDIAL WORK INDICES IN PRE-CAPILLARY PULMONARY HYPERTENSION

Ricardo Carvalheiro, Margarida Figueiredo, Bárbara Lacerda Teixeira, Inês Neves, Miguel Antunes, Isabel Cardoso, Vera Ferreira, João Reis, Ana Galrinho, Sílvia Aguiar Rosa, Rui Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

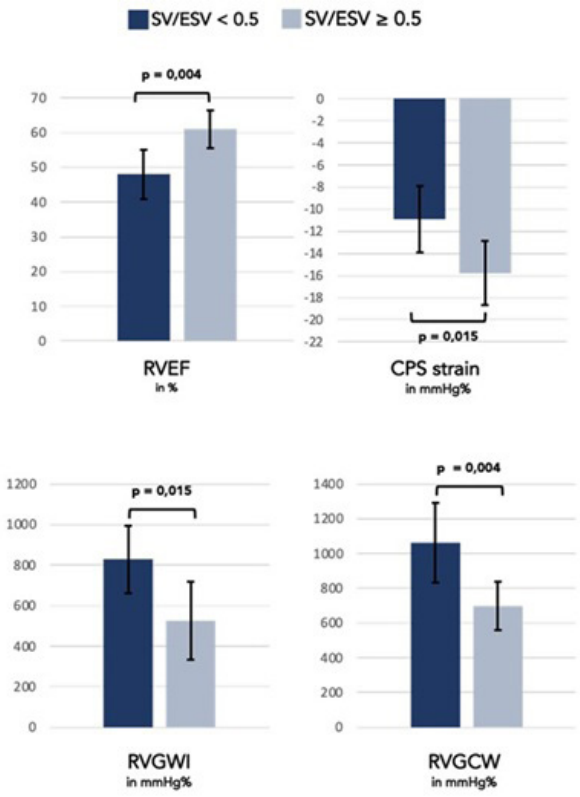
Introduction: Right ventricular-arterial coupling (RVAC), measured by the end-systolic to arterial elastance ratio (Ees/Ea), is the gold standard for

assessing right ventricular (RV) function to increased afterload in pulmonary hypertension (PH). However, this method is time-consuming. The stroke volume (SV) to end-systolic volume (ESV) ratio offers a simplified, prognostically relevant alternative, with a cut-off value of 0.5. Cardiac magnetic resonance (CMR) can assess this ratio and derive strain metrics, while transthoracic echocardiography (TTE) enables RV myocardial work (RVMW) evaluation via pressure-strain loops. The relationship between these parameters, particularly in pre-capillary PH, remains underexplored.

Objectives: To investigate the relationship between the SV/ESV ratio, CMR-derived RV strain, and TTE-derived RVMW in Group I and IV PH patients, and to compare these parameters in patients with SV/ESV ratios above and below 0.5.

Methods: Thirteen pre-capillary PH patients underwent CMR, TTE, and right heart catheterization. CMR feature-tracking assessed RV strain, while TTE software analyzed RV myocardial work indices.

Results: Patients (69% women, mean age 67) had a mean PAP of 35 mmHg (± 13.5) and PVR of 4.8 WU (± 4.9). SV/ESV ratio strongly correlated with CMR-derived RV ejection fraction (RVEF) (r = 0.888, p < 0.001) and circumferential strain (CPS) (r = 0.538, p = 0.037), but not with longitudinal strain (LPS). TTE-derived RVMW showed significant correlations between SV/ESV ratio and global work index (RVGWI) (r = 0.580, p = 0.038) and constructive work (RVGCW) (r = 0.654, p = 0.015). In contrast, wasted (RVGWW) and efficient work (RVGWE) showed no significant associations. Patients with SV/ESV < 0.5 exhibited lower RVEF (48 ± 7.1 vs. 61 ± 5.5, p = 0.004), lower CPS strain (-10.9 ± 3.0 vs. -15.8 ± 2.9, p = 0.015), but higher RVGWI (828 ± 167.4 vs. 526 ± 192.0, p = 0.015) and RVGCW (1,061 ± 228.5 vs. 698 ± 141.0, p = 0.004).



Comparison of CMR-derived RVEF and circunferencial strain and TTE-derived RVMW parameters between patients with SV/ESV < or ≥ 0.5.

Conclusions: The SV/ESV ratio correlated with both CMR-derived circumferential strain and TTE-derived RV myocardial work indices (RVGWI and RVGCW). Patients with a lower SV/ESV ratio demonstrated lower strain but higher work indices, suggesting compensatory mechanisms. Larger studies are needed to validate these findings and assess their prognostic value.

PO 259. RESERVOIR STRAIN OUTPERFORMS TRADITIONAL ECHOCARDIOGRAPHIC PARAMETERS IN PREDICTING MORTALITY IN SECONDARY MITRAL REGURGITATION

Ricardo Carvalheiro, Miguel Marques Antunes, Isabel Cardoso, José Miguel Viegas, Vera Vaz Ferreira, Pedro Rio, Ana Teresa Timóteo, Ana Galrinho, Rui Cruz Ferreira

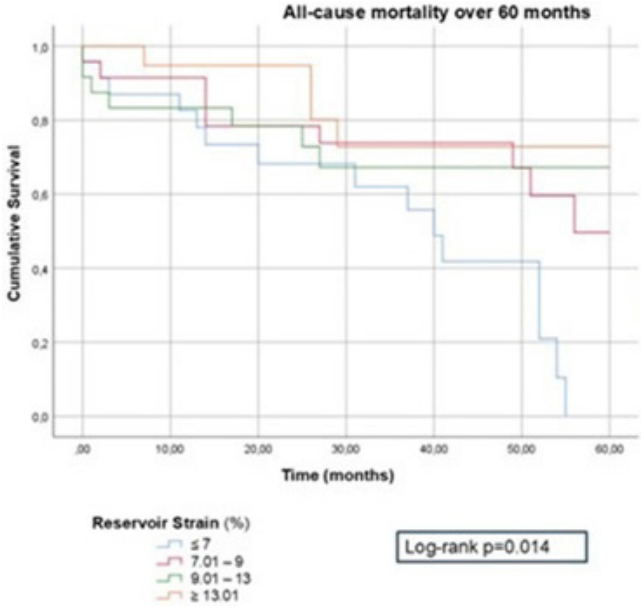
Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Secondary mitral regurgitation (SMR) is associated with poor outcomes, yet the prognostic value of left atrial strain (LAS) and stiffness compared to traditional echocardiographic parameters remains unclear.

Objectives: To assess the prognostic significance of left atrial strain parameters and stiffness in predicting overall mortality in pts with SMR over 60 months.

Methods: We performed a single-center retrospective study of patients with SMR between 2018 to 2023.

Results: The analysis included 96 pts (62% female) with a mean age of 67 ± 14 years, followed up (FUP) for a mean of 34 ± 22 months after TTE examination. 37 pts (39%) died during FUP after a median of 20 (IQR: 3-40) months. Pts had a mean EROA of 32 ± 18 cm^2, regurgitant volume (RV) of 46 ± 24 mL, LVEF of 42 ± 12%, and peak TR velocity of 3.0 ± 0.5 m/s. LAS analysis revealed a mean reservoir strain (LAS-R) of 10 ± 5%, with an LA stiffness index (assessed as [E/e']/[LAS-R]) of 2.0 ± 1.6. 47% of pts were in atrial fibrillation (AF) at the time of TTE examination. Higher LAS-R values were a significant protective factor for mortality (HR = 0.88, 95%CI: 0.80-0.97, p = 0.007). Conversely, LA stiffness (HR = 1.27, 95%CI: 1.05-1.53, p = 0.016) and peak TR velocity (HR = 2.21, 95%CI: 1.15-4.26, p = 0.017) were associated with increased mortality risk over 60 months. Measures of regurgitation severity (e.g., RV or EROA), left and right ventricular systolic function (e.g., LVEF, GLS, or TAPSE), and other diastolic function parameters were not associated with mortality. Age was the only clinical variable independently associated with the outcome (HR = 1.03, 95%CI: 1.00-1.56, p = 0.049). While LA stiffness was a significant predictor in isolation, its effect weakened when included in a model with LAS-R (p = 0.594). In multivariate analysis, LAS-R remained a significant protective factor for mortality (HR = 0.865, 95%CI: 0.76-0.98, p = 0.023), while peak TR velocity showed a non-significant trend towards increased mortality risk (HR = 1.787, p = 0.193), after adjustment for LVEF and mitral regurgitation severity. The association between LAS and prognosis remained significant after adjusting for the pts' rhythm.



Conclusions: Reservoir strain (LAS-R) emerges as a robust and independent predictor of mortality in pts with secondary mitral regurgitation,

outperforming traditional echocardiographic markers such as LVEF or measures of regurgitation severity. Its protective role underscores the importance of evaluating atrial mechanics, providing a potential target for improved risk stratification in SMR.

PO 260. LEFT ATRIAL STRAIN AS A PREDICTOR OF ATRIAL FIBRILLATION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Inês Ferreira Neves, Mariana Caetano Coelho, André Ferreira, Pedro Garcia Brás, Isabel Cardoso, José Miguel Viegas, Inês Almeida, António Fiarresga, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Martins Oliveira, Sílvia Aguiar Rosa

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Atrial fibrillation (AF) stands as the prevailing arrhythmia across all forms of cardiomyopathies. The occurrence of AF in individuals with hypertrophic cardiomyopathy (HCM) is 4 to 6 times more frequent compared to the general population of the same age. Patients (P) with HCM and FA are at higher risk of adverse outcomes. To date, there is not a widely validated model that can predict the risk for development of AF in P with HCM. We aimed to study the role of left atrial (LA) myocardial deformation imaging as a toll for predicting FA development, in a population with HCM.
Methods: P with HCM accompanied at our Cardiomyopathies Center who had no palpitations or documented AF at the time of echocardiographic evaluation were included. During follow-up, AF was established as an atrial tachyarrhythmia with uncoordinated atrial electrical activation lasting more than 30 seconds. For evaluation of outcomes, our cohort was divided into two groups (with and without AF). For the group with AF, the last transthoracic echocardiogram (TTE) performed before the diagnosis of AF was considered, for the group without AF, a TTE was analyzed in P with a similar follow-up duration. LA deformation imaging using two-dimensional speckle tracking echocardiography was performed according to the consensus document of the EACVI/ASE/Industry Task Force to standardize deformation imaging.
Results: Forty-nine P with HCM (age 70.60 ± 12.0, 43% male sex) were included. Twenty-six (53%; age 63.3 ± 13.11.30.4% male sex) developed AF during the follow-up (FU) (mean FU of 29.5 ± 25 months). The groups had similar baseline clinical and demographic characteristics, and no significant differences were registered when comparing clinical aspects or regular medication. When analyzing the LA strain, there were no significative differences between the reservoir or conduit phases of the LA cycle, in either apical four chamber (A4C) view, apical two chamber (A2C) view or biplane analysis. The contraction phase of the LA cycle was significantly different between the two groups (p = 0.02 for A4C, p = 0.04 for A2C and p = 0.05 for biplane). The ROC curves were drawn, with an area under the curve of 0.665 for A4C, 0.698 for A2C and 0.673 for biplane. Based on ROC curve analysis, an optimal cut-off point of -8.5% for sensitivity and specificity in the contraction phase of the LA cycle strain was determined. After Cox regression analysis, P with a value of LA strain for the contraction phase ≤ -8.5% had a higher risk of developing AF (hazard ratio [HR] 4.29; 95% confidence interval [CI] 1.25-14.74, p-value 0.021).
Conclusions: In our cohort of HCM P, atrial strain, particularly the contraction phase of the LA cycle, appears to be a valuable predictor for the development of AF.

Sábado, 12 Abril de 2025 | 12:30-13:30

Área de Posters-écran 2 | Sessão de Posters 39 – Imagem cardíaca na estenose aórtica

PO 261. MEASURING INTEGRATED BACKSCATTER IN PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION

André Paulo Ferreira, Julien Lopes, Pedro Rio, Ana Teresa Timóteo, Ana Leal, Fernanda Varela, Duarte Cacela, Ana Galrinho, Rui Cruz Ferreira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Calibrated integrated backscatter (cIB) derived by 2D echocardiography quantifies myocardial ultrasound reflectivity, and it has been used in previous studies as a surrogate for myocardial fibrosis. Before the advent of other cardiac imaging techniques, it was a major focus of tissue characterization research.
Objectives: We examined whether cIB may help identify patients undergoing transcatheter aortic valve implantation (TAVI) at risk of procedure-related complications.
Methods: Consecutive patients submitted to transfemoral TAVI between January and December 2022 were routinely imaged by echocardiography in the five days peri-procedure. Calibrated integrated backscatter was obtained from the parasternal long-axis view (PLAX) by subtracting pericardial cIB intensity from myocardial septal and posterior wall average cIB. Patients with poor PLAX views were excluded from the study. Measurements of cIB, expressed in decibels, were performed at end-diastole. The primary endpoint was the occurrence of major TAVI-related complications.
Results: Of 149 patients who underwent TAVI during the study period, 131 had a reasonable acoustic window for cIB measurement and were included in the study. Patient mean age was 82.1 ± 6.9 years, and 62% were female. At baseline,

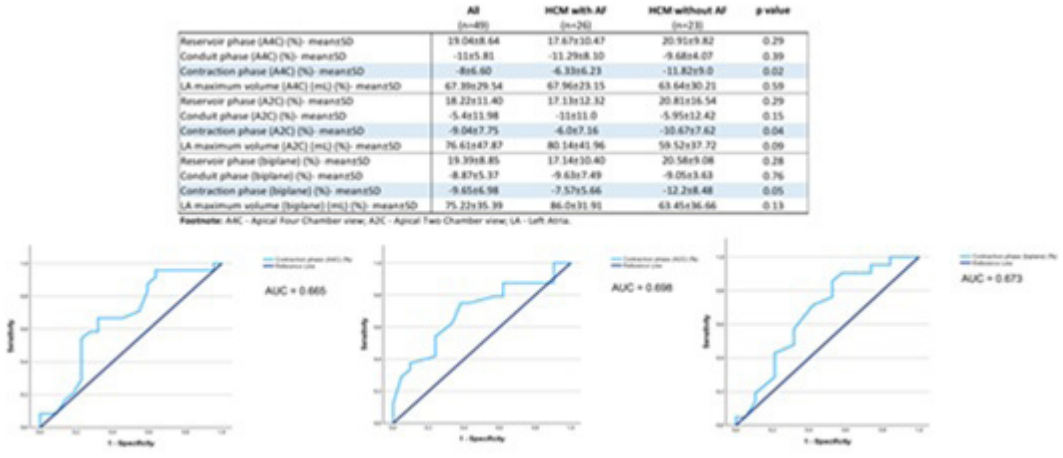


Figure PO 260

84% of patients had preserved left ventricle function, the mean aortic mean gradient was 47.3 ± 14.8 mmHg, and the mean EuroSCORE II was 5.34 ± 3.24. The global mean cIB measured was 19.74 ± 7.56 dB. No significant differences were found in the myocardial wall ultrasound reflectivity in patients with TAVI-related major complications (20.63 ± 10.8 vs. 19.6 ± 6.9 dB, p = 0.587), which were defined according to the Valve Academic Research Consortium-2 consensus. However, cIB was significantly higher in patients who had post-TAVI conduction disturbances (21.09 ± 7.72 vs. 18.11 ± 7.06 dB, p = 0.026), including left bundle branch block and atrioventricular block. There was also a negative correlation of cIB with aortic annulus area as measured by computed tomography (r(129) = -0.19, p = 0.032), and cIB was also significantly higher in patients who had a pre-TAVI estimated glomerular filtration rate of less than 30 mL/min/1.73 m² (22.42 ± 7.17 vs. 19.56 ± 6.88 dB, p = 0.043).

	Calibrated integrated backscatter	p-value
TAVI-related major complications	20.63±10.8 vs 19.6±6.9 dB	p=0.587
Post-TAVI conduction disturbances	21.09±7.72 vs 18.11±7.06 dB	p=0.026
Aortic annulus area	r(129)= -0.19	p=0.032
Estimated glomerular filtration rate	22.42±7.17 vs 19.56±6.88 dB	p=0.043

Table 1 – Primary and secondary cIB measurement endpoints

Figure 1 - Measurement of cIB

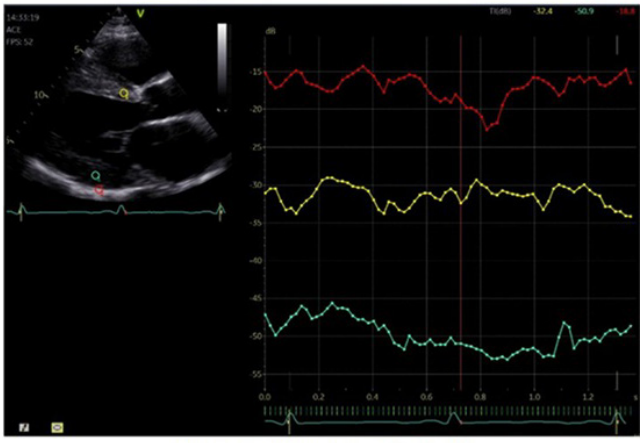


Figure 2 - Measurement of cIB

Conclusions: Our data disfavors the use of cIB as a predictor of major TAVI-related complications, but it suggests that cIB assessment could add value in identifying patients at risk of conduction disturbances in post-TAVI procedures.

PO 262. IS RELATIVE AORTIC VALVE LOAD DETERMINANT OF LEFT VENTRICULAR REMODELING IN PATIENTS WITH SEVERE AORTIC STENOSIS REFERRED FOR SURGICAL VALVE REPLACEMENT?

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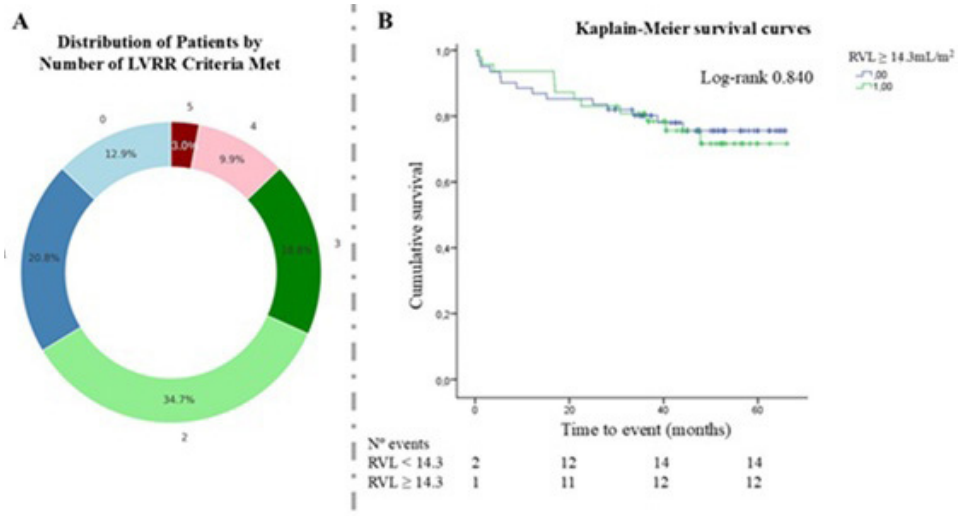
Introduction: Relative Valve Load (RVL) is a novel echocardiographic index based on the ratio of transaortic mean pressure gradient (MG) to the global valvuloarterial impedance (Zva) to estimate the contribution of the valvular afterload to the global left ventricular (LV) load. In patients with severe aortic stenosis (AS) referred for intervention, LV reverse remodeling (LVRR) is expected to occur following afterload relief. We aimed to evaluate whether pre-operative RVL influences LVRR in a cohort of patients with severe AS who underwent surgical aortic valve replacement (SAVR).
Methods: Single-centre prospective cohort study of 158 patients with severe symptomatic AS and no previous history of ischemic cardiomyopathy (median age 73 [68-77] years, 47% male; MG 61 ± 17 mmHg, mean indexed aortic valve area 0.4 ± 0.09 cm²/m², mean LV ejection fraction [LVEF] 59 ± 9%) referred for SAVR between 2019-2022. Both pre- and post-operative transthoracic echocardiographic (TTE) and cardiac magnetic resonance (CMR) study (at the 3rd to 6th month after SAVR) were performed. LV RR was defined when in presence of at least one of the imaging criteria: > 15% decrease in end-diastolic volume (EDV) by CMR; > 15% decrease in LV indexed mass (LVMi) by CMR; > 10% decrease in geometric remodeling (LV mass/EDV ratio) by CMR; > 10% increase in LVEF by CMR; > 50% increase on global longitudinal strain by TTE. Patients were divided into high and low RVL based on optimised cut-off values determined by Youden Index. The primary endpoint was defined as death or heart failure hospitalization.
Results: From an initial cohort of 158 patients, a total of 116 (median age 72 [68-77], 48% male) had complete pre- and post-SARV imaging study, of whom 108 had data to calculate RVL (all patients with high gradient and preserved LVEF). At baseline, patients with higher RVL (≥ 14.3 mL/m², 53%) more frequently had chronic kidney disease (p = 0.046), higher LVMi (90 ± 30 vs. 69 [55-80] g/m², p = 0.002), higher LVEF (60 ± 7 vs. 57 ± 9%, p = 0.031) and



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higher EDV (167 ± 46 vs. 131 [117-160] mL, p = 0.002). Overall, 101 (87%) met at least one LVRR criterion (Figure 1A). The most common criterion was a reduction in LVMi (65%, n = 75). The number of LVRR criterion did not differ according to RVL cut-off (p = 0.957). LV remodeling criteria did not differ according to preoperative RVL except for higher prevalence of EDV regression in patients with lower RVL (45 vs. 43%, p = 0.030). At a mean follow-up of 41 ± 17months, the primary endpoint occurred in 28 patients (24%, which included 4 deaths), with RVL cut-off showing no predictive value for survival or HF hospitalization (log-rank p = 0.840) (Figure 1B).
Conclusions: In a cohort of patients with classical severe symptomatic AS referred for surgery, distinct pre-operative RVL was unrelated to LVRR and did not predict the outcome after intervention. This index may be expected to be of value in patients with low-gradient/paradoxical severe AS.

PO 263. ACCURACY OF COMPUTED TOMOGRAPHY ANGIOGRAPHY FOR THE EXCLUSION OF CORONARY ARTERY DISEASE BEFORE TRANSCATHETER AORTIC VALVE IMPLANTATION

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Introduction: Evaluation for coronary artery disease (CAD) is recommended before transcatheter aortic valve replacement (TAVR). In most cases, this is done with invasive coronary angiography (ICA). Current practice guidelines recommend screening to rule out significant proximal lesions. Computed tomography angiography (CTA) is currently used in the preprocedure planning of TAVR.
Objectives: This study sought to investigate the efficacy of CTA imaging in assessing the proximal coronary arteries, and the feasibility of its use as a screening tool for significant CAD before TAVR.
Methods: We retrospectively analyzed patients referred for TAVR in a single center. Patients with a preprocedure CTA, preprocedure ICA, and without prior proximal percutaneous intervention (PCI) were included in the study. Patients with poor CTA image quality precluding interpretation were excluded. The proximal segment of the coronary arteries was analyzed by CTA to assess for nonsignificant stenosis (0% to 49%), moderate stenosis (50% to 69%), and severe stenosis (≥ 70%). Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), positive likelihood ratio (LR), negative LR, and Cohen Kappa statistic were analyzed.
Results: A total of 126 patients were included in the analysis: median age was 82 years (IQR 7), and 48% (n = 60) of patients were male. The overall prevalence of significant proximal CAD was 9.5%. CTA evaluation revealed a sensitivity of 75%, specificity of 96%, PPV of 24%, NPV of 100%, positive LR of 19.0 (95%CI 10.5-24.4), and negative LR of 0.26 (95%CI 0.08-0.86) for detecting ≥ 50% stenosis (Table 1). Using a ≥ 70% stenosis cutoff, the evaluation revealed a sensitivity of 80%, specificity of 99%, PPV of 51%, NPV of 100%, positive LR of 128.8 (95%CI 38.4-432.0), and negative LR of 0.20 (95%CI 0.03-1.16) (Table 2). Cohen Kappa analysis indicated a fair agreement between pre-TAVR CTA and ICA (Cohen k-test 0.35, p < 0.001).
Conclusions: Pre-TAVR CTA is a useful tool in the screening for significant proximal CAD before TAVR and, due to its high negative predictive value, could spare patients the need for additional invasive testing before the procedure.

Table 1 Diagnostic Performance of CTA in Detecting ≥50% Occlusion

	n	TP	TN	FP	FN	Sensivity	Specificity	PPV	NPV
Left main	126		119	3			98	0	100
Left anterior descending	126	2	110	10		100	92	16	100
Left circumflex	126	1	117	3	1	50	98	25	99
Right coronary	126	3	115	3	1	75	98	50	**99**
All vessels	488	6	461	19	2	75	96	24	100

Table 2 Diagnostic Performance of CTA in Detecting ≥70% Occlusion

	n	TP	TN	FP	FN	Sensivity	Specificity	PPV	NPV
Left main	126		122				100		100
Left anterior descending	126	1	119	2		100	98	50	100
Left circumflex	126	1	121			100	100	100	100
Right coronary	126	2	118	1	1	67	99	67	**99**
All vessels	488	3	480	3	1	80	99	51	100

Footnote: CTA - computed tomography angiography, FP - false positive, FN - false negative, NPV - negative predictive value, TP - true positive, TN - true negative, PPV - positive predictive value.

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PO 264. TOTAL FIBROCALCIFIC BURDEN OF THE AORTIC VALVE IN PATIENTS WITH AORTIC STENOSIS – ASSESSMENT BY A NEW CT METHOD AND COMPARATIVE PERFORMANCE WITH CALCIUM SCORING

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Introduction: Calcium scoring of the aortic valve (VCaS) is a useful tool for assessing severity of aortic stenosis (AS), but focuses solely on the calcific component, overlooking the contribution of fibrosis. Recently, a novel method for quantifying both fibrosis and calcification of the aortic valve in contrast-enhanced CT has been developed and validated histologically. This study aimed to characterize the fibrocalcific burden of the aortic valves of patients with AS undergoing cardiac CT and compare its discriminative value with VCaS.
Methods: This single center retrospective study included patients with isolated degenerative AS with normal flow conditions on transthoracic echocardiogram (performed within 6 months) who underwent cardiac CT for the workup of known or suspected severe AS. Fibrotic volume, calcific volume and fibrocalcific volume (FCV) were calculated on CT images according to the new methodology, using Gaussian-mixture-modeling to derive scan-specific thresholds for calcific and fibrotic tissue.
Results: A total of 246 patients were included (mean age 81 ± 7 years; 64% female). Overall, 198 patients had severe aortic AS and 48 had moderate AS. Population characteristics are described in Table 1. FCV and fibrotic volume showed poor correlation with mean gradient (rho = 0.280, p < 0.001; rho = 0.125, p = 0.051, respectively). Median FCV was higher in patients with severe AS than in those with moderate AS (2,616 vs. 2,037 mm^3; p = 0.025). This difference was mainly due to increased calcium content (714 vs.

Figure 1. Aortic valve contouring and and colour pattern according UH (fibrosis in yellow; calcium in blue). A (1,2) corresponds to a valve with increased fibrotic content, as opposed to B (1,2), that corresponds to an increased calcific volume.

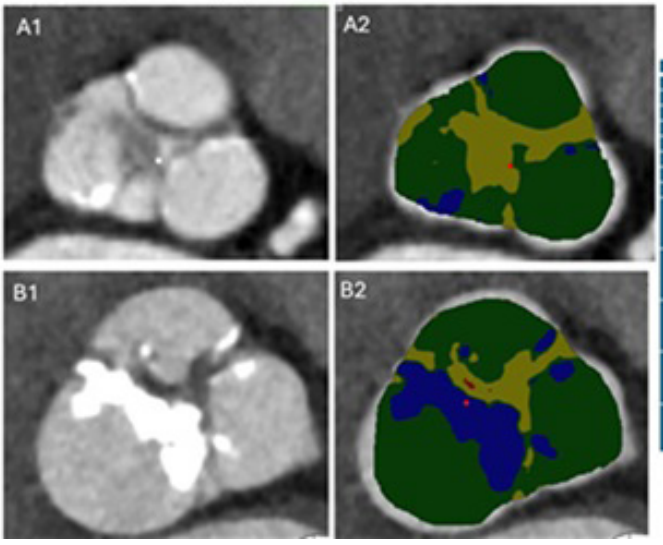

Table 1. Demographic, echocardiographic and CT characteristics

Age	82 ± 7	80 ± 8	0.073
Male	84 (42%)	17 (35%)	0.293
Hypertension	179 (90%)	44 (92%)	0.489
Chronic Kidney disease	48 (24%)	3 (6%)	0.007
Coronary artery disease	72 (36%)	15 (31%)	0.567
Maximum velocity (m/s)	4.55 (IQR 4.25 – 4.90)	3.55 (IQR 3.23 – 3.76)	< 0.001
Mean gradient (mmHg)	52 (IQR 46 – 61)	31 (IQR 25 – 35)	< 0.001
Aortic valve area (cm²)	0.72 (IQR 0.60- 0.85)	1,10 (IQR 1,04 – 1,23)	< 0.001
Valvular Calcium Score (UH)	2672 (IQR 1717 – 3691)	1385 (IQR 1060 – 1849)	< 0.001
Male	3545 (IQR 2225 – 4525)	1718 (1372 -3361)	< 0.001
Female	2104 (IQR 1604 – 2756)	1250 (1030 - 1625)	< 0.001
Calcific volume (mm3)	714 (IQR 450 – 1210)	420 (IQR 241 – 676)	0.021
Male	1100 (IQR 800 – 1633)	534 (IQR 348 – 1392)	0.047
Female	520 (IQR 378 – 882)	385 (IQR 153 – 595)	0.173
Fibrotic volume (mm3)	1830 (IQR 1350 – 2340)	1310 (IQR 800 – 2340)	0.126
Male	1955 (IQR 1610 – 2640)	1955 (IQR 1610 – 2640)	0.765
Female	1705 (IQRs 1267 - 2125)	1270 (IQR 670 – 2070)	0.278
Fibrocalcific Volume (mm3)	2616 (IQR 2007 – 3048)	2037 (IQR 1340 – 2870)	0.025
Male	3250 (IQR 2460 – 4128)	2667 (IQR 1788 – 3257)	0.173
Female	2393 (IQR 1780 -2806)	1823 (IQR 1057 – 2505)	0.241
Fibrocalcific Ratio	2.22 (IQR .47 – 3.98)	3.77 (IQR 1.67 -7.17)	0.021
Male	1.69 (IQR 1.14 -2.85)	3.53 (IQR 0.96 – 6.90)	0.173
Female	3.00 (IQR 1.86 – 4.86)	3.77 (IQR 2.02 – 7.31)	0.393

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420 mm³; p = 0.021), as there were no differences in fibrotic content between groups (1,830 vs. 1,310; p = 0.126). Total fibrotic volume was not different between genders, but the fibrocalcific ratio (fibrous/calcific volume) was higher in females with severe AS (p < 0.001). FCV showed a C-statistic of 0.65 (95%CI 0.56-0.75; p = 0.001) for prediction of severe AS. However, VCaS remained superior to FCV in predicting severe AS (C-statistic 0.79 (95%CI 0.71-0.86, p < 0.001), p < 0.001 for comparison between the two. The discriminative power of VCaS remained superior to FCV in both men and women. Results remained similar when FCV or its individual components were indexed to the patient's aortic annulus dimensions. A small group of patients (n = 17) underwent a second CT during follow-up (median interscan time 917 days, IQR 475-1,595). An increase in both fibrosis and calcium was noted, with a significant rise in total fibrocalcific content over time (p = 0.045).

Conclusions: The fibrous and calcific components of the aortic valve differ significantly between patients, vary by sex, and evolve over time. However, the quantification of total fibrocalcific volume did not outperform calcium score in identifying severe AS. Further studies in larger cohorts are warranted to explore the clinical relevance of fibrosis quantification, particularly in female patients.

PO 265. PROGNOSTIC VALUE OF CARDIAC COMPUTED TOMOGRAPHY PARAMETERS TO PREDICT PRE-INTERVENTION OUTCOMES IN PATIENTS WITH SEVERE AORTIC STENOSIS

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ULSR Leiria.

Introduction: Severe aortic stenosis (SAS) prevalence is progressively increasing and transcatheter aortic valve implantation (TAVI) is the preferred treatment option for older patients (pts). However, it is not always readily available, and pts face prolonged waiting periods. Identifying predictors of clinical decompensation during this period may help optimize patient management.

Objectives: To assess the predictive value of cardiac computed tomography (CCT) parameters for pre-intervention outcomes in pts awaiting TAVI.

Methods: Retrospective cohort study of SAS pts who consecutively underwent pre-TAVI CCT (June 2022-September 2024). Demographic data,

	Total (n=189)	Group 1 (n= 47)	Group 2 (n=142)	p-value
Male sex (n, %)	98 (52%)	25 (53)	73 (51)	0,832 (a)
Age at time of exam (years) – mean ± SD	81 ± 5 years	82 ± 5 years	81 ± 5 years	0,300 (c)
Past medical history				
Overweight/Obesity (%)	138 (73%)	37 (79)	101 (71)	0,309 (a)
Body mass index (kg/m2) – mean ± SD	28 ± 5	29 ± 5	28 ± 5	0,647 (c)
Diabetes Mellitus (%)	**73 (39%)**	**24 (51)**	**49 (35)**	**0,043 (a)**
Dyslipidemia (%)	136 (72%)	31 (66)	105 (74)	0,291 (a)
Hypertension (%)	155 (82%)	41 (87)	114 (80)	0,282 (a)
History of smoking (%)	22 (12%)	1 (2)	21 (15)	0,019 (a)
Atrial Fibrillation/Atrial Flutter (%)	***57 (30)***	***23 (49)***	***34 (24)***	***0,001 (a)***
History of cancer (%)	*20 (11)*	*3 (6)*	*17 (12)*	*0,413 (b)*
Chronic kidney disease (CKD) (%)	*19 (10)*	*6 (13)*	*13 (9)*	*0,575 (b)*
Symptoms				
Heart failure (%)	***140 (74)***	**41 (87)**	**99 (71)**	**0,028 (a)**
New York Heart Association class III-IV (%)	***50 (27)***	**19 (40)**	**31 (23)**	**0,017 (a)**
Fatigue (%)	***157 (83)***	**45 (96)**	**112 (81)**	**0,016 (a)**
Exertional angina (%)	***27 (14)***	**11 (23)**	**16 (12)**	**0,048 (a)**
Cardiac Computed Tomography parameters				
Left ventricular Ejection Fraction (%) – mean ± SD	**63±11**	**58±11**	**64±10**	**0,028 (c)**

Variables	OR	CI 95%	p-value
Atrial Fibrillation/Atrial Flutter (%)	**4.64**	1.7-12.9	0,003
CCT-estimated LVEF	**0.949**	0.906-0.994	0,028

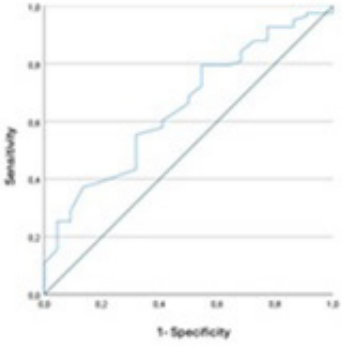

Fig. 1 – Baseline characteristics, multivariate logistic regression and receiver operating characteristics curve analysis (a – chi-square test; b- Fisher's exact test; c- T-student test)

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clinical characteristics, transthoracic echocardiography (TTE), and CCT parameters were collected. Pts were followed from the date of the CCT until aortic valve replacement, death, or December 1, 2024, whichever occurred first (median follow-up: 8 months). Our pre-intervention endpoint was a composite of cardiovascular (CV) hospitalization - including heart failure (HF) admissions - all-cause mortality, and major adverse cardiovascular events (MACE), defined as CV mortality, non-fatal acute myocardial infarction (AMI), or non-fatal stroke. Patients with pre-intervention outcomes (group 1) were compared to those without (group 2).

Results: Overall, 189 pts underwent pre-TAVI CCT (98 males (52%); mean age 81 ± 5 years). During the study, 79 pts (42%) underwent intervention (median time CCT-TAVI: 9 [4-14] months), while 7 were deemed unfit or declined intervention. Our pre-intervention endpoint occurred in 47 pts (25%) (group 1) with the following distribution: CV hospitalization (n = 35), HF hospitalization (n = 21), MACE (n = 9 - non-fatal strokes [n = 4], non-fatal AMIs [n = 1], CV death [n = 8]) and all-cause mortality (n = 20). Group 1 pts were more likely to have diabetes (51 vs. 35%, p = 0.043), atrial fibrillation (AF) (49 vs. 24%, p = 0.001) and pacemaker implantation (26 vs. 6%, p < 0.001). While most CCT parameters were similar, Group 1 had a lower estimated left ventricular ejection fraction (LVEF) (58 ± 11 vs. 64 ± 10%, p = 0.028). Clinically, Group 1 had higher HF incidence (87 vs. 71%, p = 0.028) and NYHA Class III-IV (40 vs. 23%, p = 0.017). Multivariate logistic regression identified AF (OR 4.64, CI 1.7-12.9, p = 0.003) and CCT-estimated LVEF (OR 0.949, CI 0.906-0.994, p = 0.028) as independent predictors of our outcome. Receiver operating characteristic (ROC) analysis determined an optimal LVEF cutoff of 56.5%, which predicted the outcome with 80% sensitivity and 46% specificity (AUC 0.65, 95%CI 0.528-0.775) (Figure 1).

Conclusions: In our study, the incidence of adverse outcomes, namely CV hospitalization, was high in SAS pt awaiting TAVI, with median time from CCT to intervention of almost a year. Lower CCT-estimated LVEF (cutoff value of 56.5%) was a predictor of pre-intervention outcomes, with modest discriminative performance.

PO 266. AORTIC CALCIUM SCORE AND TAVR: INSIGHTS INTO PROCEDURAL COMPLICATIONS AND DEVICE SELECTION

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Introduction: The aortic calcium score (aCS) is a non-invasive diagnostic tool that offers crucial insights into the severity of aortic stenosis (AS). However, it is still underused in the transcatheter aortic valve replacement (TAVR) risk stratification and procedural planning.

Objectives: To evaluate the association of aCS to TAVR procedural complications and post-procedural outcomes.

Methods: Single-center prospective study of consecutive patients (pts) submitted to TAVR that had aCS measured on a pre-procedure computed tomography (CT). Demographic, echocardiography and procedural data were collected at baseline. Echocardiographic evaluation was performed the day after the procedure and at one year follow-up. Descriptive and comparative statistical analyses were employed.

Results: We included 187 pts, 54.5% female, with a median age of 83 years old. Hypertension (89.9%), dyslipidemia (75.4%), diabetes (35.8%) and chronic kidney disease (28.9%) were the main co-morbidities. The median aCS was 1235 Agatston Units (AU). Mild to moderate aortic leak was present in final procedure aortography in 48.5% of pts, while it was classified as trace to mild in 70% and moderate in 3.7% by echocardiography. There was an association between higher aCS and the need for TAVR post-dilatation (p = 0.001) and higher degrees of aortic leak assessed in final aortography (p = 0.004). An aCS cutoff of 5213AU demonstrated substantial sensitivity and specificity in predicting immediate post-deployment aortic leaks (sensitivity 71%; specificity 86%; AUC 0.811 (Figure 1). There was also an association between aCS and more than mild prosthetic leak (p = 0.005) at echocardiographic assessment at day 1 after TAVR, as well as higher maximum and mean transaortic gradients (p = 0.005 and p < 0.001, respectively). Regarding the aortic prosthetic implanted, supra-annular aortic valves were associated with more significant leaks both by aortography (p < 0.001) and echocardiographic (p = 0.083) assessment. At echocardiogram, the decrease in maximum and mean transaortic gradients was higher when supra-annular TAVR devices were used (p = 0.010 and p = 0.017, respectively). The use of supra-annular devices was an independently predictor of leak (p = 0.002).

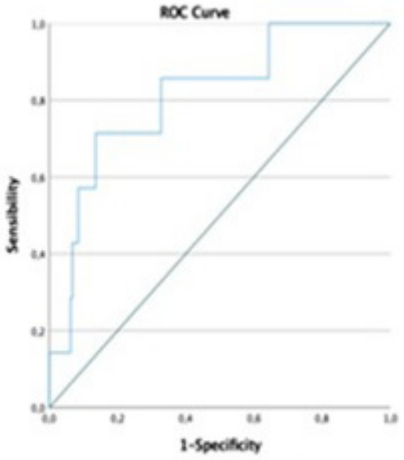

Figure 1: Sensibility and specificity of aortic calcium score in predicting aortic valvular leak

Conclusions: Our study showed that higher aCS correlated with the need for TAVR device post-dilation and the occurrence of peri-device leaks. Our findings suggest that, in patients with high aCS, supra-annular devices result in higher prevalence of leak that is not prevented by higher use of post-dilatation.

PO 267. ROLE OF PREOPERATIVE CAROTID DUPLEX ULTRASOUND IN PATIENTS WITH SEVERE AORTIC STENOSIS REFERRED FOR INTERVENTION

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Introduction: Routine screening for carotid artery stenosis is not recommended in the general population but is advised in certain scenarios, such as preparing for coronary artery bypass grafting (CABG) and for high-risk populations were a prevalence of > 20% os carotid stenosis is estimated. However, no formal recommendations exist for patients undergoing evaluation for valvular heart disease. While carotid artery screening may provide important insights, routine screening might not always be necessary, as it can increase costs and delay intervention. Carotid duplex ultrasound (DUS) is the first-line modality for screening.

Objectives: This study assessed the diagnostic and therapeutic implications of carotid DUS as a preoperative screening tool in patients with severe aortic stenosis (AS) referred for valve replacement.

Methods: Patients who underwent transthoracic echocardiography from January to September 2022 with severe high-gradient AS and referred for valve intervention were included. Demographic, imaging, and clinical data were collected. Group comparisons were performed using the Chi-square test.

Results: Of the 65 included patients, 33 (50.8%) were females with a mean age of 74.4 ± 8.3 years old. Risk factors for carotid stenosis included

hypertension (80%), dyslipidemia (84.6%), diabetes (53.8%), coronary artery disease (29.2%), cerebrovascular disease (9.2%), smoking (6.2%), and peripheral arterial disease (4.6%). Regarding carotid assessment, 58 patients (89.2%) underwent supra-aortic angiography during coronary angiography, 33 (50.8%) underwent carotid DUS, and 28 (43.1%) underwent both. Carotid DUS did not reveal additional findings beyond angiography. Significant carotid pathology was identified in 14 patients (23%): high-risk plaques (16.1%) and stenosis (16.1%)—50% stenosis in 55.6%, 70% in 33.3%, and 90% in 11.1%. Only one patient was referred for vascular surgery, and no vascular interventions were performed. Among the included patients, 40 (61.5%) were classified as high-risk for carotid stenosis, and notably, 64.3% of the significant findings were identified within this group. There was no significant association between carotid screening indication and significant findings (p = 0.861). Significant carotid pathology was not associated with perioperative complications (p = 0.928), but no perioperative strokes occurred.
Conclusions: Carotid artery disease screening in patients referred for aortic valve intervention identified significant pathology in approximately one-quarter of cases, but this did not result in vascular interventions. While carotid screening may aid cardiovascular risk modification through medical management, its routine use in AS patients offers no clear added value compared to targeted screening in high-risk individuals. More studies are needed to assess its impact, particularly on perioperative outcomes.

PO 268. IMPACT OF DIASTOLIC DYSFUNCTION IN PATIENTS WITH MODERATE AORTIC STENOSIS

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Introduction: Aortic stenosis (AS) induces an adaptative ventricular remodeling with left ventricular (LV) hypertrophy and fibrosis, eventually leading to ventricular diastolic and systolic dysfunction. This can lead to poorer outcomes and reduced survival.
Objectives: This study aims to investigate the prevalence, incidence and prognostic implication of LV diastolic dysfunction (DD) in patients with moderate AS and preserved LV ejection fraction.
Methods: A total of 595 patients with a first diagnosis of moderate AS, preserved LV systolic function and consecutive echocardiograms were retrospectively identified. DD was defined based on the presence of at least 3 of 4 parameters: 1) average E/e'; 2) septal e' velocity < 7 cm/s or lateral e' velocity < 10 cm/s; 3) tricuspid regurgitation velocity > 2.8 m/s; and 4) left atrium volume index > 34 mL/m^2. This study assessed the prevalence and incidence of DD and the predictors of new-onset DD. Furthermore, univariable and multivariable Cox models evaluated the association of new-onset DD as a time-dependent covariate and the composite endpoint of all-cause mortality or aortic valve replacement (AVR).
Results: The baseline prevalence of DD was 43%. These patients were older, more likely female, and had higher prevalence of atrial fibrillation (AF), despite similar aortic valve areas and comorbidities, compared with patients without DD. Over a median follow-up of 1.98 years, 32% patients developed new-onset DD, with 50% of these cases occurring when AS was still moderate. Decreasing AVA (HR 1.07; 95%CI 1.02-1.12), increasing LV mass index (HR 2.60; 95%CI 1.19-4.00) and increasing LV sphericity index (1.22; 95%CI 1.01-1.46) predicted higher risk of new-onset DD, after multivariate adjustment. Incident DD was independently associated with the composite endpoint of all-cause mortality or AVR (HR 1.77; 95%CI 1.37-2.77).
Conclusions: This study reveals a high prevalence of DD at the diagnosis of moderate AS and preserved LV ejection fraction, with its incidence increasing alongside AS progression and adverse LV remodeling. LV DD independently correlates with an increased risk of all-cause mortality and AVR in this patient group. These findings highlight the importance of diastolic LV function assessment in the risk stratification of patients with moderate AS.

PO 269. IS MYOCARDIAL ADAPTATION DISTINCT IN PATIENTS WITH BICUSPID VERSUS TRICUSPID SEVERE AORTIC STENOSIS UNDERGOING SURGICAL VALVE REPLACEMENT?

Débora da Silva Correia[1], Kamil Stankowski[2], João Abecasis[1], Pedro Lopes[1], Rita Reis Santos[1], Rita Lima[1], Telma Lima[1], António Ferreira[1], Maria João Andrade[1], Regina Ribeiras[1], Sância Ramos[1], Pedro Adragão[1]

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Introduction: Current guidelines for aortic stenosis (AS) do not distinguish between patients with bicuspid (BAV) and tricuspid aortic valve (TAV) disease, despite notable differences in their clinical profiles and possible physiopathology. Whether these differences extend to myocardial adaptation to severe aortic stenosis remains unclear.
Objectives: Assess left ventricular adaptation in patients with severe symptomatic AS undergoing surgical aortic valve replacement (SAVR) according to the presence of BAV and TAV disease.

Table 1- Comparison of Clinical, Echocardiographic, Cardiac Magnetic Resonance, and Histopathology Between Tricuspid and Bicuspid Aortic Valve Groups.

	Tricuspid (n=107)	Bicuspid (n=16)	*p*-Value
Demographic			
Age, years	73 [7]	59 [16]	**<0.001**
Male, n (%)	49 (46)	12 (75)	**0.029**
Hypertension, n (%)	91 (85)	10 (63)	**0.028**
Ascending Aorta Dilation, n (%)	10 (9)	7 (44)	**<0.001**
Clinical			
Syncope, n (%)	23 (22)	5 (31)	0.421
Angina, n (%)	27 (26)	5 (31)	0.673
hsTnT, ng/L	12 [11]	13 [17]	0.333
NTproBNP, pg/mL	568 [1292]	396 [1457]	0.341
Transthoracic Echocardiography			
LVEF, %	58 ± 8	60 ± 8	0.559
GLS, %	- 14.7 ± 3.7	-14.1 ± 3.6	0.222
Maximum Aortic Gradient, mmHg	91 [37]	118 [52]	0.053
Mean Aortic Gradient, mmHg	57 [21]	74 [31]	**0.022**
AVA, mm^2	0.7 ± 0.2	0.7 ± 0.2	0.906
Doppler velocity index	0.2 ± 0.05	0.2 ± 0.04	**0.046**
SVi, mL/m^2	49 ± 10	48 ± 8	0.983
Cardiac Magnetic Resonance			
LVEF, %	61 [14]	63 [17]	0.943
LV indexed mass, g/m^2	71 [31]	92 [74]	**0.008**
Geometric Remodeling Index	0.92 [0.2]	1.04 [0.3]	**0.037**
Native T1, ms	1052 [41]	1047 [48]	0.619
T2, ms	39 [5]	39 [3]	0.173
ECV, %	23 [6]	24 [8]	0.365
LGE present, n (%)	75 (70)	11 (69)	0.915
LGE, %	4 [5]	5 [5]	0.236
Hystopathology (n = 110, 15 bicuspid, 95 tricuspid)			
Fibrosis Area, um2	1425855 [2703139]	1916583 [3259701]	0.473
% Fibrosis of total sample, %	12 [14]	15 [12]	0.446
Replacement Fibrosis, n (%)	34 (36)	3 (21)	0.219

Mean± SD; Median [IQR]
Abbrev: LVEF: Left Ventricular Ejection Fraction; **GLS**: Global Longitudinal Strain; **AVA**: Aortic Valve Area; **AVAi**: Indexed Aortic Valve Area; **SVi**: Stroke volume index; **ECV**: Extracellular volume; **LGE**: Late Gadolinium Enhancement

Methods: Single-center, prospective cohort study of 158 patients with severe symptomatic AS (mean age 71 ± 8 years, 50% male; mean transaortic gradient 61 ± 17 mmHg, indexed aortic valve area 0.4 ± 0.1 cm^2/m^2, LVEF 58 ± 9%) referred for SAVR between 2019 and 2022. Patients with prior cardiomyopathy, moderate/severe aortic regurgitation, or severe non-AS valve dysfunction were excluded. Serial transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR) were performed within 3 months before SAVR to assess LV remodeling and myocardial tissue characterization (T1 mapping, late gadolinium enhancement [LGE], and extracellular volume-[ECV]). Myocardial tissue obtained during SAVR (myocardial biopsy at LV basal septum or harvested from surgical myectomy specimens) underwent fibrosis quantification with Masson's trichrome satin at an automatic algorithm platform-QuPath™. Valve morphology was

assessed via TTE or surgical reports. Clinical, imaging, and histopathological data on LV adaptation were compared between patient groups.
Results: (Table 1) A total of 123 patients were included (mean age of 71 ± 9 years; 50% male), 13% with BAV and 87% with TAV (25 patients with undetermined valve morphology). All BAV cases exhibited the ascending phenotype without root involvement. BAV patients were younger, predominantly male, with lower prevalence of hypertension. Aortopathy was more prevalent in BAV patients ($p < 0.001$). Clinical presentation and AS severity indexes were similar between groups except for higher mean transvalvular gradients in BAV ($p = 0.022$). Patients with BAV had higher LV mass (92 [IQR 74] vs. 71 [IQR 31] g/m^2, $p = 0.008$) and positive remodeling at pre-operative CMR (1.04 [IQR 0.3] vs. 0.92 [IQR 0.2], $p = 0.037$). Neither non-invasive myocardial tissue characterization at CMR nor myocardial fibrosis content at biopsy differed among the groups. Surgical bioprosthesis were more commonly implanted in patients with TAV ($p < 0.001$). Accordingly, BAV patients had higher rates of concomitant ascending aorta grafts at SAVR.
Conclusions: In severe symptomatic aortic stenosis, clinical presentation is indistinct regardless of valve morphology, except for higher prevalence of aortopathy in BAV patients. Pressure overload is probably the main driver of LV adaptation, as myocardial tissue characterization is similar in both groups of patients.

Sábado, 12 Abril de 2025 | 12:30-13:30

Área de Posters-écran 3 | Sessão de Posters 40 – Intervenção coronária

PO 270. NAVIGATING THE CORONARY CROSSROADS: LEFT MAIN ARTERY BIFURCATING LESIONS, A SINGLE CENTRE PCI RESULTS

Rita Louro, Rafael Viana, Carla Silva, Orlando Luquengo, Marta Figueiredo, António Almeida, Miguel Carias, David Neves, Ângela Bento, Renato Fernandes, Gustavo Sá Mendes, Lino Patrício

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Introduction: The management of patients with left main coronary artery (LM) disease presents a dilemma in medicine, with the ongoing debate between the efficacy of the percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG), current literature favours CABG in SYNTAX ≥ 22, due to more complex coronary anatomies.
Methods: Retrospective analysis, in a single centre between 2010 and 2024, of 114 patients with bifurcating LM disease treated percutaneously to evaluate cardiovascular outcomes compared to those of the literature. The primary outcome was composed of death from cardiovascular causes, myocardial infarction, stroke, or target lesion revascularization. Results at this centre were compared with expected cumulative long-term major adverse cardiac and cerebrovascular events (MACCE) for PCI and CABG in SYNTAX. Expected results were retrieved from the SYNTAX Score logistic regression.
Results: A total of 113 patients were included, with a median follow-up (FUP) of 38 months (10 lost to FUP). Regarding baseline characteristics, the population had a mean age of 70.8 ± 11.1 years, 77.2% were men. The presentation was chronic coronary syndrome (CCS) in 42.1% and STEMI in 30.7%. The mean SYNTAX score was 27.0 ± 11.8. Patients with more complex coronary anatomy, as described in the literature, exhibit higher rates of MACCE: 18.9% for SYNTAX < 22, 19.5% for SYNTAX 22-33, and a significantly higher 42.9% for SYNTAX ≥ 33, detailed outcomes are presented in the table. These MACCE results, according to SYNTAX Score, are lower than expected for percutaneous approach and comparable to CABG in SYNTAX < 22 and 22-33. In SYNTAX ≥ 33, the MACCE rate was higher than expected for PCI and CABG. A subgroup analysis of patients with SYNTAX ≥ 33 revealed a MACCE rate of 25% in those presenting with chronic coronary syndrome (CCS).
Conclusions: Although the Syntax Score is an older tool, it remains valuable for patient stratification and should not be abandoned, as it provides an assessment of disease burden. In patients with a Syntax < 33, PCI outcomes in our experience are comparable to CABG, even with the inclusion of acute coronary syndromes (ACS). In patients with Syntax > 33 CABG remains slightly superior in CCS (25 vs. 21.9%) due to the higher disease burden. However, in ACS PCI is often performed due to the impossibility of CABG. These results suggest that the percutaneous approach is a valid solution, particularly in the context of long surgical waiting lists.

PO 271. SAFETY AND OUTCOMES OF IFR VS. FFR IN CORONARY REVASCULARIZATION: A REAL-WORLD COHORT STUDY

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Introduction: Coronary revascularization guided by functional assessment has been shown to improve patient outcomes compared to revascularization guided by angiography alone. Randomized clinical trials have demonstrated that coronary revascularization guided by instantaneous wave-free ratio (iFR) is noninferior to fractional flow reserve (FFR) in terms of major adverse cardiac events at 1 year. However, the 5-year results of the DEFINE-FLAIR trial raised concerns due to an observed increase in all-cause mortality in the iFR arm, contrary to the iFR SWEDEHEART trial. The aim of this study is to validate the safety of performing iFR versus FFR in a large real-world long-term dataset, focusing on major adverse cardiac events.
Methods: Retrospective, single-center, observational study with patients undergoing coronary angiography guided by functional assessment from 2012 to 2022 in a tertiary center. Two groups were analyzed: patients assessed with FFR and those with iFR. Differences between the groups were evaluated using the chi-square, independent *t*-test or Mann-Whitney U test. Kaplan-Meier survival curves and Cox regression analysis were used to evaluate the primary composite outcome of death or myocardial infarction at two-year follow-up.

	SYNTAX < 22 (n=37)	SYNTAX 22-33 (n=41)	SYNTAX ≥ 33 (n=35)	ALL (n=113)
@ FUP - mean, CI (95%)	46, (30;61)	39, (22;55)	29, (14;45)	38, (29;47)
Primary outcome, n (%)				
Cardiovascular death, myocardial infarction, stroke, target lesion revascularization (TLR)	7 (18.9)	8 (19.5)	16 (45.7)	31 (27.2)
Secondary outcome, n (%)				
Death from all causes	10 (27.0)	10 (24.4)	15 (42.9)	35 (30.7%)
Cardiovascular death	3 (8.8)	5 (13.2)	10 (29.4)	18 (15.8)
Myocardial infarction	4 (11.1)	3 (8.3)	7 (25.9)	14 (2.3)
Stroke	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Target lesion revascularization (TLR)	3 (8.3)	1 (0.0)	4 (14.8)	7 (5.7)

* Expected MACCE rates by SYNTAX score - <22 (21.3% CABG vs. 31.25% PCI), 22-33 (18.8% CABG vs. 28.1% PCI), and ≥33 (21.9% CABG vs. 36.3% PCI).

Figure PO 270

	iFR	FFR	p-value
n (%)	382 (70)	161 (30)	NA
Age (mean)	65.9 (±10.8)	67.8 (±10.3)	NS
Male n (%)	310 (81)	112 (61)	NS
IBM (mean ±SD)	28.4 (±6)	27.4 (±5)	
Hypertension n (%)	306 (80)	132 (20)	NS
Diabetes n (%)	164 (43)	64 (40)	NS
Dyslipidemia n(%)	254 (66)	114 (71)	NS
Smoker n (%)	166 (43)	56(34)	p=0.007
Previous MI (%)	94 (26)	30 (19)	NS
Previous PCI n (%)	127 (33)	54 (34)	NS
Previous CABG n (%)	11 (3)	6 (4)	NS
Chronic Kidney Disease n (%)	118 (31)	31 (19)	P=0.03
LVEF			
>50%	67%	73%	NS
41-50%	7%	8%	NS
31-40%	16%	9%	NS
21-30%	7%	10%	NS
<21%	3%	0%	NS
Clinical Context			
STEMI n (%)	34 (9)	25 (15)	NS
NSTEMI n (%)	58 (15)	3 (2)	NS
Unstable Angina n (%)	24 (7)	21 (13)	NS
Chronic coronary sydrome n (%)	266 (71)	112 (70)	NS
Procedure			
Radiation dose (Gy)	11.6 ± 4.6	6.4 ± 2.8	p<0.001
Time in minutes (median, IQR)	56 (IQR 40-71)	62 (IQR 43-80)	p=0.005
Mean IFR	0.87 (±0.12)	NA	
Mean FFR valor	NA	0.8 (±0.12)	
Vessel			
Left main coronay	9 (2)	7 (4)	NS
Left anterior descending	241 (67)	91 (57)	NS
Circumflex	42 (12)	27 (17)	NS
Right coronary	64 (17)	35 (22)	NS
Intermediate	3 (1)	1 (1)	NS
First diagonal branch	6(2)	0	NS
Left Marginal	17 (5)	0	NS
Treatment			
Conservative	227 (59)	83 (52)	p=0.02
PCI n (%)	121 (32)	69 (42)	p=0.03
CABG n (%)	33 (9)	11 (7)	NS
Events			
Myocardial infartion n (%)	10 (2.7)	4 (2.5)	NS
Death n (%)	28 (7.1)	12 (7.3)	NS

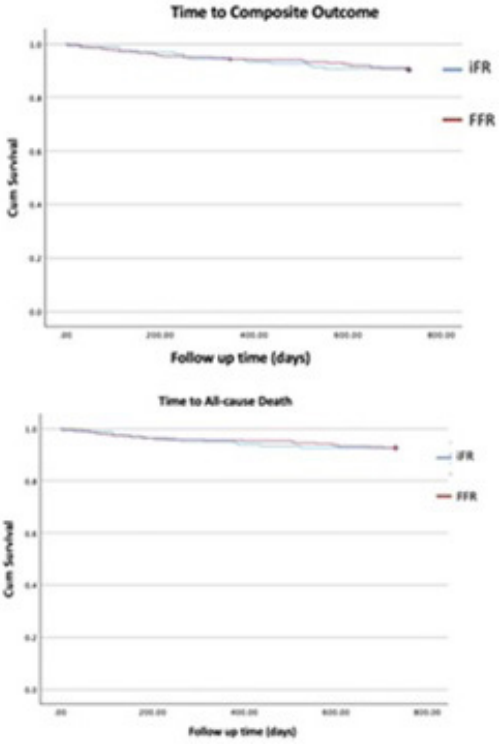

Figure PO 271

Results: A total of 543 patients were included, with a mean age of 67 ± 10 years; 77% were male. Of these, 161 underwent FFR and 382 underwent iFR. There were no significant differences between the groups in sex distribution, relevant comorbidities, or baseline left ventricular ejection fraction, except for a higher prevalence of previous smoking and chronic kidney disease in the iFR group. The most commonly evaluated vessel in both groups was the left anterior descending artery, followed by the right coronary artery and the circumflex artery. Medical therapy was more common in the iFR group (59 vs. 52%, p = 0.02), and PCI was performed less frequently (32 vs. 42%, p = 0.03). The mean procedure time was shorter in the iFR group (56 vs. 62 minutes, p = 0.005), with lower radiation doses (6.4 ± 2.8 vs. 11.6 ± 4.6 Gy). The primary composite outcome of death or myocardial infarction occurred in 37 patients in the iFR group and 16 patients in the FFR group, without significant difference between the groups. Similarly, no difference was observed in all-cause mortality (7.1 vs. 7.3%).

Conclusions: In this real-world cohort, no significant differences were observed in the composite outcome of death or myocardial infarction at two-year follow-up between patients undergoing coronary revascularization guided by iFR versus FFR. Although iFR was associated with shorter procedure times, lower radiation doses, and less frequent PCI, the safety profile of iFR appeared comparable to FFR, with no significant differences in all-cause mortality. This result is in agreement with the iFR Swedeheart trial, further strengthening the safety of using iFR for revascularization decisions.

PO 272. CORONARY PHYSIOLOGY IN IN PATIENTS WITH ANGINA AND NON-OBSTRUCTIVE CORONARY ARTERY DISEASE - PRELIMINARY DATA FROM MULTICENTER REGISTRY

Mariana Ferreira Carvalho[1], Margarida Cabral[1], Carolina Gonçalves[1], Adriana Vazão[1], André Martins[1], Mónica Amado[1], Joana Pereira[1], Francisco Soares[1], Pedro Jerónimo Sousa[1], Fátima Saraiva[1], Jorge Guardado[1], Manuel de Oliveira Santos[2]

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Introduction: Coronary vasomotion disorders (CVDs) are a common cause of angina and ischemia in patients with non-obstructive coronary artery disease (ANOCA/INOCA). However, invasive coronary angiography (ICA) often falls short in identifying vasospastic angina and microvascular dysfunction. The role of CVD as the cause of angina or ischemia is becoming increasingly recognized.

Objectives: We aimed to characterize coronary physiology and microvascular function in patients with angina or ischemia and non-obstructive coronary artery disease (ANOCA/INOCA).

Methods: We included in this retrospective study individuals diagnosed with ANOCA/INOCA who underwent in our coronary function testing (CFT) protocol from July 2022 to January 2023 across multiple centers. The assessment involved invasive examinations of coronary circulation vasorelaxation both at rest and during hyperemia induced by adenosine. Additionally, we evaluated the propensity for coronary vasospasm by administering increasing doses of intra-coronary acetylcholine. Recorded data included fractional flow reserve, coronary flow reserve (CFR), and the index of microvascular resistance (IMR). The diagnosis of cardiovascular disorders (CVDs) followed the criteria outlined by the Coronary Vasomotor Disorders International Study Group.

Results: In this study, a total of 32 patients were enrolled, with an average age of 63.1 ± 8.4 years, and 56.3% were female. The most prevalent cardiovascular risk factors were dyslipidemia (68.8%), arterial hypertension (55.1%), and diabetes mellitus (39%). At the outset, all patients exhibited either typical angina (59.4%, n = 19) or a positive ischemia test (68.7%, n = 22). Of the participants, 21 individuals (65.6%) had previously undergone invasive coronary angiography or computed tomography due to anginal symptoms. The implementation of our coronary function testing (CFT) protocol was successfully completed in all patients without encountering any serious complications. The results revealed isolated macrovascular vasospasm in 15 patients (46.9%), isolated coronary microvascular dysfunction (CMD) in 6 patients (18.8%), and a combination of CMD and coronary vasospasm in 2 patients (6.3. A normal result was observed in 9 patients (28.1%).

Conclusions: Coronary vasomotion disorders emerge as a prevalent diagnosis, being present in 71.9% of patients referred for coronary angiography with coronary physiology with diagnosis of INOCA/ANOCA.

PO 273. IMPLICATIONS OF USING A RADIATION PROTECTION CABIN IN THE CARDIAC CATHETERIZATION LABORATORY

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Introduction: Radiation exposure increases alongside technological advances and the complexity of cardiovascular interventions, raising concerns for healthcare professionals in Interventional Cardiology. The *Cathpax*® radiation protection cabin (RPC) was developed to minimize work-related exposure, offering superior protection and potentially eliminating the need for heavy lead aprons, thereby reducing orthopedic injuries. However, its large size significantly alters cath lab dynamics, requiring an adaptation period for the entire team and impacting patient preparation and cleaning processes.
Objectives: We aim to assess the implications of using the *CATHPAX® AIR* radiation protection cabin in the Cath Lab's workflow.
Methods: A single-center retrospective study was conducted from January to November 2024, analyzing diagnostic and interventional cardiology procedures. We compared procedures before and after the cabin's implementation, excluding the first month due to team adaptation and incomplete cabin use. After this period, prepping and cleaning procedures were optimized, and the *CATHPAX* was used in nearly all cases. Study endpoints included fluoroscopy time, patient exposure dosage, and contrast usage, along with intraprocedural complications and procedure success. Statistical analyses were performed using Independent-Samples T-Test, Chi-square, and Mann-Whitney U tests with SPSS software.
Results: A total of 528 procedures were analyzed, 311 (199 diagnostic angiograms and 122 interventions) before and 217 (149 angiograms and 68 interventions) after the cabin implementation. Patients had a mean age of 67.8 ± 10.2 years, 72.4% were male, 37.1% presented with Acute Coronary Syndromes, and radial access was used in 97.6%. Baseline characteristics were comparable between groups. There were no statistically significant differences in patient radiation exposure (305 mGy vs. 338 mGy, p = 0.06), fluoroscopy time (4.2 vs. 3.8 minutes, p = 0.61), or contrast usage (70 mL vs. 60 mL, p = 0.11). There was a slight trend toward higher exposure dosage (p = 0.06), that we believe is related to a change in the fluoroscopy protocol that was implemented shortly before the *CATHPAX*, since it is not accompanied by an increase in fluoroscopy time. The average number of procedures performed per 6-hour period was comparable between groups (5.0 vs. 5.0, p = 0.99), including (3.6 vs. 3.8, p = 0.08) diagnostic angiograms and (1.4 vs. 1.2, p = 0.17) angioplasties, respectively. Complications were comparable (p = 0.65), with three in the pre-cabin group (two distal perforations, one cardiorespiratory arrest) and one distal perforation post-cabin.

Table 1. Comparative analysis of procedures before and after the cabin's implementation

	Pre-Cabin (n=311)	Post-Cabin (n=217)	p value
Age - yr	67.3 ± 10.6	68.6 ± 10.0	0.14
Male sex – no. (%)	73.6	71.9	0.66
BMI (Kg/m²)	27.6	27.8	0.73
Weight (Kg)	76.9	78.0	0.41
Radiation to the patient [Air Kerma (mGy)]	305 IQR[153 - 551]	338 IQR[193 - 686]	0.06
Fluoroscopy time (min)	4.2 IQR[2.2 – 9.6]	3.8 IQR[2.1 – 9.9]	0.61
Contrast quantity (mL)	70 IQR[40 – 120]	60 IQR[40 – 120]	0.11
Number of procedures per 6-hour period	5.0 ± 0.9	5.0 ± 1.0	0.99
• Diagnostic Angiograms	3.6 ± 1.3	3.8 ± 1.3	0.08
• Angioplasties	1.4 ± 0.7	1.2 ± 0.8	0.17
Total complications (n)	3	1	0.65
• Minor (n)	2	1	1.00
• Major (n)	1	0	1.00

Conclusions: Our study demonstrated that the use of the radiation protection cabin is safe and does not significantly impact the cath lab workflow.

PO 274. ONE-YEAR OUTCOMES OF ALCOHOLIC SEPTAL ABLATION IN A TERTIARY REFERENCE CENTER

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Table 1 – General patient characteristics and procedural specifications

Baseline characteristics	n = 170
Age - yr	68 ± 11
Age >75 years - n (%)	43 (25%)
Male sex - n (%)	66 (39%)
Hypertension - n (%)	117 (69%)
Dyslipidemia - n (%)	85 (50%)
Diabetes - n (%)	25 (15%)
NYHA class [IQR]	3 [3-3]
NYHA class ≥3 - n (%)	133 (78%)
Angina – n (%)	78 (47%)
Pharmacotherapy	
Beta-Blocker - n (%)	153 (90%)
Calcium channel blockers – n (%)	66 (39%)
Procedural specifications	
Maximal wall thickness – mm [IQR]	20 mm [18-23]
Alcohol administration – cc [IQR]	2 cc [1.8-2.2]
Creatinine Kinase peak – u/L [IQR]	1205u/L [860-1557]
New onset RBBB - n (%)	78 (46%)
New onset LBBB – n (%)	9 (19%)
Pacemaker implantation – n (%)	31 (18%)
Average hospitalization duration – days [IQR]	8 [6-9]

Figure 1 – Graphical depiction of gradient evolution with follow up

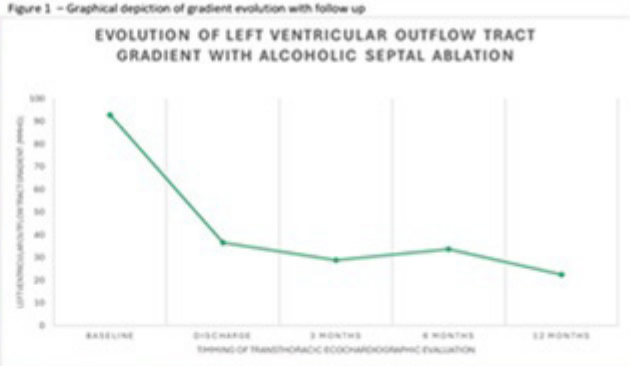

Table 2 – Long term outcomes after alcoholic septal ablation

Procedural outcomes	n = 170
Average gradient reduction at discharge – % [IQR]	55% [17-81]
Average gradient reduction at 3 months – % [IQR]	72% [16-86]
Average gradient reduction at 6 months – % [IQR]	63% [34-86]
Average gradient reduction at 12 months – % [IQR]	84% [60-94]
>50% reduction at 3-12 months post ASA - %	87%
>50% reduction at 6-12 months post ASA - %	79%
Procedural mortality - n (%)	1 (0.6%)
Cardiovascular mortality at 12 months - n (%)	3 (1.8%)
All-Cause mortality at 12 months – n (%)	6 (3.5%)

Figure PO 274

Introduction: Alcoholic septal ablation (ASA) is a minimally invasive procedure employed to alleviate left ventricular outflow tract (LVOT) obstruction in patients with hypertrophic obstructive cardiomyopathy (HOCM). We present the 1-year follow up of consecutive patients undergoing this procedure at our hospital.
Methods: We enrolled consecutive patients with a diagnosis of HOCM that underwent ASA at our hospital. Patient baseline characteristics, intraprocedural data (e.g., maximal wall thickness, alcohol dosage, new-onset bundle branch blocks) and transthoracic echocardiogram (TTE) data were recorded. The primary outcome of procedural success was based on an echocardiographic improvement of left ventricular outflow tract (LVOT) gradient reduction of over 50% at 3, 6, or 12 months). Safety endpoints of intraprocedural mortality and 12-month cardiovascular and all-cause mortality were also assessed. A paired t-test was used to ascertain the significance of the primary outcome.
Results: A total of 170 consecutive patients with an average age of 68 ± 11 years, 104 (61%) of which female were enrolled in this analysis. Patients had significant symptoms (Median NYHA Class 3 [3-3]; Angina – 47% of patients), despite high rates of beta-blocker and calcium channel blocker use (90% and 39% of patients, respectively) (Table 1). Procedurally, an average of 2 cc [IQR 1.8-2.2] of alcohol was administered, with a new right bundle branch block (RBBB) in 46% and pacemaker implantation in 18% of patients. Significant LVOT gradient reduction was achieved - 84% [IQR 60-94] at 12 months)- with > 50% reduction seen in 87% and 79% of patients at 3-12 and 6-12 months post-ASA, respectively (Figure 1). A paired t-test comparing LVOT gradient at baseline and 12-months demonstrated a mean gradient decrease from 94.1 mmHg (baseline) to 22.1 mmHg (12 months), with a mean difference of 72.0 mmHg (95%CI: 59.3-84.6, $p < 0.0001$), confirming the effectiveness of ASA in reducing LVOT obstruction. Intraprocedural mortality occurred in one patient (mortality rate 0.01%), due to acute mitral regurgitation. Six patients died at a 12-month follow-up, half of which from cardiovascular causes – one previously mentioned, one from massive pulmonary thromboembolism, and one from cardiogenic shock.
Conclusions: ASA is safe and effectively reduces LVOT gradient, alleviating symptoms in HOCM patients, with sustained improvements up to 12 months post-procedure.

PO 275. EXPLORING FUNCTIONAL CORONARY DISEASE BEYOND OBSTRUCTIVE LESIONS

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Introduction: Patients exhibiting symptoms of angina and/or signs of ischemia in the absence of obstructive coronary disease (INOCA - Ischemia and No Obstructive Coronary Arteries) present a considerable diagnostic and therapeutic challenge. Consequently, it is essential to distinguish between patients with functional coronary disease, such as vasospastic and microvascular diseases, and those whose pain is attributed to non-coronary causes. This study descriptively analyzes patients who underwent assessment of coronary flow reserve (CFR), index of microcirculatory resistance (IMR), followed by vasoreactivity testing with acetylcholine in a tertiary care center.
Objectives: To understand the relevance of microvascular and vasoreactivity testing by characterizing a sample subjected to these tests. The goal is to categorize patients according to their respective diagnoses of non-coronary thoracic pain, vasospastic angina, and microvascular disease, and to provide appropriate treatment accordingly.
Methods: We analyzed 17 patients who underwent cardiac catheterization, which confirmed the absence of significant obstructive coronary disease. Our center's protocol was applied to these patients, including the administration of adenosine and acetylcholine to calculate the coronary flow reserve (CFR), index of microcirculatory resistance (IMR), and to detect vasospasm. The CFR (normal ≥ 2.0) and IMR (normal ≤ 25) were accessed as well as vasorreactivity following administration of acetylcoline. Following the testing, patients were categorized into four groups: 1. Microvascular Angina: Classified if CFR < 2 and/or IMR > 25 and/or evidence of microvascular spasm. 2. Vasospastic Angina: Classified if both CFR and IMR are normal, but epicardial spasm is present. 3. Microvascular and Vasospastic Angina: Identified if there is evidence of both microvascular dysfunction and epicardial spasm. 4. Non-cardiac Thoracic Pain: Identified if no abnormalities are detected.
Results: Of the 6 patients who underwent therapeutic changes, 5 were contacted, and of those, 4 patients (80%) reported a marked subjective improvement in symptoms and quality of life.

Patients Characteristics	N (%)
N	17 (100)
Age, mean	63.4
Female	10 (58.8)
Male	7 (41.2)
Cardiovascular Risk Factors:	
- Type 2 Diabetes	6 (35.3)
- Hypertension	9 (52.9)
- Hypercholesterolemia	14 (82.4)
- Smoker	1 (5.9)
Negative / Non-performed Ischemia Tests	6 (35.3)
Sugestive Ischemia Tests:	11 (64.7)
- Scintigraphy	3 (17.6)
- Multislice CT	2 (11.8)
- Cardiac MRI	2 (11.8)
- Stress Ecocardiogram	1 (5.9)
- Stress test	3 (17.6)
Diagnosis:	
- Microvascular disease	5 (29.4)
- Vasospastic angina	6 (35.3)
- Microvascular and Vasospastic angina	1 (5.9)
- No coronary disease	5 (29.4)
Therapeutic changes	6 (35.3)

Conclusions: Patients with angina and no obstructive coronary disease present a diagnostic and therapeutic challenge. Catheterization combined with these special tests identifies functional coronary disease, facilitating pertinent treatment changes to improve patient outcomes, symptoms, and quality of life. Patients without coronary disease who can be safely discharged are identified. Further studies and additional tests of this nature are required.

PO 276. TRENDS IN PHYSIOLOGY AND CORRELATION BETWEEN IFR AND FFR IN CORONARY PHYSIOLOGICAL ASSESSMENT: A DECADE OF REAL-WORLD DATA

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Introduction: Coronary artery disease (CAD) treatment often relies on coronary angiography, but coronary physiological assessment, including Fractional Flow Reserve (FFR) and Instantaneous Wave-Free Ratio (iFR), provides a more accurate evaluation of coronary stenosis severity. While FFR has long been the gold standard for guiding revascularization, iFR has gained attention for its ability to deliver similar clinical outcomes with a simpler resting approach. This study evaluates trends in the use of iFR versus FFR, as well as changes in procedure times, radiation exposure, and the correlation between iFR and FFR over the past decade.
Methods: This retrospective, single-center study included patients who underwent coronary physiological assessment between 2012 and 2022. The population was divided into two groups based on the timing of catheterization: the "past group" (2012-2015) and the "present group" (2020-2022). Differences between the groups were evaluated using chi-

Patient Characteristics	2012 -2015 Group N= 263	2020-2022 Group N=397	p-value
Age (years) – mean ± SD	66.9 ± 10.8	65.9 ±10.8	NS
Female sex (%)	81	72	NS
Diabetes (%)	96 (37)	167 (42)	NS
Hypertension (%)	211 (80)	319 (80)	NS
Creatinine clearance mean ± SD	70.2 ± 16	72.5 ± 18	NS
Previous myocardial infarction (%)	59 (22)	93 (23)	NS
Preserved EF (%)	210 (80)	296 (75)	p=0.004
Reduced or mildly reduced EF (%)	53(20)	101 (25)	p=0.004
Urgent procedure (%)	125 (48)	206 (52)	p=0.002
Planned procedure (%)	138 (52)	191(48)	p=0.002
FFR only (%)	157 (60)	4 (1)	p<0.001
iFR only (%)	19 (7)	363 (91)	p<0.001
iFR and FFR combined (%)	83 (34)	29 (7)	p<0.001
Time minutes mean ± SD	73.9 ± 21	63.8 ± 28	p=0.004
Radiation dose (GY) mean ± SD	10.5 ± 4	6.4 ± 3	p<0.001
iFR value mean ± SD	0.90 ± 0.88	0.87 ± 0.12	p<0.001
FFR value mean ± SD	0.81 ± 0.21	0.74 ± 0.19	p<0.001
Vessel			
Left coronary artery (%)	9 (3)	11 (3)	NS
Left anterior descending artery (%)	152 (58)	261 (66)	p<0.001
Right coronary artery (%)	50 (19)	60 (15)	p<0.001
Others (%)	49 (19)	64 (16)	p<0.001
Approach			
Medical therapy (%)	145 (56)	227 (57%)	NS
PCI (%)	100 (38)	134 (34)	NS
Surgery (%)	15 (6)	35 (9)	NS

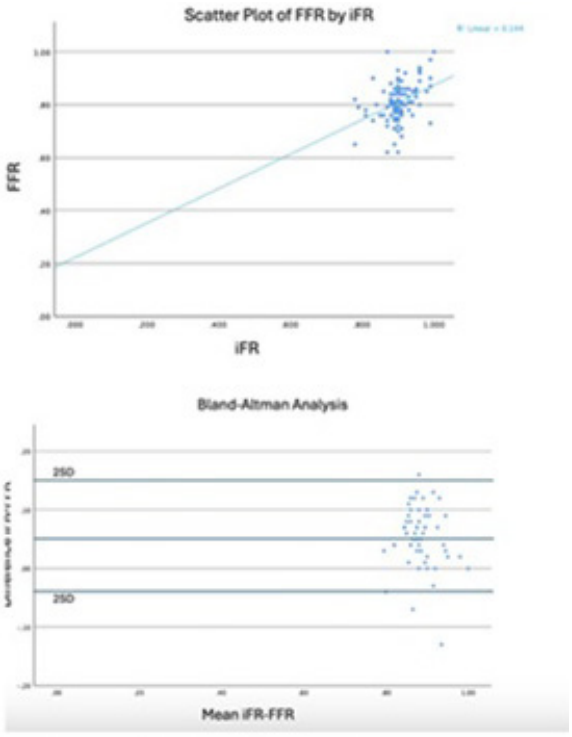

Figure 1: Comparison of Groups 2012-2015 and 2020-2022 and Trends in the Choice of iFR vs FFR vs Combined

Figure PO 276

square, independent t-test, or Mann-Whitney U test. Bland-Altman analysis and Pearson correlation were used to compare iFR and FFR values.

Results: A total of 660 patients were included, with 263 in the past group and 397 in the present group. Both groups were similar in age, gender, and comorbidities. Procedure time (73.9 ± 21 vs. 63.8 ± 28 minutes, $p = 0.004$) and radiation exposure (10.5 ± 4 vs. 6.4 ± 3 Gy, $p < 0.001$) were significantly higher in the past group. The left anterior descending artery was the most commonly assessed vessel, followed by the right coronary artery. In the past group, the majority of patients (60%) underwent FFR-only procedures, with 33% receiving a combination of FFR and iFR assessments. In contrast, in the present group, 91% of procedures were iFR-only. FFR was utilized in 8% of cases, and in 77% of those instances, it involved the left anterior descending artery. For iFR-only assessments, the mean iFR value was 0.87 ± 0.12, while for FFR-only assessments, the mean FFR value was 0.80 ± 0.12. A total of 41 patients underwent combined procedures, with iFR and FFR values close to their cutoff points (iFR: 0.90 ± 0.04, FFR: 0.81 ± 0.07). A significant correlation was observed between iFR and FFR values ($R = 0.38$; $p < 0.001$), with good agreement by Bland-Altman analysis (mean difference between iFR and FFR: 0.056 ± 0.05).

Conclusions: This study shows a growing preference for iFR, associated with shorter procedure times and lower radiation exposure. A significant correlation between iFR and FFR was observed, with both methods showing good agreement.

PO 277. CHARACTERIZATION OF PATIENTS WITH LEFT MAIN CORONARY ARTERY DISEASE IN NON-ACUTE SETTINGS

Simão de Almeida Carvalho, Tiago Aguiar, Carlos Costa, Adriana Pacheco, Inês Cruz, Gil Pires, Anabela Capela, Sónia Almeida, Andreia Fernandes, Tiago Adrega, Joana Ribeiro, Ana Briosa

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Introduction: Left main coronary artery disease (LM-CAD) is linked to poor outcomes even in chronic settings, with revascularization improving prognosis regardless of symptoms or documented ischemia. Updated European CCS guidelines redefined pre-test probability (PTP), increasing the 'very low probability' range.

Objectives: To characterize the clinical profiles, diagnostic pathways, and management of patients with LM-CAD in chronic the setting.

Methods: Retrospective cohort study of patients undergoing cardiac catheterization between May 2023 and November 2024. Patients were included if they had LM stenosis ≥ 50% by angiography. Exclusion criteria were: acute presentations (positive troponin), Prior CABG or severe valvular disease. Analyses were performed using SPSS.

Results: The study included 27 patients, 81.5% male, mean age of 68.9 ± 9.3 years. Patients had 2.4 ± 0.8 cardiovascular risk factors; dyslipidemia (85.2%) and hypertension (74.1%) were most common. Regarding clinical presentation, Chest pain (66.7%) was most common clinical presentation, followed by dyspnea (14.8%), ventricular arrhythmias, and asymptomatic left ventricular dysfunction (18.5% each). Among those with chest pain, the median ESC symptom score was 3 (IQR: 2.5-3). Using the Risk Factor-Weighted Clinical Likelihood model, the mean PTP was 26.3 ± 12.8%, corresponding to a moderate likelihood of obstructive CAD with 3 patients in the low and 1 in the very low-likelihood range. Notably, 70.4% of patients had at least one significant risk modifier. The most common were left ventricular dysfunction in 44.4% of cases, and baseline electrocardiographic abnormalities such as Q-waves or ST-segment changes in 37.0%. Regarding diagnostic modalities, 29.6% of patients were referred directly to invasive evaluation and 14.8% after treadmill test. This reflects the presence of high-risk criteria in exercise stress tests, such as a Duke Treadmill Score < -10, the occurrence of new-onset or low-threshold angina, or a high pre-test probability (> 85%) of coronary artery disease. Regarding non-invasive diagnostic methods, stress single-photon emission computed tomography (SPECT) was performed in 18.5% of patients, while coronary computed tomography angiography and stress echocardiography were each used in 14.8%. Among patients undergoing non-invasive tests, 78.9% had high-risk criteria. Regarding revascularization, CABG was the predominant modality (59.2%) and percutaneous coronary intervention (PCI) was undertaken in 25.9% of cases. Two patients were managed conservatively due to significant comorbidities. During the short follow-up period, one death was recorded, involving a patient awaiting CABG.

Table 1. Results (n=27)	
Age - yr	68.9 ± 9.3
Male sex (%)	81.5
Number of risk factors	2.4 ± 0.8
- Family History (%)	18.5
- Diabetes (%)	37.0
- Dyslipidemia (%)	85.2
- Hypertension (%)	74.1
- Smoking (%)	25.9
Clinical Presentation	
Main Clinical Symptom	
- Chest Pain (%)	66.7
- Dyspnea (%)	14.8
- Other (%)	18.5
Chest Pain Score	3 IQR[2.5 - 3]
Pre-test probability RF-CL without risk modifiers	26.3 ± 12.8
Patients with risk modifiers (%)	70.4
- De novo presentation or low threshold angina (%)	18.5
- Resting ECG changes (Q-wave or ST-segment/T-wave changes) (%)	37.0
- Exercise ECG with abnormal findings (%)	25.9
- LV dysfunction (severe or segmental) (%)	44.4
- Ventricular arrhythmia (%)	25.9
- Peripheral Artery Disease (%)	7.4
Diagnosis	
Initial Diagnosis Method	
- Exercise ECG (%)	14.8
- Coronary Computed Tomography angiography (%)	14.8
- Stress Echocardiography (%)	14.8
- Stress SPECT (%)	18.5
- CMR perfusion test	7.4
- Invasive Coronary Angiography (%)	29.6
Diagnosis Method with high-risk criteria (%)	78.9
Follow-up	
Revascularization mode	
- CABG (%)	59.2
- PCI (%)	25.9
- Hybrid (%)	3.7
- Medical Treatment (%)	7.4
Complications	
- Death waiting surgery – no (%)	1 (3.7%)

Conclusions: This study characterizes non-acute LM-CAD patients under revised ESC CCS guidelines. Most had moderate PTP, but high-risk modifiers highlight the need for personalized risk assessment.

PO 278. PERCUTANEOUS CORONARY INTERVENTION FOR LEFT MAIN CORONARY ARTERY: ACUTE AND CHRONIC DISEASE

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ULS Braga.

Introduction: For several years, coronary artery bypass grafting has been the standard choice of revascularization for significant left main (LM) coronary artery disease (CAD). However, with advancements in percutaneous coronary intervention (PCI) procedures, it has become a reasonable alternative in a significant portion of patients. The aim of this study was to characterize procedures and evaluate patients' outcomes, after PCI for LM CAD.

Methods: A retrospective study performed from January 2019 to December 2022, in patients submitted to PCI in LM CAD for chronic coronary syndromes (CCS) or acute coronary syndromes (ACS), with drug eluting stents. Demographic, clinical, angiographic, and procedural data were collected. Clinical outcomes, including major adverse cardiac and cerebrovascular events (MACCE), were assessed during follow-up.

Table 1. Characterization of patients and procedures according to the clinical presentation

	CCS (n= 19)	ACS (n=88)	TOTAL (n=107)	*p* value
Age, years, Mean ± Standard deviation	67,1 ±9,2	68,9±11,7	68,6±11,3	0,526
Male, n (%)	15 (78,9%)	71 (80,7%)	86 (80,4%)	0,863
BMI, kg/m2, Mean ± Standard deviation	27,7±5,7	27,0±4,3	27,2±4,5	0,543
Comorbidities				
Diabetes mellitus, n (%)	4 (%)	26 (%)	30 (%)	0,534
Treated with oral glucose-lowering drugs	2 (10,5%)	19 (21,6%)	21 (19,6%)	
Insulin-treated	2 (10,5%)	7 (8,0%)	9(8,4%)	
Hypertension, n (%)	14 (73,7%)	61 (69,3%)	75 (70,1%)	0,706
Dyslipidaemia, n (%)	14 (73,7%)	54 (61,4%)	68 (63,6%)	0,312
Smoker, n (%)				0,591
Former smoker (>30 days)	5 (26,3%)	19 (21,6%)	24 (22,4%)	
Current smoker	2 (10,5%)	18 (20,5%)	20 (18,7%)	
Previous coronary angioplasty, n (%)	2 (10,5%)	7 (8,0%)	9 (8,4%)	0,360
Previous coronary artery bypass grafting, n (%)	4(21,5%)	7 (8,0%)	11 (10,3%)	
Both coronary angioplasty and CABG, n (%)	1 (5,3%)	5 (5,7%)	6 (5,6%)	
Previous myocardial infarction, n (%)	4 (21,1%)	18 (20,5%)	22 (20,6%)	0,953
History of coronary artery disease, n (%)	8(42,1%)	27 (30,7%)	35 (32,7%)	0,336
History of heart failure, n (%)	3 (15,8%)	16 (18,2%)	19 (17,8)	0,805
History of cerebrovascular disease, n (%)	3 (15,8%)	10 (11,4%)	13 (12,1%)	0,592
Peripheral vascular disease, n (%)	0 (0,0%)	4 (4,5%)	4 (3,7%)	0,344
Chronic kidney disease, n (%)	3 (15,8%)	14 (15,9%)	17 (15,9%)	0,990
Chronic obstructive pulmonary disease, n (%)	1 (5,3%)	8 (9,1%)	9 (8,4%)	0,586
Documented ischaemia	15 (78,9%)	9 (10,2%)	24 (22,4%)	**<0.01**
Exercise stress test	7 (36,8%)	6 (6,8%)	13 (12,1%)	**<0.01**
Stress Echocardiography	5 (26,3%)	1 (1,1%)	6 (5,6%)	**<0.01**
Cardiac Magnetic Resonance Imaging	3 (15,8%)	1 (1,1%)	4 (3,7%)	**0,002**
Myocardial Perfusion Scintigraphy	0 (0,0%)	1 (1,1%)	1 (0,9%)	0,641
Ejection fraction, n (%)				**0,003**
Normal (>50%)	17 (89,5%)	38 (43,2%)	54 (51,4%)	
Mild decrease (41%-50%)	1 (5,3%)	12 (13,6%)	13 (12,1%)	
Moderate decrease (31%-40%)	0 (0,0%)	19 (21,6%)	19 (17,8%)	
Severe decrease (<30%)	1 (5,3%)	19 (21,6%)	20 (18,7%)	
Left ventricle hypertrophy, n (%)	2 (10,5%)	12 (13,6%)	14 (13,1%)	0,715
Significant valvular heart disease, n (%)	2 (10,5%)	4 (4,5%)	6 (5,6%)	0,304
Angiographic characteristics				
Lesion location, n (%)				0,199
Ostium, proximal, midshaft, and/or diffuse	7 (36,8%)	20 (22,7%)	27 (25,2%)	
Distal and/or bifurcation	12 (63,2%)	68 (77,3%)	80 (74,8%)	
Anatomical complexity, n (%)				
Low SYNTAX	10 (52,6%)	30 (34,1%)	40 (37,4%)	0,130
Intermediate SYNTAX	6 (31,6%)	29 (33,0%)	35 (32,7%)	0,908
High SYNTAX	3 (15,8%)	29 (33,0%)	32 (29,9%)	0,138
Number of coronary arteries affected				0,349
Left Main Artery only	2 (10,5%)	14 (15,9%)	16 (15,0%)	
Left main + 1 coronary artery	8 (42,1%)	20 (22,7%)	28 (26,2%)	
Left main + 2 coronary arteries	4 (%)	29 (33,0%)	33 (30,8%)	
Left main + 3 coronary arteries	5 (%)	25 (28,4%)	30 (28,0%)	
Complementary diagnostic devices	14 (73,7%)	29 (33,0%)	43 (40,2%)	**0,001**
IVUS	9 (47,4%)	19 (21,6%)	28 (26,2%)	**0,020**
OCT	5 (26,3%)	10 (11,4%)	15 (14,0%)	0,089
RFR	2 (10,5%)	0 (0,0%)	2 (1,9%)	**0,002**
Strategy for bifurcation treatment				0,587
One stent technique	17 (89,5%)	82 (93,2%)	99 (92,5%)	
Two stent technique	2 (10,5%)	6 (6,8%)	8 (7,5%)	0,317
TAP	1 (5,3%)	4 (4,5%)	5 (4,7%)	
Culotte	0 (0,0%)	2 (2,3%)	2 (1,9%)	
DK Crush	1 (5,3%)	0 (0,0%)	1 (0,9%)	
Pre-dilation	19 (100%)	88 (100%)	107 (100%)	0,648
Post-dilation	19 (100%)	83 (94,3%)	102 (95,3%)	0,287
Proximal optimization	13 (68,4%)	64 (72,7%)	77 (72,0%)	0,705
Kissing balloon inflation	4 (21,1%)	11(12,5%)	15 (14,0%)	0,330
Drug Eluting Stents				0,442
Everolimus	12 (63,2%)	62 (70,5%)	74 (69,2%)	
Zotarolimus	4 (21,1%)	20 (22,7%)	24 (22,4%)	
Sirolimus	3 (15,8%)	6 (6,8%)	9 (8,4%)	
Follow-up, days, Mean + Standard deviation	1323,9±405,7	1076,8±596,6	1120,7±573,7	**0,035**
Cardiogenic shock, n (%)	0 (0,0%)	12 (13,6%)	12 (11,2%)	0,088

ACS: acute coronary syndromes; CCS: chronic coronary syndromes; FFR: fractional flow reserve; IVUS: intravascular ultrasound; OCT: optical coherence tomography; RFR: resting full-cycle flow ratio; SYNTAX: Synergy Between Percutaneous Coronary Intervention with Taxus and Cardiac.

Results: A total of 107 patients were submitted to PCI in LM CA, including 19 with CCS and 88 with ACS. Most patients were male (80.4%), with an average age of 68.6 ± 11.3 years, with cardiovascular risk factors. The follow-up was 1120.7 ± 573.7 days. Among patients with CCS, most patients had low to intermediate SYNTAX score. Use of complementary diagnostic devices was more frequent in the CCS group ($p < 0.05$). During hospitalization, patients did not develop any complications. Over the follow-up period, 5.3% (n = 1) patients died of unknown cause and no cardiovascular deaths were registered. In the ACS group, 67% (n = 59) had non-ST segment elevation myocardial infarction (MI), 23.9% (n = 21) had ST segment elevation MI and 9.1% (n = 8) had unstable angina. Cardiogenic shock (CS) was present in 13.6% (n = 12) of them (Table 1). Regarding the patients admitted in CS, in-hospital mortality was significantly higher compared with patients with no CS (33.3 vs. 4.2%, p < 0.001). During follow-up, 6.8% (n = 6) of patients had cardiovascular-related hospitalizations,

and one patient died during the re-hospitalization from severe heart failure. Over the follow-up period, the ACS group showed a higher incidence of MACCE compared to the CCS group (40.9 vs. 15.8%, $p = 0.039$). All-cause mortality was significantly higher in the ACS group (29.5 vs. 5.3%, $p = 0.027$). The rate of hospital readmissions due to cardiac symptoms was similar between groups (6.8% in ACS vs. 5.3% in CCS, $p = 0.804$). There were no significant differences in cardiovascular mortality ($p = 0.344$), stroke ($p = 0.474$), or myocardial infarction ($p = 0.893$). In-hospital mortality occurred exclusively in the ACS group (9.1 vs. 0%, $p = 0.172$).
Conclusions: PCI for LM CAD is generally considered a safe treatment option, demonstrating relatively favourable outcomes. Patients presenting with ACS had significantly worse outcomes compared to CCS patients, including higher MACCE rates and all-cause mortality. Additional studies with longer follow-up periods are required to confirm these findings.

Sábado, 12 Abril de 2025 | 14:30-15:30

Área de Posters-écran 1| Sessão de Posters 41 - Ablação de fibrilhação auricular

PO 279. EFFICACY, EFFICIENCY AND SAFETY OF PULSED FIELD ABLATION IN PATIENTS WITH ATRIAL FIBRILLATION

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Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Pulsed field ablation (PFA) is a new ablation modality that uses electrical pulses to induce cell death via irreversible electroporation. Cardiac cells are more susceptible to the generated electrical fields compared to surrounding tissues. Therefore, PFA can be effective, while minimizing collateral damage.
Objectives: To evaluate the clinical outcomes, procedural efficiency and safety of atrial fibrillation (AF) ablation using PFA at our centre.
Methods: Patients submitted to pulmonary vein isolation (PVI) using PFA between Jan and Sep 2024 were included. Two composite endpoints were defined: 1) new antiarrhythmic intervention (antiarrhythmic drug (AAD) reintroduction, electric cardioversion (ECV) or redo procedure), and 2) healthcare contacts (emergency department visits or hospitalization due to AF or congestive heart failure, ECV or redo procedure). AF recurrence during follow-up (FU) was assessed using a survival analysis, and the proportion of patients meeting the composite endpoints was determined. Quality of life (QoL) improvement was evaluated using the AFEQT score. Procedural efficiency and safety were analysed.
Results: 53 patients were included (71.7% male; median age 63, IQR 18.8). Most had persistent AF (78.4%), enlarged left atria (median iVolLA 44 ml/m^2, IQR 15.3), and prior antiarrhythmic interventions (83.3% had previously used AAD, 58% had ≥ 1 prior ECV and 44% had a previous PVI procedure). All pulmonary veins were successfully isolated in all procedures. Additional lesions were performed in 51% of patients, mostly at the posterior wall. The median procedural time was 80 min (IQR 30). Only one procedural complication was documented (femoral pseudoaneurysm). The median FU time was 209 days (IQR 84). In the survival analysis, 92% and 72% of the patients were free from AF recurrence at 6 and 12 months, respectively (Figure 1). During FU, the composite endpoint of new antiarrhythmic intervention occurred in 7.5% of patients and healthcare contacts were documented in 9.4%. Compared to baseline (median AFEQT 56.8, IQR 38.9), QoL significantly improved at 12 months, with an adjusted mean difference in the AFEQT score of +13.1 points (95%CI 2.1-42.1, p = 0.02).
Conclusions: PFA was performed in patients with high AF burden. Despite this, it proved to be a safe and effective procedure, demonstrating low rates of AF recurrence, clinically significant improvements in QoL, and a reduced need for new antiarrhythmic interventions or healthcare utilization.

PO 280. RENAL DENERVATION AS AN ADJUNCT TO PULMONARY VEIN ISOLATION IN ATRIAL FIBRILLATION ABLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Centro Hospitalar e Universitário de Coimbra.

Introduction: The autonomic nervous system (ANS) plays a critical role in the pathophysiology of atrial fibrillation (AF). Neuromodulation of the ANS

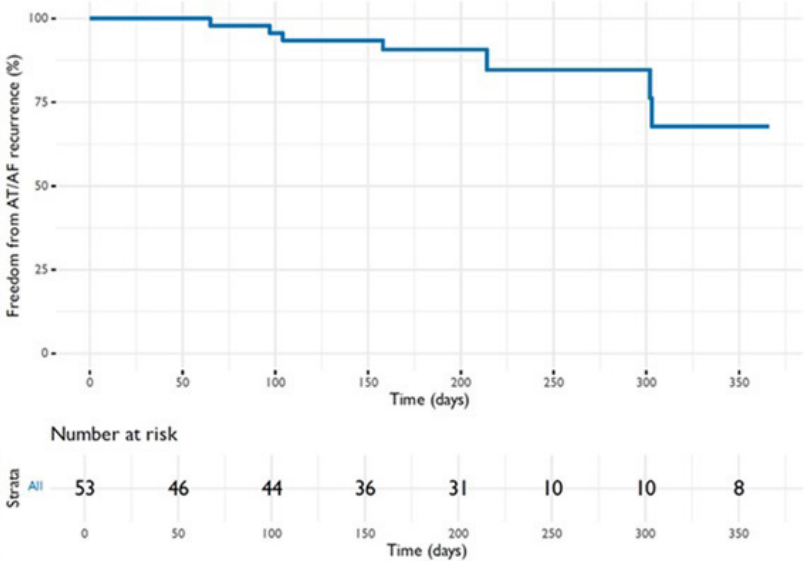

Figure PO 279

through renal denervation (RDN) has emerged as a promising adjunctive therapy to pulmonary vein isolation (PVI) for AF ablation.
Objectives: To evaluate the potential benefits of combining RDN with PVI for AF ablation.
Methods: A systematic review of randomized controlled trials (RCTs) was conducted using PubMed, Embase, the Cochrane Central Register of Controlled Trials, and grey literature, covering studies published up to October 2024. Included studies compared PVI alone to PVI combined with RDN. The primary efficacy endpoint was defined as AF recurrence, while procedure-related complications were assessed as the primary safety outcome. Study quality was evaluated using the Cochrane Risk of Bias tool, and data analysis was performed with RevMan 2.0.
Results: Following the initial screening, ten RCTs with a total of 903 participants were included in the analysis (433 in the PVI + RDN arm and 470 in the PVI alone arm). The PVI + RDN group demonstrated significantly lower rates of AF recurrence compared to the PVI alone group (36.5 vs. 53.8%; Odds Ratio [OR]: 0.49; 95% Confidence Interval [CI]: 0.35-0.69; $p < 0.001$; $I^2 = 23\%$). The addition of RDN did not lead to an increased rate of procedure-related complications ($p = 0.86$), and no differences were observed in major adverse cardiovascular events (MACE, defined as death, myocardial infarction, or stroke) ($p = 0.29$). Similarly, there were no significant differences between the groups in the change in glomerular filtration rate (GFR) from pre- to post-procedure ($p = 0.14$). Furthermore, the addition of RDN led to a reduction in systolic blood pressure (BP), albeit with substantial heterogeneity among studies (Mean Difference: -6.04 mmHg; 95%CI: -10.92 to -1.17; $p = 0.02$; $I^2 = 74\%$). However, no significant differences were found in diastolic BP ($p = 0.25$).
Conclusions: Combining RDN with PVI significantly reduces atrial fibrillation recurrence without increasing procedure-related complications, supporting its potential as an adjunctive therapy in AF ablation.

PO 281. COMPARISON OF STANDARD-POWER AND VERY HIGH-POWER SHORT-DURATION PULMONARY VEIN ABLATION

Inês Arrobas Rodrigues, António Gonçalves, Marta Almeida, André Lobo, Rafael Teixeira, Mafalda Carrington, Marco Oliveira, Helena Gonçalves, João Primo, João Almeida, Paulo Fonseca, Ricardo Fontes-Carvalho

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Introduction: Pulmonary vein isolation (PVI) is the cornerstone of atrial fibrillation (AF) catheter ablation and is commonly performed using radiofrequency (RF) energy. Novel catheters using shorter but higher-power RF applications can improve lesion quality and reduce procedural time compared to the standard approach, while ensuring similar clinical and safety outcomes.
Objectives: This study aims to compare very high-power short-duration (vHPSD) AF ablation with a matched control cohort undergoing standard power and duration (SPD) AF ablation at our centre regarding clinical outcomes, procedural efficiency and safety.
Methods: All patients who underwent first PVI using catheter ablation at our centre between January 2021 and May 2024 were included. SDP AF ablation (35W RF applications guided by Ablation Index) was performed until April 2022, after which vHPSD AF ablation (90W/4s) became the standard approach through the study's conclusion. The two groups were matched using a propensity score analysis and then compared regarding freedom from AF recurrence, procedural efficiency, and safety.
Results: 308 patients were submitted to IVP, and after the propensity score analysis, 210 patients were analysed (64.8% male, median age 62 years (IQR 54.7-67.5)). There were 105 patients in each group with comparable baseline characteristics. The median follow-up time was 364 days (IQR 207-548) for the vHPSD group and 729 days (IQR 559-730) for the STD group. Freedom from AF recurrence at 12 months was similar between groups in the survival analysis (86.6 vs. 88.4%, $p = 0.510$) (Figure 1). Total procedural time, ablation time, and RF application time were significantly shorter in the vHSPD arm (86.5 vs. 100.0 min, $p < 0.001$; 32.0 vs. 45 min, $p < 0.001$, and 7 vs. 24.5 min, $p < 0.001$, respectively). PV first-pass isolation (FPI) was obtained in 54.5% of patients in the vHPSD group and 72.0% in the SPD group ($p = 0.004$). Overall, AF catheter ablation had a favourable safety profile, with a low prevalence of adverse effects, irrespective of the type of RF energy used (one pericardial effusion in the vHPSD group and one pericarditis in the SDP group).
Conclusions: VHPSD AF ablation proved to be a more efficient technique with a shorter procedural time, achieving similar clinical outcomes despite having a lower FPI rate. Both procedures appeared to be safe with low prevalence of adverse effects.

PO 282. NON-PULMONARY VEIN TRIGGERS – MAXIMIZING SUCCESS IN ATRIAL FIBRILLATION REDO PROCEDURES

Francisco Salvaterra, Ana Abrantes, Joana Brito, Daniel Inácio Cazeiro, Miguel Azaredo Raposo, Afonso Nunes Ferreira, Gustavo Lima da Silva, João Ribeiro, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: In atrial fibrillation (AF), non-pulmonary vein (non-PV) triggers are a potential cause of arrhythmic relapse after pulmonary vein isolation (PVI). Their relevance in clinical practice remains controversial,

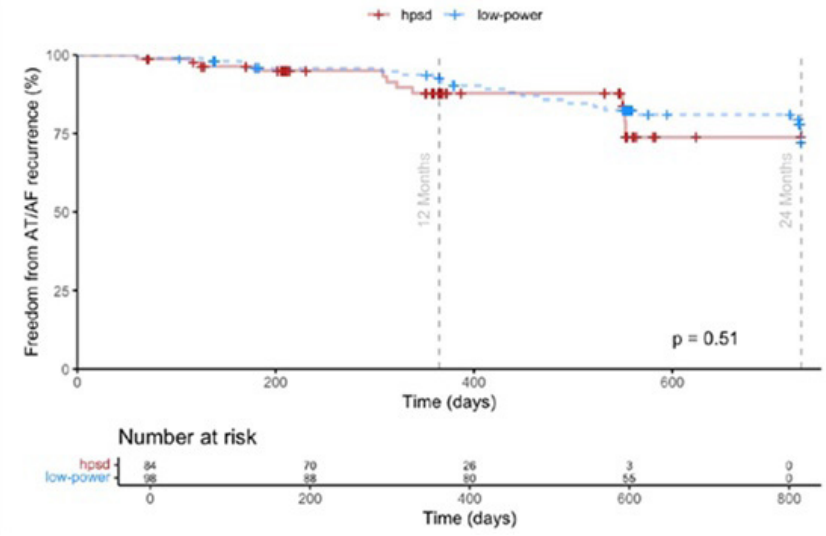

Figure PO 281

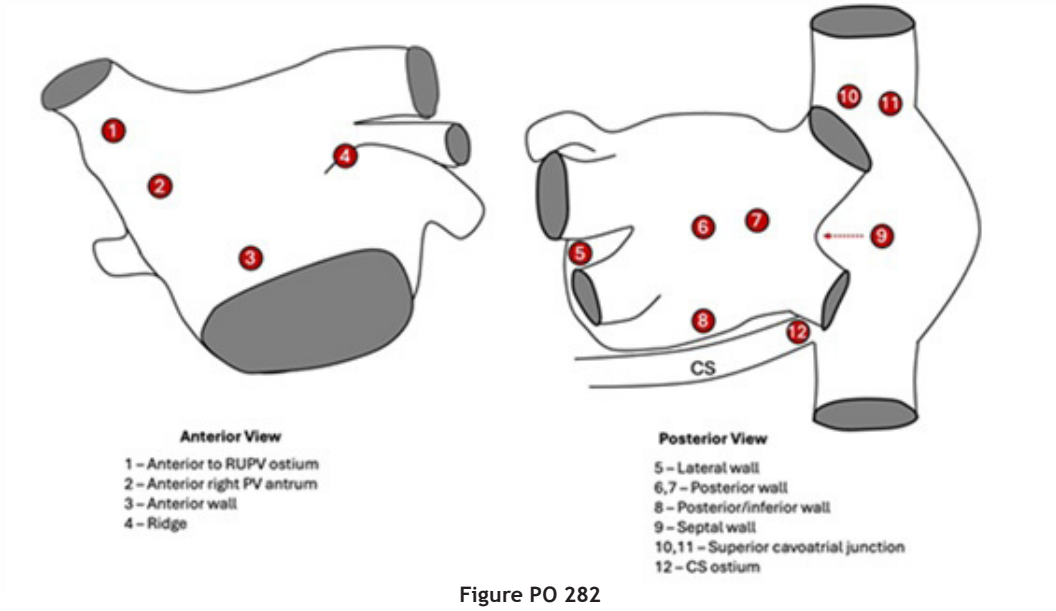

Figure PO 282

with some studies suggesting their presence in most patients (pts), while others report them in a small minority.

Objectives: To characterize non-PV triggers and evaluate the efficacy of their targeted ablation in patients undergoing AF redo ablation.

Methods: This retrospective single-center study included patients who underwent AF redo ablation between 2015 and 2024. Mapping was performed using high-density electroanatomic catheters. Non-PV triggers were systematically mapped whenever repetitive spontaneous ectopic beats were identified during map collection. Additionally, in redo procedures where PVs were completely isolated, non-PV trigger inducibility was tested with isoprenaline infusion and programmed atrial stimulation. Non-PV trigger ablation targeted the earliest atrial activation signal. At the end of the procedure, non-PV trigger induction was re-evaluated with isoprenaline infusion and programmed atrial stimulation.

Results: A total of 264 pts underwent redo AF ablation. Non-PV triggers were identified in 12 pts (mean age 62.5 years; 83% male). Most non-PV triggers (75%) were in the left atrium, primarily on the anterior and posterior walls. In the right atrium, non-PV triggers were identified in the superior cavoatrial junction (2 cases) and the coronary sinus ostium (1 case). Low-voltage areas consistent with previous PVI were identified in all pts, with reconduction or residual electrograms in ≥ 1 vein in 83% of them. Additional low-voltage areas outside PVs were documented in one patient. After ablation of the triggers, no atrial arrhythmias were inducible. During a median follow-up of 3.9 years, AF recurrence occurred in 44% of pts, comparable to the pts who underwent redo AF ablation without non-PV triggers (~50%).

Conclusions: Non-PV triggers were relatively uncommon in pts with recurrent AF after ablation. Nevertheless, prompt identification and ablation of these triggers were crucial for restoring sinus rhythm.

PO 283. REDUCING RECURRENCE, ENHANCING SUCCESS: THE ROLE OF SUBSTRATE MODIFICATION IN ATRIAL FIBRILLATION REDO PROCEDURES

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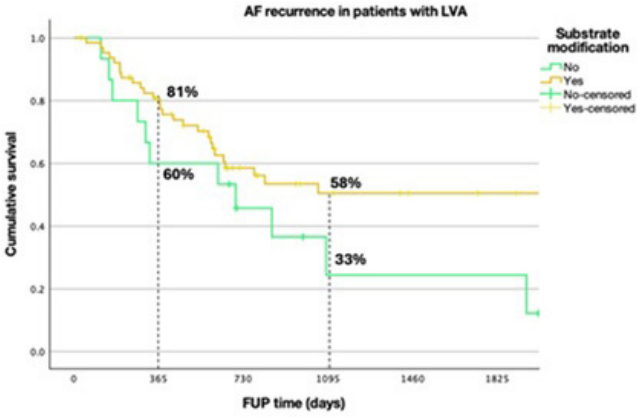
Introduction: Strategies for increasing atrial fibrillation (AF) redo procedures success are a matter of ongoing debate. Although pulmonary vein isolation (PVI) remains the cornerstone of AF ablation its long-term efficacy is unsatisfactory. In patients with extensive left atrium low-voltage areas (LVA) performing ablation targeting substrate areas may be of added value.

Objectives: To characterize a population with left atrium LVA and investigate the effectiveness of additional substrate modification in AF redo procedures.

Methods: Retrospective, single-center, study with patients were submitted to AF redo ablation from 2015 to 2024, with evidence of left atrium LVA beyond PVs. High-density electroanatomic systems were used to collect substrate and activation mapping (Ensite, Rhythmia, Carto). Substrate modification through linear lesions or scar homogenization were performed based on operator discretion. Survival analysis with Kaplan-Meier curves and log-rank test were performed to evaluate the time to AF recurrence.



Results: From a total of 231 patients submitted to AF redo, 79 had evidence of LVA. Patients had median age of 70 years (y), 54% male and 57% had paroxysmal AF. The majority of patients did not have structural heart disease and the median left atrial (LA) indexed volume and left ventricular ejection fraction were 39 mL/m^2 and 57%, respectively. Considering the entire study population, LVA was more frequent in females (47 vs. 25%, odds ratio 2.662, 95% confidence interval [CI]: 1.530-4.630, p < 0.001) and older patients (67 vs. 59y, p < 0.001). In the redo procedure, 32% of patients had persistence of PVI. LVA were most commonly identified in the anterior wall (63%), followed by posterior wall (38%) and roof (35%) of LA. Substrate modification beyond PVI was performed in 64/79 patients (81%). During a mean follow-up time of 3.4y, the recurrence rate of AF was 49%. Patients who were submitted to additional substrate modification had a longer time to AF recurrence, although it did not reach statistical significance (hazard ratio 0.547, 95%CI: 0.271-1.103, p = 0.09).

Conclusions: In this population submitted to AF redo ablation, the presence of LVA was common, particularly in older and female patients. Performing additional substrate modification showed a trend towards higher procedural success, with longer time to AF recurrence. Further research is needed to determine the role of LVA-targeted interventions in improving long-term outcomes in AF patients.

PO 284. HIGH-POWER ABLATION GUIDED BY ABLATION INDEX IN ATRIAL FIBRILLATION: A RETROSPECTIVE STUDY

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Hospital Garcia de Orta.

Introduction and objectives: Atrial fibrillation (AF) is the most common sustained arrhythmia in clinical practice and is associated with an increased risk of mortality, ischemic stroke, and decreased quality of life. Pulmonary vein isolation (PVI) via catheter ablation is a cornerstone treatment for patients with AF, aiming to create durable lesions using techniques such as contact force, ablation energy, and ablation index (AI). The AI is calculated by integrating contact force (CF), ablation energy, ablation time, and catheter stability, defining the parameter of a single ablation point. High-power ablation guided by AI for PVI appears to be a novel strategy in the treatment of AF, as demonstrated in some studies. This study aimed to evaluate the short-term efficacy and safety of high-power AI-guided ablation and to identify predictors of recurrence.
Methods: We conducted a retrospective cohort study that included 74 adult patients who underwent high-power AI-guided AF ablation (35 Watts/380 for the posterior wall; 45 Watts/500 for the anterior wall) at the Electrophysiology and Pacing Service of a tertiary hospital from January 2021 to November 2023. The procedure was performed under sedation using the CARTO® mapping system and SMARTTOUCH® NAV C ablation catheter. We analyzed the recurrence rate at 12 months and performed logistic regression to identify predictors.
Results: The mean age of the 74 patients was 61.5 ± 8.1 years, with 55.5% (44) being male. Paroxysmal AF was the most prevalent type of arrhythmia (64.9%). After an average follow-up of 11.1 ± 5.4 months, the cumulative recurrence rate was 27% (20 patients), with a mean time to recurrence of 7.0 ± 6.3 months. Long-standing persistent AF was an independent predictor of recurrence (OR 10.5, 95%CI 1.52-72.01, p = 0.01). ROC analysis revealed an area under the curve (AUC) of 0.72 (p < 0.01) and identified a cut-off indexed left atrial (LA) volume of 42.5 mL/m² for AF recurrence, with a sensitivity of 67% and a specificity of 75%. No complications or deaths were recorded during the study period.
Conclusions: High-power AI-guided ablation demonstrated to be a safe and effective strategy in the treatment of atrial fibrillation, with satisfactory short-term results. These findings highlight the importance of considering recurrence predictors, such as long-standing persistent AF and left atrial volume, to improve clinical outcomes

Sábado, 12 Abril de 2025 | 14:30-15:30

Área de Posters-écran 2 | Sessão de Posters 42 – Dispositivos cardíacos implantáveis: CDI e CRT

PO 285. OUTCOMES AFTER IMPLANTATION OF SUBCUTANEOUS-IMPLANTABLE CARDIOVERTER DEFIBRILLATORS (S-ICDS) FOR SECONDARY PREVENTION

Rita Amador, Joana Certo Pereira, Daniel Matos, Gustavo Rodrigues, João Carmo, Isabel Santos, Francisco Moscoso Costa, Pedro Galvão Santos, Pedro Carmo, Francisco Morgado, Diogo Cavaco, Pedro Adragão

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Introduction: Implantable cardioverter defibrillators (ICDs) are the gold standard therapy for sudden cardiac death (SCD) prevention. However,

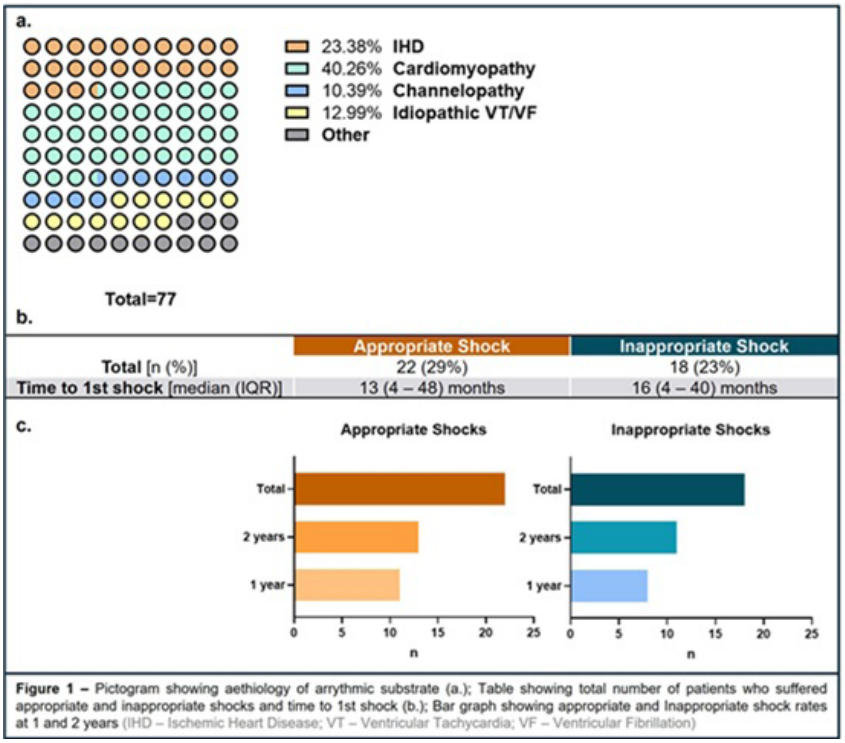

Figure 1 – Pictogram showing aethiology of arrythmic substrate (a.); Table showing total number of patients who suffered appropriate and inappropriate shocks and time to 1st shock (b.); Bar graph showing appropriate and Inappropriate shock rates at 1 and 2 years (IHD – Ischemic Heart Disease; VT – Ventricular Tachycardia; VF – Ventricular Fibrillation)

Figure PO 285

transvenous ICDs carry long-term risks, one of them being lead-related complications. Subcutaneous ICDs (S-ICDs) have emerged as a promising alternative, but data on their use in secondary prevention of SCD is limited. This study aims to evaluate the outcomes of patients receiving S-ICDs for secondary prevention at a single tertiary center.

Methods: A retrospective, observational study was conducted on patients implanted with S-ICDs for secondary prevention of SCD. Patients were followed at a specialized ICD center. Data on appropriate and inappropriate therapies and efficacy and safety outcomes were collected through the latest device follow-up.

Results: A total of 77 patients (mean age 41 ± 17 years, 74% male) received S-ICDs for secondary prevention from 2010 to 2024. Mean left ventricular ejection fraction (LVEF) was 54 ± 11%. Three patients (4.4%) who survived SCD had an LVEF below 35%, and 14% had a prior transvenous ICD. Arrhythmic substrate aetiologies are shown in Figure 1a. Over a median follow-up of 47 months (IQR 17-72), 31 patients (40%) experienced shocks. The incidence of appropriate shocks was 14% at 1 year and 17% at 2 years (Figure 1b), substantially lower than reported in previous series. This difference may reflect advancements in medical therapy, rigorous patient selection for S-ICDs and more permissive programming. Inappropriate shocks occurred in 10% at 1 year and 14% at 2 years, often due to T-wave oversensing (22%) or noise (39%). These cases were reviewed, and device vector optimization reduced recurrence, with only two patients receiving additional inappropriate shocks post-adjustment. Four patients transitioned to conventional ICDs due to electrode dysfunction (n = 3) or pocket infection (n = 1). One patient had the S-ICD system explanted and later reimplanted following successful infection management. A total of 3 cardiovascular deaths occurred, one due to SCD.

Conclusions: S-ICDs appear to be a viable alternative to transvenous ICDs for secondary prevention, with good efficacy and safety, potentially reducing long-term complications traditionally associated with transvenous ICD. Future studies should refine candidate selection criteria and strategies to minimize inappropriate therapies.

PO 286. IMPLANTATION OF EXTRAVASCULAR ICD: A SINGLE-CENTRE EXPERIENCE

Miguel Sobral Domingues, Daniel Gomes, Gustavo Rodrigues, João Carmo, Daniel Matos, Francisco Costa, Pedro Galvão Santos, Pedro Carmo, Francisco Morgado, Diogo Cavaco, Pedro Adragão

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Introduction: The extravascular implantable cardioverter-defibrillator (EV-ICD) is an innovative technology for preventing sudden cardiac death. The EV-ICD lead is implanted in the retrosternal space and offers advantages over the subcutaneous, including anti-tachycardia pacing (ATP), pause-preventing pacing and an increased generator projected longevity (11.7 years vs. 7.3 years). While it has recently received approval for clinical use, clinical experience with its implantation remains limited, and data concerning its efficacy and safety are still sparse.

Objectives: We aim to describe our single-centre experience with EV-ICD implantation and to evaluate immediate and short-term safety and efficacy outcomes.

Methods: We retrospectively collected data from consecutive patients submitted to EV-ICD implantation since January 2023 to September 2024. We evaluated the procedural success, peri-procedural complications and the stability of ICD functional parameters at a 6-month follow-up.

Results: Six patients (mean age 33 years; 4 male) underwent EV-ICD implantation – 5 patients in 1ary prevention and 1 patient in 2ary prevention. Indications included genetic dilated cardiomyopathy (n = 2), status post myocardial infarction with reduced LV function (n = 1), hypertrophic cardiomyopathy (n = 1), and primary/idiopathic electrical disease (n = 2). All patients underwent a thoracic CT scan for procedural planning. The mean procedure duration was 69 ± 22 minutes. Electrodes were placed retrosternally in a left parasternal position, with generators positioned at the 5th intercostal space along the mid-axillary line. Defibrillation testing

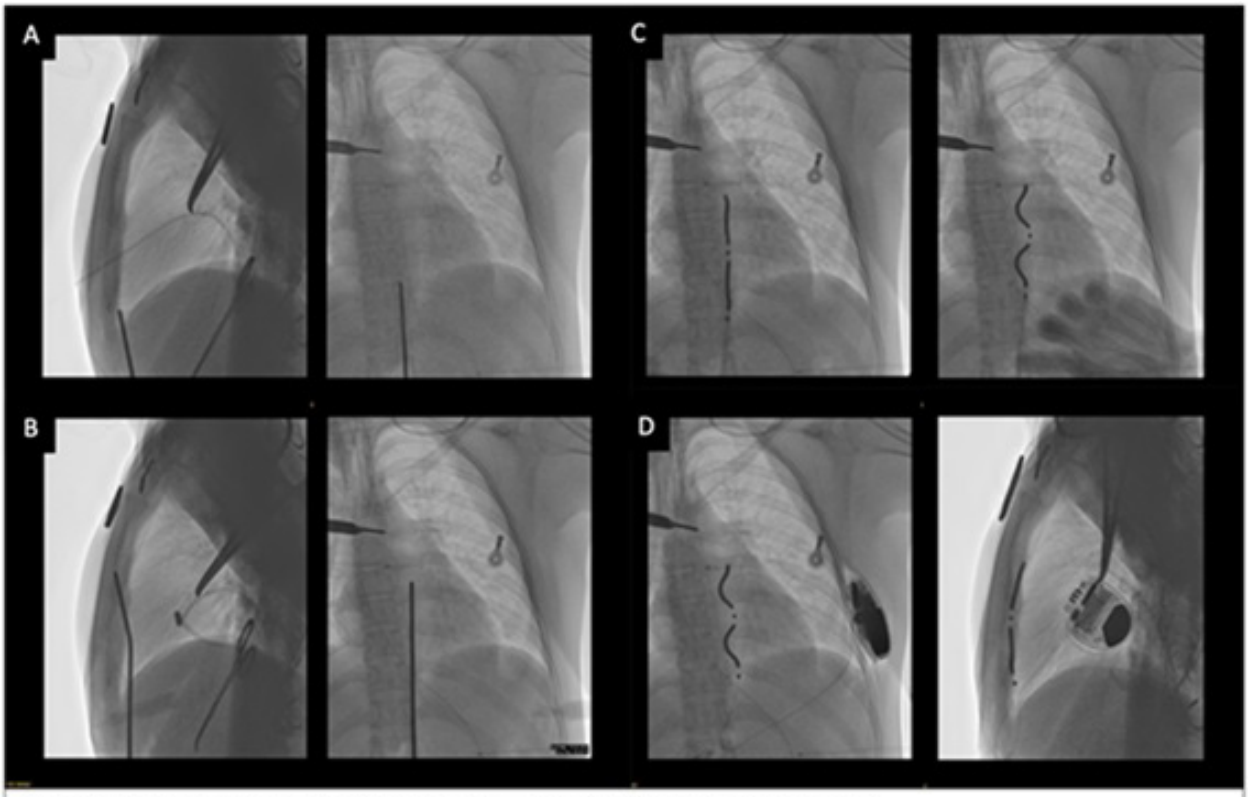

Figure 1: Sequential steps during EV-ICD implantation – example from a patient of our cohort

Figure PO 286

was successful in all cases, achieving termination of induced VF with a single 30J shock. No peri-procedural complications were observed, including bleeding, infection and lead dislodgement or dysfunction. During a median follow-up of 143 days (IQR 63-224) no therapies (appropriate or inappropriate) were delivered. Sensing amplitude, pacing lead impedance, and shock lead impedance remained stable and did not significantly change during follow-up compared to implantation values (8.7 [1.5-20] mV vs. 7.5 [2.8-16] mV; 494 [399-608] vs. 445 [342-562] ?; 88 ± 16 vs. 70 ± 24 ?, all p > 0.05). One patient died of a non-cardiac cause.
Conclusions: In our initial experience, EV-ICD implantation was feasible, safe and effective. There were no complications during the peri-procedural phase and the device performance remained stable throughout the follow-up period. These findings highlight the potential of EV-ICDs for arrhythmia management and support their use in clinical practice.

PO 287. SUBCUTANEOUS VERSUS TRANSVENOUS IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR THERAPY: INSIGHTS FROM REAL-WORD EVIDENCE

Helena Sofia Santos Moreira, Pedro Mangas Palma, Miguel Rocha, Ana Isabel Pinho, Cátia Oliveira, Luís Santos, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Luís Adão, Rui André Rodrigues, Ana Lebreiro

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Several studies have explored the safety and efficacy of the subcutaneous implantable cardioverter-defibrillator (S-ICD) as a potentially non-inferior alternative to transvenous ICD (TV-ICD) for preventing sudden cardiac death (SCD), suggesting it as a considerable alternative in selected cases.
Objectives: To compare baseline characteristics and clinical outcomes between S-ICD and TV-ICD patients (pts) at a Portuguese tertiary hospital. The primary individual endpoints included cardiovascular mortality or hospitalization, ineffective or inappropriate shocks, battery depletion and system-related infections.
Methods: We conducted a retrospective analysis on pts who received ICDs between September 2014 and September 2023 at our centre. Medical records of 1646 pts were initially reviewed. Pts with presumable need for antitachycardia pacing or resynchronization therapies, including known ischemic cardiomyopathy or left ventricular systolic disfunction, were excluded.
Results: A total of 93 pts were included: 28 (31.1%) with S-ICD and 65 (69.9%) with TV-ICD. Most devices (60.2%) were implanted for primary prevention. Primary diagnosis differed significantly (p = 0.009): hypertrophic cardiomyopathy was the most common in TV-ICD pts (n = 27, 41.5%), while Brugada syndrome and other primary electrical diseases were the most frequent entity in S-ICD pts (n = 14, 50%). S-ICD pts were younger (28 ± 10 vs. 48 ± 17 years, p < 0.001), while TV-ICD pts had more comorbidities, including arterial hypertension (p = 0.003), dyslipidemia (p = 0.001), and obesity (p = 0.037). No other baseline features were statistically different. The follow-up time was similar, 44 ± 31 months (p = 0.074), and no cardiovascular deaths were reported in both groups. Also, cardiovascular hospitalizations did not differ significantly (overall n = 15, 16.1%; p = 0.061). Device complications rate was low, with no statistically significant differences in inappropriate shocks (p = 0.514), ineffective shocks (p = 0.301), or battery depletion (p = 0.159) (Table 1). No system-related infections were observed in either group.
Conclusions: Consistent with prior studies, our S-ICD population tended to be younger and with fewer comorbidities. Our real-world data suggests potentially comparable performance between subcutaneous and transvenous devices on a short-term period. Further randomized controlled trials with long-term follow-up are needed to validate our confidence in S-ICD and possibly establish it as an equivalent therapy to TV-ICD in SCD prevention.

PO 288. PRO-BNP VARIATION AS A RISK MARKER OF VENTRICULAR ARRYTHMIAS IN CRT PATIENTS

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Introduction: Pro-brain natriuretic peptide (pro-BNP) is a biomarker associated with cardiovascular disease and is commonly elevated in patients with heart failure, particularly during acute events.
Objectives: This study aimed to evaluate whether changes in pro-BNP levels after Cardiac Resynchronization Therapy (CRT) are related to the risk of developing ventricular arrhythmias.
Methods: This observational retrospective study included patients who underwent CRT device implantation between January 2017 and March 2024. From a total population of 201 patients, we included all those who met the evaluation criteria for this study, specifically having pro-BNP measurements taken before CRT device implantation and at the one-year follow-up. Patients were categorized into two groups based on their pro-BNP variation during follow-up, calculated as the difference between pro-BNP levels measured before implantation and at the 1-year follow-up. Group differences were assessed using the Chi-square test or the median comparison test, as appropriate. Survival analysis was conducted using Cox regression, adjusted for potential confounding factors, with the occurrence of sustained

Table 1. Comparison of clinical outcomes between subcutaneous and transvenous implantable cardioverter-defibrillator groups.

		All (n=93)	S-ICD (n=28)	TV-ICD (n=65)	p value
Follow-up duration time (months) - mean ± SD		44 ± 31	35 ± 27	48 ± 32	0.074**
Cardiovascular hospitalizations - n (%)					**0.061*** **
	Yes	15 (16.1)	8 (28.6)	7 (10.8)	
Inappropriate shocks - n (%)					**0.514*** **
	Yes	2 (2.2)	1 (3.6)	1 (1.5)	
Ineffective shocks - n (%)					**0.301*** **
	Yes	1 (1.1)	1 (3.6)	0 (0)	
Battery depletion - n (%)					**0.159*** **
	Yes	5 (5.4)	3 (10.7)	2 (3.1)	

Footnote: S-ICD - Subcutaneous implantable cardioverter-defibrillator. SD - Standard deviation. TV-ICD -Transvenous implantable cardioverter-defibrillator.
** Bivariate analysis with Independent samples T test.
*** Bivariate analysis with Fisher test.

Figure PO 287

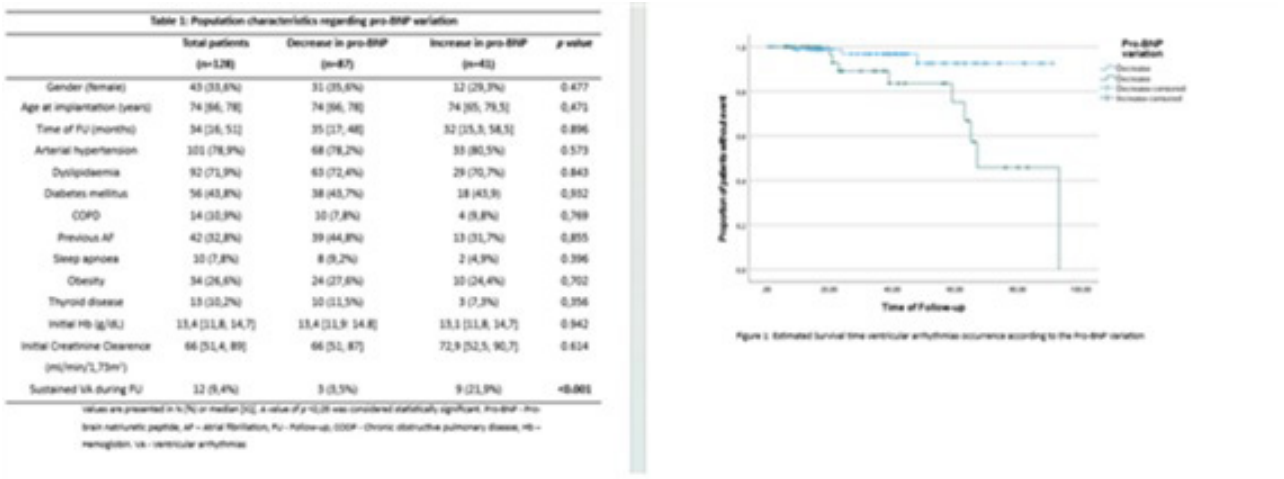

Table 1: Population characteristics regarding pro-BNP variation

	Total patients (n=128)	Decrease in pro-BNP (n=87)	Increase in pro-BNP (n=41)	p value
Gender (female)	43 (33,6%)	31 (35,6%)	12 (29,3%)	0.477
Age at implantation (years)	74 [66; 78]	74 [66; 78]	74 [65; 79,5]	0,471
Time of FU (months)	34 [16; 51]	35 [17; 48]	32 [15,3; 58,5]	0.896
Arterial hypertension	101 (78,9%)	68 (78,2%)	33 (80,5%)	0.573
Dyslipidaemia	92 (71,9%)	63 (72,4%)	29 (70,7%)	0.843
Diabetes mellitus	56 (43,8%)	38 (43,7%)	18 (43,9)	0,932
COPD	14 (10,9%)	10 (7,8%)	4 (9,8%)	0,769
Previous AF	42 (32,8%)	39 (44,8%)	13 (31,7%)	0,855
Sleep apnoea	10 (7,8%)	8 (9,2%)	2 (4,9%)	0.396
Obesity	34 (26,6%)	24 (27,6%)	10 (24,4%)	0,702
Thyroid disease	13 (10,2%)	10 (11,5%)	3 (7,3%)	0,356
Initial Hb (g/dL)	13,4 [11,8; 14,7]	13,4 [11,9 14,8]	13,1 [11,8; 14,7]	0.942
Initial Creatinine Clearance (ml/min/1,73m²)	66 [51,4; 89]	66 [51; 87]	72,9 [52,5; 90,7]	0.614
Sustained VA during FU	12 (9,4%)	3 (3,5%)	9 (21,9%)	<0.001

Values are presented in n (%) or median [IQ]. A value of p <0,05 was considered statistically significant. Pro-BNP - Pro-brain natriuretic peptide, AF – atrial fibrillation, FU - Follow-up, COPD - Chronic obstructive pulmonary disease, Hb – Hemoglobin. VA - ventricular arrhythmias

Figure 1: Estimated Survival time ventricular arrhythmias occurrence according to the Pro-BNP variation

Figure PO 288

ventricular arrhythmias (defined as ventricular fibrillation or ventricular tachycardia lasting more than 30 seconds) as the outcome.

Results: A total of 128 patients were included in this study, of whom 43 (33.6%) were female, with a median age of 74 years [66; 78]. The median follow-up duration was 34 months [16; 51]. Baseline characteristics were not significantly different between groups (Table 1). The median pro-BNP variation in the study population was -413 pg/mL [-1,991; 277]. The occurrence of ventricular arrhythmias was significantly higher in patients with a positive variation in pro-BNP levels compared to those with a negative variation (21.9 vs. 3.5%, $p < 0.001$). Among patients who experienced ventricular arrhythmias, the median pro-BNP variation was 440 pg/mL [-118.3; 1,054]. Survival analysis using Cox regression revealed that an increase in pro-BNP levels 1 year after CRT implantation was associated with a significantly higher risk of ventricular arrhythmias later in follow-up (HR: 5.409 [95%CI: 1.335-9.687], $p = 0.017$, Figure 1).

Conclusions: In this population, an increase in pro-BNP levels in the first year after CRT implantation was associated with a higher occurrence of ventricular arrhythmias later in the follow-up. This suggests that pro-BNP could serve as a potential risk marker for ventricular arrhythmias, enabling earlier identification of patients at increased risk. However, further studies are necessary to validate these findings.

PO 289. IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR - DO WE HAVE ALTERNATIVE PREDICTORS TO ADMINISTERED SHOCKS?

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Introduction: Predictors of administered shocks in patients with implantable cardioverter-defibrillators (ICDs) have been studied extensively, with heart failure (HF), a history of chronic obstructive pulmonary disease (COPD), and ventricular tachycardia (VT) at the time of ICD implantation being primary factors. Understanding these predictors remains crucial for improving patient outcomes and quality of life.

Objectives: To identify alternative predictors of administered shocks in ICD patients and evaluate whether these shocks influenced a composite outcome of death, myocardial infarction, stroke, or hospitalization for HF.

Methods: This retrospective study (2020-2023) analyzed 264 patients with ICDs, stratified into "shocks administered" and "no shocks administered" groups. Categorical variables were reported as frequencies and percentages. Logistic regression was employed for multivariate analysis, with $p < 0.05$ considered statistically significant.

Results: The cohort had a mean age of 66 ± 8 years and a mean follow-up period of 29 ± 13 months. Of the participants, 28 (12.5%) experienced administered shocks, while 196 (87.5%) did not. Binary analysis revealed a significantly higher use of antiarrhythmic drugs in the shocks-administered group, but no significant differences were observed for other predictors, including age, gender, hypertension, diabetes mellitus, dyslipidemia, obesity, alcohol use, smoking, left ventricular ejection fraction (LVEF), chronic kidney disease, atrial fibrillation, non-ischemic heart disease, optimized medical therapy, or the etiology of ICD implantation. There was no difference between the two groups regarding the composite outcome ($p = 0.550$). Multivariate analysis identified obesity as the sole independent predictor of administered shocks (OR: 3.144, $p = 0.042$).

	Shocks administered	No shocks administered		
	(n=28, 12.5%)	(n=196, 87.5%)	Total n=264	*P* Value
Gender				
Female	3 (15.8%)	43 (21.9%)	56 (21.2%)	
Male	16 (84.2%)	153 (78.1%)	208 (78.8%)	0.770
Age	68 (63-73)	67 (58-74)	66 (58-73)	0.709
Diabetes Mellitus	9 (47.4%)	87 (45.1%)	116 (45.1%)	0.848
Dyslipidemia	17 (89.5%)	131 (67.9%)	179 (69.6%)	0.050
Arterial Hypertension	14 (73.7%)	123 (63.7%)	164 (63.8%)	0.387
Smoking *Status*	11 (57.9%)	108 (56.0%)	146 (56.8%)	0.871
Obesity	9 (47.4%)	52 (26.9%)	75 (29.2%)	0.061
Chronic Kidney Disease	6 (31.6%)	41 (21.7%)	52 (20.5%)	0.387
Alcohol	3 (15.8%)	42 (21.8%)	54 (21.0%)	0.770
Heart Failure	15 (83.3%)	169 (87.6%)	220 (85,6%)	0.709
LVEF	40 (26-46)	35 (30-50)	33 (27-41)	0.716
Atrial Fibrillation	4 (21.1%)	50 (25.9%)	69 (26.7%)	0.787
Medical Therapy				
ACEI/RAS	10 (52.6%)	68 (36.6%)	102 (40.5%)	0.169
ARNI	7 (38.9%)	104 (55.6%)	131 (52.0%)	0.174
MRA	14 (73.7%)	127 (67.9%)	176 (69.6%)	0.606
SGLT2i	11 (57.9%)	111 (59.4%)	155 (61.5%)	0.902
B-blockers	17 (89.5%)	164 (87.2%)	225 (88.6%)	1.000
Antiarrhythmics	10 (52.6%)	45 (24.1%)	65 (25.7%)	**0.007**
Primary prevention	11 (57.9%)	132 (69.8%)	165 (70.2%)	0,284
Secundary prevention	8 (42.1%)	55 (28.9%)	69 (29.9%)	0.233
Ischemic etiology	12 (66.7%)	101 (64.3%)	139 (63.2%)	0.844
Follow-up (months)	34 (26-46)	33 (18-43)	29 (14-42)	0.395

Conclusions: This study highlights obesity as a strong independent predictor of administered shocks. These findings underscore the importance of managing established ICD predictors while addressing body weight to improve quality of life and reduce distressing, painful shocks. Given the potential protective properties of obesity against overall mortality, these results prompt further discussion regarding the risk-benefit balance of obesity management in ICD patients.

PO 290. CRT IN PATIENTS REQUIRING ANTIBRADYCARDIA PACING - ARE THEY GOOD RESPONDERS?

Joana Pereira, Sofia Andraz, Lucas Hammann, Hugo Costa, Pedro Azevedo

Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro.

Introduction: Cardiac resynchronization therapy (CRT) is recommended for patients with LVEV < 40% regardless of NYHA class who have an indication for ventricular pacing and high-degree AV block. The response of these patients when compared to patients with a formal indication for CRT remains uncertain.
Objectives: To characterize patients undergoing CRT based on requirement of antibradycardia pacing (Required vs. Not Required) and evaluate differences in LV remodeling, outcomes and survival between these groups.
Methods: A retrospective analysis between 2020-2023 included 95 patients who underwent CRT-P/CRT-D implantation. Data included demographics, cardiovascular risk factors, etiology, medical therapy, echocardiographic and electrocardiographic parameters, and documented arrhythmias. Outcomes analyzed comprised hospitalization for heart failure, myocardial infarction, stroke or death.
Results: The study included 74 patients, of whom 21 (28.4%) had indication for antibradycardia pacing. The mean age was 69.5 ± 10.4 years, and 75.8% were male. Patients requiring antibradycardia pacing had higher prevalence of hypertension (85.7 vs. 60.4%, p = 0.036) and atrial fibrillation (52.4 vs. 24.5%, p = 0.021), and patients without indication for pacing were more smokers (14.3 vs. 45.3%, p = 0.013) and had higher prevalence of use of beta-blockers and mineralocorticoids receptors antagonists. Patients requiring antybradycardia pacing had higher LVEF at baseline (39.1 vs. 32.8%, p = 0.013) but less LVEF improvement after CRT implantation (LVEF pre 39.1% and LVEF pos 39.4%, p = 0.954) and less LV remodeling (TDV pre 201 ml and TDV pos 167 m, p = 0.132), when compared to patients without need for pacing (LVEF pre 32.8% and LVEF pos 39.4%, p = 0.031) and (TDV pre 193ml and TDV pos 151ml, p = 0.106). No significant differences in composite outcomes or survival were observed between the groups over 35-months follow-up.
Conclusions: Patients with non-preserved LVEF with indication for antibradycardia pacing exhibited less pronounced reverse remodeling (lower LVEF end TDV improvement) following CRT implantation, compared to patients with formal indication for resynchronization, although without differences in hard outcomes. The results of the study highlight the possibility of new pacing strategies in these patients, like conduction system pacing.

			Antibradycardia pacing			
			Required (n=21, 28,4%)	Not-Required (n=53, 71,6%)	Total (n=95)	p value
Age	Mean±SD - years		67,9±13,5	67,1±9,71	69,5±10,4	0,065
Gender	Male	n (%)	17 (81,0)	40 (75,5)	72,0 (75,8)	0,613
Hypertention		n (%)	17,0 (85,7)	32,0 (60,4)	64,0 (68,8)	**0,036**
Diabetes (type 2)		n (%)	13,0 (61,9)	29,0 (54,7)	52,0 (55,9)	0,574
Dyslipidemia		n (%)	18,0 (85,7)	37,0 (69,8)	69,0 (74,2)	0,158
Smoker		n (%)	3,00 (14,3)	24,0 (45,3)	37,0 (39,8)	**0,013**
Obesity		n (%)	3,00 (14,3)	11,0 (20,8)	22,0 (23,7)	0,522
Alcool		n (%)	4,00 (19,0)	13,0 (24,5)	23,0 (24,7)	0,613
Atrial fibrillation		n (%)	11,0 (52,4)	13,0 (24,5)	27,0 (29,0)	**0,021**
Chronic renal disease		n (%)	9,00 (42,9)	14,0 (26,9)	31,0 (34,1)	0,185
Responders		n (%)	7,00 (46,7)	18,0 (56,3)	34,0 (55,7)	0,539
Super-responders		n (%)	5,00 (33,3)	14,0 (43,8)	24,0 (39,3)	0,498
Optimized medical therapy	*ARNi*	n (%)	9,00 (45,0)	31,0 (58,5)	51,0 (55,4)	0,302
	ACEi/ARB	n (%)	10,0 (50,0)	15,0 (28,3)	32,0 (34,8)	0,081
	MRA	n (%)	9,00 (47,4)	40,0 (75,5)	62,0 (68,1)	**0,024**
	SGLT2i	n (%)	15,0 (78,9)	33,0 (62,3)	60,0 (65,9)	0,186
	Beta-blocker	n (%)	13,0 (68,4)	48,0 (90,6)	79,0 (86,8)	**0,021**
	AAR	n (%)	5,00 (26,3)	14,0 (24,4)	21,0 (23,1)	0,993
Ischemic hear disease		n (%)	6,00 (33,3)	23,0 (46,9)	38,0 (45,8)	
Non-ischemic heart disease		n (%)	12,0 (66,7)	26,0 (53,1)	45,0 (54,2)	0,319
LVEF - pre	Mean±SD - %		39,1±12,8	32,8±11,9	33,3±11,1	**0,013**
LVEF - pos	Mean±SD - %		39,4±15,2	39,4±12,1	40,7±14,1	0,413
			p=0,954	**p=0,031**	**p=0,009**	
TDV - pre	Mean±SD - ml		201±41,6	193±84,4	200±77,1	0,359
TDV - pos	Mean±SD - ml		167±52,3	151±51,8	164±69,4	0,989
			p=,0132	**p=0,006**	**p=0,001**	

			Antibradycardia pacing			
Mean follow-up 35 months			Required (n=21, 71,6%)	Not-Required (n=53, 28,4%)	Total (n=95)	p value
Primary outcome	*Total*	n (%)	4,00 (19,0)	17,0 (32,1)	24,0 (25,3)	0,262
Individual components	*Death*	n (%)	4,00 (20,0)	10,0 (18,9)	17,0 (18,1)	0,913
	Heart failure admissions	n (%)	3,00 (14,3)	14,0 (26,4)	20,0 (21,1)	0,263
	Myocardial infarction	n (%)	1,00 (4,80)	4,00 (7,50)	5,00 (5,30)	0,667
	Stroke	n (%)	0,00 (0,00)	3,00 (5,70)	3,00 (3,20)	0,266

Sábado, 12 Abril de 2025 | 14:30-15:30

Área de Posters-écran 3 | Sessão de Posters 43 – IC e comorbilidades

PO 291. BREAKING BOUNDARIES: HEMOGLOBIN, HEMATOCRIT AND HEART FAILURE – THE SGLT2 INHIBITOR CONNECTION

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Introduction: Evidence suggests SGLT2 inhibitors (SGLT2i) are associated with increased hemoglobin and hematocrit levels. This effect is particularly evident in patients with heart failure (HF), but it remains unclear whether these changes are independent of creatinine improvement and whether they correlate with prognosis.
Objectives: To evaluate hemoglobin and hematocrit changes after SGLT2i introduction and their relation to prognosis in HF patients.
Methods: Consecutive HF patients with reduced ejection fraction were followed in an outpatient clinic with protocol-based follow-up. The intervention group included 181 patients who began follow-up between 2020-23 and were prescribed SGLT2i. The control group included 150 patients who began follow-up between 2016-19 and did not receive SGLT2i in the first year. Group comparisons were made using Chi-square and Mann-Whitney tests. The prognostic impact of hemoglobin and hematocrit changes was assessed using Kaplan-Meier survival analysis and multivariable Cox regression.
Results: The SGLT2i group had a mean age of 66 years, 27% female, and a baseline left ventricular ejection fraction (LVEF) of 28%. The control group was similar in age, sex, baseline LVEF, NT-proBNP, hemoglobin, hematocrit, and estimated glomerular filtration rate (eGFR). The mean follow-up time for the intervention group was 2.4 years. After one year of optimized medical therapy, both groups showed significant LVEF improvements (SGLT2i: 28% to 41%; control: 28% to 38%). The SGLT2i group also showed significant increases in hemoglobin (12.9 to 14.5 g/dL), hematocrit (39% to 43%), and eGFR (62 to 77 mL/min/1.73) (Figure 1). In contrast, these parameters remained unchanged in the control group (Table 1). The differences between groups were statistically significant ($p < 0.001$). Furthermore, in the SGLT2i group, hemoglobin and hematocrit increases were independent of eGFR improvements ($p < 0.001$). Patients in the SGLT2i group who experienced hemoglobin increases had a 77% lower risk of cardiovascular mortality or HF hospitalization (HR: 0.23; 95%CI 0.01-0.48, $p < 0.001$). Similarly, patients with hematocrit increases had a 64% lower risk for the same outcome (HR: 0.36; 95%CI 0.16-0.78, $p = 0.008$).
Conclusions: These findings support a positive effect of SGLT2i on hemoglobin and hematocrit levels, independent of eGFR changes. These changes were associated with significant reductions in cardiovascular mortality and HF hospitalizations. Hematologic improvements may aid in prognostic stratification and predicting individual responses to SGLT2i therapy in HF. Further research is needed to explore underlying mechanisms.

PO 292. ELEVATED FERRITIN AS A POTENTIAL RISK MARKER FOR DISEASE SEVERITY AND PROGNOSIS IN HEART FAILURE

José Luís Ferraro, Ana Rodrigo Costa, Mauro Moreira, Inês G. Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Inês Almeida, Carla Almeida, Aurora Andrade

Centro Hospitalar Tâmega e Sousa.

Introduction: Elevated ferritin levels are associated with systemic inflammation and have been linked to poorer outcomes in heart failure (HF). The aim of this study was to evaluate the association between ferritin levels and disease severity in HF patients.
Methods: A retrospective single-center analysis was conducted including 265 hospitalized HF patients throughout 2022. This cohort was stratified into two groups based on admission ferritin levels: ferritin > 300 ng/mL (n = 57) and ferritin ≤ 300 ng/mL (n = 98), excluding those receiving intravenous iron therapy. A statistical analysis was performed to compare baseline characteristics, biomarkers and outcomes between groups. A combined endpoint, which included HF hospitalization, cardiovascular death, all-cause mortality, and unplanned hospital visits, was analyzed. A p-value of < 0.05 was considered statistically significant.
Results: 67.9% were male and the mean age was 70.7 ± 12.4 years. The median follow-up period was 1.5 years. Hypertension, diabetes mellitus, dyslipidemia, and chronic renal disease were prevalent, with no significant differences between the groups. Patients with ferritin levels > 300 ng/mL had a higher proportion of chronic decompensated HF (71.2 vs. 56.4%, $p = 0.045$), versus new-onset HF. There were no differences between the groups regarding HF etiology. Patients with ferritin levels > 300 ng/mL had significantly lower LVEF (30.30% ± 13.45 vs. 36.03% ± 15.82%, $p = 0.010$), higher NT-proBNP levels (13,863 ± 1,639 pg/mL vs. 8,684 ± 714 pg/mL, p 0.004) and lower albumin levels (3.45 ± 0.56 g/dL vs. 3.69 ± 0.44 g/dL, $p = 0.008$). A weak positive correlation was found between ferritin levels and NT-proBNP levels ($r = 0.114$, $p < 0.086$). Ferritin levels > 300 ng/mL was associated with combined endpoint (55.9 vs. 40.7%, $p = 0.042$). Individually, there was an association with cardiovascular death (14 vs. 5.1%, $p = 0.043$). No significant associations were found for the other variables.

Baseline Patient Characteristics	No SGLT2-i Group	SGLT2-i Group	p-value
Number of patients	150	181	NA
Age	66.4 ± 16.1	64.3±13.6	NS
Female sex	30	27	NS
Ischemic vs non-ischemic cardiomyopathy	38 vs 62	49 vs 51	p = 0.05
Baseline LVEF	28±9	28±7	NS
Baseline NTproBNP	4493± 5644	4907±6900	NS
Baseline Hemoglobin	13.4 ± 1.6	12.9 ± 1.6	NS
Baseline Hematocrit	40 ± 4	39 ± 4	NS
Baseline Creatinine Clearance	68 ± 25	62 ± 25	p=0.02
Hemoglobin at 1 year	12.7 ± 1.6	14.5	p<0.001
Hematocrit at 1 year	38 ± 5	43 ± 4	p<0.001
Creatinine Clearance at 1 year	56 ± 29	77 ± 32	p<0.001

Dosing of optimized medical therapies at one year follow-up

	Bisoprolol dose-equivalent	Spironolactone dose-equivalent	Sacubitril-Valsartan dose-equivalent
No SGLT2-i group	5.5 mg	20 mg	45mg
SGLT2-i group	5.2 mg	24 mg	114 mg
p-value	NS	NS	<0.001

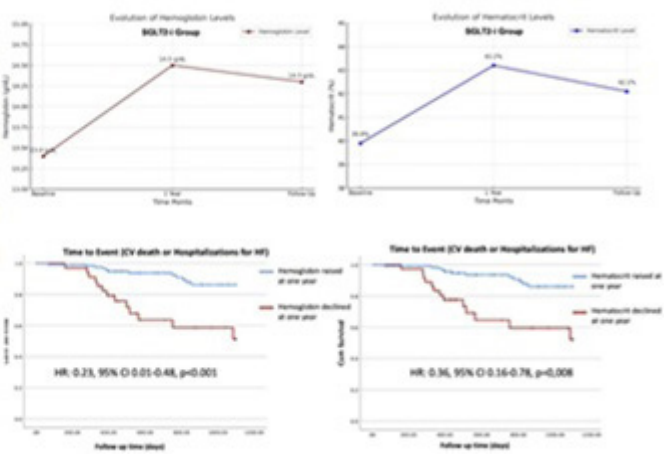

Figure PO 291

Conclusions: Elevated ferritin in HF patients is linked to a more severe disease phenotype, characterized by reduced LVEF, elevated NT-proBNP levels, and decreased albumin levels, suggesting a more congestive profile and compromised nutritional status. Higher ferritin levels were more strongly linked to chronic HF and to worse outcomes, particularly increased cardiovascular mortality. These findings highlight the potential of ferritin as an important risk marker in heart failure, warranting further investigation in future studies.

PO 293. ROLE OF ORAL IRON IN HFREF AND DECREASED TRANSFERRIN SATURATION: A SECONDARY ANALYSIS OF IRONOUT-HF

António Afonso Angélico Gonçalves[1], Ana Rita Ferreira Leite[2], Pedro Marques[2], Adelino Leite Moreira[2], João Pedro Ferreira[2]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Iron deficiency (ID) associates with high morbimortality in patients with heart failure with reduced ejection fraction (HFrEF). Ferritin may not be an accurate discriminator of ID and a new definition of ID including only decreased (< 20%) transferrin saturation (TSat) has been proposed. Patients decreased TSat may experience clinical improvement from oral iron.
Objectives: Assess the effects of oral iron compared to placebo in HFrEF patients with decreased TSat (< 20%) on iron biomarkers, functional capacity and quality of life.
Methods: We used patient-level data from IRONOUT-HF randomized placebo-controlled trial (RCT), which assessed the efficacy of treatment with oral iron or placebo for 16 weeks on functional capacity in 225 patients with HFrEF and ID. We performed a secondary analysis, including only patients with decreased (< 20%) TSat at baseline. We assessed differences between patients treated with oral iron and placebo in (1) baseline characteristics using T-test for independent samples or Mann-Whitney U tests, (2) baseline to end-of-follow-up differences in hemoglobin, iron biomarkers and functional capacity using multivariate linear regressions. For each independent variable, the predictor variables used were treatment allocation and respective baseline variable.
Results: Out of 225 patients included in the original trial, 108 had decreased TSat at baseline of which 54 received placebo and 54 received oral iron. Patients treated with oral iron, when compared to placebo, had similar age (62.2 vs. 61.5 years), sex (61 vs. 69% male), left ventricle ejection fraction (24.8 vs. 26.3%), peak VO2 uptake (12.7 vs. 12.3 ml/kg/min), baseline hemoglobin (12.1 vs. 12.3 g/dL), baseline ferritin (79.5 vs. 52.5 ng/mL), baseline TSat (16.0 vs. 14.0%) and baseline hepcidin (4.92 vs. 5.11 ng/mL) – all p values > 0.1. Compared to placebo, treatment with oral was not associated with baseline to end-of-follow-up changes in ferritin (mean absolute difference [MAD] 5.0 ng/mL, p = 0.552, 95%CI -13.8 to 20.4), TSat (MAD 2.24%, p = 0.135, 95%CI - 0.71 to 5.19) or peak VO2 (MAD 0.69 ml/kg/min, p = 0.079, 95%CI -0.08 to +1.46).
Conclusions: In HFrEF patients with decreased TSat, treatment with oral iron for 16 weeks was not associated with a significant improvement in TSat or ferritin and only showed a trend for improvement on functional capacity. Benefit from Ooal iron in HFrEF and ID remains uncertain and intravenous iron should be preferred.

PO 294. PREDICTING EVENTS IN FERROPENIC ACUTE HEART FAILURE PATIENTS: THE B12 PARADOX

Mauro Moreira, José Luís Ferraro, Ana Rodrigo Costa, Inês Gomes Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Adriana Pereira, Aurora Andrade

ULS Tâmega e Sousa.

Introduction: Heart failure (HF) is a prevalent condition associated with poor short- and long-term prognosis. Iron deficiency is linked to a particularly vulnerable and less understood subset of patients, who often benefit from specific, cyclic ferric supplementation.
Methods: This was a single-centre, retrospective study of patients with acute heart failure (AHF) admitted consecutively to a tertiary centre. Patients with normal iron parameters—defined as TSAT > 20% and Ferritin > 100—were excluded. Clinical history, symptoms, biomarkers, electrocardiogram (ECG), and echocardiogram findings were analyzed. A composite endpoint (CE) was defined to include unplanned hospital visits, diuretic up-titration, hospital admission, and all-cause mortality. Backward Wald logistic regression (BWLR) was used to identify independent predictors of the composite endpoint. Follow-up was conducted for up to 22 months.
Results: A total of 199 patients were included (mean age: 70.45 ± 11.8 years). Of these, 93 patients (46.7%) reached the composite endpoint, including 15 deaths (7.5%). BWLR identified the following as independent predictors of the composite endpoint: Previous coronary artery disease, Acute decompensation of chronic HF, Discharge with all four pillars of HF therapy, Transferrin and Vitamin B12. The regression model demonstrated excellent predictive ability for the composite endpoint (AUC = 0.815; 95%CI: 0.747-0.882; p < 0.001). Vitamin B12 showed a direct association with the composite endpoint (mean B12 levels: 344.8 ± 239.6 vs. 475.2 ± 397.8; p = 0.007; BWLR 11th iteration: p = 0.028, OR = 1.001). In contrast, ferritin and TSAT were not significantly associated with the composite endpoint or any of its individual components.
Conclusions: Patients with ferropenic HF exhibited a notably high rate of adverse events during long-term follow-up. In this subgroup, additional iron-related variables did not predict long-term outcomes, underscoring the need for improved prognostication methods. Interestingly, Vitamin B12 was an independent direct prediction of poor outcomes, a finding that contrasts with its behaviour in non-ferropenic patients. The paradox we observed—high B12 associating with poor outcomes—could reflect inflammatory states by which chronic inflammation alters B12 metabolism and iron utilization (functional iron deficiency); liver dysfunction, leading to elevated B12 levels in patients with hepatic congestion or dysfunction, often seen in HF. Ultimately, it may be a compensatory mechanism - elevated B12 may signify a maladaptive response to increased cellular turnover or stress.

PO 295. UNRAVELLING THE UGLY TRUTH ABOUT SLEEP APNEA AND ADVANCED HEART FAILURE: A PORTUGUESE REAL-WORLD SETTING

Patrícia Bernardes, Mariana Marçal, Jéni Quintal, Tatiana Duarte, Hugo Viegas, Ana Sousa, Crisálida Ferreira, Dina Ferreira, Andreia Soares, Vânia Caldeira, Sara Gonçalves, Filipe Seixo

Hospital São Bernardo (Setúbal), ULS Arrábida.

Introduction: Sleep apnea (SA) is a prevalent sleep-related breathing disorder associated with intermittent hypoxia. Heart failure (HF) has emerged as a significant concern due to shared risk factors.
Objectives: To estimate the prevalence and impact of sleep apnea on clinical outcomes in patients with advanced heart failure (AHF).
Methods: This retrospective observational study included 74 outpatients with advanced heart failure followed at our HF unit, between September 2020 and September 2024. SA screening was performed in all pts by local protocol. Population was divided in 2 groups according to the presence of SA. Groups were compared according to basal characteristics and events. AHF was defined according to the 2018 *Position statement from Heart Failure Association of the European Society of Cardiology for AHF.*
Results: This cohort included 74 pts with a mean age of 72 years (SD = 12.4). Mean follow up was 18.5 months ± 9.2. 93% had a current NYHA status of III or IV. Median NtproBNP was 5,174 pg/mL. 45% of pts (n = 33) were diagnosed with sleep apnea; 78% were male. Most pts had ischaemic HF (n = 15; 45.5%). Regarding HF subtypes, HFrEF accounted for 70% (n = 23), 21% (n = 7) had HFmEF and 9% (n = 3) had HFpEF. Mean ejection fraction at screening was lower in the SA group (33.7 ± 12.2, p = 0.003). The majority of AHF pts was classified with severe SA (n = 14; 42.4%; mean AHI 29.5 ± 13.2 events/h) and obstructive events (n = 28; 84.8%). SA pts came to more urgent visits (7 ± 6.5 vs. 4.9 ± 4.1, *p* = 0.045) and had higher rates of hypertension (88 vs. 61%, *p* = 0.005). The nº of urgent visits showed a moderate positive correlation with the apnea-hypopnea index (AHI) (r = 0.453; p = 0.027). HF hospitalizations were low in both groups. In HFrEF pts, SA was associated with higher mean NT-proBNP (10,432 vs. 5,902 pg/mL, *p* = 0.046). All pts diagnosed with obstructive SA started positive airway pressure therapy; only 1 of them quitted treatment. Death from any cause occurred in 36 pts (48.6%) traducing pt severity. SA was associated with a significantly higher incidence of death

in pts with AHF (p = 0.011). Furthermore, SA emerged as an independent predictor of mortality from any cause (OR = 3.3, 95%CI: 1.15-9.91, p = 0.026).
Conclusions: Sleep apnea is a high prevalent comorbidity in pts with AHF and is associated with higher rates of decompensation. Early diagnose and tailored therapeutic strategies may contribute to reduce the burden of these interrelated conditions.

PO 296. HYPERURICEMIA: A MARKER OF SEVERE CONGESTION AND DISEASE BURDEN IN HEART FAILURE

José Luís Ferraro, Mauro Moreira, Ana Rodrigo Costa, Inês G. Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Inês Almeida, Carla Almeida, Aurora Andrade

Centro Hospitalar Tâmega e Sousa.

Introduction: Hyperuricemia has been linked to worse outcomes in heart failure (HF). The aim of this study was to evaluate the relationship between hyperuricemia and clinical characteristics and outcomes in hospitalized HF patients.
Methods: A retrospective single-center analysis was conducted with 265 patients hospitalized for HF throughout 2022, divided into two groups: hyperuricemia (serum level at admission > 7.5 mg/ml, n = 137) and non-hyperuricemia (< 7.5 mg/dl, n = 105). A statistical analysis was performed to compare baseline characteristics and outcomes between groups. The combined endpoint included HF hospitalization, cardiovascular death, all-cause mortality, and unplanned hospital visits. A p-value of < 0.05 was considered statistically significant.
Results: 67.9% were male and mean age was 70.7 ± 12.4 years. The median follow-up period was 1.5 years. Cardiovascular risk factors were prevalent. In the hyperuricemia group, 51 patients (37.2%) had ischemic etiology, compared to 48 patients (45.7%) (p = 0.183). In the hyperuricemia group, 39 patients (28.5%) had valvular etiology, compared to 26 patients (24.8%) (p = 0.519). Hyperuricemia group were predominantly classified in HF Profile B (89.8%) and Profile C (9.5%), with a very small proportion presenting cardiogenic shock. Non-hyperuricemia group were mostly classified in Profile B (93.3%) and 6.7% in Profile C. In patients with HFrEF, hyperuricemia group had a significantly lower LVEF (34.1% ± 14.37 vs. 38.1%, p = 0.045). and were more likely to exhibit right ventricular dysfunction (39.7 vs. 26.7%, p = 0.034). A weak positive correlation was found between serum uric acid levels and admission NT-proBNP levels (r = 0.273, p < 0.001). Hyperuricemic patients required higher diuretic doses (67.9 vs. 50.5%, p = 0.006) and had longer hospital stays (65 vs. 50.5%, p = 0.023). They had more unplanned hospital visits (7.3 vs. 15.2%, p = 0.048). However, no significant differences were observed on combined endpoint and on the other individual analysis of each outcome.
Conclusions: Hyperuricemia in HF patients is associated with more systemic congestion, worse right ventricular function and lower LVEF reflecting a more severe disease phenotype. Hyperuricemia seems to be associated with worse outcomes, as reflected by a higher number of unplanned hospital visits. It remains to be determined whether hyperuricemia is merely a marker of disease severity or if it has a direct correlation with worse prognosis.

Sábado, 12 Abril de 2025 | 15:30-16:30

Área de Posters-écran 1| Sessão de Posters 44 – Arritmias ventriculares

PO 297. INSIGHTS ON CARBON DIOXIDE INSUFFLATION TECHNIQUE FOR EPICARDIAL ACCESS ABLATION OF REFRACTORY ARRHYTHMIAS: SAFETY AND CLINICAL OUTCOMES

Leonor Magalhães, Margarida Figueiredo, Sofia Jacinto, Guilherme Portugal, Paulo Osório, Hélder Santos, Bruno Valente, Ana Lousinha, Pedro Silva Cunha, Rui Ferreira, Mário Martins Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Epicardial access ablation is a key intervention for treating recurrent arrhythmias with epicardial substrates. However, the standard approach carries risks of major complications. A novel technique using pericardial CO2 insufflation, facilitated by the intentional coronary venous exit for subxiphoid puncture, enhances the access to epicardial space.
Methods: Analysis of consecutive patients (P) who underwent epicardial ablation for recurrent symptomatic arrhythmias between September 2019 and October 2024. The primary objective was to assess the safety and feasibility of CO2-assisted pericardial access. Data collected included demographics, procedural details, and follow-up outcomes.
Results: 17P underwent epicardial access using CO2 insufflation: 13P for ventricular tachycardia (VT) and 4P for non-VT arrhythmias (left atypical atrial flutter, lateral posterior accessory pathway, and ventricular ectopias). There were 14 men (82.4%) and the median age was 64 years [IQR 39-73]). Underlying diagnoses included dilated cardiomyopathy (52%), arrhythmogenic right cardiomyopathy (23.5%) and hypertrophic cardiomyopathy (11.8%). Implanted devices (ICD or CRT-D) were present in 88%. Nine procedures were urgent due to electrical storms or recurrent VT episodes. In 7P, epicardial ablation was complemented with endocardial applications. Only 3 were first-intention ablations; 76.5% had prior failed ablations. Median radiofrequency time (RF) was 29 minutes (IQR 10-40) and fluoroscopy time was 20 minutes (IQR 16-32). Acute access-related complications (1 minor haemorrhage) occurred in 1P (5.8%). The later intraprocedural complications (11.7%) were related to the ablation process itself: 1 reversed cardiac arrest due to VT induction and 1 left ventricular myocardial perforation due to endocardial

Sex N (%)	
Female	3 (17.6%)
Male	14 (82.4%)
Age - median (IQR)	64 years (39-73)
Diagnostic N (%)	
Dilated cardiomyopathy (DCM)	9 (52.9%)
Ischemic	4 (23.5%)
Post-myocarditis	1 (5.9%)
Chagas disease	1 (5.9%)
Unknown aetiology	3 (17.7%)
Arrhythmogenic right ventricular cardiomyopathy	4 (23.5%)
Hypertrophic cardiomyopathy	2 (11.8%)
Non-compacted cardiomyopathy	1 (5.9%)
LVEF % - median (IQR)	45% (31-59)
Device N (%)	
ICD	10 (58.8%)
CRT-D	5 (29.4%)
Primary prevention	8 (57%)
Secondary prevention	7 (46%)

Table 1 – Baseline Characteristics

Indication	N (%)
Ventricular Tachycardia ablation	13 (76.4%)
Non-Ventricular Tachycardia ablation	4 (23.5%)
Atypic FLA	1
Accessory Pathway	1
Frequent ventricular extrasystole	2
Number of previous ablations	N (%)
0	4 (23.5%)
1	7 (41.1%)
2	6 (35.3%)
Timing of the procedure	N (%)
Elective	8 (47%)
Emergency	9 (52.9%)
Electric storm	6 (35.3%)
Syncopal refractory VT	3 (17.6%)
Ablation access	N (%)
Epicardial only	10 (58.8%)
Combined epicardial + endocardial	7 (41.2%)
Radiofrequency time [minutes] – median (IQR)	**29 (10.33-40.42)**
Fluoroscopy time [minutes] – median (IQR)	20.77 (16.05-32.6)

Table 2 – Arrhythmia ablation details

Figure PO 297

RF application, which proved fatal. Another death occurred due to electric storm recurrence with cardiogenic shock. All 15 patients who completed ablation achieved acute success. Over a median follow-up of 265 days (IQR 56-977), 3P (20%) had arrhythmia recurrence.
Conclusions: CO2-assisted pericardial access for ablation of both VT and non-VT arrhythmias is a safe and reproducible technique associated with a low complication rate. This initial data supports the ability to undergo endo-epicardial strategies as a first-line option.

PO 298. SUDDEN CARDIAC DEATH HCM RISK SCORES IN APICAL HYPERTROPHIC CARDIOMYOPATHY: AN UNMET NEED IN CLINICAL PRACTICE

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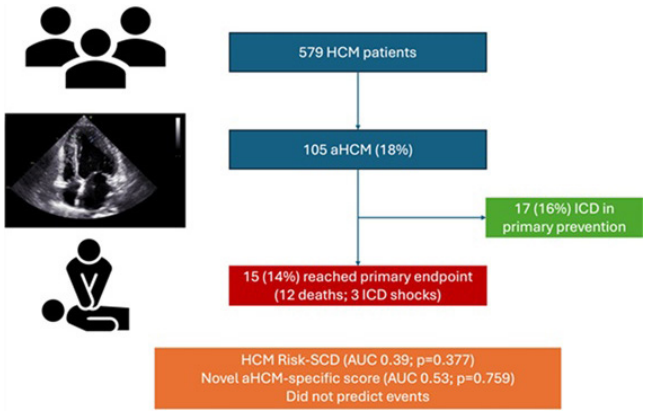
Introduction: The concept that apical hypertrophic cardiomyopathy (aHCM) is associated with a lower risk of sudden cardiac death (SCD) has often been challenged. Prediction tools have yet to be validated in aHCM. Accordingly, we aimed to evaluate the predictive value of HCM Risk-SCD score (ESC) and a new aHCM-specific risk score in our cohort of aHCM.
Methods: Retrospective study of consecutive patients diagnosed with aHCM, with at least a yearly follow-up in our center. Data of interest to calculate risk scores was collected at baseline, considered as the date of aHCM imaging diagnosis. The ESC HCM Risk-SCD score was calculated using the 7-variable online tool. The aHCM-specific score (JACC Advances, 2024), ranging from 0-8 points, comprises 5 variables: age, creatinine, left atrial volume index (LAVI), right ventricular systolic pressure and apical aneurysm (any volume). The primary endpoint was a composite of all-cause death, appropriate defibrillator shock [implantable cardioverter-defibrillator (ICD) shocks or resuscitated SCD), or heart transplantation.
Results: Among 579 patients with hypertrophic cardiomyopathy, 105 (18%) had aHCM and were enrolled [mean age 69 ± 14 years, 64% female, maximal left ventricular thickness 16 (14-19) mm, mean LAVI 44 (35-46) mL/m^2; 8, 5, 25 and 6 patients with a SCD family history, non-sustained VT, unexplained syncope and apical aneurysm, respectively). An ICD was implanted as primary prevention of SCD in 17 (16%) patients. During a median follow-up of 58 (26-96) months), 15 patients met an event of the primary endpoint (12 deaths, 3 ICD shocks). In univariate analysis, older age (HR 1.10 per year, CI 1.02-1.14; p = 0.002) and LAVI (HR 1.04 per mL/m^2; CI 1.04-1.07; p = 0.004) were the only variables imputed into one of the scores predicting the primary endpoint. The HCM Risk-SCD (AUC 0.39, p = 0.377) and the novel aHCM-specific score (AUC 0.53; p = 0.759) performed poorly to predict the primary endpoint. The categorization of patients, as per the HCM Risk-SCD score as low (< 4%), intermediate (4-6%) and high-risk (> 6%), or as per the aHCM-specific score (0, 0-2 and ≥ 3, respectively), did not improve discrimination.



Conclusions: In our cohort of patients with aHCM, more than 1 in every 10 patients died or had an ICD shock. The HCM Risk-SCD and the novel aHCM-specific score were poor discriminators for the likelihood of the primary endpoint. This study underscores the importance of further research to improve risk stratification in aHCM.

PO 299. NONINVASIVE ELECTROCARDIOGRAPHIC MAPPING VS. CONVENTIONAL ECG ANALYSIS IN PREDICTING VENTRICULAR TACHYCARDIA ORIGIN

Catarina Gregório, Afonso Nunes-Ferreira, Ana Abrantes, Tiago Rodrigues, Ana Rita Francisco, Pedro Silva, Irina Neves, Joana Brito, Gustavo Lima da Silva, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: Pre-procedural planning is crucial for the success of ventricular tachycardia (VT) ablation. VT origin can be predicted through

	Overall	General Cardiologist	Electrophysiologist	pValue
Accuracy of prediction of VT exit site/isthmus, (%)	48%	47%	49%	<0.001
Sensibility of prediction of VT exit site/isthmus, (%)	48%	47%	49%	NS
Specificity of prediction of VT exit site/isthmus, (%)	96.5%	96.4%	96.5%	<0.001
Interoperation Concordance, (%)	71.6%	66.7%	76.5%	NS

Table 1: Comparison of VT prediction accuracy and concordance between general cardiologist and Electrophysiologist ECG analysis

	Electrophysiologist	ECGi	pValue
Accuracy of prediction of VT exit site/isthmus, (%)	49%	88%	0.003
Sensibility of prediction of VT exit site/isthmus, (%)	49%	91.2%	0.002
Specificity of prediction of VT exit site/isthmus, (%)	96.5%	98.5%	0.035

Table 2: Comparison of VT prediction accuracy between Electrophysiologist and ECGi

Figure1: Pre-electrophysiologic study procedural planning using ECGi.

Figure PO 299

systematic analysis of VT electrocardiograms (ECG). Non-invasive ECG mapping (ECGi) offers potentially more precise predictions of VT location, but its value in structural heart disease (SHD) remains uncertain.
Objectives: To evaluate the usefulness of ECGi in guiding SHD VT ablation planning by comparing its accuracy in predicting VT mapping areas with that of ECG analysis by electrophysiologists (EPs) and general cardiologists (GCs).
Methods: This single-center prospective study included patients with SHD referred for left ventricular VT ablation from 2022 to October 2024, who underwent ECGi, and their clinical VT was fully mapped during the electrophysiological procedure. Pre-procedural planning included ECGi using a 252-electrode noninvasive 3D mapping system (CardioInsight™), mapping VTs induced by noninvasive programmed stimulation. The ECGi area of interest was defined as the earliest activation region (initial 20 ± 5 ms from the first dV/dT). Three EPs and three GCs analyzed the VT ECG in a blinded manner, applying the 16-segment Burruezo's prediction algorithm. VT origin predictions were considered appropriate if they matched the VT exit site or isthmus, allowing a 1-segment margin of error. Paired T-tests were used for statistical analysis.
Results: We included 17 patients (88% male, 71 ± 13 years; 53% with ischemic SHD). Physicians correctly predicted the VT origin though the ECG analysis in 48% of cases, with EPs performing slightly better than GCs ($p < 0.001$). Inter-operator concordance was higher among EPs (76.5%) compared to GCs (66.7%), with an overall concordance of 71.6%. In cases where ECG analysis was inaccurate but adjacent to the true site, predictions were more apical in 15.6% of cases, more basal in 2%, and in unrelated segments in the remaining cases. ECGi predicted the VT origin in 88% of cases, significantly outperforming both EPs and GCs ($p = 0.003$). Furthermore, ECGi exactly predicted the VT exit site or isthmus segment in 82.4% of patients, compared to 5.8% for physicians ($p < 0.001$).
Conclusions: Analysis of the VT ECG, even by skilled EPs using systematic algorithms, has significant limitations in predicting the area of interest for VT mapping. ECGi demonstrated superior accuracy in predicting VT origin, enhancing pre-procedural planning in patients with SHD.

PO 300. BASELINE INTERVALS ON ELECTROCARDIOGRAM AS A SCREENING TOOL FOR DIAGNOSING BRUGADA SYNDROME IN FAMILY MEMBERS

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USL Viseu Dão-Lafões.

Introduction: Diagnosis of Brugada Syndrome (BrS) requires documentation of a spontaneous or pharmacologically induced type 1 Brugada pattern. In individuals with normal basal electrocardiography, screening methods could be challenging. The study aimed to detect if other parameters in basal ECG could be a tool to predict the diagnosis of BrS in family members.
Methods: Retrospective analysis of 78 patients with family history of BrS and referenced for screening. Basal electrocardiogram was performed in all patients. Patients with spontaneous type 1 Brugada pattern in basal ECG were initially excluded. Definitive diagnosis required a presence of a type 1 ECG pattern or conversion of a type 2 to type 1 following provocative test. The Mann-Whitney U test was used for median comparison between groups as univariate analysis. Analysis of the receiver operating characteristic (ROC) curves were performed to evaluate the predictive values of ECG parameters.
Results: 6% (n = 5) had spontaneous type 1 Brugada syndrome. 53% were male (n = 41); mean age of 28.9 ± 15.3 years. 31% (n = 24) had confirmative diagnosis of BrS. 27% (n = 21) were carriers of SCN5A mutation. Mean duration of intervals on basal ECG were RR 871.2 ± 156.0 ms; PR 159.3 ± 34.1ms; QRS 91.4 ± 13.4 ms; QTc 404.2 ± 32.0. Syncope occurred in 5% of patients (n = 5), 94% were asymptomatic. By univariate analysis, the distribution of PR and QRS intervals was significantly different. Wider PR interval was found in patients with BrS ($p < 0.01$) with a median of 200 ms (variance of 1,269) versus healthy individuals (median of 150ms and variance of 601). Wider QRS intervals were also found in BrS patients compared with healthy individuals ($p < 0.01$) (100 ms (288) versus 80 ms (204)). The cut-off point, with the most sensitivity (S) and specificity (E) obtained using the Youden index (YI) for PR interval was 170ms (YI 0.5389; Sensitivity (S) ≈ 65% and Specificity(E) ≈ 89%) and for QRS interval was 97ms (YI 0.5148; Sensitivity (S) ≈ 70% and Specificity(E) ≈ 82%).
Conclusions: Higher PR and QRS intervals were associated with BrS diagnosis compared to healthy family members, which may pose a cost-effective screening tool.

PO 301. SINUS RHYTHM LATE ACTIVATION ZONES AS A TARGET FOR IMPROVING VENTRICULAR TACHYCARDIA ABLATION OUTCOMES

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Introduction: Ventricular tachycardia (VT) ablation is a critical intervention for patients with ischemic heart disease and has demonstrated to improve patient's prognosis. Although there is some evidence regarding the best way to identify the substrate for ablation, there is limited data on the clinical impact of having the latest activation regions in sinus rhythm (SR) as the main target for the VT ablation procedure.
Objectives: This study aimed to evaluate whether applying radiofrequency to areas corresponding to the latest activation in SR (as per LAT histogram analysis) and associated with low voltage mapping is linked to a lower recurrence rate of VT/VF/ICD therapies in the medium term compared to cases treated solely based on voltage and VT activation maps.
Methods: We conducted a retrospective single-centre study on prospectively collected data from patients who underwent ischemic VT ablation between January 2022 and September 2024. Patients were classified into two groups based on the correlation of late activation areas in SR with low-voltage regions: Group 1 (correlation between both areas and with RF application) and Group 2 (correlation but without RF application).

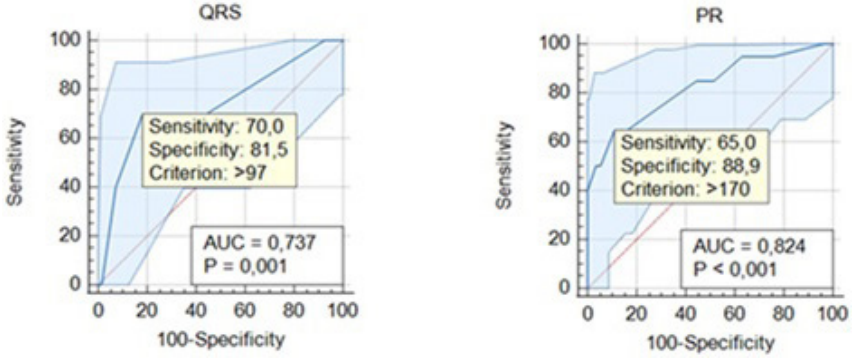
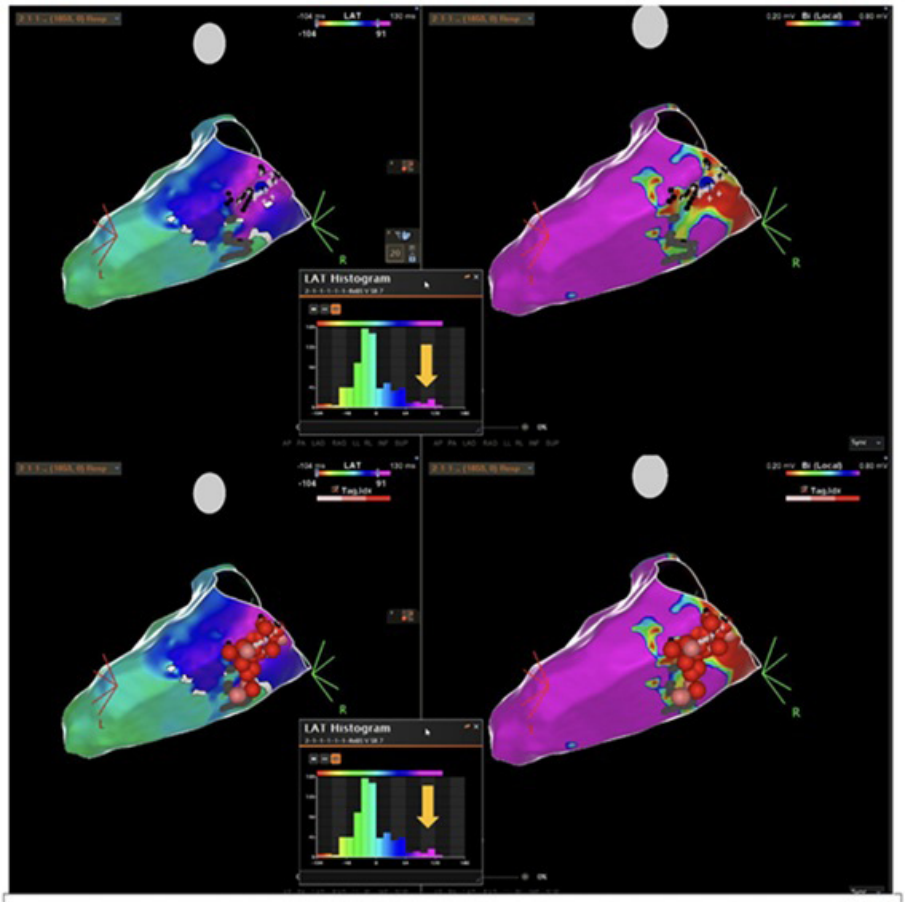


Figure PO 300



Picture: Example of a patient in "group 1" with the region of latest activation in sinus rhythm (LAT histogram) correlated to low voltage mapping and matching precisely with the ablation area. This patient had no VT recurrence.

Figure PO 301

Results: A total of 32 patients, 96% male, 100% with ischemic heart disease and 9% with an associated primary cardiomyopathy were included, with a mean age of 65 ± 11 years and mean LVEF 35 ± 11%. Successful ablation, as per non-inducible VT at the end of the procedure was achieved in 93% of all the cases. During a mean follow-up of 1.42 ± 0.85 years, a total of 8 patients had VT/FV recurrence, namely 4 patients in group 1 (4/25; 16%) and 4 patients in group 2 (4/7; 57%), indicating a higher recurrence in the latter group, reaching statistical significance χ^2 (1, N = 32) = 4.94, p = 0.026.
Conclusions: Targeting late activation areas in sinus rhythm corresponding to low voltage regions results in a significantly lower recurrence rate of VT events and ICD therapies when compared to targeting based solely on voltage and VT activation maps. Further studies are warranted to validate these findings and explore their implications for clinical practice.

PO 302. IS NON-SUSTAINED VENTRICULAR TACHYCARDIA A KEY PLAYER IN NON-ISCHEMIC CARDIOMYOPATHY?

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Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Patients with non-ischemic cardiomyopathy (NICM) frequently exhibit non-sustained ventricular tachycardia (NSVT) during cardiac implantable electronic device (CIED) follow-up, but studies on its role remain limited and inconclusive.
Methods: We performed a single-centre retrospective, observational study reviewing patients with NICM who received CIED between May 2014 - October 2018, to evaluate NSVT occurrence and associated factors, using clinical records and SPSS software for analysis.
Results: A total of 150 patients were included. Sixty-seven percent of patients were men. Seventy-five patients had a CRT (cardiac resynchronization therapy)-defibrillator, 20 patients had a CRT-pacemaker, and 55 patients had an ICD (implantable cardioverter-defibrillator). Eighty-seven percent of patients implanted the device as primary prevention and 13% as secondary prevention. One-hundred patients had dilated cardiomyopathy, 31 hypertrophic cardiomyopathy and 19 other phenotypes. During a follow-up time of 6.64 ± 3.55 years, 103 patients presented at least 1 non-sustained ventricular tachycardia (NSVT) detected by the device. Patients were divided in NSVT and non-NSVT groups. NSVT events were more common in men (n = 75 versus (*vs*) 28, p = 0.034), and no differences in age were found between groups (65.58 ± 12.15 vs. 61.94 ± 16.59 years, p = 0.132). Creatinine levels were higher in the NSVT group: 1.12 (IQR 0.52) vs. 0.94 (IQR 0.39) mg/dl, p = 0.039. NSVT patients had lower values of left ventricular ejection fraction (LVEF): 30 (IQR 10) vs. 34 (IQR 28)%, p = 0.019. They also presented higher left ventricular end-diastolic diameter (LVEDD) (66.07 ± 9.89 vs. 59.27 ± 12.53 mm, p = 0.001) and left ventricular end-systolic diameter (LVESD) (53.97 ± 11.18 vs. 43.85 ± 14.57 mm, p < 0.001). No significant association was found between atrial fibrillation and the occurrence of NSVT (p = 0.196). There was no association between appropriated shocks (p = 0.243), ventricular tachycardia episodes (p = 0.092), ventricular fibrillation episodes (p = 0.191) or all-cause mortality (p = 0.208) and NSVT events. However, 85% of the patients who underwent anti-tachycardia pacing were in the NSVT group (OR = 3.76 (CI 1.34-19.57), p = 0.008) and all 8 patients who experienced an electric storm belonged to this group.
Conclusions: Male gender, higher creatinine levels, lower values of LVEF, and higher values of LVEDD and LVESD seem to be associated with the

presence of NSVT events. However, in our cohort, NSVT presence was not able to predict ventricular arrhythmias in patients with CIED and NICM.

Sábado, 12 Abril de 2025 | 15:30-16:30

Área de Posters-écran 2 | Sessão de Posters 45 – Dispositivos cardíacos implantáveis: complicações e sua prevenção

PO 303. FEASIBILITY, SAFETY AND MID-TERM PARAMETERS STABILIZATION OF LEFT BUNDLE BRANCH PACING: A SINGLE CENTER EXPERIENCE

António Baptista Carvalho[1], Sofia Jacinto[2], Inês Neves[2], Hélder Santos[2], Guilherme Portugal[2], Ana Lousinha[2], Pedro Silva Cunha[2], Bruno Valente[2], Paulo Osório[2], Mário Oliveira[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital de Santa Marta.

Introduction: Left bundle branch pacing (LBBP) has emerged as a novel physiological pacing technique to achieve synchronous ventricular activation via capture of the His-Purkinje system, with advantages over His bundle pacing regarding superior implant parameters and stability.
Objectives: This study aims to evaluate the feasibility and mid-term follow-up data with LBBP, focusing on feasibility, safety, and the stabilization of pacing parameters over time.
Methods: This retrospective study analyzed procedural and pacing data from patients undergoing left bundle branch pacing (2020-2023). Safety and stability of pacing parameters were assessed, with statistical analysis performed using SPSS v.27. From 2020 to 2023, 62 LBBP procedures were performed, predominantly in male patients (77%) with a median age of 79 (74-83) years. The main pacing indications were atrioventricular node disease (37%) and sinus node disease (63%). The median procedural duration was 100 (60-210) minutes, with a median fluoroscopy time of 10 (5-15) minutes. There were no complications during the LBBP procedures. Post-procedure, the median left ventricle activation time (LVAT) was 73 (62-84) ms, with a statistically significant reduction in QRS width (from 139 ± 32 ms to 129 ± 21 ms, p < 0.01, 95%CI 5.7-23.5). After a mean follow-up of 14.3 ± 17.6 months, no statistically significant changes were seen in R-wave amplitude (from 8 [6-12] mV to 11.1 [5.6-14.6] mV, p = 0.09, 95%CI 0.26-3.63). Additionally, pacing impedance decreased (from 775 ± 268 Ohms to 448 ± 190 Ohms, p < 0.01, 95%CI 243-373), along with a reduction in pacing threshold (from 1.0 V [0.8-1.5] to 0.7 V [0.5-1], p < 0.01, 95%CI 0.01-0.42). During follow-up, 5 patients (8%) experienced loss of capture due to LBBP lead dislodgement within 4 weeks post-implantation, requiring reintervention. No other adverse events were reported.
Conclusions: LBBP has demonstrated to be a safe and feasible pacing modality. The technique offers manageable procedural duration and stable pacing parameters during mid-term follow-up, making it a viable option for patients requiring cardiac pacing. The occurrence of 8% postoperative lead dislodgement demonstrates the importance of the learning curve.

PO 304. IS THERE AN OPTIMAL TIMING FOR DEVICE REIMPLANTATION AFTER LEAD EXTRACTION DUE TO CIED INFECTION?

André Paulo Ferreira, Margarida Figueiredo, Hélder Santos, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Bruno Valente, Rui Cruz Ferreira, Mário Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Complete cardiovascular implantable electronic devices (CIED) removal is recommended for all patients (P) with confirmed CIED infection, regardless of whether there is definite evidence of device involvement. However, optimal timing following transvenous lead removal remains unclear when considering device reimplantation.
Objectives: Our study aimed to evaluate the short and long-term effects of different device reimplantation times in P that underwent CIED removal due to infection.
Methods: Prospective single-centre study in P that underwent lead extraction due to CIED infection and in whom device reimplantation was performed. P were divided into three groups, according to the timing of device reimplantation: Group A (reimplantation in < 72 h), Group B

Table 1 - Characteristics of Patients with Left Bundle Branch Pacing (LBBP).

Characteristic	Baseline (n=62)	After LBBP	*p* value	95% CI
Male gender – no. (%)	48 (77)	-	-	-
Age (years) – median [IQR]	79 [74-83]	-	-	-
Indication for pacing – no. (%)				
Sinus node disease	23 (37)	-	-	-
AV node disease	39 (63)	-	-	-
Procedural characteristics – median [IQR]				
Procedure time (min)	-	100 (60-210)	-	-
Fluoroscopy time (min)	-	10 (5-15)	-	-
Electrocardiographic variables				
QRS width (ms) – mean ± SD	139±32	129±21	<0.01	5.7-23.5
LVAT (ms) – median [IQR]	-	73 (62-84)	-	-
R wave (mV) – median [IQR]	8 (6-12)	11.1 (5.6-14.6)	0.09	0.26-3.63
RV impedance (Ohm) – mean ± SD / median [IQR]	775±268	448 (390-526)	<0.01	243-373
RV threshold (V) – median [IQR]	1.0 (0.8-1.5)	0.7 (0.5-1)	<0.01	0.01-0.42
Follow-up time (months) – mean ± SD	-	14.3 ± 17.6	-	-

Values are given as the mean ± SD, median (IQR) or as n (%).
p values <0.05 were considered statistically significant.
AV – atrioventricular; LVAT - Left Ventricle Activation Time; LVEF - Left Ventricle Ejection Fraction; RV – right ventricle

Figure PO 303

Table 1. Group characterisation regarding infection and antibiotic therapy

	Group A N = 38	Group B N = 60	Group C N = 18	p value
Positive blood cultures (%)	11 (29)	20 (33)	6 (33)	0.852
Targeted antibiotic therapy (%)	13 (34)	25 (42)	8 (44)	0.488
Antibiotic therapy previous to CIED removal (%)	29 (76)	54 (90)	13 (72)	0.170
duration < 4 weeks (%)	17 (45)	36 (60)	5 (28)	
duration ≥ 4 weeks (%)	12 (32)	18 (30)	8 (44)	
Antibiotic therapy after CIED removal (%)	31 (82)	53 (88)	14 (78)	0.298
duration < 4 weeks (%)	25 (66)	44 (73)	9 (50)	
duration ≥ 4 weeks (%)	6 (16)	9 (15)	5 (28)	

Table 2. Short and long-term follow-up according to groups

	Group A N = 38	Group B N = 60	Group C N = 18	p value
Complications/Death/Reintervention during hospitalisation (%)	4 (11)	9 (15)	0	0.206
Need for urgent surgical procedure (%)	2 (5)	2 (3)	0	0.600
Rehospitalisation during follow-up (%)	10 (26)	16 (27)	6 (33)	0.828
One-year mortality (%)	1 (3)	4 (7)	1 (6)	0.726

Figure PO 304

(reimplantation in 72h-2 weeks), and Group C (reimplantation in > 2 weeks). Relevant outcomes during follow-up of the three groups were noted in the short-term - need for urgent surgical intervention or death/complications/ reintervention during hospitalisation - and in the long-term – one-year mortality or rehospitalisation.

Results: From a total of 257 P, CIED infection was present in 205 P (80%). 116 P (57%) underwent device reimplantation, which was performed in the same hospitalization in 110 P. At baseline 78% were male, median age was 75 (IQR 62-82) years, median dwell time of the leads was 84 (IQR 36-132) months. In 55% of the cases there was pocket infection only, 66 P (32%) had positive blood cultures, 39 P (19%) were under targeted antibiotic therapy and 80 P (39%) had positive cultures after the procedure. Regarding the extracted CIED, 47% were pacemakers (8% VVI, 8% VDD and 31% DDD), 6% were ICD and 11% were CRT – median number of extracted electrodes was 2 (IQR 1-2). Median time to reimplantation after device removal in patients with positive blood cultures was 5 (IQR 2-7) days. Regarding device reimplantation, there were 38 P in group A, 60 P in group B and 18 P in Group C. Differences between the three groups in terms of blood cultures, targeted antibiotic therapy and pre and post-device removal duration of antibiotic therapy are shown in Table 1. Median follow-up time was 26 (IQR 13-54) months. The differences between the three groups regarding short and long-term follow-up outcomes are shown in Table 2.

Conclusions: In our study, distinct timings of device reimplantation after CIED extraction due to infection did not show differences regarding short or long-term follow-up.

PO 305. NON-INFECTED LEAD EXTRACTIONS: A BETTER LONG-TERM SOLUTION?

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Introduction: In recent years, as a result of an increasing number of cardiac implanted electronic devices (CIED), the number of CIED related complications has increased and solutions to complex CIED procedures in high-risk patients (P) are required. Transvenous lead extractions (LE) can be the best solution for some of these patients. The "Pisa Technique" (PT) is an increasingly used method of LE, being associated with the lowest rate of complications.

Objectives: We aim to understand the safety of LE and long-term follow-up in P without CIED infection.

Methods: Single-centre prospective analysis engaging P that underwent LE. P were divided into two groups: Group A – P without CIED associated infections – and Group B – P with CIED infection. Efficacy and safety of LE were analysed. Kaplan-Meier test was performed to establish survival rates in terms of one-year major adverse cardiac event (MACE), mortality and hospital readmissions for all causes.

Results: A total of 257 P underwent LE, 52 (20%) in group A and 205 (80%) in group B, with a total of 455 leads removed, 17% in group A and 83% in group B. In group A, LE was due to non-functional leads in 56% of P, system upgrading in 12% (absence of venous access), lead dislodgement in 8%, cardiac perforation in 8%, malignancy treatment in 4%, lead fracture in 2% and chronic pain in 2%. In 1 P LE was needed due to superior vena cava syndrome, in another one LE was performed due to twiddler syndrome and there was 1 P in which the PT was performed to remove a dialysis catheter. All the extractions in group A were performed using the PT. Median follow-up time was 35 (IQR 17-82) months. Median age in group A was 61 (IQR 41-74) vs. 75 (IQR 62-82) years in group B ($p < 0.001$), 25% of P had left ventricular (LV) dysfunction (LV ejection fraction < 50%) vs. 20% ($p = 0.125$) and median lead dwell time was 60 (IQR 28-96) vs. 84 (IQR 36-132) months ($p = 0.102$). In group A there were 23% of passive fixation leads vs. 48% ($p = 0.001$) and there was the need of using more than one sheet in 27% of P vs. 33% ($p = 0.388$). Results regarding efficacy, clinical and radiological success of LE were present in 92% of P in group A and in 94% of P in group B ($p = 0.726$). In which concerns safety, there were no procedure complications in group A vs. 8% in group B ($p = 0.037$), while complications or death during hospitalisation were present in 2% of P in group A and 11% in group B ($p = 0.046$). Kaplan Meier test showed no statistically significant differences in terms of one-year MACE (Figure 1A), long-term rehospitalization (Figure 1B), or mortality (Figure 1C).

Conclusions: In our study, non-infected LE using the PT showed to be as effective and safe as LE in CIED infections, not only in the short-term with less complications or death during hospitalisation, but also during long-term follow-up after LE. Besides, this is the first national study that suggests that non-infected LE may be a solution to a variety situations and can be a fair option in the long-term follow up.

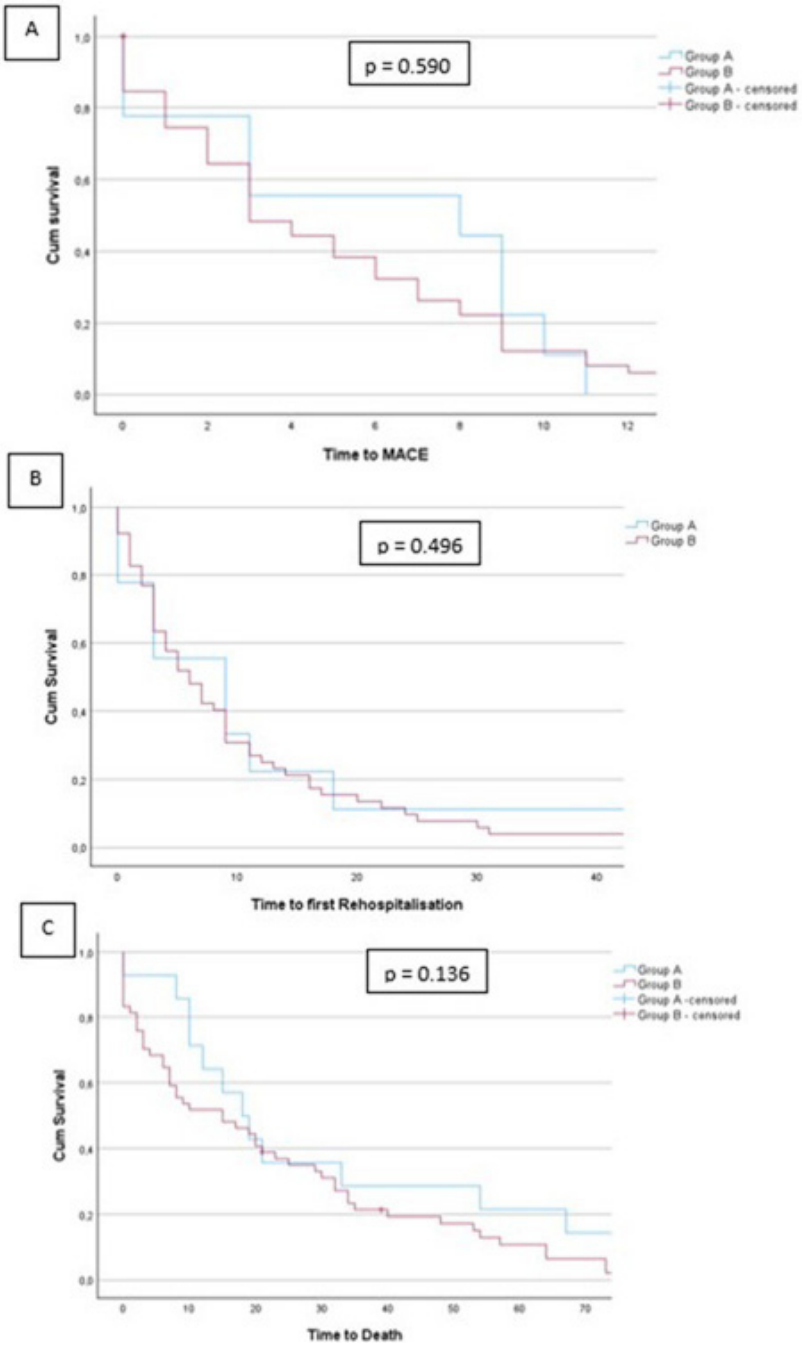

Figure PO 305

PO 306. QRS INTERVAL AND VENTRICULAR DYSSYNCHRONY – ROLE IN LEAD-RELATED TRICUSPID REGURGITATION

Catarina Sena Silva, Miguel Azeredo Raposo, Joana Rigueira, Ana Abrantes, Catarina Gregório, João Cravo, Marta Vilela, Pedro Alves Silva, Daniel Caldeira, Rui Plácido, Fausto J. Pinto, Catarina Sousa

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: The pathophysiological mechanisms associated with the development of lead-related tricuspid regurgitation (TR) aren't limited to mechanical interference with the tricuspid valve and subvalvular apparatus. The adverse ventricular remodeling induced by electromechanical intraventricular dyssynchrony plays an important role. Our study aimed to assess if the QRS interval post cardiac implantable electronic device (CIED) was an independent predictor for the development of lead-related TR.

Methods: Retrospective cohort study of patients with a *de novo* device implantation in the past 10 years. Baseline and post implantation electrocardiographic/echocardiographic parameters were obtained. Patients with TR worsening by at least 1 grade after CIED implantation were considered as lead-related TR (Group 1) and compared with a control group. We constructed a receiver operating characteristic (ROC) curve to identify the optimal QRS interval cutoff value to predict the development of lead-related TR. The area under the curve (AUC) was calculated to assess the diagnostic performance. Cardiovascular outcomes were assessed using Kaplan–Meier estimates and Cox proportional-hazards models.

Results: Our study included 108 pts, 47% female with a mean age 73 ± 12 years. Single and dual-lead conventional pacemakers were the main implantable devices (45%). Regarding ECG data: Median baseline QRS was 123 vs. 140 ms in Group 1 and 2 respectively. Median QRS after CIED implantation was 158 vs. 133 ms Group 1 and 2 respectively. In the group of patients who developed lead related TR at follow-up we observed a statistically significant increase of QRS interval in the first ECG post CIED implantation (28.861 ms, p < 0.001). We found an optimal QRS cut-off value of 150ms with a sensitivity of 61% and specificity of 75% to predict the development of lead related TR. This value was an independent predictor with the development of severe TR after adjusting for multiple variables: age, TAPSE, ejection fraction, right atrium area, right ventricle dilation, atrial fibrillation, device (HR 3.935 CI 1.239-12.497, p = 0.020). There was no statistically significant difference when analyzing the impact of QRS widening in cardiovascular outcomes.

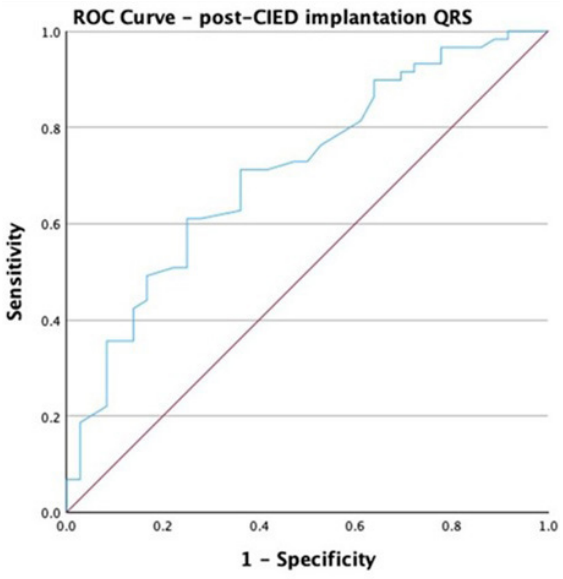

Figure 1: ROC curve – QRS width post CIED implantation

Conclusions: In our study, we identified that the QRS interval with an optimal cut-off > 150ms post-CIED implantation and the subsequent intraventricular dyssynchrony, was an independent risk factor for the development of severe TR.

PO 307. ABSORBABLE ANTIBACTERIAL ENVELOPE ELIMINATES ADDITIONAL EXPECTED CARDIAC IMPLANTABLE ELECTRONIC DEVICE INFECTIONS IN HIGH-RISK PATIENTS

António Baptista Carvalho[1], Marina Santos[2], Sofia Jacinto[2], Hélder Santos[2], Guilherme Portugal[2], Ana Lousinha[2], Pedro Silva Cunha[2], Bruno Valente[2], Paulo Osório[2], Mário Oliveira[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital de Santa Marta.

Introduction: Cardiac implantable electronic device (CIED) infections are associated with significant morbidity and mortality, necessitating prolonged hospitalization and often requiring device extraction. While the overall CIED infection rate is approximately 2%, this figure escalates to 4% in high-risk populations. Absorbable antibacterial envelopes (AAEs) have emerged as a promising prophylactic strategy to mitigate infection risk.
Objectives: This study sought to evaluate the impact of AAE utilization on CIED infection rates within a high-risk patient cohort.
Methods: This observational, longitudinal study, conducted over a 5-year, enrolled 106 patients undergoing CIED implantation with concomitant AAE placement. Patient evaluation occurred at 12 months and at study conclusion. AAE utilization was guided by established risk stratification tools (Mittal, Shariff, and PADIT scores) in conjunction with physician clinical judgment. Patients were dichotomized into low-risk and intermediate-high-risk groups, with the latter defined as PADIT > 6, Shariff > 2, or Mittal > 7.
Results: The study cohort comprised 106 patients (69.8% male; mean age 70 ± 15 years) receiving pacemakers (39.6%), cardiac resynchronization therapy deviceww s (CRT, 38.7%), or implantable cardioverter-defibrillators (ICD, 21.7%). Prevalent comorbidities included diabetes (26.2%), systemic hypertension (74.2%), chronic kidney dysfunction (68.6%), and heart failure (75%). Notably, 65.1% of participants underwent CIED implantation in the setting of device revision, upgrade, or reimplantation following infection-related extraction. Median risk scores were as follows: PADIT 7 (IQR 2), Shariff 3 (IQR 2), and Mittal 11 (IQR 10). The majority of patients (73%) were classified as intermediate-high risk. During the follow-up period, 3 CIED infections (2.9%) were observed, with 2 cases occurring within the intermediate-high-risk group. No statistically significant association was identified between risk group and infection incidence at 12 months (p = 0.633).

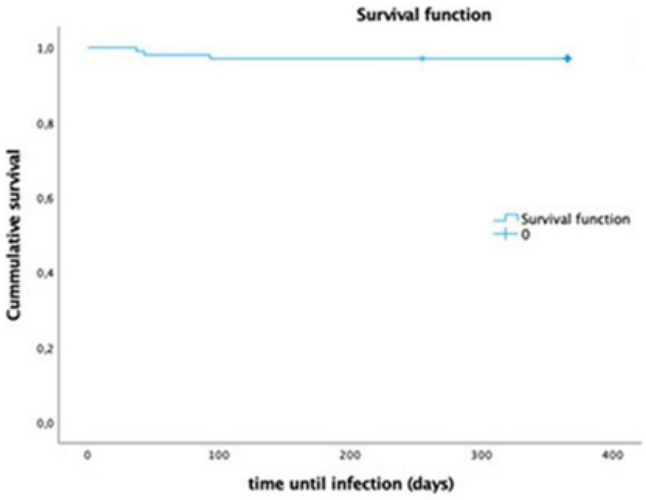

Figure 1: Survival analysis of our population at 12 months follow-up regarding CIED related infection

Conclusions: In this cohort characterized by a high prevalence of intermediate-to-high-risk individuals, AAE utilization was associated with a low incidence of CIED infection. Furthermore, AAE implementation appears to diminish the predictive validity of established risk stratification tools, yielding comparable infection rates across low- and high-risk strata.

PO 308. PACING-INDUCED CARDIOMYOPATHY IN PATIENTS WITH A HIGH PERCENTAGE OF VENTRICULAR PACING: A RETROSPECTIVE STUDY

Carla Oliveira Ferreira, Inês Rocha, Filipe Silva Vilela, Mónica Dias, Ana Sofia Fernandes, Inês Conde, Cátia Costa Oliveira, Jorge Marques

Hospital de Braga.

Introduction: Pacemaker implantation is recommended as a treatment for several diseases, mainly atrioventricular block and sinus node disease. Despite all the proven benefits, these devices can result in electromechanical dyssynchrony and, consequently, in pacing-induced cardiomyopathy (PICM), with the predictor most strongly associated with this condition being the percentage of right ventricular pacing (%RVP). The aim of this study is to evaluate the occurrence of Major Adverse Cardiac Events (MACE) in patients with high%RVP (> 90%) compared with low %RVP (< 10%).
Methods: Observational, analytical and retrospective study, which included 889 patients who underwent pacemaker implantation between January 2015 and December 2017 in a tertiary hospital. A 5-year follow-up period was performed. Other causes of left ventricle dysfunction were excluded.

Results: The group of patients with RVP > 90% (n = 394) was characterized by a higher median age (86 years (10), p < 0.001) and a higher proportion of men (62.9%, p = 0.001). It presented a lower minimum heart rate (35 bpm (10), p < 0.001) and higher NT-proBNP (1,789 ng/mL (5,227), p < 0.001) prior to implantation. The pacemaker indications AVB (77.9 vs. 49.4%) and atrial fibrillation/flutter (17.8 vs. 2.4%) were more prevalent in this group, whereas sinus node dysfunction was more prevalent in RVp < 10% (45.4 vs. 4.3%). After 5 years, the RVP > 90% group had a higher mortality (36.8 vs. 27.3%) and hospitalization rate due to heart failure (9.1 vs. 3.2%), compared to the RVp < 10% group (n = 249).
Conclusions: Patients with %RVP > 90% have a higher incidence of mortality and re-hospitalization due to heart failure in five years follow-up. Identifying high risk patients and maintaining close follow-up with echocardiographic evaluation after pacemaker implantation is essential for timely detection of PICM.

Sábado, 12 Abril de 2025 | 15:30-16:30

Área de Posters-écran 3 | Sessão de Posters 46 – Epidemiologia portuguesa no foco

PO 309. PORTUGUESE HEART FAILURE OBSERVATIONAL STUDY – MADEIRA (PORTHOS-MADEIRA): CHARACTERISTICS INDIVIDUALS WITH NT-PROBNP ELEVATION

Gonçalo Bettencourt Abreu[1], Francisco Sousa[1], Débora Sá[1], Ricardo Rodrigues[1], João Adriano Sousa[1], M. Raquel Santos[1], Margarida Temtem[1], Maria João Oliveira[2], Eva Henriques[2], Marisa Sousa[1], Paula Gouveia[1], Graça Caires[1]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM.

Introduction: The Portuguese Heart Failure Observational Study - MADEIRA (PORTHOS - MADEIRA) is currently being carried out to assess the prevalence of heart failure (HF) in the Autonomous Region of Madeira (RAM). N-terminal pro-B-type natriuretic peptide (Nt-proBNP) is released mainly by stretch of the cardiomyocytes, and is an important marker in the diagnosis of HF. It also has prognostic value in patients with ventricular dysfunction.
Objectives: To assess the profile of patients with elevated NT-proBNP.
Methods: We carried out an observational, cross-sectional, population-based study in the RAM. It was randomly selected a sample of the population aged at least 50 and living in the RAM. Individuals with NT-proBNP ≥ 125 pg/mL and/or a reported history of HF progressed to stage 2, as did 5% of individuals who did not fulfil these criteria to serve as controls. We carried out a bivariate analysis using the chi-square test for categorical variables and the Student's t-test for continuous variables in order to assess the differences in the characteristics of phase 1 and phase 2 individuals, excluding those who were selected for the control group in the latter phase.
Results: We obtained a sample of 1,394 individuals, of whom 413 progressed to phase 2 (411 due to NT-proBNP > 125 pg/mL and 2 known HF). Comparing the two groups, we found statistically significant differences in age (p < 0.0001), smoking (p = 0.004), hypertension (p < 0.0001), dyslipidaemia (p < 0.0001), diabetes (p < 0.0001), atrial fibrillation (p < 0.0001), coronary artery disease (p < 0.0001), peripheral artery disease (p = 0.001), cerebrovascular disease (p < 0.0001), New York Heart Association functional classification (p < 0.0001) and level of education (p < 0.0001).
Conclusions: Individuals with NT-proBNP ≥ 125, pg/mL or with a reported history of HF have more cardiovascular (CV) risk factors, CV history and a lower educational level.

Variáveis	Total (n=1394)	FASE 1 (n=981)	FASE 2 (n=413)	Valor p
Idade, anos	65.1 ± 9.6	62.2 ± 8.3	71.8 ± 9.3	<0.0001
50-59 anos, n (%)	487 (34.9)	434 (44.2)	53 (12.8)	< 0.0001
60-69 anos, n (%)	430 (30.8)	328 (33.4)	102 (24.7)	
70-79 anos, n (%)	360 (25.8)	190 (19.4)	170 (41.	
≥80 anos, n (%)	117 (8.4)	29 (3.0)	88 (21.3)	
Tabagismo, n (%)				
Nunca fumou	879 (63.1)	595 (60.7)	284 (68.8)	0.004
Fumador/ex-fumador	515 (36.9)	386 (39.3)	129 (31.2)	
Consumo álcool, n (%)	523 (37.5)	379 (38.6)	144 (34.9)	0.185
Abuso álcool*, n (%)	85 (6.1)	56 (5.7)	29 (7.0)	0.349
Hipertensão, n (%)	799 (57.3)	501 (51.1)	298 (72.2)	< 0.0001
Dislipidémia, n (%)	798 (57.2)	523 (53.3)	275 (66.6)	< 0.0001
Diabetes, n (%)	283 (20.3)	172 (17.5)	111 (26.9)	< 0.0001
Obesidade, n (%)	458 (32.9)	333 (33.9)	125 (30.3)	0.182
Doença coronária, n (%)	68 (4.9)	24 (2.4)	44 (10.7)	< 0.0001
Doença cerebrovascular, n (%)	57 (4.1)	24 (2.4)	33 (8.0)	< 0.0001
DAP, n (%)	40 (2.9)	19 (1.9)	21 (5.1)	0.001
IC congestiva, n (%)	24 (1.7)	1 (0.1)	23 (5.6)	< 0.0001
DPOC, n (%)	35 (2.5)	21 (2.1)	14 (3.4)	0.173
DRC, n (%)	12 (0.9)	1 (0.1)	11 (2.7)	< 0.0001
SAOS, n (%)	41 (2.9)	30 (3.1)	11 (2.7)	0.690
Neoplasia, n (%)	130 (9.3)	84 (8.6)	46 (11.1)	0.131
Habilitações literárias				
Analfabeto, n (%)	57 (4.1)	24 (2.4)	33 (8.0)	< 0.0001
1º ciclo, n (%)	697 (50.0)	443 (45.2)	254 (61.5)	
Ensino secundário, n (%)	514 (36.9)	422 (43.0)	92 (22.3)	
Ensino universitário, n (%)	126 (9.0)	92 (9.4)	34 (8.2)	
Classe NYHA				
I ou II, n (%)	1315 (94.3)	953 (97.1)	362 (87.7)	< 0.0001
III ou IV, n (%)	79 (5.7)	28 (2.9)	51 (12.3)	
FA Flutter, n (%)	43 (3.1)	7 (0.7)	36 (8.7)	<0.0001

PO 310. PORTUGUESE HEART FAILURE OBSERVATIONAL STUDY – MADEIRA (PORTHOS-MADEIRA) PHASE 1: BASELINE CHARACTERISTICS

Gonçalo Bettencourt Abreu[1], Francisco Sousa[1], Débora Sá[1], Ricardo Rodrigues[1], João Adriano Sousa[1], M. Raquel Santos[1], Margarida Temtem[1], Maria João Oliveira[2], Eva Henriques[2], Marisa Sousa[1], Paula Gouveia[1], Graça Caires[1]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra. Maria Isabel Mendonça, SESARAM EPERAM.

Introduction: The Portuguese Heart Failure Observational Study (PORTHOS) showed that the prevalence of heart failure (HF) in mainland Portugal is 16.5%, very different from the EPICA study. However, the populations of the autonomous regions, whose characteristics are very different due to their insularity, were not included. The PORTHOS – MADEIRA study is currently being carried out to assess the prevalence of heart failure (HF) in the Autonomous Region of Madeira (RAM) and the characteristics of its population.
Objectives: To characterize the cardiovascular profile of the population of the RAM.
Methods: An observational, cross-sectional, population-based study was carried out in the Autonomous Region of Madeira in three phases, as in PORTHOS study. During phase 1 a random sample of the population aged 50 years old or more living in the RAM was selected. Participants were invited by telephone to take part in a screening visit that took place in a hospital consultation. At this visit, the presence of HF symptoms, anthropomorphic assessment, N-terminal pro-B-type natriuretic peptide (NT-proBNP) test, 1-lead electrocardiogram and sociodemographic and quality of life questionnaires were assessed.

Results: We obtained a sample with 1,394 subjects aged 65.1 ± 9.6, 55.4% female. Regarding cardiovascular risk factors: 57.3% had hypertension, 57.2% had dyslipidaemia, 37.5% drank ≥ 1 alcoholic drink a day, 36.9% were smokers/ex-smokers, 32.9% were obese and 20.3% had diabetes. Previous history 4.9% with coronary artery disease, 4.1% with previous cerebrovascular disease, 3.1% atrial fibrillation/flutter and 1.7% Heart Failure. Functionally 94.3% were in NYHA ≤ 2. For educational qualifications 4.1% of the individuals were illiterate and 50.0% had completed only up to elementary school.

Variáveis	Total (n=1394)
Idade, anos	65.1 ± 9.6
50-59 anos, n (%)	487 (34.9)
60-69 anos, n (%)	430 (30.8)
70-79 anos, n (%)	360 (25.8)
≥80 anos, n (%)	117 (8.4)
Tabagismo, n (%)	
Nunca fumou	879 (63.1)
Fumador/ex-fumador	515 (36.9)
Consumo álcool, n (%)	523 (37.5)
Abuso álcool*, n (%)	85 (6.1)
Hipertensão, n (%)	799 (57.3)
Dislipidémia, n (%)	798 (57.2)
Diabetes, n (%)	283 (20.3)
Obesidade, n (%)	458 (32.9)
Doença coronária, n (%)	68 (4.9)
Doença cerebrovascular, n (%)	57 (4.1)
DAP, n (%)	40 (2.9)
IC congestiva, n (%)	24 (1.7)
DPOC, n (%)	35 (2.5)
DRC, n (%)	12 (0.9)
SAOS, n (%)	41 (2.9)
Neoplasia, n (%)	130 (9.3)
Habilitações literárias	
Analfabeto, n (%)	57 (4.1)
1º ciclo, n (%)	697 (50.0)
Ensino secundário, n (%)	514 (36.9)
Ensino universitário, n (%)	126 (9.0)
Classe NYHA	
I ou II, n (%)	1315 (94.3)
III ou IV, n (%)	79 (5.7)
FA Flutter, n (%)	43 (3.1)

Conclusions: The population of the RAM has particular and unique characteristics due to its insularity. The PORTHOS-MADEIRA study will make it possible to assess the prevalence of HF in this population.

PO 311. LONG-TERM CARDIOVASCULAR RISK ASSESSMENT IN PORTUGUESE CHRONIC KIDNEY DISEASE POPULATION: INSIGHTS FROM THE PREVENT™ SCORE

Andreia Rita Henriques, Tatiana Pereira Santos, João Venda, Emanuel Ferreira, Elisabete Jorge, Pedro Maia, Lino Gonçalves, Rui Alves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Traditional cardiovascular disease (CVC) risk scores overlook chronic kidney disease (CKD), limiting their applicability in these population The PREVENT™ score, which incorporates CKD, was recently approved in the United States. This study aims to evaluate the effectiveness of the newly approved PREVENT™ in predicting 10-year cardiovascular outcomes in a Portuguese CKD population.

Methods: A retrospective analysis included nephrology patients aged 30-79 years with eGFR < 60 mL/min/1.73 m², with no prior CVD, who attended nephrology appointments since 2013 at a tertiary hospital. Patients who died in the first year were excluded. The accuracy of PREVENT™, SCORE2, and Kidney Failure Risk Equation (KFRE) in predicting CVD, heart failure (HF), and atherosclerotic cardiovascular disease (ASCVD) in CKD patients over a ten-year period were assessed. Secondary outcomes included all-cause mortality and dialysis initiation.

Results: A cohort of 125 patients (62.4% men, median age 65 [54-73] years, mean eGFR 35.8 ± 12.4 mL/min/1.73 m²) was analysed. Higher PREVENT™ scores for CVD, HF, and ASCVD significantly correlated with the respective development of CVD (p = 0.003; cut-off: 22.6%, sensitivity (SS) 77.4%, specificity (SE) 54.2%), HF (p = 0.001; cut-off: 18.2%, SS 79.1%, SE 56.1%), and ASCVD (p = 0.049; cut-off: 15.6%, SS 60.0%, SE 66.7%). While, SCORE2 also predicted CVD (p = 0.017), PREVENT™ demonstrated superior sensitivity, and assign patients to higher risk classes, assigning 92.3% of patients to high or very high risk, compared to 53.0% of SCORE2. These findings highlight the CV risk in CKD patients and the need for introducing prognosis-modifying therapies in these patients. KFRE effectively predicted dialysis initiation, but neither PREVENT™ nor SCORE2 reached statistical significance for this outcome. Conversely, PREVENT™ correlated with higher all-cause mortality risk, a result not observed with KFRE.

Conclusions: CKD patients have an elevated risk of HF and CVD, emphasizing the need for accurate risk stratification. In this Portuguese cohort, PREVENT™ effectively estimated the risk of CV events, HF, and mortality, outperforming SCORE2 in sensitivity and risk classification. CKD-specific tools like PREVENT™ and KFRE complement one another, providing a more comprehensive risk assessment for this high-risk population.

PO 312. THE BURDEN OF MYOCARDIAL INJURY: UNVEILING PREDICTORS OF MORTALITY FROM HOSPITAL TO LONG-TERM OUTCOMES

Matilde Ferreira[1], João Adriano Sousa[1], Débora Sá[1], Gonçalo Abreu[1], Francisco Sousa[1], Maria Isabel Mendonça[2], Sónia Freitas[2], Eva Henriques[2], Mariana Rodrigues[2], António Drumond[1], Ana Célia Sousa[1], Roberto Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Faculdade de Ciências Médicas de Lisboa/ NOVA Medical School.

Introduction: Myocardial injury (MI), defined as troponin elevation above the 99th percentile without acute myocardial ischemia, is common in emergency departments (EDs). Despite its prevalence, the risk profile, prognosis, and predictors of mortality in this population remain poorly explored in the literature.

Objectives: To assess MI-related mortality and its drivers up to a 6-year follow-up.

Methods: We conducted a prospective registry of 250 patients admitted consecutively through the ED from January 1, 2018, onward, with high-sensitivity troponin T (hsTnT) levels above the 99th percentile. The assay used was Roche's Elecsys Troponin T hsSTAT, with a 99th percentile cutoff of 14 ng/L. Patients with chronic kidney disease (ClCr < 15 mL/min) were excluded, leaving 236 patients diagnosed with myocardial injury. Mortality was evaluated at 1 year and 6 years. Univariate analysis identified significant variables, followed by logistic regression to determine their independent predictive value for mortality.

Results: Myocardial injury was far more prevalent than myocardial infarction (ratio 100:6.4), with 94% of patients classified as having MI (n = 236). In-hospital mortality did not differ significantly between patients with hypertension, diabetes, dyslipidemia, or a higher number of traditional risk factors (p = n.s). Follow-up mortality was 5.6% (30 days), 31.3% (1year), and 75.4% (6 years). In-hospital mortality was significantly higher among patients diagnosed with respiratory infection (33 vs. 61%, p = 0.017, OR 3.2) or acute/acute-on-chronic heart failure (31 vs. 56%, p = 0.03, OR 2.8). Elevated C-reactive protein (CRP; p

< 0.001) and NT-proBNP levels (p = 0.02) were also linked to higher in-hospital mortality. Logistic regression identified independent predictors of in-hospital mortality, including diminished oxygen supply (OR 3.6), length of hospital stay (OR 1.042), and CRP levels (OR 1.005). Cox regression identified troponin levels, age, diabetes, and obesity as independent predictors of 6-year mortality (HR 1.4, 1.1, 1.4, and 1.5, respectively; p < 0.05).
Conclusions: Myocardial injury appears to carry a worse prognosis than traditionally associated with myocardial infarction. Troponin levels are also significantly relevant to mortality in this population. Importantly, the drivers of in-hospital mortality differ from those affecting long-term outcomes. This study, one of the few of its kind, provides valuable insights into the characterization and risk stratification of patients with myocardial injury.

PO 313. BASELINE CARDIOVASCULAR RISK AND PRIMARY PREVENTION IN STEMI PATIENTS: INSIGHTS FROM A TERTIARY CENTER

Carla Oliveira Ferreira, Filipe Silva Vilela, Ana Sofia Fernandes, Mónica Dias, Inês Conde, Rodrigo Silva, Carlos Galvão Braga, Cátia Costa Oliveira

Hospital de Braga.

Introduction: Systematic or opportunistic cardiovascular disease (CVD) risk assessment is of paramount importance in identifying individuals at high and very high risk for CVD, especially those who could benefit from pharmacological intervention in primary prevention. The aim of this study is to evaluate baseline CVD risk of patients admitted with ST-elevation myocardial infarction (STEMI) at a tertiary hospital, assess STEP 1 and STEP 2 accomplishment and determine predictors of appropriate CVD control.
Methods: We conducted a retrospective, observational study of 202 patients diagnosed with STEMI between January 1st, 2022 and March 31st, 2023, with a median follow up of 27.3 (7) months. Risk stratification was performed using the ESC 2021 Guidelines on cardiovascular disease prevention in clinical practice, and compliance with STEP 1 and STEP 2 (target LDL-C and systolic blood pressure control) was analysed. Lifestyle changes were not addressed in this study.
Results: The study cohort comprised 202 patients, with a mean age of 61.8 years (± 11.4) and 85.1% male patients. CV risk stratification identified 3.5% (n = 7) of patients with low to moderate risk, 56.4% (n = 114) with high risk, and 40.1% (n = 81) with very high risk. Concerning CV risk control at the time of the event, only 10.9% of patients (n = 22) met STEP 1 criteria, and just 2 (9.5%) achieved STEP 2 targets. Statin use was higher in patients meeting STEP 1 criteria (45.5%) compared to those who did not (31.7%). Age was significantly associated with the accomplishment of STEP 1 in both univariate (OR: 1.06; p = 0.009) and multivariate (OR: 1.069; p = 0.001) analysis. Statin use, prior to CV risk classification and recent analytical study at the general practitioner showed no significant association with STEP 1 compliance.
Conclusions: This study highlights an alarming gap in the primary prevention of patients who develop STEMI, with the majority failing to meet STEP 1 and STEP 2 recommendations despite their high baseline CVD risk. Age emerged as a positive predictor of compliance with CV prevention strategies, emphasizing the need for targeted interventions to improve adherence to guideline recommendations, particularly among the younger population.

PO 314. IMPACT OF MATERNAL-FETAL OUTCOMES AND BREASTFEEDING ON CARDIAC REVERSE REMODELING

Rui Martins Alves[1], Ana Filipa Ferreira[1], Ana Barros[1], Juliana Morais[1], Débora Veiga[1], Maria João Azevedo[2], Carla Sousa[3], Ana Paula Machado[3], Adelino Leite-Moreira[1], Carla Ramalho[1], Inês Falcão-Pires[1], António S. Barros[1]

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Introduction: Pregnancy induces cardiac remodeling characterized by left ventricular (LV) hypertrophy and dilation, which is expected to return to its pre-pregnancy structure after delivery, cardiac reverse remodeling (RR). However, the impact of maternal-fetal outcomes and breastfeeding on cardiac RR is not yet well established.
Objectives: To investigate the impact of maternal-fetal outcomes [cardiovascular risk (CVR) factors (chronic arterial hypertension, obesity, and type 2 diabetes mellitus), pregnancy complications (preeclampsia, gestational diabetes and gestational hypertension), duration, parity, newborn sex, delivery type], and exclusive breastfeeding on LV mass (LVM) regression induced by pregnancy.
Methods: This prospective cohort study included volunteer pregnant women from two tertiary centers between 2019 and 2024. Participants underwent transthoracic echocardiography during the 3rd trimester [30-35 weeks, peak of cardiac remodeling], as well as at 1/6/12 months postpartum [cardiac RR]. Generalized linear mixed-effects models were used to evaluate the extent of the RR and its predictors.
Results: A total of 169 participants were included, with a median age of 34 [31;37] years, 36% of whom had at least one CVR factor. Pregnancy complications occurred in 30% of the women. The median time of gestation was 39 [38; 40] weeks. C-section delivery was performed in 37% of the participants, and 53% of the newborns were male. Most of the participants were primiparous (53%). Exclusive breastfeeding for up to 4.5 months was documented in 39% of women. Significant regression of LVM (34 [29;39] g/$m^{2.7}$ to 31 [26; 36] g/$m^{2.7}$, p < 0.001), volume (25 [22;28] mL/$m^{2.7}$ to 23 [20;26] mL/$m^{2.7}$, p < 0.001), and relative wall thickness (0.36 [0.32;0.40] to 0.33 [0.30;0.37], p < 0.001) were found as soon as 1 month postpartum. In the multivariable analysis, the presence of maternal CVR factors (7.39 [5.47;9.31], p < 0.001) and the number of live births before this pregnancy (1.41 [0.02;2.80], p = 0.048) were independent predictors of postpartum LVM regression. Pregnancy complications, newborn sex, c-section, pregnancy duration, maternal age, and exclusive breastfeeding for up to 4.5 months showed a non-significant impact on postpartum LVM regression.
Conclusions: Substantial LVM regression was observed as early as 1 month postpartum. The presence of maternal CVR factors and an increased number of previous live births significantly influenced cardiac RR, diminishing the regression of postpartum LVM.

Sábado, 12 Abril de 2025 | 16:30-17:30

Área de Posters-écran 1| Sessão de Posters 47 – Avaliação cardíaca por TC e/ou RM

PO 315. IS LIPOPROTEIN(A) A PREDICTOR OF COMPUTED TOMOGRAPHY ANGIOGRAPHY FINDINGS? A RETROSPECTIVE STUDY IN A TERTIARY CENTER

Rui Miguel Gomes, C. Santos-Jorge, Ana Catarina Ribeiro, Cláudia Silva, Francisco Gama, Pedro Lopes, Pedro Freitas, Sara Guerreiro, Pedro Araújo Gonçalves, João Abecasis, António Ferreira, Jorge Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Lipoprotein(a) (Lp[a]) has emerged as a potential risk marker of atherosclerotic coronary artery disease (CAD). Previous studies have found mixed results with regards to the association of Lp(a) serum levels and coronary computed tomography angiography (CCTA) findings. The aim of this study is to evaluate the correlation between this genetically determined serum biomarker and CCTA findings.
Methods: Data was collected from electronic medical records of patients who underwent CCTA in a single tertiary center. From these, patients who had a measurement of serum Lp(a) were selected. Clinical, laboratory and frequently evaluated CCTA finding as coronary artery calcium (CAC), CAD-

reporting and data system 2 (CAD-RADS) and segment involvement score (SIS) were analyzed using Statistical Package for the Social Sciences, where a P value < 0.05 was considered statistically significant.
Results: 61 patients were selected, 74% male, with a mean age of 59 ± 12 year. In this cohort no linear correlation was found between Lp(a) and SIS, CAD-RADs and CAC score. Furthermore, when categorized by terciles, Lp(a) had no statistically significant associations with these variables. When looking at high risk Lp(a) levels according to the 2022 European Society of Cardiology consensus statement (> 250 nmol/L), there was an association with a higher SIS (5 [1-8] vs. 16 [3-16], p = 0.01). However, there was no significant correlation with CAD-RADS (p = 0.47) or CAC score (p = 0.717).
Conclusions: Lp(a) serum levels showed no significant linear correlation with commonly evaluated CCTA findings including SIS, CAD-RADS and CAC scores. When stratified according to high-risk Lp(a) levels (> 250 nmol/L), there was a correlation with a higher SIS, suggesting a more diffuse coronary artery involvement, even without significant calcification or stenosis as assessed by CAD-RADS and CAC scores. Further studies with larger cohorts are needed to validate these observations.

PO 316. IMPACT OF CORONARY CALCIFICATION ON LIPID-LOWERING THERAPY DECISIONS FOLLOWING CORONARY COMPUTED TOMOGRAPHY WITH NON-OBSTRUCTIVE CORONARY DISEASE OR NON-DIAGNOSTIC RESULT

Mónica Amado, Adriana Vazão, Joana Pereira, André Martins, Carolina Gonçalves, Mariana Carvalho, Margarida Cabral, Luís Graça Santos, Hélia Martins

ULS Leiria.

Introduction: Coronary computed tomography angiography (CCTA), as non-invasive method of choice for investigation of suspected symptomatic coronary artery disease (CAD), has been shown to be associated with lower cardiovascular (CV) outcomes. Such benefits seem mainly attributed to better management strategies, such as earlier statin prescription. Moreover, even a non-diagnostic test can show coronary calcification (marker of advanced atherosclerosis) which may have important implications for lipid-lowering therapy (LLT) decisions.
Objectives: To identify and characterize patients (pts) with positive calcium score (CaS) and non-obstructive CAD or non-diagnostic CCTA, and to evaluate subsequent LLT management according to the calcification degree.
Methods: Single-center retrospective study of 354 pts with suspected obstructive CAD who underwent CCTA between June 2022 and September 2024. We selected pts with non-obstructive-CAD (absence of ≥ 50% stenosis) or a non-diagnostic test (impossibility of excluding obstructive CAD in ≥ 1 segment and absence of ≥ 50% stenosis in interpretable segments) plus positive CaS. Group A included pts with a CaS = 1-99 and Group B pts with values > 99. Demographic characteristics, LLT before and after CCTA and specific CCTA parameters were analyzed. Intensification of LLT was defined as: higher-potency statin switch; statin dose escalation; ezetimibe association; or ≥ 2 of the above. SPSS v29 was used for statistical analyses.
Results: Overall, our sample included 116 pts (75.0% were male) with a mean age of 42.0 years. Group A included 65 pts (56.0%) and group B 51 pts (44.0%). Group B presented higher proportion of males (p = 0.013) and an older mean age (p = 0.022) [Table 1]. Overall, after CCTA, LLT was initiated in 15.5% of pts, without differences between groups (16.9 vs. 13.7%, p = 0.929), and was withheld in 18.1% of this cohort with positive CaS. About one quarter of pts had their LLT intensified but with no differences between groups (23.1 vs. 31.4%, p = 0.467).
Conclusions: In our study, pts with higher CaS were older and predominantly male, highlighting the role of demographic factors in coronary calcification. Despite some degree of LLT initiation and intensification following CCTA, no differences were observed according to the degree of coronary calcification and almost one fifth remained untreated. This raises some concern about some lack of awareness regarding the importance of coronary calcification for LLT tailoring.

PO 317. ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE – THE NEXT STEP IN PREDICT ATRIAL FIBRILLATION?

Marta Paralta de Figueiredo, Rafael Viana, António Almeida, Miguel Carias, Rita Louro, Orlando Luquengo, Diogo Brás, Bruno Piçarra, Manuel Trinca

Hospital do Espírito Santo, EPE, Évora.

Introduction: Atrial fibrillation (AF) is an increasingly frequent comorbidity that increases the risk of stroke and mortality. Artificial intelligence (AI)

Table 1.

	Total (n=116)	Group A (n=65)	Group B (n=51)	p-value
Male gender – no. (%)	87 (75.0)	43 (66.2)	44 (86.3)	**p=0.013**[c]
Age (yrs) – mean (SD)	42.0 (8.99)	61.6 (9.81)	65.4 (7.4)	**P=0.022**[b]
Lipid lowering therapy before CCTA no. (%)				
None	39 (33.6)	26 (40.0)	13 (25.5)	p=0.441[d]
High-intensity statin only	17 (14.7)	9 (13.8)	8 (15.7)	
Moderate-intensity statin only	46 (39.7)	22 (33.8)	24 (47.1)	
High-intensity statin and ezetimibe	8 (6.9)	4 (6.2)	4 (7.8)	
Moderate-intensity statin and ezetimibe	4 (3.4)	3 (4.6)	1 (2.0)	
Lipid lowering therapy after CCTA no. (%)				
None	21 (18.1)	15 (23.1)	6 (11.8)	p=0.404[d]
High-intensity statin only	21 (18.1)	13 (18.5)	9 (17.6)	
Moderate-intensity statin only	40 (34.5)	19 (29.2)	21 (41.2)	
High-intensity statin and ezetimibe	13 (11.2)	6 (9.2)	7 (13.7)	
Moderate-intensity statin and ezetimibe	9 (7.8)	4 (6.2)	5 (10.4)	
Intensified LDL cholesterol-lowering therapy no. (%)	**31 (26.7)**	**15 (23.1)**	**16 (31.4)**	p=0.467[c]
CCTA parameters				
Calcium score – mean (SD)	473.4 (791.8)	25.6 (29.7)	1035.4 (921.8)	**p<0.001**[b]
Problems in acquiring images – no (%)	25 (21.6)	19 (29.2)	6 (11.8)	p=0.064[d]
Poor apnea	6 (5.2)	5 (7.7)	1 (2.0)	
ECG artifacts/ Irregular rhythm	15 (12.9)	12 (18.5)	3 (5.9)	
Other problems	4 (3.5)	2 (3.1)	2 (4.0)	
Non-diagnostic exam – no (%)	23 (19.8)	18 (27.7)	5 (9.8)	**p=0.016**[c]
Prospective gating – no (%)	73 (62.9)	50 (76.9)	23 (45.1)	**p<0.001**[c]

Table 1. Baseline characteristics, LDL- cholesterol lowering therapy and CCTA findings in patients stratified by calcium score
Statistical analysis: [b]Mann-Whitney U test, [c]Chi-square test, [d]Fisher´s exact test.
Abbreviations: CCTA – coronary computed tomography angiography; ECG: electrocardiogram; SD - Standard Deviation.

Figure PO 316

plays a vital role in cardiac magnetic resonance (CMR) due to its ability to streamline and enhance the analysis of complex imaging data. These automatically generated parameters can potentially unlock earlier diagnosis and personalized treatment strategies.
Objectives: Our study aimed to investigate if there were AI-derived CMR parameters associated with AF.
Methods: We retrospectively analyzed a population of patients submitted to CMR and divided them in two groups – those with and without AF. We documented demographic factors, left atrial (LAEF) and ventricular ejection fraction (LVEF), ventricular and atrial volumes and the longitudinal LA and LV shortening obtained through AI in CMR. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 103 patients, 22.3% (n = 23) had no structural disease, 37.9% (n = 39) had HCM and 39.8% (n = 41) had DCM. 59.2% were male, with mean age of 55 ± 16 years, with no differences between groups. When comparing groups regarding history of AF, these patients had similar left ventricular ejection fraction (LVEF), with a median of 47 ± 17%, ventricular systolic and diastolic volumes and longitudinal ventricular shortening, as well as left and right atrial longitudinal shortening. However, patients with AF had significantly lower biplane LAEF (37.7 vs. 51.6%, p = 0.003) and higher indexed diastolic biplane LA volume (64.8 vs. 40.4mL, p = 0.007). A ROC curve was evaluated revealing a strong sensitivity for indexed diastolic biplane LA volume as an early diagnostic marker of AF (AUC = 0.714), with a cutoff value of 29.4 mL presenting 93% sensitivity and 21.3% specificity, while volumes above 60.4 mL have 62.5% sensitivity and 84% specificity for diagnosing AF.
Conclusions: In patients submitted to CMR there is a positive association between higher indexed diastolic biplane LA volume and history of AF, regardless of having structural disease. This AI generated parameter has a strong discriminatory ability for diagnosing AF, possibly contributing to earlier diagnosis and stroke prevention.

PO 318. INCREMENTAL VALUE OF CARDIAC MRI OVER ECHOCARDIOGRAPHY IN THE ASSESSMENT OF AORTIC REGURGITATION

Samuel Azevedo, C. Santos-Jorge, Pedro Freitas, Carla Reis, Cláudia Silva, Pedro Lopes, Francisco Gama, Sara Guerreiro, João Abecasis, Pedro Pulido Adragão, Regina Ribeiras, António Ferreira

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Transthoracic echocardiography (TTE) is the primary imaging modality for evaluating aortic regurgitation (AR) and plays a central role in surgical decision-making. However, TTE has limitations in assessing AR severity, particularly in cases with eccentric regurgitant jets or borderline findings. Cardiac MRI (cMRI) has emerged as a complementary tool, providing precise volumetric and functional data. This study aims to validate the role of cMRI in refining AR severity.
Methods: This retrospective, single-center study included patients with AR who underwent cMRI between 2019-2024. Patients with a time gap > 6 months between TTE and cMRI were excluded. AR severity on TTE was graded using the PISA method, along with vena contracta, jet width, and holodiastolic flow reversal when applicable. On cMRI (1.5T), phase-contrast velocity-encoded sequences quantified aortic regurgitant volume and regurgitant fraction (RF), with significant AR defined as RF ≥ 35% as suggested by several papers.
Results: A total of 177 patients (mean age 65 years, 67% male) were analyzed. Mean left ventricular ejection fraction (LVEF) by cMRI was 49 ± 15%. Left ventricular (LV) volumes were consistently underestimated by TTE compared to cMRI (dilated LV in 45.2 vs. 59.3%, median LVEDVi: 81 mL/m^2 [IQR 63-98] vs. 110 mL/m^2 [IQR 87-139]). Median regurgitant volume and RF on cMRI were 18 mL (IQR 7-37) and 22% (IQR 10-36). Figure 1a shows AR severity reclassification achieved with cMRI. Among 63 patients with moderate AR on TTE, cMRI reclassified 24 (38.1%) as significant AR. Of 12 moderate-to-severe AR cases, 6 (50%) were reclassified as significant AR. All 13 severe AR cases identified by TTE were confirmed by cMRI. The agreement between TTE and cMRI in identifying severe aortic regurgitation was poor (Cohen's Kappa = 0.11; p < 0.001). In patients with LV dilation or dysfunction but no significant AR (n = 78), cMRI provided alternative diagnoses in 47 cases (60%): ischemic late-gadolinium enhancement (LGE) in 19, non-ischemic LGE in 22, and both in 6 patients. During follow-up, 22 patients underwent surgery for isolated AR (Figure 1b). Only 12 met guideline-recommended criteria for intervention (8 Class I, 2 Class Ib, 2 Class IIa/IIb). Cardiac MRI findings guided the surgical decision-making in the remaining 10 patients.

Figure 1a

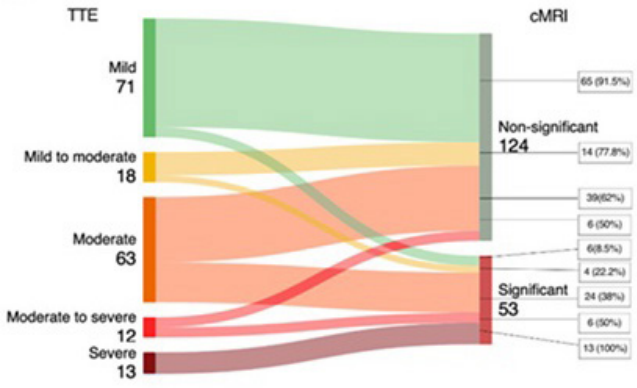
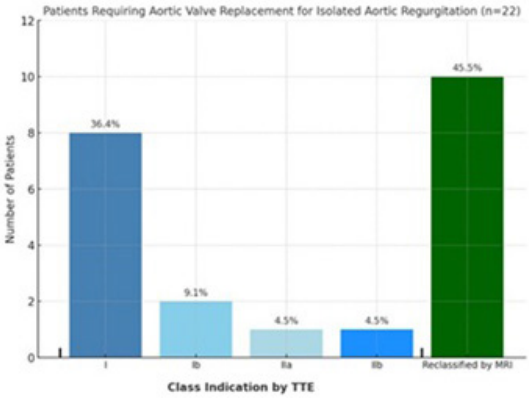


Figure 1b Patient who underwent surgery for isolated aortic regurgitation (n=22)



Conclusions: Cardiac MRI provides significant incremental value in evaluating aortic regurgitation, particularly in borderline and complex cases. While TTE remains the cornerstone imaging modality, cMRI can refine AR severity assessment and guide clinical decision-making, optimizing patient management.

PO 319. FIBROSIS ASSESSMENT IN PATIENTS WITH FREQUENT VENTRICULAR EXTRASYSTOLES AND NORMAL ECHOCARDIOGRAMS: INSIGHTS FROM CARDIAC MRI

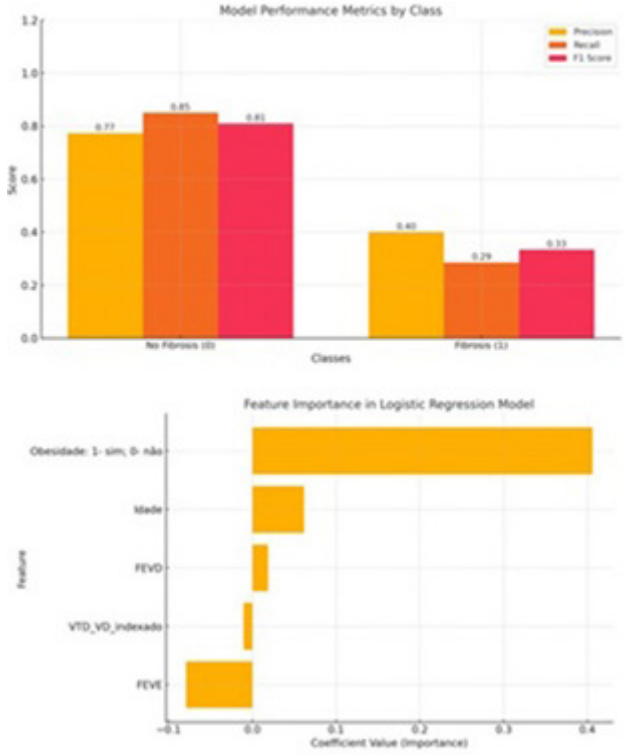
Rodrigo Neves Brandão, Inês Pereira de Miranda, Filipa Gerardo, Carolina Mateus, Mara Sarmento, João Bicho Augusto

Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Frequent ventricular extrasystoles (VEs) with normal echocardiogram findings often prompt cardiac MRI evaluation to detect myocardial fibrosis.
Objectives: To characterize (1) the prevalence and location of fibrosis and (2) to assess the predictors of fibrosis in such patients.
Methods: We retrospectively analyzed patients referred for CMR for frequent VEs with normal echocardiograms between January 2022 and November 2024. Fibrosis was indicated by late gadolinium enhancement

(LGE). Feature selection via SelectKBest (ANOVA F-test) retained the top five predictors, and a logistic regression model with L2 regularization was developed. Data were split (70% training, 30% testing) and validated using stratified 5-fold cross-validation. Model performance was assessed via precision, recall, F1-score, and accuracy.
Results: Among 98 patients (54.3 ± 12.1 years, 55% male), 26.5% exhibited fibrosis. Of these, 19.2% had subendocardial fibrosis, consistent with a myocardial infarct pattern, while 80.8% had midwall and/or subepicardial fibrosis. The basal inferolateral and basal inferior regions were the most affected (23%). Patients with fibrosis were older (58.2 ± 10.4 vs. 53.0 ± 12.8 years, p = 0.03). Predictors included age (p = 0.01), hypertension (p = 0.02), obesity (p = 0.04) and left ventricular ejection fraction (p = 0.03). The model achieved 98.8% cross-validation accuracy and 70.4% accuracy on the holdout set. Non-fibrosis cases were reliably predicted (precision 77.3%, recall 85%, F1-score 80.9%), whereas performance for fibrosis cases was reduced (precision 40%, recall 28.6%, F1-score 33.3%).

Figure. (A) Model performance to predict absence or presence of fibrosis in cardiac MRI. Feature importance in logistic regression model is shown in (B).



Conclusions: Myocardial fibrosis was detected in over a quarter of patients with frequent VEs and normal echocardiograms, predominantly in the basal inferolateral region. Older age, hypertension, obesity, and reduced ejection fraction were key predictors. Cardiac MRI and clinical integration remain crucial for risk assessment.

PO 320. ATRIAL PARAMETERS GENERATED BY ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE AND ITS ASSOCIATION WITH ATRIAL FIBRILLATION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Marta Paralta de Figueiredo, Rafael Viana, António Almeida, Rita Louro, Miguel Carias, Diogo Brás, Bruno Piçarra, Manuel Trinca

Hospital do Espírito Santo, EPE, Évora.

Introduction: Atrial fibrillation (AF) is an important comorbidity in hypertrophic cardiomyopathy (HCM), increasing rates of stroke and mortality. Therefore, developing new non-invasive strategies for earlier diagnosis, such as using artificial intelligence (AI) generated parameters from cardiac magnetic resonance (CMR) can help improve outcomes in patients with HCM.
Objectives: Our study aimed to investigate if there was an association between AF and atrial AI-derived CMR parameters in individuals with HCM.
Methods: We retrospectively analyzed a population of patients submitted to CMR, selected those with hypertrophic cardiomyopathy (HCM) and divided them in two groups – those with and without AF. We documented demographic factors, left atrial ejection fraction (LAEF), right and left atrial volumes and the longitudinal LA shortening obtained through AI in CMR for both groups. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 103 patients, 37.9% (n = 39) had HCM. When comparing groups, 59% were male, with mean age of 61 ± 13 years with no differences between groups. However, patients with AF had significantly lower LAEF (34.1 vs. 50.9%, p = 0.002), higher indexed diastolic LA volume (66.2 vs. 42.8 mL, p = 0.003) and lower left atrial longitudinal shortening (11.8 vs. 18.2, p = 0.033). In multivariate analysis, nevertheless, none proved to be independently significant.
Conclusions: CMR derived lower LAEF, higher indexed diastolic LA volume and lower left atrial longitudinal shortening are associated with AF in patients with HCM and could be an earlier indicator of development of arrhythmia and more complex cardiomyopathy. Although these were not independently associated, further studies with a larger population are required to establish possible predictors.

Sábado, 12 Abril de 2025 | 16:30-17:30

Área de Posters-écran 2 | Sessão de Posters 48 – Ressincronização cardíaca e CDI

PO 321. LONG-TERM COMPARATIVE EFFECTIVENESS OF A HEMODYNAMIC SENSOR-BASED CRT VERSUS STANDARD CRT: INSIGHTS INTO CARDIAC AND FUNCTIONAL IMPROVEMENTS

Inês Ferreira Neves, Julien Lopes, Francisco Cardoso, Guilherme Portugal, Hélder Santos, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Rita Moreira, António Gonçalves, Rui Cruz Ferreira, Mário Martins Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: In cardiac resynchronization therapy (CRT), integration of a hemodynamic sensor into the device allows automatic individualized optimization of atrioventricular (AV) and interventricular (VV) timing based on ventricular contractility with the purpose of improving patient outcomes by dynamic adjustment to cardiac function. We aimed to compare the effectiveness of CRT using a sensor-based system (SonR, Microport) to standard CRT in terms of functional and cardiac remodeling outcomes.
Methods: Consecutive patients (P) with heart failure, symptomatic New York Heart Association (NYHA) class II-IV, with Left Ventricular Ejection Fraction (LVEF) ≤ 35% after 3 months of Guideline-directed medical therapy and a prolonged QRS submitted to CRT implantation at our center between 2015 and 2022 were included. P with an existing pacemaker or Implantable Cardioverter Defibrillator (ICD) who develop a clinical indication for CRT were also included. A paired-sample T-test analysis was performed to evaluate pre- and post-therapy metrics in two groups: SonR P and non-SonR P. Primary endpoints included changes in NYHA class, LVEF, and left ventricular end-systolic volumes (LVESV). The effect sizes were analysed using Cohen's and Hedge's correction.

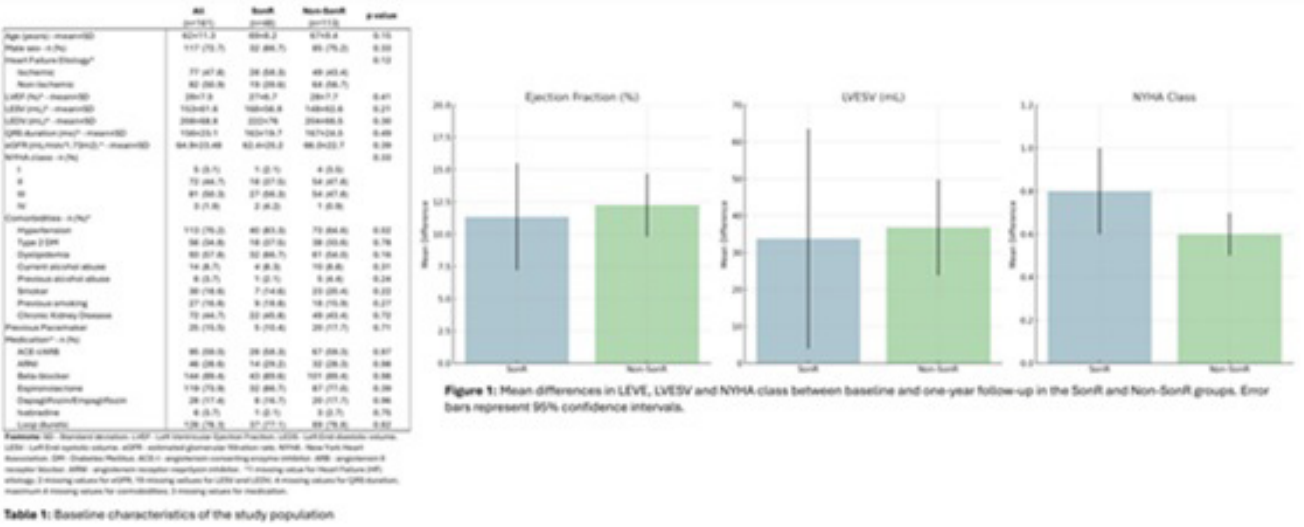


Table 1: Baseline characteristics of the study population

Figure 1: Mean differences in LEVE, LVESV and NYHA class between baseline and one-year follow-up in the SonR and Non-SonR groups. Error bars represent 95% confidence intervals.

Figure PO 321

Results: Out of 161 P (62 ± 11.3 years, 117 [72.7%] male), 48 (29.8%) were implanted with a SonR CRT system. The mean follow-up time was 55 ± 29 months. For the SonR group, a significant improvement in LVEF was observed, with an increase of 11.34 percentage points from baseline to one-year post-intervention (mean difference = 11.34, 95%CI [7.2, 15.5], p < 0.001). In the non SonR group, there was a mean difference of 12.25 (95%CI [9.8, 14.7], p < 0.001). Both groups showed a statistically significative difference in LVESV (mean difference = 33.8, p = 0.029 in the SonR group and mean difference = 36.8, p < 0.001 in the non-SonR group). The functional NYHA class had a greater improvement in the SonR group (mean difference = 0.8, 95%CI [0.6, 1.0], p < 0.001) than in the non SonR group (mean difference = 0.6, 95%CI [0.5, 0.7], p < 0.001). The SonR group had a greater effect size (Cohen's d = 1.211, 95%CI [0.792, 1.622] vs. Cohen's d = 0.868, 95%CI [0.627, 1.105] in the non-SonR group), indicating a more pronounced impact on functional status.
Conclusions: The sensor-based CRT was associated with similar improvement in LVEF and LVESV compared to the standard CRT. However, the SonR group exhibited a greater improvement in functional class, reflected by a larger effect size. These findings suggest that automatic individualized optimization of AV and VV intervals based on ventricular contractility may add benefit in enhancing patients' functional status.

PO 322. ARE PATIENTS WITH NON-ISCHEMIC CARDIOMYOPATHY LESS DESERVING OF PRIMARY PREVENTION DEVICE IMPLANTATION?

Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Joana Guerreiro Pereira, Miguel Espírito Santo, Hugo Alex Costa, Daniela Carvalho, Pedro Azevedo, João Sousa Bispo, Dina Bento, Rui Candeias, Jorge Mimoso

Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro.

Introduction: The role of implantable devices in preventing sudden cardiac death in heart failure patients with non-ischemic cardiomyopathy in primary prevention remains uncertain, primarily due to inconsistent evidence regarding their impact on outcomes such as mortality compared to medical therapy alone.
Objectives: This study aimed to evaluate differences in outcomes between patients undergoing implantable cardioverter-defibrillator (ICD) or cardiac resynchronization therapy defibrillator (CRT-D) implantation for primary prevention based on etiology (ischemic heart disease [IHD] vs. non-ischemic heart disease [NIHD]). Additionally, predictors of outcomes were assessed over a median follow-up of 35 months.
Methods: A retrospective analysis between 2020 and 2024 included 165 patients who underwent ICD/CRT-D implantation for primary prevention. Data collected included demographic characteristics, cardiovascular risk factors, documented arrhythmias, device type, and administered therapies (medical or device-based). Outcomes studied included hospitalization due to heart failure, myocardial infarction, stroke, or death. Predictors of outcome were identified using multivariate logistic regression.

Table 1: Baseline characteristics and outcomes of patients undergoing primary prevention device implantation, stratified by etiology;

	Ischemic (n=103, 69.6%)	Non- Ischemic (n=45, 30.4%)	Total n=165	*P* Value
Gender				
Female	18 (17.5%)	13 (28.9%)	38 (23.0%)	
Male	85 (82.5%)	32 (71.1%)	127 (77.0%)	0.129
Age	65 (58-73)	63 (54-71)	65 (58-73)	0.227
Diabetes Mellitus	50 (49.0%)	19 (43.2%)	75 (46.0%)	0.589
Dyslipidemia	78 (76.5%)	25 (56.8%)	114 (69.9%)	**0.019**
Arterial Hypertension	69 (67.6%)	21 (47.7%)	102 (60.6%)	**0.023**
Smoking *Status*	67 (65.7%)	24 (54.5%)	99 (60.7%)	0.264
Chronic Kidney Disease	21 (21.0%)	12 (27.3%)	38 (23.8%)	0.519
Heart Failure	91 (89.2%)	38 (36.4%)	145 (89.0%)	0.779
LVEF	30 (25-40)	46 (30-58)	35 (27-49)	**< 0.001**
Atrial Fibrillation	21 (20.6%)	18 (40.9%)	45 (27.6%)	**0.015**
Ventricular Tachicardia	5 (5.4%)	3 (7.1%)	12 (7.9%)	0.704
Ventricular Tachicardia Ablation	0 (0.0%)	1 (2.4%)	1 (0.7%)	0.311
Medical Therapy				
ACEi/ARB	32 (32.0%)	14 (33.3%)	57 (36.1%)	1.000
ARNI	62 (62.0%)	23 (53.5%)	90 (56.6%)	0.359
MRA	77 (77.0%)	26 (60.5%)	112 (70.4%)	**0.043**
SGLT2i	69 (69.7%)	23 (53.5%)	97 (61.4%)	0.063
B-blockers	90 (89.1%)	39 (20.7%)	144 (90.0%)	1.000
Antiarrhythmics	19 (19.0%)	11 (25.6%)	32 (20.1%)	0.375
Device mode				
ICD	85 (82.5%)	34 (77.3%)	203 (79.0%)	
CRT-D	18 (17.5%)	10 (22.7%)	54 (21.0%)	0.458
Device Therapies	12 (13.0%)	10 (25.0%)	22 (14.9%)	0.090
Number of therapies administered	3 (1-10)	2 (1-5)	2 (7-7)	0.430
Shocks	9 (9.8%)	8 (19.5%)	17 (11.4%)	0.121
Number of shocks administered	2 (1-8)	3 (2-8)	2 (1-7)	0.318
Inappropriate shocks	2 (2.2%)	4 (9.8%)	6 (4.0%)	0.073
Follow-up (months)	33 (18-43)	34 (17-44)	33 (17-43)	0.798
Composite Outcome	29 (28.7%)	16 (35.6%)	52 (31.9%)	0.408
Death	13 (12.7%)	7 (15.6%)	24 (14.6%)	0.647
AMI	14 (13.7%)	4 (8.9%)	19 (11.6%)	0.410
Stroke	2 (2.0%)	3 (6.7%)	8 (4.9%)	0.168
Hospitalization for HF	23 (22.5%)	11 (24.4%)	40 (24.4%)	0.802

ACEi – Angiotensin converting enzyme inhibitors; AMI – Acute myocardial infarction; ARB – Angiotensin receptor blockers; ARNI – Angiotensin receptor/neprilysin inhibitor; CRT-D – cardiac resynchronization therapy defibrillator; HF – Heart Failure; ICD – implantable cardioverter-defibrillator; LVEF – Left ventricle ejection fraction; MRA – Mineralocorticoid receptor antagonists; SGLT2i – Sodium-glucose cotransporter-2 inhibitors;

Results: Of the 165 patients (median age 65 [58-73] years; 77.0% male), 69.6% had IHD and 30.4% NIHD. IHD patients were more likely to have hypertension (HT) (67.6 vs. 47.7%, p = 0.023) and dyslipidemia (76.5 vs. 56.8%, p = 0.019), while NIHD patients had more atrial fibrillation (AF) (40.9 vs. 20.6%, p = 0.015). Median left ventricular ejection fraction was lower in IHD (30% [25-40], p < 0.001). Both groups received very similar medical and

device-based (shocks and therapies) treatment regimens, with no differences in terms of documented ventricular arrythmias. No significant differences in composite outcomes were observed between IHD and NIHD patients. Predictors of adverse outcomes included female gender (OR = 4.141, 95%CI: 1.305-13.144, p = 0.016), HT (OR = 3.553, 95%CI 1.025-12.311, p = 0.046), and AF (OR = 4.004, 95%CI 1.243-12.896, p = 0.020).
Conclusions: Patients undergoing device implantation for primary prevention had similar outcomes regardless of etiology, supporting the potential benefit of this therapy in both NIHD and IHD populations. Female gender, HT, and AF were significant predictors of adverse outcomes, consistent with prior findings in literature, while etiology was not shown to influence prognosis.

PO 323. RISK STRATIFICATION IN NONISCHEMIC DILATED CARDIOMYOPATHY: THE ROLE OF T1/T2 MAPPING AND EXTRACELLULAR VOLUME

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Introduction: Nonischemic dilated cardiomyopathy (NIDCM) is an increasingly recognized cause of cardiovascular morbidity and mortality. Despite this, accurate risk stratification of NIDCM remains challenging. Recent studies showed that the presence and extent of late gadolinium enhancement (LGE) are associated with adverse clinical outcomes. However, the prognostic value of T1, T2 mapping and extracellular volume (ECV) is less explored.
Objectives: To explore the predictive value of cardiovascular magnetic resonance (CMR) findings - T1, T2 mapping and ECV - for heart failure (HF)-related events in NIDCM patients.
Methods: Between February 2022 and October 2024, patients diagnosed with NIDCM who underwent CMR at our center were included. All CMR images were acquired using a 1.5-T scanner (Magnetom Sola, Siemens Healthcare, Erlangen, Germany). T1 mapping was quantified within the septal myocardium in areas without LGE enhancement (T1 native) and ECV was calculated using pre, post-contrast T1 and synthetic haematocrit. The primary endpoint was HF hospitalization.
Results: Among the 53 patients with NIDCM, 40% were women, with a median age of 64 years [IQR 52-69], 55% were in NYHA 2 or higher, 15% had an implantable device and the median LV ejection fraction was 40% [IQR 30-47]. During a median follow-up of 13 months [IQR 5-22], only 6 patients (11%) had a HF hospitalization. Apart from the NT-proBNP value (3578 [IQR 3,203-3,959], p = 0.008), these patients were similar compared with patients with no HF hospitalization. T1 mapping and ECV was similar between NYHA class (p = 0.21 and p = 0.33, respectively) and both were correlated with LV ejection fraction (r = -0.46, p = < 0.001 and r = -0.44, p = 0.001, respectively). In univariable Cox regression analysis, although T1 mapping (HR = 1.01, [95%CI, 0.99-1.02], p = 0.3) and T2 mapping (HR = 1.01, [95%CI, 0.83-1.23], p = > 0.9) were not associated with higher risk of HF hospitalization, patients with higher ECV had higher risk of HF hospitalization (HR = 1.11, [95%CI, 1.01-1.22], p = 0.03, Table 1). In multivariable Cox regression analysis, including age, gender and LV ejection fraction, ECV remain an independent predictor of HF hospitalization (HR = 1.13, [95%CI, 1.00-1.28], p = 0.046, Table 1).

CMR parameter	Univariable model		Multivariable model (adjusted for age, gender, LVEF)	
	HR (95% CI)	p-value	HR (95% CI)	p-value
T1 mapping	1.01 (0.99-1.02)	0.3		
T2 mapping	1.01 (0.83-1.23)	> 0.9		
ECV	1.11 (1.01-1.22)	**0.03**	1.13 (1.00-1.28)	**0.046**

Conclusions: In this cohort of patients diagnosed with NIDCM, extracellular volume was an independent predictor of HF hospitalization, suggesting its usefulness as a potential non-invasive marker for risk stratification in these patients.

PO 324. CARDIOPULMONARY EXERCISE TESTING TO ASSESS THE EFFECT OF CARDIAC RESYNCHRONISATION THERAPY

André Paulo Ferreira, Ana Raquel Santos, Sofia Jacinto, Hélder Santos, Bruno Valente, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

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Introduction: Cardiac resynchronization therapy (CRT) is a well-established intervention for a subgroup of patients with heart failure (HF), that often leads to reverse remodelling and symptomatic improvement. The cardiopulmonary exercise test (CPET) is a strong and validated exam to assess functional capacity that may be useful for evaluating the CRT benefits.
Objectives: To investigate the utility of CPET in assessing the impact of CRT on the cardiopulmonary systems, and to ascertain if it can aid in identifying likely responders.
Methods: A single-centre retrospective study of patients with HF and reduced left ventricle ejection fraction (LVEF) that underwent CPET and transthoracic echocardiogram before and after 6 months of CRT implantation. CRT responders were defined as those exhibiting an absolute > 5% improvement in LVEF at 6 months of follow-up. Multiple CPET parameters were analysed in both responder and non-responder groups and multivariate logistic regression models were used.
Results: A total of 24 patients were included in this study. Patient's mean age was 60.9 ± 11.7 years, and 83.3% were male. At the baseline, 46.1% had ischemic heart disease and 53.9% dilated cardiomyopathy, 71.4% had left bundle branch block with a QRS > 130 ms, the mean LVEF was 30.7 ± 6.8% and the median New York Heart Association functional (NYHA) class was 2 (IQ 2-3). At 6 months follow-up after CRT implantation, 67.4% of patients showed a reverse remodelling response with an improvement greater than 5% in LVEF. In the responder group, the mean LVEF was 35.8 ± 8.4% at 6 months, and the peak VO2 increased significantly 11.5 ± 3.8 vs. 12.7 ± 3.5 ml/kg/min (p = 0.039), as well as the per cent predicted peak VO2 43.9 ± 19.2 vs. 51.6 ± 19.1% (p = 0.034), while the minute ventilation/carbon dioxide production (VE/VCO2) slope decreased 43.0 ± 9.4 vs. 36.6 ± 7.5 (p = 0.021). An increase of ≥ 1 in NYHA classes was registered in 65.4% of the total patients. After multivariate analysis, patients with a VO2 peak < 50% of the predicted value were found to be more likely responders (p = 0.029). No other CPET parameters were predictive of CRT response or non-response.

	6 months after CRT	*p-value*
pVO2	11.5±3.8 vs 12.7±3.5 ml/kg/min	*p = 0.039*
Predicted pVO2	43.9±19.2% vs 51.6±19.1%	*p = 0.034*
VE/VCO2 slope	43.0±9.4 vs 36.6±7.5	*p = 0.021*

Conclusions: CPET appears to be a helpful tool in assessing the benefits obtained after CRT, possibly allowing a better prognostic and risk stratification, while the identification of the more probable responders remains a challenging task.

PO 325. THE IMPACT OF ATRIAL FIBRILLATION IN CARDIAC RESYNCHRONISATION THERAPY'S RESPONSE

André Paulo Ferreira, Ana Raquel Santos, Sofia Jacinto, Hélder Santos, Bruno Valente, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Cardiac resynchronisation therapy (CRT) can be a very impactful intervention in patients with heart failure with reduced ejection fraction (HFrEF) and ventricular desynchrony. However, the presence of atrial fibrillation (AF) may attenuate CRT rates of response due to a

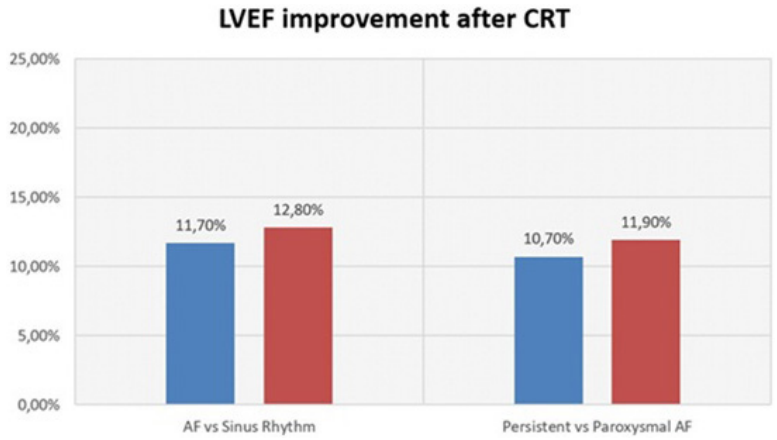

Figure PO 325

combination of reduced biventricular pacing and loss of atrioventricular synchrony.

Objectives: To investigate the impact of AF on CRT-induced reverse remodelling and functional capacity improvements.

Methods: A single-centre retrospective study of patients with HFrEF and a wide QRS complex who underwent CRT implantation between 2015 and 2022. CRT responders were defined as those exhibiting an absolute > 5% improvement in LVEF at 6 months of follow-up. CRT response was compared between patients with AF or sinus rhythm.

Results: A total of 166 patients were included in this study. Patient's mean age was 70.3 ± 10.5 years, and 73.0% were male. Of the total patients, 33.8% had ischemic heart disease and 66.2% dilated cardiomyopathy, 72.7% had left bundle branch block, and the median New York Heart Association functional class was 2 (IQ 2-3). Before CRT implantation, the mean LVEF was 26.2 ± 6.9%, and 44.6% of patients had AF. Of the latter, 43.2% had paroxysmal AF and 56.8% had persistent AF. At 6 months of follow-up after CRT implantation, we found that patients with AF had a similar mean increase in LVEF compared sinus rhythm (SR) 11.7 ± 4.5 vs. 12.8 ± 5.4% (p = 0.498), despite the presence of higher mean heart rates in the AF group, as suggested by the mean heart rates of 79.8 ± 9.2 vs. 71.4 ± 8.4 bpm (p = 0.039) at rest in the follow-up clinic visits. The improvement in LVEF did not differ significantly between the persistent vs. paroxysmal AF subgroups 10.7 ± 4.1 vs. 11.9 ± 5.5% (p = 0.644). The CRT response rate was consequently also similar in both AF and RS groups 71.4 vs. 75.2% (p = 0.325). However, the improvement of ≥ 1 classes in NYHA classification was significantly lower in the AF group, 60.7 vs. 75.1% (p < 0.01). There were no significant differences in mortality rates at 1 year of follow-up 3.4 vs. 3.9% (p = 0.687).

Conclusions: Patients with AF appear to show significant improvements and reverse remodelling effects after CRT implantation, similar to those of sinus rhythm patients, but smaller benefits are noted regarding functional outcomes.

PO 326. PREDICTORS FOR ADVERSE OUTCOMES IN ICD/CRT-D PATIENTS: INSIGHTS FROM A SINGLE-CENTER STUDY

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Introduction: Implantable cardioverter defibrillators (ICDs) and cardiac resynchronization therapy defibrillators (CRT-Ds) are used for preventing sudden cardiac death and managing heart failure (HF). However, many patients still face adverse outcomes, highlighting the need to identify predictors to optimize patient selection and care.

Objectives: To compare ICD/CRT-D patients who developed adverse outcomes with those who did not and to identify predictors of these outcomes.

Methods: This single-center retrospective study included consecutive patients who underwent ICD or CRT-D implantation between January 2020 and December 2023, with a mean follow-up of 35 months. Patients were grouped based on the occurrence of an adverse outcome – death, acute myocardial infarction, stroke and hospitalization for HF. Data were collected on demographic characteristics, HF medical therapy, device mode, administered device therapies and shocks, etiology and type of prevention. A multivariate logistic regression analysis was performed to identify independent predictors of adverse outcomes.

Table 1 – Baseline clinical characteristics of ICD/CRT-D patients.

	Adverse Outcome developement n=84, 32.4%)	No adverse outcome developement (n=175, 67.2 %)	Total n=264	*P* Valu
Gender				
Female	17 (20.2%)	37 (21.1%)	56 (21.2%)	
Male	67 (79.8%)	138 (78.9%)	208 (78.8%)	0.867
Age	66 (58-73)	65 (57-73)	66 (58-73)	**0.001**
Diabetes Mellitus	50 (59.5%)	66 (38.6%)	116 (45.1%)	**0.002**
Dyslipidemia	66 (78.6%)	112 (65.5%)	179 (69.6%)	**0.033**
Arterial Hypertension	65 (77.4%)	98 (57.3%)	164 (63.8%)	**0.002**
Smoking *Status*	54 (54.3%)	92 (53.8%)	146 (56.8%)	0.11
Chronic Kidney Disease	23 (28.4%)	29 (17.0%)	52 (20.5%)	**0.036**
Heart Failure	77 (91.7%)	141 (82.9%)	220 (85,6%)	0.061
LVEF	35 (27-47)	38 (30-52)	36 (29-50)	0.089
Atrial Fibrillation	30 (35.7%)	37 (21.5%)	69 (26.7%)	**0.015**
Ventricular Tachicardia	12 (17.4%)	23 (13.9%)	35 (14.8%)	0.50
Ventricular Tachicardia Ablation	1 (1.5%)	9 (5.5%)	10 (4.3%)	0.17
Medical Therapy				
ACEi/ARA	29 (35.8%)	71 (42.0%)	102 (40.5%)	0.348
ARNI	47 (58.0%)	84 (49.7%)	131 (52.0%)	0.218
MRA	55 (67.9%)	121 (71.2%)	176 (69.6%)	0.596
SGLT2i	49 (60.5%)	106 (62.7%)	155 (61.5%)	0.734
B-blockers	72 (87.8%)	152 (89.4%)	225 (88.6%)	0.704
Antiarrhythmics	19 (23.5%)	45 (26.5%)	65 (25.7%)	0.609
Device Therapies				
Therapies and/or shocks administered	20 (29.0%)	24 (16.0%)	46 (20.6%)	**0.026**
Inappropriate shocks	5 (7.1%)	4 (2.7%)	9 (4.0%)	0.147
Hospitalization after a shock	7 (9.0%)	9 (5.4%)	16 (6.1%)	0.29
Device mode				
ICD VVI	44 (53.0%)	126 (74.6%)	173 (67.3%)	
ICD DDD	12 (14.5%)	17 (10.1%)	30 (11.7%)	
CRT-D	27 (32.5%)	26 (15.4%)	54 (21.0%)	**0.002**
Ischemic etiology	41 (61.2%)	96 (64.0%)	139 (63.2%)	0.692
Primary prevention	52 (70.3%)	111 (71.2%)	165 (70.2%)	0,89
Secundary prevention	22 (30.1%)	44 (28.8%)	69 (29.9%)	0.831
Follow-up (months)	37 (26-52)	27 (13-40)	29 (14-42)	**< 0.00**

Results: The cohort included 264 patients, and the adverse outcome occurred in 84 patients (32.4%). This group included older patients (66 vs. 65 years, p = 0.001) and had higher rates of diabetes mellitus (59.5 vs. 38.6%, p = 0.002), dyslipidemia (78.6 vs. 65.5%, p = 0.033), arterial hypertension (77.4 vs. 57.3%, p = 0.002), chronic kidney disease (28.4 vs. 17.0%, p = 0.036), and atrial fibrillation (AF, 35.7 vs. 21.5%, p = 0.015). CRT-D implantation was significantly more common in the group with an adverse outcome (32.5 vs. 15.4%, p = 0.002). Device therapies and/or shocks were more frequent in the adverse outcome group (29.0 vs. 16.0%, p = 0.026). Most patients implanted

a device in primary prevention (70.2%), with no significant differences between groups. Mean follow-up duration was longer for patients with adverse outcomes (37 vs. 27 months, p < 0.001). Multivariate analysis revealed that increasing age, AF diagnosis and lower left ventricular ejection fraction (FEVE) were independent predictors of adverse outcomes.
Conclusions: Adverse outcomes occurred in 32.4% of patients, which presented older age, higher rates of comorbidities and mostly had a CRT-D. Etiology was not significantly associated with differences in outcomes. Advanced age, AF and lower LVEF are independent predictors of adverse outcomes. These findings emphasize the importance of considering these factors during pre-implantation evaluations and post-procedural follow-up to optimize patient outcomes.

Sábado, 12 Abril de 2025 | 16:30-17:30

Área de Posters-écran 3 | Sessão de Posters 49 - Ressincronização cardíaca e terapêutica médica

PO 327. IMPACT OF OPTIMIZED MEDICAL THERAPY ON ICD SHOCKS AND SURVIVAL IN HEART FAILURE PATIENTS

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Introduction: Implantable cardioverter-defibrillators (ICDs) are a cornerstone in preventing sudden cardiac death in pts with heart failure with reduced ejection fraction (HFrEF). Over the past decade, optimized medical therapy (OMT), including the introduction ARNIs and SGLT2 inhibitors, have significantly improved outcomes. However, the impact of these therapies on the incidence of appropriate ICD shocks (AS) and pts survival remains insufficiently studied.
Objectives: To compare the incidence of appropriate ICD shocks and overall survival between two cohorts of ischemic HFrEF pts with an ICD implanted: the *Old Era* group (treated before the widespread use of ARNIs and iSGLT2, 2012-2017) and the *New Era* group (treated after their introduction, 2017-2022, and the creation of an HF outpatient clinic).
Methods: A retrospective observational study was conducted, including pts with HFrEF who underwent ICD implantation between 2012 and 2022. Pts were divided into two groups: *Old Era* (2012-2017) and *New Era* (2017-2022). Data on ICD therapy, survival, and baseline characteristics were collected.
Results: This cohort included 354 pts with a mean age of 63.3 years (SD = 10.9) and 78% male predominance. The mean follow-up was 27 months (± 19), with 71% of pts having a current NYHA status of II and a mean ejection fraction (EF) of 28.6% (± 6.8). Cardiovascular comorbidities were prevalent, including hypertension (82%), dyslipidemia (78%), and obesity (39%). The frequency of AS was significantly lower in the *New Era* group (14.9%, n = 31) compared to the *Old Era* group (35.6%, n = 52; p < 0.001). Kaplan-Meier analysis showed a delayed onset of the first AS in the *New Era* group, with a median time to first shock of 19 months vs. 10 months in the *Old Era* group (p = 0.001, log-rank test). The *New Era* group exhibited improved overall survival, with a 5-year survival rate of 75% compared to 51% in the *Old Era* group (*HR* = 0.43, 95%CI 0.29-0.62, p = 0.001). This survival benefit was consistent across various subgroups, including age, diabetes, and baseline EF. After adjusting for potential confounders, OMT in *New Era* group was independently associated with a 66% lower risk of AS (*adjusted HR* = 0.34, 95%CI 0.20-0.59, p = 0.001) and a 59% lower risk of death (*adjusted HR* = 0.41, 95%CI 0.25-0.65, p = 0.001).
Conclusions: A multidisciplinary HF outpatient team and the implementation of OMT in ischemic HFrEF significantly reduced the frequency of appropriate ICD shocks and improved pts survival.

PO 328. TRANSFORMING HEART FAILURE CARE: THE IMPACT OF CARDIAC REHABILITATION

Ana L. Silva, Bernardo Lisboa Resende, Rafaela Fernandes, Tomás Carlos, Ana Luísa Rocha, Gonçalo Terleira Batista, Mariana Rodrigues Simões, Tatiana Pereira Dos Santos, José Luís Martins, João Gameiro, Paulo Dinis, Lino Gonçalves

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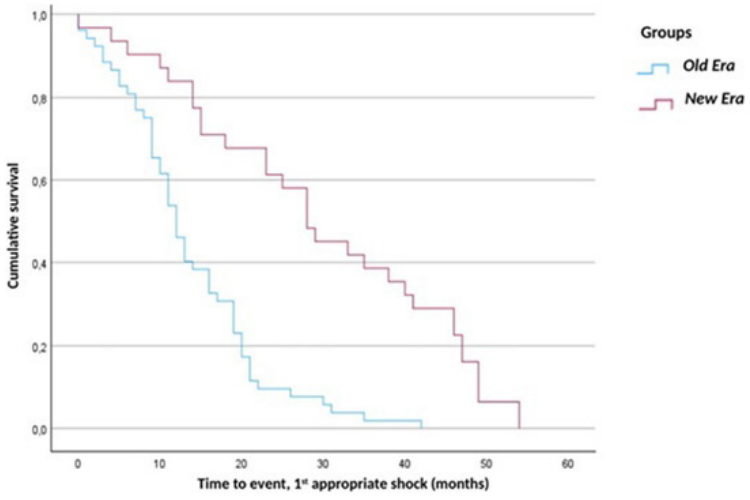
Introduction: Cardiac rehabilitation (CR) plays a pivotal role in managing heart failure (HF), providing significant benefits in functional capacity, symptom relief, and overall prognosis. The use of cardiopulmonary exercise testing (CPET) before and after CR allows for an objective evaluation of changes in key physiological parameters.
Objectives: Evaluate the impact of a phase II structured CR program on CPET metrics, echocardiographic parameters, and analytical biomarkers in patients with HF.



Graph 1: Kaplan-Meier Survival Curves for Two Groups

Figure PO 327

Cardiorespiratory fitness variables	Pre CRP	Post CRP	p-value
Maximum HR achieved (bpm) - mean ± SD	126.0 ± 21.4	130.1 ± 21.7	p=0.101
Percentage of predicted maximum HR (%) - mean ± SD	76.2 ± 13.3	79.3 ± 12.3	**p=0.038**
Heart rate decreased by 12 bpm or more after one minute of recovery - n (%)	30 (68.2)	38 (88.4)	p=1.000
Maximum systolic blood pressure (mmHg) - mean ± SD	161.2 ± 31.9	160.6 ± 31.4	p=0.955
Maximum diastolic blood pressure (mmHg) - mean ± SD	90.0 ± 14.2	86.9 ± 14.5	p=0.249
Peak VO2 (mL/kg/min) - mean ± SD	19.5 ± 6.5	21.6 ± 7.0	**p=0.020**
Percentage of predicted maximum VO2 (%) - mean ± SD	71.5 ± 21.4	78.8 ± 20.2	**p=0.010**
Peak circulatory power (mmHg·min/mL/kg) - mean ± SD	3259.6 ± 1444.9	3575.7 ± 1552.1	p=0.086
VO2 at the first anaerobic threshold (mL/kg/min) - median (IQR)	11.1 (5.2)	11.0 (4.5)	p=0.635
VO2 at the second anaerobic threshold (mL/kg/min) - mean ± SD	18.2 ± 6.2	18.8 ± 4.9	p=0.518
Oxygen pulse (mL/min) - mean ± SD	12.4 ± 4.4	13.0 ± 3.7	p=0.973
Respiratory reserve (%) - median (IQR)	48.5 (22.6)	40.0 (17.7)	**p=0.017**
VE/VCO2 slope (mL/kg/min) - median (IQR)	26.4 (11.3)	26.5 (8.0)	p=0.238
Resting PETCO2 (mmHg) - median (IQR)	37.0 (6.0)	35.0 (7)	p=0.341
HR at the first anaerobic threshold (bpm) - mean ± SD	99.7 ± 17.0	95.6 ± 13.2	**p=0.039**
HR at the second anaerobic threshold (bpm) - mean ± SD	120.1 ± 21.9	119.5 ± 15.5	p=0.690
OUES - mean ± SD	1.8 (0.6)	1.9 (0.9)	p=0.594
Physical performance (W) - mean ± SD	102.6 ± 58.4	124.2 ± 51.3	**p=0.004**
Percentage of watts relative to physical performance (%) - mean ± SD	65.7 ± 24.7	81.1 ± 26.0	**p<0.001**
Qualitative characterization of physical performance			
Normal or elevated - n (%)	17 (42.5)	24 (57.1)	**p<0.001**
Reduced - n (%)	23 (57.5)	18 (42.9)	
Metabolic Equivalent (METs) - mean ± SD	5.8 ± 2.2	6.4 ± 2.0	p=0.193
VO2/Work Rate slope (mL/kg/min/W) - median (IQR)	11.0 (4.0)	11.0 (1.8)	p=0.638

Table 2. Cardiorespiratory fitness analysis before and after Phase II Exercise-Based Cardiac Rehabilitation.
Bpm - Beats per minute. CRP - Cardiac Rehabilitation Program. HR – Heart rate. IQR - Interquartile Range. METs - Metabolic Equivalent of Task. OUES - Oxygen Uptake Efficiency Slope. PETCO2 - partial pressure of end-tidal CO2. SD - Standard deviation.

Figure PO 328

Methods: Single-center, retrospective observational study. Patients who successfully completed a supervised, structured CR program between January 2023 and September 2024 were included. Data were collected by a specialized multidisciplinary team. Statistical analysis was performed using SPSS 28.0.1.1 software.
Results: A total of 44 patients were included, with a mean age of 55.5 ± 12.4 years, 68.2% male. The most frequent referral criterion was coronary artery disease (26/59.1%), followed by HF (15/34.1%). The mean program duration was 22.3 weeks. 6/13.6% of patients had preserved, 15/34.1% had mid-range, and 21/47.7% had reduced left ventricular ejection fraction (LVEF). Advanced HF was identified in 9 patients (20.5%), and most were classified NYHA II (54.5%). Significant improvements in CPET parameters were observed. The percentage of predicted maximum heart rate (HR) increased (76.2 ± 13.3 to 79.3 ± 12.3, p = 0.038), along with peak VO_2 (19.5 ± 6.5 to 21.6 ± 7.0 mL/kg/min, p = 0.020) and the percentage of predicted maximum VO_2 (71.5 ± 21.4% to 78.8 ± 20.2%, p = 0.010). While peak circulatory power improved (3,259.6 ± 1,444.9 to 3,575.7 ± 1552.1 mmHg·min/mL/kg), this difference did not reach statistical significance (p = 0.086). The VE/VCO_2 slope remained similar before and after CR (26.4, IQR 11.3 vs. 26.5, IQR 8.0, p = 0.238). In terms of physical performance, there was a significant increase in peak power output (watts) after CR (102.6 ± 58.4 to 124.2 ± 51.3, p = 0.004), accompanied by an increase in the number of patients with normal or high physical performance (17 to 24, p < 0.001). LVEF significantly increased (41.2 ± 9.0% to 47.3 ± 12.6%, p = 0.007). Also, LDL cholesterol (77.0, IQR 64.0 to 60.0, IQR 36.0, p = 0.016), triglycerides (112.0, IQR 87.0 to 92.0, IQR 71.0, p = 0.016), and NT-proBNP (296.5, IQR 902.0 to 263.5, IQR 575.0, p = 0.006) significantly decreased.
Conclusions: A structured phase II CR program significantly improved functional capacity, as evidenced by enhanced CPET metrics, including peak VO_2 and predicted maximum HR, along with notable gains in physical performance. Also, the favorable changes in LVEF, NT-proBNP levels, and lipid profile suggest an overall enhancement in cardiovascular health. These findings emphasize the crucial role of CR in optimizing physiological, analytical, and clinical parameters, reinforcing its importance in the comprehensive management of HF patients.

PO 329. CARDIAC RESYNCHRONIZATION THERAPY IN SEVERE HEART FAILURE PATIENTS: THE ROLE OF ARNIS IN THE MODERN THERAPEUTIC LANDSCAPE

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Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

	All (n=158)	Without ARNI (n=112)	With ARNI (n=46)	p value
Age (years) - mean±SD	67.5±9.1	67.4±9.1	67.7±9.1	0.89
Male sex - n (%)	115 (72.8)	82 (73.2)	33 (71.7)	0.85
Heart Failure Etiology*				0.69
Ischemic	76 (48.1)	52 (46.4)	24 (52.2)	
Non-Ischemic	81 (51.2)	59 (52.7)	22 (47.8)	
LVEF (%)* - mean±SD	27.8±7.5	27.4±7.9	28.8±6.4	0.27
LESV (mL)* - mean±SD	152.6±61.9	148.9±61.6	161.3±63.0	0.39
LEDV (mL)* - mean±SD	207.8±69.0	203.3±68.5	218.3±70.3	0.35
QRS duration (ms)* - mean±SD	165.6±23.2	163.3±23.3	170±22.7	0.16
eGFR (mL/min/1.73m2) * - mean±SD	65.0±23.5	65.19±23.9	64.3±22.8	0.88
NYHA class - n (%)				0.54
I	5 (3.2)	3 (2.7)	2 (4.3)	
II	69 (43.7)	51 (45.5)	18 (39.1)	
III	81 (51.3)	55 (49.1)	26 (56.5)	
IV	3 (1.9)	3 (2.7)	0 (0.0)	
Comorbidities - n (%)*				
Hypertension	110 (69.6)	83 (74.1)	27 (58.7)	0.06
Type 2 DM	55 (34.8)	40 (35.7)	15 (32.6)	0.85
Dyslipidemia	91 (57.6)	65 (58.0)	26 (56.5)	0.86
Current alcohol abuse	13 (8.2)	13 (11.6)	0 (0.0)	0.60
Previous alcohol abuse	6 (3.8)	5 (4.5)	1 (2.2)	0.81
Smoker	28 (17.7)	21 (18.8)	7 (15.2)	0.04
Previous smoking	27 (17.1)	19 (17.0)	8 (17.4)	0.64
Chronic Kidney Disease	69 (43.7)	48 (42.9)	21 (45.7)	0.80
Previous Pacemaker	25 (15.8)	16 (14.3)	9 (19.6)	0.47
Medication* - n (%)				
ACE i/ARB	95 (60.1)	95 (84.8)	0 (0.0)	<0.01
Beta-blocker	144 (91.1)	100 (89.3)	44 (95.7)	0.35
Espironolactone	119 (75.6)	76 (67.9)	43 (93.5)	<0.01
Dapagliflozin/Empagliflozin	28 (17.7)	4 (3.6)	24 (52.2)	<0.01
Ivabradine	6 (3.8)	2 (1.8)	4 (8.7)	0.06
Loop diuretic	125 (79.1)	86 (76.8)	39 (84.8)	0.29

Footnote: SD - Standard deviation, LVEF - Left Ventricular Ejection Fraction, LEDS - Left End-diastolic volume, LESV - Left End-systolic volume, eGFR - estimated glomerular filtration rate, NYHA - New York Heart Association, DM - Diabetes Mellitus, ACE-i - angiotensin-converting enzyme inhibitor, ARB - angiotensin II receptor blocker, ARNI - angiotensin-receptor neprilysin inhibitor, *1 missing value for Heart Failure (HF) etiology; 2 missing values for eGFR; 19 missing values for LESV and LEDV; 4 missing values for QRS duration; maximum 4 missing values for comorbidities; 3 missing values for medication.

Table 1: Baseline characteristics of the study population

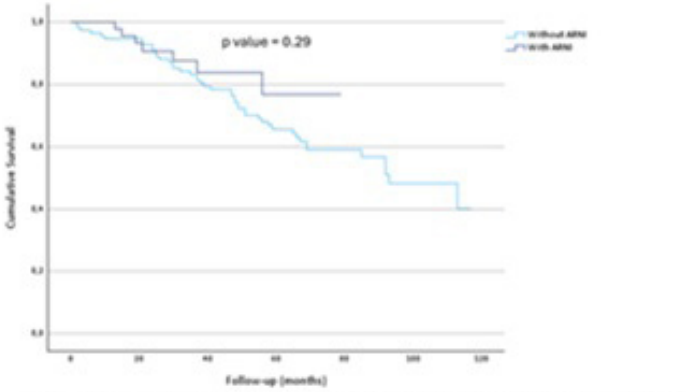


Figure 1: Kaplan-Meier survival curves of patients treated with ARNI and those not treated with ARNI.

Figure PO 329

Introduction: Cardiac resynchronization therapy (CRT) is recommended for symptomatic Heart Failure (HF) patients (P) with a QRS duration ≥ 150 ms, left bundle branch block QRS morphology, and left ventricular ejection fraction (LVEF) ≤ 35% despite guideline directed medical therapy (GDMT), to improve symptoms and decrease morbidity and mortality. However, the trials responsible for the inclusion of this indication in the guidelines predate the use of angiotensin receptor-neprilysin inhibitors (ARNIs). Whether the benefit of implanting a CRT with the contemporary available medication is maintained is not known.
Methods: Consecutive P with HF and reduced Ejection Fraction (HFrEF), symptomatic, with Left Ventricular Ejection Fraction (LVEF) ≤ 35% after 3 months of GDMT and a prolonged QRS submitted to CRT implantation for primary prevention at our center between 2015 and 2022 were included. Patients with an existing pacemaker or Implantable Cardioverter Defibrillator (ICD) who develop a clinical indication for CRT were also included. A paired-sample T-test analysis was performed to evaluate pre- and post-device implantation metrics in two groups: P medicated with ARNI and P not medicated with ARNI at the time of device implantation. Primary endpoints included changes in NYHA functional class, LVEF, and left ventricular end-systolic volumes. The *odds* of HF hospitalization and survival curves were calculated.
Results: Out of 158 P (mean age 67.5 ± 9.1, 115 [72.8%] male) included, 46 (29.1%) were medicated with ARNI at the moment of device implantation. Mean follow-up time was 54 ± 28.9 months. In the group not medicated with ARNI when submitted to device implantation, NYHA functional class improved by 0.64 after one year (95%CI: 0.50-0.78, p < 0.001), LVEF increased significantly by 13.28% (95%CI: -15.85 to -10.71, p < 0.001), and LVESV decreased by 38.53 mL (95%CI: 25.79-51.28, p < 0.001. In the ARNI-treated group, similar trends were noted. NYHA class improved by 0.72 points (95%CI: 0.50-0.94, p < 0.001), LVEF increased by 9.60% (95%CI: -13.39 to -5.81, p < 0.001), and LVESV decreased by 29.25 mL (95%CI: 0.55-57.95, p = 0.046). In the logistic regression, the use of ARNI was not a significant predictor of hospitalization due to HF (*odds ratio* 0.721 (95%CI: 0.308-1.686, p = 0.450). Among the ARNI-treated group, 15.6% were hospitalized due to HF, compared to 40.2% in the non-ARNI group. The Kaplan-Meier analysis demonstrated a non-statistically significant higher survival in patients medicated with ARNI (p = 0.291).
Conclusions: CRT significantly improves functional class, LVEF, and LVESV in HFrEF patients, irrespective of ARNI use at the time of implantation, suggesting that its benefit is maintained in the era of new pharmacotherapy. Although ARNI-treated patients showed trends toward lower HF hospitalization rates and improved survival, these differences were not statistically significant.

PO 330. EVALUATING RISK SCORES FOR CRT RESPONSE AND CLINICAL OUTCOMES: FINDING THE IDEAL TOOL

Isabel Martins Moreira, Marta Catarina Bernardo, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Inês Silveira, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Up to a third of heart failure (HF) patients do not respond to cardiac resynchronization therapy (CRT). Several risk scores have been proposed to predict outcomes in this population. However, a lack of cross-validation between these scores limits their integration into clinical practice.
Objectives: To assess the applicability of the *EAARN* (Ejection Fraction [EF], Age, Atrial Fibrillation [AF], Renal Dysfunction, New York Heart Association [NYHA] class IV), *AAACC* (Age, Anemia, AF, Chronic kidney disease [CKD] and Chronic Lung Disease [CLD]), and *AL-FINE* CRT risk score (Age, non-Left Bundle Branch Block [LBBB], Furosemide, Ischemic etiology, NYHA, EF) in predicting outcomes in a cohort of CRT patients.
Methods: Single-center retrospective study of consecutive pts submitted to CRT implantation (2017-2024). The discriminative capacity of the *EAARN, AAACC,* and *AL-FINE* scores was analysed for three endpoints: all-cause mortality, a composite endpoint of all-cause mortality or HF hospitalizations (MACE), and CRT response (defined as ≥ 10% EF increase and/or NYHA class improvement). Scores were evaluated using ROC curves and corresponding area under the curve (AUC).
Results: A total of 206 patients (68.4% male, median age 74 ± 13 years, 67.5% non-ischemic cardiomyopathy) were included. Baseline QRS morphology was mainly LBBB (58.2%), with a mean QRS duration of 159.8 ± 27.6 ms and mean baseline LVEF of 30.3 ± 7.5%. Comorbidities were prevalent, including AF (36.9%), anemia (34.4%), CKD (20.9%) and CLD (9.7%). Most patients were at NYHA class II (53.2%), with a median baseline furosemide dosage of 20 ± 40 mg. At 1-year follow-up, CRT response rate was 89.8%. During a mean follow-up of 35 ± 24 months, MACE occurred in 31.9% of pts. The *AAACC* score demonstrated superior discriminative capacity compared to the *EAARN* and *AL-FINE* scores for predicting all-cause mortality (AUC *AAACC*: 0.71, 95%CI 0.62-0.80, p < 0.001; *AL-FINE*: 0.65, 95%CI 0.56-0.74, p = 0.002; *EAARN*: 0.63, 95%CI 0.53-0.73, p = 0.009) and MACE (AUC *AAACC*: 0.68, 95%CI 0.59-0.77, p < 0.001; *AL-FINE*: 0.65, 95%CI 0.56-0.74, p = 0.002; *EAARN*: 0.59, 95%CI 0.50-0.69, p = 0.063). However, *AL-FINE* was the best predictor for CRT response (AUC: 0.67, 95%CI 0.51-0.83, p = 0.036) compared to *AAACC* (AUC:

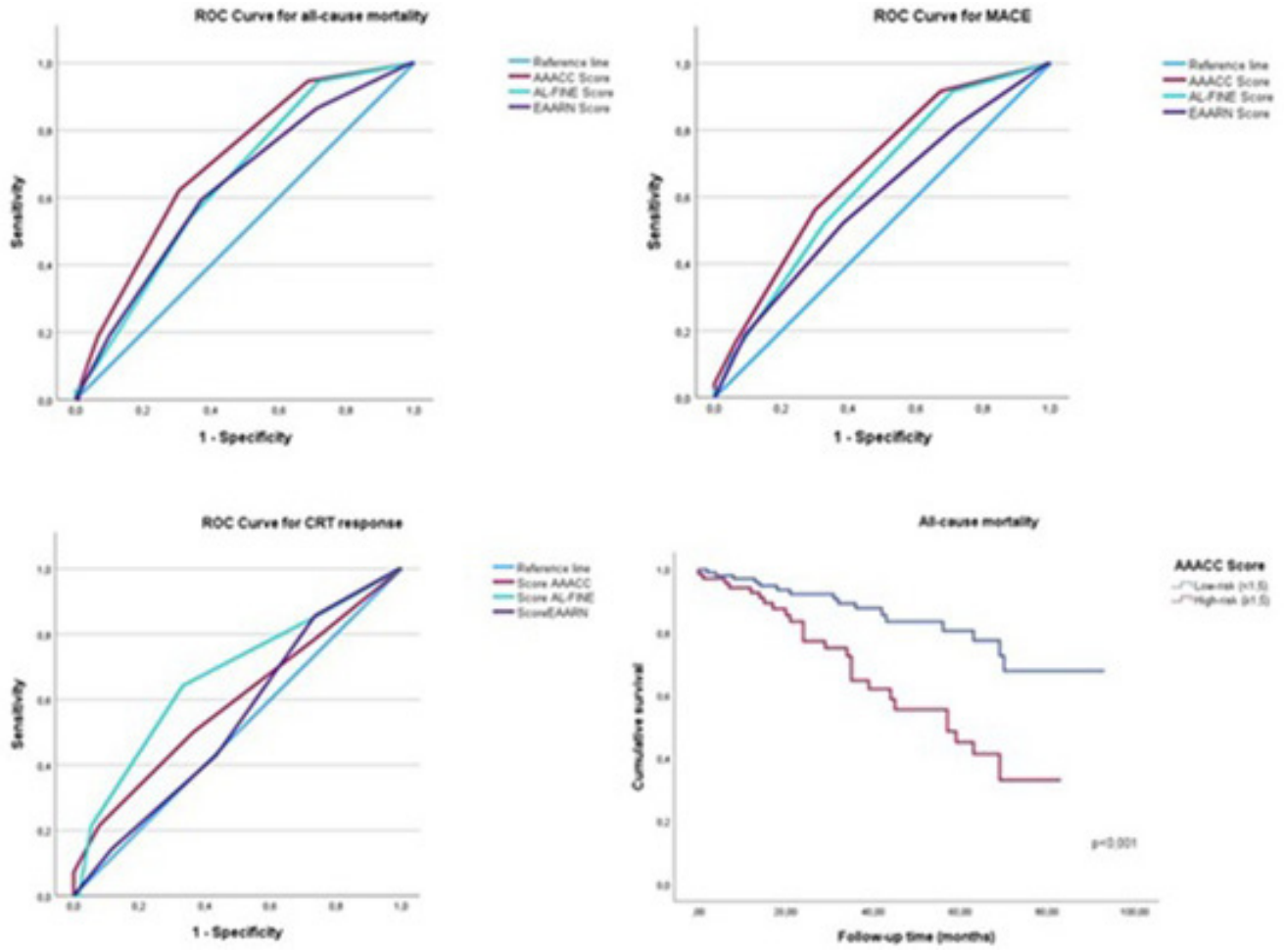


Figure PO 330

0.59, 95%CI 0.42-0.76, p = 0.313) and *EAARN* (AUC: 0.54, 95%CI 0.39-0.69, p = 0.610). Optimal *AAACC* score cut-off was 1.5 (62.2% sensitivity, 71.6% specificity), with higher mortality observed in patients with score ≥ 1.5 (37.5 vs. 15.1%, log-rank p < 0.001).
Conclusions: The *AL-FINE* score demonstrated superior predictive ability for CRT response, while *AAACC* score performed better for mortality and MACE. Nonetheless, all scores exhibited modest discriminative capacity, highlighting the need to optimize predictive tools for risk stratification in the current era of quadruple therapy for HFrEF.

PO 331. IMPACT OF LOW HEMOGLOBIN VALUES IN CRT RESPONSE

Luís Sousa Azevedo, Marta Bernardo, Isabel Martins Moreira, Isabel Nóbrega Fernandes, Pedro Mateus, José Pedro Guimarães, Renato Margato, Paulo Fontes, Sílvia Leão, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Heart failure (HF) is a complex condition frequently accompanied by comorbidities such as anemia, which is independently linked to worse outcomes in affected patients. Among individuals with HF who are candidates for Cardiac Resynchronization Therapy (CRT), the presence of anemia may influence the effectiveness of this treatment, potentially reducing its therapeutic benefits.
Objectives: We aimed to assess whether pre-implantation low hemoglobin levels affect the response to Cardiac Resynchronization Therapy (CRT).
Methods: This is an observational, retrospective study that included patients who underwent CRT device implantation between January 2017 and March 2024. Out of a total population of 201 patients, we included those who had at least one year of follow-up and met the evaluation criteria required for this study at that time. We classified patients as responders or non-responders based on their response to CRT. In this study, CRT response was considered positive if a reduction of at least 15% in left ventricular end-systolic volume at one-year follow-up occurred. Anemia was defined as a hemoglobin level below 12 g/dL. Differences between groups were assessed using Chi-square analysis for categorical variables and the median comparison test for numerical variables. The influence of each variable on the response to CRT was evaluated using binary logistic regression.
Results: This analysis included 86 patients, of whom 66.7% were male, with a median age of 76 years (range: 69-81) and a median hemoglobin level of 13 g/dL (range: 11.33-14.33). Responders comprised 64% of the study population. A comparison of responders and non-responders is presented in Table 1. Factors associated with a poorer response included male gender (p = 0.03), atrial fibrillation (p = 0.04), chronic kidney disease (CKD) (p = 0.02), and anemia (p = 0.03), while a history of left bundle branch block was linked to a better response (p = 0.003). Binary logistic regression identified anemia as a significant predictor of non-response to CRT, with an odds ratio of 8.543 (95%CI: 1.768-41.292; p = 0.008). Further details are provided in Table 2.
Conclusions: In this study, hemoglobin levels below 12 g/dL were linked to a poorer response to CRT, measured by cardiac reverse remodelling. Addressing anemia and correcting reversible causes could potentially enhance long-term CRT response. However, larger studies are needed to define more precise clinical targets.

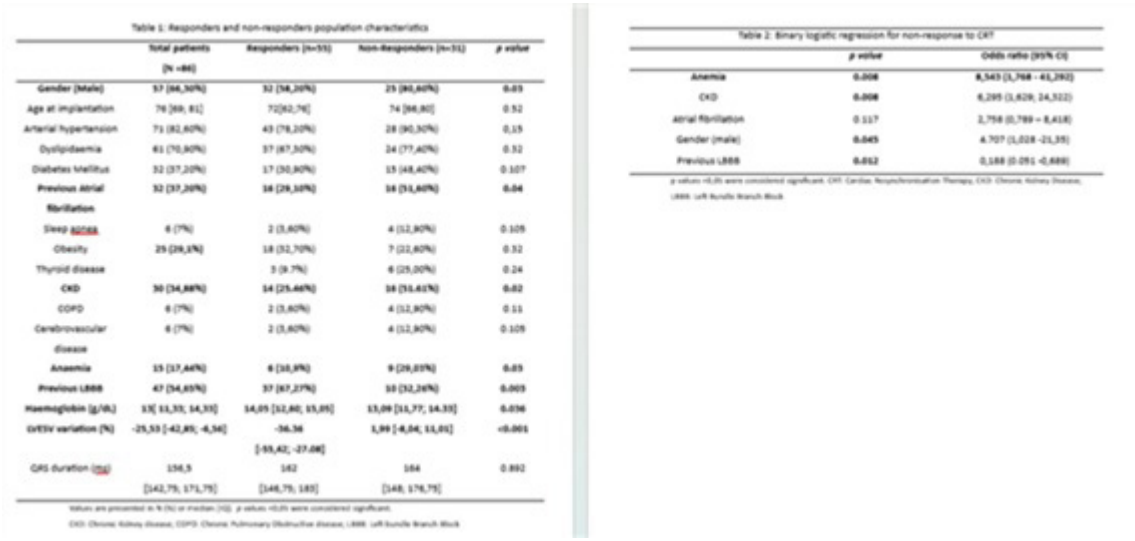


Table 1. Responders and non-responders population characteristics

	Total patients (N =86)	Responders (n=55)	Non-Responders (n=31)	p value
Gender (Male)	**57 (66,30%)**	**32 (58,20%)**	**25 (80,60%)**	**0.03**
Age at implantation	76 [69; 81]	72[62,76]	74 [66,80]	0.52
Arterial hypertension	71 (82,60%)	43 (78,20%)	28 (90,30%)	0,15
Dyslipidaemia	61 (70,90%)	37 (67,30%)	24 (77,40%)	0.32
Diabetes Mellitus	32 (37,20%)	17 (30,80%)	15 (48,40%)	0.107
Previous Atrial fibrillation	**32 (37,20%)**	**16 (29,10%)**	**16 (51,60%)**	**0.04**
Sleep apnea	6 (7%)	2 (3,60%)	4 (12,90%)	0.105
Obesity	25 (29,1%)	18 (32,70%)	7 (22,60%)	0.32
Thyroid disease		3 (9.7%)	6 (25,00%)	0.24
CKD	**30 (34,88%)**	**14 (25.46%)**	**16 (51.61%)**	**0.02**
COPD	6 (7%)	2 (3,60%)	4 (12,90%)	0.11
Cerebrovascular disease	6 (7%)	2 (3,60%)	4 (12,90%)	0.105
Anaemia	**15 (17,44%)**	**6 (10,9%)**	**9 (29,03%)**	**0.03**
Previous LBBB	**47 (54,65%)**	**37 (67,27%)**	**10 (32,26%)**	**0.003**
Haemoglobin (g/dL)	**13[11,33; 14,33]**	**14,05 [12,60; 15,05]**	**13,09 [11,77; 14.33]**	**0.036**
LVESv variation (%)	**-25,53 [-42,85; -6,54]**	**-36.36 [-55,42; -27.08]**	**1,99 [-8,04; 11,01]**	**<0.001**
QRS duration (ms)	156,5 [142,75; 171,75]	162 [146,75; 180]	164 [148; 176,75]	0.892

Values are presented as N (%) or median [IQ]. p values <0,05 were considered significant.
CKD: Chronic Kidney disease; COPD: Chronic Pulmonary Obstructive disease; LBBB: Left bundle branch block

Table 2. Binary logistic regression for non-response to CRT

	p value	Odds ratio (95% CI)
Anemia	**0.008**	**8,543 (1,768 - 41,392)**
CKD	**0.008**	6,295 (1,628; 24,322)
Atrial fibrillation	0.117	2,758 (0,789 – 8,418)
Gender (male)	**0.045**	4.707 (1,028 -21,55)
Previous LBBB	**0.012**	0,188 (0.051 -0,688)

p values <0,05 were considered significant. CRT: Cardiac Resynchronization Therapy; CKD: Chronic Kidney Disease; LBBB: Left Bundle Branch Block

Figure PO 331

PO 332. LONG-TERM EFFECT OF ANGIOTENSIN RECEPTOR-NEPRILYSIN INHIBITORS ON ICD AND CRT-D THERAPY OUTCOMES IN PATIENTS WITH HFREF

Inês Ferreira Neves, Julien Lopes, Francisco Cardoso, Hélder Santos, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Rita Moreira, António Gonçalves, Rui Cruz Ferreira, Mário Martins Oliveira

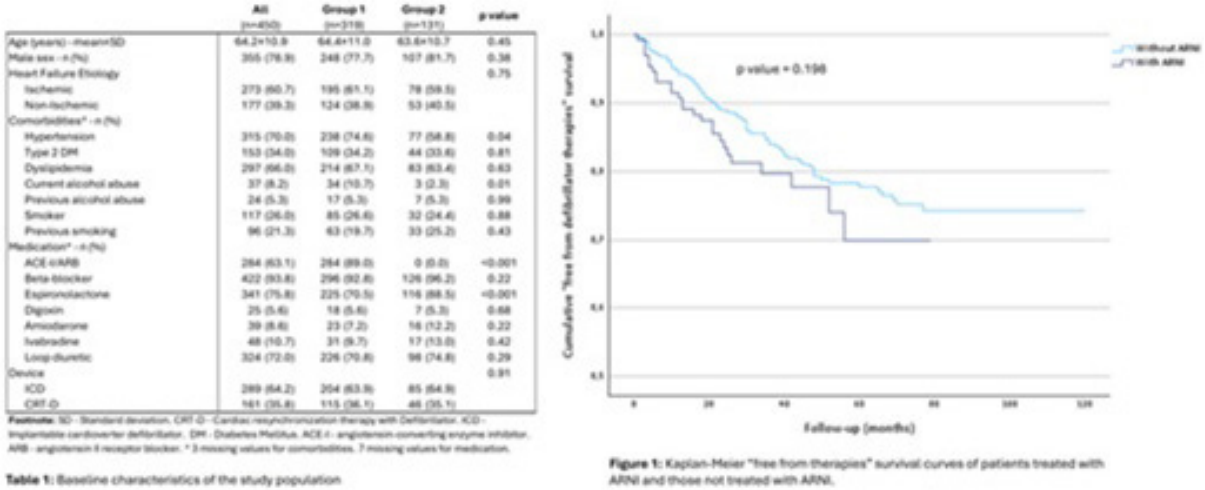
Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Among patients (P) with heart failure with reduced ejection fraction (HFrEF) a significant proportion of deaths occur due to ventricular tachyarrhythmias. Implantable cardioverter defibrillators (ICD) are recommended in primary prevention to reduce sudden death and all-cause mortality in these population. For patients who additionally have a QRS duration ≥ 150 ms or left bundle branch block (LBBB) QRS morphology, cardiac resynchronization therapy with defibrillator (CRT-D) is advised. However, the trials responsible for the inclusion of this recommendation in the guidelines were performed before the clinical use of angiotensin receptor-neprilysin inhibitors (ARNIs). Whether the benefit on survival of implanting a defibrillator device after maintaining current guideline-directed medical therapy (GDMT) is not known.

Methods: Consecutive P with HFrEF, symptomatic and with LVEF ≤ 35% after 3 months of GDMT, submitted to ICD or CRT-D for primary prevention at our center between 2015 and 2022 were included. We retrospectively analyzed the time to device therapies in P not medicated with ARNI (group 1) and compared with a cohort of patients medicated with ARNI at the time of implantation (group 2). A Kaplan-Meier survival analysis was used to analyze the effect on incident defibrillator therapies.

Results: 450 P (78.9% males, 64.2 ± 10.9 years) were included; 319 (70.9%) in group 1 (ICD or CRT-D, not medicated with ARNI) and 131 (29.1%) in group 2 (ICD or CRT-D, medicated with ARNI). The mean follow-up duration was 53.1 ± 29.8 months. The absolute number of ICD therapies did not significantly differ between the groups (odds ratio [OR] 0.968; 95% confidence interval [CI] 0.582-1.609, p value = 0.89). In a Kaplan-Meier survival analysis, the mean "free from defibrillator therapies" survival time was longer in the group not medicated with ARNI (97.34 weeks; 95%CI: 92.50-102.19) compared to the ARNI medicated group (63.27 weeks; 95%CI: 57.86-68.67), but the difference in survival distributions was not statistically significant (p = 0.198).

Conclusions: In a population with HFrEF submitted to ICD or CRT-D implantation for primary prevention, the incidence of ICD therapies in P medicated with ARNI did not significantly differ from the cohort not medicated with ARNI at implantation. Our results suggest that the benefit of implanting a defibrillator in P with HFrEF and LVEF ≤ 35% is maintained in the current era of new GDMT with ARNI.



	All (n=450)	Group 1 (n=319)	Group 2 (n=131)	p value
Age (years) - mean±SD	64.2±10.9	64.4±11.0	63.6±10.7	0.45
Male sex - n (%)	355 (78.9)	248 (77.7)	107 (81.7)	0.38
Heart Failure Etiology				0.75
Ischemic	273 (60.7)	195 (61.1)	78 (59.5)	
Non-Ischemic	177 (39.3)	124 (38.9)	53 (40.5)	
Comorbidities* - n (%)				
Hypertension	315 (70.0)	238 (74.6)	77 (58.8)	0.04
Type 2 DM	153 (34.0)	109 (34.2)	44 (33.6)	0.81
Dyslipidemia	297 (66.0)	214 (67.1)	83 (63.4)	0.63
Current alcohol abuse	37 (8.2)	34 (10.7)	3 (2.3)	0.01
Previous alcohol abuse	24 (5.3)	17 (5.3)	7 (5.3)	0.99
Smoker	117 (26.0)	85 (26.6)	32 (24.4)	0.88
Previous smoking	96 (21.3)	63 (19.7)	33 (25.2)	0.43
Medication* - n (%)				
ACE-i/ARB	264 (63.1)	264 (89.0)	0 (0.0)	<0.001
Beta-blocker	422 (93.8)	296 (92.8)	126 (96.2)	0.22
Espironolactone	341 (75.8)	225 (70.5)	116 (88.5)	<0.001
Digoxin	25 (5.6)	18 (5.6)	7 (5.3)	0.68
Amiodarone	39 (8.6)	23 (7.2)	16 (12.2)	0.22
Ivabradine	48 (10.7)	31 (9.7)	17 (13.0)	0.42
Loop diuretic	324 (72.0)	226 (70.8)	98 (74.8)	0.29
Device				0.91
ICD	289 (64.2)	204 (63.9)	85 (64.9)	
CRT-D	161 (35.8)	115 (36.1)	46 (35.1)	

Footnote: SD - Standard deviation, CRT-D - Cardiac resynchronization therapy with Defibrillator, ICD - Implantable cardioverter defibrillator, DM - Diabetes Mellitus, ACE-i - angiotensin-converting enzyme inhibitor, ARB - angiotensin II receptor blocker. * 3 missing values for comorbidities, 7 missing values for medication.

Table 1: Baseline characteristics of the study population

Figure 1: Kaplan-Meier "free from therapies" survival curves of patients treated with ARNI and those not treated with ARNI.

Figure PO 332

Domingo, 13 Abril de 2025 | 08:30-09:30

Área de Posters-écran 1| Sessão de Posters 50 – Diagnóstico e prognóstico na cirurgia cardíaca

PO 333. EARLY AND LONG-TERM OUTCOMES AFTER AORTIC VALVE REPAIR: A SYSTEMATIC REVIEW AND META-ANALYSIS USING RECONSTRUCTED INDIVIDUAL PATIENT DATA

João Mascarenhas[1], Rui Cerqueira[2], Maria Rodrigues[3], Joana Miranda[3], Inês Sousa[3], Adelino Leite-Moreira[4], Francisca Saraiva[3], Samuel Heuts[5]

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Objectives: The growing interest in Aortic Valve Repair (AVRep) and Valve Sparing Root procedures in adults has prompted a surge in clinical studies and available data. This systematic review aims to examine early and long-term outcomes of AVRep and Valve Sparing Root Procedures.
Methods: A systematic search was conducted across two electronic databases, with predetermined criteria agreed upon by all co-authors: Studies with a sample size greater than 200 patients, a mean or median follow-up duration of at least 5 years, and data on at least mortality or reoperation outcomes. Descriptive statistics were weighted by sample size for short-term outcomes. Individual patient data (IPD) were graphically extracted from Kaplan-Meier survival curves to represent pooled long-term outcomes. Additionally, we performed a study-level Cox-regression model, using as covariates patient age, sample size, study publication year, non-tricuspid aortic valve, dissection, concomitant aortic arch procedure or cardiac surgery, aortic insufficiency and aortic root surgery.
Results: A total of 48 studies published between 2006 and 2023 were included, encompassing a cumulative sample of 21,360 patients with a mean age of 52.4 (50.0-55.0) years. Root procedures were the focus in 27 studies, and AVR for heterogeneous samples of patients with aortic insufficiency was analyzed in 41 studies. Four studies focused exclusively on bicuspid aortic valve patients. Early outcomes showed a pooled incidence rate of 1.36% [1.06; 1.75] for hospital mortality, 3.73% [2.74; 5.06] for bleeding, 0.48% [0.29; 0.80] for myocardial ischemia, 1.06% [0.66; 1.70] for pacemaker implantation, and 1.33% [1.00; 1.77] for neurological events. Pooled analysis revealed a 3.38% [1.78; 6.32] incidence of postoperative aortic insufficiency of any degree in the short term. Regarding long-term outcomes and joining IPD survival data from 36 articles, combined using Guyot's algorithm to pool data, an overall survival curve was generated (n = 16612, Figure 2) with median follow-up time of 6.42 years, maximum 26.82 years. Survival at 1-, 5-, 10-, 15- and 20-years of follow-up was 96.8%, 92.5%, 83.8%, 75.2% and 67%, respectively. Joining IPD reoperation data from 41 articles, an overall freedom from reoperation curve was generated (n = 17569, Figure 2) with median follow-up time 5.39 years, maximum 26.38 years. Pooled freedom from reoperation at 1-, 5-, 10-, 15- and 20-years of follow-up was 97.9%, 93.9%, 88.2%, 83.6% and 77.5%, respectively.
Conclusions: AVR is generally performed in a low risk setting and has a favourable safety profile. However, the quality of evidence remains low due to high heterogeneity in outcome reporting, and randomized trials comparing AVR to other surgical alternatives are scarce. Standardizing outcome reporting is essential for improving the scientific value of future research.

PO 334. CLINICAL AND IMAGING SURVEILLANCE OF SURVIVORS OF ACUTE TYPE A AORTIC DISSECTION

Nuno Guerra[1], Francisca Montenegro[1], Tiago Velho[1], Beatriz Vargas Andrade[2], Mariana Saraiva[3], Gonçalo Cabral[4], Oliveira Baltazar[5], Ângelo Nobre[1], Luís Mendes Pedro[1]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Hospital Distrital de Santarém, EPE. [3]Centro Hospitalar de Leiria/Hospital de Santo André. [4]Hospital Beatriz Ângelo. [5]Hospital Garcia de Orta

Introduction: Clinical and imaging surveillance in survivors of acute type A aortic dissection (ATAAD) is not fully established and varies from region to region, despite recent attempts at standardizing care after ATAAD, with the aim of better detecting and manage proximal and distal complications of dissection.
Objectives: To measure the completeness of adequate clinical and imaging follow up in survivors of ATAAD.
Methods: We retrospectively collected 402 consecutive ATAAD operated in our center since January 2001 to November 2024. Clinical and imagiological databases were searched to determine last appointment with Cardiology and Cardiac or Vascular Surgery, last cardiac (echocardiogram) and aortic imaging (Angio CT scan or Angio MRI) and the National Health Registry (RNU) was consulted individually to ascertain vital status. Data was analyzed with Excel 15.
Results: We identified 402 ATAAD, of which only 397 had an entry in the RNU and were analyzed (foreigners not living in Portugal were excluded). 63.0% were males and median age was 62.2 ± 13.6 years (lower 15 years, highest 85 years). In-hospital mortality was 97 pts (24.4%). 23 patients were discharged but died before 1 year and were not considered for Surveillance purposes. 277 patients survived over 1 year and in these patients average follow-up was 3,080 ± 2,043 days. We were able to obtain complete follow-up regarding clinical surveillance and imaging status in 227 patients. 61.6% of patients had undergone at least an echocardiogram after the surgery. Of these, 78 had an echocardiogram over 1 year old. Average and median time since last echocardiogram were 979 and 515 days. Overall, of patients with complete follow-up, 72.7% had never done an echo or it was over 1 year old. Similar findings were seen in distal aortic imaging. 128 patients (56.4%) had at least an aortic study after the surgery. Average and median time since last aortic study was 970 and 570 days respectively. Overall, of patients with complete follow-up, 170 (74.8%) had never underwent an aortic study or it was over 1 year old. 102 (44.9%) of patients with complete follow-up were regularly followed by a Cardiologist, and 24.6% of patients with complete follow-up were regularly followed by a Vascular surgeon.
Conclusions: Clinical and imagiological follow-up of survivors of ATAAD is frequently insufficient, and dedicated protocols for clinical and imaging surveillance may be needed.

PO 335. ADVERSE EVENTS WHILE WAITING FOR VALVULAR INTERVENTION: IDENTIFYING MODIFIABLE RISK FACTORS

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Introduction: Patients with valvular heart disease (VHD) are categorized into priority groups to optimize timing for intervention. Delays beyond the recommended waiting time for intervention (RWT) can increase the risk of adverse outcomes. This study evaluates the incidence and predictors of major adverse cardiovascular events (MACE) in a contemporary cohort discussed by a Heart Team (HT).
Methods: A retrospective, single-center study was conducted on all patients evaluated by the HT for valvular intervention between January 2018 and June 2021. Clinical records were reviewed for demographic data,

comorbidities, therapeutic decisions, time on waiting list and MACE incidence (i.e. death, stroke, myocardial infarction, hospital readmission and heart failure exacerbation). Demographic and clinical data were analyzed, and predictors of MACE were identified using logistic regression.
Results: A total of 312 patients with VHD were discussed in HT, with a median age of 76 years, (49.1% male). Aortic stenosis was the most common diagnosis (76.0%), followed by mitral regurgitation (14.1%) and mitral stenosis (8.0%). The HT proposed valvular intervention in 92.0% of patients, while 8.0% received a conservative approach. The mean waiting time for intervention was 233 days (7.4 months), with 74.4% exceeded the RWT. MACE occurred in 26.5% of patients, including death (12.6%), hospital readmissions (16.4%), and heart failure exacerbations (17.7%). Significant predictors of MACE included exceeding the RWT (p = 0.002), previous heart failure hospitalization (p = 0.001), atrial fibrillation (p = 0.002), NYHA class ≥ 3 (p = 0.004), 2 or 3 vessel coronary artery disease (p = 0.004), estimated Glomerular Filtration Rate (eGFR) < 51 mL/min/1.73 m^2 (p < 0.001), hemoglobin < 12.4 g/dL (p = 0.027), NT-proBNP levels > 1,709 pg/mL (p = 0.013), waiting time for intervention > 11 months (p = 0.016), and EUROSCORE II risk > 3.44% (p = 0.001). Logistic regression revealed that exceeding the RWT contributed to 18.5% of MACE risk, alongside NYHA class ≥ 3 and NT-proBNP levels > 1,709 pg/mL.
Conclusions: The incidence of MACE while awaiting valvular intervention is high, particularly in patients exceeding the RWT or with severe heart failure and elevated NT-proBNP. These findings highlight the critical need for timely intervention and effective stratification of priority groups to reduce adverse outcomes.

PO 336. PROSTHETIC VALVE ROCKING MOTION: A LOOK OVER THE LAST TEN YEARS IN A TERTIARY CARE CENTER

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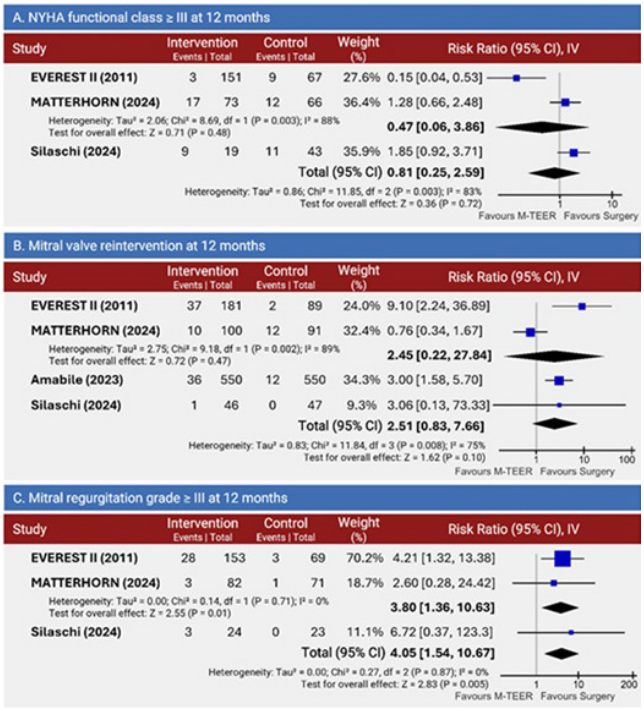
Introduction and objectives: Prosthetic valve dehiscence with abnormal rocking prosthetic motion (RPM) is a rare and underreported complication of infective endocarditis (IE). We aimed to analyze a recent cohort of IE-related RPM regarding their clinical characteristics, imaging, surgical findings and patient outcomes.
Methods: Retrospective, single-center study including all consecutive patients diagnosed with PRM due to IE between 2014-2024 at a tertiary care center. RPM was defined either by motion > 15° in at least one plane by echocardiography (TTE/TEE) or presence of dehiscence of > 50% of the annular ring intraoperatively.
Results: Eleven patients were included (69 [32-89] years, 64% males). Main identifiable IE risk factors were previous IE (18%), presence of cardiac implantable electronic devices (18%), and dental procedures (9%). Only aortic (73%) and mitral (27%) valve prosthesis were involved, with multi-valvular EI in 36%. Most cases concerned biological prosthesis (73%), and all cases were late PVE. Mean time from first symptoms to IE diagnosis was 57 [11-300] days, with fever (73%) and heart murmur (55%) presenting as the main clinical findings. All patients were admitted for either congestive heart failure (64%) or cardiogenic shock (36%). Embolic events occurred in 27% of cases. Blood cultures were positive in 55% and mostly found *S. aureus* and *E. faecalis*. RPM was diagnosed by echocardiography in 64% of patients, with the remaining patients being exclusively diagnosed intraoperatively. From those diagnosed by imaging, 29% were only visible on TEE. By Duke's classification, 55% had definite IE criteria and 45% possible IE. Ten of the 11 patients underwent surgery (5 [1-14] days from IE diagnosis to intervention, mean EuroSCORE II 36.7 [8.3-87]%). The most common procedure was porcine aortic root prosthesis implantation (n = 7), 1 root Commando procedure and 2 biological aortic and mitral prothesis implantations. After surgery, the main complication was acute kidney injury (45%), 1 patient had a stroke and 1 needed mechanical circulatory support. Three patients (30%) needed re-intervention. Mean ICU stay was 7 [1-26] days, and in-hospital mortality was 36%. During a median follow-up of 18 [0-93] months, all 7 discharged patients were alive and with no hospital readmissions.
Conclusions: Patients with RPM due to IE present as critically ill and require prompt diagnosis by multi-modality imaging including early TEE. Quick referral to the Endocarditis Team and urgent complex surgical correction when feasible might allow patient survival with low morbidity in the long term.

PO 337. A META-ANALYSIS ON 12-MONTH EFFICACY OUTCOMES OF TRANSCATHETER MITRAL VALVE REPAIR VS. SURGERY ON MITRAL REGURGITATION

Bárbara Lage Garcia, Emídio Mata, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Lucy Calvo, Sílvia Ribeiro, António Lourenço

Unidade Local de Saúde do Alto Ave.



Mitral valve regurgitation (MR) is a serious condition, typically treated with surgery. However, mitral valve transcatheter edge-to-edge repair (MTEER) has emerged as a less invasive alternative. This meta-analysis compares 12-months efficacy outcomes between MTEER and surgical mitral valve intervention (SMVI). PubMed, Cochrane, Scopus, and Web of Science (on October 2024) were searched for randomized control trials (RCT) and propensity-matched cohort studies focused on significant MR treated with MTEER or SMVI, reporting on outcomes of interest at 12 months. An inverse variance random-effects meta-analysis assessed event prevalence, with risk ratios (RR) and 95% confidence intervals (CI). Two RCTs (MATTERHORN and EVEREST II) and three observational studies, totalling 1782 patients, were included. At 12 months, mitral valve (MV) reintervention was more frequent in the MTEER group (9.6%; 84/877) than in the surgical group (3.3%; 26/777), though this difference was not statistically significant (RR 2.51; CI 0.83-7.66). The higher rate in the MTEER group was primarily driven by the EVEREST II trial (20.4 vs. 2.2%) and the Amabile (2023) study (6.5 vs. 2.2%). Regarding recurrence of significant MR (defined as MR grade ≥ 3), rates were significantly higher in the MTEER group (13.1%; 34/259) compared to the SMVI group (2.5%; 4/163) (RR 4.05; CI 1.54-10.67). As for NYHA functional class ≥ III at 12 months, no significant differences were observed between the MTEER and SMVI groups (RR 0.81; CI 0.25-2.59). To mitigate selection bias inherent

to observational studies, only propensity-score matched cohorts were analyzed alongside RCTs. While no statistically significant differences in MV reinterventions were observed, SMVI was associated with fewer reinterventions overall. This may be partly due to the analysis focusing solely on MV reinterventions, without considering other surgery-related reinterventions in SMVI patients. Additionally, during the EVEREST trial, MTEER was a novel technique with limited experience, leading to higher failure rates, more reinterventions, and potentially higher recurrence of significant MR. The pooled population included both primary and secondary MR patients, and the use of different techniques across comparator groups added heterogeneity. This heterogeneity warrants caution in interpreting the results, as it may affect the robustness of the analysis.

PO 338. URGENT SURGERY FOR INFECTIVE ENDOCARDITIS: ARE WE FALLING BEHIND THE CLOCK?

Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Eunice Isabel Soromenho Silva, Joana Guerreiro Pereira, Migue Espírito Santo, Hugo Alex Costa, Daniela Carvalho, Pedro Azevedo, Raquel Fernandes, Dina Bento, Jorge Mimoso

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Introduction: Infective endocarditis (IE) is a severe condition associated with local and systemic complications, such as heart failure, uncontrolled

Table 1: Baseline characteristics of patients with infective endocarditis undergoing surgery, taking into account the timing until surgery;

				Indication for non-urgent surgery	Indication for urgent surgery	Total	p-value
				n=5 (20%)	n=20 (80%)	25	
Gender	Male		n (%)	4 (80%)	15 (75%)	19 (76%)	0.815
	Female		n (%)	1 (20%)	5 (25%)	6 (24%)	
Age (years)			*Mean±SD*	61 ±25	58 ± 16	62 ± 16	0.339
Medical History	Coronary disease		n (%)	1 (20%)	2 (10%)	3 (12%)	0.538
	Heart failure		n (%)	0	2 (10%)	2 (8%)	0.461
	COPD		n (%)	0	3 (15%)	3 (12%)	0.356
	Hypertension		n (%)	4 (80%)	11 (55%)	15 (60%)	0.307
	Diabetes Mellitus		n (%)	2 (40%)	6 (30%)	8 (32%)	0.668
	Dyslipidemia		n (%)	3 (60%)	9 (45%)	12 (48%)	0.548
	Obesity		n (%)	1 (20%)	4 (20%)	5 (20%)	1.000
	Low weight (IM<18)		n (%)	0	1 (5%)	1 (4%)	0.610
	Chronic kidney disease		n (%)	0	1 (5%)	1 (4%)	0.610
	Demencia		n (%)	0	0	0	
	Chronic liver disease		n (%)	0	2 (10%)	2 (8%)	0.461
	Atrial flibrillation or flutter		n (%)	2 (40%)	2 (10%)	4 (16%)	0.102
	HIV infection		n (%)	0	0	0	
	Intravenous drug users		n (%)	0	2 (10%)	2 (8%)	0.461
	Cancer		n (%)	0	4 (20%)	4 (16%)	0.275
	Previous IE		n (%)	2 (40%)	2 (10%)	4 (16%)	0.102
Cardiovascular device	Total number of patients		n (%)	6 (80%)	3 (15%)	9 (28%)	**0.012**
	Mechanic heart valve		n (%)	0	1 (5%)	1 (4%)	
	Biologic heart valve		n (%)	2 (40%)	2 (10%)	4 (16%)	
	Transcatether heart valve		n (%)	1 (20%)	0	1 (4%)	
	PM/CRT/ICD		n (%)	1 (20%)	0	1 (4%)	
	Aortic conduit		n (%)	2 (40%)	0		
Charlson index > 5			n (%)	0	4 (21%)	4 (17%)	0.106
Ability to perform daily activities	Independent on all activities		n (%)	5 (100%)	20 (100%)	25 (100%)	
	Dependent on some activities		n (%)	0	0	0	
	Dependent on most activities		n (%)	0	0	0	
Endocarditis as the 1st diagnosis			n (%)	2 (40%)	9 (47%)	13 (54%)	0.769
Location of the infection	Native heart valves	Aortic valve	n (%)	1 (20%)	11 (55%)	13 (48%)	0.228
		Mitral valve	n (%)	0	7 (35%)	7 (26%)	0.069
		Tricuspid valve	n (%)	0	0	0	
		Pulmonary valve	n (%)	0	0	0	
	Mechanic heart valve	Aortic position	n (%)	0	1 (5%)	1 (4%)	0.196
		Mitral position	n (%)	0	0	0	
	Biologic heart valve	Aortic position	n (%)	4 (33%)	3 (7%)	7 (13%)	**0.029**
		Mitral Position	n (%)	0	1 (2%)	1 (2%)	
	Pacemaker catheter		n (%)	1 (14%)	0	1 (1.8%)	0.211
	Aortic conduit		n (%)	1 (14%)	1 (5%)	2 (7%)	
Positive blood cultures			n (%)	5 (71%)	20 (100%)	25 (93%)	0.195
Vegetation size	<10 mm		n (%)	2 (29%)	2 (10%)	4 (15%)	0.056
	>10 mm		n (%)	0	10 (50%)	10 (37%)	
	Unknown		n (%)	5 (71%)	8 (40%)	13 (48%)	
Complications	No complications		n (%)	3 (60%)	0	3 (12%)	**<0.001**
	Heart Failure		n (%)	0	9 (45%)	9 (36%)	0.061
	Severe valve disfunction		n (%)	2 (40%)	16 (80%)	18 (72%)	0.075
	Abcess/Fistula		n (%)	0	3 (15%)	3 (12%)	0.356
	Emboli		n (%)	0	8 (40%)	8 (32%)	0.089
Time until surgery	Total (in days)		*Mean±SD*	40 ± 26	27 ± 20	30 ± 21	0.115
	<5 days		n (%)	0	0		

Figure PO 338

infection, and septic embolization. These complications often necessitate urgent (within 3-5 days) or emergent (within 24 hours) surgical intervention, which can improve first-year survival rates by up to 20%.
Objectives: To characterize a population of patients diagnosed with IE and evaluate the timing of surgical intervention in patients with IE-related complications.
Methods: A retrospective analysis was conducted at a single medical center on patients diagnosed with IE and surgically intervened between January 2020 and December 2023, with a mean follow-up of 19.8 ± 16.8 months. Patients were categorized based on the need for urgent surgery. Data included demographic characteristics, microorganisms, infection sites, vegetation size, and IE-related complications. Additionally, we assessed clinical outcomes, including IE recurrence, re-hospitalization rates, overall mortality, in-hospital mortality, and mortality within the first-year post-diagnosis.
Results: The study included 25 patients (mean age 62 ± 16 years; 76% male). Of these, 20 (80%) had indications for urgent surgery, and 5 (20%) did not. Both groups were largely similar in clinical characteristics, except for a significantly higher prevalence of cardiac devices in the non-urgent group (80 vs. 15%, p = 0.012). Aortic bioprosthetic valves were more frequently affected in the non-urgent group (33 vs. 7%, p = 0.029), while mitral valves were predominantly affected in the urgent surgery group (2 vs. 0%, p = 0.029). The absence of complications was more common in the non-urgent group (60 vs. 0%, p < 0.001). Despite a higher trend of complications in the urgent surgery group, no significant differences in overall prevalence were observed. The mean time to surgery for patients with urgent indications was 27 ± 20 days, with no patients undergoing surgery within the critical five-day window recommended by clinical guidelines.
Conclusions: While complications were more frequent in patients requiring urgent surgery, delays in intervention consistently exceeded guideline-recommended timelines, with no surgeries performed within five days. Although limited by the small sample size and single-center design, this study underscores the need for improved protocols to ensure timely surgical intervention, potentially enhancing outcomes for patients with IE-related complications.

Domingo, 13 Abril de 2025 | 08:30-09:30

Área de Posters-écran 2 | Sessão de Posters 51 – Diagnóstico e prognóstico na intervenção valvular aórtica percutânea

PO 339. PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION: IS IT A CONSEQUENCE OF THE TYPE OF PROSTHESIS USED?

Tomás M. Carlos, Luísa Gomes Rocha, Gonçalo Costa, Diogo Fernandes, Joana Guimarães, Gonçalo Terleira Batista, Tatiana Santos, Bernardo Resende, Mafalda Griné, Luís Leite, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Transcatheter aortic valve implantation (TAVI) provides substantial clinical benefits, although it is also associated with certain adverse events, namely the need for pacemaker implantation (PI). Risk factor for PI include pre-existing conduction abnormalities and calcium distribution. This study assessed the influence of specific TAVI prosthesis on the incidence and timing of PI within 30 days post-procedure.
Methods: We conducted a single-centre retrospective study of 628 patients undergoing TAVI from March 2020 to September 2023. Patients were categorized into five groups based on the prosthesis used, and baseline characteristics were compared. Primary outcomes were the 30-day PI rate and time to its implantation. Statistical analysis included non-parametric tests, Kaplan-Meier survival analysis and Cox regression.
Results: Five different TAVI prostheses were used, with *Evolut*® being the most depicted (44.1%). Baseline characteristics included pre-TAVI conduction disturbances, particularly a higher prevalence of right bundle branch block (RBBB) in the *Sapien 3 Ultra*® cohort (21.4%). Aortic valve calcium score was also higher in *Sapien 3 Ultra*® and *Evolut*® cohorts (p = 0.001). Overall, 118 patients (18.8%) required PI, and its incidence varied significantly by valve type (p = 0.006), with *Navitor*® (29.4%) and *Sapien 3 Ultra*® (23.3%) showing the highest rates. Median time to PI did not differ statistically between valves (p = 0.079), although *Navitor*® showed a trend toward delayed PI (3.5 days, IQR 5.0). Kaplan-Meier analysis revealed significant variation in 30-day PI-free survival (log-rank test, p = 0.001), with *Portico*® achieving the highest rate (96.0%). *Navitor*® exhibited a tendency for prolonged pacemaker-free survival decline over time compared to other valves. After adjusting for confounding factors and using *Portico*® valve as reference, Cox regression suggested that *Navitor*® was associated with a higher PI risk (HR 10.66, CI 1.45-78.40, p = 0.020).

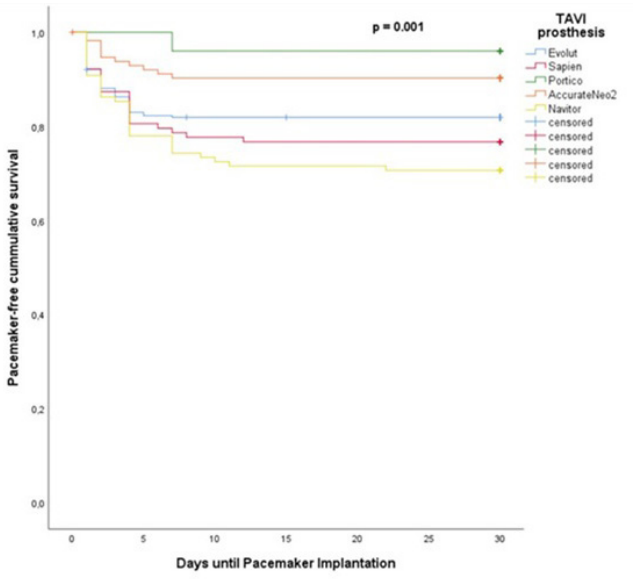


Figure 1. Kaplan-Meier analysis comparing pacemaker implantation over time across different TAVI prosthesis.

Conclusions: *Sapien 3 Ultra*® and *Navitor*® valves were linked to higher PI rates. In *Sapien 3 Ultra*®, this was attributed to higher calcium score and pre-existing conduction disturbances, whereas *Navitor*®'s increased PI risk appeared to be primarily related to its intrinsic properties, which contributed to a higher incidence of post-TAVI *de novo* rhythm disturbances. Additionally, *Navitor*® showed a trend toward a longer time to PI and a more prolonged decline in pacemaker-free survival over time.

PO 340. BALLOON VS. SELF-EXPANDABLE VALVES – AV CONDUCTION DISTURBANCE

Miguel Azaredo Raposo, Ana Abrantes, Catarina Gregório, Daniel Cazeiro, Diogo Ferreira, Marta Vilela, João Cravo, Miguel Nobre Menezes, Cláudia Jorge, Pedro Carrilho Ferreira, João Silva Marques, Fausto J. Pinto

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: As transcatheter aortic valve implantation (TAVI) procedure becomes an increasingly ubiquitous solution for severe aortic stenosis, the choice of valve type - balloon expandable (BEV) vs. self-expandable (SEV) – remains variable among centers and operators. Post-procedure permanent-

Fig 1. Kaplan-Meier curves for PMK and mortality at FUP

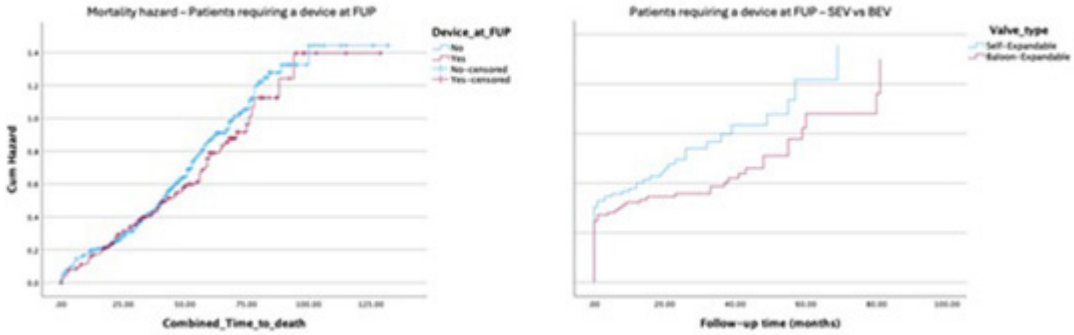


Figure PO 340

pacemaker implantation is one of the most common complications of TAVI and the vale type may impact outcome.

Objectives: To compare permanent pacemaker implantation rates of BEV and SEV.

Methods: We conducted a single center study, including patients (pts) who underwent TAVI between 2014 and 2023. Two cohorts were derived based on valve type – BEV vs. SEV. Groups were compared regarding baseline comorbidities, ECG, post procedural conduction disturbances and permanent pacemaker implantation. For statistical analysis, independent t-student and Chi-square tests were used. Kaplan Meier curves were drawn and Cox-regressions conducted to compare PMK need at FUP and mortality between groups.

Results: We included 709 pts submitted to TAVI from 09/2012 to 12/2023, 56.3% of which were female, with a mean age of 82 ± 6.5 years. Regarding valve type, 50.2% were balloon expandable (BEV) and 49.8% self-expandable (SEV). Cardiovascular risk factor burden was significant: hypertension in 91%, dyslipidemia in 73%, diabetes in 36%, CKD in 30%, 20% were smokers. Baseline EKG was sinus rhythm for 76% of pts and AF for 24% but 36% had history of AF. Regarding conduction disturbances, 17% had LBBB and 9% RBBB. There were no significant differences in these baseline characteristics between treatment groups. Upon valve implantation, pre-dilatation was performed in 36.4% of pts (29% in BEV vs. 44% in SEV, p <.001) and post-dilatation in 20.7% (15% in BEV vs. 26% in SEV p <.001). Immediately after implantation, 21% of pts developed complete AV block (18% in BEV vs. 24.7% in SEV p.034 OR 1.47), 6% LBBB and 1% RBBB. 24% of pts received a PMK during index hospitalization (21% in BEV vs. 27% in SEV p = NS), 67% of which for complete AV block, 15.4% for QRS prolongation, 8.8% for SND. Regarding device implantation at a mean FUP of 38.8 ± months, pts with BEV had a 31.4% lower risk of requiring a device for pacing when compared with SEV pts (HR 0.686 p = 0.05). When all cause death at FUP was compared between pts who received a device and those who didn't, there was no significative difference (p = NS).

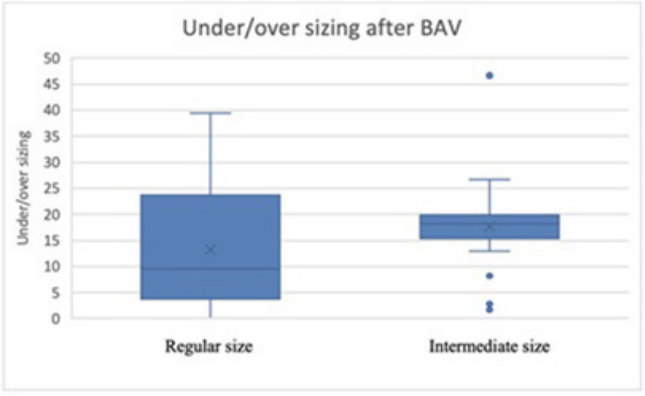
Conclusions: In our pt cohort, differences in new-onset conduction disturbances requiring in-hospital device implantation were not significatively different between BEV and SEV. However, over a mean FUP of 38.8 months, there was a 31.4% risk reduction for BEV pts to require a device comparing to SEV. These outcomes had no impact on overall mortality. Special attention should be given to SEV pts regarding conduction disturbances during follow-up.

PO 341. OVER- OR UNDER-SIZING OF VALVE PROSTHESES IN TAVR AND THE IMPORTANCE OF A BROADER RANGE OF SIZING OPTIONS TO ENSURE OPTIMAL VALVE FIT

Fernando Nascimento Ferreira, Francisco Albuquerque, Inês Rodrigues, Miguel Figueiredo, Barbara Teixeira, Francisco Cardoso, Mariana Caetano Coelho, Tiago Mendonça, Ruben Ramos, António Fiarresga, Rui Cruz Ferreira, Duarte Cacela

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Transcatheter aortic valve replacement (TAVR) has increasingly been adopted as a key treatment for severe aortic stenosis. As this technique has evolved, a growing number of valve models have been



Variables	Regular sizes (127)	Intermediate sizes (34)	p value
Over/under Sizing (±SD)	9,5% (0,1 - 46,7)	18,1% (1,7 - 46,67)	**0,016**
Average mean AV gradient post TAVR (±SD)	12mmHg (3 - 25)	13mmHg (6 - 28)	0,168
New onset PM – n (%)	27 (21,3)	11 (32,4)	0,135
1-year TAVR dis function - n (%)	11 88,7%)	2 (5,9%)	1

Figure PO 341

introduced. Among these, balloon-expandable valves have shown promising results in patients with complex or calcified anatomy. The range of valve sizes available has expanded, allowing a precise matching of prostheses to patient anatomy, ultimately enhancing procedural safety and efficacy.
Methods: Consecutive patients with severe aortic stenosis who underwent TAVR with balloon-expandable valves (Edwards Sapien) between 2019 and 2023 at a single centre were included. Two groups were defined based on whether the annulus area was compatible with Myval intermediate sizes (IS) or with regular sizes. Peri-procedural safety endpoints, technical success, intervention-related complications, 1-year mortality, and efficacy endpoints as defined by VARC-2 were assessed according to valve sizing. Statistical analysis was performed using the Chi-square test, Mann-Whitney U test, and independent samples t-test. A p-value < 0.05 was considered statistically significant.
Results: Of the 161 patients, 34 (21.1%) met the criteria for Myval intermediate sizes (IS). There were no significant differences between the two groups in terms of demographic characteristics (mean age 82 ± 7 years, 47.2% female). The group meeting criteria for IS had smaller valve perimeter and annulus area (74.5 ± 6.1 mm and 416 ± 69 mm^2, respectively). Regarding the procedure, the most frequently used valve was the Sapien 23 mm. Absolute over/under-sizing was significantly higher in the IS group (18.1% [1.7-46.67] vs. 9.5% [0.1-46.7], p < 0.05). Although not statistically significant, there was a trend towards a higher rate of pacemaker implantation (32.4 vs. 21.3%, p = 0.168) and higher mean aortic valve gradients (18.1 mmHg [1.7 -46.67] vs. 9.5 mmHg [0.1-46.7]) after TAVR, with only one patient with significant paravalvular leak. There was no statistically significant difference in 1-year mortality between the groups.
Conclusions: Our study found no significant differences between the two groups regarding peri-procedural safety or technical success following TAVR with balloon-expandable. However, a trend was observed towards higher pacemaker implantation rates and higher mean AV gradients in patients with Myval intermediate size annulus area. These findings suggest that offering a broader range of valve sizes to accurately match the procedure to patient anatomy could influence long-term outcomes. Further studies with larger sample sizes are necessary to validate these trends.

PO 342. PROPRANOLOL FOR HEART RATE CONTROL IN PRE-TAVI CARDIAC CT: A PROSPECTIVE STUDY ON EFFICACY AND SAFETY IN SEVERE AORTIC STENOSIS PATIENTS

Ana L. Silva, Gonçalo Ferraz Costa, Mariana Rodrigues Simões, Tatiana Pereira Dos Santos, Gonçalo Terleira Batista, Rafaela Fernandes, Vanessa Lopes, José Luís Martins, Ana Rita Ramalho, Lino Gonçalves, Rogério Teixeira

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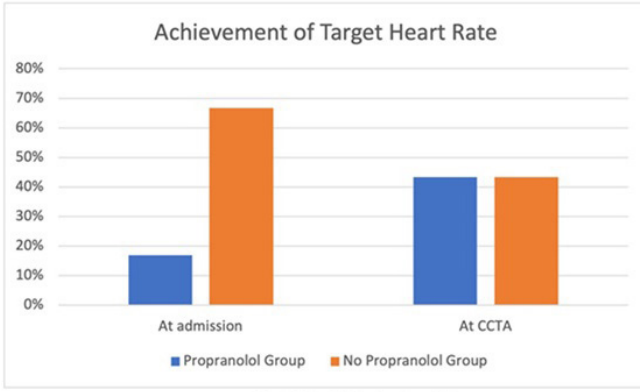
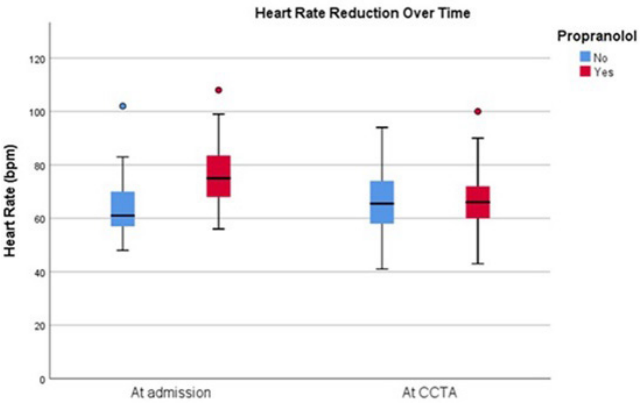
Introduction: Accurate heart rate (HR) control is crucial for high-quality cardiac computed tomography angiography (CCTA), especially in pre-procedural planning for transcatheter aortic valve implantation (TAVI) in severe aortic stenosis (AS) patients. The use of beta-blockers for HR reduction in AS patients has been limited due to potential hemodynamic risks. Propranolol, a non-selective beta-blocker, may offer an effective solution for this clinical challenge, though its safety and efficacy in this setting remain unclear.
Objectives: To evaluate the efficacy and safety of oral propranolol for HR control in patients with severe AS undergoing pre-TAVI CCTA.
Methods: This prospective, single-center observational study included 113 severe AS patients undergoing CCTA pre-TAVI. Based on baseline HR, 5 mg of propranolol was given for HR 55-64 bpm, and 10 mg for HR > 65 bpm. The primary outcome was achieving HR < 65 bpm during CCTA. Secondary outcomes included HR reduction and propranolol-related adverse events. Data were analyzed using SPSS 27.0.
Results: Among 113 patients, 73 received propranolol (97.3% at 10 mg, 2.7% at 5 mg) and 40 did not. The median age was similar between groups (84 vs. 80 years, p = 0.624), with comparable proportions of females (53 vs. 46.7%, p = 0.494). No significant differences were observed in hypertension, dyslipidemia, diabetes, or smoking status (p > 0.3). However, atrial fibrillation (22.9 vs. 40.0%, p = 0.016) and coronary artery disease (21.7 vs. 46.7%, p = 0.005) were more prevalent in the non-propranolol group. Heart failure and LVEF showed no differences, but beta-blocker use was higher in the non-propranolol group (43.3 vs. 26.1%, p = 0.006). At the moment of CCTA, 43.4% of the propranolol group achieved the target HR, compared to 43.3% in the non-propranolol group (χ^2 = 0.05, p = 0.94). The within-group comparison showed a statistically significant increase regarding the proportion of patients achieving target HR (χ^2 = 7.37, p = 0.007) in the propranolol group, but not for the non-propranolol group (χ^2 = 3.64, p = 0.057). The propranolol group showed a significant HR reduction from a mean of 76.3 ± 11 bpm at admission to a median of 66 bpm (IQR [60, 72]) at CCTA (p < 0.001). In contrast, the non-propranolol group had a median HR of 61 bpm (IQR [56, 70]) at admission and 65 bpm (IQR [57, 75]) at CCTA, with no significant reduction (p = 0.283). No major adverse events, including significant bradycardia (HR < 40 bpm), syncope, and symptomatic hypotension, were reported. Two patients in each group experienced asymptomatic hypotension (systolic blood pressure < 100 mmHg) during CCTA.





Conclusions: This study suggests that oral propranolol is an effective and safe option for HR control in patients with severe AS undergoing pre-TAVI CCTA. It significantly reduced HR without causing adverse hemodynamic effects, making it a viable option for HR management in this high-risk population.

PO 343. POST-TAVI PACEMAKER REQUIREMENT PREDICTION – SIMPLE MATH?

Nuno Madruga, Ana Abrantes, Miguel Azaredo Raposo, João Fonseca, Catarina Gregório, Daniel Inácio Cazeiro, João Mendes Cravo, Cláudia Moreira Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Carrilho Ferreira, Fausto J. Pinto

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Introduction: As transcatheter aortic valve implantation (TAVI) procedures become increasingly common, predicting which patients will require

permanent pacemaker implantation (PPI) is a valuable, yet still eluding capability.
Objectives: To evaluate predictors of post-TAVI PPI and create a risk-defining calculator.
Methods: Single center study of pts submitted to TAVI without prior history of cardiac device implantation, from 2012 to 2023. Clinical, electrocardiography (ECG), echocardiographic and CT-derived data were collected and analyzed. For statistical analysis T-student, Chi-square tests and logistic regression were performed.
Results: We included 709 pts, 56.3% of which were female, with a mean age of 82 ± 6.5 years. Regarding baseline ECG, mean QRS was 107 ± 23 ms, with 26% of patients displaying complete bundle branch block. Of those, 65.4% were LBBB and 34.6% RBBB. Mean PQ interval was 169 ± 44 ms, with 18% of patients displaying 1st degree AV block. 24% of pts presented in AF. Mean aortic valve Agatston score was 3,368 ± 1,736 Hounsfield units. Roughly half of implanted valves were balloon-expandable (50.4%) and 49.6% self-expandable devices. Regarding valve oversizing index (OI), 6% of pts had undersized valves (OI < 0); 28.7% had oversized valves with an OI up to 20% and 65.3% had an OI greater than 20%. The QRS complexes were prolonged by 32 ± 27 ms at 48h post-TAVR and PQ increased 15 ± 33 ms. Regarding post-TAVR conduction disturbances – 21.7% developed complete AV block; 23.4% new-onset LBBB; 1.7% new-onset RBBB. Overall, 30% of pts required PPI – 27% during index hospitalization and 3% over a mean FUP of 38.8 ± 26 months. On bivariate analysis, baseline QRS duration (p = 0.002); post-TAVI PQ interval (p = 0.004) and QRS duration (p = 0.008); post-TAVI QRS prolongation (p = 0.03); implanted valve size (p = 0.01); history of AF (p 0.003; OR 4.9); baseline RBBB (p < 0.001; OR 4.9); baseline LBBB (p < 0.001 OR 2.28); new onset LBBB (p 0.049; OR 1.45); new onset RBBB (p 0.005 OR 4.9); and self-expandable valves (p 0.01; OR 1.53) had significative associations with PPI at FUP. When a logistical regression was conducted, only baseline complete branch block, baseline QRS duration and post-TAVI QRS duration emerged as independent predictors. The prediction model derived from these results performed poorly, explained about 31% of observed variance, and is not adequate for clinical use.
Conclusions: Several clinical, electrocardiographical, and CT-derived factors present a significative association with post-TAVI PPI. However, in our patient cohort, no model could be derived to accurately predict device implantation at FUP. Individual case assessment and clinical surveillance remain essential in post-TAVI follow-up.

PO 344. PREDICTORS OF EARLY STROKE AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Rafael Viana, Antonio Almeida, Marta Paralta de Figueiredo, Rita Louro, Orlando Luquengo, Miguel Carias, Bruno Piçarra, Diogo Bras, David Neves, Angela Bento, Renato Fernandes, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

Introduction: Despite a decrease in the rates of stroke when compared to initial transcatheter aortic valve replacement (TAVI) experience, stroke remains a severe complication following TAVI and is associated with increased morbimortality. Therefore, identifying patients at a higher risk could potentially impact outcomes.
Objectives: Our aim is to identify possible predictors of in-hospital stroke after TAVI for severe aortic stenosis (AS).
Methods: We retrospectively analyzed patients submitted to TAVI in our institution between 2021 and 2024. We documented demographic characteristics, risk scores, echocardiographic data pre-TAVI, CT-scan data and TAVI-procedure details. We then performed univariate analysis to establish the relationship between variables and incidence of stroke and multivariate analysis to identify independent predictors.
Results: We analyzed a population of 300 patients and documented an in-hospital stroke rate of 2.7% (n = 8). The population was 46.3% male (n = 139), with a mean age of 83 ± 5 years. Additionally, 86% were hypertensive, 71.3% had dyslipidemia, 34.7% were diabetic, 10.7% were smokers, 21.1% had a history of coronary artery disease, 21.7% had a history of atrial fibrillation (AF), and 17% had an STS score greater than 8. Regarding demographic characteristics and details of the TAVI procedure, including pre- and post-dilatation, there were no significant differences between groups. However, patients who experienced early stroke were more frequently classified with an STS score > 8 (50 vs. 16%, p = 0.012), had a higher prevalence of paradoxical low-flow low-gradient (pLFLG) aortic stenosis (25 vs. 6%, p = 0.032), and higher aortic root angles (52 vs. 48º, p = 0.049). After multivariate analysis, all variables maintained their significance (p = 0.027, p = 0.020, p = 0.036, respectively).
Conclusions: In our population, patients submitted to TAVI with higher STS scores (> 8), pLFLG aortic stenosis, and larger aortic root angles are at significantly increased risk for early in-hospital stroke. This could have clinical decision-making impact regarding the use of cerebral protection devices during the TAVI procedure. However, larger and more comprehensive studies are necessary.

Domingo, 13 Abril de 2025 | 08:30-09:30

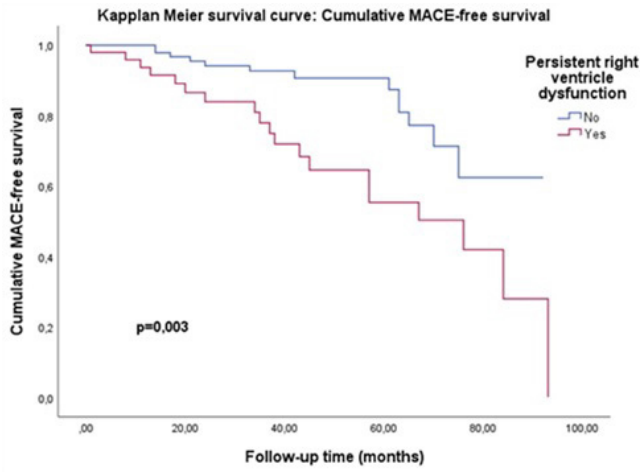
Área de Posters-écran 3 | Sessão de Posters 52 – IC, ressincronização e imagem

PO 345. IMPACT OF RIGHT VENTRICULAR DYSFUNCTION IMPROVEMENT IN HEART FAILURE PATIENTS TREATED WITH CARDIAC RESYNCHRONIZATION THERAPY

Isabel Martins Moreira, Marta Catarina Bernardo, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Inês Silveira, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Cardiac resynchronization therapy (CRT) is an established treatment in heart failure (HF). However, the effect of CRT on the right ventricle (RV) function and potential reverse remodelling have not been well described.
Objectives: This study aimed to evaluate the impact of RV dysfunction and CRT-induced changes in RV function on clinical outcomes in HF patients (pts) treated with CRT.
Methods: Single-center retrospective study of consecutive pts submitted to CRT implantation (2017-2024). Echocardiographic parameters were evaluated at baseline and 6-12 months post-CRT. RV systolic dysfunction (RVSD) was defined as S' velocity < 9.5 cm/s or tricuspid annular plane systolic excursion (TAPSE) < 17 mm. CRT response was defined as an increase of left ventricular ejection fraction (LVEF) ≥ 10% or left ventricle end-systolic volume reduction (LVESV) ≥ 15%, and superresponse as LVEF ≥ 50% at follow-up. Major adverse cardiac events (MACE) included HF hospitalization or cardiovascular mortality. Survival analysis with Kaplan-Meier method and *Log-rank* test was performed.
Results: A total of 206 pts (median age 74 [IQR 66-79] years, 68.4% male, 67.5% non-ischemic cardiomyopathy) were included, 74 (35.9%) of whom had RVSD at baseline. Pts with RVSD were younger (70.5 vs. 74.0 years, p = 0.049), had higher alcohol consumption (42.5 vs. 24.3%, p = 0.01), higher prevalence of atrial fibrillation (45.9 vs. 31.3%, p = 0.042) and valvular prothesis (23.0 vs. 3.7%, p < 0.001). They also had lower baseline LVEF (28.3 vs. 31.2%, p = 0.006) and were less likely to present left bundle branch block (44.6 vs. 64.3%, p = 0.008). RV function improved in 36.5% pts after CRT. Favorable RV response was more common in pts with significant baseline electromechanical intra-ventricular dyssynchrony (48.0 vs. 19.4%, p = 0.023). Pts with improved RV function exhibited better CRT response (83.3 vs. 51.6%, p = 0.014), a higher rate of superresponders (30.8 vs. 9.4%, p = 0.042), greater NYHA class improvement (84.6 vs. 59.4%, p = 0.036), and lower all-cause mortality (18.5 vs. 42.4%, p = 0.048). No differences were observed in HF medical therapy between groups. Over a mean follow-up of 35 ± 24 months, patients with persistent RVSD had a higher occurrence of MACE events (38.8 vs. 11.9%, *log-rank* p = 0.003).



Conclusions: In this cohort, CRT was associated with RV function improvement in approximately one-third of HF patients with RVSD, which correlated with LV reverse remodelling and improved prognosis. Persistent RV dysfunction post-CRT was associated with higher occurrence of MACE events.

PO 346. CARDIAC RESYNCHRONIZATION THERAPY FOR NON-LBBB PATIENTS AND QRS MID-RANGE: WORTH IT?

Marta Catarina Bernardo, Isabel Martins Moreira, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Pedro Mateus, Sofia Silva Carvalho, José Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: The clinical benefit of cardiac resynchronization therapy (CRT) in patients with non-left bundle branch block (non-LBBB) morphology and QRS mid-range remains uncertain and controversial.
Objectives: To assess the impact of QRS morphology and duration in echocardiographic response to CRT and clinical outcomes in our population.
Methods: Single center retrospective analysis of pts admitted to CRT implantation between 2017-2024. Inclusion criteria: QRS duration ≥ 130 ms, left ventricular ejection fraction (LVEF) ≤ 35% and echocardiogram performed 6-12months post-implantation. Patients were classified into LBBB and non-LBBB groups and further stratified by QRS duration (130-149 ms and ≥ 150 ms). Echocardiographic response was defined as an improvement in LVEF ≥ 10%/reduction in left ventricular end systolic volume ≥ 15% at 6-12 months post-implantation. The primary endpoint was a composite of all-cause death and heart failure hospitalizations (HFH).
Results: We included 128 pts (70 ± 10 years, 66% males, LVEF 28 ± 6%, 34% ischemic cardiomyopathy), 77% in the LBBB group. The non-LBBB group had a higher proportion of males (97 vs. 56%, p < 0.005), atrial fibrillation (50 vs. 30%, p = 0.039) and less use of beta-blocker (87 vs. 67%, p = 0.012). Non-LBBB patients had a shorter baseline QRS duration (158 ± 20 ms vs. 165 ± 17 ms, p = 0.04) and larger left atrial volumes (51 mL [IQR 42-64] vs. 41 mL [IQR 36-49], p = 0.002). No differences in the rate of ICD implantations between groups (73 vs. 64%, p = 0.36). During the first year, there was a trend to higher echocardiographic response in the LBBB group (83 vs. 65%, p = 0.057) (Figure 1) with comparable rates of NYHA improvement (63 vs. 58%, p = 0.62). During a median follow-up of 34 [IQR 16-53] months, there were no statistically significant differences in the primary endpoint between groups (40 vs. 27%, p = 0.18), with similar rates of HFH (p = 0.34) and all-cause death (p = 0.13). However, the non-LBBB group experienced more ventricular arrhythmias (23.3 vs. 8.2%, p = 0.014). When we stratified the groups according to the QRS duration (LBBB+QRS ≥ 150 ms, LBBB+QRS 130-149 ms, Non-LBBB ≥ 150 ms, Non-LBBB+QRS 130-149 ms), it was noticeable that, despite the absence of significant differences in the rates of echocardiographic response (p = 0.20), there was a clear significant difference in the rates of the primary endpoint, with worse outcomes in the non-LBBB+ QRS 130-149 ms group (p < 0.005), mainly driven by all-cause death (Figure 2).

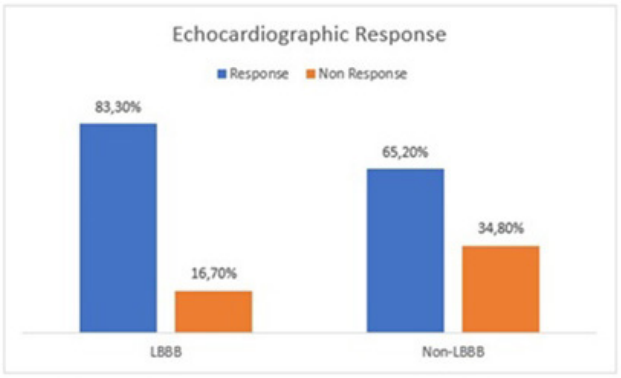


Figure 1- Ecocardiographic response to CRT according to the presence of LBBB.

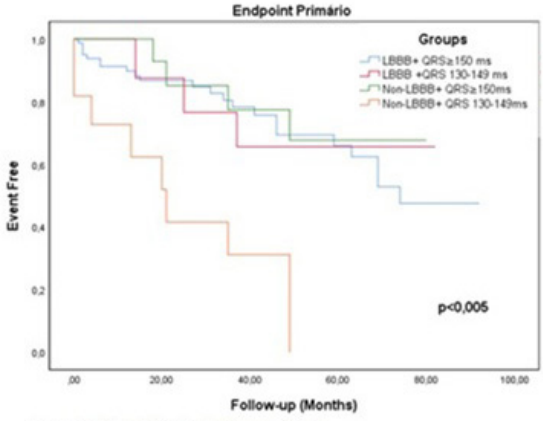


Figure 2- Kaplan-Meier for the primary endpoint.

Conclusions: In our cohort, pts with non-LBBB benefit for CRT, with notable echocardiographic and clinical improvements. Those with QRS ≥ 150 ms have clinical outcomes comparable to LBBB group, with worse prognosis of the ones with mid-range QRS. This underscores the importance of careful patient selection, particularly within the non-LBBB subgroup.

PO 347. LONG TERM CLINICAL OUTCOME AND ECHOCARDIOGRAPHIC RESPONSE OF PATIENTS SUBMITTED TO UPGRADE TO CARDIAC RESYNCHRONIZATION THERAPY

Marta Catarina Bernardo, Isabel Martins Moreira, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, José P. Guimarães, Sílvia Leão, Renato Margato, José Paulo Fontes, Pedro Mateus, Sofia Silva Carvalho, José Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: The benefits of upgrading to cardiac resynchronization therapy from a prior implanted pacemaker or defibrillator device, in patients with heart failure and reduced ejection fraction (HFrEF), remain unclear, and the clinical outcomes are conflicting.
Objectives: To evaluate the echocardiographic response and clinical outcomes of a subgroup of patients (pts) submitted to upgrade CRT in comparison with the ones submitted to de-novo procedure.
Methods: Single centre, retrospective analysis of pts who underwent CRT implantation or upgrade procedures between 2017-2024. Echocardiographic response was defined as ≥ 10% improvement in left ventricular ejection fraction (LVEF) or ≥ 15% reduction in left ventricular end-systolic volume. The primary endpoint was all-cause mortality/heart failure (HF) hospitalization, while the secondary endpoint was all-cause mortality. The mean follow-up (FUP) was 33.0 ± 19.2 months.

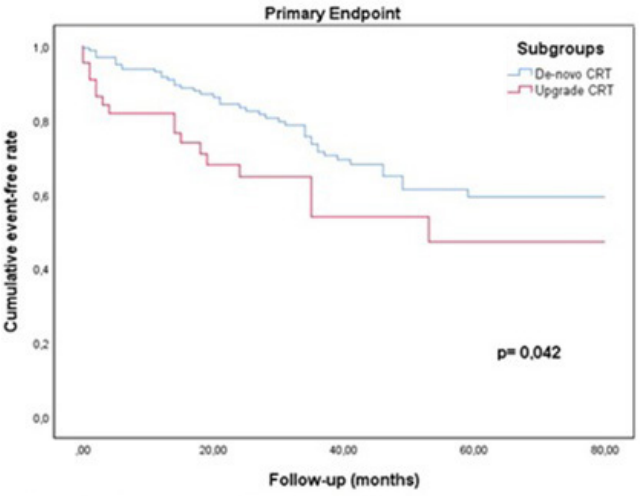


Figure 1- Kaplan-Meier curve for primary endpoint.

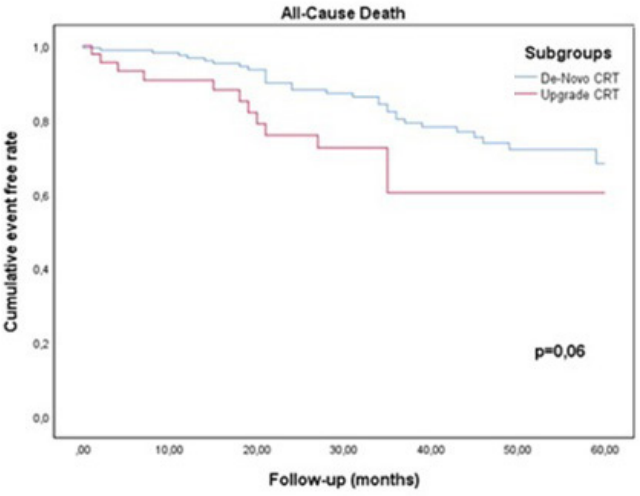


Figure 2- Kaplan-Meier curve for all-cause mortality.

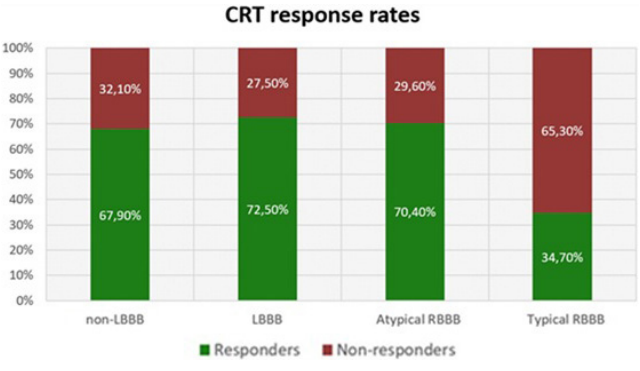
Results: A total of 221 pts were included, 68% male, age 73 (IQR 66-78) years, mean LVEF 30 ± 8%, 33% ischemic. Of these, 20% underwent an upgrade procedure. The upgrade group had a higher rate of permanent atrial fibrillation (27 vs. 14%, p = 0.037) and tended to present with more severe HF symptoms (NYHA class III/IV: 51 vs. 36%, p = 0.08). The upgrade group had a higher prevalence of moderate-to-severe functional mitral regurgitation (54 vs. 39%, p = 0.096) and larger left atrial volumes (57 ± 20 vs. 48 ± 19 ml/m^2, p = 0.013). Also, secondary prevention indications to ICD implantation were more common in the upgrade group (31 vs. 6%, p < 0.005) as well as pre-implantation beta-blocker use (89 vs. 70%, p = 0.012). Rates of infection (p = 0.59) and lead dislodgement (p = 0.80) were similar. Echocardiographic response rates were comparable (78 vs. 63%, p = 0.073), as were superresponse rates (64 vs. 49%, p = 0.092), with a tendency for higher response in the de novo CRT group. Both groups had similar NYHA class improvement (61 vs. 61%, p = 0.96). During follow-up, the upgrade group had a higher rate of the primary endpoint (41 vs. 27%, log-rank p = 0.042) (Figure 1), driven by more HF hospitalization (30 vs. 14%, log-rank p = 0.011) and a trend toward higher mortality (30 vs. 23%, log-rank p = 0.06) (Figure 2). In multivariate analysis, after adjusting for potential confounders, the rates of the primary endpoint were comparable between the CRT upgrade and de novo groups (HR 1.56, 95%CI: 0.85-2.84, p = 0.15), as were all-cause mortality rates (HR 1.53, 95%CI: 0.70-3.30, p = 0.29).
Conclusions: In our cohort, patients undergoing CRT upgrade, despite having more comorbidities and advanced heart failure, showed a similar echocardiographic response and NYHA class improvement compared to those receiving de novo CRT. However, during FUP, this subgroup experienced worse clinical outcomes, which were attributed to differences between the two populations rather than the therapy itself.

PO 348. CARDIAC RESYNCHRONISATION THERAPY'S RESPONSE IN PATIENTS WITH NON-LBBB QRS COMPLEX MORPHOLOGY

André Paulo Ferreira, Ana Raquel Santos, Sofia Jacinto, Hélder Santos, Guilherme Portugal, Ana Lousinha, Bruno Valente, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: The benefits of cardiac resynchronisation therapy (CRT) are optimal for patients with wide QRS complexes and left bundle branch block (LBBB) morphology. It remains uncertain whether patients with non-LBBB QRS complex morphologies can have the same rates of response to CRT and functional status improvement.
Objectives: To assess the impact and reverse remodelling effects of CRT implantation in patients with non-LBBB QRS complex morphology.
Methods: A single-centre retrospective study of patients with heart failure who underwent CRT implantation between 2016 and 2023. Responders were defined as those exhibiting an absolute > 5% improvement in LVEF at 6 months of follow-up. CRT response was compared between patients with LBBB and non-LBBB QRS complex morphologies, with the latter including right bundle branch block (RBBB), atypical RBBB, and interventricular conduction delay.
Results: A total of 190 patients were included in this study. Patient's mean age was 69.5 ± 10.1 years, and 70.8% were male. At the baseline, the New York Heart Association functional class (NYHA) was 2 in 30.5%, and 3 in 65.6% of patients, 25.6% had ischemic heart disease and 74.4% dilated cardiomyopathy. Of the total, 64.7% had LBBB and 35.3% non-LBBB QRS morphology. Analyzing the non-LBBB group, the mean baseline QRS width was 148 ± 23 ms and the mean left ventricle ejection fraction (LVEF) was 26.5 ± 5.7%. At 6 months of follow-up after CRT implantation, patients showed a similar response rate in both non-LBBB and LBBB groups, with a mean increase in LVEF of 11.6 ± 5.5 vs. 12.1 ± 3.4% (p = 0.655), and improvement of ≥ 1 classes in NYHA classification 65.7 vs. 74.3% (p = 0.248), respectively. The majority of patients in both groups were CRT responders 67.9 vs. 72.5% (p = 0.602). However, we should note that patients with atypical RBBB had significantly higher rates of response than those with typical RBBB 70.4 vs. 34.7% (p < 0.001). Patients with interventricular conduction delay had similar rates of response compared to those with atypical RBBB 63.8 vs. 70.4% (p = 0.104). Mortality rates at 1 year were similar between both groups 4.4 vs. 3.9% (p = 0.477).



Conclusions: The majority of patients with HFrEF and wide > 150 ms of non-LBBB morphology show a favourable CRT response, and therefore CRT implantation should be taken into consideration in these patients. Some specific non-LBBB morphologies appear to respond better than others, and this hypothesis should be further investigated in experimental studies.

PO 349. ECHOCARDIOGRAPHIC PREDICTORS OF SUSTAINED VENTRICULAR TACHYARRHYTHMIAS IN PATIENTS WITH CRT-D FOR PRIMARY PREVENTION

Julien Lopes, Inês Ferreira Neves, Francisco Cardoso, Sofia Jacinto, Hélder Santos, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Ana Galrinho, Rui Cruz Ferreira, Mário Martins Oliveira

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Patients with heart failure and reduced left ventricular ejection fraction (LVEF) have a higher incidence of ventricular arrythmias. Considering this, current guidelines recommend CRT-D implantation in primary prevention for patients with LVEF ≤ 35% and a QRS duration ≥ 150 ms with left bundle branch block after at least 3 months of optimal medical therapy. Our study aimed to identify echocardiographic predictors of ventricular arrhythmias in this patient population.
Methods: Retrospective study of all patients with CRT-D implantation in primary prevention from January 2015 to July 2023 in a tertiary centre. Only patients with a transthoracic echocardiogram performed before CRT-D implantation and another performed during a 1-year follow-up (FU) time after CRT-D implantation (excluding the first 3 months) were included. Appropriate CRT-D therapy (including shocks or Anti Tachycardia Pacing (ATP)) during follow-up was noted and patients were divided into two groups according to appropriate CRT-D therapy during FU. Echocardiographic parameters at baseline and 1-year FU were analysed between the two groups to determine their potential as predictors of ventricular arrhythmias using a logistic regression model.
Results: 91 patients (mean age 65.0 ± 13.16 years; 26.4% female) were included, with a mean FU of 4.0 ± 2.5 years. 50.5% of patients had ischemic heart disease. 14 patients (15.4%) had appropriate CRT-D therapy during follow-up. There were no statistically significant differences between groups regarding ARNI (p = 0.427), ACEi/ARB (p = 0.938), beta-blocker (p = 0.153), SGLT2i (p = 0.618) and mineralocorticoid antagonist therapy (p = 0.721). Echocardiographic parameters at baseline that were statistically significant between the two groups were LVEDVi (108.79 ± 32.71 vs. 132.40 ± 40.43 ml/m^2; p = 0.024) and LVESVi (79.34 ± 29.18 vs. 100.09 ± 41.26 ml/m^2; p = 0.032). Left ventricular ejection fraction was not statistically significant (28.22 ± 8.19 vs. 24.64 ± 8.60%; p = 0.139). Other echocardiographic parameters such as global longitudinal strain (p = 0.757), E/E' ratio (p = 0.576) and TAPSE (p = 0.308) were also not statistically significant. At 1 year follow-up, patients had a mean improvement of 16.69 ± 28.68 mL/m^2 in LVEDVi; of 19.27 ± 24.70 mL/m^2 in LVESVi and of 10.81 ± 10.87% in LVEF and these values were not statistically significant for the prediction of arrhythmic events (p = 0.445; p = 0.891; p = 0.813 respectively).
Conclusions: In our cohort of patients with CRT-D in primary prevention, left ventricular end-diastolic and end-systolic volumes before CRT-D implantation were predictive of arrhythmic events. Improvement in these parameters with a CRT implantation did not improve prognosis in these patients concerning the incidence of ventricular arrhythmias.

PO 350. EVALUATING SUPERRESPONSE IN CRT: A CLINICAL EDGE OR JUST A REMODELING EFFECT?

Sofia Andraz, Joana Massa Pereira, Lucas Hamann, Miguel Espírito Santo, Joana Guerreiro Pereira, Hugo Costa, Pedro de Azevedo, Jorge Mimoso

Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro.

Introduction: Cardiac resynchronization therapy (CRT) is a key treatment in modern heart failure (HF) management, as it significantly reduces morbidity and mortality in patients. Among CRT responders, a subset of

Table 1 – Baseline clinical characteristics in CRT patients.

			CRTS-Response			
			N-S-RESP (n=37, 60,7%)	S-RESP (n=24, 39,3%)	Total (n=95)	p value
Gender	Male	n (%)	30,0 (81,8)	18,0 (75,0)	72,0 (75,8)	
	Female	n (%)	7,00 (18,9)	6,00 (25,0)	23,0 (24,2)	
						0,571
Age	*Mean±SD - years*		68,1±11,6	70,5±8,79	69,5±10,4	
						0,418
Hypertention		n (%)	29,0 (78,4)	17,0 (70,8)	64,0 (68,8)	
						0,525
Diabetes (type 2)		n (%)	22,0 (59,5)	11,0 (45,8)	52,0 (55,9)	
						0,297
Dyslipidemia		n (%)	29,0 (78,4)	16,0 (66,7)	69,0 (74,2)	
						0,310
Smoker		n (%)	12,0 (32,4)	12,0 (50,0)	37,0 (39,8)	
						0,017
Obesity		n (%)	11,0 (29,7)	5,00 (20,8)	22,0 (23,7)	
						0,440
Alcool		n (%)	10,0 (27,0)	7,00 (29,2)	23,0 (24,7)	
						0,856
Atrial fibrillation		n (%)	10,0 (27,0)	6,00 (25,0)	27,0 (29,0)	
						0,860
Ventricular tachycardia		n (%)	2,00 (5,40)	2,00 (8,30)	10,0 (10,8)	
						0,652
Chronic renal disease		n (%)	12,0 (32,4)	11,0 (47,8)	31,0 (34,1)	
						0,259
LBBB > 150ms		n (%)	24,0 (75,0)	17,0 (73,9)	63,0 (77,8)	
						0,927
Up-grade		n (%)	0,00 (0,00)	2,00 (8,30)	7,00 (25,9)	
						0,151
Need ventricular pacing		n (%)	10,0 (35,7)	5,00 (26,3)	21,0 (28,4)	
						0,498
Non-ischemic heart disease		n (%)	13,0 (41,9)	18,0 (75,0)	34,0 (55,7)	
						0,014
Optimized medical therapy	*ARNI*	n (%)	23,0 (82,2)	10,0 (41,7)	51,0 (55,4)	0,117
	ACEI/ARB	n (%)	10,0 (27,0)	12,0 (50,0)	32,0 (34,8)	0,068
	MRA	n (%)	25,0 (69,4)	15,0 (62,5)	62,0 (68,1)	0,576
	SGLT2I	n (%)	26,0 (72,2)	14,0 (58,3)	60,0 (65,9)	0,264
	Beta-blocker	n (%)	30,0 (83,3)	23,0 (95,8)	79,0 (86,8)	0,225
	AAR	n (%)	10,0 (27,8)	4,00 (16,7)	21,0 (23,1)	0,319
LVEF - pre	*Mean±SD - %*		32,4±10,2	29,2±6,60	33,3±11,1	0,026
LVEF - pos	*Mean±SD - %*		36,6±13,5	50,7±9,70	40,7±14,1	<0,001
			p<0,064	p<0,001	p<0,009	

Figure PO 350

patients, known as superresponders, demonstrate exceptional improvements cardiac remodeling. However, the prognostic benefit of superresponders compared to regular responders remains a subject of ongoing debate.
Objectives: To determine the impact of superresponse on outcome.
Methods: This single-center retrospective analysis included 95 patients who underwent CRT implantation between January 2020 and December 2023, with a mean follow-up of 35 months. Patients were grouped in a superresponder group and a non-superresponder group. CRT superresponse criteria were defined as: increase in LVEF of, at least, 10% or a decrease in the diastolic or systolic volume of, at least, 20% and 30%, respectively. Data were collected on demographic characteristics, presence of left branch block in the initial electrocardiogram, the need for ventricular pacing, non-ischemic etiology, HF medical therapy and cardiac chambers volumes pre and post-implantation. We analysed the primary outcome as a composite outcome of death, HF admissions, myocardial infarction (MI), stroke. The secondary outcomes are death, HF admissions, MI and stroke.
Results: The final cohort consisted of 61 patients, with 37 patients (60.7%) categorized as non-superresponders (N-S-RESP) and 24 patients (39.3%) as superresponders (S-RESP). There were no significant differences in gender, age, hypertension, diabetes mellitus, dyslipidemia, smoking, alcohol use and need for ventricular pacing. Notably, obesity (29.7 vs. 20.8%, p = 0.017) was significantly more common in non-superresponders. Non-ischemic heart disease was more frequent in the superresponders group (75 vs. 41.9%, p = 0.014). There was a significant improvement in LVEF in both groups, which was higher in superresponders (LVEF pre: 29.2 vs. LVEF post: 50.7%, p = 0.001). In contrast, non-superresponders exhibited a smaller, but also significant, change in LVEF (pre: 32.4 vs. post: 36.6%, p = 0.044). Neither the primary outcome nor the secondary outcomes showed significant differences between groups.
Conclusions: While CRT superresponders have an enhanced cardiac remodeling, this did not translate into a significant difference in clinical outcomes such as death, HF admissions, MI or stroke. These findings support the role of CRT in preventing disease progression beyond improving LVEF, contributing to a partial or complete remission of the disease.

Domingo, 13 Abril de 2025 | 09:30-11:00

Área de Posters-écran 1| Sessão de Posters 53 – Fibrilhação auricular e arritmias auriculares complexas

PO 351. OUTCOMES OF ATYPICAL FLUTTER ABLATION GUIDED EXCLUSIVELY BY SYSTEMATIC ANALYSIS OF HIGH-RESOLUTION MAPS (NO ENTRAINMENT MANEUVERS)

Francisco Salvaterra, Joana Brito, Ana Abrantes, Daniel Inácio Cazeiro, Miguel Azaredo Raposo, Joana Quaresma, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: Advancements in mapping systems have enhanced our understanding of atypical flutter (AFl) mechanisms. Systematic analysis of substrate and activation maps is crucial for arrhythmia interpretation and defining targeted ablation strategies.
Objectives: To evaluate the outcomes of AFl ablation exclusively guided by systematic analysis of high-resolution maps.
Methods: This is a single-center retrospective study of left-sided AFl patients (pts) who underwent ablation from 2015 to June 2024. High-resolution map interpretation was conducted following a systematic predefined workflow aimed at identifying the AFl mechanism and planning ablation lines targeting the critical isthmus. No entrainment maneuvers were performed. If AFl persisted after the first ablation set, a remap was performed. Acute success was defined as conversion to sinus rhythm with

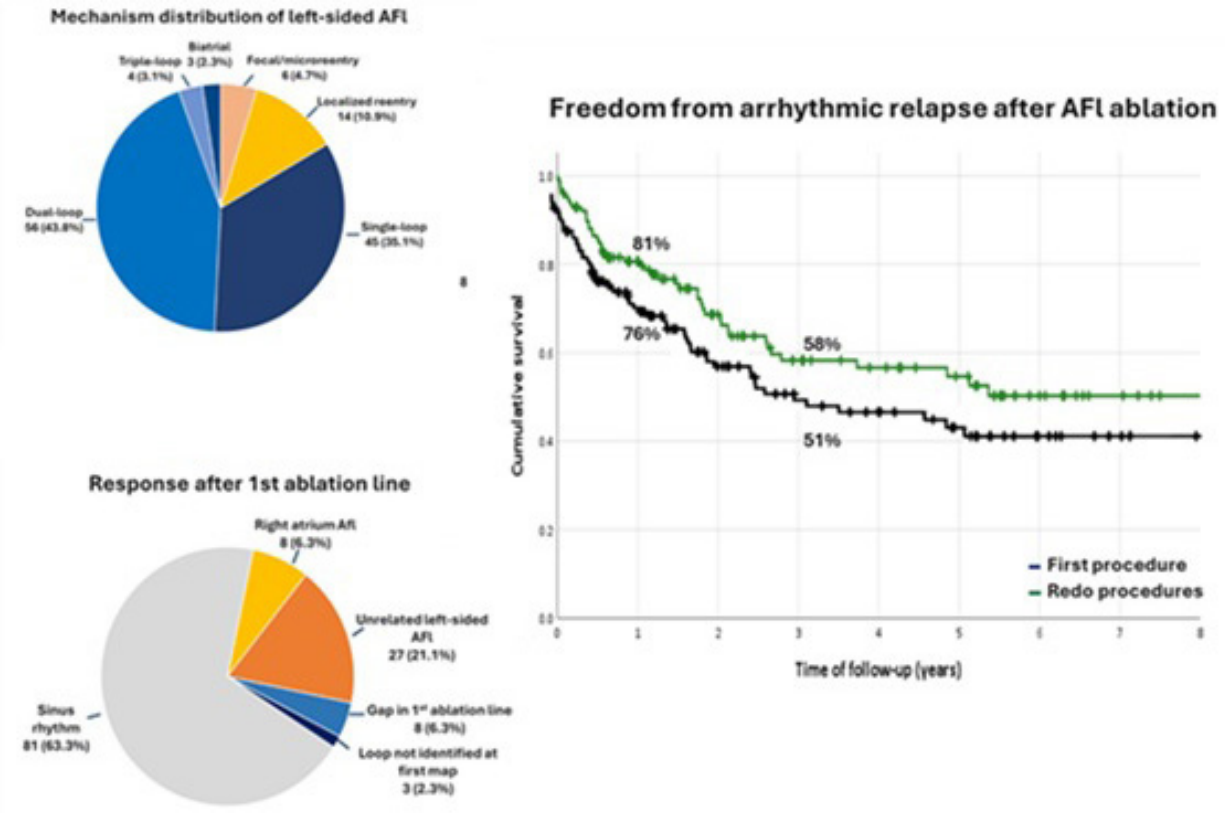

Figure PO 351

the planned ablation set. The procedure endpoint was the demonstration of conduction block over ablation lines. Outcomes were evaluated by survival free from any sustained atrial arrhythmia.
Results: A total of 128 pts were treated, 58% male, with a mean age of 68 ± 11 years. About 52% had undergone prior pulmonary vein isolation, with an additional left atrial linear ablation in 16% (n = 20). A macroreentrant circuit was observed in 84% of pts, using 2- or 3-loops in 46.8%, with single-loop flutters representing 35.1% (Figure 1). The perimitral loop was the most frequent reentrant circuit (n = 51, 56%). The first set of mechanism-tailored ablation restored sinus rhythm in 81 pts (63%). If AFl persisted, the mechanism was most often a completely distinctive left-sided circuit (n = 27) or a right-sided peri-tricuspid (n = 8). Completion of the ablation set restored sinus rhythm in 37 of these 47 pts, resulting in an overall acute success rate of 92% (118/128). Pts were followed over a median of 4.2 [2.7-5.6] years. After a single procedure, the 1-year success rate was 76%, decreasing to 51% at 3 years (Figure 2). A total of 22 pts underwent a redo procedure, consisting of typical AFl ablation in 3, PVI isolation in 1, focal AT in 1, and atypical AFl redo in 17 pts. Including redos, arrhythmia-free survival increased to 81% at 1 year and 58% at 3 years. In 10 pts (7.8%), AV nodal ablation was performed due to persistent arrhythmia.
Conclusions: The AFl mechanism identified through a systematic mapping approach was dual-loop reentry more commonly than presumed by studies based on entrainment maneuvers. Ablation targeting the shared isthmus resulted in high acute success with acceptable long-term outcomes.

PO 352. WILL IT BE BACK? PREDICTING RECURRENCE AFTER LEFT ATRIAL FLUTTER ABLATION

Daniel Inácio Cazeiro, Joana Brito, Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, Sara Neto, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: In recent years, catheter ablation has become a promising treatment for patients with atypical atrial flutter (AFl), driven by advancements in technology and a deeper understanding of arrhythmia mechanisms. However, its long-term effectiveness and the factors predicting recurrence remain inadequately understood.
Objectives: To evaluate the efficacy of atypical AFl ablation and identify predictors of recurrence.
Methods: We conducted a single-center, retrospective study of consecutive patients who underwent left atrium AFl ablation. A systematic, predefined high-resolution mapping workflow was employed to characterize the mechanism of the arrhythmia and guide the ablation strategy. Clinical, echocardiographic, and AFl substrate and mapping characteristics were evaluated as risk factors for atrial arrhythmic relapse during follow-up, assessed using Cox regression and Kaplan-Meier survival analysis.
Results: From 2015 to 2024, 128 patients were included (mean age: 68 years, 58% male). Fifty-two percent had undergone previous pulmonary vein isolation, and previous left atrial linear ablation had been performed in 16%. Overall acute success was high, with 92% conversion to sinus rhythm after the first ablation set. However, AFl recurrence was 24% and 49% at 1 and 3 years, respectively. The only two predictors of arrhythmic relapse on univariate analysis were left ventricular ejection fraction (LVEF) < 40% (HR 2.191, 95%CI: 1.124-3.870, p = 0.007) and the presence of atrial scar outside the AFl shared isthmus (HR 1.997, 95%CI: 1.123-3.550). Strikingly, left atrial volume had no influence on arrhythmic recurrence. We then assessed the incremental impact of having none, one, or both of the identified risk factors. Having one of these criteria increased the risk of relapse (HR 1.259, 95%CI: 0.653-2.427, p = NS) and the presence of both increased the risk by 4-fold (HR 4.395, 95%CI: 2.135-9.049, p < 0.001).
Conclusions: Two key risk factors were identified for arrhythmic relapse after AFl ablation: reduced LVEF and the presence of left atrial scar outside the shared isthmus. Interestingly, the risk of atrial arrhythmic relapse increased 4-fold with the presence of both features, while left atrial volume had no impact on recurrences.

PO 353. LEFT ATRIAL APPENDAGE OCCLUSION: RESULTS OF A LARGE LONG-TERM COHORT

Joao Santos Fonseca, Miguel Nobre Menezes, Catarina Gregório, Miguel Azaredo Raposo, Ana Rita Francisco, Catarina Oliveira, Tiago Rodrigues, João Silva Marques, Gustavo Silva, João de Sousa, Pedro Cardoso, Fausto J. Pinto

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Introduction: Left atrial appendage occlusion (LAAO) is increasingly used as an alternative to prevent stroke in patients (pts) with atrial fibrillation (AF),

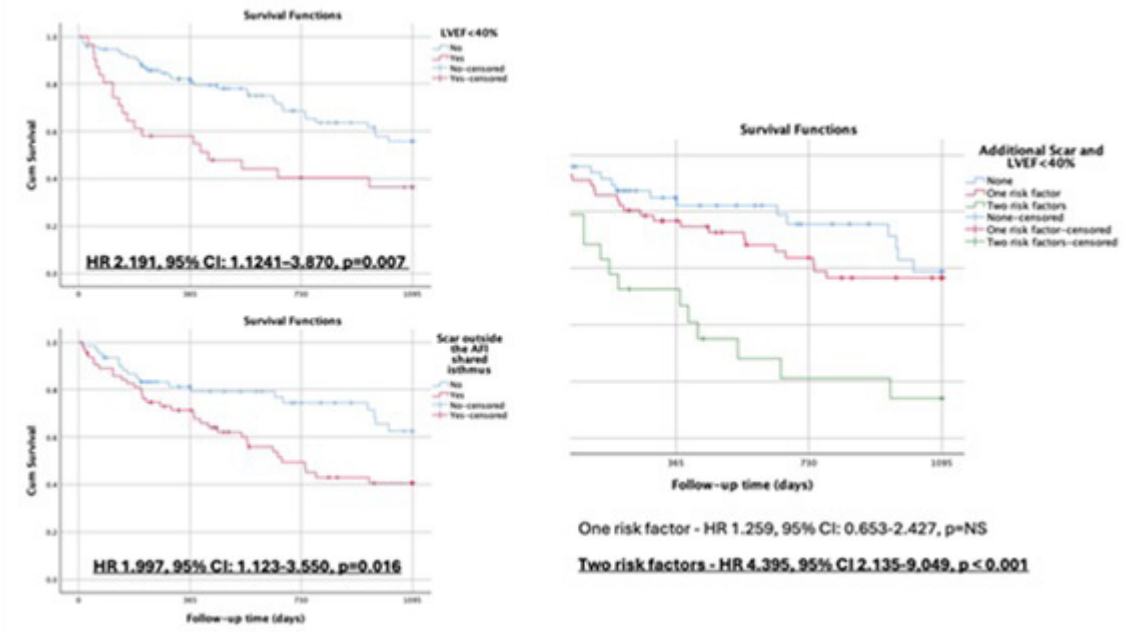

Figure PO 352

particularly those with trombo-embolic events despite oral anticoagulation (OAC) or OAC intolerance.
Objectives: To evaluate the efficacy and safety of LAAO in pts with AF.
Methods: Single-center retrospective study of consecutive pts who underwent percutaneous LAAO between November 2009 and December 2024. Comorbidity burden and thromboembolic risk were assessed using the Charlson Comorbidity Index (CCI) and CHA2DS2-VASc score. Efficacy was defined by the absence of stroke, cardiovascular death, or systemic embolic events. The composite safety endpoint included procedural complications and major bleeding events. Statistical analyses used Student's t-test for continuous variables and chi-square tests for categorical variables.
Results: A total of 215 pts were included (mean age of 74.5 ± 8.1 years, 64% male, 41% had paroxysmal AF); of these, 22% had CKD stage 3 or higher, and 20% had a history of cancer (9% gastrointestinal). The mean CCI was 5.7 ± 0.1. The mean CHA2DS2-VASc score was 4.1 ± 0.1, and one-third of the pts had a history of stroke. The annual bleeding risk was 6.1 ± 0.5% (mean HAS-BLED score 3.1 ± 0.1). The main reasons for referring pts for LAAO were previous gastrointestinal bleeding (37%), hemorrhagic stroke (19%), and ischemic stroke despite anticoagulation (9%). The procedure was successful in 96% of cases, with a mean duration of 89.7 ± 12 min. In 95% of cases, a Watchman device was implanted (42% were Watchman FLX, device size 27 ± 2 mm). The procedure was guided by intracardiac echocardiography in 28% of cases and transesophageal echocardiography in the remaining cases. Post-procedural antithrombotic therapy was administered as follows: 43% received dual antiplatelet therapy, 26% were treated with VKA and aspirin, 18% with NOACs, and the remaining with single antiplatelet therapy, for an average duration of 6.1 months. Acute procedural complications included 4 cases of pericardial tamponade and 4 vascular access complications (1 major). All major complications occurred up early 2015. During follow-up, 31 pts experienced bleeding events, of which 3 were classified as major (2 gastrointestinal, 1 genitourinary) according to the VARC-3 definition. The primary safety endpoint occurred in 38 pts. During a mean follow-up of 44.7 ± 3.3 months, there were 7 strokes and 1 thrombotic event. The primary efficacy endpoint was observed in 13 pts. Based on the CHA2DS2-VASc score, the expected stroke/systemic embolism rate in our population was 6.7%, but during follow-up, the observed event rate was only 0.09%, representing an 86% relative risk reduction.
Conclusions: LAAO demonstrated high procedural success and a favourable safety profile, effectively reducing thromboembolic events in a high-risk population over long-term follow-up.

PO 354. ADVANCEMENTS IN ATYPICAL ATRIAL FLUTTER ABLATION: IMPACT OF EVOLVING TECHNIQUES AND TECHNOLOGIES ON OUTCOMES

Maria Rita Giestas Lima, Ana Rita Bello, Daniel Gomes, Guilherme Flor, Daniel Matos, Gustavo Rodrigues, Pedro Galvão Santos, Francisco Moscoso Costa, Pedro Carmo, Diogo Cavaco, Francisco Bello Morgado, Pedro Adragão

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Introduction: Atypical atrial flutter (AFLA) is a macro-reentrant atrial tachycardia commonly associated with atrial fibrillation (AF). While novel technologies, including advanced mapping systems and energy sources, are now available, data comparing their benefits to older systems remain limited.
Objectives: To compare peri-procedural differences in AFLA ablation before and after 2020, and AFLA/AF recurrence rate.
Methods: Single-centre retrospective study including all consecutive patients who underwent AFLA ablation between 2015-2024. Clinical, echocardiographic and peri-procedural characteristics were collected from clinical records. We divided patients into two groups: pre-2020 (group 1) and post-2020 (group 2). The study endpoints were defined as a composite of AFLA or AF recurrence documented by ECG/24-h Holter.
Results: Overall, 108 consecutive patients were included-median age of 66years, 67 (62%) male, mean CHA2DS2-VA score 2 ± 2, and 66% with history of AF ablation. Most patients received anti-arrhythmic drugs pre-ablation: beta-blockers (61%), amiodarone (40%), sotalol (9%), flecainide (7%), and propafenone (6%). 46% of patients underwent ablation before 2020, while 54% underwent it after 2020. Concomitant AF ablation rates were comparable between the groups (p = 0.422). Group 1 had a higher median fluoroscopy time (11 vs. 8min, p < 0.001), but the median procedural time did not differ significantly between groups (3 ± 1 vs. 2.4 ± 1hrs, p = 0.173). Energy application was more frequently performed on the mitral isthmus (46 vs. 21%, p = 0.005) and roof line (46 vs. 28%, p = 0.047) in group 1. The use of Lasso and Orion catheters was higher in group 1 (40 vs. 7%, p < 0.001; 30 vs. 7%, p = 0.002, respectively), as was the use of the IntellNav and Rhythmia systems (22 vs. 3%, p = 0.003; 28 vs. 5%, p = 0.001, respectively). Conversely, the CARTO system (86 vs. 60%, p = 0.002) was more commonly used in group 2. Acute termination of AFLA during energy applications was more frequent in group 2 (88 vs. 64%, p = 0.003), while patients in group 1 required electric cardioversion at the end of the procedure more often (36 vs. 16%, p = 0.014). Recurrence rates of AFLA/AF were higher in group 1 (68 vs. 40%, p = 0.003). In group 1, the only predictor of AFLA/AF recurrence was AFLA inducibility post-ablation (Figure 1A). In group 2, AFLA inducibility was predictor of AFLA/AF recurrence, while concomitant AF ablation and isolation of pulmonary veins were protectors (Figure 1A). In multivariate analysis, only AFLA inducibility was predictor of AFLA/AF recurrence (Figure 1B).

A Univariate analysis of AFLA/AF recurrence after ablation

		HR	95% CI	*p*-value
Pre-2020 (group 1)	Inducible AFLA after ablation	9.42	1.51-58.9	**0.017**
Post-2020 (group 2)	Complete pulmonary veins isolation	0.29	0.11-0.81	**0.018**
	Concomitant AF ablation	0.18	0.06-0.54	**0.002**
	Inducible AFLA after ablation	3.86	1.32-11.31	**0.014**

B Multivariate analysis of AFLA/AF recurrence after ablation

		HR	95% CI	p-value
Post-2020 (group 2)	Inducible AFLA after ablation	10.44	1.35-80.94	**0.025**
	Complete pulmonar veins isolation	0.810	0.21-3.38	0.810
	Concomitant AF ablation	1.29	0.22-7.49	0.772

Conclusions: This study demonstrates improved procedural success and lower recurrence rates of AFLA/AF in patients undergoing ablation after 2020, likely driven by advancements in technology. AFLA inducibility post-ablation was a key predictor of recurrence, emphasizing the need for effective arrhythmia termination and inducibility at the end of the procedure.

PO 355. IMPACT OF DIASTOLIC DYSFUNCTION ON QUALITY OF LIFE IN ATRIAL FIBRILLATION PATIENTS UNDERGOING CATHETER ABLATION

Ana Inês Aguiar Neves, Rafael Teixeira, Inês Rodrigues, Marta Leite, Fábio Sousa Nunes, André Lobo, Marta Catarina Almeida, João G. Almeida, Helena Gonçalves, Marco Oliveira, João Primo, Ricardo Fontes-Carvalho

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Introduction: Atrial fibrillation (AF) and heart failure with preserved ejection fraction (HFpEF) frequently coexist. However, HFpEF in AF patients is a diagnostic challenge because symptoms may often be misattributed to AF rather than HFpEF. Hemodynamic assessments using echocardiography can provide objective measurements of diastolic function and guide the management of HFpEF. This study aimed to evaluate the prevalence of diastolic dysfunction and its impact on quality of life (QoL) in AF patients undergoing catheter ablation.
Methods: Patients with AF who underwent ablation were prospectively followed using a hybrid follow-up program, including scheduled visits and remote monitoring through a digital health platform. Transthoracic echocardiography with assessment of diastolic function was performed the day following ablation, in sinus rhythm. Moderate-to-severe diastolic dysfunction (msDD) was defined by the presence of at least two of the following parameters: 1) medial e' < 7; 2) E/e' > 15; 3) tricuspid regurgitation

velocity > 2.8 m/s; and 4) left atrium volume index (LAVI) > 34 mL/m². QoL was assessed using the patient-reported Atrial Fibrillation Effect on Quality-of-Life (AFEQT) summary score. The primary outcome was the relative change in AFEQT from baseline at 12 months after ablation.
Results: 331 patients (32% female, median age 59 years) were followed for a median time of 1.7 years (IQR 1.1-2.4 years). At baseline, 65% of patients met the criteria for msDD. Patients with msDD were older (62 years vs. 56 years, $p < 0.001$) and were more likely to have persistent AF, dyslipidemia, and hypertension. Baseline QoL scores did not significantly differ between groups (50 ± 17 for msDD vs. 52 ± 18 for controls). However, at 12 months post-ablation, patients without msDD had significantly higher AFEQT scores (73 ± 16 for msDD vs. 79 ± 17 for controls), with a clinically relevant mean improvement of 6 points (95%CI 2-10, *p*-value for interaction < 0.001). No significant differences in AF recurrence rates were found between groups.
Conclusions: Most patients undergoing AF ablation have signs of diastolic dysfunction on echocardiography. Although AF ablation improved QoL in this cohort, patients with msDD tend to experience some residual impairment, even without a significant increase in AF recurrence. The coexistence of diastolic dysfunction and AF increases the likelihood of HFpEF, which may be responsible for the persistence of symptoms previously ascribed to HF. These findings highlight the importance of comprehensive evaluation and management of diastolic dysfunction in this population.

PO 356. REDEFINING SUCCESS IN ATRIAL FIBRILLATION - EFFICACY OF REDO ABLATION PROCEDURE AND IMPORTANCE OF LEFT ATRIAL VOLUME

Daniel Inácio Cazeiro, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Céu Barreiros, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: In patients with recurrent atrial fibrillation (AF) after pulmonary vein isolation (PVI), repeat ablation can reduce symptoms and prevent disease progression. However, its long-term efficacy varies and is influenced by patient and AF-related factors.
Objectives: To analyze the efficacy of AF redo ablation and identify predictors of recurrence.
Methods: Single-center, retrospective study of patients (pts) submitted to AF redo ablation from 2015 to June 2024. The ablation strategy involved PVI with point-by-point radiofrequency in cases of PV reconnection. Complementary ablation strategies were performed, at the operator's discretion, when extensive left atrial (LA) substrate was identified, including linear lesion deployment or scar homogenization. Ablation of non-PV triggers was also performed when appropriate. Cox regression uni- and multivariate analyses were used to identify risk factors for AF recurrence after the redo procedure.
Results: A total of 231 pts were included (mean age 62 years, 70% male, 57% paroxysmal AF) with a median follow-up of 3.9 years. Most pts (86%) had no evidence of structural heart disease. Median indexed LA volume was 38 mL/m², with moderate to severe dilation (> 42 mL/m²) present in 32% of pts. Previous PVI had been performed with RF, PVAC, or cryoablation in 41%, 26%, and 33% of pts, respectively. During the redo procedure, substrate mapping depicted reconduction of ≥ 1 PV in 85% of pts; additional low-voltage areas and non-PV triggers were identified in 35% and 5%, respectively. The AF recurrence rates at 1 and 3 years after the redo procedure were 20% and 40%. These pts had a significantly higher median LA volume (40 vs. 34 mL/m², p = 0.003). LA dilation was the only independent predictor of recurrence after redo, with the effect being more pronounced in patients with volume > 42 mL/m² (HR 2.814, 95%CI 1.221-6.486, p = 0.015). Interestingly, pts with persistent AF, compared to paroxysmal AF, experienced a shorter time to recurrence, but this was not statistically significant; redo was efficacious in this subgroup, with recurrence rates at 1 and 3 years of 27% and 47%, respectively.
Conclusions: AF redo ablation demonstrated a high success rate, with 80% of pts maintaining sinus rhythm at 1 year. These results underscore the pivotal role of this procedure in effective rhythm control of AF, regardless of its duration. LA dilation is an independent predictor of recurrence and may help identify pts who are more likely to benefit from redo ablation.

PO 357. A SIMPLIFIED PREDICTIVE SCORE FOR ATRIAL FIBRILLATION RECURRENCE AFTER ELECTRICAL CARDIOVERSION USING ELECTROCARDIOGRAPHIC PARAMETERS: THE RECAF-SCORE

João Gouveia Fiuza, Mariana Duarte Almeida, Gonçalo RM Ferreira, Francisco Rodrigues Santos, Oliver Kungel, Vanda Devesa Neto, Inês Pires, Nuno Craveiro, Júlio Gil Pereira, António Costa

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Introduction: Atrial fibrillation (AF) is the most common supraventricular arrhythmia and is linked to significant morbidity. Despite its role as a rhythm

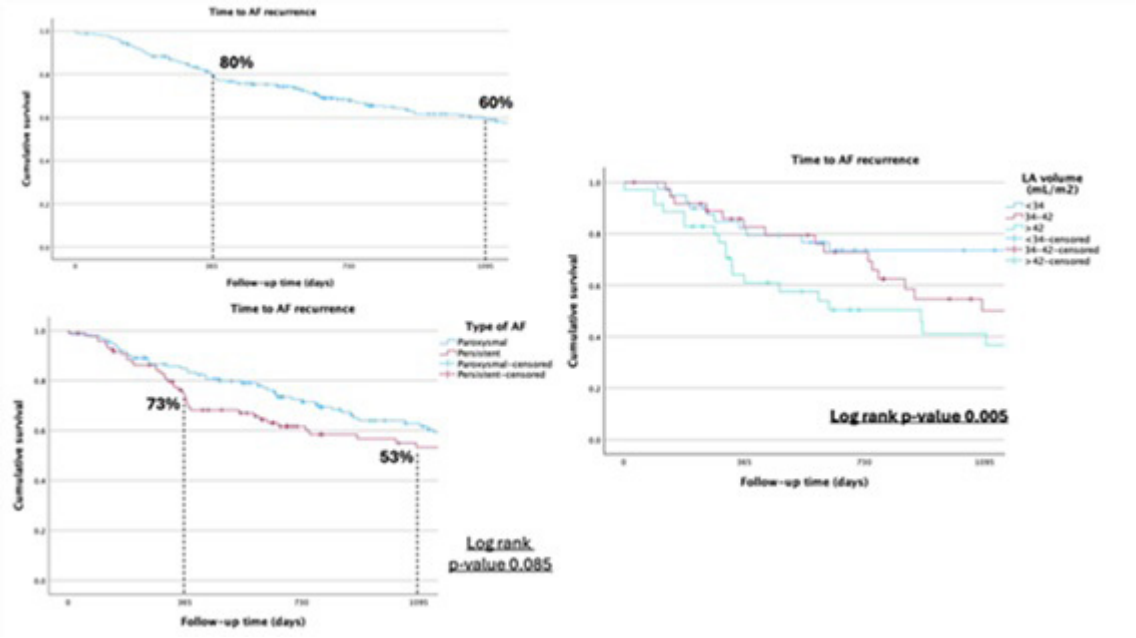
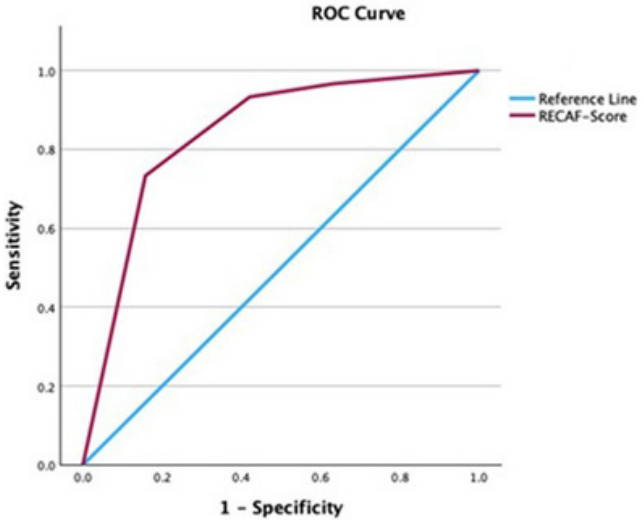


Figure PO 356

control strategy, electrical cardioversion (ECV) is associated with high recurrence rates. Identifying patients at high risk of AF recurrence is crucial for targeted follow-up and improved outcomes. Electrocardiographic (ECG) parameters are simple, reproducible and offer potential for risk prediction.
Objectives: To develop a simplified predictive score for identifying patients at high risk of AF recurrence within 12 months (12M).
Methods: A single-center retrospective study was performed including 49 patients admitted for ECV in AF. Key ECG parameters (heart rate, PR interval, maximum and minimum P wave duration, P wave dispersion, and P wave morphology) were analyzed after successful ECV. Chi-square and Mann-Whitney U were used for comparison between groups. The RECAF-Score (Recurrence after Electrical Cardioversion in AF Score) formula was derived by assigning weights to the predictors based on their relative contributions in the multivariate analysis, scaling them to balance their ranges: 1 point for PR maximum duration greater than 175 ms, 2 points for P wave maximum duration greater than 120 ms and 1 point for P wave dispersion greater than 40 ms. Internal validation was conducted using receiver operating characteristic (ROC) curve analysis to assess the score's predictive value.



Results: Mean age was 62 ± 8 years; 67.3% were men. At 12M, 30 patients (61.2%) had AF recurrence. At 12M, P wave maximum duration greater than 120 ms ($p < 0.01$), PR interval greater than 175 ms ($p < 0.01$) and P wave dispersion greater than 40 ms ($p < 0.01$) were associated with AF recurrence. A predictive score for AF recurrence at 12 months was developed using logistic regression analysis. Despite the individual predictors being non-significant in logistic regression, their combined effect demonstrated acceptable model performance. ROC analysis was performed and revealed that RECAF-Score, achieved an area under the curve of 0.815 ($p < 0.001$). The cut-off was 2.5, achieving a sensitivity of 93.3% and specificity of 57.9%. Using this threshold, patients were classified as high or low risk for AF recurrence. Crosstabulation of the dichotomized score demonstrated a significant association with AF recurrence (93.3 vs. 6.7%, $\chi^2 = 15.662$, $p < 0.001$).
Conclusions: The RECAF-Score demonstrated good discrimination for AF recurrence at 12M. The performance highlights the score's ability to discriminate between patients at high and low risk of AF recurrence. These findings suggest the score's potential utility, although further validation in larger, independent cohorts is warranted, given the above-mentioned caveats.

PO 358. AF RE-ABLATION: A COMPARATIVE ANALYSIS OF THE EFFICACY OF INITIAL PVI PROCEDURES

João Reis Sabido, Catarina Gregório, Daniel Inácio Cazeiro, Ana Abrantes, Ana Bernardes, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Various ablation modalities have been explored to perform pulmonary vein isolation (PVI) in patients with atrial fibrillation (AF). Studying the patterns of pulmonary vein (PV) reconnection in redo procedures can provide insights into the lesion durability of these modalities, potentially leading to technical advancements.
Objectives: To compare the effectiveness of various ablation modalities for PVI by assessing the occurrence of PV reconnection in redo procedures.
Methods: Single-center, retrospective study of patients who underwent AF redo ablation from 2015 to November 2024. Redo procedure mapping was performed with high-density electroanatomic systems (Carto, Ensite, Rhythmia) to search for PV reconnection and the presence of low-voltage areas in various left atrial walls.
Results: A total of 264 patients were included (70% male, 62 ± 11 years old, 55.3% paroxysmal AF). The first ablation procedure was performed with Point-by-Point radiofrequency (RF) in 100 pts (38%), PVAC in 64 (25%), cryoablation in 96 (37%), pulsed field ablation in 3 pts, and surgical ablation in one. Substrate mapping revealed complete PV isolation in only 13% of the pts, with reconduction of at least one PV in the remaining 87%. Compared to other techniques, cryoablation was more effective in achieving sustained PVI, showing higher rates of persistent PVI of 2 or 3 PVs ($p = 0.008$) (Figure 1), although there was no difference in the pts that had all the PVs isolated (Figure 2). Additionally, cryoablation was associated with a higher percentage of persistent left superior, left inferior, and right inferior PV isolation ($p = 0.038$, 0.001, and 0.003, respectively), compared to PVAC and RF, with no differences regarding the left pulmonary trunk (Figure 1). In a

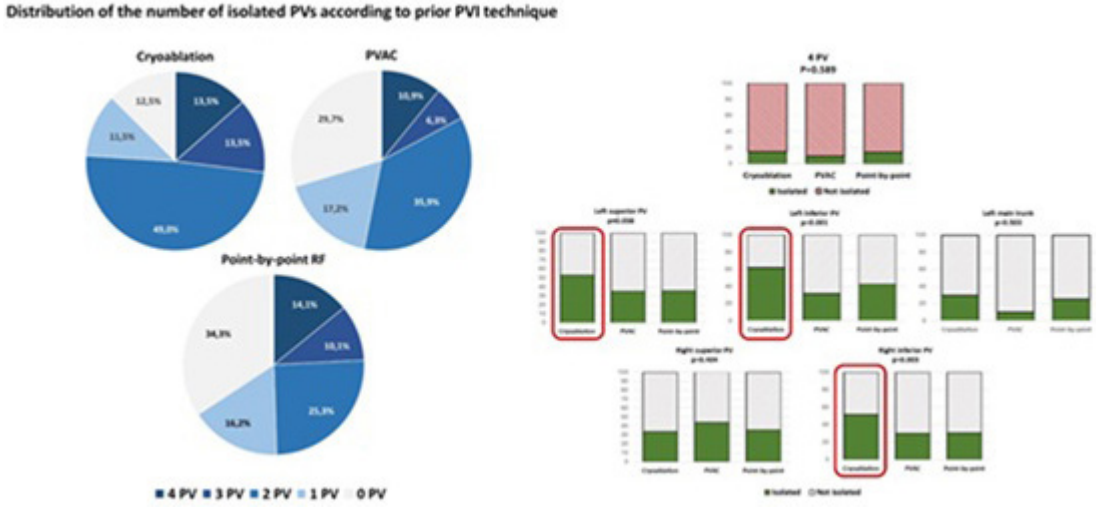


Figure PO 358

detailed analysis of each ablation technique, it was observed that with cryoablation, the right superior PV was the least likely vein to be isolated during the redo procedure (p = 0.001), whereas no pattern was observed with other modalities. Low-voltage areas outside of the PV antrum were documented in 31% of the pts, more frequently in the anterior wall (64%). Of these, substrate modification was performed in 83%. Furthermore, non-PV triggers were mapped in 13 pts (9 in the left atrium and 4 in the right atrium).

Conclusions: Most of the patients who underwent AF redo procedures showed PV reconnection, highlighting the need for a more efficient technique for first PVI. When compared to other ablation modalities, cryoablation showed higher rates of durable PV isolation.

PO 359. GENDER DIFFERENCES IN ATRIAL FIBRILLATION PATIENTS UNDERGOING CATHETER ABLATION

Sofia Nogueira Fernandes[1], Sofia Lobato Afonso[2], Mónica Dias[1], Filipe Vilela[1], Carla Ferreira[1], Inês Conde[1], Jorge Marques[1], Vítor Hugo Pereira[1], Sérgia Rocha[1]

[1]ULS Braga. [2]Universidade do Minho.

Introduction: Previous studies evaluating sex-specific outcomes in patients undergoing catheter ablations for atrial fibrillation (AF) are controversial. Delays in diagnosis, clinic visits, and ablation can impact patient outcomes.

Table 1. Characteristics of Patients.

	Men (n=87)	Women (n=45)	Total (n=132)	p value
Age, years, mean ± SD	57.9 ± 10.1	59.98 ± 8.3	58.6+9.5	0.254
BMI, kg/m2, mean ± SD	28.0 ±3.9	29.6 ±4.9	28.4+4.4	0.167
Type of AF				**0,022**
Paroxysmal AF	48 (55.2%)	34 (75.6%)	82 (62.1%)	
Persistent AF	39 (44.8%)	11 (24.4%)	50 (37.9%)	
LA diameter, mm, mean + SD	42.5 + 6.4	42.9+5.5	42.7+6.1	0.741
Indexed LA diameter, mm/m2, mean + SD	21.4+3.2	23.1+3.3	22.0+3.3	**0.005**
LA area, cm2, mean + SD	24.5+5.4	23.2+4.2	24.1+5.1	0.215
LVEF, qualitative, n (%)				0.505
Normal (> 50%)	77 (88.5%)	43 (95.6%)	120 (90.0%)	
Slightly depressed (41%–49%)	7 (8.0%)	1 (2.2%)	8 (6.1%)	
Moderately (31%–40%)	2 (2.3%)	1 (2.2%)	3 (2.3%)	
Severely (< 30%)	1 (1.1%)	0 (0.0%)	1 (0.8%)	
Hypertension, n (%)	64 (73.6%)	29 (64.4%)	93 (70.5%)	0.276
Diabetes mellitus, n (%)	11 (12.6%)	2 (4.4%)	13 (9.8%)	0.134
Dyslipidaemia, n (%)	52 (59.8%)	22 (48.9%)	74 (56.1%)	0.232
Smoking history, n (%)				<0.01
Non-smoker	52 (59.8%)	45 (100%)		
Previous smoker	26 (29.9%)	0 (0.0%)		
Current smoker	9 (10.3%)	0 (0.0%)		
Left ventricle hypertrophy, n (%)	34 (39.1%)	10 (22.7%)	44(33.6%)	0.061
Sleep apnoea, n (%)	27(31.0%)	14 (31.1%)	41 (31.1%)	0.993
Congestive heart failure, n (%)	11 (12.6%)	1 (2.2%)	12 (9.1%)	**0.048**
Coronary artery disease, n (%)	7 (8.0%)	1 (2.2%)	8 (6.1%)	0.184
Previous Transient Ischaemic Atack/Stroke, n (%)	7 (8.0%)	5 (11.1%)	12 (9.1%)	0.561
CHA2DS2-VA score, n (%)	-	-	-	0.578
0	15 (17.2%)	11 (24.4%)	26 (19.7%)	
1	36 (41.4%)	21 (46.7%)	57 (43.2%)	
2	23(26.4%)	9 (20.0%	32 (24.2%)	
3	11 (12.6%)	4 (8.9%)	15 (11.4%)	
4	2 (2.3%)	0 (0.0%)	2 (1.5%)	
Anti arrhythmic drugs use, n (%)	66 (75.9%)	33 (73.3%)	99 (75,0%)	0.750
Type of procedure, n (%)				0,517
Radiofrequency	32 (36.8%)	14 (31.1%)	46 (34.8%)	
Single shot Cryoablation	55 (63.2%)	31 (68.9%)	86 (65.2%)	
Recurrence at 12 months follow-up, n (%)				
Atrial fibrillation	16 (18.4%)	13 (28.9%)	29 (22.0%)	0.167
Atrial flutter	6 (7.0%)	1 (2.2%)	7 (5.3%)	0.251
Atrial tachycardia	0 (0.0%)	1 (2.2%)	1 (0.8%)	0.163

n: number of patients; SD: Standard deviation

Table 2. Time intervals between key stages in the management.

	Men (n=87)	Women (n=45)	p value
Time from first AF diagnosis to first cardiology clinic visit, number of days, median (IQR)	146 (IQR 576)	325 (IQR 495)	0,028
Time from first AF diagnosis to catheter ablation, number of days, median (IQR)	1250 (IQR 1646)	1558 (IQR 1848)	0,148
Time from first cardiology clinic visit to catheter ablation, number of days, median (IQR)	984 (IQR 1234)	965 (IQR 1502)	0,476
Time from AAD initiation to catheter ablation, number of days, median (IQR)	749 (IQR 1131)	774 (IQR 1183)	0,482

IQR: interquartile range

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This study aimed to compare the time intervals between key stages in the management of AF — diagnosis, clinic visit, catheter ablation, and initiation of antiarrhythmic drugs (AAD) — between men and women.
Methods: We retrospectively analysed data from 132 patients who underwent catheter ablation for AF, between January 2018 and December 2021. Clinical characteristics, procedural details, time intervals between key stages in the management, and outcomes were compared between genders.
Results: Patients undergoing AF ablation were mainly men (66%). Mean age was 58.6 ± 9.5 years. Women were more likely to present with paroxysmal AF (75.6 vs. 55.2%, p = 0.022). Men showed higher rates of congestive heart failure (12.6 vs. 2.2%, p = 0.048). No significant differences were observed in CHA2DS2-VA scores and antiarrhythmic drug use. At 12 months, although women had more arrhythmia recurrence, the difference was not statistically significant (28.9% women vs. 18.4% men, p = 0.167). Women tend to have a longer time between the initial AF diagnosis and their first cardiology clinic visit, with a median of 325 days compared to 146 days for men (p = 0.028), suggesting that gender may influence the time to access specialized care. Although women have a longer time from initial AF diagnosis to catheter ablation (median 1,558 vs. 1,250 days), the difference is not statistically significant (p = 0.148). The time from the first cardiology clinic visit to catheter ablation is similar between men and women, suggesting that once cardiology care begins, referral times for ablation do not differ substantially between genders.
Conclusions: In this cohort study of patients, women experience a greater delay in accessing cardiology care after an AF diagnosis. This may reflect differences in clinical presentation between genders or barriers to access. Timely specialized care could be a critical point for interventions aimed at promoting the best clinical outcomes in AF management, insuring equity between genders. Further research is needed to better understand the implications of these differences on treatment outcomes.

Domingo, 13 Abril de 2025 | 09:30-11:00

Área de Posters-écran 2 | Sessão de Posters 54 - Intervenção mitral percutânea e cirurgia cardíaca

PO 360. COMPARISON OF REAL-WORLD MITRAL TEER OUTCOMES WITH COAPT AND MITRA-FR: A SINGLE-CENTER ANALYSIS

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ULSGE.

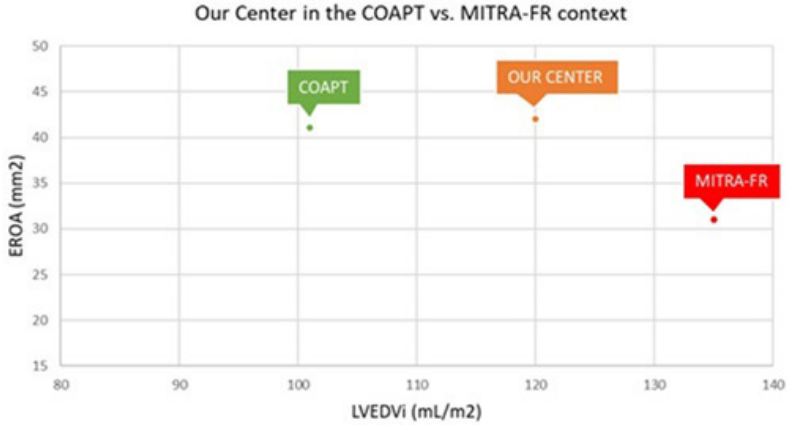
Introduction: Heart failure patients with severe mitral regurgitation present complex management challenges. Percutaneous edge-to-edge mitral valve repair (Mitral TEER) has become an important therapeutic option for these patients. Completing our 100th Mitral TEER procedure marks a significant milestone in optimizing care for this population at our center.
Objectives: This study aims to profile heart failure patients with severe mitral regurgitation treated with Mitral TEER at our institution. By analyzing demographic, clinical, and echocardiographic characteristics, we compare our findings with the COAPT and MITRA-FR trials to explore shared patterns and distinct differences.
Methods: We performed a retrospective analysis of 100 heart failure patients who underwent Mitral TEER between 2014 and 2020 at our center. Data were collected on demographics, comorbidities, and echocardiographic parameters. Comparative analyses were conducted against relevant metrics reported in the COAPT and MITRA-FR trials.
Results: Among the study cohort, 58% were male and 42% female, with a median age of 76.5 years. Frequent comorbidities included arterial hypertension (69%), diabetes mellitus (36%), and atrial fibrillation/flutter (71%). Severe mitral regurgitation (Grade IV) was observed in 72%, predominantly of functional etiology (70%), with ischemic mitral regurgitation representing 43%. Most patients were in NYHA Class II (59%). Comparatively, the left ventricle end-diastolic volume index (LVEDVi) in our population (120 mL/m^2) was lower than in the MITRA-FR trial (135 mL/m^2) but exceeded COAPT values (101 mL/m^2). The effective regurgitant orifice area (EROA) was similar to COAPT (42 mm^2 vs. 41 mm^2) and larger than MITRA-FR (31 mm^2). Additional findings included a median left ventricular ejection fraction of 40%, tricuspid annular plane systolic excursion (TAPSE) of 18.0 mm, and indexed left atrial volume of 57.0 mL/m^2. Survival rates at 12 and 36 months were 89% and 47%, respectively.
Conclusions: This study characterizes the clinical and echocardiographic profiles of patients undergoing Mitral TEER at our center and compares outcomes with the COAPT and MITRA-FR trials. Our population aligns closely with COAPT in terms of EROA criteria but demonstrates a larger left ventricular chamber size. These findings provide a meaningful contribution to understanding Mitral TEER outcomes in diverse clinical settings.

PO 361. TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR IN SECONDARY MITRAL REGURGITATION: A META-ANALYSIS OF MORTALITY OUTCOMES

Bárbara Lage Garcia, Emídio Mata, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Sílvia Ribeiro, Lucy Calvo, António Lourenço

Unidade Local de Saúde do Alto Ave.

Secondary mitral regurgitation (SMR) in heart failure (HF) worsens outcomes and increases mortality. Transcatheter edge-to-edge mitral valve repair (MTEER) has emerged as a less invasive approach for patients with



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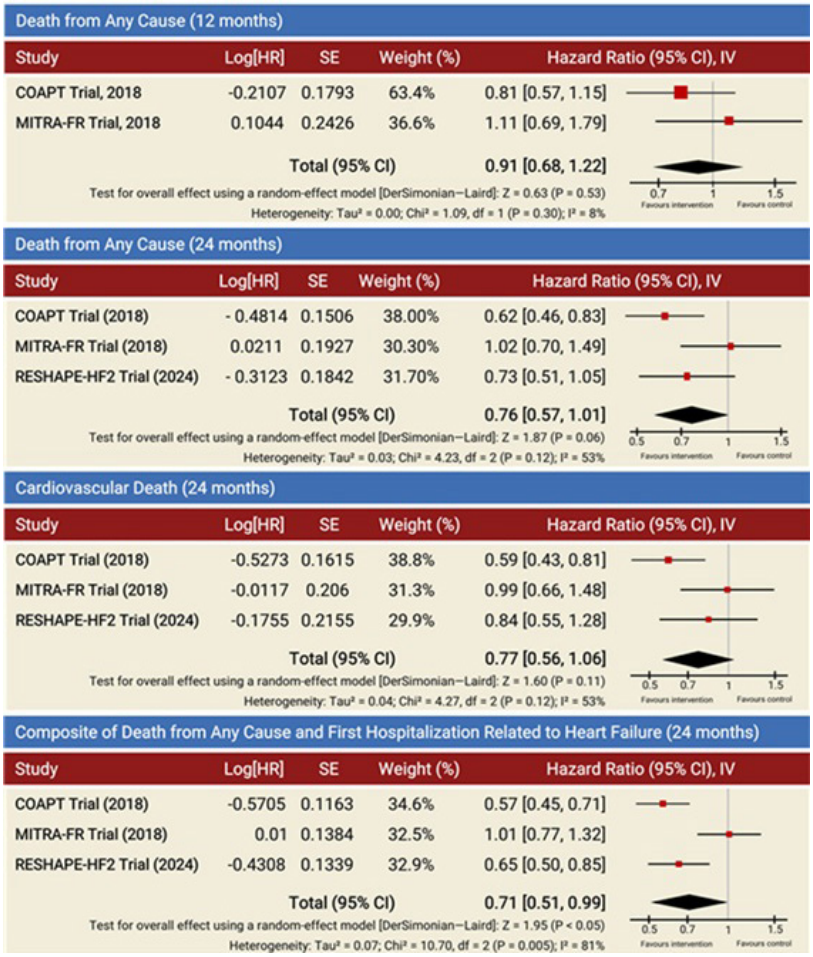

Figure PO 361

prohibitive surgical risk. This meta-analysis aims to assess the effects on mortality of MTEER plus guideline-directed medical therapy (GDMT) versus GDMT alone. PubMed, Cochrane, Scopus and Web of Science were searched (September, 2024) to identify Randomized Controlled Trials (RCT) comparing MTEER plus GDMT versus GDMT alone in adults with HF and SMR reporting on mortality. Data were pooled using an inverse variance random-effects model with mortality reported as hazard ratio (HR) with 95% confidence intervals (CI). Of the 1558 entries, three RCTs (COAPT, MITRA-FR, and RESHAPE-HF2) met the inclusion criteria, totalling 1423 patients. At 12 months, all-cause mortality showed no significant difference (HR 0.91 CI 0.68-1.22). At 24 months, pooled estimate of all-cause mortality showed a borderline non-significant difference favouring MTEER (HR 0.76 CI 0.57-1.01). This result was driven by COAPT, which demonstrated a significant benefit with MTEER, and RESHAPE-HF2, which showed a non-significant trend. For cardiovascular (CV) death, only COAPT demonstrated a significant advantage with MTEER. When pooling all trials, a borderline non-significant difference favouring MTEER was observed (HR 0.77, CI 0.56-1.06). When analyzing the composite endpoint of all-cause mortality and first HF hospitalization at 24 months, both COAPT and RESHAPE-HF2 reported significant benefits from M-TEER over medical therapy alone. This finding was consistent in the pooled meta-analysis of the three trials (HR 0.71 CI 0.51-0.99). The RESHAPE-HF2 trial provides new insights into the efficacy of MTEER in SMR, complementing the findings of COAPT while contrasting with MITRA-FR. COAPT showed significant reductions in mortality and CV death, whereas RESHAPE-HF2 revealed a non-significant trend toward reduced all-cause and CV mortality, positioning MITRA-FR as an outlier. Differences in MR severity, GDMT adherence, and ventricular remodeling across trials may explain these variations. These findings support MTEER as a beneficial therapy to improve survival in well-selected patients, noting that trials excluded those with right ventricular dysfunction or concomitant valvular disease.

PO 362. ISOLATED TRICUSPID VALVE SURGERY PATIENT PROFILE, RISK SCORE AND OUTCOME ASSOCIATION: SINGLE CENTER EXPERIENCE

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[1]Hospital do Espírito Santo, EPE, Évora. [2]Hospital de Santa Cruz.

Introduction: The tricuspid valve disease has recently earned awareness due to the significant morbidity and mortality presented by recent evidence if left untreated. This study examines isolated tricuspid valve surgery's clinical characteristics, risk factors, and association with short and long-term outcomes.
Methods: This retrospective cohort study analyzed 42 patients undergoing isolated tricuspid valve surgery from 2018 to 2024 at a single tertiary center. Patients were grouped based on primary or secondary tricuspid regurgitation (TR). Baseline clinical characteristics, surgical details, and outcomes were assessed, with further stratification by Triscore risk.
Results: The study included 42 patients, with a mean age of 60 ± 16 years, and 62% female. Primary TR was present in 48% (n = 20), and secondary TR in 45% (n = 19). A history of prior cardiac surgery was noted in 26%. Secondary TR patients were not significantly older (70 ± 9 vs. 50 ± 15 years, p = 0.07) and were predominantly female (84 vs. 40%, p = 0.005). They also presented with worse functional status (NYHA > 2 in 74 vs. 40%, p = 0.01), higher NTproBNP levels (2131 vs. 627, p = 0.01), and elevated Triscore risk (> 3 in 79 vs. 45%, p = 0.05). There were no other differences in comorbidities prevalence between groups (Table 1). Surgery consisted of tricuspid valve repair in 56% and replacement in 44%, with bioprostheses used in 88% of

Baseline Characteristics	Total (n=42)	Primary Tricuspid Regurgitation (TR) (n=20)	Secondary Tricuspid Regurgitation (TR) (n=19)	p value
Age, years SD	60±16	50±15	70±9	p=0,07
Female, %	62% (n=26)	40% (n=8)	84% (n=16)	p=0,005
BMI, kg/m2	25,7±5,2	25,5±5,7	26,0±5,1	p=0,2
Previous cardiac surgery, %	26% (n=11)	20% (n=4)	32% (n=6)	p=0,5
Afib, %	33% (n=14)	20% (n=4)	53% (n=10)	p=0,1
DM, %	14% (n=6)	10% (n=2)	16% (n=3)	p=0,6
Myocardial infarction, %	2% (n=1)	5% (n=1)	0% (n=0)	p=0,3
COPD, %	7% (n=3)	5% (n=1)	5% (n=1)	p=1
Chronic liver disease, %	12% (n=5)	10% (n=2)	11% (n=2)	p=1
CKD, %	24% (n=10)	20% (n=4)	26% (n=5)	p=0,7
Pacemaker, %	14% (n=6)	5% (n=1)	16% (n=3)	p=0,3
NYHA functional class > 2, %	58% (n=23)	40% (n=8)	74% (n=14)	p=0,01
Right-sided heart failure, %	75% (n=30)	60% (n=12)	84% (n=16)	p=0,2
RV dysfunction, %	33% (n=13)	35% (n=7)	32% (n=6)	p=0,9
RV volume, ml/m2	100±29	106±27	90±42	p=0,3
TR Severity > 4	48% (n=19)	40% (n=8)	53% (n=10)	p=0,8
TR Type • Primary, % • Secondary, %	 48% 45%	 100% 0%	 0% 100%	
TR Annulus, mm SD	46±7	45±8	46±6	p=0,4
SPAP, mmHg SD	38±9	34±10	40±7	p=0,1
LVEF <50% , %	5% (n=2)	5% (n=1)	5% (n=1)	p=0,6
NTproBNP, pg/dL, IQR	1600 [513-2933]	627 [68-2039]	2131 [911-3792]	p=0,01
Hemoglobin, g/dL	12,7±2,5	13,1±2,8	12,5±2,0	p=0,1
sCreatinine, mg/dL, IQR	1,0 [0,8-1,2]	0,97 [0,74-1,19]	0,95 [0,87-1,22]	p=0,8
Total Billirrubine, mg/dL SD	0,73±0,3	0,66±0,4	0,82±0,22	p=0,2
Triscore • < 3 • 3-6 • >6	 41% 48% 12%	 55% 30% 15%	 21% 68% 11%	p=0,05

Surgery characteristics	Total (n=42)	Primary Tricuspid Regurgitation (TR) (n=20)	Secondary Tricuspid Regurgitation (TR) (n=19)	p value
Surgical tricuspid valve replacement	44% (n=17)	55% (n=11)	32% (n=6)	p=0,1
Prosthesis size Mean, SD Median, IQR	 31±2 31 [27-33]	 31±2 31 [31-31]	 30±1 30 [29-31]	p=1
Type of prosthesis • Biological • Mechanical	 88% (n=15) 12% (n=2)	 82% (n=9) 18% (n=2)	 100% (n=6) 0% (n=0)	
Tricuspid valve repair	56% (n=22)	45% (n=9)	68% (n=13)	p=0,1
Annulus size Mean, SD Median, IQR	 33±2 32 [30-36]	 33±2 34 [32-36]	 32±2 32 [30-36]	p=0,8

Outcomes	Total (n=42)	Primary Tricuspid Regurgitation (TR) (n=20)	Secondary Tricuspid Regurgitation (TR) (n=19)	p value
Intraoperative death, %	0%	0%	0%	p=1
Intraoperative complications, %	14% (n=6)	15% (n=3)	16% (n=3)	p=0,9
Complications during hospitalization, %	26% (n=11)	42% (n=8)	16% (n=3)	p=0,7
Stroke, %	0%	0%	0%	p=1
Myocardial infarction, %	2% (n=1)	0% (n=0)	5% (n=1)	p=0,3
Complete AV block, %	15% (n=3)	0%	0%	p=0,08
30-day mortality, %	0% (n=0)	0% (n=0)	0% (n=0)	#
1-year mortality, %	7% (n=3)	15% (n=3)	0% (n=0)	p=0,06
Hospital admission, %	7% (n=3)	5% (n=1)	11% (n=2)	p=0,5
1-year mortality and hospital admission • Triscore 1-3 (n=10) • Triscore 4-6 (n=18) • Triscore >7 (n=5)	12% (n=5) 0 11% (n=2) 60% (n=3)	10% (n=3) 0 17% (1/6) 33% (1/3)	11% (n=2) 0 8% (1/13) 100% (2/2)	p=0,001
Sig TR postoperative, %	7% (n=3)	0%	16% (n=3)	p=0,3
SPAP postoperative mmHg SD	30±17	22±14	35±17	p=0,6
RV disfunction postoperative, %	31% (n=13)	25% (n=5)	42% (n=8)	p=0,8

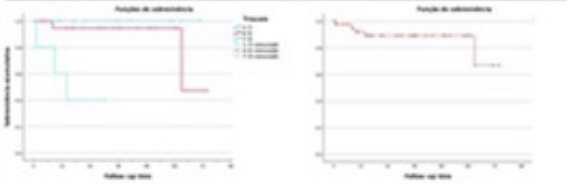

Figure PO 362

replacements. Prosthesis size averaged 31 ± 2 mm, while annulus size for repairs was 33 ± 2 mm, with no differences between groups. Intraoperative mortality was 0%, and complications occurred in 14% (Table 2). During hospitalization, 26% of patients experienced complications, but the 30-day mortality rate was 0%. Patients with primary TR had non-significant more complications (42 vs. 16%, p = 0.7) and a non-significant higher rate of complete AV block (15 vs. 0%, p = 0.08). One-year mortality and readmission rates were both 7% (Table 3). Triscore risk stratification revealed a clear association with outcomes. Patients with a Triscore > 7 had a one-year mortality and hospitalization rate of 60%, compared to 11% for scores between 3-6 and 0% for scores < 3 (p < 0.001).

Conclusions: This study highlights the increasing focus on tricuspid valve disease and the utility of the Triscore for risk stratification. Low-risk patients (Triscore < 3) had excellent outcomes, with no mortality or hospitalizations in one year, demonstrating the safety and efficacy of isolated tricuspid valve surgery. On the other hand, high-risk patients (Triscore > 7) had significantly worse outcomes, emphasizing the importance of careful patient selection and management. Early intervention and tailored strategies are critical to improving survival and reducing complications in this patient population.

PO 363. PREDICTORS AND OUTCOMES OF PROSTHESIS-PATIENT MISMATCH AFTER TRIFECTA BIOPROSTHETIC AORTIC VALVE REPLACEMENT

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Introduction: Severe prothesis-patient mismatch (PPM) has been associated with higher risk of late mortality and incidence of structural valve deterioration (SVD). However, data on this matter is sparse and more clarifying results are need.

Aims: To assess the long-term mortality and reintervention due to SVD related to PPM after surgical aortic valve replacement (AVR) with Trifecta bioprosthesis (TF).

Methods: Single-center, longitudinal study, consecutive patients who underwent surgical AVR with TF between July 2011 and December 2019 with available data from post-operative transthoracic echocardiogram (TTE) were enrolled. Moderate PPM was characterized by an aortic valve effective orifice area indexed (EOAi) between 0.84-0.65 cm^2/m^2, while severe PPM was defined by an EOAi < 0.65 cm^2/m^2 based on the TTE performed (median of 4 months post-operatively). Multivariable logistic regression analysis was employed to assess the covariates influencing PPM. Time-to-event outcomes were studied using Kaplan-Meier Curves, Log-Rank test and multivariable Cox Regression. Median follow-up was 6 years, maximum 12 years.

Results: We included 974 patients, 54% being men and 8% exhibiting PPM: 7% moderate and 1% severe. The cohort was divided into PPM group (joining moderate and severe cases, n = 80) and Free-PPM group (n = 894). Most of the cardiovascular risk factors were comparable between groups, except for diabetes mellitus which was higher in the PPM group (50 vs. 33%, p = 0.003). The mean European System for Cardiac Operative Risk Evaluation (EuroSCORE II) was similar between groups (PPM 3.4 ± 3.1 vs. Free-PPM 3.8 ± 4.6%, p = 0.859) and the body surface area (BSA) was higher in the PPM group (1.82 ± 0.18 vs. 1.76 ± 0.17 m^2, p = 0.007)..Multivariable logistic regression identified diabetes mellitus (OR [95%CI]: 2.00 [1.25-3.18], p = 0.003) and women (OR [95%CI]: 1.75 [1.06-2.86], p = 0.027) as significant predictive factors for PPM. At 1-, 5- and 10- years of follow-up, cumulative survival for Free-PPM vs. PPM were 98 vs. 96%, 80 vs. 74% and 59 vs. 40%, respectively, Log-Rank test p = 0.044. Multivariable adjustment showed that PPM patients had a higher risk of all-causes mortality (HR [95%CI]: 1.48 [1.03-2.14], p = 0.035), adjusted for EuroSCORE II. Reintervention due to SVD was similar between groups (HR [95%CI]: 0.49 [0.21-1.17], p = 0.11).

Conclusions: PPM was linked to poorer survival outcomes compared to patients without PPM. Women and individuals with diabetes mellitus appear to face a higher risk of experiencing PPM. These results underscore the significance of conducting a thorough pre-operative evaluation to select appropriate prosthesis sizes for each patient.

PO 364. UNROOFING SURGERY FOR ANOMALOUS AORTIC ORIGIN OF THE RIGHT CORONARY ARTERY: A SINGLE CENTRE EXPERIENCE

Inês Alves, Sara Ranchordás, João Aquino, Maria Resende, Paulo Oliveira, Márcio Madeira, Pedro Magro, José Neves, Marta Marques, Miguel Sousa-Uva, Miguel Abecasis

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Anomalous aortic origin of the coronary artery (AAOCA) from the opposite sinus is a rare congenital coronary anomaly, which may involve the left or right coronary artery (RCA). The incidence of anomalous aortic origin of the RCA (ARCA) is around 0.05% to 0.1%. Clinical presentation can vary from asymptomatic to sudden cardiac death. The aim of this study is to assess the safety and efficacy of ARCA surgery in one tertiary hospital.
Methods: A retrospective observational study including all patients who underwent surgery for ARCA from January 2016 to December 2024 was performed. All cases were ARCA from the left coronary sinus. A total of 26 patients were submitted to surgery. Concomitant procedures were performed in 8 cases. Surgery was performed by median sternotomy with conventional cardiopulmonary bypass, aortic cross clamping and cardioplegic arrest. Through a transverse aortotomy the anomalous intramural portion of the RCA was accessed. A probe was placed inside the intramural course of the RCA and the intra-aortic roof of the artery was sharply opened throughout the intramural pathway from the origin to take-off in right coronary sinus. Edges were tacked down with fine sutures. When the intramural course was behind the right-to-left commissure, the procedure also included detaching and resuspension of the commissure.
Results: The mean population age was 40 (8 to 76) years, and 69% were males. Most patients were symptomatic (19 cases), with acute and chronic coronary syndrome, fatigue/dyspnoea and syncope. Two patients presented with cardiac arrest. Two patients were diagnosed intra-operatively. Mean CPB time was 69 (± 47) minutes and mean aortic cross-clamping time was 49 (± 31) minutes. One patient had a postoperative myocardial infarction with a subocclusion of the proximal RCA in the first day post-op. The patient underwent percutaneous coronary intervention with stenting of the RCA and was discharged in day 8 post-op, with no further complications. There were no other postoperative complications or in-hospital mortality. Mean ICU stay was below 2 days, and all were discharged home within 9 days after surgery (3 to 9 days). After a mean follow-up time of 2 years (6 days to 8 years), all patients were alive. One patient had a pacemaker implanted 2 months after surgery due to second degree AV block (Mobitz II), which was not present immediately after surgery. There were no other events during follow up.
Conclusions: ARCA is a rare but potentially fatal condition. Patients with malignant course or evidence of ischemia should undergo surgical treatment. Unroofing is a simple, safe and effective procedure for ARCA.

PO 365. INFLUENCE OF GENDER ON LIFE EXPECTANCY AFTER CORONARY ARTERY BYPASS SURGERY

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Introduction: The need for coronary artery bypass grafting (CABG) surgery is steadily rising in the general population, driven by increasing life expectancy. Women, however, tend to have a poorer prognosis following CABG compared to men.
Objectives: To compare long-term survival in patients submitted to CABG with a sex and aged-matched general population.
Methods: Longitudinal, retrospective, single center study, involving consecutive patients who underwent isolated primary CABG between 2004 and 2014. Exclusion criteria included emergency/salvage surgeries or the use of extracorporeal circulation without aortic clamping. All-cause mortality was assessed in February 2023. Long-term survival was evaluated through survival curve in the CABG cohort and general population. Portuguese life tables were taken from the INE (Instituto Nacional de Estatística), specifically for the study period plus follow-up (2004-2022), to estimate the expected number of deaths, using the age-specific death rate. To construct the survival curve for the reference population, estimate standardized mortality ratio (SMR = observed deaths/expected deaths) and to conduct the 1-sample Log-Rank test, comparing expected with observed deaths, we used the software provided by Massachusetts General Hospital Biostatistics Center. The mean follow-up time was 11 years, with a maximum of 19 years.
Results: From 3,978 patients included, 21% were women (W). W were older (mean age 67 ± 9 vs. 63 ± 10 years, $p < 0.001$) and had a higher prevalence of cardiovascular risk factors and severe chronic kidney disease compared to men (M). M more frequently had peripheral arterial disease and smoking habits. Although three-vessel disease was similar between sexes ($p = 0.111$), W were less frequently implanted with ≥ 3 grafts ($p < 0.001$). At 5, 10, and 15 years of follow-up, the cumulative survival rates were 89%, 73%, and 57% for men, and 88%, 68%, and 46% for women, respectively. Comparing with the survival of the Portuguese population, CABG allowed M to equalize the risk of mortality to what was expected (SMR = 1.1; 95%CI: 0.9-1.1), but W showed a higher risk of mortality after CABG than W in the reference population (SMR = 1.6, 95%CI: 1.3-1.8).
Conclusions: This single-center retrospective study demonstrated that CABG offers significant benefit for men, aligning their survival rates with those of the general aged-matched population. However, in women, post-CABG survival rates were lower than expected compared to the aged-matched population suggesting that CABG may be less effective for women.

PO 366. ADDRESSING COMPLICATIONS IN INFECTIVE ENDOCARDITIS: THE CRITICAL ROLE OF SURGICAL INTERVENTION POST-2023 GUIDELINES

Mariana Duarte Almeida, João Gouveia Fiuza, Gonçalo Marques Ferreira, Oliver Correia Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, Nuno Craveiro

ULS Viseu Dão-Lafões.

Introduction: Infective endocarditis (IE) is a severe disease with reported mortality rates ranging from 8% to 40%. Treatment is based on targeted antibiotic therapy and source control, which sometimes requires surgical intervention. The primary indications for surgery include heart failure, uncontrolled infection, and embolization. Performing early surgery is critical to reducing the mortality associated with IE. In fact, recent guidelines recommend urgent surgery (within 3-5 days) when the risk of embolization is high, particularly in cases of large vegetations.
Objectives: This study aimed to evaluate the mortality associated with IE, particularly by identifying IE-related complications and assessing the role of surgical treatment in a center without cardiac surgery.
Methods: Retrospective data were collected over 5 years (December 2018 to December 2023) from hospitalizations due to IE. Demographic data, clinical data, and outcomes were recorded. Mortality at a 6-month follow-up was analyzed. Group-wise comparisons were performed using Chi-square and Independent t-tests.
Results: A total of 88 pts were included, of whom 33.0% were female, with a mean age of 69.6 ± 12.2 years. Native valve IE was diagnosed in 57.5% of pts, prosthetic valve IE in 34.5%, and device-associated IE in 8.0%. The aortic valve was the most affected site (62.5%), followed by the mitral valve (31.3%). The most frequent etiological agents were *Staphylococci* (37.5%), *Streptococci* (22.7%), and *Enterococci* (15.9%). An indication for surgery was identified in 63 pts (87%), with the following complications reported: heart failure (n = 30), including cardiogenic shock (n = 12); local complications (n = 38), with perivalvular abscess being the most common (n = 13); vegetations ≥ 10 mm (n = 19); and cerebral embolization (n = 17). The average hospital stay in our center was 50.2 ± 25.8 days (4-125). Of the included pts, 21 died in our center, and 28 pts were transferred and had surgical intervention. The mean time from diagnosis to surgery was 43.3 ± 27.2 days (2-117). There was higher 6-month mortality among pts with a surgical indication who did not undergo surgery during the hospitalization (n = 17) compared to those who did (n = 2), $p < 0.001$. Among pts who

underwent surgery, no correlation could be established between the time from diagnosis to surgery and mortality.
Conclusions: Early identification of IE-related complications and surgical resolution is essential for better patient outcomes. This study shows a significant mortality difference between pts with surgical indication that underwent surgery comparing with those who did not. Although the guidelines recommend early surgical intervention, this was not consistently observed in our hospital. Further studies are needed to understand the causes of this delay. This study represents an opportunity to review current practices and optimize patient management workflows.

PO 367. IMPACT OF ETIOLOGY, AGE AND LEFT VENTRICULAR EJECTION FRACTION ON 12-MONTH MORTALITY EFFECTS OF TRANSCATHETER EDGE-TO-EDGE REPAIR VS. SURGERY: A META-REGRESSION ANALYSIS

Emídio Mata, Bárbara Lage Garcia, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Lucy Calvo, Sílvia Ribeiro, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: The optimal treatment approach for mitral regurgitation (MR) has recently been debated, particularly concerning outcomes between transcatheter edge-to-edge repair (MTEER) and surgical mitral valve intervention (SMVI). This meta-regression evaluates how the proportion of secondary MR, patient age, and left ventricular ejection fraction (LVEF) influence the 12-month all-cause mortality risk ratio (RR) between MTEER and SMVI.
Methods: A systematic search (October 2024) of PubMed, Cochrane, Scopus, and Web of Science identified randomized control trials (RCT) and propensity-matched observational studies comparing 12-month all-cause mortality in significant MR patients treated with MTEER or SMVI. A mixed-effects meta-regression assessed the influence of secondary MR proportion, age, and LVEF on the 12-month mortality RR.
Results: From 1,482 articles, two RCTs (MATTERHORN and EVEREST II) and three observational studies enrolling a total of 1,787 patients meet inclusion criteria. For a cohort composed only of primary MR cases, the baseline RR of 12-month mortality was estimated at 1.607 [0.622-4.150]. A decrease in RR by a factor of 0.984 [0.889-1.090] was observed per 10% increase in the prevalence of secondary MR. The pooled mean age did not show a significant effect. Meta-regression revealed a baseline RR of 12-month mortality for a 60-year patient of 0.561 [0.039-8.034] with an increase by a factor of 1.071 [0.842-1.363] per additional year. As of LVEF impact, estimated baseline RR for the outcome at a LVEF baseline of 50% was 1.444 [0.999-2.088]. For every additional 5% increase, the RR increased by a factor of 1.038 [0.804-1.340].
Conclusions: This meta-regression did not identify significant moderators of the 12-month all-cause mortality RR between MTEER and SMVI. However, the borderline confidence interval observed for the effect of secondary MR prevalence suggests that MTEER may provide better outcomes in patients with secondary MR, has seen in subgroups analyses of individual trials. The increasing RR trend with higher LVEF, though not significant, suggests SMVI is favoured in higher LVEF or while MTEER is preferred in significant dysfunction. Age showed very limited predictive value for the 12-month mortality RR between MTEER and SMVI. These trends warrant further investigation in larger datasets as small number of included studies (n = 5) limits the statistical power of the analysis and increases the risk of overfitting.

PO 368. COMPARING 30-DAY OUTCOMES OF TRANSCATHETER EDGE-TO-EDGE REPAIR VS. SURGERY IN MITRAL VALVE REGURGITATION: A META-ANALYSIS OF CLINICAL TRIALS AND PROPENSITY-MATCHED COHORTS

Bárbara Lage Garcia, Emídio Mata, Margarida Castro, Luísa Pinheiro, Mariana Tinoco, João Português, Francisco Ferreira, Sílvia Ribeiro, Lucy Calvo, António Lourenço

Unidade Local de Saúde do Alto Ave.

Surgery remains the standard treatment for mitral valve regurgitation (MR), with transcatheter edge-to-edge repair (MTEER) typically reserved for high-risk patients. While surgery is more invasive and carries significant risks, MTEER offers a less invasive alternative. This meta-analysis evaluates the 30-day outcomes of both interventions. In October 2024, PubMed, Cochrane, Scopus, and Web of Science were searched for randomized control trials (RCT) and propensity-matched cohort studies comparing MR patients undergoing either MTEER and SMVI. Pooled data was analyzed using a random-effects inverse variance meta-analysis of risk ratios (RR) and 95% confidence intervals (CI). From 1,482 entries, two RCTs (MATTERHORN and EVEREST II) and three observational studies meet inclusion criteria with a total of 1782 patients. At 30 days, all-cause mortality did not significantly differ between interventions (RR 0.72; CI 0.26-2.00), though more deaths occurred immediately post-intervention in the SMVI group (3.4%; 8/236) compared to MTEER (2.1%; 7/331), a trend specifically seen in pooled data from the RCTs (RR 0.48; CI 0.14-1.72). Regarding other safety outcomes at 30 days, pooled statistical analyses

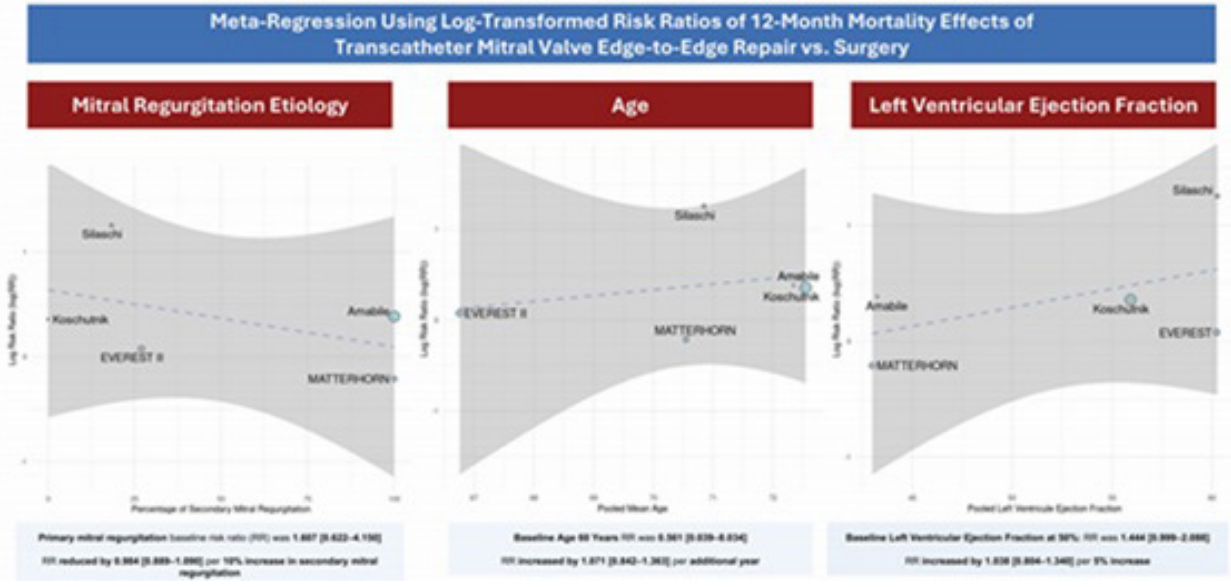

Figure PO 367

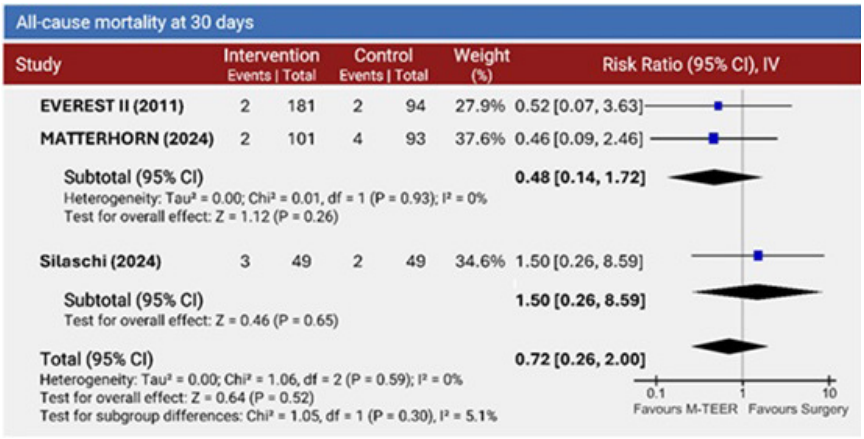

Figure PO 368

could not be performed due to limited reported data. The surgical group experienced more complications, mainly driven by major bleeding. Surgical group had higher rates of stroke (3.0 vs. 0.6%), major bleeding (30.9 vs. 8.9%), prolonged ventilation (> 48 hours), deep wound infections, renal failure requiring dialysis, and new-onset atrial fibrillation (13.6 vs. 1.8%). Reintervention rates were similar between groups (5.3 vs. 5.1%). The findings highlight distinct differences in 30-day outcomes. Surgery is associated with higher complication rates, while MTEER demonstrates fewer adverse events and comparable reintervention rates, with a nonsignificant trend toward higher mortality in the surgical group. However, EVEREST II did not account for patients with unsuccessful MTEER subsequently referred for surgery in outpatient settings, likely underestimating reintervention rates for MTEER. Nevertheless, it is also important to note that during the EVEREST trial, MTEER was a novel technique with limited operator experience, resulting in higher failure rates. The pooled population, combining primary and secondary MR cases, along with comparator groups using different techniques, may introduce heterogeneity that could influence the results.

Domingo, 13 Abril de 2025 | 09:30-11:00

Área de Posters-écran 3 | Sessão de Posters 55 – Arritmologia: novos desafios

PO 369. CARDIONEUROABLATION IN PATIENTS WITH HYPERVAGOTONIA – AN EFFECTIVE SOLUTION?

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Introduction: Cardioneuroablation (CNA) is an ablation technique that targets epicardial ganglionic plexi to reduce syncope burden and avoid pacemaker implantation in young patients with cardioinhibitory vasovagal syncope (VVS). Although CNA has been used to treat VVS, it seems that this technique may have potential benefits in a variety of conditions mediated by hypervagotonia.
Objectives: Our purpose was to evaluate the role of CNA in the treatment of conditions associated with or exacerbated by increased vagal tone such as VVS, functional atrioventricular block (AVB), and sinus node dysfunction (SND).

Table 1. Characterization of P regarding conduction system disease before and after CNA

	Before CNA	After CNA
Sinus pauses >3sec (%)	71	24
1st Degree AVB (%)	35	18
2nd Degree AVB (%)	47	18
2:1 AVB (%)	6	6
High grade AVB (%)	29	6
3rd Degree AVB (%)	6	0

Table 2. Changes in conduction system immediately before and after CNA

	Immediately before CAN	Immediately after CNA	p value
Mean HR (bpm)	68±15	90±8	**<0.001**
Mean PQ interval (ms)	316±51	193±42	**0.001**
Mean Wenckebach cycle (ms)	707±151	470±66	0.110

Table 3. Comparison regarding P's HR, symptomatology and tilt test results before CNA and in the long-term follow-up

	Before CNA	After CNA	p value
Mean HR (bpm)	75 (68 – 83)	85 (80 – 94)	**0.005**
Minimun HR (bpm)	39 (33 – 48)	60 (44 – 77)	**0.046**
Syncope (%)	59	6	**0.002**
Other symptoms (%)	59	35	0.453
Asystole during tilt test (%)	29	6	0.219
Cardioinhibitory response in tilt test (%)	35	6	0.063

Methods: Prospective single-centre study evaluating patients (P) who underwent CNA due to multiple AVB, SND or VVS, and their long-term follow-up in terms of symptoms or evidence of conduction disease.
Results: A total of 17 CNA were performed (15 P, two patients underwent a CNA redo procedure). Median follow-up was 13 (6-27) months - in 53% of P follow-up was performed through remote and clinic follow-up of their implantable loop recorders (ILR); in the remaining P, follow-up was performed with a 24h-Holter. 71% of P were male, mean age was 37 ± 10 years. 29% of P practiced high-intensity training in various modalities. 53% of P performed a tilt test before and after CNA. Before CNA 5 patients presented type 2B response, with 6, 19, 27, 45 and 90 second of asystole; 2 P had a negative result, 1 P had a type 2A response, 1 P presented classic orthostatic hypotension and 1 P presented postural orthostatic tachycardia syndrome. After CNA 5 P had a negative tilt test, 2 P had a type 1 response, 1 P had a type 2A response and 1 P had a type 3 response. Conduction system disease before CNA and in the long-term follow-up after CNA is described in Table 1. The results in terms of heart rate and conduction disease immediately before and after CNA and symptomatology in the long-term follow-up are described in Table 2 and 3, respectively. Other symptoms mentioned in the table were mainly fatigue and dizziness. Pacemaker was only implanted in 1 P with recurrent syncope episodes before and after CNA. There were 2 P with complications: 1 P had a pericardial tamponade during the procedure and pericardial drainage; the

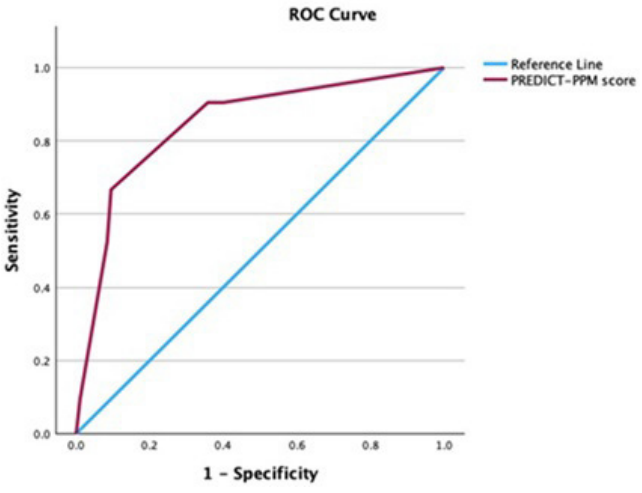
other complication was the migration of an ILR to the pleural space, causing complaints (mainly pleuritic pain) to the P.
Conclusions: In our study CNA showed to be a safe and efficient procedure in terms of treating symptoms (predominantly syncope) and conduction disease in P with conditions mediated by hypervagotonia. Larger studies are required to confirm these findings.

PO 370. SIMPLIFIED TOOL FOR PREDICTING PACEMAKER IMPLANTATION IN PATIENTS WITH BRADYCARDIC SYNCOPE UNDERGOING IMPLANTABLE LOOP RECORDER MONITORING: THE PREDICT-PPM SCORE

João Gouveia Fiuza, Gonçalo RM Ferreira, Mariana Duarte Almeida, Francisco Rodrigues Santos, Oliver Kungel, Vanda Devesa Neto, João Miguel Santos, Júlio Gil Pereira, António Costa

Unidade Local de Saúde de Viseu Dão-Lafões.

Introduction: Implantable loop recorders (ILR) are a valuable tool for investigating unexplained syncope. Identifying clinical predictors for permanent pacemaker implantation (PPMi) can enhance patient selection, improve resource utilization, and potentially prevent unnecessary interventions.
Objectives: To create a simplified score to predict PPMi in patients with suspected bradycardic syncope undergoing ILR monitoring.
Methods: Retrospective study of 119 patients that underwent ILR implantation for suspected bradycardic syncope. Baseline characteristics, symptoms and electrocardiographic parameters were analyzed. Chi-square and Mann-Whitney U were used for comparison between groups. A multivariate logistic regression analysis was performed to identify independent predictors of PPMi. To create PREDICT-PPM score, we assigned points to each variable based on the logistic regression analysis. The natural logarithm of the OR was calculated for each variable, providing a proportional representation of the variable's contribution to the outcome. For simplicity, these weights were then rounded to the nearest whole number. Each variable was assigned points proportional its contribution to the outcome.



Results: Mean age was 62 ± 17 years; 60.5% were women. After ILR placement, 17.6% of patients underwent PPMi. We found that patients with second degree Mobitz I conduction abnormality ($p < 0.001$), first-degree AV block ($p = 0.024$), sinus pauses ($p < 0.005$), abnormal baseline electrocardiogram (sinus bradycardia, AV conduction, intraventricular conduction or repolarization abnormalities) ($p = 0.01$), abnormal 24-hour Holter monitoring (non-significant pauses or significant burden of premature contractions) ($p < 0.005$), typical symptoms ($p < 0.001$) and fall with associated trauma ($p < 0.001$) had more PPMi. Logistic regression identified independent predictors. Two points were assigned to fall with trauma and two points to typical complaints (OR 4.89, $p = 0.01$ and OR 7.45, $p < 0.001$, respectively). First-degree AV block was assigned 1.5 points, reflecting its moderate contribution to the prediction of PPMi (OR 4.58, $p = 0.06$). Using ROC curve analysis, we obtained an AUC of 0.846 ($p < 0.001$). The optimal cutoff score of 2.75 achieved a sensitivity of 66.7% and a specificity of 90.5% (Youden's Index = 0.572). Patients were then classified as high or low risk. High risk group was significantly associated with PPMi (60.9 vs. 7.5%, $\chi^2 = 35.39$, $p < 0.01$).
Conclusions: The PREDICT-PPM score predicts PPMi in patients with suspected bradycardic syncope undergoing ILR monitoring. Given its high specificity, it has potential to identify patients with low risk, potentially reducing unnecessary procedures and improving cost-effectiveness. Future prospective studies with larger cohorts are needed to validate this scoring system and confirm its impact on clinical outcomes.

PO 371. PREDICTORS OF PACEMAKER IMPLANTATION IN PATIENTS UNDERGOING IMPLANTABLE LOOP RECORDER MONITORING FOR SUSPECTED BRADYCARDIC SYNCOPE

João Gouveia Fiuza, Gonçalo RM Ferreira, Mariana Duarte Almeida, Oliver Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, João Miguel Santos, Júlio Gil Pereira, António Costa

Unidade Local de Saúde de Viseu Dão-Lafões.

Introduction: Implantable loop recorders (ILR) are widely used to investigate unexplained syncope, palpitations and cryptogenic stroke. However, the diagnostic yield of ILRs in bradycardic syncope and their influence on subsequent clinical decisions, such as permanent pacemaker (PPM) implantation, remain areas of investigation.
Objectives: To identify clinical and electrocardiographic predictors of PPM implantation in patients with suspected arrhythmic syncope in patients with ILR.
Methods: Retrospective study of 119 patients that underwent ILR implantation for unexplained suspected bradycardic syncope. Baseline characteristics, symptoms and electrocardiographic parameters were analyzed prior to ILR implantation. Chi-square and Mann-Whitney U were used for comparison between groups. A multivariate logistic regression analysis was performed to identify independent predictors of PPM implantation.
Results: Mean age was 62 ± 17 years; 60.5% were women. After ILR placement, 17.6% of patients underwent PPM placement. We found that patients with second degree Mobitz I conduction abnormality (80 vs. 16.8%, $\chi^2 = 11.966$, $p < 0.001$), first-degree AV block (45.5 vs. 14.8%, $\chi^2 = 6.449$, $p = 0.024$), sinus pauses (100 vs. 16.1%, $\chi^2 = 13.788$, $p < 0.005$), abnormal baseline electrocardiogram (sinus bradycardia, repolarization, AV or intraventricular conduction abnormalities) (27.6 vs. 8.2%, $\chi^2 = 6.593$, $p = 0.01$), abnormal 24-hour Holter monitoring (non-significant pauses or significant burden of premature contractions) (29.3 vs. 6.5%, $\chi^2 = 7.861$, $p < 0.005$), typical symptoms (48.3 vs. 7.8%, $\chi^2 = 24.752$, $p < 0.001$) and fall with associated trauma (37.2 vs. 6.8%, $\chi^2 = 16.823$, $p < 0.001$) had more PPM implants. We did not find statistically significant differences in advanced age ($p = 0.184$), sex ($p = 0.52$), past medical history or drugs, right bundle branch block (BBB) ($p = 0.383$), left BBB ($p = 0.426$) or prolonged QT interval ($p = 0.746$). We conducted logistic regression to determine independent predictors. Fall with associated trauma (OR: 4.89, 95%CI: 1.47-16.30, $p = 0.010$) and the presence of typical symptoms (OR: 7.45, 95%CI: 2.33-23.81, $p < 0.001$) emerged as strong independent predictors of PPM implantation following ILR monitoring. First-degree AV block exhibited a trend towards significance (OR: 4.59, 95%CI: 0.94-22.58, $p = 0.060$) although not reaching significance. The model demonstrated good calibration (Hosmer-Lemeshow $p = 0.819$) and an overall accuracy of 85.3%.
Conclusions: This study highlights that the presence of typical symptoms and fall with associated trauma are key independent predictors of PPM implantation following ILR monitoring. These findings underscore the importance of careful clinical evaluation, as these predictors can help refine patient selection, optimize resource utilization and potentially improve outcomes.

PO 372. ENHANCING QUALITY OF LIFE IN REFLEX SYNCOPE PATIENTS: EFFICACY OF A STRUCTURED EDUCATIONAL PROGRAMME

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Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Reflex syncope (RS) is a prevalent clinical condition that significantly impairs patients' quality of life (QoL) and imposes substantial economic burdens on healthcare systems. Recurrent syncope episodes often lead to frequent emergency department visits and hospital admissions, escalating healthcare costs and adversely affecting patients' daily activities and psychological well-being. Despite recommendations for non-pharmacological interventions—such as patient education, lifestyle modifications, and reassurance—there remains a lack of structured educational programmes specifically tailored to RS patients, underscoring the need for targeted interventions to reduce syncope recurrence and improve QoL.
Objectives: This study aims to evaluate the efficacy of a structured educational programme in enhancing QoL among patients with recurrent RS. By focusing on patient education and reinforcement of syncope prevention strategies, this programme seeks to provide evidence supporting its integration into clinical practice.
Methods: We conducted a prospective study involving patients referred for head-up tilt testing (HUT) at our department between January 2023 and October 2024. Participants completed the Impact of Syncope on Quality of Life (ISQL) questionnaire at baseline. Post-HUT, patients engaged in a comprehensive educational and training programme aimed at mitigating syncope recurrence. Follow-up assessments, including ISQL re-evaluation and reinforcement of preventive measures, were conducted via teleconsultation at 3, 6, and 12 months.
Results: The study enrolled 163 patients (63.8% female; mean age 56.3 years), with 62% completing the programme. Syncope recurrence was observed in 21% (n = 34) of participants, with a recurrence rate of 1.5 episodes per year; only 7% (n = 11) required emergency department visits. Younger patients (≤ 40 years) with a hypotensive phenotype demonstrated the highest adherence to preventive measures. The mean ISQL score improved significantly from 44.9 ± 12.1 at baseline to 54.9 ± 6.4 at the final follow-up ($p < 0.05$), largely due to effective avoidance of specific triggers, such as "being in warm or hot environments" (severity at admission 6.35 vs. discharge 15.87) and "standing for long periods (> 5 min)" (severity at admission 6.35 vs. discharge 26.98), underscoring the value of targeted education.
Conclusions: Our findings demonstrate that a structured educational programme can significantly improve QoL in patients with recurrent RS by reducing syncope recurrence and fostering adherence to preventive strategies. This evidence supports the integration of patient-centred educational interventions into standard care protocols, highlighting the substantial benefit of structured education in managing RS effectively.

PO 373. MITRAL VALVE PROLAPSE: ARRHYTHMIC RISK AND PROGNOSIS

Mónica Dias, Sofia Fernandes, Diana Fernandes, Inês Conde, Rodrigo Silva, Carla Ferreira, Filipe Vilela, Nuno Salomé, Catarina Vieira

Hospital de Braga.

Introduction: Mitral valve prolapse (MVP) affects nearly 2 to 3% of the population and is the most common structural heart valve abnormality. It is a mostly benign condition, but there are subgroups of patients with MVP who are at increased risk of malignant ventricular arrhythmias (VA) and ultimately sudden cardiac death (SCD).
Objectives: To characterise a population of patients with MVP and identify factors associated with increased arrhythmic risk.
Methods: This was a retrospective observational study including patients with MVP who underwent transthoracic echocardiography (TTE) in our centre between 2014 and 2019, with a minimum follow-up of 1 year. Patients with left ventricular ejection fraction (LVEF) £35% and/or other significant structural heart disease were excluded. Patients were divided into three groups according to their arrhythmic risk: low risk (non-complex premature ventricular contractions (PVC), intermediate risk (frequent PVC: ≥ 5%) and high risk (complex ventricular arrhythmia). The factors associated with arrhythmic risk and predictors of high arrhythmic risk were identified. Multivariate analysis was performed to identify predictors of arrhythmic risk and Kaplan-Meier survival analyses was performed to evaluate differences in mortality among groups.
Results: 224 patients were included in the study (53.6% male, 66 ± 16.2 years). A total of five patients (4.9%) were included in the high-risk group, 60 patients (58.2%) in the intermediate-risk group, and 38 patients (36.9%) in the low-risk group. Patients with a higher arrhythmic risk were often older (75 vs. 64 years, $p = 0.021$) and more frequently exhibited atrial fibrillation (80 vs. 32%, $p = 0.032$), bileaflet MV prolapse (100 vs. 47%, $p = 0.021$), flail leaflet (20 vs. 10%, $p = 0.025$), severe left atrial dilatation (50 vs. 5%, $p = 0.005$) and severe mitral regurgitation (MR, 100 vs. 38%). On multivariate analysis, predictors of high arrhythmic risk were bileaflet MV prolapse and severe MR. The mortality rate was found to be significantly higher in this group (80 vs. 27%, $p = 0.004$), supported by the Kaplan-Meier curves showing that high arrhythmic risk had significant impact on time to death ($p = 0.002$).
Conclusions: Arrhythmic risk stratification should be considered in the follow-up and guidance of patients with MVP. Early identification of factors associated with a higher arrhythmic risk other than the severity of mitral valve disease will allow the identification of individuals who will benefit from a more regular clinical and heart rhythm assessment and from particular therapeutic interventions.

PO 374. DO IMPLANTABLE LOOP RECORDERS HAVE A ROLE IN HYPERTROPHIC CARDIOMYOPATHY?

Margarida G. Figueiredo, José Miguel Viegas, Isabel Cardoso, Pedro Brás, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Mário Oliveira, Sílvia Aguiar Rosa, Rui Ferreira

Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Implantable loop recorders (ILRs) are a minimally invasive tool for the diagnosis of arrhythmias that have been increasingly used for the detection of infrequent arrhythmias in patients (P) with cardiomyopathies, especially in the presence of high-risk markers. The role of ILR in improving the detection of significant arrhythmias that require a change in clinical management remains unexplored.
Objectives: Our purpose was to evaluate the diagnostic yield of ILR monitoring, regarding clinically relevant arrhythmias and subsequent management in P with cardiomyopathies receiving an ILR.
Methods: Prospective single-centre study in P with cardiomyopathies in "grey zone" for the risk of ventricular arrhythmias, who, for this reason, underwent an ILR implantation. The primary endpoint was a meaningful arrhythmic event leading to a change in clinical management.
Results: 45 P were included, 51% (23P) male, median age 62 (48-71) years. The underlying disease was hypertrophic cardiomyopathy (HCM) in 69% (31P), dilated and non-dilated left ventricle cardiomyopathy (DCM/NDLVC) in 26% (12P) and transthyretin amyloidosis (ATTR) in 4% (2P). The most frequent risk markers were brief run of non-sustained ventricular tachycardia (VT) in 42%, unexplained syncope or pre-syncope in 36%, family history of premature sudden cardiac death (SCD) in a first-degree relative in 36%, and palpitations suspicious of arrhythmic origin in 18%. 58% of the P with DCM/NDLVC had LV ejection fraction < 50%, of which 8% had extensive late gadolinium enhancement (LGE). Regarding P with HCM, median HCM Risk-SCD score was 3.07 (2.68-3.76)%, with 16% having an estimated 5-year risk of SCD ≥ 4%. Mean maximum wall thickness was 20 ± 4 mm, left atrial diameter (LAD) 43 ± 7 mm, 23% had obstructive HCM, LGE was present in 74% - with 52% of P with extensive LGE - and LV apical aneurysm in 3%. During a mean follow-up of 19 ± 13 months, 44% of P had, at least, one ILR-guided diagnosis. ILR-guided diagnosis and therapies are described in Table 1 and 2, respectively. *De novo* atrial fibrillation (AF) was diagnosed in 24% of P and was the main detected event. Regarding devices,

Table 1. ILR-guided diagnosis in P with cardiomyopathies.

	Total N = 45	HCM N = 31	DCM/NDLVC N = 12	Amyloidosis N = 2
ILR-guided diagnosis (%)	**20 (44)**	**12 (39)**	**6 (50)**	**2 (100)**
De novo AF (%)	**11 (24)**	7 (23)	2 (17)	2 (100)
Ventricular tachycardia (%)	**10 (22)**	5 (16)	5 (42)	0
Non-Sustained VT (%)	**9 (20)**	5 (16)	4 (33)	0
Sustained VT (%)	**2 (4)**	1 (3)	1 (8)	0
Conduction disease (%)	**4 (9)**	4 (13)	0	0

Table 2. ILR-guided therapies in P with cardiomyopathies.

	Total N = 45	HCM N = 31	DCM/NDLVC N = 12	Amyloidosis N = 2
ILR-based therapy (%)	**13 (29)**	**7 (23)**	**4 (33)**	**2 (100)**
Oral Anticoagulation initiated (%)	**10 (22)**	6 (19)	2 (17)	2 (100)
Device implantation (%)	**9 (20)**	5 (16)	3 (25)	1 (50)
ICD (%)	**9 (20)**	5 (16)	3 (25)	1 (50)
Antiarrhythmic drugs initiated or changed (%)	**4 (9)**	2 (7)	0	2 (100)
EP study/Ablation (%)	**3 (7)**	2 (7)	1 (8)	0

Figure PO 374

20% of P received implantable cardioverter-defibrillators (ICD), one of which with subsequent appropriate shocks. The incidence of the primary endpoint was 36%.
Conclusions: This study provides insight into the incremental value of ILRs in this group of P, not only for the diagnosis of ventricular arrhythmias, but also for detection of subclinical AF, which can lead to a different therapeutic management in this specific population.

PO 375. THE EASY-WPW ALGORITHM IN PRACTICE: REAL-WORLD ACCURACY IN PREDICTING ACCESSORY PATHWAY LOCATIONS

Miguel Rocha, Pedro Palma, Helena Moreira, Ana Pinho, Cátia Oliveira, Luís Santos, Emanuel Oliveira, Bernardo Cruz, Joana Gonçalves, Benedita Couto Viana, Luana Alves, Rui Rodrigues

Centro Hospitalar de S. João, EPE.

Introduction: Accurate localization of accessory pathways (APs) is essential for effective ablation therapy. The EASY-WPW algorithm, published in 2023, is designed to help clinicians predict AP locations based on baseline ECGs, potentially enhancing procedural efficiency. However, external validation of the algorithm's accuracy and generalizability remains limited.
Objectives: This study aimed to assess the sensitivity and accuracy of the EASY-WPW algorithm in a cohort of patients who underwent successful AP ablation at a tertiary center in Portugal.
Methods: We conducted a retrospective analysis of patients who underwent successful AP ablation from 2021 to 2024. Baseline characteristics and procedural data were collected. Two electrophysiology department members, including a cardiology resident and an electrophysiologist, independently assessed baseline ECGs using the EASY-WPW algorithm. Additionally, an accessible artificial intelligence (AI)-based tool (ChatGPT) was utilized to apply the algorithm to ECGs. The algorithm's sensitivity and positive predictive value (PPV) were calculated based on results from electrophysiological (EP) studies.
Results: A total of 154 patients (72.5% male, n = 111) with a mean age of 33.9 ± 18.5 years were included. The mean body mass index (BMI) was 24.3 ± 5.4 kg/m^2, and the mean heart rate was 75.0 ± 17.3 bpm. Among the cohort, 27.1% were under 18 years old. The algorithm correctly identified AP location in 59% of cases, yielding a PPV of 57.8% and a sensitivity of 55.7%. PPVs for right-sided, left-sided, septal, and lateral pathways were 55.6%, 62.5%, 58.3%, and 56.8%, respectively. No significant differences in algorithm accuracy were found based on patient age (t = 0.733, p = 0.232), BMI (t = -10.16, p = 0.311), or heart rate (t = -1.389, p = 0.167). Similarly, clinician experience (resident vs. electrophysiologist) did not significantly affect accuracy (55.8 vs. 59%). ChatGPT's performance in predicting AP locations was significantly lower compared to clinicians (26.5 vs. 59%).
Conclusions: In this cohort, the EASY-WPW algorithm showed moderate accuracy, correctly localizing APs in 59% of cases. Patient age, BMI, heart rate, and clinician experience did not significantly impact algorithm performance. Our findings suggest that clinicians, especially those new to electrophysiology, should exercise caution when applying simplified algorithms across diverse populations. Furthermore, while the use of ChatGPT may be tempting, it is currently not advisable for this purpose given its lower accuracy in predicting AP locations.

PO 376. GENERAL ANAESTHESIA COMPARED TO CONSCIOUS SEDATION FOR CATHETER ABLATION OF ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA IN ADOLESCENTS

Pedro Miguel Mangas Neto da Palma, Miguel Rocha, Helena Moreira, Luís Santos, Cátia Oliveira, Ana Pinho, João Calvão, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Ana Lebreiro, Luís Adão

Centro Hospitalar de S. João, EPE.

Introduction: Atrioventricular nodal reentrant tachycardia (AVNRT) is one of the most common types of supraventricular tachycardia (SVT) in adolescents, with catheter ablation (CA) for slow pathway modification being the preferred treatment for symptomatic patients. For safety and comfort, ablation in paediatric patients is typically performed under general anaesthesia (GA). However, GA can contribute to prolonged procedural time

and extended hospital stays. Alternatively, ablation under conscious sedation (CS) has been safely performed in adolescents, though data on its procedural and long-term outcomes remain limited.
Objectives: To characterise AVNRT ablation in adolescents and evaluate long-term outcomes and complications in ablations performed under CS compared to those under GA.
Methods: We conducted a single-centre retrospective cohort study, including all patients aged 12 to 18 who underwent CA for AVNRT between 2016 and 2023. Patients with congenital heart disease, severe comorbidities or accessory pathways were excluded.
Results: A total of 58 patients underwent CA during the assessment period, with a mean age of 15.3 ± 2.19 years. The median weight was 56 kg (IQR 17 kg), and 59% were female. SVT was documented in 90% of cases. Additionally, 84% of patients were on antiarrhythmic medication: 67% were receiving beta-blockers alone, 14% were on a combination of beta-blockers and flecainide, and 3% were on flecainide alone. All patients underwent radiofrequency CA. In 55% of the procedures, patients received GA, and an electroanatomic mapping was performed in 76% of cases. Typical AVNRT was observed in the majority of patients (98%). Patients in the GA group were younger (mean age 14.4 vs. 16.3 years, $p < 0.001$) and had a lower median weight (56 kg vs. 65 kg, $p = 0.042$). Procedure duration tended to be longer in the GA group (65 vs. 51 minutes, $p = 0.058$), although fluoroscopic time (0.8 vs. 0.6 minutes, $p = 0.791$) and radiation dose (32 vs. 27 μGym^2, $p = 0.881$) were similar between the groups. Over a median follow-up of 3.5 years, AVNRT recurrence rates (9.1% in the GA group and 6.3% in the CS group, $p = 0.477$) and repeat ablation rates (4.5% in the GA group and 6.3% in the CS group, $p = 0.671$) were similar. No major complications were observed; however, two cases of first-degree AV block occurred in the GA group, while none were reported in the CS group.
Conclusions: Our study suggests that AVNRT CA in adolescents can be effectively performed under CS, with high procedural success and a low risk of complications or recurrence.

PO 377. PAEDIATRIC CATHETER ABLATION IN A TERTIARY CENTRE: CONTEMPORARY CHARACTERIZATION AND CLINICAL OUTCOMES

Pedro Mangas Palma, Helena Moreira, Miguel Rocha, Luís Santos, Ana Pinho, Cátia Oliveira, João Calvão, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Ana Lebreiro, Luís Adão

Centro Hospitalar de S. João, EPE.

Introduction: Catheter ablation (CA) is now the preferred treatment for various arrhythmias in paediatric and adolescent patients. While technique and applications have advanced, much of the existing literature relies on earlier data, highlighting a need for updated insights into current practice.
Objectives: This study aims to characterize the procedures and outcomes of paediatric CA at a tertiary care centre.
Methods: We conducted a single-centre retrospective cohort study including all patients under 18 years old referred for CA at our centre from 2016 to 2023. Baseline characteristics, procedure details, and arrhythmia recurrence were recorded.
Results: A total of 204 patients (mean age 14.9 ± 2.81 years; 56% male) were included. Most had structurally normal hearts, with 9.8% presenting congenital heart disease. A majority (91%) were on antiarrhythmic medications before ablation. The procedure was performed under general anaesthesia in 85% of cases. Electroanatomical mapping was used in 95%, with a low average radiation dose (23.6 ± 7.81 μGym^2), and a contact force catheter in 29%. The most common arrhythmias were atrioventricular reentrant tachycardia (61%) and atrioventricular nodal reentrant tachycardia (28%), followed by other supraventricular (8%) and ventricular tachycardias (3%). Ablation was performed in 91% of cases, with acute success in 98% of those. Repeat procedures were required in 2.9%, and no major complications occurred.
Conclusions: This study demonstrates that CA is highly effective and safe for paediatric arrhythmia patients, with a high success rate and low complication incidence, providing updated insights into the efficacy and safety of paediatric catheter ablation.

Domingo, 13 Abril de 2025 | 11:30-12:30

Área de Posters-écran 1| Sessão de Posters 56 – Cardioncologia de ponta I

PO 378. 18F-FDG UPTAKE: A POTENTIAL BIOMARKER FOR THORACIC AORTIC INFLAMMATION IN HYPERTENSIVE BREAST CANCER PATIENTS

Rafaela Fernandes, Didier Martinez, João Borges-Rosa, Rodolfo Silva, Gracinda Costa, Joana Moura Ferreira, Lino Gonçalves, Maria João Ferreira

CHUC - ULS Coimbra.

Introduction: High blood pressure (HBP) is a known cardiovascular risk factor (CVRF) linked to atherosclerosis and thoracic aorta aneurysms, potentially driven by pro-inflammatory metabolism induced by the oscillating shear stress. Fluorodeoxyglucose (^{18}F-FDG), a glucose analogue, is used for breast cancer (BC) stating and treatment monitoring. We hypothesized that patients with HBP, but no thoracic aorta disease may exhibit increased thoracic aortic ^{18}F-FDG uptake, indicating vascular inflammation.
Methods: Single-centre retrospective observational study of consecutive women under 55 years with BC, who underwent staging with ^{18}F-FDG PET/CT prior to treatment between 2018 and 2021. ^{18}F-FDG vascular uptake was obtained as tissue-to-background ratio (TBR) by measuring maximum standard uptake value (SUV) in the aorta, avoiding spill over from adjacent structures. The lesion maximum SUV was corrected for blood pool activity by dividing it by right atrium mean SUV. ^{18}F-FDG tumour uptake was obtained as metabolic tumour volume (MTV). Total lesion glycolysis (TLG) was the product of MTV and tumour medium SUV. Primary endpoint was the evidence of increased vascular thoracic aorta metabolism in patients with BC and HBP. Data was collected through revision of informatized clinical files. Statistical analysis used Kolmogorov-Smirnov, T Student test, and non-parametric equivalents.
Results: 45 women with BC were included. Mean age was 43.3 (± 7.59) years, 4 (8.89%) had HBP. Mean follow-up time was 47 (± 14.9) months. Mean ascending thoracic aorta TBR was 1.75 ± 0.57, median aortic cross TBR was 1.68 ± 0.73 and mean descending thoracic aorta TBR was 2.11 ± 0.64. A statistically significant relation between HBP and TBR was showed for the ascending thoracic aorta (*p-value* = 0.039) but not for the aortic cross (*p-value* = 0.093) nor the descending thoracic aorta (*p-value* = 0.383). All patients had normal-sized ascending thoracic aorta, with a median dimension of 31.0 (± 4.50) mm. Correlation between ascending thoracic aorta TBR and both MTV (*p-value* = 0.811) and TLG (*p-value* = 0.856) was not statistically significant. All-cause mortality was 22.2% (n = 10), with no cardiovascular (CV) mortality or significant CV events.
Conclusions: In BC patients with HBP, increased 18F-FDG uptake in the ascending thoracic aorta suggests vascular inflammation, potentially contributing to atherosclerosis and thoracic aortic aneurysms. Larger prospective studies with extended follow-up are required to confirm if this inflammation predisposes to cardiovascular events.

PO 379. CARDIOVASCULAR TOXICITY PREDICTION IN BREAST CANCER PATIENTS: THE HFA/ICOS RISK TOOL IN REAL-WORLD PRACTICE

Beatriz Vargas Andrade[1], Nuno Cotrim[1], Catarina Coelho[1], Rita Veiga[1], Mariana Saraiva[2], Vítor Martins[1]

[1]Hospital Distrital de Santarém, EPE. [2]HLeiria.

Introduction: Advances in cancer prevention and treatment have significantly improved breast cancer (BC) survival, but chemotherapy-related cardiac dysfunction (CTRCD) is a growing concern. The 2022 ESC Guidelines on Cardio-Oncology recommend baseline cardiovascular risk stratification using the risk assessment tools proposed by the Heart Failure Association (HFA) and the International Cardio-Oncology Society (ICOS) for

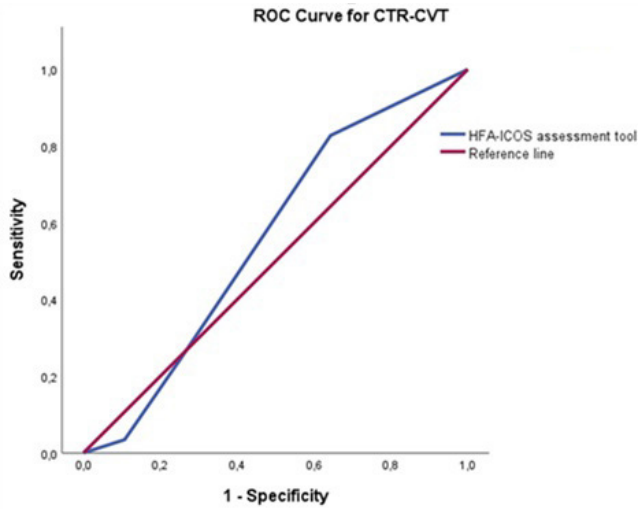
patients scheduled to receive anthracyclines (AC) and anti-human epidermal growth factor receptor-2 (HER2) agents. However, its ability to predict severe CTRCD lacks real-life validation, particularly in the Portuguese population.
Objectives: To evaluate the clinical application of HFA/ICOS risk score in BC patients undergoing chemotherapy with AC or anti-HER2 agents and its utility in predicting the development of CTRCD in a Portuguese population.
Methods: BC patients treated with AC or anti-HER2 agents and followed in Cardio-oncology consultation in a local Portuguese hospital were retrospectively divided according to the HFA-ICOS risk proforma. The primary endpoint was moderate to severe CTRCD. All-cause and cardiovascular (CV) mortality were secondary endpoints.
Results: We included 65 pts (100% women; mean age 60 ± 10 years; 38% ≥ 65 years). 15 (23%) had metastatic disease. Regarding chemotherapy regimens, 45% were exposed to AC only, 10% to anti-HER2 only and 45% to AC plus anti-HER2. According to the HFA-ICOS tool, 22 pts (34%) were classified as low risk, 24 (37%) as moderate risk, 11 (17%) as high risk, and 8 (12%) as very high risk. Median follow-up was 36 months (interquartile range 23-70). 15 pts (23%) developed CTRCD: 14 (93%) moderate to severe, 9 (60%) symptomatic. 9 pts (14%) died, 2 by CV cause. A statistically significant association between very high basal CV risk and development of moderate to severe CTRCD was found (p 0.009; OR = 8.9, 95%CI [1.8;43]).The same was verified for all-cause mortality (p 0.01; OR = 10, 95%CI [1.9;54]) and CV mortality (p 0.01; OR = 1.3, 95%CI [0.9;2]).
Conclusions: This study supports the HFA/ICOS score's ability to predict moderate to severe CTRCD in breast cancer pts treated with AC or anti-HER2 agents, highlighting the importance of close monitoring, especially in very-high risk pts.

PO 380. CARDIOVASCULAR TOXICITY RISK STRATIFICATION IN CANCER PATIENTS: AN UNMET NEED IN CARDIO-ONCOLOGY

Isabel Martins Moreira, Marta Catarina Bernardo, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, Alzira Nunes, Inês Silveira, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Cardiovascular toxicity (CVT) risk stratification is crucial before initiating potentially cardiotoxic anticancer therapies. While the HFA-ICOS Cardio-Oncology risk assessment tool is recommended by ESC guidelines, its validation is not yet robustly established.
Objectives: This study aimed to evaluate the accuracy of the HFA-ICOS tool in predicting cancer therapy-related CVT (CTR-CVT) in a cohort of cancer patients.
Methods: A retrospective study was conducted on patients referred to cardio-oncology outpatient clinic in our center between May 2021 and July 2024. Baseline cardiovascular risk (BCVR) was assessed using the HFA-ICOS tool. CTR-CVT and cancer therapy-related cardiac dysfunction (CTRCD) were defined according to 2022 ESC Cardio-oncology guidelines. Demographic, clinical, echocardiographic, and laboratory data were analyzed. The predictive capacity of the HFA-ICOS tool was evaluated using ROC curves and their respective area under the curve (AUC).
Results: Of a total of 135 patients referred to cardio-oncology outpatient clinic, only 57 (42.2%) were eligibly classified by HFA-ICOS tool: 26.3% low, 49.1% intermediate, 17.5% high and 7.1% very high risk. These patients were mostly female (50.9%), with a mean age of 66.2 ± 11.5 years. Breast cancer was the most prevalent (42.1%), followed by hematological (31.6%) and gastrointestinal malignancies (17.5%), with a significant proportion of patients with metastatic disease (42.9%). Regarding chemotherapy regimens, 47.4% were exposed to anthracyclines and/or anti-HER-2 therapies, 24.6% to multiple myeloma therapies and 17.5% to vascular endothelial growth factor (VEGF) inhibitors. CTR-CVT occurred in 50.9% of patients, mainly in the form of CTRCD. CTRCD was observed in 18.5% of the patients (27.3% mild, 40.9% moderate and 31.8% severe), mostly asymptomatic (68.2%). Therapy suspension was required in 28% of cases, with a complete recovery rate of 44% during follow-up. ROC curve analysis demonstrated poor predictive power of HFA-ICOS for CTR-CVT development (AUC: 0.558, p = 0.457, 95%CI 0.405-0.710). There were no significant differences in all-cause mortality (21.4 vs. 34.9%, p = 0.347) or hospitalization (57.1 vs. 71.4%, p = 0.322) between patients with low vs. high BCVR.



Conclusions: In this cohort, HFA-ICOS tool exhibited a limited predictive ability for CTR-CVT development, and BCVR did not correlate to adverse events. These findings highlight the need for enhanced risk stratification tools to improve prevention and surveillance strategies in cancer patients.

PO 381. CHEMOTHERAPY-INDUCED CARDIOVASCULAR RISK FACTORS IN BREAST CANCER PATIENTS: WHAT'S NEW?

Rafaela Fernandes, Luísa Gomes Rocha, João Borges-Rosa, Rodolfo Silva, Gracinda Costa, Joana Moura Ferreira, Lino Gonçalves, Maria João Ferreira

CHUC - ULS Coimbra.

Introduction: Breast cancer (BC) is the most common cause of cancer in women. With increasing patient survival rates, it is crucial to understand the long-term effects of BC therapy on survivors' health. This study aimed to investigate the relationship between different chemotherapy therapies for BC and the development of cardiovascular risk factors (CVRF).
Methods: Single-centre retrospective observational study of consecutive women under 55 years with BC, who underwent staging with ^{18}F-FDG PET/CT prior to treatment between 2018 and 2021. ^{18}F-FDG vascular uptake was obtained as tissue-to-background ratio (TBR). ^{18}F-FDG tumour uptake was obtained as metabolic tumour volume (MTV). Total lesion glycolysis (TLG) was the product of MTV and tumour medium SUV. The study endpoints included the new diagnosis of CVRF and the relationship between CVRF, cancer therapy and tumour burden.
Results: 45 women with BC were included. Mean age was 43.3 (± 7.59) years. 35 (77.8%) had no CVRF, 2 (4.44%) were smokers, 7 (15.6%) had dyslipidaemia, 1 (2.22%) had diabetes *mellitus*, and 4 (8.89%) had hypertension. Positivity for hormonal receptors was high (oestrogen-30/71.4%; progesterone-24/58.5%), low for human epidermal growth factor-2 receptors (13/31.0%), and 7 (17.1%) were triple negative. Mean follow-up time was 47 (± 14.9) months. All-cause mortality was 22.2% (n = 10), with no cardiovascular (CV) mortality or significant CV events. There was only 1 (2.44%) new case of hypertension. A statistically significant increase in dyslipidaemia was observed, with 11 (28.9%) new cases (*p*-value = 0.01). This CVRF was associated with treatment with alkylating agents (*p-value* = 0.031) but not with other chemotherapy agents. No statistically significant relation was observed between new diagnosis of dyslipidaemia and metabolic tumour volume, total lesion glycolysis or aortic TBR at cancer diagnosis. Also, tumour receptor positivity had no statistically significant relation with new diagnosis of dyslipidaemia.
Conclusions: BC chemotherapy with alkylating agents was associated with new diagnosis of dyslipidaemia. If this increase in lipid levels is sustained in

cancer survivor patients is still unknown. However, these findings highlight the risk that this chemotherapy therapy has on CVRF. Larger prospective studies with extended follow-up are needed to determine whether this increase in lipid levels is sustained in cancer survivors and to assess its potential for future cardiovascular events.

PO 382. CARDIOTOXICITY ASSOCIATED WITH IMMUNE CHECKPOINT INHIBITORS: MYTH OR REALITY?

Nuno Madruga, Miguel Nobre Menezes, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Daniel Cazeiro, João Mendes Cravo, Marta Vilela, Inês Caldeira Araújo, Catarina Sena da Silva, Fausto J. Pinto, Manuela Fiúza

Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@ RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Cardiotoxicity associated with immune checkpoint inhibitors (ICIs) has become a significant concern in cancer treatment. While ICIs have been effective in improving survival rates, their use has been linked to various cardiovascular side effects, such as myocarditis, arrhythmias, and heart failure, which can be potentially fatal.
Objectives: To describe the cardiotoxic events in patients treated with ICIs and to identify the associated risk factors.
Methods: Retrospective, single-center study at a tertiary hospital involving patients who initiated ICI (ipilimumab, pembrolizumab, nivolumab, cemiplimab, avelumab) between 2021 and 2024, followed in the Oncology consultation. Demographic, laboratory, and echocardiographic data were collected for patients who experienced a cardiotoxicity event

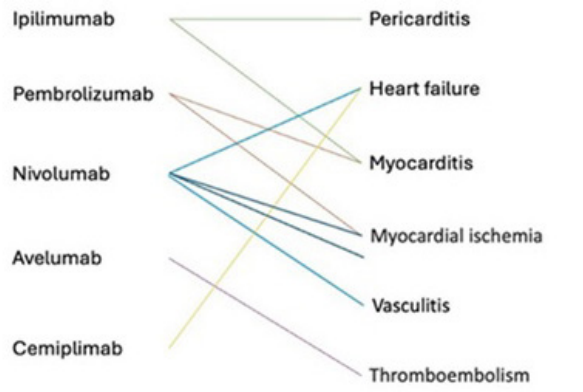


Figure 1 - Cardiotoxicity associated with immune checkpoint inhibitor therapy in our population

Results: Among 329 patients treated with ICIs, 10 (3%) experienced a cardiotoxicity event (4 males, mean age 71.9 ± 11.5 years). Regarding comorbidities, 60% had hypertension, 20% were diabetic, 80% were non-smokers, and 40% had a history of ischemic heart disease. Prior therapies included ACE inhibitors/ARBs and beta-blockers (70%), SGLT2 inhibitors (20%), and statins (30%), with 60% of patients on two or more medications. The most frequent malignancies were renal cell carcinoma (40%), melanoma (40%), and lung adenocarcinoma (20%). 4 patients were treated with nivolumab, 2 with ipilimumab, and 2 with pembrolizumab. Only 2 patients had been previously exposed to cardiotoxic therapies (anthracyclines). Cardiotoxicity events included 3 cases of acute coronary syndrome (2 in nivolumab), 2 cases of severe myocarditis, and 2 cases of new-onset heart failure, resulting in 7 cardiovascular-related hospitalizations. No arrhythmic events were reported. Forty percent of the patients had been referred to a cardio-oncology consultation prior to the event due to high/very high cardiotoxicity risk, 30% were referred during the event. No arrhythmic events were reported. Forty percent of the patients had been referred to a cardio-oncology consultation prior to the event due to high/very high cardiotoxicity risk, 30% were referred during the event. No reduction in LVEF occurred during follow-up. In both patients with acute myocarditis, intravenous corticosteroids were initiated. One patient with heart failure and both patients with myocarditis discontinued ICI therapy permanently. In a time-to-event analysis, the median time to cardiotoxicity was 94.5 days after initiating the drug (IQR: 38.3-267.8). Three patients died during follow-up, none from cardiovascular causes.
Conclusions: Cardiotoxicity associated with ICIs, though infrequent, is a clinically significant complication. Patients with a prior risk for cardiotoxicity or evidence of events should be referred to a cardio-oncology consultation to improve outcomes.

Domingo, 13 Abril de 2025 | 11:30-12:30

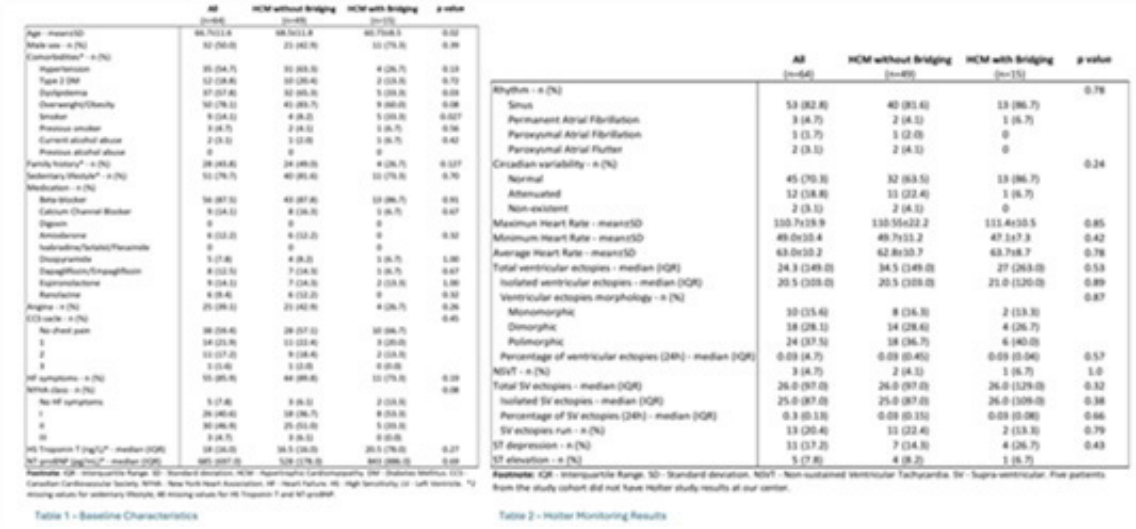
Área de Posters-écran 2 | Sessão de Posters 57 – Miocardiopatia hipertrófica

PO 383. IMPLICATIONS OF MYOCARDIAL BRIDGING ON HEART RHYTHM IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Inês Ferreira Neves, Mariana Caetano Coelho, Miguel Marques Antunes, Pedro Garcia Brás, Isabel Cardoso, José Miguel Viegas, Inês Almeida, António Fiarresga, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Martins Oliveira, Sílvia Aguiar Rosa

Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Myocardial bridging has a prevalence ranging from 1% to 3% in the general population. Previous studies have shown that it is significantly more prevalent in patients with Hypertrophic Cardiomyopathy (HCM), reaching about 25% in some cohorts. The clinical relevance of myocardial bridging in patients with HCM is still mostly unknown, with some studies suggesting that this condition may have a role in arrhythmic events related to sudden cardiac death whilst other propose it is mostly benign. We aimed to study the influence of myocardial bridging on 24-hour Holter monitoring studies, particularly regarding ventricular events, in a population of patients with HCM.
Methods: Patients with HCM accompanied at our center who had coronary anatomy studied by either cardiac catheterization (CAT) or Coronary computed tomography angiography (CCTA) were included. We retrospectively analyzed the prevalence of myocardial bridging in our population and correlated the phenomenon to the characteristics of Holter studies. We also registered the occurrence of ventricular tachycardia (VT) events during follow-up.
Results: Sixty-four patients with HCM (mean age 66.7 ± 11.6, 50% male sex) were included. Fifteen (23%) patients (age 60.73 ± 8.5, 73.3% male sex) had myocardial bridging. The groups had similar baseline characteristics, and no significant differences were registered when comparing clinical aspects. There were no significant differences in medication, particularly in anti-arrhythmic drugs. No significant differences were seen regarding the findings on Holter monitoring. The patients with myocardial bridging did not have more ventricular ectopies, either in absolute number ($p = 0.53$) or percentage during the 24 hours ($p = 0.57$). There were no differences in the occurrence of non-sustained ventricular tachycardia between the groups ($p = 1.0$). Additionally, there was no significant difference in ST segment elevation or depression during the monitoring between the studied groups. There was no record of VT in neither of the groups during the follow-up time.
Conclusions: Our cohort of HCM patients had a prevalence of myocardial bridging similar to that described in previous studies. This condition seems to have no overall impact on arrhythmic events in our population.



	All (n=64)	HCM without Bridging (n=49)	HCM with Bridging (n=15)	p value
Rhythm - n (%)				0.78
Sinus	53 (82.8)	40 (81.6)	13 (86.7)	
Permanent Atrial Fibrillation	3 (4.7)	2 (4.1)	1 (6.7)	
Paroxysmal Atrial Fibrillation	1 (1.7)	1 (2.0)	0	
Paroxysmal Atrial Flutter	2 (3.1)	2 (4.1)	0	
Circadian variability - n (%)				0.24
Normal	45 (70.3)	32 (63.5)	13 (86.7)	
Attenuated	12 (18.8)	11 (22.4)	1 (6.7)	
Non-existent	2 (3.1)	2 (4.1)	0	
Maximum Heart Rate - mean±SD	110.7±19.9	110.55±22.2	111.4±10.5	0.85
Minimum Heart Rate - mean±SD	49.0±10.4	49.7±11.2	47.1±7.3	0.42
Average Heart Rate - mean±SD	63.0±10.2	62.8±10.7	63.7±8.7	0.78
Total ventricular ectopies - median (IQR)	24.3 (149.0)	34.5 (149.0)	27 (263.0)	0.53
Isolated ventricular ectopies - median (IQR)	20.5 (103.0)	20.5 (103.0)	21.0 (120.0)	0.89
Ventricular ectopies morphology - n (%)				0.87
Monomorphic	10 (15.6)	8 (16.3)	2 (13.3)	
Dimorphic	18 (28.1)	14 (28.6)	4 (26.7)	
Polimorphic	24 (37.5)	18 (36.7)	6 (40.0)	
Percentage of ventricular ectopies (24h) - median (IQR)	0.03 (4.7)	0.03 (0.45)	0.03 (0.04)	0.57
NSVT - n (%)	3 (4.7)	2 (4.1)	1 (6.7)	1.0
Total SV ectopies - median (IQR)	26.0 (97.0)	26.0 (97.0)	26.0 (129.0)	0.32
Isolated SV ectopies - median (IQR)	25.0 (87.0)	25.0 (87.0)	26.0 (109.0)	0.38
Percentage of SV ectopies (24h) - median (IQR)	0.3 (0.13)	0.03 (0.15)	0.03 (0.08)	0.66
SV ectopies run - n (%)	13 (20.4)	11 (22.4)	2 (13.3)	0.79
ST depression - n (%)	11 (17.2)	7 (14.3)	4 (26.7)	0.43
ST elevation - n (%)	5 (7.8)	4 (8.2)	1 (6.7)	

Footnote: IQR - Interquartile Range; SD - Standard deviation; NSVT - Non-sustained ventricular Tachycardia; SV - Supra-ventricular. Five patients from the study cohort did not have Holter study results at our center.

Table 2 – Holter Monitoring Results

Figure PO 383

PO 384. INTEGRATING GENETIC VARIANTS INTO HYPERTROPHIC CARDIOMYOPATHY RISK STRATIFICATION: A QUANTITATIVE AND COMPARATIVE ANALYSIS

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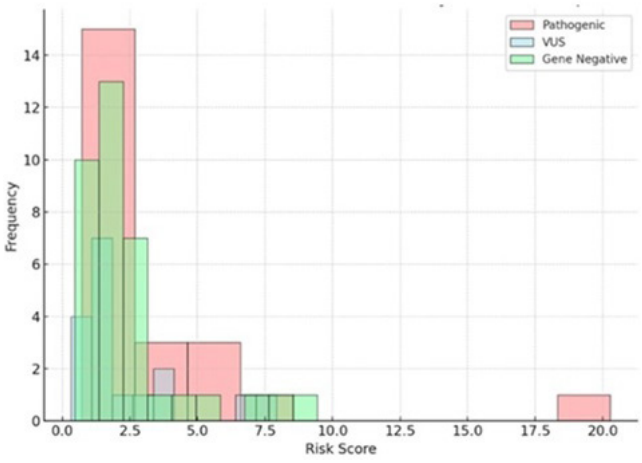
Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Hypertrophic cardiomyopathy (HCM) is often associated with pathogenic or likely pathogenic (P/LP) genetic variants and variants of unknown significance (VUS). The prognostic value of gene-positive status, especially in the context of ESC Sudden Cardiac Death (SCD) risk scoring, remains underexplored.
Objectives: To evaluate (1) the prevalence of P/LP variants and VUS in a cohort of HCM patients, and (2) the prognostic role of these variants individually or integrated into existing risk stratification models.
Methods: Single-center prospective cohort of 92 HCM patients who underwent genetic testing between January 2018 and November 2024. The prevalence of P/LP variants and VUS was determined. Our primary endpoint was a composite of cardiovascular events that included admission for heart failure, ventricular fibrillation/tachycardia, cardiac syncope, cardiovascular cardiac death, myocardial infarction, ischemic stroke and/or complete heart block. A combined prognostic model was built by adding P/LP status to the ESC SCD risk score; logistic regression was performed to determine the optimal weight for P/LP status. Discrimination performance was assessed using C-statistics for the ESC SCD model alone and the combined model. Integrated discrimination improvement (IDI) and calibration analysis were conducted to assess the additional value of genetic data. The net clinical benefit of the baseline and combined models was compared across thresholds using decision curve analysis (DCA).
Results: A total of 71 HCM patients (65 ± 12 years, 49.3% female) were suitable for analysis, 77.5% septal HCM, 15.5% apical and 7% mixed disease. A mutation was observed in 49.3% of the patients, 66% of which were LP/P variants, 34% were VUS. The most frequent mutations involved the gene *MYBPC3*. Primary endpoint was met in 57.7% of patients. Mean ESC SCD risk scores were 3.40% for pathogenic, 2.33% for VUS, and 2.52% for gene-negative individuals ($p > 0.05$ for all comparisons). The baseline ESC SCD model achieved a C-statistic of 0.569; including a weighted P/LP variable (weight = 0.036) resulted in a C-statistic of 0.567. IDI for the weighted model was 0.001, with a modest improvement for events (+1.2%) and a decline for non-events (-1.1%). Calibration analysis showed minimal differences between the weighted model and ESC SCD risk score alone. Decision curve analysis highlighted marginal improvement in net benefit at lower risk thresholds when genetic data were included.

Figure 1. Distribution of ESC SCD risk scores by genetic group



Conclusions: Genetic testing reveals a prevalence of P/LP variants in 1 every 3 HCM patients but provides limited independent prognostic value. The ESC SCD risk score remains the dominant predictor of cardiovascular events, with minor incremental benefits from incorporating genetic pathogenicity. Larger studies are needed to validate these findings and explore advanced integration of genetic data into clinical practice.

PO 385. ALPHA-TROPOMYOSIN GENE VARIANTS IN HYPERTROPHIC CARDIOMYOPATHY: CLINICAL FEATURES AND DISEASE PROGRESSION

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Introduction: Sarcomere Hypertrophic Cardiomyopathy (HCM) is an autosomal-dominant disease with variable genotypic and phenotypic expressions. Alpha-tropomyosin (TPM1) variants account for 1-5% of cases, but their clinical significance and role in disease progression remain poorly understood.

Baseline		FUP 11.8 years (IQR 7.22–16.36)	
Predominant affected wall		Predominant affected wall	
Septum, n (%)	10 (42%)	Septum, n (%)	10 (42%)
Anterior, n (%)	9 (37%)	Anterior, n (%)	9 (37%)
Apical, n (%)	5 (21%)	Apical, n (%)	5 (21%)
Maximum wall thickness mm (median, IQR)	17.7 (± 1.1)	Maximum wall thickness mm (mean ±SD)	19.3 (± 0.7)
Septum mm (median, IQR)	16.4 (±0.8)	Septum mm (mean ±SD)	17.3 (± 0.7)
Posterior wall mm (mean ±SD)	9.9 (± 0.3)	Posterior wall mm (mean ±SD)	10.6 (± 0.4)
LVOT obstruction, n (%)	4 (40%)	LVOT obstruction, n (%)	3 (13%)
SAM, n (%)	10 (42%)	SAM, n (%)	10 (42%)
Mitral regurgitation, n (%)	7 (29%)	Mitral regurgitation, n (%)	10 (42%)
Left atrial size mm (mean ±SD)	45 (± 1.9)	Left atrial size mm (mean ±SD)	53 (± 2.6)
Q wave, n (%)	7 (29%)	Q wave, n (%)	10 (42%)
HCM SCD risk score (median, IQR)	1.66 (± 0.2)	HCM SCD risk score (mean ±SD)	2,3 (± 0.3)
Low risk (<4%) n (%)	23 (96%)	Low risk (<4%) n (%)	17 (71%)
Intermediate risk (4-6%) n (%)	1 (4%)	Intermediate risk (4-6%) n (%)	4 (17%)
High risk (>6%) n (%)	0	High risk (>6%) n (%)	3 (12%)

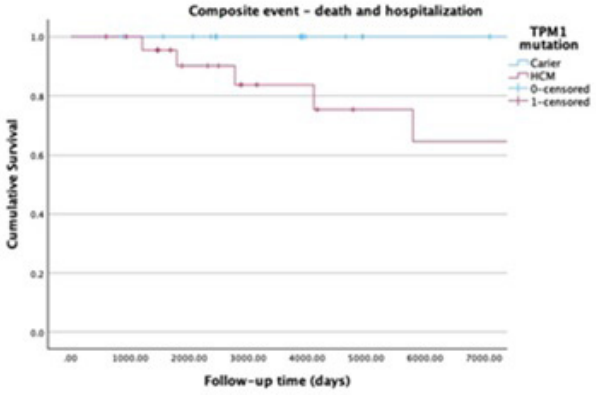

Figure 1: Clinical characteristics, risk stratification and outcomes in Hypertrophic Cardiomyopathy patients with TPM1 gene mutations. A) Composite outcome of all-cause mortality and cardiovascular hospitalizations in hypertrophic cardiomyopathy patients with TPM1 gene mutations

Figure PO 385

Objectives: To analyse the HCM phenotype and the evolutive profile in TPM1-HCM families.
Methods: A retrospective analysis of HCM patients (probands and affected relatives) followed in a tertiary center was performed, considering only those with TPM1 pathogenic/likely pathogenic variant. To assess clinical outcomes, a composite outcome of all-cause mortality and cardiovascular (CV) hospitalizations was defined.
Results: This study included 15 probands with HCM from unrelated families, totalling 48 individuals. Among them, 24 were mutation carriers without phenotypic (Ph-) expression, while 24 exhibited Ph expression. At diagnosis the mean age was 48 ± 3.9 years in the HCM group and 35 ± 3.2years in carriers Ph-, with a similar proportion of females in both groups. Most individuals carry the p.Arg21Leu variant (n = 38; 79%), while the remainder have the p.Met281Val variant (n = 10; 21%). In the HCM group, 54% were diagnosed due to symptoms (mainly chest pain), 38% through family screening and 8% by incidental findings. At baseline, 4 patients had LVOT obstruction, the mean left atrial size was 45 ± 1.9 mm and the maximum wall thickness was 17.7 (± 1.1) mm. The proportion of patients considered at intermediate or high risk for sudden death (ESC score) increased from 4% to 29% at follow-up (FUP). Two patients underwent septal reduction therapy, and 2 patients implanted cardioverter defibrillator in primary prevention. The median FUP time was 11.8 years (IQR 7.22-16.36). Only 1 mutation carrier Ph- at baseline progressed to HCM. Among HCM patients, 6 (25%) developed non-sustained ventricular tachycardia, 1 (5%) had atrial fibrillation and 1 (4%) developed a ventricular aneurysm. The composite event occurred in 5 HCM patients (21%). Significant associations were found between the composite outcome and NT-proBNP levels at diagnosis [377 pg/mL (IQR 196-558) vs. 3200 pg/mL (IQR 2,950-3,450); p = 0.019], left atrial size (43.3 ± 2 mm vs. 51.4 ± 4.3 mm; p = 0.05) and age at diagnosis (p = 0.023). HCM patients had a 6-fold increased risk of death or hospitalization compared to carriers Ph- (p = 0.012, OR 6.2).
Conclusions: In this cohort of HCM patients, TPM1 mutations were associated with clinical variability in disease expression, with some key predictors of a worse prognosis: increased NT-proBNP levels, enlarged left atrial size and older age at diagnosis.

PO 386. LEFT VENTRICULAR EJECTION FRACTION AS A PREDICTOR OF MAJOR VENTRICULAR ARRHYTHMIC EVENTS IN HYPERTROPHIC CARDIOMYOPATHY PATIENTS WITH AN ICD IN PRIMARY PREVENTION

Miguel Marques Antunes, Ricardo Carvalheiro, José Miguel Viegas, Inês Grácio Almeida, Hélder Santos, Guilherme Portugal, Bruno Tereno Valente, Ana Lousinha, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Martins Oliveira, Sílvia Aguiar Rosa

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Introduction: Hypertrophic cardiomyopathy (HCM) is a prevalent and potentially life-threatening condition. Prediction of sudden cardiac death (SCD) and ventricular arrythmias (VA) in this heightened-risk population and its prevention with implantable cardiac defibrillators (ICDs) remains sub-optimal. Left ventricular ejection fraction (LVEF) is supra-normal in patients (P) with HCM, and an LVEF < 50% traditionally constitutes a known risk enhancer for ventricular events in these P – being a readily available and reproducible tool.

Table 1 – General patient characteristics and risk prediction features

Characteristics	Total patients (N=52)	Ventricular Arrythmias (N=6)	Absence of Ventricular Arrythmias (N=46)	p-value
Age - yr [IQR]	52 [42-64]	45 [57-70]	54 [45-65]	0.042
Male sex - n (%)	33 (63%)	5 (83%)	28 (61%)	0.282
NYHA class - [IQR]	2 [1-2]	2 [1-3]	2 [1-2]	0.035
Angina – n (%)	13 (25%)	2 (33%)	11 (24%)	0.639
Hypertension - n (%)	27 (52%)	4 (67%)	23 (50%)	0.442
Diabetes - n (%)	16 (30%)	3 (50%)	13 (28%)	0.278
Atrial fibrillation - n (%)	19 (37%)	3 (33%)	17 (37%)	0.862
Thyroid disease – n (%)	7 (13%)	0 (%)	7 (15%)	0.356
Heart Failure - n (%)	8 (15%)	5 (83%)	3 (7%)	<0.001
Coronary disease - n (%)	7 (13%)	2 (33%)	5 (11%)	0.129
Prior myocardial infarction - (%)	2 (4%)	1 (17%)	1 (2%)	0.083
Pharmacotherapy				
Beta-Blockers – n (%)	44 (85%)	6 (100%)	38 (83%)	0.267
Calcium Channel Blockers – n (%)	10 (19%)	1 (17%)	9 (20%	0.865
Class III antiarrhythmics – n (%)	14 (27%)	3 (50%)	11 (24%)	0.175
DOAC – n (%)	21 (40%)	4 (67%)	17 (37%)	0.163
ARNi/ACEi – n (%)	15 (29%)	4 (67%)	11 (24%)	0.030
SGLTi – n (%)	14 (27%)	3 (50%)	11 (24%)	0.175
MRA – n (%)	13 (25%)	5 (83%)	8 (17%)	<0.001
Oral diuretics– n (%)	13 (25%)	3 (50%)	10 (22%)	0.113

Table 2 – Implantable cardiac defibrillator data

Characteristics	Total patients (N=52)	Ventricular Arrythmia (N=6)	Absence of Ventricular Arrythmia (N=46)	p-value
HCM SCD 5-year risk score [IQR]	4.39% [3.33% - 6.20%]	6.74% [3.20% - 13.38%]	4.3% [3.38% - 6.01%]	0.023
SCD risk effect modifiers				
LGE > 15% - n (n of patients assessed)	39 (45)	2 (3)	37 (42)	0.332
LVEF < 50% - n (%)	4 (8%)	3 (50%)	1 (2%)	**<0.001**
LVEF – % [IQR]	66% [59% - 72%]	50% [42% - 59%]	66.5% [62%-73%]	**<0.001**
ICD activations				
Appropriate ICD activations	6 (12%)	6 (100%)	-	
Activation for Ventricular Tachycardia	3 (6%)	3 (50%)	-	
Activation for Ventricular Fibrillation	3 (6%)	3 (50%)	-	
Inappropriate ICD activations	4 (8%)	0 (0%)	4 (9%)	0.452

Figure 1 – Kaplan-Meier curve of ICD activation events

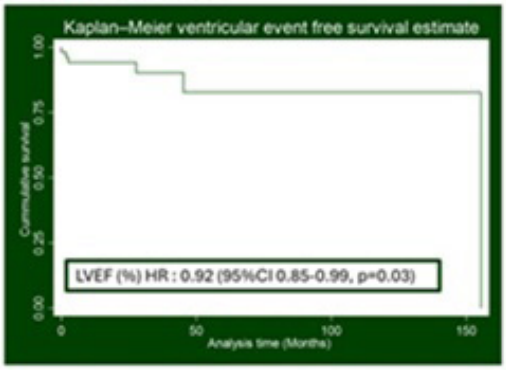

Figure PO 386

Objectives: To evaluate the impact of progressive LVEF depression in HCM P with an ICD in primary prevention, in comparison to other known predictors.

Methods: We retrospectively analyzed data from P followed at a Cardiomyopathy Clinic with an ICD in primary prevention. Patients were stratified according to their baseline SCD risk. The primary outcome was an appropriate ICD-delivered therapy, (shock or anti-tachycardia pacing. We performed a time-to-event analysis using a Cox proportional hazards regression model, to determine predictors of appropriate ICD therapy.

Results: 52 consecutive P with HCM and an ICD in primary prevention – 46 transvenous ICDs and 8 S-ICDs – were included. Median patient age at implantation was 52 [42-64] years; 33 (63%) were male. Median P follow-up was 2.2 [1.2-3.5] years at risk, with follow-up time ranging from 1 to 155 months. The primary outcome of appropriate ICD activation was met in 6 (12%) P – five shocks and one anti-tachycardia pacing. The observed rhythms were three VF (50%) and three VT (50%). Median HCM SCD risk score was 4.39% [3.33-6.20]. Patients that met the primary outcome had the following HCM SCD score distribution – High: 3; Intermediate:1; Low: 2. P that experienced VA were younger (45y vs. 54y) and more likely to be male (83 vs. 61%). Clinical heart failure was more prevalent in P with arrhythmic events (83 vs. 7%), which was compatible with a higher ACEi/ARNi (67 vs. 24%) and MRA (83 vs. 17%) use in this patient group. LVEF was identified as the strongest predictor of the primary outcome. A 1% increase in LVEF was associated with an 8% reduction in the risk of ICD activation - HR 0.92 (95%CI 0.85-0.99, p = 0.03).

Conclusions: In an HCM patient cohort at primary prevention with a median follow up time of 2.2 years the incidence of appropriate ICD activation was 12%. LV dysfunction was the strongest predictor of major ventricular arrhythmic events.

PO 387. SCREENING FOR ANDERSON-FABRY DISEASE IN PATIENTS WITH LEFT VENTRICULAR HYPERTROPHY AND DISEASE-RELATED "RED FLAGS"

Joana Certo Pereira, Maria Rita Lima, Rita Amador, Sérgio Maltês, Manuel Costa, Pedro Freitas, João Abecasis, Marisa Trabulo, António M. Ferreira, Carlos Aguiar, Regina Ribeiras, Bruno Rocha

ULS Lisboa Ocidental, Santa Cruz.

Introduction: Left ventricular hypertrophy (LVH) is a common finding in cardiovascular imaging. It might sometimes result from rare, often subtle, but specific underlying causes. "LVH" is a key feature of Anderson-Fabry Disease (AFD), a lysosomal storage disease caused by decreased (or absence) of the α-galactosidase A enzyme activity (GLA). We aimed to assess the prevalence of AFD in patients with LVH of undetermined aetiology and AFD-related 'red-flags' (RF).

Methods: Single-centre prospective study of consecutive patients with severe LVH [defined as left ventricular (LV) thickness ≥ 15 mm on cardiac magnetic resonance (CMR)] without an identifiable cause (i.e. confirmed cardiomyopathies or severe aortic stenosis). CMR studies from 2019 to May 2023 were reviewed, and patients presenting with at least one AFD-related RF (clinical, ECG, or cardiac imaging) were invited for screening with GLA activity testing (men) or genetic testing (women) starting in November 2023.

Results: Out of 256 patients identified with severe LVH, 162 (63%) without an identifiable cause were included [68 ± 13 years, 65% male, left ventricular ejection fraction (LVEF) 57 ± 14% and thickness (LVT) 18 ± 3 mm]. The main exclusion criteria were cardiac amyloidosis (45%), sarcomeric hypertrophic cardiomyopathy (27%), and death prior to evaluation (15%). Of these, 107 had ≥ 1 AFD-related RF and were invited for AFD screening. The most common RF were ECG abnormalities and imaging findings – namely reduced global longitudinal strain (≥ -15%) in 47 (29%) patients and late gadolinium enhancement (LGE) in the basal infero-lateral wall in 46 (29%) patients – whereas clinical RF were less frequent (Figure 1). Among those invited for screening, 86 (80%) accepted the invitation, resulting in a diagnosis of AFD in 5 (6%) patients. These patients [68 ± 9 years; 80% male; LVEF: 56 ± 6%; LVT: 18 ± 4mm] had a mean of 3 ± 1 RF, with the most frequent being basal infero-lateral LGE (80%). Two patients had classical AFD and the other three exhibited non-classical AFD. Four patients were referred for targeted therapy, of which two are already receiving treatment. Their families were referred for genetic counselling, having identified 2 obligate carriers, while the remainder of the individuals are undergoing further evaluation.

Conclusions: Targeted screening in patients with severe LVH and AFD-related RF identified AFD in 6% in our cohort, thus yielding a high positive rate compared to other well-established organized screening programmes. Our findings suggests that a structured routine screening should be considered in patients with severe LVH and AFD-related RF, promoting disease awareness, early detection, targeted treatment and family counselling, contributing to the improvement of prognosis and outcomes.

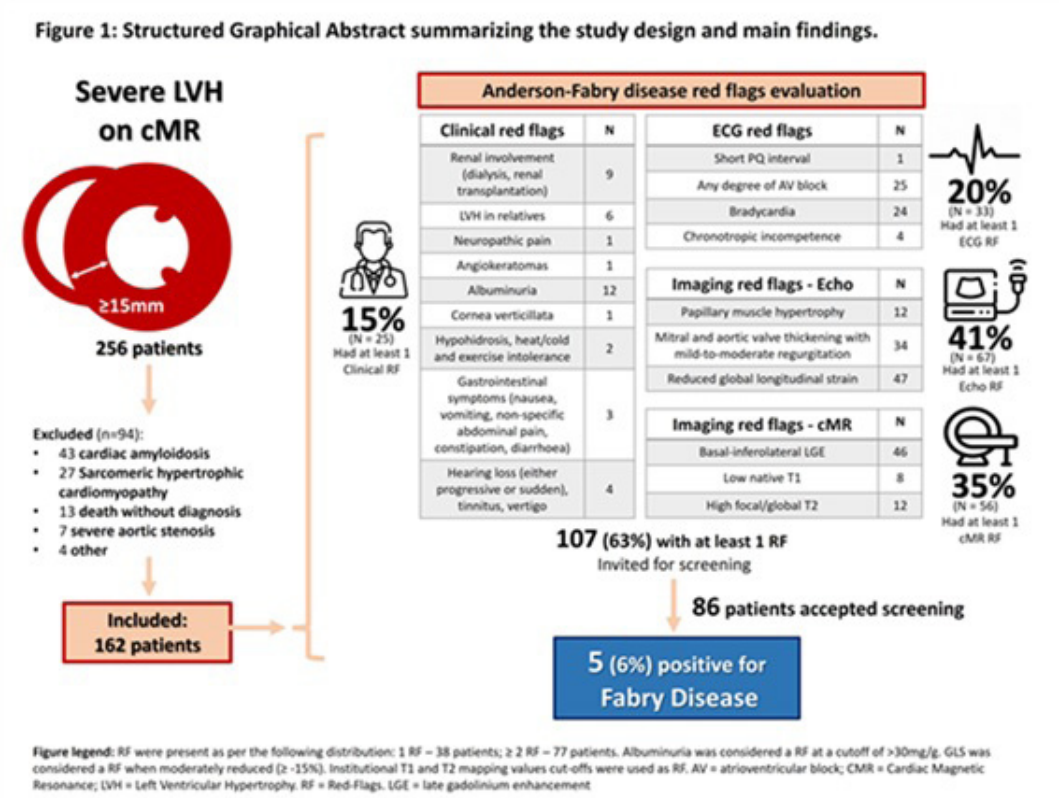

Figure PO 387

PO 388. ATRIAL FIBRILLATION PREDICTORS GENERATED BY ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Rafael Viana, Marta Paralta de Figueiredo, António Almeida, Rita Louro, Miguel Carias, Diogo Brás, Bruno Piçarra, Manuel Trinca

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Introduction: Patients with hypertrophic cardiomyopathy (HCM) have a much higher prevalence of atrial fibrillation (AF) than the general population. Even though it sometimes causes hemodynamic changes which are poorly tolerated, it can be subclinical. So earlier diagnosis and management of AF are vital to minimizing adverse outcomes. The generation of automatic parameters in CMR can revolutionize the way cardiac imaging data is analyzed, offering greater efficiency, accuracy, and potential for early detection and personalized treatment strategies.
Objectives: Our study aimed to investigate if there were AI-derived CMR parameters associated with development of AF in individuals with HCM.
Methods: We retrospectively analyzed a population of patients submitted to CMR, selected those with hypertrophic cardiomyopathy (HCM) and divided them in two groups – those with no AF and those who developed *de novo* AF after CMR. We documented demographic factors, left atrial (LAEF) and ventricular ejection fraction (LVEF), ventricular and atrial volumes and the longitudinal LA and LV shortening obtained through AI in CMR for both groups. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 103 patients, 37.9% (n = 39) had HCM. When comparing groups, 59% were male, with mean age of 61 ± 13 years and median LVEF of 63% (IQR 59.5-66.5), with no differences between groups. These patients had similar ventricular systolic and diastolic volumes and longitudinal ventricular shortening, as well as left and right atrial longitudinal shortening. However, patients who developed AF had significantly lower biplane LAEF (34.1 vs. 50.9%, p = 0.007) and higher indexed diastolic biplane LA volume (68.3 mL vs. 43.1 mL, p = 0.047). In multivariate analysis, nevertheless, none proved to be independently significant.
Conclusions: In patients with MCH, there is a positive association between lower LAEF and higher indexed diastolic biplane LA volume and the development of *de novo* AF. Although these were not independently associated, further studies with a larger population are required to establish possible predictors.

Domingo, 13 Abril de 2025 | 11:30-12:30

Área de Posters-écran 3 | Sessão de Posters 58 – Tromboembolismo

PO 389. LEFT ATRIAL APPENDAGE OCCLUSION IN COMBINATION WITH ANOTHER CARDIAC PROCEDURE: A MORE EFFICIENT APPROACH?

Ana Lobato de Faria Abrantes, Miguel Nobre Menezes, Catarina Gregório, Miguel Azaredo Raposo, Diogo Ferreira, Pedro Carrilho Ferreira, Gustavo Lima Silva, João Silva Marques, Cláudia Jorge, João de Sousa, Pedro Cardoso, Fausto J. Pinto

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Introduction: Left atrial appendage occlusion (LAAO) is increasingly used to prevent stroke in patients (pts) with atrial fibrillation (AF), sometimes in combination with another cardiac procedure. Real-world data for combined procedures is, however, limited.
Objectives: To evaluate the safety and efficacy of combining LAAO with other cardiac procedures (cLAAO).
Methods: Single-center retrospective study included consecutive pts who underwent LAAO from 2009 to early December 2024, either as an isolated

procedure (iLAAO) or in combination with another cardiac intervention. Groups were adjusted for CHA2DS2-VASc and HAS-BLED scores. Safety was defined as any acute complication and freedom from bleeding events during follow-up (FUP). Efficacy was assessed by freedom from thromboembolic events. Kaplan-Meier survival analysis was used for comparison outcomes.
Results: Among 215 pts undergoing LAAO, 46 underwent cLAAO (57% male, age 75 ± 20 years, mean CHA2DS2-VASc 2.6 ± 1.2, HAS-BLED 3.16 ± 1). Indication for LAAO was similar in both groups - high bleeding risk/OAC intolerance in 80%, followed by ischemic events despite OAC in 10%. LAAO was combined with TAVI (37%), AF ablation (33%), and percutaneous mitral interventions (22%) and was the initial procedure in only 3 cases. Implanted devices were Watchman (56%), Watchman Flx (35%), and Amulet (9%). Acute complications were more frequent with cLAAO. There were 4 cases of cardiac tamponade (3 with Watchman first gen devices and 1 with the Amulet device), 3 of which in cLAAO. All tamponades were promptly managed percutaneously and occurred during the early years of LAAO (before May 2015) (Table 1). There was one case of major vascular complication in cLAAO and 3 cases of minor vascular complications in iLAAO. 51% of pts were discharged on dual antiplatelet therapy, 28% on NOACs, 14% on VKAs with aspirin, and 7% on aspirin alone, similar between groups. Over a mean FUP of 4 years, hemorrhagic and ischemic event rates were comparable (cLAAO:8(%) vs. iLAAO:23(%) Long rank p = 0.8, cLAAO:3(%) vs. iLAAO: 2(%) Long rank p = 0.9) in both groups.

	cLAAO (N=46)	iLAAO (N=169)	P-value
Procedure time, mean±ST			
LAAO procedure time	70.4+37	94 ±30	<0.001
Total procedure time	166±73	94 ±30	<0.001
Acute success, n (%)	45 (97.8)	162 (95.9)	NS
Acute complications	6 (13)	3 (1.8)	0.012
Vascular access	2 (4.3)	2 (1.2)	NS
minor	1 (2.2)	2 (1.2)	NS
major	1 (2.2)	0	NS
Cardiac tamponade	3 (6.5)	1 (0.59)	NS
Hemorrhagic events, n	8 (17.4)	23 (13.6)	NS
Minor bleeding	2 (4.3)	13 (76.9)	NS
Major bleeding	1 (2.2)	2 (1.2)	NS
Ischemic events, n	8 (17.4)	2 (1.2)	NS
Stroke	1 (2.2)	6 (3.6)	NS
Other embolic event	1 (2.2)	3 (1.8)	NS

Table 1 - Comparison of cLAAO to iLAOO regarding procedure time, success, complications, long-term safety and efficacy.

Conclusions: Combining LAAO with another cardiac was associated with increased intra-procedural complication rates, but only earlier years of the procedure and with first generation devices. Long term, cLAAO had similar safety and efficacy when compared with iLAAO. cLAAO should be performed by experienced operators in high-volume centers, in order to ensure low complication rates.

PO 390. SEX DIFFERENCES IN PATENT FORAMEN OVALE CLOSURE: IMPACT ON OUTCOMES AND COMPLICATIONS

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Introduction: Patent foramen ovale (PFO) is often detected in younger patients with stroke of undetermined etiology. The percutaneous PFO closure demonstrate effectiveness in reducing recurrent strokes but there is a notable absence of analysis of variances between sexes in this regard.
Methods: We conducted a one-centre, retrospective observational study, reviewing all patients who underwent percutaneous PFO closure between September 2003 and June 2023. Informatized clinical files were reviewed, and statistical analysis was performed using SPSS.
Results: A total of 378 patients were included and 56.1% were female. 345 patients underwent PFO closure after undetermined etiology stroke. The mean follow-up time was 65 (± 54) months. The number of women who underwent PFO closure after stroke were 190. The mean age among women was 48 (± 10.70) years, whereas for men, it was 47.13 (± 11.28) years. Although women showed higher occurrence of arterial hypertension (n = 59 vs. n = 45), diabetes (n = 17 vs. n = 12), hyperlipidemia (n = 81 vs. n = 74) and overweight (n = 41 vs. n = 38), none of these differences reached statistical significance. Significant differences were observed: women had higher risk of paradoxical embolism (roPE) score (6.76 ± 1.45 vs. 6.56 ± 1.75, p = 0.003), a lower prevalence of sleep apnea diagnosis (3.51 vs. 11.8%, p = 0.005) and smoke less frequently (9.95 vs. 28.19%, p < 0.001). No differences were found among high risk PFO features. Following PFO closure, females exhibited a higher incidence of residual shunt within the first month after device implantation, assessed by transthoracic echocardiography: 5.08 vs. 0.73%; OR = 7.29 (0.91-58.22); p = 0.047. Women experienced 3 procedural complications (2 vascular access complication and 1 device embolization) versus 1 in men (a vascular access complication in men), but the difference wasn't statistically significant. Long-term outcomes showed no difference between the composite of transient ischemic attack (TIA)/stroke recurrence, despite women having more events (n = 4 vs. n = 2). Throughout the follow-up period, seven patients (4 women and 3 men) developed atrial fibrillation, and six patients died (3 patients of each group).
Conclusions: Women were associated with higher incidence of residual shunt within the first month. Besides, they seem to be at a higher risk of procedural complications. Despite women have presented more TIA/stroke recurrence, long-term outcomes have shown no difference between genders.

PO 391. OUTCOMES OF LEFT ATRIAL APPENDAGE OCCLUSION IN ANTICOAGULATION FAILURE VS. CONTRAINDICATION

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Introduction: The failure of anticoagulation therapy in atrial fibrillation presents challenges in managing and preventing thromboembolic events. Percutaneous left atrial appendage occlusion (LAAO) offers mechanical cardioembolic protection and is a potential therapeutic option when anticoagulation therapy fails. This study aimed to evaluate the efficacy of LAAO in patients with thromboembolic events despite anticoagulation compared to those with contraindication to anticoagulation.
Methods: A single-centre retrospective cohort study analysed patients who underwent LAAO between 2010 and 2023. Patients were classified into two groups: Group 1 (patients with contraindication to anticoagulation) and Group 2 (patients with thromboembolic events despite anticoagulation). The primary endpoint was the occurrence of new events at 1 year, divided into thrombotic (ischemic stroke, transient ischemic attack, systemic embolism, and atrial thrombus) or hemorrhagic. Secondary analyses assessed periprocedural complications and all cause-mortality at 30 days.
Results: A total of 191 patients (mean age 74.2 ± 8.8 years, 67.0% male) were included, with 161 (84.3%) assigned to Group 1 and 30 (15.7%) to Group 2. New events at 1 year were observed in 11 patients (6.8%) in Group 1 and 1 patient (3.3%) in Group 2, without significant difference (p = 0.69). Group 1 had 7 hemorrhagic events (4.4%), while Group 2 had 1 (3.3%). There were 4 thrombotic events in Group 1 (2.5%) and none in Group 2. Periprocedural complications occurred less frequently in Group 1 (n = 5, 3.1%) than Group 2 (n = 4, 13.3%; p = 0.04). Reported complications included device embolization (n = 1, 0.6% Group 1; n = 0 Group 2), myocardial rupture (n = 1, 0.6% Group 1; n = 0 Group 2), femoral hematoma (n = 1, 0.6% Group1; n = 2, 6.7% Group 2), appendage rupture (n = 1, 0.6% Group 1; n = 1, 3.3% Group 2) and femoral artery pseudoaneurysm (n = 1, 0.6% Group 1; n = 1, 3.3% Group

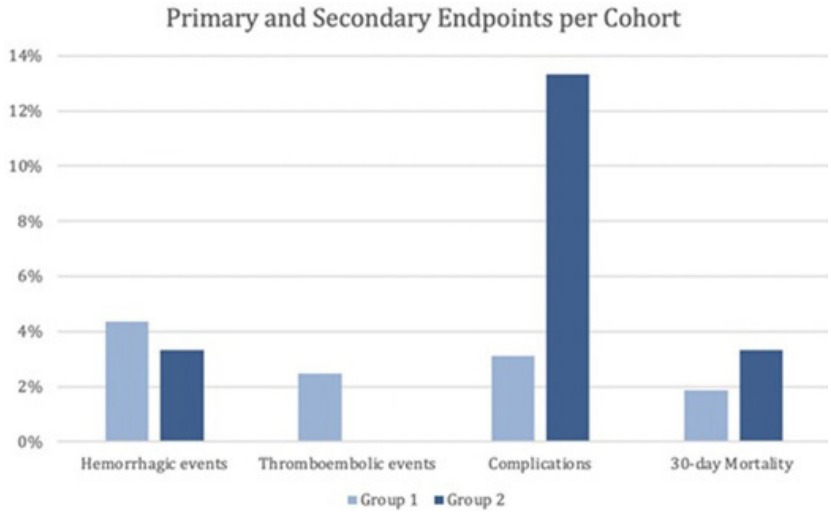

Figure PO 391

2). 30-day mortality was observed in 3 patients in Group 1 (1.9%) and 1 (3.3%) in Group 2, with no statistically significant difference (p = 0.50).
Conclusions: In a single centre cohort, there was no significant difference in thrombotic/hemorrhagic events after LAAO in patients referred due to anticoagulation contraindication or failure. In patients with anticoagulation failure, there were no thrombotic events after LAAO. These findings suggest that LAAO remains an important option for patients who experience new thromboembolic events despite anticoagulation therapy.

PO 392. COMPARATIVE OUTCOMES OF IN SITU FIBRINOLYSIS VERSUS MECHANICAL AND COMBINED TECHNIQUES IN REDUCING RIGHT HEART PRESSURES AND MORTALITY IN PULMONARY EMBOLISM PATIENTS

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Introduction: Pulmonary embolism (PE) is a life-threatening condition caused by acute obstruction of pulmonary arteries, leading to increased right ventricular pressure, hemodynamic compromise, and potentially death. Management varies by severity, from anticoagulation in stable cases to advanced interventions in higher-risk presentations. Recent interest has focused on interventional treatments, including in situ fibrinolysis, mechanical thrombectomy (MT) devices like FlowTriever and Penumbra, and hybrid approaches. These techniques aim to improve thrombus resolution with lower systemic risks compared to fibrinolysis alone. However, randomized trials comparing the safety and efficacy of MT and catheter-directed thrombolysis (CDT) are limited, leaving their impact on right-sided pressures, mortality, and clinical outcomes unclear.
Objectives: This study aims to compare the effectiveness of in situ fibrinolysis with mechanical and combined therapies (CT) in reducing right heart pressures and improving survival in patients with acute PE, contributing to the ongoing effort to refine and personalize PE treatment strategies.
Results: A total of 98 patients with intermediate-low or higher risk PE were enrolled from 2020 to 2024: 69 in the CDT arm and 29 in the MT/CT arm (8 CT and 21 MT using Penumbra or FlowTriever). Most patients had intermediate-high risk PE, with more high-risk cases in the MT/CT arm (21%). Dyspnea was the most common symptom in both groups. History of DVT was the main risk factor in the CDT arm (17%), while active cancer was more frequent in the MT/CT arm (10%). ICU stays were slightly longer in the MT/CT group (4.7 vs. 3.7 days). At the 3-month follow-up, no significant differences were observed

Right heart catheterization	CDT (Mean ± SD)	MT/CT (Mean ± SD)	p-value
Change Systolic PAP Pre and Post-Intervention	17 ± 2	18 ± 4	0,586
Change Diastolic PAP Pre and Post-Intervention	7 ± 1	6 ± 2	0,878
Change Mean PAP Pre and Post-Intervention	10 ± 1	10 ± 2	0,896
TAPSE Change	2 ± 1	1 ± 2	0,57

	CDT	MT/CT
Complications (%)	6%	10%
Pulmonary dissection n, (%)	0 (0%)	1 (3%)
Pulmonary hemorrhage n, (%)	0 (0%)	1 (3%)
Peripheric hemorrhage n, (%)	1 (1%)	0 (0%)
Cardiogenic shock n, (%)	3 (4%)	1 (3%)
Recurrence of PE n, (%)	0 (0%)	1 (3%)
Recurrence of DVT n, (%)	1 (1%)	0 (0%)
CTEPH n, (%)	6 (9%)	0 (0%)
Mortality of all causes n, (%)	7 (10%)	3 (10%)
CV mortality n, (%)	1 (1%)	0 (0%)

Figure PO 392

between the CDT and MT/CT groups in systolic, diastolic, or mean pulmonary artery pressures (PAP). Systolic PAP was 17 ± 2 mmHg for CDT and 18 ± 4 mmHg for MT/CT (p = 0.586); diastolic PAP was 7 ± 1 mmHg and 6 ± 2 mmHg (p = 0.878); mean PAP was 10 ± 1 mmHg and 10 ± 2 mmHg (p = 0.896). Right ventricular function improvement was also similar between groups: 2 ± 1 for CDT and 1 ± 2 for MT/CT (p = 0.57). Complication rates were similar between CDT and MT/CT groups (6 vs. 10%). In the CDT group, complications included progression to cardiogenic shock, peripheral hemorrhage, and one case of recurrent deep vein thrombosis. The MT/CT group experienced pulmonary artery dissection, alveolar hemorrhage, and one case of recurrent PE. Six patients in the CDT group developed CTEPH, while no CTEPH cases occurred in the MT/CT group. Cardiovascular mortality was low, with one death in the CDT group due to refractory cardiogenic shock.
Conclusions: Both CDT and MT/CT are effective for treating pulmonary embolism. The CDT group had more hemorrhagic complications, while the MT/CT group showed higher mechanical complication rates. Treatment choice should consider individual risk profiles for hemorrhagic or mechanical events.

PO 393. IMPACT OF MECHANICAL THROMBECTOMY USING THE FLOWTRIEVER SYSTEM ON HEMODYNAMICS AND SAFETY IN ACUTE PULMONARY EMBOLISM

Mariana Caetano Coelho, Julien Lopes, Bárbara Lacerda Teixeira, André Grazina, João Reis, Ana Galrinho, Duarte Nuno Cacela, Rúben Baptista Ramos, Melanie Ferreira, Rui Cruz Ferreira, Luís Almeida Morais

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Pulmonary embolism (PE) is the leading preventable cause of death in hospitalized patients. The 2019 ESC guidelines recommend a risk-adjusted approach to acute PE management, stratifying patients by early mortality risk. Low and intermediate-low risk patients are treated with anticoagulation, while high-risk PE may require reperfusion therapy like systemic thrombolysis. However, thrombolysis is underused due to bleeding risks, contraindications, and occasional ineffectiveness. For intermediate-high-risk PE, the bleeding risks outweigh benefits. Catheter-directed reperfusion therapy is an alternative for high-risk cases where thrombolysis fails or is contraindicated. Studies, such as the FLASH trial, show that FlowTriever System (FT) thrombus aspiration is safe and effective for intermediate- and high-risk PE, though data in Portugal remain scarce and there is no follow-up data. We aim to assess the safety and hemodynamic effects of mechanical thrombectomy using the FT in patients with acute PE with at least intermediate risk, over a six-month follow-up period. Outcomes: the primary safety outcomes were the number of patients with major adverse events, including major bleeding and periprocedural device- or procedure-related adverse events, between baseline to 48. The efficacy outcomes were changes in pressures measured during right heart catheterization between baseline and six months. Other outcomes included lengths of in-hospital stay, and time spent at intensive care unit (ICU). From 2023-2024, 15 patients (mean age 60.3 ± 17.8 years) underwent mechanical thrombectomy using FT. Most patients were at high (20%) and intermediate-high (73.3%) risk, and one (6.7%) in intermediate-low risk, according to the 2019 ESC acute PE guidelines. The majority presented with dyspnea (53%) and syncope (26.6%). The most common risk factors were, in order: history of immobilization (26.6%), active cancer (6.7%), and a history of PE or DVT (6.7%). At the 6-month follow-up, before thrombectomy, the mean sPAP (58.3 ± 7.7 mmHg) and mPAP (37.0 ± 2.6 mmHg) were severely elevated. After thrombectomy, mean sPAP, diastolic PAP (dPAP), and mPAP decreased by 32 mmHg (95%CI: 2.7 to 61; p = 0.04), 14 mmHg (95%CI: 2.6 to 25.4; p = 0.03), and 17.7 mmHg (95%CI: 7.6 to 27.7; p = 0.02), respectively. Safety Outcomes: There was only one major access complication, which was a hemorrhage at the femoral access site, between baseline and 48 hours of follow-up. Importantly, one patient died during the 30-day follow-up due to refractory cardiogenic shock. We present our first experience with an advanced and dedicated large bore device for thrombus aspiration in pulmonary embolism. This device allows a fast retrieve of thrombus, with immediate reduction of right ventricle strain, and long-term reduction of PAP, in high and intermediate high-risk patients, without major safety concerns.

PO 394. RISK ASSESSMENT IN PATIENTS WITH INTERMEDIATE TO HIGH-RISK PULMONARY EMBOLISM: CAN THE VALIDATED SCORES HELP PREDICT THE NECESSITY FOR REPERFUSION THERAPY?

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Introduction: Pulmonary embolism (PE) remains associated with unfavourable outcomes and high mortality rates. Early identification of high-risk patients is therefore crucial to ensure close monitoring and timely,

Right heart catheterization	Pre-procedure (Mean ± SD)	3 months Post-procedure (Mean ± SD)	Mean change (Mean 95% CI)	p-value
Systolic PAP, mmHg	58,3 ± 7,7	26,3 ± 2,8	32,0 (2,7 to 61)	**0,04**
Diastolic PAP, mmHg	26,0 ± 3,5	12,0 ± 1,2	14,0 (2,6 to 25,4)	**0,03**
Mean PAP, mmHg	37,0 ± 2,6	19,3 ± 0,8	17,7 (7,6 to 27,7)	**0,02**
CI, L/min/m2	2,6 ± 0,3	3,0 ±0,1	0,4 (-1,9 to 1,21)	0,43

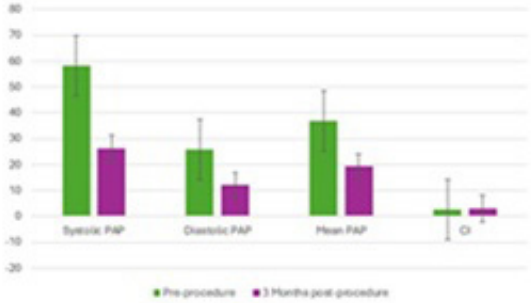
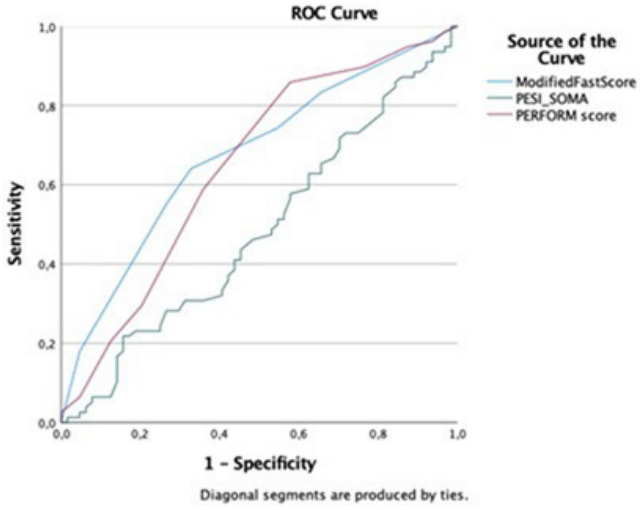


Figure PO 393

appropriate therapeutic management. Several risk scores have been developed to facilitate risk stratification, especially predicting mortality rates. This study aims to compare previous validated PE risk scores and if they can predict the need for reperfusion therapy (RT) in patients with intermediate to high-risk PE.

Methods: Retrospective analysis of all patients admitted to Cardiology department between January 2018 and November 2024 due to intermediate to high-risk pulmonary embolism (PE). Data was collected to calculate scores with clinical evidence for predicting mortality: Pulmonary Embolism Severity Index (PESI), Pulmonary Embolism Risk Score for Mortality in Computed Tomographic Pulmonary Angiography-confirmed Patients (PERFORM) and the Modified Fast Score (MFS). These scores were applied and their ability to predict the need for RT. Comparison of ROC curves were used for the comparative evaluation of the different scores.

Results: 154 patients were included; mean age was 62.7 ± 18.4 years, 61% (n = 94) were female. The 1-month mortality rate was 18% (n = 32). 51% (n = 78) were submitted to RT, 21% (n = 16) of those submitted to catheter-directed therapies. Identification of higher risk patients by each score was: MFS 47.4% patients (n = 73), PERFORM 68.2% (n = 105) and PESI 28.6% (n = 44) patients. The ability to predict need for reperfusion therapy was significant by PERFORM (43.5 vs. 7.1%; χ^2 = 20.4, p < 0.01) and MFS (32.5 vs. 18.2%; χ^2 = 16.6, p < 0.01). PESI (14.3 vs. 36.4%, p = 0.49) was not associated with need for RT. ROC curve analysis showed that AUC for PERFORM, MFS, and PESI for predicting RT were 0.647, 0.674, and 0.483, respectively, indicating superior predictive capacity of PERFORM and MFS compared to PESI (p < 0.01 and p = 0.01, respectively) (Figure 1).



Conclusions: PERFORM and MFS demonstrated superior predictive capacity for the need for RT compared to PESI score, but the predictive capacity was only satisfactory. Although previously validated to predict mortality, theses scores have not high predicting capacity do predict RT in these recent cohort. Systemic thrombolysis is the first-line reperfusion therapy, but due to contraindications and major bleeding concerns, the use of catheter-directed therapies is increasing as a suitable alternative, allowing more patients to being submitted to RT. Therefore, it becomes even more challenging applying standardized scores in heterogenic clinical scenarios.

PO 395. ENCERRAMENTO DE FOP POR SÍNDROME DE PLATIPNEIA-ORTODEOXIA NUM CENTRO NACIONAL

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Introdução: A síndrome de platipneia-ortodeoxia pode ocorrer por *shunt* direito-esquerdo intracardíaco em doentes com *foramen* oval patente (FOP), em doentes com patologias que levam à distorção desta região, nomeadamente com aneurisma ou alongamento da aorta ascendente, cifose espinhal, válvula de Eustáquio proeminente ou compressão externa da aurícula direita. Sendo uma indicação rara para o encerramento do FOP, a sua referenciação tem crescido nos últimos anos.

Métodos: Estudo retrospetivo descritivo dos doentes submetidos a encerramento de FOP por síndrome de platipneia-ortodeoxia num centro terciário nacional, no período de janeiro de 2020 a outubro de 2024.

Resultados: No período analisado efetuaram-se 181 encerramentos de FOP, dos quais 15 (8.3%) foram realizados por síndrome de platipneia-ortodeoxia. Dos procedimentos efetuados, a maioria (12) foram em mulheres, e 3 em homens. A idade média dos doentes foi de 72.9 ± 12.5 anos. Relativamente aos fatores de risco cardiovascular, há uma prevalência maior de dislipidemia e hipertensão arterial. Relativamente às causas para o aparecimento da síndrome, um doente apresentava esta síndrome por lobectomia com distorção do mediastino; num outro doente, a síndrome estava associada a dilatação da aorta ascendente. 5 encerramentos foram eletivos, com alta no dia seguinte ao procedimento; 10 foram não-eletivos, em contexto de internamento. Na maioria dos procedimentos foi utilizado um dispositivo bidisco, de acordo com a anatomia do FOP e em 4 casos foi utilizado um sistema de sutura. A única intercorrência a registar foi a ocorrência de hematoma de local de acesso venoso num doente. Durante o tempo de *follow-up*, não se registaram fibrilação auricular de novo, acidente vascular cerebral, hospitalizações, complicações vasculares major, enfartes agudos do miocárdio, derrames pericárdicos ou embolização do dispositivo; ocorreu um óbito. Em 13 doentes, não se verificou shunt residual; em 2 doentes, o shunt residual foi de pequenas dimensões e assintomático.

Conclusões: Na nossa amostra, a síndrome de platipneia-ortodeoxia causada por FOP, com indicação para encerramento ocorreu mais frequentemente em mulheres idosas. Apesar do encerramento de FOP em doentes de idade mais avançada e com mais comorbilidades se associar a um maior risco de complicações peri-procedimento e efeitos adversos a longo prazo, nesta amostra mostramos a segurança da realização deste procedimento nesta subpopulação.

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