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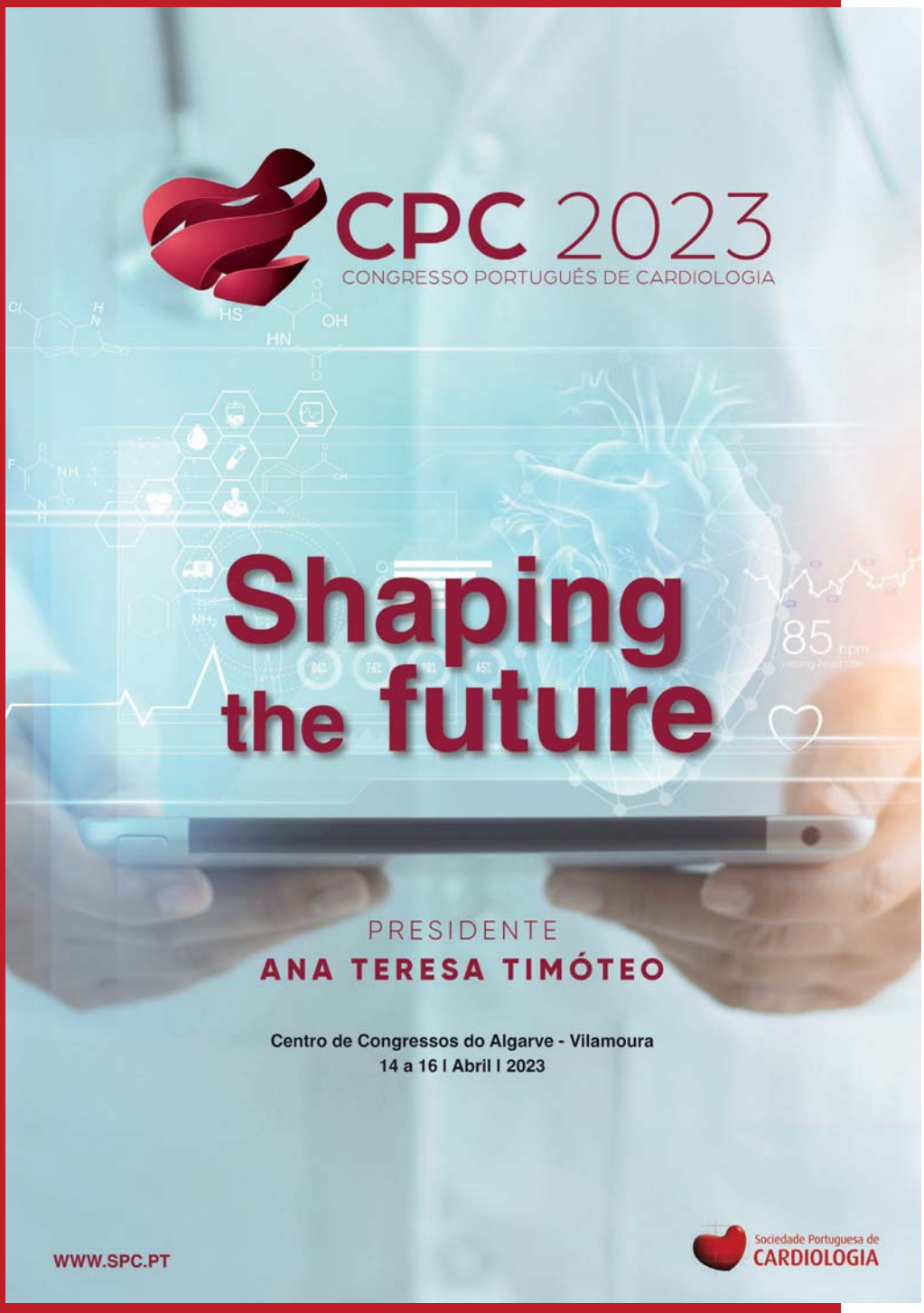

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Referências: 1. RCM de Rozor®. 2. RCM de Twicor®.

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 é adequado 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. Tabela de reações adversas: As frequências dos acontecimentos adversos são classificadas de acordo com a seguinte convenção: Frequentes (≥1/100, <1/10); Pouco frequentes (≥1/1.000, <1/100); Raros (≥ 1/10.000, <1/1.000); Muito raros (<1/10.000); Desconhecido (não pode ser calculado a partir dos dados disponíveis). **Doenças do sangue e do sistema linfático: Raros:** trombocitopenia2, **Desconhecido:** trombocitopenia5; **Doenças do sistema imunitário: Raros:** reações de hipersensibilidade, incluindo angioedema2, **Desconhecido:** hipersensibilidade (incluindo erupção cutânea, urticária, anafilaxia e angioedema)5, **Doenças endócrinas: Frequentes:** diabetes mellitus1,2, **Doenças do metabolismo e da nutrição: Pouco frequentes:** apetite diminuído3, **Perturbações do foro psiquiátrico: Desconhecido:** depressão2,5, **Doenças do sistema nervoso: Frequentes:** cefaleia2,4, tontura2, **Pouco frequentes:** parestesia4, **Muito raros:** polineuropatia2, perda de memória2, neuropatia periférica2, alterações do sono (incluindo insónia e pesadelos)2, tonturas5; parestesia5; **Vasculopatias: Pouco frequentes:** afrontamentos3; hipertensão3, **Doenças respiratórias, torácicas e do mediastino: Pouco frequentes:** tosse3, **Desconhecido:** tosse2, dispneia2,5, **Doenças gastrointestinais:** obstipação2, náuseas2, dor abdominal2,3, diarreia3, flatulência3, **Pouco frequentes:** dispepsia3; doença de refluxo gastroesofágico3; náuseas3, boca seca4; gastrite, **Raros:** pancreatite2, **Desconhecido:** diarreia2, pancreatite5, obstipação5, **Afeções hepatobiliares: Raros:** transaminases hepáticas aumentadas2, **Muito raros:** icterícia2, hepatite2, **Desconhecido:** hepatite5, colelitíase5, colecistite5; **Afeções dos tecidos cutâneos e subcutâneos: Pouco frequentes:** prurido2,4, erupção cutânea2,4, urticária2,4, **Desconhecido:** síndrome de Stevens- Johnson2, eritema multiforme5, reação medicamentosa com eosinofilia e sintomas sistémicos (DRESS); **Afeções musculosqueléticas e dos tecidos conjuntivos: Frequentes:** mialgia2,4, **Pouco frequentes:** artralgia3; espasmos musculares3; dor cervical3; dorsalgia4; fraqueza muscular4; dores nas extremidades4, **Raros:** miopatia (incluindo miosite)2, rabdomiólise2, síndrome semelhante ao lúpus, rutura muscular, **Muito raros:** artralgia2, **Desconhecido:** miopatia necrosante, imunomediada2, afeções dos tendões, por vezes complicadas devido a rutura2, artralgia5, mialgia5; miopatia/rabdomiólise5, **Doenças renais e urinárias: Muito raros:** hematúria2; **Doenças dos órgãos genitais e da mama: Muito raros:** ginecomastia2, **Perturbações gerais e alterações no local de administração: Frequentes:** astenia2, fadiga3, **Pouco frequentes:** dor torácica3, dor3, astenia4; edema periférico4, **Desconhecido:** edema2, astenia5; **Exames complementares de diagnóstico: Frequentes:** aumento de ALT e/ou AST4, **Pouco frequentes:** aumento de ALT e/ou AST3; aumento da CPK no sangue3; aumento da gama-glutamiltransferase3; teste anormal da função hepática3. [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. Rev: junho 2021 Medicamento Sujeito a Receita Médica. Medicamento comparticipado. Para mais informações deverá contactar o titular da autorização de introdução no mercado. Titular de AIM: BGP Products, Unipessoal, Lda., uma empresa Mylan. e-mail da farmacovigilância: pv.portugal@viatris.com | 7/2022/BGP/553

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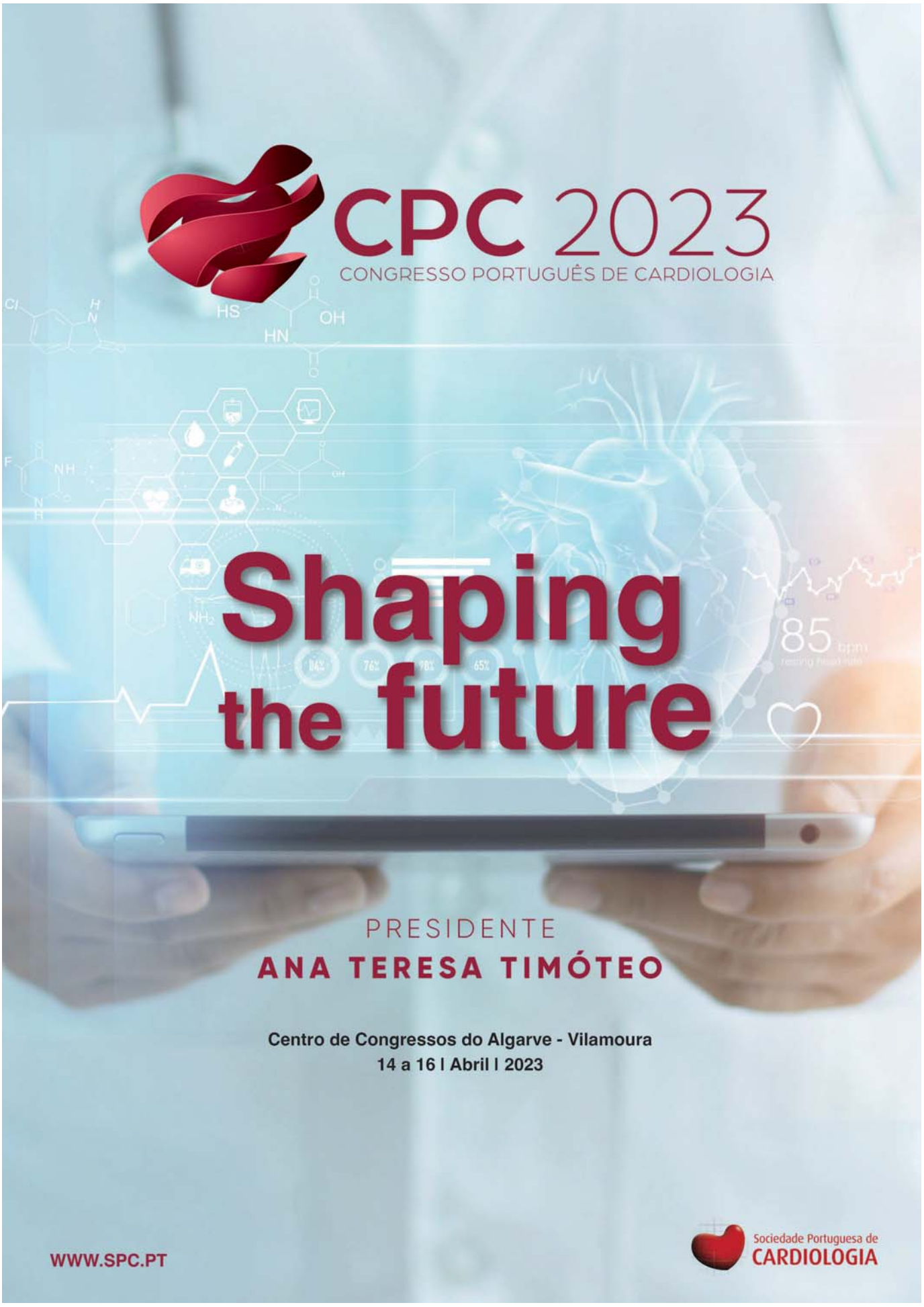
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Estamos de volta a mais um congresso anual da Sociedade Portuguesa de Cardiologia. O maior evento nacional da Medicina Cardiovascular e um dos maiores eventos científicos médicos nacionais.

Será um congresso híbrido, tal como no ano anterior, mantendo a transmissão ao vivo na plataforma do congresso da maioria das sessões e permitindo também a participação virtual de vários palestrantes internacionais, que de outra forma não teriam possibilidade de contribuir com a sua experiência e conhecimento de excelência neste congresso.

O Congresso Português de Cardiologia continua a afirmar-se pela grande abrangência de todas as áreas da Medicina Cardiovascular. Para isso, a construção do programa científico teve por base as várias propostas que nos chegaram dos Grupos de Estudo, das Associações Especializadas, dos Núcleos e Conselhos da Sociedade Portuguesa de Cardiologia, aos quais agradecemos. Com este material de base, a Comissão Científica do CPC 2023 procurou criar um programa amplo relativamente às temáticas, mas também ao público-alvo. Efetivamente, todas as áreas têm o seu espaço no congresso. Incluímos também, como em anos anteriores, o Ciclo de Atualização em Cardiologia, especialmente dedicado para colegas de Medicina Interna, Medicina Geral e Familiar, Internos e todos os Cardiologistas que pretendam atualização nas várias áreas abordadas, que esperamos tenha o mesmo sucesso das edições anteriores.

Dedicaremos também uma sessão especial às alterações climáticas e poluição como importantes fatores de risco cardiovascular, uma das linhas programáticas da atual Direção da Sociedade Portuguesa de Cardiologia. Teremos também uma sessão dedicada às doenças cardiovasculares das mulheres e outra sobre a mulher (como profissional de saúde) na Medicina Cardiovascular, dois tópicos cada vez mais abordados pelas Sociedades Científicas Internacionais.

Conseguimos este ano retomar a iniciativa CPC4ALL, que irá permitir que todos possam estar presentes no congresso de forma mais acessível. Mantivemos também a iniciativa *EveryBeatCounts*, que alia o exercício físico diário com um papel social para com as duas instituições de solidariedade social selecionadas este ano.

Na construção deste congresso, contámos com o trabalho «silencioso» de vários intervenientes, que de forma voluntária contribuíram de forma muito generosa. Tivemos centenas de colegas que colaboraram como revisores de resumos livres, de casos clínicos e de imagem, como membros dos júris dos prémios e bolsas científicas e também integrando o programa científico do congresso como palestrantes, moderadores ou membros de painéis de discussão. Assim, aqui fica o nosso agradecimento, porque sem eles não seria possível construir o nosso Congresso.

Dos 534 resumos submetidos, conseguimos que todos fossem avaliados por sete peritos independentes, o que contribui para uma avaliação mais justa de todos os trabalhos, e selecionámos 5 trabalhos para o prémio do jovem investigador, 145 para apresentação em forma de comunicação oral e 240 em forma de *poster* eletrónico. São estes trabalhos de excelência que estão publicados neste suplemento da Revista Portuguesa de Cardiologia.

Expresso também o meu agradecimento especial a toda a Comissão Científica do Congresso Português de Cardiologia 2023, que durante um ano trabalhou para preparar este evento.

Finalmente, deixo um agradecimento à Indústria Farmacêutica e de Dispositivos Médicos pela sua contribuição, bem como a todos os parceiros logísticos que ajudaram a construir o congresso.

Votos de um Excelente Congresso Português de Cardiologia 2023. Vamos continuar a construir o Futuro da Medicina Cardiovascular!

Ana Teresa Timóteo
Presidente do Congresso Português de Cardiologia 2023

Portuguese Society of CARDIOLOGY

Revista Portuguesa de
Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

2023 Portuguese Congress of Cardiology – Shaping the Future

Welcome to the 2023 Portuguese Congress of Cardiology!

The Portuguese Society of Cardiology (SPC) is once again holding its annual Congress, the largest event in cardiovascular medicine in Portugal and one of the most important events in Portuguese medicine.

Like last year, this will be a hybrid congress, with most of the sessions being transmitted live at the Congress center, while also enabling the virtual participation of various international speakers who would otherwise not be able to enrich the Congress with their experience and know-how.

The Congress continues to be notable for its wide coverage of all areas of cardiovascular medicine. To this end, the scientific program is based on a number of proposals put forward by the SPC's Working Groups, Study Groups and specialist associations, for which we are grateful. The Scientific Committee of the 2023 Congress used these proposals to develop a program that is wide-ranging in terms not only of themes, but also of target audiences. The result is that all areas have their own space in the Congress. Also, as in previous years, we will be offering Cardiology Refresher Sessions, aimed particularly at internal medicine specialists, general practitioners, interns, and cardiologists who would like an update in the various fields covered by the sessions, which we hope will enjoy the same success as in previous Congresses.

There will also be a special session on climate change and pollution, as these are important cardiovascular risk factors and figure among the policy guidelines of the current Board of the SPC. Other special sessions will focus on cardiovascular disease in women and on female health professionals in cardiovascular medicine, two topics that are receiving increasing attention from international medical societies.

This year we once again offer the CPC4ALL facility, which helps all participants to be physically present at the Congress on favorable terms. We are also continuing the EveryBeatCounts initiative, which links daily physical exercise with a social function to support the two organizations selected this year: the charity Aldeia de Crianças SOS and UNICEF.

In putting this Congress together, we have relied on the behind-the-scenes work of various people who generously contributed their time and efforts. Hundreds of our colleagues have contributed as reviewers of free abstracts, case reports and images or as members of the juries for prizes and grants, as well as playing their part in the scientific program as speakers, moderators or members of discussion panels. To all of these individuals, without whom the Congress would not have been possible, we extend our warm thanks.

The 534 abstracts submitted were reviewed by seven independent experts, who carried out a comprehensive evaluation of all works. Five submissions were selected as candidates for the Young Researcher prize, 145 for presentation as oral communications, and 240 as electronic posters. These works, chosen for their excellence, are published in this Supplement of the Portuguese Journal of Cardiology.

I would also like to express my special thanks to all members of the Scientific Committee of the 2023 Congress, who have worked for a year to prepare the event.

Finally, we are grateful to the pharmaceutical and medical device industries for their contribution, as well as to all our logistical partners who have helped the Congress to come together.

We wish everyone an excellent 2023 Portuguese Congress of Cardiology and we will continue to build the future of cardiovascular medicine!

Ana Teresa Timóteo
President of the 2023 Portuguese Congress of Cardiology

AGRADECIMENTO AOS REVISORES

A Comissão Organizadora do CPC 2023 agradece aos Colegas abaixo indicados, que colaboraram, na sua qualidade de revisores, na apreciação das comunicações submetidas ao Congresso Português de Cardiologia 2023:

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Ana Rita Almeida
Ana Rita Ferreira
Ana Rita Lopes Francisco
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Ana Rita Rodrigues
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Teresa Pires
Teresa Santos
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Tiago Nolasco

Vasco Alves Dias
Victor Gil
Victor Sanfins
Vítor Hugo Pereira
Vítor Paulo Martins

NEPARVIS®

Sacubitril/Valsartan

2 cp./dia

TEMPO é VIDA[1]

1ª LINHA

NO TRATAMENTO DA IC-FEr[4#*]

Escolha dar MAIS VIDA aos seus doentes[2,3]

Referências:

1- Gouveia M *et al.*; ESC Heart Fail. 2019. DOI:10,1002/ehf2.12399;

2 - McMurray JJ, *et al.* N EngII Med. 2014 Sep 11;371(11):993-1004;

3 - Desai AS, *et al.* Eur Heart J. 2015;36(30):1990-7;

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*Em Portugal Sacubitril/valsartan (NEPARVIS®) está financiado em doentes com sintomas de insuficiência cardíaca (FEVE ≤35%) classe II ou III (NYHA), apesar de tratamento, há pelo menos 4 semanas, com IECA ou ARA em combinação com betabloqueante, associados a outros tratamentos recomendados como diuréticos e/ou antagonistas da aldosterona, se tolerados.

#Sacubitril/valsartan is recommended as a replacement for an ACEi in patients with HFrEF to reduce the risk of HF hospitalization and death (I,B) and May be considered in those who are ACEi/ARB naïve (de novo) (II,B);

IC-FEr = Insuficiência Cardíaca com Fração de Ejeção reduzida.

Neparvis 24 mg/26 mg comprimidos revestidos por película. Neparvis 49 mg/51 mg comprimidos revestidos por película. Neparvis 97 mg/103 mg comprimidos revestidos por película (sacubitril/valsartan).
Nota Importante: Antes de prescrever consulte o Resumo das Características do Medicamento. **APRESENTAÇÃO:** Neparvis 24 mg/26 mg: Cada comprimido revestido por película contém 24,3 mg de sacubitril e 25,7 mg de valsartan (como complexo de sal de sódio de sacubitril valsartan). Neparvis 49 mg/51 mg: Cada comprimido revestido por película contém 48,6 mg de sacubitril e 51,4 mg de valsartan (como complexo de sal de sódio de sacubitril valsartan). Neparvis 97 mg/103 mg: Cada comprimido revestido por película contém 97,2 mg de sacubitril e 102,8 mg de valsartan (como complexo de sal de sódio de sacubitril valsartan). **INDICAÇÕES TERAPÊUTICAS:** Neparvis está indicado em doentes adultos para o tratamento da insuficiência cardíaca crónica sintomática com fração de ejeção reduzida. **POSOLOGIA/MODO DE ADMINISTRAÇÃO:** ♦ ***Adultos:*** Em doentes que se encontram atualmente a tomar um Inibidor da Enzima de Conversão da Angiotenina (IECA) ou um Antagonista dos Recetores da Angiotensina (ARA), a dose inicial recomendada de Neparvis é um comprimido de 49 mg/51 mg duas vezes por dia. A dose deve ser duplicada a cada 2-4 semanas até à dose máxima que se pretende atingir e que é de um comprimido de 97 mg/103 mg duas vezes por dia, de acordo com o tolerado pelo doente. ♦ Se os doentes apresentarem problemas de tolerabilidade (Pressão Arterial Sistólica (PAS) ≤95 mmHg, hipotensão sintomática, hipercaliemia, disfunção renal), é recomendado ajuste posológico da medicação concomitante, redução temporária da dose ou descontinuação de Neparvis. ♦ Em doentes que não se encontram atualmente a tomar um inibidor da ECA ou um ARA ou a tomar doses baixas destes medicamentos, é recomendada uma dose inicial de 24 mg/26 mg duas vezes por dia e titulação lenta da dose (duplicação a cada 3-4 semanas). ♦ O tratamento não deve ser iniciado em doentes com níveis de potássio sérico >5,4 mmol/l ou com PAS <100 mmHg. Para doentes com PAS entre 100 e 110 mmHg, deve ser considerada uma dose inicial de 24 mg/26 mg duas vezes por dia. ♦ Neparvis pode ser tomado com ou sem alimentos. Não é recomendado partir ou esmagar os comprimidos. ♦ ***Doentes idosos:*** A dose deve ser ajustada de acordo com a função renal do doente idoso. ♦ ***População pediátrica:*** A segurança e eficácia de Neparvis em crianças e adolescentes com idade inferior a 18 anos não foram estabelecidas. Não existem dados disponíveis. ♦ ***Compromisso renal:*** Não é necessário ajuste posológico em doentes com compromisso renal ligeiro (Taxa de Filtração Glomerular Estimada (TFGe) 60-90 ml/min/1,73 m²). Deve ser considerada uma dose inicial de 24 mg/26 mg duas vezes por dia para doentes com compromisso renal moderado (TFGe 30-60 ml/min/1,73m²). Como a experiência clínica em doentes com compromisso renal grave (TFGe <30 ml/min/1,73 m²) é muito limitada, Neparvis deve ser utilizado com precaução e recomenda-se uma dose inicial de 24 mg/26 mg duas vezes por dia. Não existe experiência em doentes com doença renal terminal e a utilização de Neparvis não é recomendada nesta população de doentes. ♦ ***Compromisso hepático:*** Não é necessário ajuste posológico quando se utilizar Neparvis em doentes com compromisso hepático ligeiro (Child-Pugh A). A experiência clínica em doentes com compromisso hepático moderado (Child-Pugh B) ou com valores de AST/ALT duas vezes superiores ao limite superior normal é limitada. Neparvis deve ser utilizado com precaução nestes doentes e a dose inicial recomendada em doentes com insuficiência hepática moderada (Child-Pugh B) é de 24 mg/26 mg duas vezes por dia. Neparvis está contraindicado em doentes com compromisso hepático grave, cirrose biliar ou colestase (Child-Pugh C). **CONTRAINDICAÇÕES:** ♦ Hipersensibilidade às substâncias ativas ou a qualquer um dos excipientes. ♦ Uso concomitante com IECA. Neparvis não deve ser administrado até 36 horas após a descontinuação da terapêutica com um IECA. ♦ História conhecida de angioedema relacionado com a terapêutica com IECA ou ARA. ♦ Angioedema hereditário ou idiopático. ♦ Uso concomitante com medicamentos contendo aliscireno em doentes com diabetes *mellitus* ou em doentes com compromisso renal (TFGe <60 ml/min/1,73 m²). ♦ Compromisso hepático grave, cirrose biliar e colestase. ♦ Segundo e terceiro trimestres de gravidez. **ADVERTÊNCIAS/PRECAUÇÕES:** ♦ ***Duplo bloqueio do sistema renina-angiotensina-aldosterona (SRAA):*** A associação de Neparvis com um IECA é contraindicada devido ao aumento de risco de angioedema. Neparvis não deve ser iniciado até 36 horas após a última dose da terapêutica com um IECA. Se o tratamento com Neparvis for interrompido, a terapêutica com um IECA não deve ser iniciada até 36 horas após a última dose de Neparvis. ♦ A associação de Neparvis com inibidores diretos da renina, como o aliscireno, não é recomendada. A associação de Neparvis com medicamentos contendo aliscireno é contraindicada em doentes com diabetes *mellitus* ou em doentes com compromisso renal (TFGe <60 ml/min/1,73 m²). ♦ Neparvis contém valsartan e, portanto, não deve ser coadministrado com outro medicamento contendo um ARA. ♦ ***Hipotensão:*** O tratamento com Neparvis só deve ser iniciado se a PAS for ≥100 mmHg. Os doentes com PAS <100 mmHg não foram estudados. Durante os estudos clínicos foram notificados casos de hipotensão sintomática em doentes tratados com Neparvis, especialmente em doentes com idade ≥65 anos, doentes com doença renal e doentes com PAS baixa (<112 mmHg). Quando se iniciar a terapêutica ou durante o ajuste da dose com Neparvis, a pressão arterial deve ser monitorizada por rotina. Se ocorrer hipotensão, recomenda-se a redução temporária da dose ou a descontinuação de Neparvis. Deve ser considerado o ajuste posológico de diuréticos e anti hipertensores utilizados concomitantemente e o tratamento de outras causas de hipotensão (ex. hipovolémia). É mais provável que ocorra hipotensão sintomática se o doente apresentar depleção de volume p. ex. por terapêutica diurética, restrição dietética de sal ou vómitos. A depleção de volume e/ou de sódio deve ser corrigida antes do início do tratamento com Neparvis. No entanto, tal ação corretiva deve ser cuidadosamente ponderada comparativamente ao risco de sobrecarga de volume. ♦ ***Compromisso renal:*** A avaliação dos doentes com insuficiência cardíaca deve incluir sempre a avaliação da função renal. Os doentes com compromisso renal ligeiro e moderado têm maior risco de desenvolver hipotensão. A experiência clínica em doentes com compromisso renal grave (TFGe <30 ml/min/1,73 m²) é muito limitada e estes doentes podem ter um maior risco de hipotensão. Não existe experiência em doentes com doença renal terminal e a utilização de Neparvis não é recomendada nesta população de doentes. ♦ ***Agravamento da função renal:*** A utilização de Neparvis pode estar associada ao agravamento da função renal. O risco pode ser ainda aumentado por desidratação ou uso concomitante de AINE. Deve ser considerado o ajuste posológico para uma dose inferior em doentes que apresentem um declínio da função renal clinicamente significativo. ♦ ***Hipercaliemia:*** O tratamento com Neparvis não deve ser iniciado se o nível de potássio sérico for >5,4 mmol/l. A utilização de Neparvis pode estar associada a um risco aumentado de hipercaliemia. Porém, pode também ocorrer hipocaliemia. É recomendada a monitorização do potássio sérico, especialmente em doentes que apresentam fatores de risco tais como compromisso renal, diabetes *mellitus* ou hipoaldosteronismo ou que têm uma dieta rica em potássio. Caso os doentes desenvolvam uma hipercaliemia clinicamente significativa, é recomendado o ajuste da medicação concomitante ou a redução temporária da dose ou a descontinuação de Neparvis. Se o nível de potássio sérico for >5,4 mmol/l deve ser considerada a descontinuação. ♦ ***Angioedema:*** Têm sido notificados casos de angioedema em doentes tratados com Neparvis. Se ocorrer angioedema, Neparvis deve ser imediatamente descontinuado e devem ser iniciados a terapêutica e o acompanhamento apropriados, até à resolução completa e sustentada dos sinais e sintomas apresentados. Nesses casos Neparvis não deve ser administrado novamente. Nos casos de angioedema confirmado onde o edema esteve confinado à face e lábios, a condição foi geralmente resolvida sem tratamento, embora a utilização de anti-histamínicos tenha sido útil no alívio dos sintomas. O angioedema associado a edema da laringe pode ser fatal. Quando houver envolvimento da língua, glote ou laringe com probabilidade de causar obstrução das vias aéreas, deve ser administrada, imediatamente, terapêutica apropriada, p. ex. solução de adrenalina 1 mg/1 ml (0,3-0,5 ml), e/ou medidas necessárias para garantir a desobstrução das vias aéreas. Doentes com antecedentes de angioedema não foram estudados. Uma vez que poderão apresentar um risco aumentado de desenvolver angioedema, Neparvis deve ser utilizado com precaução nesta população de doentes. Neparvis está contraindicado em doentes com história conhecida de angioedema relacionado com a terapêutica com um IECA ou ARA ou com angioedema hereditário ou idiopático. Doentes de raça negra têm suscetibilidade aumentada para desenvolver angioedema. ♦ ***Doentes com estenose da artéria renal:*** Em doentes com estenose unilateral ou bilateral da artéria renal, Neparvis pode aumentar a ureia sanguínea e os níveis de creatinina sérica. É necessária precaução na administração de Neparvis em doentes com estenose da artéria renal e é recomendada a monitorização da sua função renal. ♦ ***Doentes com classe funcional NYHA IV:*** Deve ter-se precaução quando se inicia Neparvis em doentes com classificação funcional NYHA IV devido à limitada experiência clínica nesta população. ♦ ***Peptídeo natriurético tipo B (BNP):*** O BNP não é um biomarcador adequado da insuficiência cardíaca em doentes tratados com Neparvis porque é um substrato da neprilisina. ♦ ***Doentes com compromisso hepático:*** A experiência clínica em doentes com compromisso hepático moderado (Child-Pugh B) ou com valores de AST/ALT duas vezes superiores ao limite superior normal é limitada. Nestes doentes, a exposição pode ser aumentada e a segurança não está estabelecida. Assim, recomenda-se precaução na utilização de Neparvis nesta população de doentes. Neparvis está contraindicado em doentes com compromisso hepático grave, cirrose biliar ou colestase (Child-Pugh C). ♦ ***Doenças psiquiátricas:*** Eventos psiquiátricos, tais como alucinações, paranoia e alterações do sono, no contexto de eventos psicóticos, têm sido associados à utilização de sacubitril/valsartan. Se um doente sentir tais efeitos, deve ser considerada a descontinuação do tratamento com sacubitril/valsartan. **INTERAÇÕES:** ♦ ***Utilização concomitante contraindicada:*** o uso concomitante de Neparvis com medicamentos contendo aliscireno é contraindicado em doentes com diabetes *mellitus* ou em doentes com compromisso renal (TFGe <60 ml/min/1,73 m²). O uso concomitante de Neparvis com IECA é contraindicado. Neparvis não deve ser iniciado até 36 horas após a última dose da terapêutica com um IECA. A terapêutica com um IECA não deve ser iniciada até 36 horas após a última dose de Neparvis. ♦ ***Utilização concomitante não recomendada:*** com outros medicamentos contendo ARA. A associação de Neparvis com inibidores diretos da renina, como o aliscireno não é recomendada. ♦ ***Utilização concomitante requerendo precauções***: Substratos OATP1B1 e OATP1B3 (ex. estatinas). Inibidores PDE5 incluindo sildenafil. Diuréticos poupadores de potássio (triamtereno, amilorida), antagonistas dos mineralocorticoides (ex. espironolactona, eplerenona), suplementos de potássio, substitutos do sal contendo potássio ou outros fármacos (tais como heparina). Anti-inflamatórios não esteroides (AINE), incluindo inibidores seletivos da ciclooxigenase-2 (inibidores COX-2). Lítio. Furosemida. Nitratos (ex. nitroglicerina). inibidores de OATP1B1, OATP1B3, OAT3 (ex. rifampicina, ciclosporina), OAT1 (ex. tenofovir, cidofovir) ou MRP2 (ex. ritonavir). Metformina. ♦ ***Sem interação significativa***: Digoxina, varfarina, hidroclorotiazida, amlodipina, omeprazol, carvedilol ou a associação de levonorgestrel/etinil estradiol. **GRAVIDEZ/ALEITAMENTO:** A utilização de Neparvis não é recomendada durante o primeiro trimestre de gravidez e é contraindicada durante o segundo e terceiro trimestres de gravidez. ♦ Desconhece-se se Neparvis é excretado no leite humano. Devido ao risco potencial de reações adversas em recém-nascidos/lactentes, não é recomendado durante a amamentação. **EFEITOS INDESEJÁVEIS:** ♦ ***Muito frequentes (≥1/10):*** hipercaliemia, hipotensão, compromisso renal. ♦ ***Frequentes (≥1/100, <1/10):*** anemia, hipocaliemia, hipoglicemia, tonturas, cefaleias, síncope, vertigens, hipotensão ortostática, tosse, diarreia, náuseas, gastrite, insuficiência renal (insuficiência renal, insuficiência renal aguda), fadiga, astenia. ♦ ***Pouco frequentes (≥1/1.000, <1/100):*** hipersensibilidade, tonturas posturais, prurido, erupção cutânea, angioedema. ♦ ***Raros (≥1/10.000, <1/1.000):*** alucinações (incluindo alucinações auditivas e visuais), alterações do sono ♦ ***Muito raros (<1/10.000):*** paranoia. **TITULAR DA AUTORIZAÇÃO DE INTRODUÇÃO NO MERCADO**: Novartis Europharm Limited. **REPRESENTANTE LOCAL:** SERVIER PORTUGAL – Especialidades Farmacêuticas, Lda., Torre Oriente - Avª Colégio Militar 37F - Piso 6 – Fração B, 1500-180 Lisboa. Tel.: 213122000. www.servier.pt. **Escalão de comparticipação:** B. A decisão de comparticipação de Neparvis está condicionada à população elegível, nomeadamente: doentes com insuficiência cardíaca com fração de ejeção reduzida (FEVE ≤35%); doentes com sintomas de insuficiência cardíaca classe II ou III (NYHA), apesar de tratamento, há pelo menos 4 semanas, com IECA ou ARA em combinação com beta-bloqueante, associados a outros tratamentos recomendados como diuréticos e/ou antagonistas da aldosterona, se tolerados. O tratamento com Neparvis deve ser iniciado por médicos com experiência no tratamento de insuficiência cardíaca. Medicamento sujeito a receita médica. Para mais informações deverá contactar o titular da AIM/representante local do titular da AIM. **NEP_RCM20210519_IEC_v6. RCM aprovado em Maio de 2021. IECRCM 22.02.2023**

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COMUNICAÇÕES ORAIS (CO)

Congresso Português de Cardiologia 2023

14 a 16 de Abril de 2023

Sexta-feira, 14 Abril de 2023 | 09:00-10:00

Sala Aquarius | Comunicações Orais (Sessão 1) - Insuficiência cardíaca: a clínica primeiro

CO 1. SCREENING FOR SLEEP BREATHING DISORDER IN PATIENTS WITH HEART FAILURE - 1 YEAR MULTIDISCIPLINARY TEAM EXPERIENCE

Mariana Marçal, Vânia Caldeira, Sara Gonçalves, Catarina Rijo, Margarida Castanho, Paula Duarte

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Sleep breathing disorders (SBD) are a spectrum of diseases, including obstructive sleep apnea (SA), central SA and sleep-related hypoventilation. SBD are highly prevalent (48-81%) and associated with adverse outcomes in patients with heart failure (HF), including symptom progression, hospitalization and mortality.
Objectives: To improve awareness and increase diagnosis of SBD in HF patients (pts), estimate prevalence and test the correlation between overnight pulse oximetry (OPO) and home sleep apnea testing (HSAT).
Methods: Screening of SBD was implemented in pts with recently diagnosed HF and followed by a multidisciplinary HF team. The screening consisted of a survey of symptoms, arterial blood gas sampling (ABGS) and OPO. Pts who had 2 positive answers, oxygen dessaturation index (ODI) > 5/h or < 5/h with symptoms/comorbidities, SpO2 time < 90% greater than 20% of total recording or changes in ABGS (HCO_3 > 27, pCO2 > 45 or pO2 < 60) were submitted to HSAT and pulmonology evaluation. Descriptive retrospective analysis of data regarding pts identified between January and November 2022 was carried out. Statistical analysis was performed with IBM SPSS Statistics 27. Pearson's correlation coefficient was used to assess the correlation between ODI in OPO and apnea-hypopnea index (AHI) in HSAT.
Results: During this period, 37 pts met the referral criteria (81.1% male, mean age 65.7 ± 12.3 years). Most pts had ischaemic HF (n = 12; 34.3%), NYHA = 2 (n = 20; 54.1%) or ≥ 3 (n = 10; 27%), 47.2% with reduced ejection fraction (EF) (n = 17) and 30.6% with mildly reduced EF (n = 11); main comorbidities were dyslipidemia (n = 32; 86.5%), hypertension (n = 30; 81.1%), smoking (n = 26; 70.2%) and obesity (n = 22; 59.4%). All pts who underwent a HSAT after positive SBD screening were diagnosed with SA (n = 33; 89.2%) and started positive airway pressure therapy, the majority of them with severe disease (n = 15; 40.5%; mean AHI 30.9 ± 15.2 events/h) and obstructive events (n = 30; 81%). 4 pts are waiting for the HSAT. The ODI values showed a moderate positive correlation with the AHI (r = 0.699; p = 0.001).
Conclusions: The high prevalence of SBD in pts with HF, coupled with evidence of improved HF outcomes after SBD treatment, provides a rationale for SBD screening. OPO seems to have a high sensitivity for screening SA in patients with HF and a high pre-test probability of SBD. However, confirmation of suspected diagnosis through HSAT, essential in grading and characterization of SBD, remains necessary.

CO 2. INFLUENCE OF DIHYDROPYRIDINES CLASS OF CALCIUM CHANNEL BLOCKERS IN IRON DEFICIENCY IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION

Rui Antunes Coelho, Ana Rita Piteira, Jéni Quintal, Sara Gonçalves, Tatiana Duarte, Pedro Carreira, Margarida Madeira, Hugo Viegas, Ana Sousa, Crisálida Ferreira, Andreia Soares, Dina Ferreira, Ana Fátima Esteves, António Pinheiro, Joana Silva Ferreira, Pedro Amador, Ermelinda Pedroso, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Iron deficiency (ID) is a recognized factor associated with worse prognosis of heart failure (HF) but the mechanism by which the patients develop ID is still unclear. Some studies suggest a relationship between ID and therapy used in the clinical control of HF. Hypertension is one of the most frequent etiologies and comorbidities of HF, whereby many patients with HF are medicated with Calcium Channel Blockers from the class of dihydropyridines (D-BCC). A single study evaluated the impact of medication on patients with HF and established a statistically significant relationship between D-BCC and ID.
Objectives: The aim of this study was to verify if therapy with D-BCC is indeed associated with ID in patients with HF with reduced ejection fraction (EFrHF).
Methods: We performed a retrospective observational cohort study of all patients with EFrHF followed at our HF Unit, between January 2019 and December 2020. Patients with severe anemia or conditions that may cause anaemia/ID were excluded. Of a total of 100 patients that were included, 30 patients were medicated with D-BCC for at least 3 months. We compared ID (ferritin < 100 µg/L or ferritin 100-300 µg/L and transferrin saturation < 20%) of at least 6-months follow-up as well as other patient characteristics between the groups.
Results: Taking D-BCC (n = 30) had a statistically significant association with ID (73.3% in D-BCC group *vs.* 45.2% in control group; p = 0.006). Most of these patients (n = 17; 57%) were taking amlodipine, 11 patients (37%) were taking lercanidipine and 1 patient (3.3%) was on nifedipine. 17 of these patients (45%) were on the lowest dose of these drugs. Neither the active principle nor the dose had a statistically significant relationship with the development of ID. The group on D-BCC had a slightly higher EF (37% *vs.* 35%; p = 0.02) and higher levels of corrected calcium to albumin (9.7 mg/dL *vs.* 9.3 mg/dL, p = 0.02).

Patient characteristics	All (n = 100)	Dihydropyridines (n = 30)	Control group (n = 70)	p
Age in years, median (IQR)	69 (60-76)	70 (61-76)	69 (59-76)	0,741
Male gender, n (%)	69 (69,0)	20 (66,7)	49 (70,0)	0,792
Hypertension, n (%)	82 (82,0)	28 (93,3)	54 (77,1)	0,053
Diabetes mellitus, n (%)	48 (48,0)	15 (50,0)	33 (47,1)	0,793
Dyslipidemia, n (%)	62 (62,0)	18 (60,0)	44 (62,9)	0,875
Smoking, n (%)	44 (44,0)	11 (36,7)	33 (47,1)	0,333
Body mass index in Kg/m², median (IQR)	27,8 (24,4-31,9)	28,4 (24,5-32,0)	27,7 (24,2-31,9)	0,903
Creatinine clearance in ml/min, median (IQR)	65,0 (59,9-76,0)	49,5 (34,8-72,0)	70,5 (44,0-93,2)	**0,040**
Etiology of HF, n (%)				
Ischemic	41 (41,0)	11 (39,3)	30 (45,5)	0,581
Dilated	21 (21,0)	7 (25,0)	14 (2,2)	0,687
Hipertensive	5 (5,0%)	5 (17,9)	0 (0,0)	**<0,001**
Valvular	3 (3,0%)	1 (3,6)	2 (3,0)	0,659
NYHA, n (%)				0,181
I	14 (14,0)	7 (23,3)	7 (10,0)	
II	53 (53,0)	13 (43,3)	40 (57,1)	
III	33 (33,0)	10 (33,3)	23 (32,9)	
IV	0 (0,0)	0 (0,0)	0 (0,0)	
Sacubitril-Valsartan, n (%)	64 (64,0)	16 (53,3)	48 (68,6)	0,093
ACEI, n (%)	26 (26,0)	12 (40,0)	14 (90,0)	**0,042**
Beta-blockers, n (%)	90 (90,0)	27 (90,0)	63 (90,0)	0,639
Spironolactone, n (%)	71 (71,0)	20 (66,7)	51 (72,9)	0,391
Furosemide, n (%)	70 (70,0)	19 (63,3)	51 (72,9)	0,231
GLP2i, n (%)	32 (32,0)	9 (30,0)	23 (32,9)	0,717
LVEF (%), median (IQR)	35 (28-41)	37 (33-43)	35 (25-40)	**0,018**
Iron deficiency, n (%)	50 (50,0)	22 (73,3)	28 845,2)	**0,006**
Hemoglobin (g/dl), median (IQR)	13,3 (11,8-14,4)	13,6 (12,7 – 14,6)	13,0 (11,6-14,4)	0,123
Ferritin µg/L, median (IQR)	163 (75-278)	142 (81-210)	191 (69-358)	0,135
Transferrin saturation in %, median (IQR)	25,1 (17,9-33,1)	23,3 (17,0-32,6)	25,6 (18,0-33,2)	0,143
Iron (µg/dL), median (IQR)	82 (59-97)	75 (60-95)	83 (59-101)	0,496
NT-proBNP (pg/ml), median (IQR)	1531 (393-3579)	1261 (311-3521)	1656 (441-3617)	0,550
Folate (ng/mL), median (IQR)	6,35 (4,83-8,13)	5,30 (4,70-9,60)	6,59 (5,26-8,33)	0,570
B12 vitamine (pg/mL), median (IQR)	391 (323-546)	330 (181-473)	445 (355-582)	0,052
Corrected calcium (mg/dl), median (IQR)	9,3 (9,1-9,8)	9,5 (9,3-9,9)	9,2 (8,6-9,4)	0,017
TSH (mIU/L), median (IQR)	1,87 (1,29-2,36)	1,74 (1,39-2,25)	1,90 (1,10-2,40)	0,650
CRP (mg/dl), median (IQR)	1,1 (0,3-2,1)	0,61 (0,2-2,1)	1,2 (0,3-2,2)	0,365
Hospitalizations by HF, n (%)	22 (22,0)	6 (20,0)	16 (22,9)	0,760
2-years mortality, n (%)	18 (18,0)	4 (13,3)	14 (21,0)	0,448

Table 1 - Characteristics of patients with HFrEF from which common causes of iron deficiency anemia were excluded.

Conclusions: In a population of 100 patients with EFrHF, the intake of D-BCC is used, as expected, mainly to control hypertension and is significantly associated with a higher incidence of ID in the follow-up at 6 months - 1 year, but not to the development of anemia, NYHA class, hospitalizations for HF or 2-years mortality. If this association is confirmed in more robust studies, the therapeutic and prognostic implication of these drugs could lead to a review of clinical practice, with greater vigilance and attention for this possible drug effect that can be controlled, allowing an intervention early prognosis in these patients.

CO 3. CLINICAL PHENOTYPES AND PROGNOSIS OF PATIENTS WITH HEART FAILURE WITH MILDLY REDUCED EJECTION FRACTION

Vítor Hugo Pereira[1], Juliana Rodrigues[2], Rui Flores[1], Cátia Oliveira[1]

[1]Hospital de Braga, EPE. [2]Universidade do Minho.

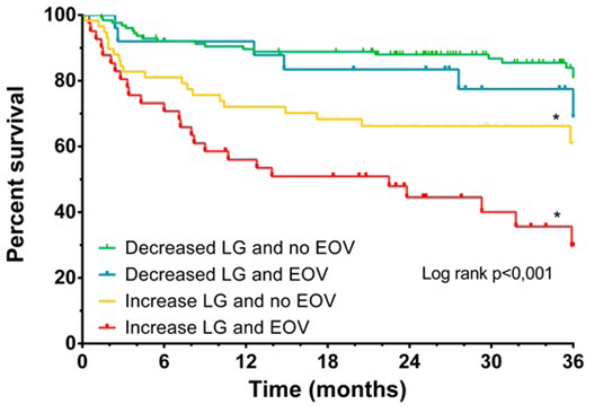
Introduction: Heart failure (HF) is a complex clinical syndrome resulting from systolic and/or diastolic dysfunction, leading to considerable mortality and morbidity. The recent definition of an intermediate clinical phenotype based on an ejection fraction (EF) between 41% and 49%, named HF with mildly reduced EF (HFmrEF), has fueled investigations into the clinical profile and prognosis of this patient group.
Objectives: The aim of this study was to characterize the clinical phenotype and explore the long term prognosis of patients with HFmrEF at 5-years of follow-up.
Methods: This retrospective study included 279 outpatients with HFmrEF classified according to baseline LVEF (41-49%) between January and December 2016. Clinical, analytical and imagiological data were carefully collected and analyzed. In terms of prognosis, primary (overall mortality) and secondary endpoints (cardiovascular mortality, HF hospitalizations and major adverse cardiac events) were evaluated during a period of 5 years of follow-up. Patients were further classified as HFmrEF-Decreased if LVEF had decreased to ≤ 40%, HFmrEF-Improved if LVEF had increased to ≥ 50%, or HFmrEF-Stable if they stayed in the same HF category.
Results: Most of the clinical characteristics of HFmrEF patients were intermediate between HFrEF (HF with reduced EF) and HFpEF (HF with preserved EF) when compared with previous studies. However, HFmrEF shared with HFrEF several aspects, including male gender (73.8%), ischemic etiology (51.3%), and the lower prevalence of atrial fibrillation and non-cardiac comorbidities. During a period of 5 years of follow-up, the overall cumulative survival was 68.5%. Regarding the LVEF trajectory, in a multivariate analysis including gender and age, patients in the group HFmrEF-Improved had lower mortality at 5 years when compared to HFmrEF-Decreased [p = 0.004, HR (95%CI): 0.34(0.16-0.71)].
Conclusions: These findings strongly support that HFmrEF constitutes a distinct HF category with distinguished prognosis. LVEF trajectory provide meaningful information and may help clinicians to decide which patients should have more aggressive monitoring and medical therapy.

CO 4. THE PROGNOSTIC IMPACT OF LOOP GAIN IN HEART FALILURE

Rita Amador[1], Sérgio Maltês[1], Bruno Rocha[1], Duarte Nina[2], Carlos M. Aguiar[1], Maria J. Andrade[1], Luís Moreno[1], Anaí Durazzo[1], Miguel Mendes[1], Gonçalo Cunha[1], Piergiuseppe Agostoni[3]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Instituto Superior Técnico. [3]Centro Cardiológico Monzino.

Introduction: Exercise oscillatory ventilation (EOV) is a strong prognostic marker in patients with heart failure (HF) and left ventricular (LV) dysfunction. However, this parameter has had multiple definitions and a high interobserver variability. This phenomenon can be explained through a single quantitative measurement of ventilatory instability, the loop gain.
Objectives: We aimed to compare loop gain measurement with exercise oscillatory ventilation (EOV) regarding demographic characteristics and prognostic value.
Methods: We performed a single-centre retrospective study that included patients with LV ejection fraction (LVEF) < 50% who had been consecutively referred for cardiopulmonary exercise testing (CPET) from 2016-2020. Loop gain was measured through computational evaluation of the minute ventilation graph. The primary endpoint was a composite of cardiovascular (CV) death (sudden death, progressive heart failure-related death and electric storm), urgent heart transplantation/left ventricular assist device (LVAD) implantation or HF hospitalization.



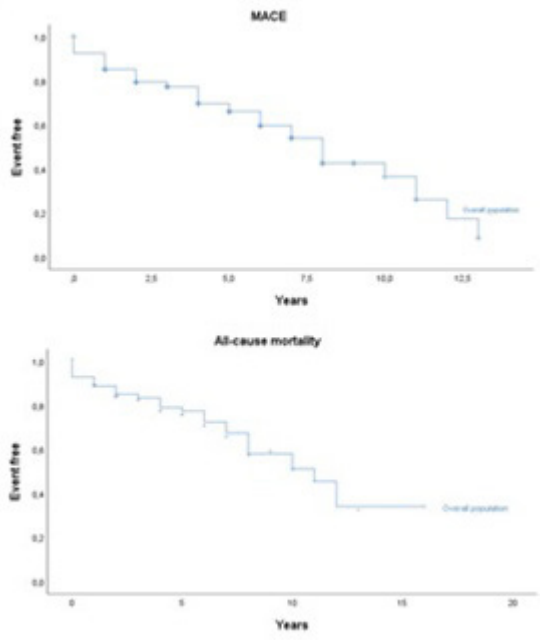
Results: Of the 250 patients included (mean age 58years, 75% male, 67% with ischemic HF), the 66 that presented EOV also had increased value of loop gain when compared to patients without EOV. Those with increased loop gain had more severe HF, higher NT-proBNP and VE/VCO2 slope as well as lower pVO2 and LVEF. On multivariate cox regression analysis, loop gain showed significant correlation with time to composite endpoint (HR for 1 point increase in loop gain 6.866; 95%CI 1.724-27.341; p = 0.006), even when adjusted for pVO2, VE/VCO2 slope, log transformation of NTproBNP and LVEF. Presence of EOV was not prognostically significant in this analysis. The prognosis of patients with lower loop gain seems to be better while patients with higher loop gain seem to fare worse, regardless of the presence of EOV.
Conclusions: Loop gain is an objective parameter that quantifies ventilatory instability and showed to have a strong prognostic value in a cohort of patients with HF and LVdysfunction, outperforming the classification of EOV.

CO 5. LONG-TERM OUTCOMES AFTER RESYNCHRONIZATION THERAPY: A DECADE OF EXPERIENCE FROM A SINGLE-CENTER

Mariana S. Brandão, João Gonçalves Almeida, Paulo Fonseca, Elisabeth Santos, Filipa Rosas, Marco Oliveira, Helena Gonçalves, João Primo, Ricardo Fontes-Carvalho

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

Introduction: Cardiac resynchronization therapy (CRT) improves outcomes of heart failure (HF) patients (pts). We aim to report long-term outcomes after CRT implantation in a Portuguese center.
Methods: Single-center retrospective study of consecutive pts submitted to CRT implantation (2007-2018). Major adverse cardiac events (MACE) included HF hospitalization or all-cause mortality (ACM).



Results: 295 pts were included: mean age 67 ± 11 yrs; 70.5% male; 72.5% non-ischemic HF; 76.7% NYHA III-IV. Comorbidities were prevalent: 65.9% hypertension, 33.6% diabetes, 32.6% atrial fibrillation, 26.8% moderate to severe valvular disease, 22.1% chronic kidney disease. Use of guideline-directed therapy: renin-angiotensin system inhibitors 86.4%; β-blockers 83.6%; mineralocorticoid receptor antagonists 56.4%. Baseline QRS morphology was mainly left bundle branch block (91.5%), mean QRS duration 171 ± 22 ms. Mean baseline LVEF was 27 ± 7%. Successful implantation at 1st attempt was accomplished in 94.6%; an epicardial lead was placed in 9 (3.1%) pts. Concomitant atrioventricular junction ablation was performed in 10 (6.6%) pts. CRT-D was implanted in 54.6%, of whom 23.6% had a secondary prevention indication. 19% of pts underwent an upgrade from a previous device, mostly from a conventional pacemaker. At 1-year follow-up (FU), 80.3% of patients presented with biventricular pacing ≥ 95%. QRS duration decreased significantly (169 ± 21 *vs*. 154 ± 23 ms, p <.001). Sustained ventricular arrhythmias were observed in 18 (6.9%) pts; appropriate therapies were delivered in 16 (6.2%) pts. Echocardiographic response (left ventricle end-systolic volume reduction > 15% at 1-year) was reached by 72.0% of pts. Superresponse (LVEF ≥ 50% at 1-year) was achieved by 59 (21.4%) pts. Clinical response (New York Heart Association class improvement without MACE in the 1st year of FU) rate was 62.0%; 51 (19.2%) pts had a HF hospitalization. During a mean FU of 3.8 ± 3.1 years, lead complications were rare (8.5%), and were more common with CRT-D (12.4% *vs*. 3.7%, p =.014). Device infection occurred in 8 (2.7%) pts; 6 underwent explantation. MACE occurred in 36.2% of pts; 73 (24.7%) pts died from any cause [Figure]. 78 (57.8%) pts survived > 5 years since implantation (mean FU 8 ± 2 yrs).
Conclusions: CRT resulted in clinical and echocardiographic improvement, with few complications. The reported response rate is in line with previous landmark studies. Optimized implementation of CRT may stabilize the trajectory of HF pts.

Sexta-feira, 14 Abril de 2023 | 09:00-10:00

Sala Vega | Comunicações Orais - Sessão 02 - Intervenção não coronária

CO 6. 20 YEAR-FOLLOW UP OF MITRAL STENOSIS PATIENTS AFTER PERCUTANEOUS VALVE COMMISSUROTOMY: INVASIVE TRANSMITRAL PRESSURE GRADIENT DIFERENTIAL AS A PREDICTOR OF EVENTS

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Introduction: Percutaneous valve commissurotomy (PMC) is a viable alternative to mitral valve (MV) surgery in the treatment of patients (pts) with clinically significant mitral stenosis (MS). About 40% of pts treated with PMC will require at least one reintervention (either PMC or MV surgery) along time. The aim of our study was to evaluate the long-term results of PMC in pts with rheumatic MS and to seek for an immediate intra operative predictor of events.
Methods: We retrospectively analysed all consecutive patients between 1991 and 2008 with clinically significant rheumatic MS undergoing PMC. Clinical and echocardiographic data were collected at baseline and during early and long-term follow-up. MACE was a composite of adverse events defined as all-cause mortality, MV re-intervention or cardiovascular hospitalization.
Results: A total of 124 pts were enrolled: 108 (87%) female, mean age at the time of PMC of 46 ± 11 years. At baseline, 34% pts were in NYHA class ≥ III and 81% had a Wilkins score ≤ 8; all patients had preserved biventricular systolic function and 83% presented pulmonary hypertension. In 20 cases, there was concomitant moderate disease of other valve (3/4 tricuspid regurgitation). Most of the procedures were successful (91%) and without complications (94%), with a median reduction in pulmonary artery systolic pressure PASP of 8 mmHg (IQR 10) and a mean reduction in mitral valve gradient of 8 ± 7 mmHg. During the mean follow-up of 20 ± 6 years, 51 (42%) of patients had MV re-intervention (86% surgery and 14% re-PMC), 37 (30%) were hospitalized and 30 (24%) died. Concerning time-to-event analysis, approximately 80% of patients kept MACE-free after 10 years; after 30 years, more than 20% continued MACE-uneventful, approximately 50% were alive and about 45% were free from re-intervention. Using Cox regression, we found that a reduction < 5 mmHg in transmitral pressure gradient at PMC time (before and immediately after PMC) was associated with a 2.1-fold greater rate of MACE compared to pts with a reduction ≥ 5 mmHg (HR_{crude} = 2.2; 95%CI 1.319-3.813 p = 0.003). After adjusting for the presence of mitral regurgitation after PMC (HR_{crude} = 1.7; 95%CI 1.020-2.950, p = 0.042) and for moderate disease of other valves (HR_{crude} 1.9; 95%CI 1.070-3.267, p = 0.028) the observed effect remained significant and was even greater ($HR_{adjusted}$ = 2.7; 95%CI 1.395-5.298, p = 0.003). Of note, differential in PSAP or in left atrium pressure intra-operative did not show an association with occurrence of events (p = 0.285 and p = 0.769).
Conclusions: PMC was safe and effective in clinically significant rheumatic MS. Most of the patients were free from adverse events after 10 years and half were alive after 30 years; still, about 40% required re-intervention. A reduction < 5 mmHg in transmitral gradient at PMC time was associated with events during follow up; more studies are needed to validate this practical independent predictor.

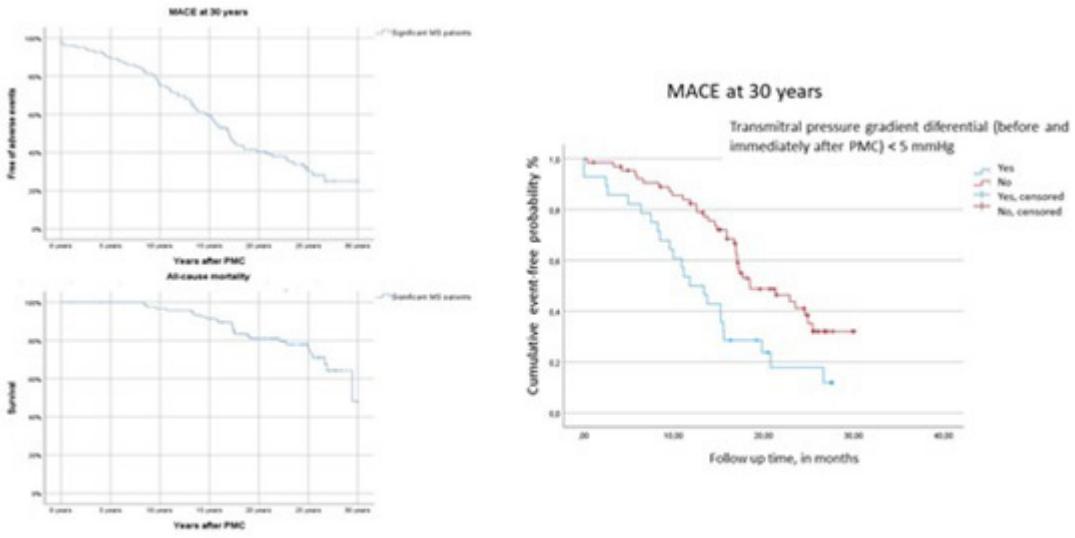

Figure1: On the left, Kaplan Meier curves regarding major adverse cardiovascular events (MACE) and mortality during follow up of patients submitted to percutaneous mitral valve commissurotomy. (PMC) On the right, also displayed MACE, subdivided accordingly to presence or absence of reduction <5 mmHg in transmitral pressure gradient at PMC time.

CO 6 Figure

CO 7. LONG-TERM FOLLOW-UP OF PERCUTANEOUS BALLOON MITRAL VALVULOPLASTY FOR RHEUMATIC MITRAL STENOSIS

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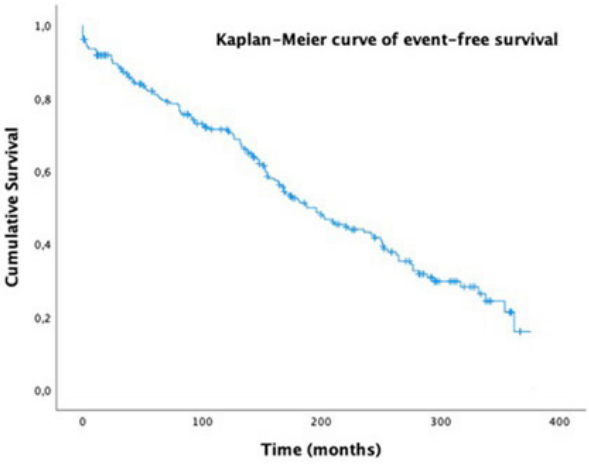
Introduction: Percutaneous balloon mitral valvuloplasty (PBMV) remains the mainstay of treatment for patients with severe rheumatic mitral stenosis (MS) and a favorable anatomy.
Objectives: The present study aimed to assess very long-term outcomes after PBMV.
Methods: A retrospective analysis of PBMV performed at a single tertiary center between August 1991 and September 2022 was conducted. Successful PBMV was defined as a post-procedural functional mitral valve area (MVA) ≥ 1.5 cm^2, mitral regurgitation less than moderate, and absence of in-hospital major cardiac or cerebrovascular events. The primary endpoint was composed of overall mortality and need for mitral reintervention (percutaneous and/or surgical).

Results: A total of 238 PBMV for severe rheumatic MS were conducted in our center during the specified timeframe (88.7% [n = 211] female gender; mean age 48 ± 16 years; 48.6% [n = 108] had atrial fibrillation [AFib]; 78.8% [n = 149] had a Wilkins score ≤ 8). Acute success was achieved in 88% (n = 198) procedures. Acute complications were present in 10.2% (n = 23), mainly severe mitral regurgitation (n = 10) and acute cerebrovascular events (n = 5). During a mean follow-up of 15.3 ± 9.4 years, the incidence of the primary endpoint was 55% (n = 131) (overall mortality 32.9% [n = 77] and mitral valve reintervention 22.1% [n = 54]). On bivariate analysis, higher age (p = 0.042), presence of AFib (p = 0.002), unsuccess of the procedure (p < 0.001), acute complications (p = 0.001) and larger left atrial (LA) diameter (p = 0.05) were statistically significant for the occurrence of the primary endpoint. On multivariate analysis, larger LA diameter (hazard ratio [HR]: 1.03; 95%CI: 1.00-1.06; p = 0.022), unsuccessful procedure (HR: 3.30; 95%CI: 1.56-7.01; p = 0.002) and presence of complications (HR: 0.37; 95%CI: 0.17-0.84; p = 0.017) were the only independent predictors of the primary endpoint.



Conclusions: In one of the largest national registries of patients submitted to PBMV for severe rheumatic MS, more than half met the primary endpoint for overall mortality or need for reintervention, up to 30 years after the procedure. This supports the dismal prognosis of this pathology. Prediction of late favorable results is multifactorial and appears to be determined by smaller LA diameter, absence of complications and acute success of the procedure.

CO 8. POST-PROCEDURAL MITRAL REGURGITATION AS AN INDEPENDENT PREDICTOR OF MORBIDITY AND MORTALITY OUTCOMES

Ana Rita Teixeira, Sofia Jacinto, João Ferreira Reis, Luísa Moura Branco, Pedro Rio, Ana Galrinho, António Fiarresga, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: The Mitraclip® system is the most established percutaneous mitral valve intervention indicated for patients (pts) with severe mitral regurgitation non-eligible for surgery. Our aim was to identify clinical,

echocardiographic, and cardiopulmonary exercise testing (CEPT) predictors of morbidity and mortality outcomes.
Methods: Retrospective single center analysis of all patients who underwent Mitraclip implant for secondary MR. Clinical, echocardiographic and CEPT variables were assessed at baseline, 1, 3 and 6 months after the procedure. Univariate analysis was performed followed by a multivariate Cox analysis to determine predictors for the primary (overall mortality) and secondary endpoints (overall mortality/heart failure hospitalization). p < than 0.05 were considered statistically significant.
Results: We included 51 pts (64.7% male, mean age 70 ± 14 years, mean follow-up time 14 ± 13 months, mean left ventricular ejection fraction 35 ± 9%). NYHA class ≥ 3 was present in 31 pts. MR grade IV was present in 72.5% and ischemic etiology in 47.1%. Successful implantation was achieved in 98%, with 33 (64.7%) pts presenting mild MR post-procedure. Overall mortality (M) was 31.4%, mostly due to cardiovascular causes, and 14 had at least one heart failure hospitalization (HFH). COAPT inclusion criteria was met in 22 pts. Both post-procedural MR (p = 0.008) and mitral gradient (p = 0.039) were predictors of M. Although not statistically significant, non-ischemic etiology (HR 0.24, 95%CI: 0.069-1.008, p = 0.051) had a borderline p-value for predicting M. In the multivariate analysis moderate to severe post-procedural MR was as independent predictor of M (p = 0.041). COAPT criteria (p = 0.048), moderate to severe post-procedural MR (p = 0.015) and TAPSE/PASP ratio ≤ 0.36 (p = 0.043) were predictors of M/HF, being post-procedural moderate-severe MR an independent one (p = 0.020).
Conclusions: In our population, moderate to severe post-procedural mitral regurgitation was an independent predictor of overall mortality and mortality/HF hospitalization. Patients with COAPT inclusion criteria had also better outcomes.

CO 9. TRANSCATHETER MITRAL VALVE REPAIR AND ITS IMPACT ON REVERSE RIGHT VENTRICULAR REMODELLING

Diogo de Almeida Fernandes, Joana Guimarães, Gonçalo Costa, Eric Monteiro, Ana Rita Gomes, João Rosa, Gustavo Campos, Ana Vera Marinho, Luís Paiva, Manuel Oliveira-Santos, Elisabete Jorge, Ana Botelho, Natália António, Marco Costa, Lino Gonçalves

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

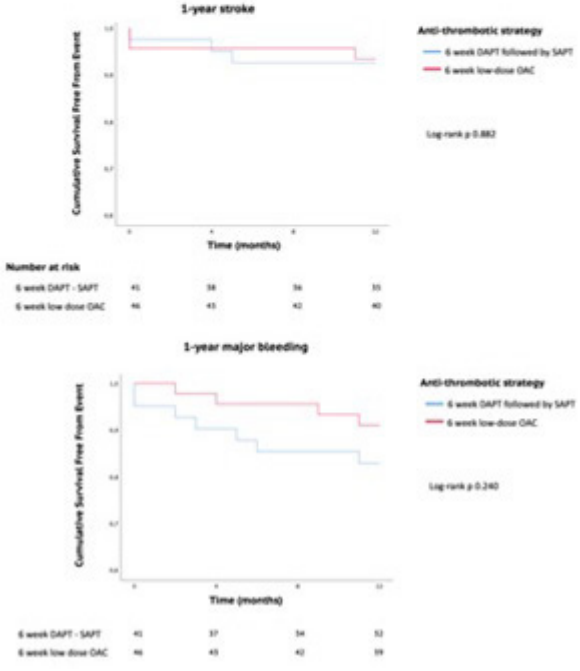
Introduction: Transcatheter edge-to-edge repair (TEER) has been proven to reduce cardiovascular events in a particular subset of patients with severe mitral insufficiency (MR) and left ventricle dysfunction. Nevertheless, its short and long-term impact on the right ventricle (RV) remained to be determined. Our goal was to assess the effect of TEER on the RV and right chamber pressures.
Methods: Patients were consecutively enrolled from Nov 2018 to Jul 2022. Clinical, laboratory echocardiographic and procedural data were collected. Follow-up information of admissions for heart failure, New York Heart Association (NYHA) functional class and survival was collected. The data was analysed prior to and at 3 and 12 months after the procedure. RV dysfunction was defined as Tricuspid Annular Plane Systolic Excursion (TAPSE) < 17 mm or S' < 9 cm/s. Changes between baseline and follow-up parameters were assessed using the paired t-test.
Results: A total of 46 patients were included. Average age was 77.28 ± 7.92 years and 30 were male (65.2%). Twelve patients were on NYHA class III (26.1%) and most had functional mitral insufficiency (25; 54.3%) and mild to moderate tricuspid insufficiency (36; 78.3%). All patients had severe mitral insufficiency (estimated regurgitant orifice area 41.28 ± 16.77mm; regurgitant volume 62 ± 28.96 mL). Seventeen patients had diabetes (37.0%), 10 had coronary artery disease (21.7%), 23 had atrial fibrillation (50.0%) and 6 had chronic kidney disease (13.0%). At 3 months, mean right ventricular/right atrial gradient (RV/RA_{grad}) was significantly lower (37.26 ± 9.66 mmHg *vs.* 30.81 ± 17.36 mmHg; p 0.017) as well as MR (2.98 ± 0.15 *vs.* 1.67 ± 0.63; p < 0.001). There were no differences regarding severity of tricuspid regurgitation (TR) and RV and left ventricle (LV) function. At 1 year follow-up there was a marked improvement of RV/RA_{grad} (37.49 ± 10.87 mmHg *vs.* 28.12 ± 10.13 mmHg; p 0.009), TAPSE (18.83 ± 4.22 mm *vs.* 20.88 ± 3.08 mm; p 0.035), S' (10.81 ± 4.00 cm/s *vs.* 13.5 ± 1.97 cm/s, p 0.015) and MR severity (2.98 ± 0.15 *vs.* 1.83 ± 0.71; p < 0.001). Number of heart failure readmissions was also lower at 1 year follow-up post TEER (0.35 ± 0.80 *vs.* 0.81 ± 0.87; p 0.032). Over a mean follow-up time of 1.72 ± 1.16 years, only 8.7% of patients died and 17.4% were readmitted due to heart failure.
Conclusions: TEER has a positive impact on right ventricle function and pressures. This effect was more prominent at 1 year follow-up and suggests reverse remodelling continues even after 3 months. Overall, patients with TEER had low rates of death and heart failure readmissions.

CO 10. LOW-DOSE ORAL ANTICOAGULATION *VERSUS* DUAL ANTIPLATELET THERAPY FOLLOWED BY SINGLE ANTIPLATELET THERAPY IN PATIENTS SUBMITTED TO LEFT ATRIAL APPENDAGE OCCLUSION

André Grazina, Bárbara Lacerda Teixeira, António Fiarresga, Ruben Ramos, Isabel Cardoso, José Miguel Viegas, Lídia de Sousa, Ana Galrinho, Duarte Cacela, Rui Cruz Ferreira

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

Baseline characteristic	Total population (87)	Low dose OAC (46)	SAPT following DAPT (260)	p-value
Age in years old (mean±SD)	74.8 ± 9.6	73.8 ± 11.7	75.8 ± 6.5	0.336
Gender (male)	68% (59)	70% (32)	66% (27)	0.711
Arterial hypertension	77% (67)	78% (36)	76% (31)	0.769
Diabetes	31% (27)	26% (12)	37% (15)	0.291
Coronary artery disease	20% (17)	17% (8)	22% (9)	0.592
CKD (KDIGO stage ≥ 3)	29% (25)	30% (14)	27% (11)	0.711
CLD (Chronic Liver Disease)	12% (10)	13% (6)	10% (4)	0.631
Permanent AF	71% (62)	70% (32)	73% (30)	0.711
CHA_2DS_2-VASc score	4.00 ± 1.39	3.80 ± 1.26	4.22 ± 1.51	0.165
HASBLED score	3.63 ± 1.06	3.43 ± 1.11	3.85 ± 0.96	0.065



Introduction: Left atrial appendage occlusion (LAAO) is a therapeutic option for atrial fibrillation (AF) patients who have ischemic events despite therapeutic oral anticoagulation and/or relative or absolute contraindications to oral anticoagulation. Among the several proposed post-procedural anti-thrombotic regimens, low-dose oral anticoagulation (OAC)

and dual antiplatelet therapy (DAPT) followed by single antiplatelet therapy (SAPT) are common. However, the best strategy remains unclear.
Objectives: This analysis aims to compare the ischemic and bleeding events among AF patients treated with LAAO treated with an initial 6-week course of low-dose OAC *versus* 6-week course of DAPT followed by SAPT.
Methods: Retrospective analysis of AF patients submitted to LAAO in a single tertiary center. The decisions of whether to continue the OAC after the 6-week period and some possible crossover between strategies were made by the assistant cardiologist. One year stroke and major bleeding events were evaluated using a Kaplan-Meier survival curves analysis.
Results: A total of 87 patients (68% male, mean age 74.8 ± 9.6 years old, 71% with permanent AF) submitted to LAAO were included in this analysis. 46 patients underwent a 6-week course of low-dose OAC and 41 a 6-week course of DAPT followed by SAPT. Baseline characteristics are described in the figure 1 and were similar between the two groups, including the conventional stroke and bleeding prediction scores (CHA_2DS_2-VASc 3.80 ± 1.26 *vs.* 4.22 ± 1.51, p 0.165; HAS-BLED 3.43 ± 1.11 *vs.* 3.85 ± 0.96, p 0.065). Regarding outcomes, the stroke and major bleeding rates at 1 year were not different between the two strategies (p 0.882 and p 0.240, respectively). However, regarding the major bleeding, the Kaplan-Meier survival curves tend to separate between the groups, in favor of an initial low-dose OAC strategy.
Conclusions: Among patients with AF submitted to LAAO, those treated with an initial 6-week period of low-dose oral anticoagulation do not have higher ischemic risk and seem to have lower bleeding risk than those treated with a 6-week period of dual antiplatelet therapy followed by single antiplatelet therapy. Larger prospective randomized clinical trials are needed to corroborate this data.

Sexta-feira, 14 Abril de 2023 | 10:00-11:00

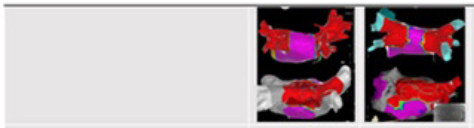
Sala Aquarius | Comunicações Orais - Sessão 03 - Fibrilhação auricular - Inovações no tratamento ablativo

CO 11. ATRIAL FIBRILATION CATHETER ABLATION: ELECTROPORATION AGAINST HIGH-POWER SHORT DURATION RADIOFREQUENCY

Rita Reis Santos, Daniel Matos, Daniel Gomes, Mariana S. Paiva, Gabriela Bem, Gustavo Rodrigues, João Carmo, Francisco Costa, Pedro G. Santos, Pedro Carmo, Francisco Morgado, Diogo Cavaco, Miguel Mendes, Pedro Adragão

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

Introduction: Pulmonary vein isolation (PVI) is one of the cornerstones of rhythm-control therapy for symptomatic atrial fibrillation (AF) patients. The new ablation technologies of pulse field ablation (PFA) and high-power short-duration radiofrequency ablation (HPSD) with the new QDOT® catheter have been recently introduced in the EP lab.
Objectives: To evaluate and compare the efficacy, and safety of single-shot PFA and HPSDRA for PVI in AF symptomatic patients.
Methods: Single centre, retrospective study of consecutive patients undergoing PVI with PFA or HPSD between May-December 2022. Data on demographic, procedural and clinical/electrocardiographic recurrence (assessed after a 3-months blanking period) were analysed. Comparative analysis between both techniques was performed.
Results: One hundred and ten consecutive patients were included (63 ± 11 years, 75% men), with a mean CHA_2DS_2-VASc score of 2 ± 1 points, median LVEF of 61% [IQR 57-62%] and a median left atrial volume index (by CT scan) of 56 mL/m² [IQR 51-67 mL/m²]. 55% patients presented paroxysmal-AF and 19 patients (17%) performed a redo ablation. 47% (n = 52) patients performed HPSD and 53% (n = 58) PFA (all with CARTO®3D system v.7 and high-density mapping). In the HPSD: median RF ablation time was 792 sec [IQR 614-919sec], while in PFA was 90 sec [IQR 30-138 sec]. Median time of catheter inside the LA for PFA was 18 min [IQR 2-33 min]. Comparing HPSD and PFA (Figure): median procedure time was similar (91 min [IQR 71-107 min] *vs.* 89 min [IQR 66-111 min], p = 0.261), while median fluoroscopy time was lower with HPSD (5.4 min [IQR 3.1-6.8 min] vs. 13.2 min [IQR 10.3-15.6 min], p < 0.001); posterior wall isolation (PWI) was performed in 5 (10%) HPSD *vs.* 21 (37%) PFA patients (p < 0.001). All PFA patients undergoing PWI had first pass isolation, while only 40% of HPSD had first pass isolation. When performed PVI only, PFA presents a lower median procedure time than HPSD (76 min [IQR 62-93 min] vs. 97 min [IQR 69-135 min], p = 0.048). There was only one major complication, a cardiac tamponade with PFA, treated with pericardiocentesis. At 3 months of follow-up, 17% (n = 10) patients had clinical or electrocardiographic AF recurrence: 7 PFA patients and 3 HPSD patients (p = 0.127).



			p-value
	n=52	n=58	
Age, y	61 ± 11	61 ± 12	p=0.856
Male, %	89%	62%	**p=0.006**
LV ejection fraction, %	71 (59-85)	71 (59-85)	p=0.598
Left atrial volume index , ml/m2	53 (39-64)	50 (40-70)	p=0.630
Paroxysmal AF, %	62%	47%	p=0.056
AF redo ablation, %	13%	21%	p=0.449
Posterior Wall ablation, %	10%	37%	**p<0.001**
Procedure time (median), min	91 (71-107)	89 (66-111)	p=0.261
Fluoroscopy time (median), min	5.4 (3.1-6.8)	13.2 (10.3-15.6)	**p<0.001**

Figure 1 – Comparative analyses of high-power short duration radiofrequency ablation (HPSDRF) and pulse field ablation (PFA).

Conclusions: PFA and HPSD were both feasible and safe. When undergoing PVI-only, procedure time was lower with PFA. In patients undergoing PWI, PFA achieved higher first pass isolation. Although still in its early real-world evaluation, both techniques seem to be efficient, providing low AF recurrence during follow-up.

CO 12. CROSSING THE LINE IN PERIMITRAL FLUTTER ABLATION: A NEW SOLUTION FOR AN OLD PROBLEM

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Introduction: Left-sided atrial flutter (AFl) often implies perimitral circuits, which can be interrupted with linear lesions connecting electro-anatomical obstacles. Inferior mitral line (IML), from the mitral annulus to the left inferior pulmonary vein (PV) is a common strategy to interrupt perimitral circuits, although difficulties in achieving bidirectional blockage are frequent.
Objectives: To compare the safety and effectiveness of the IML with a modified anterior line (MAL).
Methods: Cohort of patients (pts) submitted to perimitral AFl ablation guided though high-density mapping from 2015 to 2022. Pts presented either a perimitral single loop circuit or a perimitral loop with an additional loop evolving the left pulmonary veins (PV). Up to 2018, the classic IML was applied with complementary epicardial applications at operator description. Since then, a MAL was done, from the anterior mitral annulus to the left superior PV, positioned at the transition between the left atrial appendage and the anterior wall. Acute success rate was defined as conversion to sinus rhythm after completion of the ablation line.

Results: The study population included 23 pts - 11 submitted to IML and 12 to MAL - with a mean age of 65 ± 13 and 65% male, structural cardiomyopathy in 31%, without differences between groups. Regarding AFl circuits, 8 were single-loop, 11 were dual-loop and 1 was a triple-loop. In 11/12 the outer loop involved the left PV, the other was scar-dependent with the critical isthmus localized in the left PV antrum. AFl with more than 1 loop were more commonly approached with a MAL (MAL, 73% *vs*. IML, 27%, p = 0.005). In the pts submitted to IML, additional applications in the coronary sinus were performed in 8 (73%) and lead to conversion in 4 of them. In these pts, the success rate was 55%, persisting conduction through the ablation line in the remaining. In the pts submitted to MAL, acute success was achieved 100%, with first-pass block being achieved in 92% (in 1 patient additional applications were done in a gap to achieve bidirectional block). Success rate was significantly higher with a MAL ablation strategy (OR: 21.2; 95%CI 1.01-445; p = 0.0496), radiofrequency application time was lower (20 ± 11 *vs*. 65 ± 35 min; p = 0.032) and procedure duration was reduced (171 ± 40 *vs*. 230 ± 73 min; p < 0.001). No significant complications occurred in both groups.
Conclusions: A MAL is a novel and attractive alternative approach to the classic IML, increasing the effectiveness for perimitral AFl ablation.

CO 13. VERY HIGH-POWER SHORT-DURATION *VERSUS* CONVENTIONAL RADIOFREQUENCY ABLATION GUIDED BY ABLATION INDEX FOR PULMONARY VEIN ISOLATION: DATA FROM A PORTUGUESE HEALTHCARE CENTRE

Rafael Silva Teixeira[1], Marta Catarina Almeida[1], Fábio Sousa Nunes[1], André Lobo[1], Marta Leite[1], Ana Inês Neves[1], Tiago Silva Martins[2], Diogo Santos[1], Mariana Brandão[1], Paulo Fonseca[1], João Gonçalves Almeida[1], Marco Oliveira[1], Ana Mosalina Manuel[1], Helena Gonçalves[1], João Primo[1], Ricardo Fontes-Carvalho[1]

[1]*Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE*. [2]*CINTESIS*.

Introduction: Very high-power short-duration (vHPSD) is a new modality of radiofrequency (RF) pulmonary vein (PVs) isolation which minimizes conductive heating while increasing resistive heating, delivering a targeted heating to the atrial wall and decreasing the probability of collateral tissue damage. vHPSD is expected to improve AF outcomes at the cost of narrower safety margin towards the oesophagus, shorter procedure times and less PVs reconnections based on insufficient non-transmural ablation lesions.
Objectives: The aim of this study was to compare short-term duration outcomes of a vHPSD modality (90 Watt, 4 s) with a novel temperature-controlled RF catheter ablation system, with 'CLOSE' protocol which uses a power-controlled RF catheter ablation system guided by the ablation index (AI), an arbitrary unit composed of power, contact force and ablation time.
Methods: We retrospectively analyzed short-term outcomes data from consecutive patients (pts) who were scheduled for first-do-symptomatic PVI since December 2021 and had a complete documentation of the technical procedure and follow-up (FUP) by month 3 after ablation in a ratio of 1 vHPSD to 1 CLOSE patient. Assessed outcomes included freedom from symptomatic AF recurrence at 3 months and procedure endpoints (first passage isolation (FPI) rate, total procedure time and total radiofrequency (RF) time and related procedure complications).
Results: We included 68 pts (mean age was 61 ± 10 years, 66% pts were male, mean body mass index 30 ± 4 kg/m^2, 69% had paroxysmal AF). At the beginning of the ablation, 85% of pts undergoing CLOSE and 64% of pts undergoing vHPSD (p = 0.10) were in sinus rhythm and electrical cardioversion was performed in 29% and 35% (p = 0.80) in each group at some moment during the procedure, respectively. Ablation beyond PVI was performed in 18% of pts in each group. FPI rate was 75% in both groups (p = 0.56). Total procedure time was significantly lower (p < 0.001) in pts submitted to vHPSD (110 ± 19 min) when compared to CLOSE (133 ± 26 minutes), as was total RF time (5 min, interquartile range (IQR) 4-6 min, in vHPSD, *versus* 23 min, IQR 22-19 min, in CLOSE). Fluoroscopic total time was similar between groups (p = 0.508). Overall freedom from AF was found in 94% (vHPSD) *vs*. 85% (CLOSE), (p = 0.64). Only one minor vascular complication was documented in the post-procedure 24 hours in a patient submitted to vHPSD.
Conclusions: Our results from this small studied population suggest that vHPSD may shorten ablation procedure times without significantly increasing the rate of relevant intraprocedural complications or AF relapse in the first 3 months.

CO 14. SINGLE *VERSUS* DOUBLE TRANSEPTAL PUNCTURE IN CATHETER ABLATION OF ATRIAL FIBRILLATION: CHARACTERIZATION AND LONG-TERM OUTCOMES IN A SINGLE TERTIARY CENTER

Bárbara Lacerda Teixeira, Pedro Silva Cunha, Ana Rita Teixeira, Ana Sofia Jacinto, Guilherme Portugal, Bruno Valente, Madalena Coutinho Cruz, Ana Lousinha, Ana Sofia Delgado, Manuel Brás, Margarida Paulo, Cátia Guerra, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: An ablation catheter in conjunction with a circular mapping catheter (CMC) requiring a double transeptal puncture (TSP) for left atrial access is conventionally used for atrial fibrillation (AF) ablation in the

PARAMETER	Overall sample (n= 341)	Single Puncture (n= 165)	Double Puncture (n = 176)	p-value
Procedure duration in minutes – Mean ± SD	126 ± 34,2	129 ± 33,2	122 ± 34,9	0,055
Fluoroscopy time in minutes – Mean ± SD	16 ± 8,4	**13 ± 6,3**	19 ± 9,1	**< 0,001**
Complication rate – n (%)	23 (7,7)	8 (5,6)	15 (9,7)	0,181

Table 2: Procedure characteristics, regarding time and complications, and group comparison.

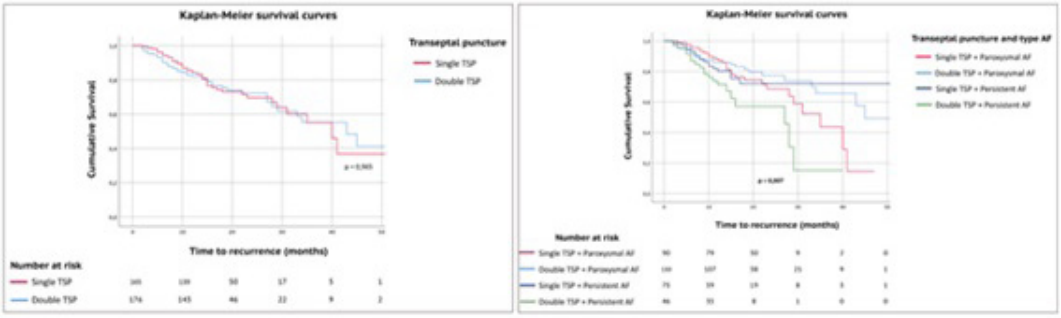


Figure 1 and 2. Kaplan Meier survival curves of AF recurrence during follow-up, in patients with AF undergoing catheter ablation.

CO 14 Figure

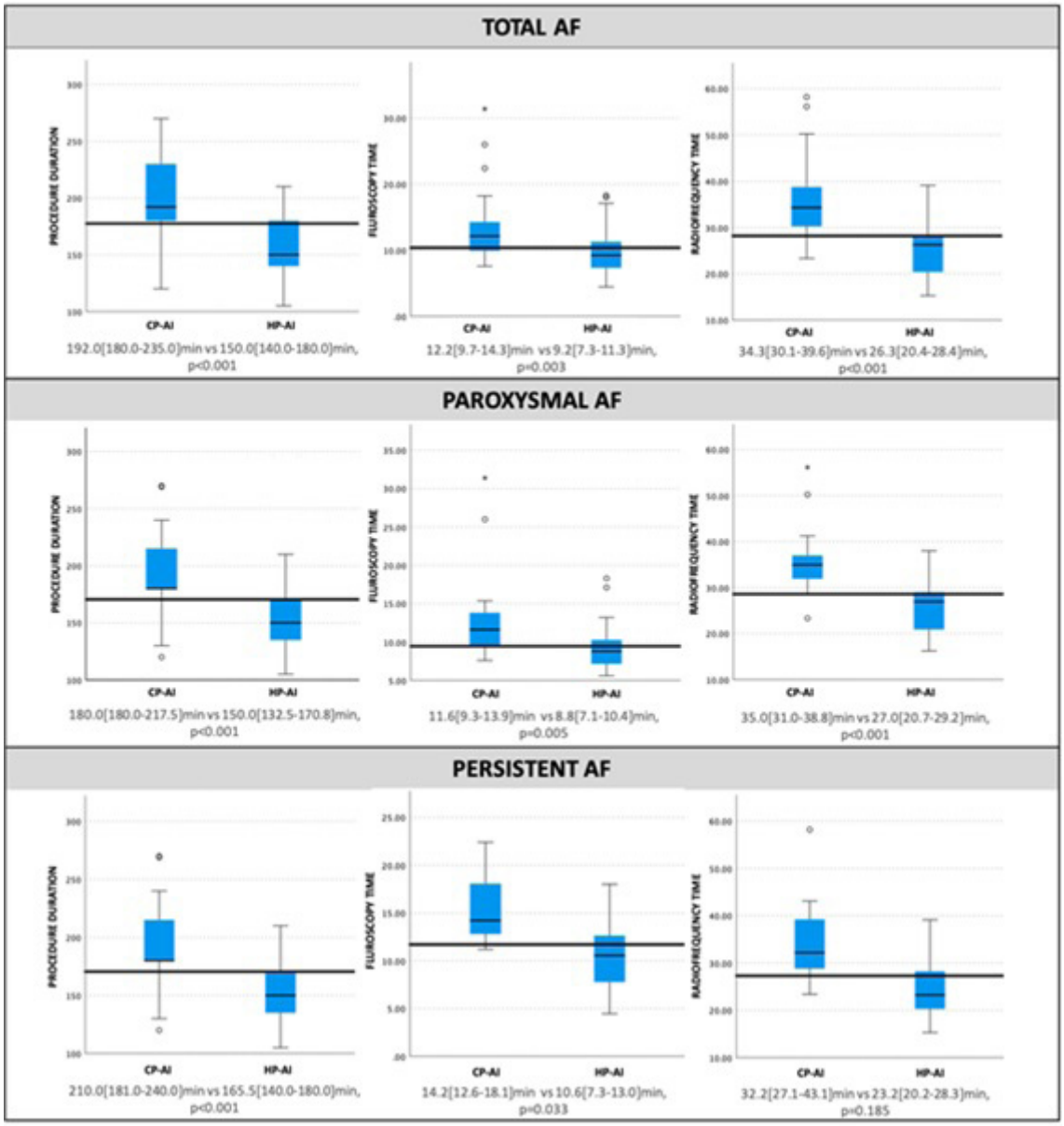
majority of centers. In the recent years, different operators have combined a single transseptal puncture technique with 3D high-density mapping catheters for pulmonary veins isolation (PVI) in AF patients.

Objectives: The aim of this analysis is to compare two different strategies, single *versus* double TSP, regarding duration of the procedure, radiation dose, complications and long-term outcomes.

Methods: retrospective analysis of an AF large cohort of consecutive patients that underwent PVI with radiofrequency energy (RF) using a 3D mapping system, either with single or double TSP, from 2016 to 2020.

Results: we included 341 patients (female 35.8%, paroxysmal AF 64.2%) who underwent catheter ablation with RF. At the time of the ablation, age was 59.1 ± 11.8 years old, and the mean CHA2DS2-VASc score was 1.6 ± 1.3. All patients were taking oral anticoagulation. Single TSP was performed in 165 (48.4%) patients and double TSP in 176 (51.6%) patients. In 56 (16.4%) cases (50 [30.3%] in the single TSP and 6 [3.4%] in the double TSP), the procedure was a repeat ablation after AF recurrence. Operator experience (defined as ≥ 5 years of AF ablation procedures) was equally distributed between the two groups. The average procedure time single (129 ± 33.2 minutes *vs.* 122 ± 34.9 minutes, for single and double TSP, respectively) did not reach statistical difference between the two groups (p = 0.55), but there was a significant difference regarding fluoroscopy time (13 ± 6.3 *vs.* 19 ± 9.1, for single and double TSP, respectively; p < 0.001). Acute complications were less frequent in the single TSP approach (5.6% *vs.* 9.7%, for single and double TSP, respectively), but did not reach statistical significance (p = 0.181). At 4-year follow-up, sinus rhythm maintenance rate was equal in both groups (72.7%). The Kaplan-Meier survival curves revealed no difference in AF recurrence between the two groups during the follow-up time of 4 years (log rank p = 0.975). However, further analysis of subgroups according to type of AF revealed a significant difference among the subgroup with persistent AF submitted to double TSP (log rank p = 0.007).

Conclusions: A simplified single-TSP technique using high-density multi-electrode 3D mapping is a safe and highly successful approach for AF ablation. This approach yields a substantial reduction in fluoroscopy time, with the potential to avoid acute complications when compared to a conventional double-TSP strategy. Long-term outcomes are similar between groups, although our analysis suggests that patients with persistent AF submitted to double-TSP present a statistically significant lower survival free from recurrence.



CO 15 Figure

CO 15. ATRIAL FIBRILLATION HIGH POWER RADIOFREQUENCY ABLATION: EFFICIENCY AND SAFETY

Mariana Martinho, João Grade Santos, Sofia Almeida, Rita Miranda, Bárbara Ferreira, Diogo Santos Cunha, Oliveira Baltazar, João Mirinha Luz, Nazar Ilchyshyn, Alexandra Briosa, Daniel Sebaiti, Luís Brandão, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: High power-ablation index (HP-AI) guided radiofrequency (RF) ablation of atrial fibrillation (AF) is increasingly being used as an alternative to conventional power (CP) ablation due to its better procedural performance and similar safety profile. Some evidence suggests that the lower RF time used in HP-AI may also have a protective effect in contact related complications. Despite this evidence, this strategy is still not widely used.
Objectives: Compare procedural efficiency and safety between HP-AI *vs.* CP-AI-guided ablation in AF patients (pts).
Methods: Retrospective single-center study of consecutive pts submitted to AI-guided ablation, between 05/2018 and 10/2022. RF power and AI were 25W/500 and 45W/500 for the anterior wall and 20W/380 and 35W/380 for the posterior wall in CP-AI and HP-AI, respectively. Procedure related complications incidence were checked at 1 month.
Results: Of a total of 83 pts included in the study, mean age was 62 ± 10y and 57.8% were males. HP-AI was performed in 61.4% (n = 51). 39.2% had persistent AF (vs 25% in CP-AP, p = 0.235). HP-AI was associated with significantly lower median procedure duration (150.0 [140.0-180.0] min *vs.* 192.0 [180.0-235.0] min, p < 0.001), fluoroscopy time (9.2 [7.3-11.3] min *vs.* 12.2 [9.7-14.3] min, p = 0.003) and RF time (26. 3[20.4-28.4] min *vs.* 34.3 [30.1-39.6] min, p < 0.001). These times were significantly reduced for both paroxysmal and persistent AF (Figure). Electrical isolation of all the pulmonary veins was achieved in all patients. There were no early complications related to the procedure in either CP-AI or HP-AI groups.
Conclusions: HP-AI guided AF ablation significantly reduced procedure duration without impairing safety. It was also associated with lower RF application time, which may potentially lead to a reduction in procedure related complications. Data regarding long-term effectiveness will eventually support HP-AI as the best option for RF AF ablation.

Sexta-feira, 14 Abril de 2023 | 10:00-11:00

Sala Vega | Comunicações Orais - Sessão 04 - Choque cardiogénico

CO 16. PREDICTORS OF IN-HOSPITAL MORTALITY IN MYOCARDIAL INFARCTION PRESENTING WITH CARDIOGENIC SHOCK

Nazar Ilchyshyn[1], Ana Catarina Gomes[1], Ana Isabel Marques[1], Alexandra Briosa[1], João Grade Santos[1], Bárbara Ferreira[1], Mariana Martinho[1], Diogo Cunha[1], Oliveira Baltazar[1], João Luz[1], Ana Rita Pereira[1], Gonçalo Morgado[1], Rita Calé[1], Cristina Martins[1], Hélder Pereira[1], On Behalf of The Portuguese Registry of Acute Coronary Syndrome Investigators[2]

[1]Hospital Garcia de Orta, EPE. [2]CNCDC.

Introduction: Myocardial infarction (MI) presenting with cardiogenic shock (CS) carries a high potential for hazard outcome. Despite therapeutic advances, CS mortality rate remains high.
Objectives: Our aim was to characterize the population presenting with MI and CS and assess in-hospital, 1- and 6- month mortality rates, mortality trends and predictors of in-hospital mortality.
Methods: Retrospective analysis of all patients admitted with MI and CS between 2010 and 2022 included in the ProACS. Medical records were analyzed for demographic, procedural data and mortality outcomes. Mortality trends over the past 12 years were assessed using chi-square test for linear trend. Logistical forward stepwise regression was performed to assess in-hospital mortality predictors.
Results: 660 patients presented with MI and CS. The mean age was 69.2 ± 13.2 years-old, 68% male, 17% obese, 23.7% smokers, 69.8% hypertensive, 39% diabetic and 55.6% had dyslipidemia. 16.4% had previous history of MI and 19.3% had chronic coronary syndrome. 11.9% had history of chronic kidney disease (CKD) and 10.8% of heart failure. Time from symptom onset to first medical contact was > 120 min in 52.1%. 82.9% had STEMI, 49.5% being anterior MI and 46.5% inferior MI. 90.3% of reperfusion group was submitted to PCI. 60.9% had multivessel disease. Culprit lesion was left main coronary artery (LMCA) in 9.2%, left anterior descending artery (LAD) in 33.4%, circumflex artery in 10.3%, right coronary artery (RCA) in 35.1% and other in 11.9%. 23.7% needed invasive mechanical ventilation (IMV), 7.6% needed circulatory assist device and 11.1% needed temporary pacemaker. In-hospital, 1- and 6-month mortality was 36.4%, 37.3% and 38.9%, respectively, with a statistically significant trend for decrease in mortality in all 3 groups (p = 0.038, p = 0.043 and p = 0.042). In-hospital mortality was associated with ≥ 75 years-old (OR 2.36, p = 0.001), obesity (OR 1.67, p = 0.025), time from symptom onset to first medical contact > 120 min (OR 1.53, p = 0.04), hypertension (OR 1.17, p = 0.001), diabetes (OR 1.43, p = 0.001), dyslipidemia (OR 1.23, p = 0.001), CKD (OR 1.55, p = 0.001), STEMI (OR 2.40, p = 0.001), Creatinine > 2.0 mg/dL (OR 1.88, p = 0.001), Hemoglobin < 8 g/dL (OR 1.53, p = 0.001), LMCA-disease (OR 3.25, p = 0.001), pre-hospital fibrinolysis (OR 9.86, p = 0.001), need for intra-aortic balloon (OR 2.10, p = 0.013), IMV (OR 1.54, p = 0.02), while PCI was protective (OR 0.41, p = 0.001). Logistic regression model revealed ≥ 75 years-old, time from symptom onset to first medical contact > 120 min, LMCA as culprit lesion and use of IMV as predictors of in-hospital mortality.
Conclusions: Predictors of in-hospital mortality were old age, delay in seeking medical assistance, LMCA as culprit lesion and the need for IMV. There was a decrease in CS mortality over the years, probably due to improvement of therapeutic management (including PCI-procedures).

CO 17. THE PORTUGUESE APPROACH TO CARDIOGENIC SHOCK IN ACUTE CORONARY SYNDROME

Margarida G. Figueiredo, Sofia B. Paula, Mariana Santos, Hélder Santos, Mariana Coelho, Samuel Almeida, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital Nossa Senhora do Rosário.

Introduction: Acute myocardial infarction (ACS) with myocardial dysfunction is the most frequent cause of cardiogenic shock (CS), which results in end-organ damage tissue, with high mortality rates. Early use of mechanical circulatory support (MCS) allows a reduction in need for inotropes and may prevent the downward spiral of shock.
Objectives: To compare patients with CS due to ACS that received with those that didn't receive MCS, regarding intrahospital complications, intrahospital mortality, and one-year follow-up in terms of mortality, readmissions (R) for cardiovascular (CV) causes and R for other causes.
Methods: Multicenter retrospective study, based on the Portuguese Registry of ACS, from 1/10/2010-24/10/2022. Patients were divided into two groups: A - without MCS - and B - patients that needed MCS. Kaplan-Meier test was performed to establish the survival rates, CV readmissions and readmissions for other causes, at one year.
Results: A total of 1168 patients were analyzed, 1074 in group A (92.0%) and 94 in group B (8.0%). Mean age was 72.5 ± 12.6 years and 62.5% of the patients were male in group A, while in group B mean age was 68.0 ± 11.4 and 64.9% were men. Group A had more patients with previous acute myocardial infarction (MI) (21.2% *vs.* 11.1% p = 0.024). On admission, group B presented more ST-elevation myocardial infarction (STEMI) (81.9% *vs.* 21.2%, p = 0.020), anterior MI (63.6% *vs.* 49.9%, p = 0.022) and Killip-Kimball classification of IV (48.9% *vs.* 37.2%, p = 0.025). Group B underwent more prehospital thrombolysis (66.7% *vs.* 6.5%, p < 0.001), had a higher Door-to-

Balloon time (134.5 (62.0-234.0) min *vs.* 95.0 (39.5-185.0) min, p = 0.020), and left main artery was the culprit artery in more cases in this group (15.6% *vs.* 6.0%, p = 0.003). Group B had more mechanical complications (13.8% *vs.* 5.8%, p = 0.002) and cardiac arrest (29.8% *vs.* 17.5%, p = 0.003). There were no differences between the two groups in terms of intrahospital mortality (group A 48% *vs.* group B 46.8%, p = 0.826) or in mortality rates, R for CV causes and R for other causes at one-year follow-up, with a Kaplan-Meier test of p = 0.235 (Figure 1A), p = 0.601 (Figure 1B) and p = 0.257 (Figure 1C), respectively.

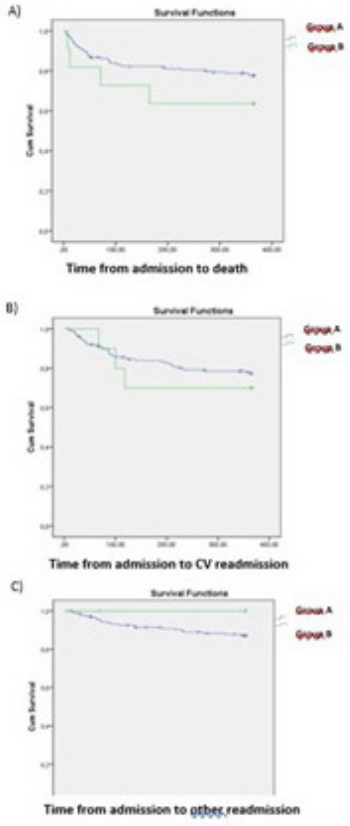


Figure 1. Mortality rates (A), readmission for cardiovascular causes rates (B) and readmission for other causes rates (C), in patients without mechanical circulatory support (group A) and in patients with mechanical circulatory support (group B).

Conclusions: Even though patients in need of MCS had a more severe clinical presentation, intrahospital mortality, survival rates, CV hospitalizations and R for other causes at one year did not show significant differences from patients without MCS.

CO 18. PREDICTION OF IN-HOSPITAL MORTALITY IN PATIENTS ADMITTED FOR CARDIOGENIC SHOCK TREATED WITH VA-ECMO - VALIDATION OF SAVE SCORE AND THE INCREMENTAL VALUE OF SERUM LACTATE

João Presume, Daniel Gomes, Francisco Albuquerque, Pedro Lopes, Ana Rita Bello, Catarina Brízido, Christopher Strong, Jorge Ferreira, Miguel Mendes, José Pedro Neves, Helena Brandão, António Tralhão

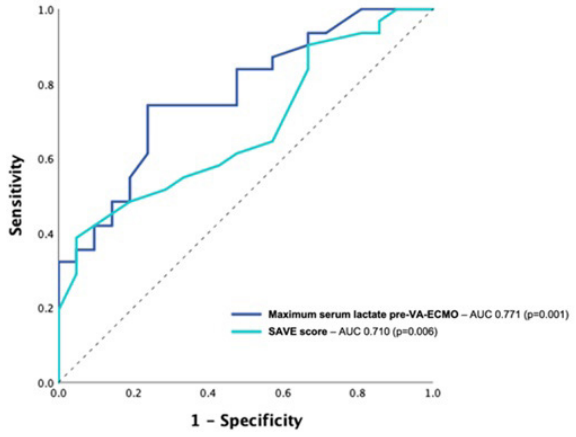
Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Veno-Arterial extracorporeal membrane oxygenation (VA-ECMO) is a treatment option to provide circulatory and pulmonary support to patients with cardiogenic shock. However, a risk profile assessment is essential for an adequate selection of patients for this type of therapy. The aim of this study was to 1) validate the SAVE score in a Portuguese cohort of patients treated with VA-ECMO due to cardiogenic shock; 2) evaluate the prognostic impact of the maximum serum lactate level pre-VA-ECMO implantation; 3) assess the ability of lactate to improve risk stratification by the SAVE score.

Methods: We conducted a single-center retrospective analysis of patients treated with VA-ECMO due to cardiogenic shock from 2017 until 2022. Variable assessments were considered before VA-ECMO implantation. The primary outcome analyzed was in-hospital mortality.

Results: A total of 61 patients were included (52 ± 12 years, 74% male, 40% with acute myocardial infarction, 54% with an ejection fraction < 20%, and 74% in SCAI stage D pre-implantation). Overall, 38 (62%) died during hospitalization. The mean SAVE score was -1.7 ± 7.2 points, and the median maximum serum lactate before ECMO implantation was 5.8 [2.7; 11.8] mmol/L. SAVE score showed a statistically significant association (1 ± 5 *vs.* -4 ± 7; OR 0.872 [0.789; 0.964] per each point increase; p = 0.008) and good discriminative power (AUC 0.710; p = 0.006) to predict in-hospital mortality. When grouping patients according to this score, 25 (41%) were classified as SAVE risk class I or II, and 36 (59%) as SAVE class III, IV, or V. Maximum serum lactate before VA-ECMO implantation also showed a significant association (4.5 ± 3.1 *vs.* 9.6 ± 6.6; OR 1.264 [1.066;1.498] per each 1mmol/l increase; p = 0.007) and good discriminative power (AUC 0.771; p = 0.001) to predict the primary outcome. The best lactate cut-off to identify high mortality risk was 5 mmol/l with a sensitivity of 74% and a specificity of 76%. Additionally, taking into account this threshold, lactate significantly enhanced the SAVE score group stratification, with a net reclassification improvement of 36.7% (p = 0.021).

Figure 1 – Receiver operating characteristic (ROC) curves of SAVE score and maximum serum lactate before VA-ECMO implantation to predict in-hospital mortality.



Conclusions: In this cohort of patients, the SAVE score was significantly associated with in-hospital mortality. Maximum serum lactate before VA-ECMO implantation was a strong predictor of in-hospital mortality and significantly improved SAVE score risk stratification.

CO 19. CIRCULATORY POWER - A NEWLY DEVELOPED NON-INVASIVE DYNAMIC PARAMETER TO PREDICT IN-HOSPITAL MORTALITY IN CARDIOGENIC SHOCK

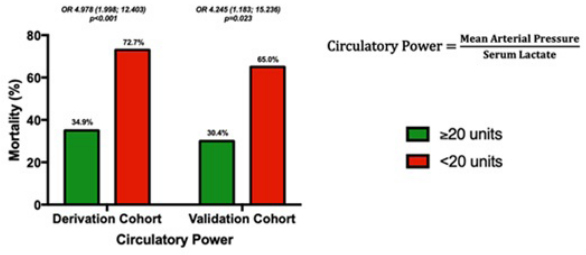
João Presume, Ana Rita Bello, Daniel Gomes, Catarina Brízido, Christopher Strong, António Tralhão, Jorge Ferreira

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

Introduction: Prognosis estimation is essential for tailored treatment in patients admitted due to cardiogenic shock (CS). Cardiac Power Output is the strongest independent hemodynamic correlate to predict in-hospital mortality in patients with CS but needs invasive pulmonary artery catheterization. We sought to develop an alternative non-invasive dynamic variable (Circulatory Power [CP]) including the reciprocal of serum lactate measurement as a surrogate of cardiac output, and evaluate its performance in predicting in-hospital mortality in patients admitted for CS.

Methods: Patients admitted to a cardiac ICU due to CS of any cause from 2017 to 2022 were retrospectively identified. Those without serum lactate at admission were excluded. CP was defined as the ratio between mean arterial pressure and serum lactate, collected at admission. To derive and validate this marker, patients were randomized in a 2:1 fashion into two cohorts, respectively.
Results: We analyzed a total of 144 patients (67 ± 16 years, 68% male, 53% with acute myocardial infarction). At admission, 79% of patients were in SCAI stage C, the median LVEF was 27% [20; 35], the median CP was 21 [12;34] and the median serum lactate was 3.3 [2.0;5.9] mmol/L. Both CP (35 ± 27 *vs.* 20 ± 20; OR 0.966 [0.946; 0.986]; p = 0.001) and serum lactate (3.3 ± 2.3 *vs.* 5.4 ± 3.9; OR 1.275 [1.113; 1.459]; p < 0.001) showed a statistically significant association with in-hospital mortality. Furthermore, both markers showed good discriminative power to predict in-hospital mortality, with CP being significantly superior (AUC 0.738 *vs.* AUC 0.695; p = 0.005). Patients were then randomized to derivation (n = 96) and validation cohorts (n = 48). In the derivation cohort, CP was associated with increased in-hospital mortality (p = 0.019) and good discriminative power (AUC 0.742; p < 0.001), maintaining superiority over isolated serum lactate (p = 0.030). The best threshold to identify high mortality risk was 20 with a sensitivity of 70.2% and specificity of 70.0%. In the validation cohort, this cut-off was significantly associated with higher mortality (30.4% *vs.* 65.0% mortality - OR 4.245 [1.183; 15.236]; p = 0.023) (Figure).

Figure 1 – In-hospital mortality and odds ratio for the best circulatory power threshold applied to the derivation and validation cohort



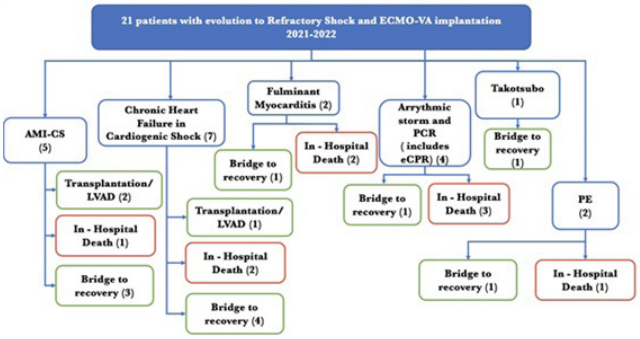
Conclusions: Circulatory power is a newly developed non-invasive parameter that showed a strong association with in-hospital mortality in patients admitted due to cardiogenic shock, superior to isolated serum lactate. There was a 3.4% lower mortality for each unit increase in CP. The best cut-off for the identification of mortality risk was 20 units, which was associated with a 4x increase in the odds of in-hospital mortality in the validation cohort.

CO 20. VENO-ARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION FOR CARDIOGENIC SHOCK: ONE-YEAR OUTCOMES FROM A CARDIAC INTENSIVE CARE UNIT LED SHOCK TEAM PROGRAM

Ana Rita Bello, João Presume, Daniel Gomes, Francisco Albuquerque, Pedro Lopes, Catarina Brízido, Christopher Strong, Jorge Ferreira, Helena Brandão, José Pedro Neves, António Tralhão

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

Introduction: Mechanical circulatory support (MCS) with peripheral veno-arterial extracorporeal membrane oxygenation (VA-ECMO) is increasingly used for severe cardiogenic shock (CS).
Objectives: To describe the initial experience with peripheral VA-ECMO within a cardiac intensivist team led program.
Methods: Retrospective analysis of a short-term MCS prospective registry, from 1 September 2021 to 1 December 2022. Clinical and device related variables were reviewed and reported. We assessed both patient outcomes as well as ECMO-related complications.
Results: A total of 21 patients were included in this analysis (50 ± 13 years-old, 80% male), ranging from SCAI-C (n = 8) to E (n = 5) and with a median predicted mortality by SAVE score of -4 points [IQ -6 - 0] (corresponding to 30% in-hospital survival). All cannulations were done percutaneously, mostly by trained cardiac intensivists and while at the CICU (n = 12). A femoro-femoral configuration was used for all patients. One patient was cannulated at the referring hospital and retrieved to our unit for further care. Three patients were cannulated during intra-hospital cardiac arrest and one patient was cannulated while breathing spontaneously (awake-ECMO). Mean venous and arterial cannula sizes were 22 ± 1.9 Fr and 17 ± 1.6 Fr, respectively. A 7 French (Fr) arterial limb reperfusion cannula was used in 85% of cases. The most frequent etiology was acute decompensation of chronic heart failure (n = 7), followed by acute myocardial infarction related CS (n = 5), fulminant myocarditis (n = 2) and massive pulmonary thromboembolism (n = 2). A left ventricle venting device was used in 70% of patients [intra-aortic balloon pump (n = 10); percutaneous microaxial pump (n = 2)] and upgrade to a veno-arterio-venous configuration was necessary in one patient due to differential hypoxemia. Mean ECMO-run duration was 8.4 ± 4.8 days while mean CICU length of stay was 22 ± 17.9 In-hospital mortality was 42%. In survivors, decannulation was surgical in all but one patient. The most frequent strategy was bridge to recovery (n = 14). One patient was bridged directly to heart transplant, one to a temporary centrifugal left ventricular assist device (LVAD) and one to a durable magnetically levitated LVAD. Complications were common and included bleeding from cannula insertion sites (n = 19), renal replacement therapy requirement (n = 10), Harlequin syndrome (n = 2), cardiac tamponade (n = 2), intestinal ischemia (n = 3) and limb ischemia (n = 2).



Conclusions: VA-ECMO performed by cardiac intensivists is a feasible MCS strategy for severe cardiogenic shock patients in whom mortality, while high, was similar to large international published series. Further experience will allow for improvement in patient selection and minimization of device related complications.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Sala Aquarius | Comunicações Orais - Sessão 05 - Doença cardiovascular na mulher

CO 21. SEX DIFFERENCES AND OUTCOMES AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION IN SEVERE AORTIC STENOSIS - AN ANALYSIS OF 488 CASES

Diogo Santos Ferreira[1], Silvia Diaz[2], Cláudio Guerreiro[1], Gualter Silva[1], Mariana Silva[1], Mariana Brandão[1], Fábio Nunes[1], Rafael Teixeira[1], Eulália Pereira[1], Gustavo Pires-Morais[1], Bruno Melica[1], Lino Santos[1], Alberto Rodrigues[1], Pedro Braga[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Conflicting results have been reported regarding survival after transcatheter aortic valve implantation (TAVI) for severe aortic stenosis (SAS) treatment in women, when compared to men.

Objectives: Compare mortality after TAVI for SAS, according to sex.
Methods: A single-centre retrospective database of all TAVI performed between 2011 and 2019 was analyzed, and clinical, echocardiographic and blood-analysis data were compared according to sex. Primary endpoint was defined as time to all-cause death of last follow-up over the five years after intervention. Secondary endpoint was defined as a reduction of at least one New York Heart Association (NYHA) class after TAVI. Kaplan-Meier curves, log-rank test, Cox proportional hazard model adjusted for EuroSCORE II, as well as Pearson's Chi-squared test, Wilcoxon rank sum test and Fisher's exact test were used, as appropriate. $p < 0.05$ was considered statistically significant.
Results: From a total of 488 TAVI, 252 (51.6%) women were treated. They were older (84 *vs.* 80 years-old, $p < 0.001$), had a lower body surface area, and had a higher estimated surgical risk, using EuroSCORE II (4.5 *vs.* 3.8, $p = 0.011$) and STS-mortality (4.46 *vs.* 3.44, $p < 0.001$). There was also a lower prevalence of diabetes *mellitus*, coronary artery disease and peripheral artery disease, lower estimated creatinine clearance, as well as a lower frequency of previous pacemaker implantation. Women had a lower functional aortic valve area, higher transvalvular gradients and ejection fraction. TAVI design was no different according to sex, but smaller valves were implanted in women. In the whole cohort, there was a 40% mortality over 5 years after treatment. No statistically significant differences were found regarding survival after TAVI in both univariate and multivariate analysis, after adjusting for EuroSCORE II. The latter had a statistically significant association with the primary endpoint [hazard ratio 1.03 (1.01-1.05), $p = 0.004$). Despite similar NYHA class before intervention, there was a lower frequency of NYHA class improvement in women after TAVI (61% *vs.* 72%, $p = 0.034$).
Conclusions: Despite exhibiting a higher estimated surgical risk, mortality after TAVI was not found to be different in women. However, heart failure symptomatic improvement was less frequent in this subset.

CO 22. STRESS IN WOMEN: DOES IT PREDICT THE TYPE ACUTE CORONARY SYNDROME?

Margarida G. Figueiredo, Sofia B. Paula, Mariana Santos, Hélder Santos, Mariana Coelho, Samuel Almeida, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital Nossa Senhora do Rosário.

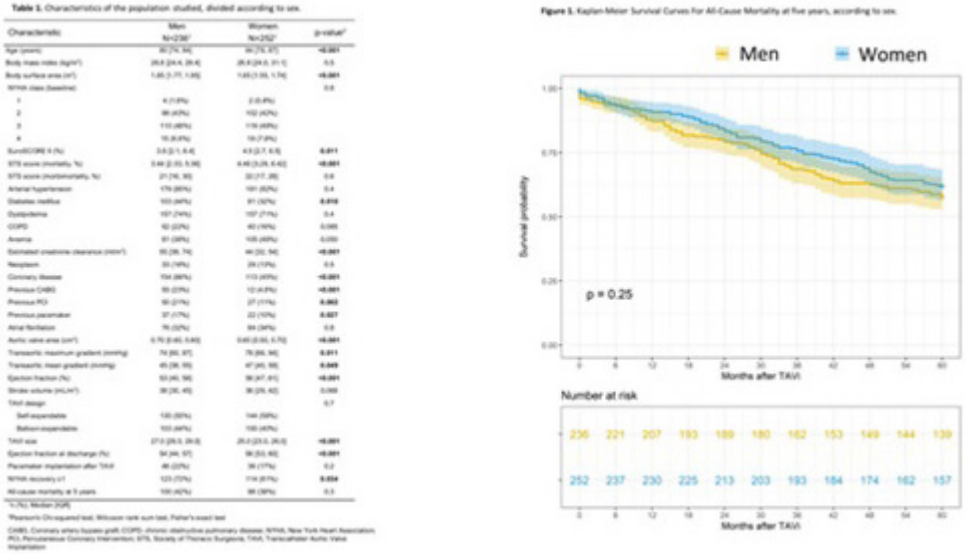
Introduction: In the last decades, there has been a significant increase in acute coronary syndrome (ACS) hospitalizations in young women, especially in those admitted for ST-elevation myocardial infarction (STEMI). Recent studies indicate that non-traditional risk factors, such as psychosocial stress may contribute substantially to the increasing risk noticed in this population, since depression and perceived stress (PS) are much more common in younger women. The 10-item Perceived Stress Scale (PSS-10) is a validated instrument to estimate stress levels in clinical practice.
Objectives: To assess the impact of if PS in women ant if it was a predictor of non-ST-elevation myocardial infarction (NSTEMI).
Methods: Single-center prospective study involving women hospitalized for ACS from 20/03/2019 to 31/03/2020. PSS-10 was completed during the hospitalization period. Patients were divided into two groups, according to the type of ACS: group A - STEMI; group B - NSTEMI. Follow-up of these patients was carried out until December 11, 2022, regarding death, readmissions (R) for cardiac causes and (R) for other causes. Logistic regression was performed to assess if PS was a predictor of NSTEMI.
Results: PSS-10 score was higher in women than in men (22.90 ± 6.90 *vs.* 17.40 ± 6.40, respectively). A total of 106 women with ACS were included, of whom 34 in group A and 57 in group B. Mean age was 58.41 ± 10.03 years in group A and 61.79 ± 14.98 years. There were no differences between the two groups regarding cardiovascular risk factors. Group A presented more with chest pain (86.9% *vs.* 62.9%, $p = 0.002$); there were no other statistically significant variables at presentation or regarding intrahospital complications between the two groups. In group A, PSS-10 score was 16.88 ± 6.584, and in group B 20.03 ± 5.18 ($p = 0.004$). There were no differences in terms of death (5.90% in group A *vs.* 17.50% in group B, $p = 0.199$) or R for other causes (17.60% in group A *vs.* 29.80% in group B, $p = 0.196$). However, group B had more R for cardiac causes (36.10% *vs.* 8.80% in group A, $p = 0.013$). Logistic regression revealed that PS was a predictor of NSTEMI (odds ratio (OR) 1.001, $p = 0.006$, confidence interval (CI) 1.003-1.018).
Conclusions: This is the first prospective study carried out in the Portuguese population regarding this thematic, and showed that women had higher levels of PS, women with NSTEMI had more PS and that PS is a predictor of NSTEMI in women.

CO 23. EFFECTIVENESS OF A CARDIAC REHABILITATION PROGRAM IN WOMEN WITH HEART FAILURE

Andreia Campinas, Cristine Schmidt, Maria Isilda Oliveira, Sandra Magalhães, Catarina Gomes, José Preza-Fernandes, Severo Torres, Mário Santos

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

Introduction: Cardiac rehabilitation (CR) improves exercise capacity and quality of life (QoL) and reduces hospital readmission rates in heart failure



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(HF) patients. However, like other cardiovascular treatments, CR remains underutilized in women for several reasons, namely a misperception of its reduced effectiveness.
Objectives: We aimed to compare the adherence and effectiveness of a CR program of women and men with HF.
Methods: We conducted a prospective single-centre study of consecutive 93 patients with HF referred to the CR program at our hospital between September 2019 and July 2021. We defined adherence as the percentage of sessions patients attended. The effectiveness outcomes were differences in peak oxygen uptake (VO2peak) and QoL measurement differences before (baseline) and after the CR program (3-month). VO2 peak was assessed by a maximal effort cardiopulmonary exercise testing on a treadmill. QoL was assessed using Minnesota Living with Heart Failure Questionnaire® (MLHFQ).
Results: Of the 93 studied patients, 30 (32.3%) were female. Their baseline features differed regarding smoking and chronic kidney disease (CKD) which were more prevalent in men (71.4% *vs.* 27.6%, p < 0.001 and 20.6% *vs.* 3.3%, p = 0.032, respectively). The HF with reduced ejection fraction (EF) phenotype [Left ventricular ejection fraction (LVEF) < 40%] was more prevalent in men (92.1% *vs.* 73.3%, p = 0.024). Regarding adherence, 84% of the 93 studied patients completed the CR program and no differences were found between groups (female *vs.* male: 76.7% *vs.* 87.3%; p = 0.232). The significant increase in VO2peak observed in the overall cohort (+1.3 ± 2.3 L/min/Kg; p < 0.001) did not differed between gender (female: *vs.* men: 1.5 ± 2.1 *vs.* 1.2 ± 2.4 L/min/Kg; p = 0.938). We also observed a significant reduction in the total, physical and emotional dimension MLHFQ scores in both genders (all p < 0.05). However, the overall improvement in QoL was significantly higher in women as indicated by a larger reduction of MLHFQ total score (p = 0.042) and physical dimension score (p = 0.009).
Conclusions: Women with HF had similar adherence to the CR program and had the same increase in VO2peak - a robust and validated HF prognostic marker in this setting. Women benefited more than men regarding QoL improvements, particularly in the physical dimension score. Together, these data emphasize the need to increase the referral of women with HF to CR programs.

CO 24. CARDIOTOXICITY ASSESSMENT ACCORDING TO CURRENT CARDIO-ONCOLOGY GUIDELINES IN A POPULATION OF FEMALE BREAST CANCER PATIENTS

Cátia Oliveira, Ana Pinho, Luís Santos, Pedro Palma, Sara Maia, Guilherme Ferreira, André Cabrita, Catarina Marques, Ana Filipa Amador, João Calvão, Tânia Proença, Miguel Carvalho, Carla Sousa, Mariana Paiva, Filipe Macedo

Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.

Introduction: Assessment of cardiovascular complications in oncologic patients exposed to cardiotoxic therapies has been affected by a lack of uniformity in definitions and management. Our aim was to characterize and evaluate the risk of cancer therapy-related cardiac dysfunction (CTRCD) in a population of breast cancer patients (pts) exposed to chemotherapy (QT), considering the new published guidelines.
Methods: A retrospective cohort of female breast cancer pts referred to Cardio-Oncology outpatient clinic between January 2017 to November 2021 was analyzed. Baseline cardiotoxicity risk was defined according to HFA/ICOS assessment tool and CTRCD was defined according to 2022 ESC Cardio-Oncology guidelines criteria. Pts were evaluated with echocardiogram, high sensitivity troponin I (hs-cTn) and BNP before treatment initiation and at 3, 6 and 12-months. As cardioprotective drugs we considered beta-blockers and renin-angiotensin-aldosterone system inhibitors.
Results: 382 pts were included: the mean age was 52.1 ± 11.8 years old. Most pts were treated with anthracyclines (AC) (45%), followed by AC plus anti-HER2 therapy (AHT) (27%), AHT (17%) and other QT (11%). At baseline, the mean LV ejection fraction was 62.3 ± 0.2% and mean global longitudinal strain was -19.6 ± 0.4%. The median baseline hs-cTn was 1.9 (IQR 1.9-2.6) ng/L and median BNP was 20.9(IQR 11.1-38.8) pg/L. Most of the pts had a low baseline cardiotoxicity risk; 40% of the pts were medicated with cardioprotective drugs prior to CTRCD, mostly due to comorbidities. CTRCD was observed in 43% of the pts: 40% mild; 3% moderate and 0.8% severe. Most were asymptomatic. Around 20% of the pts were classified as having CTRCD according to the isolated biomarkers elevation criteria. 61% of pts with CTRCD had full recovery at the end of follow-up. As for the long-term follow-up (14.8 ± 5.4 months), cumulative all-cause mortality was 2.1% and cumulative cardiovascular death was 0.3%. The risk of developing CTRCD was 35% per pts-year.
Conclusions: According to the new guideline's CTRCD criteria, our population had a significantly high susceptibility for CTRCD, even though most of the pts had a baseline low risk and 40% of the patients were medicated with cardioprotective drugs. However, a large part of CTRCD was classified as so based on the criteria of isolated biomarkers elevation. Further studies are needed to clarify if that criteria is clinically relevant and if it should be considered as CTRCD.

CO 25. RELATIONSHIP BETWEEN ECHOCARDIOGRAPHIC OUTCOMES AND CARDIOPROTECTIVE DRUGS IN A POPULATION OF FEMALE BREAST CANCER PATIENTS EXPOSED TO ANTHRACYCLINES

Cátia Oliveira, Pedro Palma, Luís Santos, Ana Pinho, Sara Costa, Sara Maia, André Cabrita, Catarina Marques, Ana Filipa Amador, Catarina Costa, João Calvão, Ricardo Pinto, Mariana Paiva, Carla Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Anthracyclines (AC) have been widely studied as a cause of cancer therapy-related cardiac dysfunction (CTRCD) in patients with breast cancer. Nonetheless, the role of cardioprotective drugs (CPD) as primary prevention is not well understood. We aimed to evaluate the impact of CPD in preventing CTRCD and on echocardiographic outcomes in female breast cancer patients.
Methods: A retrospective cohort of breast cancer female patients treated with AC referred to Cardio-Oncology outpatient clinic from January 2017 to November 2021 was selected. All patients were evaluated with echocardiogram, high sensitivity troponin I(hs-cTnI) and BNP before treatment initiation, at 3 and 6 months and at 12-months after completing oncologic treatment. CTRCD was defined as LV ejection fraction < 50% and/or global longitudinal strain (GLS) variation > 15% during follow-up. As CPD we considered renin-angiotensin-aldosterone system inhibitors and beta-blockers.
Results: A total of 274 patients were included with mean age of 49.9 ± 10.3 year-old. Most patients had a low cardiotoxicity risk. At baseline, median hs-cTnI was 1.9 (IQR 1.9-2.3) ng/L, median BNP 17 (IQR 10.0-32.9) pg/L, mean LVEF 62.9 ± 3.5% and mean GLS -19.77 ± 8.4%. During follow-up (15.5 ± 5.3 months), 30.5% of patients developed CTRCD. The overall prevalence of CTRCD was similar in patients on AC and on AC plus anti-HER2 therapy (AHT) (27.2% *vs.* 35.9%, p = 0.131), but CTRCD was more severe in the AC plus AHT group (moderate/severe CTRCD 1.8% *vs.* 7.8%, p = 0.038). CPD was initiated or titrated in 35.8% of patients and 2.6% needed to suspend AHT; overall 59.3% of CTRCD patients recovered. When comparing patients already medicated with CPD prior to CTRCD development to those naïve of CPD, the first group presented a significantly lower incidence of CTRCD [20% *vs.* 36.6%, p = 0.005, OR = 0.43 (95%CI 0.24-0.78)]. Analyzing the whole sample, LVEF at 12 months was similar regardless of CTRCD development (59.9% *vs.* 61%, p = 0.84). However, GLS at 12 months was significantly lower in the CTRCD group (-16.7% *vs.* -19.2%, p < 0.001). The risk of developing CTRCD was 24% per patients-year.
Conclusions: Patients exposed to AC had higher risk of developing CTRCD, which was more severe when concurrently on AHT therapy. Pre-treatment with CPD was significantly associated with a lower prevalence of CTRCD and with better echocardiographic outcomes regarding LVEF, but not GLS, in patients who developed CTRCD. These results highlight the importance of cardiac evaluation in AC patients and strengthen the value of primary prevention but also the need to investigate new therapies that might improve outcomes regarding GLS.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Sala Vega | Comunicações Orais - Sessão 06 - Intervenção coronária

CO 26. ANTI-THROMBOTIC AND GLUCOSE LOWERING THERAPY IN DIABETIC PATIENTS UNDERGOING PCI: BASELINE INCLUSION DATA OF THE ARTHEMIS MULTICENTRE REGISTRY

Sérgio Bravo Baptista[1], Gustavo Pires-Morais[2], Luís Almeida Morais[3], João Costa[4], Hugo Vinhas[5], Gustavo Campos[6], Pedro Carrilho Ferreira[7], Nélson Vale[8], Filipe Seixo[9], Miguel Santos[1], Cristina Martins[10], Diogo Rodrigues Brás[11], André Alexandre[12], Luís Raposo[8]

[1]Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [3]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [4]Hospital de Braga, EPE. [5]Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro. [6]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [7]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [8]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [9]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo. [10]Hospital Garcia de Orta, EPE. [11]Hospital do Espírito Santo, EPE, Évora. [12]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António.

Introduction and objectives: Diabetes (DM) is a major determinant of ischemic events after percutaneous coronary intervention (PCI). In a nationwide prospective registry, treatment regimens, compliance and 2-year clinical outcomes were studied in unselected patients with DM undergoing PCI. The current analysis describes the population's baseline characteristics and the prescription patterns of anti-thrombotic and glucose-lowering drugs.
Methods: Between January and November 2021, 1,000 consecutive pts with type-2 diabetes undergoing PCI with stent implantation were enrolled in 12 hospitals. In addition to clinical and procedural-related characteristics, data on diabetes status, CAD complexity (SYNTAX Score), as well as thrombotic and bleeding risks (DAPT and PRECISE DAPT Scores, respectively), were registered. Planned duration of dual anti-platelet therapy was also recorded. Data was collected in a dedicated web-based e-CRF and randomly audited for quality.
Results: Mean age was 68 ± 13 yo, and 70% of participants were men. Classical risk factors where highly prevalent and one third had clinically overt CAD (28% AMI and 31% prior revascularization). Mean LVEF was 49 ± 12% and 8% of pts had a prior admission due to heart failure. Indication for PCI was an ACS in 55.4% of cases and 63% had 2-3 vessel CAD (mean SYNTAX score 15.6 ± 10.7; mean stent length and diameter 26.3 ± 14.8 and 3.0 ± 1.2 mm, respectively). Most patients (> 98%) were discharged on DAPT, but only 42% received potent P2Y12 inhibitors. Recommendation for short DATP regimens (≤ 6 months,) was 35% overall and differed according to bleeding risk (30% *vs.* 43% in low *vs.* high-bleeding risk defined by the PRECISE-DAPT Score [mean 21.7 ± 13.1]; p < 0.001) and need for concomitant anti-coagulation (27% *vs.* 83%; p < 0.001). CAD complexity did not influence DAPT duration as it was similar across SYNTAX Score terciles (p = 0.43). Prolonged DAPT (> 12 months) was recommended in < 1%. Self-reported duration of DM was > 6-years in 56%, mean HbA1c was 7.5 ± 1.7% and 12% had known microangiopathic involvement at inclusion. Notably, only 28% and 3% of patients were taking SGLT2 inhibitors and GLP-1 analogues on admission.
Conclusions: In this population both ischemic and bleeding risks were relatively high, and prolonged DAPT was rarely prescribed, irrespective of CAD extent. Average metabolic control was off-target and guideline-directed treatment for diabetes was underused at admission, although it improved at discharge.

CO 27. COMPARATIVE PERFORMANCE OF CONTEMPORARY STENTS IN 3D-PRINTED LEFT MAIN BIFURCATION SIMULATION MODELS

Catarina Simões de Oliveira, Tiago Rodrigues, Joana Brito, Pedro Alves Silva, Beatriz Valente Silva, Beatriz Garcia, Ana Margarida Martins, Ana Abrantes, Miguel Raposo, Catarina Gregório, Daniel Cazeiro, Daniela Ricardo, Helena Santiago, Fausto J. Pinto, João Silva Marques

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Interventions in left anterior descending artery (LAD) ostial lesions remain defiant. A left main (LM)-to-LAD cross-over stenting provides favorable outcomes but challenges current devices. There is need for comparative independent data on the performance of currently available stents. In clinical practice, wide anatomical variation impairs such studies. However, 3D-printing allows accurate anatomical reproduction that can be used in simulation testing.
Objectives: To assess stent performance in 3D-printed diseased LM bifurcation model (medina 0.1.0) using a realistic simulation environment.
Methods: A standard realistic LM anatomy with an eccentric ostial LAD lesion was replicated using 3D-printing. Tests were performed on a realistic pulsatile flow simulator in the cath lab. Five 3.5 × 18-21 mm stents (Xience, Onyx, Synergy, Megatron and Ultimaster) were implanted in 3D-printed models using a standardized protocol (Figure a) that included proximal optimization technique (POT). Angiographic and OCT runs were acquired at each procedural step and images were blindly reviewed and analyzed offline. We report descriptive and comparative data of stent platform performance with a focus on stent placement accuracy, longitudinal deformation, overexpansion ability and radial strength.
Results: In total, 5 test procedures were performed and a total of 15 OCT runs and 20 angiographic images were reviewed. Stent placement accuracy, defined as balloon marks to stent distance in angio was highest with Xience (0.27 mm) and lowest with Synergy (1.01 mm). Proximal overexpansion ability after sequential 5 mm and 6 mm POT was also highest with Xience (stent area 26.99 mm^2) and lowest with Synergy (stent area 15.58 mm^2). Regarding longitudinal deformation, OCT analysis revealed shortening of Onyx (-0.1 mm), Megatron (-0.4 mm) and Ultimaster (-0.7 mm) stents and elongation

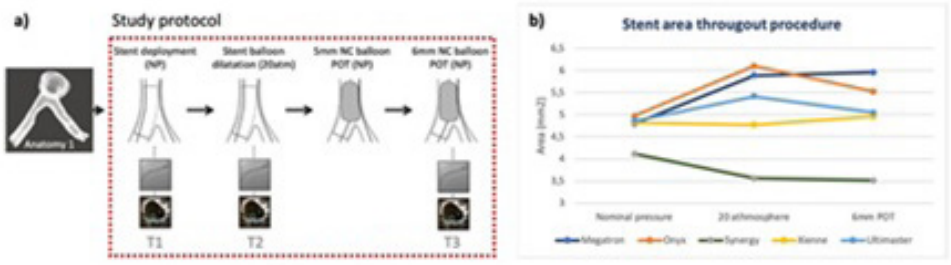

Figure 1: a) Study protocol; b) stent area throughout procedure

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of Synergy (1.4 mm) and Xience (+3.8 mm) after POT. In angio, there was elongation of Xience (+3.5 mm) and shortening of all other stents (-0.9 to -3.5mm). Radial strength was highest with Onyx (MLA 4.99 mm^2) and lowest with Synergy (4.12 mm^2). Considering eccentricity, Ultimaster achieved the lowest (0.92) and Onyx the highest (0.84). High pressure balloon inflation increased MLA in all stents except Synergy and Xience (Figure b). POT negatively impacted stent performance at the LAD ostial lesion in two of the stents that showed recoil. There was no significant correlation of proximal stent expansion and stent strut thickness (r 0.296; p = 0.629).
Conclusions: In this study of percutaneous coronary intervention in 3D-printed realistic models of left main bifurcation coronary artery disease we have shown that stent performance is not uniform among available stents. Knowledge of strengths and weaknesses of each individual stent allows a tailored approach to bifurcation stenting in order to anticipate and optimize results.

CO 28. LONG-TERM OUTCOMES OF "FULL-METAL JACKET" PERCUTANEOUS CORONARY INTERVENTIONS: A SEVENTEEN-YEAR SINGLE-CENTRE EXPERIENCE

José Miguel Viegas, Isabel Cardoso, Pedro Garcia Brás, Tiago Mendonça, Inês Rodrigues, Tiago Pereira-Da-Silva, Ruben Ramos, António Fiarresga, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Limited long-term data exist on patients who have undergone "Full Metal Jacket" (FMJ) stenting procedures, defined as overlapping stent length ≥ 60 mm, for tandem or very long coronary lesions.
Objectives: The aim of this study was to evaluate the long-term outcomes and predictors of adverse events following successful FMJ percutaneous coronary interventions (PCI).
Methods: Retrospective single-centre study that included consecutive FMJ PCI taking place between January 2002 and December 2018. Major adverse cardiac events (MACE) were the primary endpoint and included all-cause death, myocardial infarction (MI), and target vessel revascularization (TVR). The secondary endpoint was target lesion failure (TLF), a composite of cardiac death, target vessel-related MI (TV-MI), target lesion revascularization (TLR) or occlusion. Demographic, clinical, angiographic, and procedural variables were evaluated using stepwise Cox regression analysis to determine independent predictors of outcome.
Results: Overall, 592 patients (P) underwent FMJ PCI, increasing in frequency over time (< 3% before 2012, 3-5% from 2013 to 2016, and > 5% after 2017). P with unsuccessful procedure or lost to follow-up were excluded from the analysis. A total of 353 eligible P, mean age 65.4 ± 11.4 years, 78% male. The mean stent length was 74.3 ± 14.2 mm (range 60 to 132 mm), and the average number of stents was 2.95 ± 0.80 (range 2 to 6). During the mean follow-up period of 5.0 years, the incidence of MACE and TLF was 46% and 32%, respectively. All cause mortality rate was 26% (11% cardiac deaths), MI was 16%, TV-MI was 11% and stent thrombosis was 4%. TVR occurred in 19% and TLR in 17% of P. Multivariate Cox analysis identified 8 independent predictors for MACE and 7 independent predictors for TLF (Figure). Insulin-dependent diabetes *mellitus*, current smoker, cardiogenic shock, ostial lesion, bifurcation and severe calcification were associated with increased incidence of both events. Age and absence of complete revascularization were independent predictors of MACE. Using a brand exclusive strategy was protective for TLF.
Conclusions: FMJ procedures provides acceptable long-term results. Several clinical and angiographic factors were associated with adverse events and may help identifying high-risk patients. Complete revascularization and avoiding combination of different stent brands may improve outcomes.

CO 29. PERFORMANCE AND SAFETY OUTCOMES OF A STRUCTURED CHRONIC TOTAL OCCLUSION (CTO) PCI PROGRAM

Nazar Ilchyshyn[1], Luís Leite[2], Elisabete Jorge[2], Joana Silva[2], Ana Vera Marinho[2], Rui Baptista[3], Marco Costa[2], Lino Gançalves[2]

[1]Hospital Garcia de Orta, EPE. [2]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [3]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.

Introduction: Coronary chronic total occlusions (CTOs) are routinely found in patients undergoing coronary angiography. In recent years, the success rate of CTO intervention has increased, driven by advances in material and interventional techniques, without compromising patient safety. We aimed to describe the characteristics, procedural aspects and clinical outcomes of a structured CTO program.
Methods: We conducted a prospective, cohort study including all consecutive patients enrolled in our CTO program since December 2013. Angiographic and clinical data were collected. We defined a co-primary safety outcome as procedure-related complications and a co-primary efficacy outcome as procedural success. A follow-up with a median duration of 508 days was conducted. Secondary, exploratory endpoints during the follow up included

Multivariate Cox analysis	Hazard ratio (95% confidence interval)	p value
Predictors of MACE		
Age	1.019 (1.001-1.037)	0.040
Insulin-dependent diabetes mellitus	1.831 (1.051-3.189)	0.033
Current smoker	2.155 (1.488-3.121)	<0.001
Cardiogenic shock	4.724 (1.869-8.016)	0.011
Ostial lesion	1.846 (1.026-3.322)	0.041
Bifurcation	2.219 (1.312-3.751)	0.003
Severe calcification	2.100 (1.434-3.075)	<0.001
Complete revascularization	0.576 (0.386-0.860)	0.007
Predictors of TLF		
Insulin-dependent diabetes mellitus	1.923 (1.008-3.671)	0.047
Current smoker	3.132 (1.927-5.088)	<0.001
Cardiogenic shock	4.986 (2.489-8.408)	<0.001
Ostial lesion	2.284 (1.096-4.759)	0.027
Bifurcation	2.647 (1.401-5.000)	0.003
Severe calcification	2.337 (1.402-3.895)	0.001
Same brand stents	0.353 (0.150-0.831)	0.017

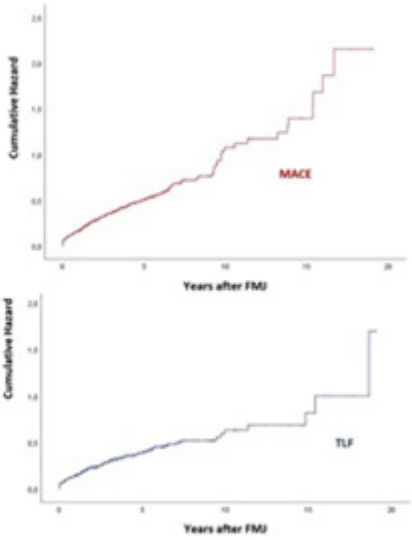

Figure 1. Independent predictors of MACE and TLF following FMJ procedure

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death, myocardial infarction (MI), target lesion revascularization (TVR), CCS grade, NYHA class and impact on left ventricular ejection fraction (LVEF).
Results: A total of 195 patients with 202 CTO lesions were included. Most patients were hypertensive (79.3%), had dyslipidemia (82.4%) and a body mass index (BMI) > 25.kg/m² (87.1%); 35.6% were diabetic, 32.6% were smokers and a third had a prior history of MI. The indication for a CTO PCI was angina in 78.0%, viable heart failure in 9.2% and ventricular arrhythmias in 1.2%. Multivessel coronary disease was present in 54.5%. Regarding the technical procedure, 89.7% of PCI CTOs were performed via the anterograde approach with wire-escalation technique. The mean J-CTO score was 2.0 ± 0.8. J-CTO and not EuroCTO (CASTLE) score predict successful CTO PCI. The overall success rate for CTO PCIs was 92.8% (85.6% with one attempt). The primary safety co-endpoint occurred in 9 patients (4.0%). During follow up, 7 patients (4.6%) died (2 of cardiovascular causes). Admissions for MI occurred in 3 patients (1.5%). TVR occurred in 5 patients (2.6%). CCS grade decreased following a successful CTO treatment in 90.3% of patients (2.1 ± 0.9 *vs*. 0.6 ± 0.6, p = 0.01). LVEF significantly increased (48.73 ± 10% *vs*. 52.55 ± 8.26%, p = 0.01) after a successful CTO intervention.
Conclusions: During implementation of a dedicated CTO PCI program a high success rate with low rate of complications were achieved. A successful CTO PCI was associated with important symptomatic relief and a significant increase in LVEF. J-CTO score remains the best predictors of successful CTO and the use of other more complex scores did not seem to be advantageous.

Methods: We systematically searched PubMed, Embase and Cochrane databases, in June 2022, for randomised controlled trials (RCTs) comparing early *versus* delayed early CAG. A random-effects meta-analysis was performed.
Results: A total of eight RCTs were included, providing a total of 2.167 patients: 1.068 in an early strategy and 1.099 in a delayed strategy. In terms of outcomes assessed, our meta-analysis revealed a similar rate of all-cause mortality (pooled odds ratio [OR] 1.10 [0.93, 1.31], p = 0.27, I^2 = 0%), neurological status (pooled OR 0.94 [0.74, 1.21], p = 0.65, I^2 = 0%), need of renal replacement therapy (pooled OR 1.11 [0.74, 1.66], p = 0.63, I^2 = 0%) and major bleeding events (pooled OR 1.14 [0.80, 1.61], p = 0.47, I^2 = 0%).
Conclusions: According to our meta-analysis, in patients who experienced OHCA without ST elevation, early CAG is not associated with reduced mortality or an improved neurological status.

Sexta-feira, 14 Abril de 2023 | 12:00-13:00

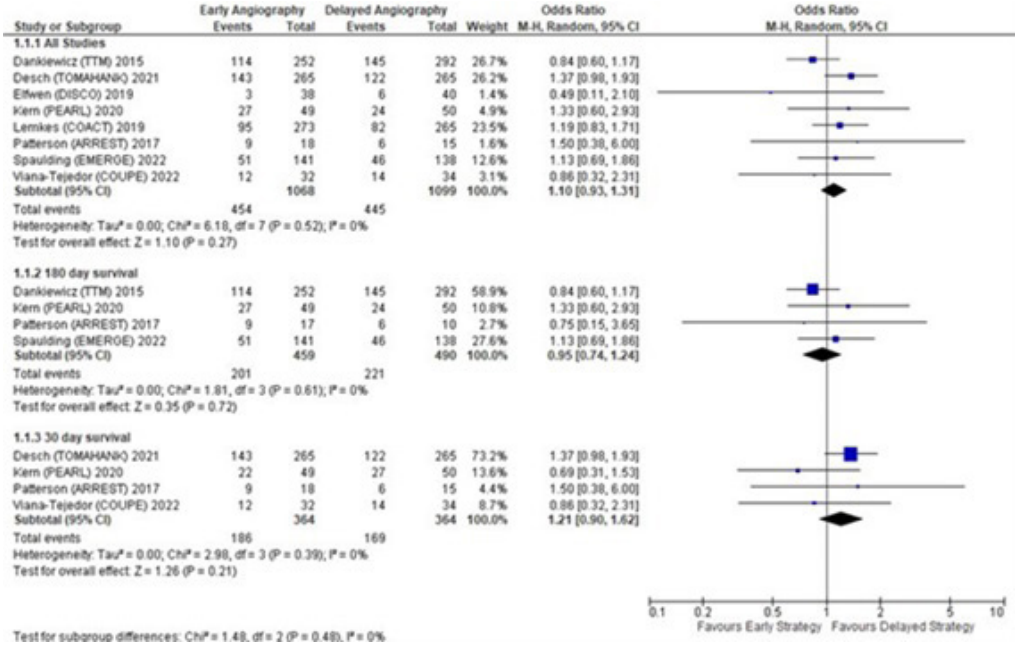
Sala Vega | Comunicações Orais - Sessão 07 - Cardiopatias congénitas e cardiologia pediátrica

CO 30. CORONARY ANGIOGRAPHY AFTER OUT-OF-HOSPITAL CARDIAC ARREST WITHOUT ST-SEGMENT ELEVATION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED TRIALS

Gonçalo Ferraz Costa, Iolanda Santos, João Sousa, Sofia Beirão, Eric Monteiro, Joana Guimarães, Rogério Teixeira, Diogo Fernandes

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

Introduction: Out-of-hospital cardiac arrest (OHCA) has a poor prognosis. The timing and role of early coronary angiography (CAG) in OHCA patients without ST-segment elevation remains unclear.
Objectives: To compare an early CAG *versus* delayed CAG strategy in OHCA patients without ST elevation.



CO 30 Figure

CO 31. CHARACTERIZATION AND COMPARISON OF RHYTHM DISTURBANCES AFTER ATRIAL OR ARTERIAL SWITCH SURGERIES FOR DEXTRO-TRANSPOSITION OF THE GREAT ARTERIES - A LONG-TERM FOLLOW-UP STUDY

Catarina Amaral Marques, Ricardo Alves Pinto, Tânia Proença, Miguel Martins de Carvalho, André Cabrita, João Calvão, Catarina Martins da Costa, Ana Filipa Amador, Cátia Oliveira, Luís Daniel Santos, Ana Isabel Pinho, Miguel Rocha, Pedro Mangas Palma, Helena Santos Moreira, Cristina Cruz

Centro Hospitalar Universitário de S. João, EPE.

Introduction and objectives: Dextro-transposition of the great arteries (D-TGA) is a congenital heart disease (CHD) palliated with atrial switch (ATR-

S) and, more recently, with arterial switch (ART-S). As late complications from ATR-S are expected, novel challenges from ART-S surgery arises. Our aim was to evaluate these patients' (pts) arrhythmic disturbances after a long-term follow-up.

Methods: We retrospectively analyzed D-TGA pts born between 1974 and 2001 and followed in Adult CHD Outpatient Clinic at a tertiary care hospital. Clinical records were used to collect pts data.

Results: A total of 79 pts were enrolled with a mean follow-up time after surgery of 27 ± 6 years. Pts median age was 27 years-old and 46% were female. 54% were submitted to ATR-S, while 46% underwent ART-S; median age at intervention was 13 months and 10 days, respectively. Focusing arrhythmic events (Table), almost all ART-S pts remained in sinus rhythm *versus* 64% of ATR-S (p = 0.002). The latter presented significantly higher frequencies of arrythmias (41% *vs.* 3%, p < 0.001), mainly atrial flutter or fibrillation (26% *vs.* 0%), as well as bradyarrhythmias (12% *vs.* 0%). Chronotropic incompetence was also more frequent after ATR-S (46% *vs.* 9%, p = 0.011). Inversely, intraventricular (IV) conduction disturbances were more frequent after ART-S (54% *vs.* 15%, p < 0.001), the majority due to incomplete right bundle branch block. Cardiac Implantable Electronic Devices (CIED) were implanted in 6 pts (5 pacemakers and 1 implantable cardioverter defibrillator) and 1 patient was submitted to catheter ablation of cavotricuspid isthmus, all of them from ATR-S group. The overall median time to first arrhythmia was 23 ± 9 years.

			ART-S (n=43)	ATR-S (n=36)	*p-value*
Sinus rhythm		% (n)	97% (34)	64% (27)	**0.002***
AV conduction disturbance	First degree AVB	% (n)	3% (1)	12% (4)	0.197
IV conduction disturbance	Total	% (n)	54% (19)	15% (6)	**< 0.001***
	Incomplete RBBB	% (n)	37% (13)	0% (0)	
	RBBB	% (n)	11% (4)	3% (1)	
	LBBB	% (n)	3% (1)	3% (1)	
	Bifascicular block	% (n)	3% (1)	0% (0)	
	LPFB	% (n)	0% (0)	5% (2)	
	LAFB	% (n)	0% (0)	3% (1)	
	NICD	% (n)	0% (0)	3% (1)	
Chronotropic incompetence		% (n)	9% (3)	46% (6)	**0.011***
Arrythmias	Total	% (n)	3% (1)	41% (17)	**< 0.001***
	Atrial flutter / fibrillation	% (n)	0% (0)	26% (11)	
	Bradyarrhythmia	% (n)	0% (0)	12% (5)	
	VT/VF	% (n)	3% (1)	3% (1)	
CIED	Total	% (n)	0% (0)	15% (6)	**0.028***
	Pacemaker	% (n)	0% (0)	13% (5)	
	ICD	% (n)	0% (0)	2% (1)	
Catheter ablation		% (n)	0% (0)	2% (1)	1.000

Table 1 – Rhythm, conduction disturbances and implanted CIED in D-TGA patients submitted to atrial or arterial switch.
ART-S, arterial switch surgery; ATR-S, atrial switch surgery; AV, atrioventricular; AVB, atrioventricular block; CIED, cardiac implantable electronic devices; D-TGA, Dextro-transposition of the great arteries; ICD, implantable cardioverter defibrillator; IV, intraventricular; LAFB, left anterior fascicular block; LBBB, left bundle branch block; LPFB, left posterior fascicular block; NICD, nonspecific intraventricular conduction delay; RBBB, right bundle branch block; VT/VF, ventricular tachycardia / ventricular fibrillation; *p<0.05

Conclusions: ATR-S presented significantly fewer pts in sinus rhythm and higher rates of chronotropic incompetence, as well as need for CIED. Additionally, ATR-S pts had higher rates of arrhythmia development, namely supraventricular (SV) ones. These findings highlight the advantages of ART-S over ATR-S in reducing SV arrhythmias occurrence. Curiously, IV conduction disturbances, mainly incomplete right bundle brunch block, were more frequent after ART-S. This fact emphasizes the importance of long-term follow-up of all pts, regardless of the initial surgical approach, as ART-S pts were not arrhythmic-free. Our work raises awareness for arrhythmic disturbances in this subgroup of CHD pts, irrespective of surgical strategy adopted.

CO 32. LONG-TERM FOLLOW-UP STUDY OF ADVERSE EVENTS AFTER ATRIAL OR ARTERIAL SWITCH SURGERIES FOR DEXTRO-TRANSPOSITION OF THE GREAT ARTERIES

Catarina Amaral Marques, Ricardo Alves Pinto, Tânia Proença, Miguel Martins de Carvalho, André Cabrita, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Luís Daniel Santos, Ana Isabel Pinho, Cátia Oliveira, Pedro Mangas Palma, Helena Santos Moreira, Miguel Rocha, Cristina Cruz

Centro Hospitalar Universitário de S. João, EPE.

Introduction and objectives: Dextro-transposition of the great arteries (D-TGA) is a congenital heart disease (CHD) initially palliated with atrial switch (ATR-S) and more recently repaired with an arterial switch (ART-S). Our aim was to evaluate patients' (pts) adverse events after a long-term follow-up (FU).

Methods: Retrospective analysis of D-TGA pts born between 1974 and 2001 and followed in Adult CHD Outpatient Clinic at a tertiary care hospital. Data was collected by reviewing medical records. Time-to-event analysis was performed. Adverse events were defined as a composite of death, stroke, coronary revascularization, arrhythmia and ventricular, baffle or significant valvular dysfunction.

Results: 79 pts were enrolled with a mean follow-up time after surgery of 27 ± 6 years. Pts median age was 27 years-old and 46% were female. ATR-S was performed in 54%, while 46% underwent ART-S. Concerning post-switch complications, systemic ventricle systolic dysfunction (SVSD) occurred only in ATR-S pts (41% *vs.* 0%, p < 0.001); subpulmonic ventricle dysfunction (SPVD) was a rare event in both groups; the most frequent complication after ART-S was significant systemic ventriculoarterial (VA) valve regurgitation, though no significant differences between groups were found (7% ATR-S *vs.* 14% ART-S; p = 0.459); only 1 ART-S presented neoaortic root dilation and 2 ATR-S developed baffle dysfunction. Regarding long-term outcomes, 1 ATR-S and 3 ART-S pts were submitted to surgical coronary revascularization (p = 0.325); 1 patient in each group had a stroke (p = 0.725); no ART-S pts died during FU and only 1 ATR-S died due to baffle dysfunction (p = 1). Regarding time-to-event analysis, 80% and 40% of ATR-S pts were free from adverse-events after 20 and 30 years, respectively; the mean time to first adverse-event was 23 ± 8 years and no significant differences were found between groups (log-rank = 0.596, Figure).

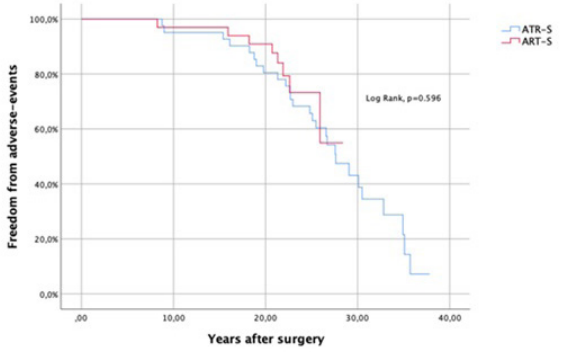


Figure 1 - Time-to-adverse-event analysis after atrial and arterial switch for D-TGA.
ART-S, arterial switch surgery; ATR-S, atrial switch surgery; D-TGA, Dextro-transposition of the great arteries

Conclusions: In our study, SVSD and baffle dysfunction were found in ATR-S pts, highlighting the advantage of performing ART-S over ATR-S. In ART-S pts, the most common complication was systemic VA valve regurgitation, even though no significant differences were found to ATR-S. Aortic root dilatation was a rare complication and coronary revascularization was equally performed in both groups. After a long-term free of adverse-events, ATR-S patients experienced significantly more SVSD, while ART-S complications were predominantly anastomosis related.

CO 33. PATHOPHYSIOLOGY OF REFLEX SYNCOPE RESPONSE: ROLE OF THE AUTONOMIC NERVOUS SYSTEM AND BAROREFLEX FUNCTION

Sérgio Matoso Laranjo[1], Guilherme Lourenço[1], Teresa Mateus[1], Helena Fonseca[1], Isabel Rocha[2], Conceição Trigo[1], Mário Oliveira[1], Fátima F. Pinto[1]

[1]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [2]Faculdade de Medicina da Universidade de Lisboa.

Introduction and objectives: Syncope is a common medical problem during the lifetime, with a recurrence rate of 35%. Excluding cardiac disease, most syncopes are of reflex origin, and despite their frequent occurrence, their mechanisms are not yet well defined. Furthermore, while studies in the adult population with vasovagal syncope are abounding, few studies (with conflicting results) have investigated the vasovagal syncope mechanisms in paediatric patients.
Methods: 238 patients were enrolled (range 12-18 years-old, mean age 13.4 ± 4.1 years, 64.3% females), having experienced, on average, 3.7 ± 2.9 syncope episodes before the HUT. The population was divided according to the HUT response: tilt-positive patients (fainters) and tilt-negative patients (non-fainters). Heart rate (HR), blood pressure (BP), and cardiac haemodynamics were continuously monitored using a Task Force Monitor. In addition, HR variability (HRV), BP variability, baroreflex sensitivity (BEI), cross-spectral wavelet coherence, and phase were evaluated.
Results: The test was positive in 99 (41.8%) patients, representing the fainters' group. 38 patients (38%) were defined as cardioinhibitory (type 2), 35 patients (35.4%) mixed type (Type 1) syncope and 26 (26.6%) as vasodepressor (Type 3). Fainters showed significantly higher HR, lower stroke volume and total peripheral resistance values during HUT. Four phases of cardiovascular responses leading to syncope could be described. Additionally, a significant rise in sympathetic activity characterised Fainters' HRV response to HUT. In brief, the core dynamic changes to LF included sudden and initial rise of sympathetic tone immediately after tilting up (Phase 1), followed by a significant decrease of sympathetic activity (Phase 2), the second overshoot of activity (Phase 3), and, then, a steady fall-off 1-2 minutes before syncope (Phase 4). Despite similar BEI in the supine position, the fainters' group showed less systolic BP ramps and a higher lag of the baroreflex response. After HUT, the fainters' group showed a progressive but significant BEI decrease.
Conclusions: These results strengthen the hypothesis that impaired baroreflex function and an imbalance between the two branches of the autonomic nervous system may represent a pathophysiological marker of altered response to orthostatic stress and play a role in the pathophysiology of reflex syncope. The findings can stratify reflex syncope patients to define an integrated and personalised therapeutic approach.

CO 34. SURPASSING THE COMPLEX SUBSTRATE OF ACCESSORY PATHWAYS ABLATION IN EBSTEIN ANOMALY

Sérgio Matoso Laranjo, Guilherme Lourenço, Guilherme Portugal, Pedro Cunha, Lídia de Sousa, Conceição Trigo, Fátima Pinto, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction and objectives: Data regarding long-term follow-up of radiofrequency catheter ablation (RFCA) of accessory pathways (APs) in patients (P) with Ebstein's anomaly are limited. This type of procedure is considered challenging due to multiple and broad APs. The present study aimed to describe the electrophysiological features of APs in P with Ebstein's anomaly, and report our RFCA experience with an open-window electroanatomic 3D mapping using high-density mapping catheters in these patients.
Methods: A retrospective study of 15 consecutive Ebstein anomaly P with APs who underwent an electrophysiologic study and RFCA from 2013 to 2022.
Results: There were a total of 21 manifested non-decremental APs. APs were mainly located on the posterior, posteroseptal, and posterolateral tricuspid annulus. The index procedure was unsuccessful in six P, requiring a redo procedure. This redo procedure was performed with a high-density catheter (Pentaray, Biosense or HD-Grid, Abbott), using the open-window annotation algorithm (Abbott's NavX Precision or BiosenseWebster Carto3), guided by CT integration and intracardiac echo. Broad APs were documented in all these six patients (width range 2-15cm) and successfully ablated. In one P, the AP encompassed 3/4 of the TA, resulting in a complete AV block after the procedure, having fitted a pacemaker. All P remained free from tachycardias during 15 ± 8 months of follow-up, with the majority (n = 12) having sinus rhythm with morphology of right bundle branch block, while three patients showed a narrow QRS.
Conclusions: RFCA in P with Ebstein anomaly is challenging, but safe, and has a high long-term success rate. APs are predominantly right-sided, manifest and localized to the lower half of the anatomic tricuspid annulus. Some APs have broad widths. In this population, the new high-resolution mapping catheters, using the open-window annotation, produce an improved anatomical resolution of the APs, increasing the odds of success.

CO 35. EXTERNAL VALIDATION OF SURVIVAL PREDICTING SCORE IN REPAIRED TETRALOGY OF FALLOT: AN OPPORTUNITY TO IMPROVE

Ana Rita Teixeira, Francisco Barbas de Albuquerque, André Paulo Ferreira, Tânia Mano, Tiago Rito, Marta António, Rui Cruz Ferreira, Sérgio Laranjo, Mário Oliveira, Lídia de Sousa

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

Introduction: In recent years, integrating better diagnosis and treatment allowed most adults with repaired tetralogy of Fallot (rTOF) to expect a longer life expectancy. However, a minority is at higher risk for premature cardiovascular death. Recently, 2 scores identified the subgroup of rTOF patients (pts) who are at high annual risk of death and ventricular arrhytmias (VA). We aimed to implement both in our population.
Methods: Retrospective single center review on rTOF pts who undergone cardiovascular magnetic resonance with gadolinium, blood sampling for B-type natriuretic peptide (BNP), echocardiography and cardiopulmonary exercise testing. The risk scores were calculated with weighted independent predictors, namely presence of late gadolinium enhancement in left ventricle (LV) and right ventricle (RV), akinetic RV outflow length, LV and RV ejection fraction (EF), RV systolic pressure, peak oxygen uptake (pVO2), BNP, atrial arrythmias and age.
Results: From a total of 240 rTOF pts, 61 (56% male, mean age 34 ± 9 years) had all the necessary data. RV dysfunction was present in 52.5%, RV systolic pressure was high in 12 and LVEF ≤ 35% in 18% pts. BNP level was elevated in 27 and pVO2 ≤ 17mL/kg/m^2 in 14.8% pts. The mean mortality risk score was 15.1 ± 11.2, being that 68.9% had a lower and 31.1% an intermediate risk. Regarding VA score, the mean was 14.7 ± 10.8, where the majority (80.3%) were in lower risk. 29.5% had a sustain atrial arrhythmia (mainly atrial fibrillation) and 14.8% a VA. There were 3 cardiac related deaths (4.9%). Analysis of time to event data showed that mortality and VA scores were not predictors of overall mortality (M) or VA events, respectively. However, considering 1-year M, LVEF ≤ 35% (p = 0.002), RVEF ≤ 35% (p = 0.002), pVO2 ≤ 17 mL/kg/m^2 (p < 0.001), and both scores: M (p = 0.013) and VA (p < 0.001) were predictors of that endpoint. In multivariate analysis, VA risk score (p = 0.035) and low pVO2 (p = 0.006) were independent 1-year M predictors.
Conclusions: In our population, ventricular arrhythmia score and low pVO2 were independent predictors of 1-year mortality. However, there is probably a selection bias. Since the scores were recently proposed, patients were not recruited prospectively, many ended up not having all the needed or recent data, thus were not included. There is the need to validate and improve available scores to truly assess the risk of mortality and arrhythmias, as well as defined protocols and longer follow-up for this purpose.

Sexta-feira, 14 Abril de 2023 | 13:00-14:00

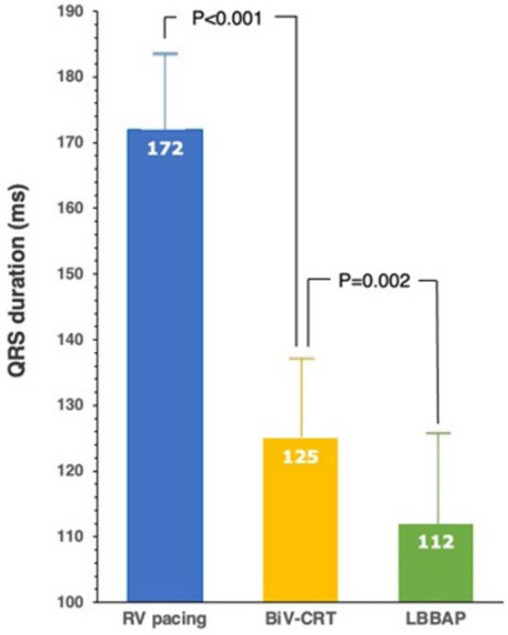
Sala Aquarius | Comunicações Orais - Sessão 08 - Dispositivos em arritmologia

CO 36. LEFT BUNDLE BRANCH AREA PACING FOR ELECTRICAL SYNCHRONIZATION: DESCRIPTION OF A SINGLE-CENTER EXPERIENCE AND COMPARISON TO CONVENTIONAL BIVENTRICULAR PACING

Daniel A. Gomes, Francisco Moscoso Costa, Rita Reis Santos, Mariana Sousa Paiva, Gustavo Rodrigues, Daniel Matos, João Carmo, Gabriela Bem, Isabel Santos, Pedro Galvão Santos, Mafalda de Sousa, Pedro Carmo, Diogo Cavaco, Francisco Belo Morgado, Pedro Adragão

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

Introduction: Long-term right ventricular (RV) pacing has been shown to induce desynchrony and left ventricular (LV) dysfunction. Accordingly, some patients may need upgrade for resynchronization therapy (CRT). Left bundle branch area pacing (LBBAP) is increasingly recognized as an attractive alternative for conventional pacing, by preserving LV synchrony. We aimed to describe procedural characteristics of patients with LBBAP, and to compare final QRS duration with those undergoing biventricular CRT (BiV-CRT) for RV apical pacing induced cardiomyopathy.
Methods: Single-center cohort including consecutive patients undergoing LBBAP since November 2021. Pacing lead was implanted deep on the interventricular septum, aiming to a right bundle branch pacing pattern and LV activation time (LVAT) < 90 ms. Feasibility, procedure, and fluoroscopy times, electrical synchrony assessed by QRS duration immediately after implantation, and periprocedural complications were assessed. Procedure characteristics were compared to a group of consecutive patients undergoing BiV-CRT upgrade.



Results: A total of 54 patients underwent LBBAP (aged 76 ± 13 years, 63% male, 10 (19%) with LV ejection fraction [LVEF] < 50%). The most common indication was high-degree atrioventricular block (n = 27, 50%), and in 7 cases (13%) LBBAP was implanted due to failed BiV-CRT. Overall, LBBAP resulted in a median LVAT was 86 ms (IQR 80-95) and in a final QRS immediately after implantation of 112 ms (IQR 105-125). QRS duration was similar across LVEF categories and pacing indication (110 ms [IQR 102-132] in LBBAP due to failed BiV-CRT). No cases of lead dislocation or perforation at discharge. When compared to a group of patients undergoing BiV-CRT upgrade (n = 46), LBBAP QRS complex was significantly narrower than pacing QRS before (172 ms [IQR 154-184]; p < 0.001) and after the upgrade (125 ms [IQR 114-138]; p = 0.002). Furthermore, procedure (64 min [IQR 53-82] *vs.* 112 min [IQR 94-140], p < 0.001) and fluoroscopy times (4.1 min [IQR 3.4-6.5] *vs.* 19.3 min [IQR 11.6-33.6], p < 0.001) were lower in the LBBAP group.
Conclusions: In this series of patients undergoing LBBAP, greater electrical synchronization was achieved when compared to BiV-CRT. LBBAP seems a safe and feasible alternative pacing strategy to preserve synchrony. Further studies are needed to understand its role as first-line therapy in patients with indication for ventricular pacing to prevent desynchrony-related cardiomyopathy.

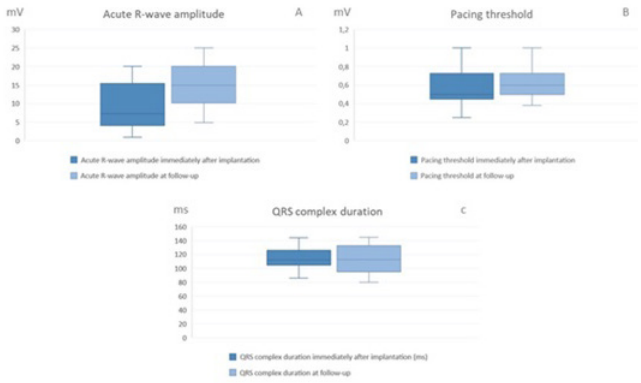
CO 37. LEFT BUNDLE BRANCH AREA PACING- FOLLOW UP DATA ON PACING PERFORMANCE

Joana Certo Pereira, Daniel A. Gomes, Francisco Moscoso Costa, Rita Reis Santos, Gustavo Rodrigues, Daniel Matos, João Carmo, Gabriela Bem, Sandra Feliciano, Isabel Santos, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Francisco Belo Morgado, Pedro Adragão

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

Introduction: Left bundle branch area pacing (LBBAP) is an increasingly recognized modality for physiologic ventricular pacing preserving left ventricular synchrony. While data on procedural characteristics are increasingly reported, those regarding mid-long-term lead stability are not yet fully understood. We aimed to describe the procedural characteristics and stability of parameters during follow-up of a group of consecutive patients submitted to LBBAP.
Methods: Retrospective study of consecutive patients submitted LBBAP since November 2021 at a single center. Procedural characteristics, lead parameters and final QRS complex duration were collected immediately after implantation and during follow-up. LBBA pacing aimed to achieve right bundle branch block pattern in V1during pacing and left ventricular activation time (LVAT) < 90 ms.
Results: Overall, 53 consecutive patients were included (mean age was 76 ± 13 years and 62% male sex). Procedural duration was 65 min (IQR 52-83) and fluoroscopy time was 4 min (IQR 3-6). Median LVAT was 86 ms (IQR 80-93) and QRS immediately after implantation was 112ms (IQR 105-126). Acute R-wave amplitude and pacing threshold were 7.3 mV (IQR 4.1-15.3) and 0.6mV (IQR 0.50-0.73), respectively. One case of in-hospital ischemic stroke associated with withholding anticoagulation in a patient with atrial fibrillation. No other major complications, including electrode dislocation were reported at discharge. After a median follow-up of 4 (IQR 2-8) months, pacing threshold remained stable at 0.6 mV (IQR 0.5-0.72) and R-wave amplitude increased to a median of 14.9 mV (IQR 10.2-20.0) and QRS complex duration remained narrow at follow-up (113 ms [IQR 95-132]).

Figure 1. Lead parameters and final QRS complex duration were collected immediately after implantation and during follow-up.



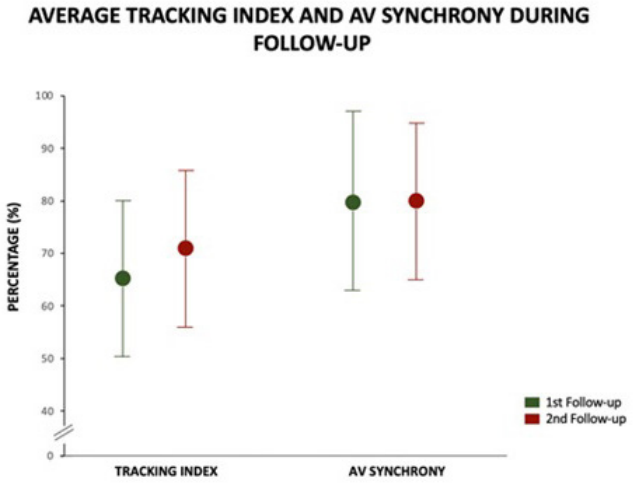
Conclusions: In this cohort, LBBAP was feasible and with exceptional pacing parameters that remained stable during follow up. Most relevant, QRS duration, a surrogate for ventricular synchrony, remained short, further supporting the role of this technique for the near future.

CO 38. ATRIOVENWTRICULAR-SYNCHRONOUS LEADLESS PACEMAKERS: A SINGLE CENTER EXPERIENCE

Rita Reis Santos, Daniel Gomes, Diogo Cavaco, João Carmo, Mariana S. Paiva, Pedro M. Lopes, Daniel N. Matos, Gustavo R. Rodrigues, Maria Salomé Carvalho, Francisco M. Costa, Pedro Galvão Santos, Pedro Carmo, Francisco B. Morgado, Pedro Adragão

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

Introduction: Leadless pacemakers allow atrioventricular (AV) synchronous pacing using a new software to detect atrial contraction with a 3-axis accelerometer. Notwithstanding, evidence supporting its use is still scarce and only limited real-world data have been reported.
Objectives: To evaluate the feasibility and to describe pacing outcomes of AV-synchronous leadless pacemakers.
Methods: Consecutive patients with AV block referred to leadless pacemaker Micra™ at single center between June 2020 and November 2022 were retrospectively included. Patients were evaluated at two distinct times during follow-up and parameters from sensed atrial tracking were calculated: tracking index (atrial mechanical sense followed by ventricular pace [AM-VP] divided by total VP) and total AV synchrony (sum of AM-ventricular sense [AM-VS], AM-VP, and AV conduction mode switch).
Results: A total of 43 patients (mean age 78 ± 11 years; 72% male) were included. Pacing indication was complete AV block in 29 patients (67%) and high-grade AV block in the remaining 14 (33%). Mean implantation and fluoroscopy times were 48 ± 22 minutes and 4.5 ± 3.9 minutes, respectively. One major peri-procedural complication was reported: a cardiac tamponade, treated with pericardiocentesis. The first outpatient visit occurred at a mean follow-up of 3.2 ± 4.1 months after the implantation procedure. Overall, at the first screening, 47% of patients required at least 50% pacing; mean tracking index was 65 ± 16% and mean total AV synchrony was 80 ± 18%. Specific pacemaker parameters were adjusted according to physician's discretion, namely A3 and A4 thresholds and A3 window. Thirty-seven patients performed 2 follow-up visits, 8 ± 5 months after the first visit. In comparative analysis between both follow up times, mean total AV synchrony remained stable (80 ± 17% *vs.* 80 ± 15%, p = 0.970) and there was a numerical improvement of tracking index by 6 ± 13% (65 ± 15% *vs.* 71 ± 16%, p = 0.059). During the follow-up, 7 patients (16%) died, none related to the procedure nor the device.



Conclusions: Implantation of AV-synchronous leadless pacemakers is feasible and safe. In our cohort, there was anumerical increased of atrial tracking and a stability of AV synchrony during follow-up.

CO 39. LEAD EXTRACTION OF VERY OLD LEADS USING THE PISA TECHNIQUE - EXPERIENCE OF A PORTUGUESE TERTIARY CARE CENTER

André Paulo Ferreira, Bruno Tereno Valente, Pedro Silva Cunha, Guilherme Portugal, Paulo Osório, Ana Lousinha, Sérgio Laranjo, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: The "Pisa Technique" (PT) is an increasingly used method of lead extraction (LE) and is associated with the lowest rate of complications reported in the ELECTRa Registry. Lead dwell time has been recognized as the highest risk factor for extraction failure and procedure-related complications.
Objectives: To investigate the safety and efficacy of LE, using the PISA technique, of very old cardiac implantable electronic devices (CIED) leads.
Methods: Patients submitted to LE of very old leads (with an implant duration of more than 10 years) between February 2013 and October 2022 (Old group), were compared with a contemporary cohort of patients subjected to LE of leads with a shorter implant duration (New group). The PT was used in all patients. Demographic, clinical, and patient-related variables, complications, mortality, and reimplantation data were assessed.
Results: A total of 150 very old leads were removed from 86 patients in the Old group, and a total of 305 leads were removed from 171 patients in the New group during the study period. Regarding the former baseline characteristics, patient mean age was 69.5 ± 16.9 years, 82.6% were male. Nine patients (10.5%) had cardiac resynchronization devices, 11 (12.8%) implantable cardioverter-defibrillator devices, and 66 (76.4%) pacemaker systems (mostly DDD). Of the total LE in the Old group, 88.4% were due to CIED infection (44.1% with valvular or lead endocarditis) *vs.* 75.9% (p = 0.464) *vs.* the New group. The mean "age" of the extracted leads was 163.7 ± 53.4 *vs.* 46.6 ± 34.9 months, and they were less of active fixation in the Old group 35.2% *vs.* 58.9%, p < 0.01. A previous attempt of LE had been done in 5.8% *vs.* 11.1% (p = 0.172) of the patients, there were more previous generator replacements in the Old group 67.4% *vs.* 23.7% (p < 0.01). The radiographic success rate of the attempted lead extractions was similar between both groups 90.7% *vs.* 96.5% (p = 0.063). The clinical success rate was slightly lower in the Old group 95.3% *vs.* 99.4% (p = 0.031). The procedure major complications rate in the Old group was 2.3% (there were 2 cases of cardiac tamponade that required sternotomy with no laceration of the SVC observed) *vs.* 1.2% (p = 0.294) in the New group. Minor complications occurred in 11.6% *vs.* 8.8% (p = 0.466) of the LE (mostly comprised of infected pocket hematomas). No deaths occurred during the procedures, and there was no extraction-related mortality in both groups.

	Old leads	<10 years leads	p-value
Mean "age" of the leads (months)	163.7±53.4	46.6±34.9	
CIED infection	88.4%	75.9%	p=0.464
Leads of active fixation	35.2%	58.9%	**p<0.01**
Radiographic success	90.7%	99.4%	p=0.063
Clinical success	95.3%	99.4%	**p=0.031**
Major complications	2.3%	1.2%	p=0.294
Minor complications	11.6%	8.8%	p=0.466

Table 1 – Comparison of the extraction of leads with implant duration of more and less than 10 years

Conclusions: Our center's experience with the PISA technique confirms the method's safety and feasibility for the percutaneous extraction of very old CIED leads.

CO 40. MYOCARDIAL SCAR CHARACTERISTICS BY 3D-LGE CANNOT FULLY EXPLAIN DIFFERENT ARRHYTHMIC EVENT RATES IN PRIMARY AND SECONDARY PREVENTION OF SUDDEN CARDIAC DEATH

Ana Rita Bello[1], Rita Amador[1], Pedro Freitas[2], Sara Guerreiro[2], João Abecasis[2], Daniel Matos[2], Gustavo Rodrigues[2], João Carmo[2], Pedro Galvão Santos[2], Francisco Moscoso Costa[2], Salomé Carvalho[2], Pedro Carmo[2], Diogo Cavaco[2], Francisco Morgado[2], António Ferreira[2], Pedro Adragão[2]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital Egas Moniz. [2]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: There is a noticeable difference in the incidence of ventricular arrythmias among patients receiving defibrillator devices (ICD or CRT-D) for primary *vs.* secondary prevention of sudden cardiac death (SCD). The underlying reasons for this difference remain to be fully explained.
Objectives: To assess for differences in myocardial scar characteristics between patients who had defibrillator devices implanted in primary *vs.* secondary prevention scenarios, and their correlation with arrhythmic events.
Methods: In this single center retrospective study, patients who underwent late gadolinium enhancement (LGE) cardiac MRI for clinical purposes before the implantation of an ICD or CRT-D were included. Patients with channelopathies (n = 2) or inappropriate imaging quality (n = 7) were excluded. We used ADAS software to perform myocardial scar characterization in 3D-LGE datasets in all but 16 patients, in which 2D datasets were used. The primary endpoint was a composite of appropriate ICD therapy (appropriate shock or ATP), sustained ventricular tachycardia or SCD.
Results: A total of 116 patients (mean age 66 ± 14 years, 81% male) were included, 40 (35%) with devices implanted in secondary prevention. During a median follow-up of 28 months (IQR 16-24), 23 events were identified (18 appropriate ICD therapy, 9 shocks and 9 ATP; 2 SCD; 3 sustained VT), 7 of which (30.4%) in the primary prevention group, and 16 (69.6%) in the secondary prevention group. The event rate was significantly higher in the secondary prevention setting (15.0 events per 100 persons-year [95%CI 7.7-22.4] *vs.* 4.1 events per 100 persons-year [95%CI 1.1-7.1]; p < 0.001). Despite a higher LVEF in the secondary prevention group (41 ± 14% *vs.* 30 ± 13%; p-value < 0.001), no statistically significant differences were found regarding scar tissue characteristics, namely scar and borderzone (BZ) mass, total channel mass, largest channel mass, number of channels and scar heterogeneity (BZ mass/scar mass ratio) (Figure).
Conclusions: Despite the higher event rate in patients receiving defibrillator devices in secondary *vs.* prevention, no differences in myocardial scar characteristics were found between both groups. These findings suggest that arrhythmic risk is unlikely to be explained solely by the anatomical substrate and support a greater role for the interplay between substrate and transient triggers.

Sexta-feira, 14 Abril de 2023 | 13:00-14:00

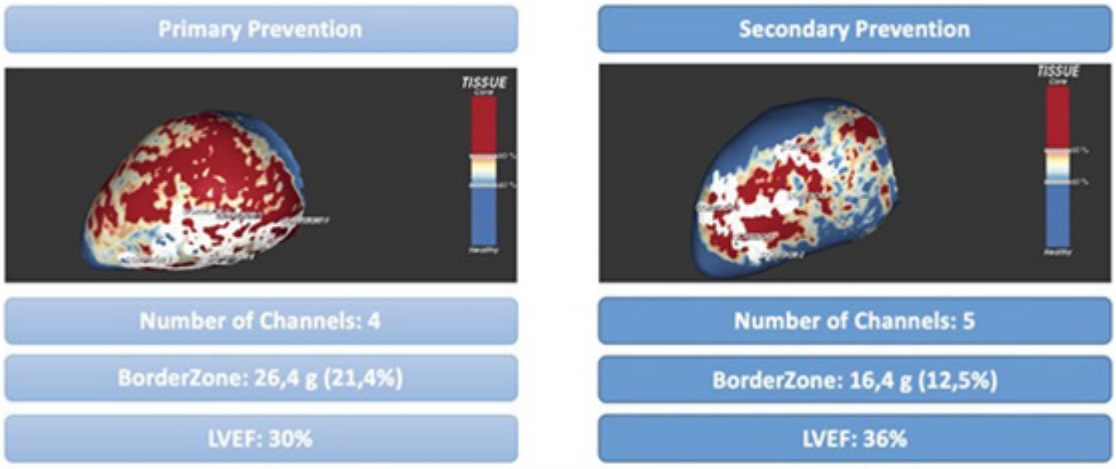
Sala Vega | Comunicações Orais - Sessão 09 - Técnicos e Enfermeiros

CO 41. THE INFLUENCE OF A NURSE-LED CARDIAC REHABILITATION PROGRAM ON QUALITY OF LIFE AND FUNCTIONAL CAPACITY OF PATIENTS WITH HEART FAILURE

Cecília Almeida, Andreia Soares, Sara Gonçalves

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Heart Failure (HF) is a growing health problem worldwide, characterized by typical signs and symptoms that negatively and often significantly interfere with the functional capacity and quality of life of patients. Multidisciplinary team programs and Cardiac Rehabilitation (CR) are important tools and Class I and IIa for the management of patients with HF. In this context and based on current guidelines that recommend exercise programs, systematic education and lifestyle change, a nurse-led home-based rehabilitation program aimed for HF patients was developed.



	Primary Prevention	Secondary Prevention	p-value
Scar + BZ mass (g)	26.2 (IQR 13.3 – 35.0)	23.7 (IQR 11.4 – 33.4)	p = 0.322
Scar + BZ (%)	18.0 (IQR 11.0 – 27.0)	17.0 (9.0– 26.0)	p = 0.545
BZ mass	17.7 (IQR 11.1 – 24.2)	14.8 (IQR 8.8 – 22.0)	p = 0.350
BZ (%)	13.0 (IQR 8.0 – 18.0)	11.0 (IQR 6.0 – 17.0)	p = 0.677
Scar mass	6.6 (IQR 3.4 – 11.0)	6.9 (IQR 2.0 – 10.3)	p = 0.693
Scar (%)	4.0 (IQR 2.0 – 9.0)	5.0 (IQR 1.0 – 8.0)	p = 0.695
Scar heterogeneity	2.4 (IQR 1.7 – 3.9)	2.7 (IQR 1.5 – 4.4)	p = 0.797
Total channels mass	3.0 (IQR 0.7 – 4.9)	1.8 (IQR 0 .0– 5.0)	p = 0,215
Biggest channel mass	1.4 (IQR 0.5 – 2.5)	0.8 (IQR 0.0 – 3.0)	p = 0.163
Number of channels	3.0 (IQR 1.0 – 5.0)	3.0 (IQR 0.0 – 5.0)	p = 0.520

CO 40 Figure

Objectives: This study was conducted to determine the influence of a nurse-led home-based CR program on quality of life and functional capacity in patients with HF.
Methods: A Prospective study was carried out on patients admitted with HF, considered eligible and with no contraindication by HF specialist. After patients informed consent, sociodemographic data were collected and exercise and education sessions were carried out during hospitalization. Upon discharge, they were advised a home exercise program with the aim of a maximum intensity of 3-4 (modified Borg scale) and a maximum increase of 30 beats in heart rate at rest. Over the course of 12 weeks, regular contacts were made to monitor the program. At the beginning and at the end of the program, functional capacity was evaluated with 6 Minute Walk Test (6MWT) and 1 Minute Sit-to-Stand Test (1MSST) and quality of life assessed (Kansas City questionnaire).
Results: Non-probabilistic sample of 17 patients, with mean age of 55.0 ± 9.7 years and who were mostly male (84.2%) was evaluated. Mean ejection fraction was 28.7 ± 8.9% and the predominant etiology was tachycardia-induced heart disease (29.4%). There were 10.4 ± 1.2 follow ups per participant, and it was found that, in average, each one performed 4.5 ± 1.1 exercise sessions per week, with no reports of adverse events. In functional capacity, increments were verified in the 6MWT (364.5 ± 63.5 meters *versus* 480 ± 82.9 meters; p = 0.002) and 1MSST (17.8 ± 3.9 stands *versus* 23.8 ± 3.8 stands; p = 0.002). In the quality of life index, a significant increase was also verified (81.6 ± 18.7 *versus* 112.1 ± 11.9; p = 0.003).
Conclusions: The results showed an improvement in the functional capacity and quality of life of the participants, which suggests that nurse-led home-based CR program is safe and could represent a pivotal role in addition to the standard care, in valuing the self-management of the disease, in the follow-up of the patient/family during the post-discharge period and as an alternative tool to promote and encourage physical exercise.

CO 42. CAPACIDADE DE AUTOCUIDADO DOS DOENTES COM DIAGNÓSTICO DE INSUFICIÊNCIA CARDÍACA INTERNADOS NUM SERVIÇO DE CARDIOLOGIA

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Introdução: A Insuficiência Cardíaca (IC) é considerada um grave problema de saúde pública em todo o mundo. Os custos, a prevalência e a complexidade do tratamento da IC estão a aumentar, juntamente com o envelhecimento da população. Identificar e apoiar o acesso do doente a intervenções que sejam clinicamente custo-efetivas, será necessário para otimizar o uso de recursos. A capacitação do doente para o autocuidado (AC) é uma estratégia fundamental de forma a reduzir os internamentos e melhorar a qualidade de vida. O Enfermeiro Especialista em Enfermagem de Reabilitação (EEER) tem que, no seu corpo de competências específicas, contribuir para a capacitação dos doentes em estratégias de AC.
Objetivos: Avaliar a capacidade de AC dos doentes com diagnóstico de IC há pelo menos 6 meses, internados num Serviço de Cardiologia por IC crónica agudizada, não integrados em programas multidisciplinares de tratamento da IC.
Métodos: Estudo descritivo transversal de índole quantitativa, utilizando a Escala Europeia de Autocuidado (EEAIC).
Resultados: A amostra é constituída por 54 doentes (n = 54), 70% do sexo masculino (n = 38), com média de idade de 70 anos ± 11 anos, com baixa escolaridade, tendo 72% apenas escolaridade primária. A etiologia mais prevalente foi a isquémica, em 43% dos casos (n = 23) e a fração de ejeção do ventrículo esquerdo foi em média de 36 ± 12,5%. Cerca de 41% dos doentes apresentaram dependência de terceiros para as atividades de autocuidado. Verificámos uma capacidade de AC média de 33,2 ± 17,6, sendo que 12 representa a melhor capacidade de AC e 60 a pior. Na dimensão de *compliance* obtivemos uma média de 5,2 (2 representa melhor capacidade de AC e 10 pior). Na dimensão de «procura de ajuda» uma média de 14,4 (5 para melhor AC e 25 para pior AC) e na dimensão de «atividades de adaptação» uma média de 6,8 (2 para melhor AC e 10 pior AC).
Conclusões: Com base nos resultados e nas competências específicas da área de intervenção do EEER considera-se importante o desenvolvimento de um projeto que contribua para a melhoria do AC da pessoa com IC, nomeadamente, nos domínios de *compliance*, atividades de adaptação e procura de ajuda, assim como para a melhoria da acessibilidade aos cuidados de saúde. Acredita-se que com isto se possa perspetivar uma redução significativa da taxa de reinternamentos e melhorar a qualidade de vida dos doentes e suas famílias.

CO 43. HEALTH LITERACY IN HEART FAILURE - THE PORTUGUESE REALITY IN 2022

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Introduction: Heart failure (HF) is a growing health problem worldwide and despite the increase in public awareness observed in recent years, HF symptoms are often not early recognised leading to a late diagnosis, higher rates of hospitalization and mortality. Health literacy (HL) focuses on people's ability to access, understand and use health information to contribute to its promotion and maintenance. Low HL is associated with a lower demand for health services for prevention, lower self-management and treatment, leading to a late search for medical advice and increased rates of adverse events.
Objectives: To evaluate the level of HL regarding HF in a Portuguese population.
Methods: A prospective study based on the information collected through the application of a questionnaire was performed by a multidisciplinary heart failure team.
Results: We prospectively evaluated 328 individuals recruited at a local cardiovascular screening event in May 2022. 52.4% in the 65-80 years age group, and 28% in the age group of 41-65 years; 64.6% were male. About 88.1% of individuals recognized that they have heard about HF, 64.3% considered that it threatens people's lives and 44.9% believed that it causes symptoms which may limit quality of life. Nevertheless, only 13.1% correctly identified symptoms of HF and 86.9% of the individuals confused HF symptoms with acute myocardial infarction and/or stroke symptoms. Risk factors are recognised by more than 50% of the participants but 12.6% were not able to identify any risk factor. Although 62.6% considered that in the face of HF symptoms primary care help and evaluation should be sought, 44.2% admitted that they would directly go to the emergency department. About 82.9% recognized health professionals as a reliable source of information, with 47.1% using the internet and other media and 14.7% confess they consult friends and family for health advice. Higher levels of education, sex and a younger age were not related to a better level of HL.
Conclusions: Despite the recent efforts regarding increasing public HF awareness, symptoms keep being under-recognized by the Portuguese population and often confused with other cardiovascular diseases. It keeps necessary to improve population HF knowledge in order to promote prevention, early diagnosis and timely medical treatment which may contribute to improve prognosis.

CO 44. CARDIAC REMODELLING AND REVERSE REMODELLING IN PREGNANCY: WHAT IS THE IMPACT OF CARDIOVASCULAR RISK FACTORS?

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Introduction: Pregnancy-induced cardiac remodelling (CR) is characterized by non-pathological left ventricle (LV) hypertrophy and left-atrium

enlargement. After delivery, the woman's heart undergoes reverse remodelling (RR) and myocardial function and structure normalization. Currently, the impact of cardiovascular risk (CVR) factors in CR and RR remains to clarify.

Objectives: To characterize CR and RR during pregnancy and postpartum, respectively, as well as to investigate the impact of CVR factors in these processes.

Methods: Pregnant women healthy and with CVR factors (obese, hypertensive and/or with gestational diabetes) were recruited in two tertiary centres between 2019 and 2021. Women were evaluated by transthoracic echocardiography during [1st trimester,1T: 10-15 weeks; 3rd trimester,3T: 30-35 weeks] pregnancy and in 1st and 6th months after delivery. Kruskal-Wallis/Wilcoxon test and Friedman tests were used for between and within groups comparisons, respectively.

Results: We included 125 pregnant women with a median age of 34 [21;44] years, 46% having CVR factors. As shown in Table, pregnant women tended to develop eccentric hypertrophy from 1T to 3T, characterized by a significant increase in LV mass index (LVMi, $p < 0.001$) and relative wall thickness (RWT, $p = 0.034$), accompanied by atrial and ventricular enlargement (1T to 3T, $p < 0.001$ and $p < 0.001$, respectively). A significant rise in filling pressures was also documented during gestation (E/e', $p < 0.001$). During postpartum, LVMi and indexed left atrial and ventricular volumes normalized as soon as 1 month after delivery ($p = 0.012$, $p < 0.001$ and $p < 0.001$, respectively). Ventricular filling pressures also normalized 1 month after delivery ($p < 0.001$). LV systolic function remained preserved (ejection fraction, $p = 0.174$). These structural adaptations during RR were accompanied by a significant reduction of C-Reactive Protein (CRP, $p < 0.001$), IL33/ST2 ($p < 0.001$) and procollagen type I c-terminal propeptide (PICP, $p < 0.001$) from 3T to 6 months after delivery. Compared to the healthy pregnant women, the group with CVR factors showed higher RWT in all follow-up moments, but similar values of indexed cardiac volumes. This group also displayed higher values of LVMi when compared with healthy women 6 months after delivery ($p = 0.036$). Pregnant women with CVR factors revealed deterioration of diastolic function (E/e',1st month, $p = 0.002$; 6th month, $p = 0.010$). Higher values of CRP ($p = 0.016$), IL33/ST2 ($p = 0.021$) and PICP ($p = 0.005$) were reported in pregnant women with CVR factors when compared with the healthy group at 3T.

Conclusions: All cardiac parameters studied seemed to recover as soon as 1 month after delivery and were associated with a reduction of inflammatory and extracellular matrix turnover biomarkers. Pregnant women with CVR factors showed higher RWT and diastolic deterioration when compared with healthy women.

Table 1: Echocardiographic assessment in total cohort sample.

	1st Trimester	3rd Trimester	1 month after delivery	6 month after delivery	p-value
Left Ventricular Mass Index [g/m²]	61 [32;81]	72 [43;101]	64 [44;105]	59 [42;93]	<0.001
Relative Wall Thickness	0.32 [0.22;0.48]	0.35 [0.24;0.49]	0.32 [0.22;0.44]	0.31 [0.22;0.46]	<0.001
Left Atrial Volume Index [mL/m²]	24 [18;34]	28[20;45]	23 [13;35]	22 [13;32]	<0.001
Left Ventricular Diastolic Volume Index [mL/m²]	47 [34;65]	54 [35; 75]	48 [37;66]	47 [31;62]	<0.001
Left Ventricular Systolic Volume Index [mL/m²]	18 [13;26]	21 [13;34]	19 [14;24]	19 [11;29]	<0.001
Heart Rate (bpm)	72 [55;97]	81 [59;102]	59 [45;84]	64 [44;79]	<0.001
Ejection Fraction (%)	62 [51;70]	60 [51;72]	62 [50;68]	61 [51;73]	0.174
Global Longitudinal Strain (%)	-22.7 [-30.7;-18.8]	-22.3 [-28.0;-16.5]	-21.7 [-29.2;-17.9]	-21.1 [-27.4;-16.7]	0.525
Global Circumferential Strain (%)	-30.4 [-38.1;-24.7]	-31.9 [-37.1;-21.6]	-29.4 [-34.2;-25.4]	-29.8 [-37.1;-25.9]	0.769
E/e'	5.8 [3.9;8.7]	6.4 [0.6;8.6]	5.6 [3.6;10.4]	5.6 [3.5;8.2]	<0.001

Values expressed by median [min; max].

CO 44 Figure

CO 45. DIAGNOSTICAR PRECOCEMENTE A DOENÇA VASCULAR PULMONAR - PARA ALÉM DA AVALIAÇÃO EM REPOUSO

Débora Repolho, Filipa Ferreira, Otilia Simões, Sofia Alegria, Ana Cláudia Vieira, Rita Calé, Sílvia Vitorino, Pedro Santos, Bárbara Ferreira, Mariana Martinho, João Luz, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introdução: A doença vascular pulmonar (DVP) é muitas vezes diagnosticada tardiamente quando se apresenta com hipertensão pulmonar (HP). Os exames complementares de diagnóstico mais frequentemente utilizados avaliam o sistema cardiovascular em repouso, embora os primeiros sintomas se manifestem durante o esforço. A prova de esforço cardiorrespiratória (PECR) é um instrumento de excelência para avaliar os mecanismos fisiopatológicos que levam à intolerância ao exercício e permite identificar doentes com probabilidade elevada de DVP numa fase precoce. Recentemente o cateterismo cardíaco direito com esforço (CCDE) surgiu como nova ferramenta que permite avaliar a hemodinâmica durante o exercício e detetar DVP precoce (HP de esforço), através do declive da curva (*slope*) entre a pressão média na artéria pulmonar (PAPm)/débito cardíaco (DC) > 3 mmHg/L/min.

Objetivos: Avaliar a resposta ao esforço em doentes (dts) com risco elevado de DVP através de PECR e CCDE.

Métodos: Estudo prospetivo que incluiu dts avaliados em consulta de hipertensão pulmonar sintomáticos (dispneia de esforço) com doença tromoembólica confirmada, mas com hemodinâmica normal em repouso e que aceitaram investigação adicional com PECR e CCDE. A PECR foi realizada em passadeira rolante (protocolo de Bruce Modificado ou Bruce, de acordo com capacidade física) e o CCDE foi realizado em decúbito dorsal com recurso a uma pedaleira (protocolo incremental de 10 Watt a cada 3 minutos até aos 50 watt).

Resultados: Entre abril e novembro de 2022 foram incluídos 10 doentes (dts), 90% do sexo feminino, idade média 63 ± 11 anos, 50% doença tromboembólica crónica, 50% HP tromboembólica crónica curada, 70% dts apresentaram alterações sugestivas de DVP na PECR ($_{DVP}$PECR) definida como: eficiência ventilatória (*VSlope*) > 31 e pressão parcial de CO2 no final da expiração (PETCO2) < 37 mmHg. 60% dos dts cumpriram critérios de hipertensão pulmonar com esforço com *slope* PAPm/DC > 3 mmHg/L/min. O quadro em anexo apresenta os parâmetros avaliados durante a realização da PECR e do CCDE. Os dts com HP de esforço apresentaram *Vslope* mais elevado (37,6 ± 6,1 *vs.* 31,6 ± 4,1, p = 0,132) e PETCO2 inferior (33,8 ± 4,3 *vs.* 36,2 ± 4,3, p = 0,412). Verificou-se correlação entre o *VSlope* e DC pico (t = -0,494, p = 0,048) e resistência vascular pulmonar total (RVP_T) pico e $_{DVP}$PECR (t = 0,562, p = 0,039).

PECR - Parâmetros	Repouso	Esforço - pico
RT		Adequada em 90% dts
RC		Adequada em 100% dts
ΔFC 1' rec		30,6±9,9 bpm
VO2		18,4±4,5 mL/Kg/minuto
%VO2		86,1±20,0%
VE/VCO2 - *slope*		35,2±6,0
PETCO2	30,3±2,8 mmHg	34,8±4,2 mmHg
ΔPETCO2		4,5±4,1
QR		1,1±0,1
SpO2	98,6±1,6%	98,2±1,4%
ΔSpO2		-0,4±0,8
RR		Esgotada em 50% dts
Pulso de O2		Crescendo em 80% dts
CCDE - Parâmetros		
PAPm	18,0±4,9 mmHg	31,4±11,2 mmHg
AD	4,5±3,4 mmHg	
CPE	9,0±3,3 mmHg	12,8±4,4 mmHg
DC	5,3±1,8 L/min	9,0±2,3 L/min
IC	2,8±0,8 L/min/m^2	4,84±0,9 L/min/m^2
RVP	1,8±0,6 U wood	2,1±1,1 U wood
RVP_T	3,7±1,5 U wood	3,8±2,0 U wood
Δ SpO2 cat esf		-0,0±2,7
slope PAPm/DC		4,7±5,5

AD – aurícula direita; CPE – capilar pulmonar encravado; DC – débito cardíaco; IC – índice cardíaco; QR – quociente respiratório; PAPm – pressão na artéria pulmonar média; PETCO2 – pressão parcial de CO2 no final da expiração; RC – resposta cardíaca; RR – reserva respiratória; RT – resposta tensional; RVP – resistência vascular pulmonar; RVP_T – resistência vascular pulmonar total; ΔFC 1' rec – variação da frequência cardíaca ao primeiro minuto da recuperação; ΔPETCO2 – variação da pressão parcial de CO2 no final da expiração; ΔSpO2 – variação da saturação O2; Δ SpO2 cat esf – variação da saturação O2 durante o cateterismo de esforço; VE/VCO2 – *slope* – eficiência ventilatória; VO2 – consumo de O2;

Conclusões: Embora os dados obtidos não possam ter valor preditivo, podemos concluir que a PECR e o CCDE podem ser ferramentas úteis na avaliação de doentes com dispneia de esforço e risco elevado para hipertensão pulmonar, por permitirem detetar doença vascular pulmonar precocemente. São necessários mais estudos e com *follow-up* alargado, para validação destes resultados.

Sexta-feira, 14 Abril de 2023 | 14:00-15:00

Sala Vega | Comunicações Orais - Sessão 10 - Hipertensão pulmonar tromboembólica crónica

CO 46. BALLOON PULMONARY ANGIOPLASTY FOR CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION: 5 YEARS OF EXPERIENCE IN A PORTUGUESE PULMONARY HYPERTENSION REFERRAL CENTER

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Introduction: Balloon pulmonary angioplasty (BPA) is an establish alternative therapy in chronic thromboembolic pulmonary hypertension (CTEPH) patients (pts) with residual pulmonary hypertension (PH) after pulmonary endarterectomy (PEA) or inoperable disease. The aim of this study was to evaluate the effectiveness and safety of BPA in the first 5 years of experience in a Portuguese PH referral center.
Methods: Prospective single-centre study that included all BPA sessions performed in CTEPH pts from 12/2017 to 12/2022. Clinical assessment including WHO functional class, plasma biomarkers, Doppler echocardiogram, 6 minutes walking test (6MWT) and right heart catheterization was performed at baseline, 6-months and > 3 years after the last session. Life-threatening complications related with the procedure were defined as death in the first 30 days, need of invasive ventilation or circulatory support. Major complications were vascular complications requiring surgical or percutaneous intervention or contrast nephropathy requiring dialysis. Lung injury and hemoptysis was also assessed.
Results: A total of 103 sessions were performed in 21 CTEPH pts (mean age 64.6 ± 14.8 years, 66.7% female): 15 inoperable and 6 with residual PH after PEA. 14 pts completed the program (median of 5.5 sessions per pt; mean of 24.8 ± 8.1 vessels treated per pt). At baseline, 85.7% were treated with pulmonary vasodilator therapy (including 5 pts under intravenous prostacyclin analogs) and 35.7% (5 pts) were under long-term oxygen therapy. At 6-months follow-up (Table), there were significant improvements in WHO functional class, 6MWT, right ventricular function and hemodynamic: 25.7% decrease in mean pulmonary artery pressure (p = 0.016) and 42.1% decrease in pulmonary vascular resistance (p = 0.012). Prostacyclin analogs and long-term oxygen therapy were withdrawn in 4 pts. Vascular lesions occurred in 8 sessions (7.8%): but only 3 pulmonary artery perforation required percutaneous treatment (prolonged balloon inflation). Hemoptysis occurred in 6 sessions (5.8%) and lung injury occurred in 6 sessions (5.8%, all grade 2). There was 4.9% contrast nephropathy, with no need of dialysis. There were no life-threatening complications. After a mean follow-up of 42.5 ± 17 months, survival was 92.9% (one pt died of malignancy 28 months after beginning BPA).

Table 1. Clinical, echocardiographic and hemodynamic parameters

Variable	Baseline (Beginning of BPA program)	6 months follow-up (N=14)	Long-term follow-up (N=6)	Baseline vs 6 months FUP p-value	6 Months vs Long-term FUP p-value
Clinical characteristics					
WHO FC I/II/III/IV	0/9/5/0	11/3/0/0	5/1/0/0	**<0.001**	0.189
6MWT, m	419 ± 48	460 ± 53	400 ± 126	**0.021**	0.273
NT-proBNP, pg/mL	229 (132-699)	179 (109-438)	236 (107-490)	0.136	**0.022**
Echocardiographic characteristics					
RA volume, ml	76.1 ± 47.4	48.9 ±1 8.4	53.3 ± 23.6	0.071	0.183
RV FAC, %	32.7± 11.9	41.8 ± 7.7	41.2 ± 4.3	**0.012**	0.942
TAPSE, mm	18.9 ± 5.2	21.2 ± 4.7	20.9 ± 4.2	0.112	0.554
RV S', cm/s	11.1 ± 3.4	12.4 ± 2.8	12.8 ± 3.5	0.081	0.326
LV diastolic EI	1.1 ± 0.2	1.0 ± 0.1	1.0 ± 0.0	0.086	0.244
LV systolic EI	1.3 ± 0.4	1.1 ± 0.2	1.0 ± 0.1	**0.029**	0.305
Hemodynamic characteristics					
Systolic PAP, mmHg	59.8 ± 20,5	46.7 ± 16.5	51.3 ± 22.5	**0.038**	0.664
Diastolic PAP, mmHg	26.0 ± 7.4	18.6 ± 6.5	18.8 ± 9.8	**0.012**	0.761
mPAP, mmHg	38.5 ± 12.7	28.6 ± 8.6	32.2 ± 11.2	**0.016**	0.404
Mean RAP, mmHg	6.1 ± 3.8	7.3 ± 3.3	7.0 ± 3.9	0.420	0.914
PVR, WU	5.7 ± 3.1	3.3 ± 1.4	4.0 ± 1.6	**0.012**	0.179
Cardiac Index, L/min/m²	2.8 ± 0.6	3.1 ± 0.9	2.6 ± 0.5	0.410	0.349
SvO_2, %	66.1 ± 8.7	72.2 ± 5.6	68.8 ± 4.8	**0.016**	0.528

6MWT: 6-min walk test; BPA: Balloon pulmonary angioplasty; EI; eccentricity index; FAC: fractional area change; LV: left ventricle; mPAP: mean pulmonary artery pressure; PVR: pulmonary vascular resistance; RAP: right atrial pressure; RV: right ventricle; SvO_2: mixed venous oxygen saturation; FUP: follow-up; WHO: World Health Organization

Conclusions: This study confirmed the safety and effectiveness of BPA in residual PH after surgery or inoperable CTEPH. These data encourage the development of the technique at a national level.

CO 47. MORE OPTIONS FOR CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION TREATMENT - BALLOON PULMONARY ANGIOPLASTY IS AFFIRMING IT'S ROLE.

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Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH) has bad prognosis without treatment. Pulmonary endarterectomy (PEA) is

a surgical procedure with curative potential for these patients (pts) and is the first line therapy when feasible. However, in this last decade, balloon pulmonary angioplasty (BPA) had increasing evidence of its efficacy and safety and it's gaining importance as a treatment strategy particularly in inoperable pts or in pts with residual or recurrent disease after surgery, reflected in the recently published guidelines.
Objectives: Compare different treatment strategies for pts with diagnose of CTEPH.
Methods: Longitudinal retrospective study, that included all CTEPH pts followed in a referral center for pulmonary hypertension (PH). Baseline clinical data including plasma biomarkers, transthoracic echocardiogram, 6 minutes walking test (6MWT) and right heart catheterization were collected. We created 3 groups depending on treatment strategy (PEA *vs*. BPA *vs*. pulmonary vasodilators) and clinical follow up and outcomes (death) were accessed.
Results: We included 66 pts with CTEPH (68% female, mean age 59.97 ± 15.28 years). 77.3% were in WHO functional class ≥ III. All the pts were presented to multidisciplinary team for consideration for PEA but only 33 (50%) were submitted to surgery either because they were technically inoperable (42.4%), had high risk for surgery (1.5%) or pts refused surgery (6.1%). From the other 33 pts that didn't have surgery, 13 pts completed BPA program and 20 pts were treated conservatively with pulmonary vasodilators. Differences between the groups are represented in the Table. Pre-treatment with pulmonary vasodilator therapies was done in 12.1% of pts assigned for PEA and 78.5% of pts assigned for BPA (p < 0.001). 6 months after treatment, residual pulmonary hypertension (defined as pulmonary vascular resistance of 4 WoodUnits) was present in 25.8% of PEA group, 25% of BPA group and 91% of medical therapy. Additionally, 5 pts performed BPA after PEA for treatment of residual pulmonary hypertension. Kaplan Meier survival curves showed that pts submitted to interventions (PEA or BPA) had better survival compared to medical therapy (Log-rank test p < 0.001), but the best survival curve is for pts submitted to BPA (Figure).
Conclusions: There are three different treatment strategies available for CTEPH. Interventional (either BPA or PEA) had better survival in our patient population compared to medical therapy alone, presenting BPA the best survival curve in our population. Randomized studies are needed to compare prognostic benefit of both interventional strategies.

CO 48. A TALE OF A DEADLY DUO - ESTIMATING PROGNOSIS IN CTD ASSOCIATED PH

Pedro Alves da Silva, Joana Brito, Beatriz Silva, Ana Margarida Martins, Catarina Simões Oliveira, Ana Beatriz Garcia, Ana Abrantes, Miguel Raposo, Catarina Gregório, João Fonseca, Tatiana Guimarães, Nuno Lousada, Rui Plácido, Fausto J. Pinto

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Introduction: Pulmonary arterial hypertension (PAH) is a severe complication of connective tissue disease (CTD), conveying a poor prognosis in this population. PAH specific therapies improved the outcome for PAH patients in the modern treatment era, but few data are available regarding risk stratification and prognosis in this specific pts. Pulmonary vascular compliance is diminished due to decreased proximal pulmonary arterial elasticity and increased distal pulmonary arterial vasculopathy. A recent paper proposed that pulmonary artery compliance (PAC) could be a marker of prognosis in Chinese patients with LES and PH, but its application in other CTD is yet to be confirmed.
Objectives: We aimed to identify factors that could influence mortality in this subset of pts and to determine if PAC could act as a valid predictor in pts with CTD other than LES.
Methods: Observational single centre retrospective study including pts followed in a reference hospital for PH related to CTD. Clinical, lab, echo and RHC data were collected at beginning and during FUP. Uni and multivariate analysis were performed with Cox regression and survival analysis was done using Kaplan Meyer curves.
Results: 48 patients with CTD and associated PH were gathered, mean age was 65.25 ± 14.4 years and female per male ratio 10:1 (9% male). Systemic sclerosis was the most prevalent CTD (52.1%), followed by LES and Sjögren sydrome. During a mean FUP of 5 years, 39.6% pts died (n = 39) and 43.8% were hospitalized (n = 21) due to CV cause. There were no statistical differences between different CTD aetiologies in respect to mortality and admissions. On univariate Cox analysis, NTproBNP (p < 0.001), alkaline phosphatase (p = 0.001); uric acid (p = 0.014), TAPSE/sPAP ratio (p = 0.015) and COMPERA at beginning FUP (p < 0.001) correlated with CV

		PEA (n=33)	BPA (n=14)	Medical therapy (n=20)	p-value*
Baseline evaluation	Mean age (years)	56.79±13.98	64.07±15.78	63.15±16.52	0.619
	Female (%)	66.6	64	75	0.756
	NT-proBNP (ng/L)	531 (128-1891)	1885 (513-4145)	1725 (224-3752)	0.075
	6MWT (m)	323.79±145.82	345.71±82.03	306.08±159.04	0.101
	PASP (mmHg)	86.34±28.68	93.64±24.01	84.15±28.65	0.704
	TAPSE (mm)	18.25±5.28	17.50±5.13	18.06±5.02	0.791
	CI (L/min/m2)	2.34±0.76	2.23±0.76	2.09±0.72	0.802
	mPAP (mmHg)	46.67±10.33	48.93±10.27	41.45±10.60	0.617
	RAP (mmHg)	8.55±5.19	9.57±5.35	9.32±7.18	0.576
	PVR (WU)	10.06±4.57	11.80±5.14	10.46±5.81	0.576
6 months reevaluation	NTproBNP (pg/mL)	197 (91-324)	114 (64-146)	943 (242-2742)	**0.002**
	6MWT (m)	434.29±98.19	433.00±91.42	338.57±125.49	0.831
	PASP (mmHg)	42.56±22.76	48.25±14.56	72.83±38.26	0.382
	TAPSE (mm)	16.72±3.14	23.64±4.08	19.67±6.21	0.427
	CI (L/min/m2)	2.58±0.57	3.20±1.03	2.72±0.74	**0.074**
	mPAP (mmHg)	25.91±9.53	28.75±7.92	41.00±8.96	0.406
	RAP (mmHg)	5.81±3.37	6.67±3.26	7.27±4.32	0.878
	PVR (WU)	3.85±2.42	3.67±1.41	7.16±3.45	0.248

***Table 1* Clinical characteristics of the patients submitted to pulmonary endarterectomy vs balloon pulmonary angioplasty vs medical therapy at baseline, and 6 months after treatment.**
Continuous variables are expressed as mean ± standard deviation with exception of NT-proBNP expressed as median, Q1 and Q3.
*Reported p-value concerns significance between PEA vs BPA.
Abbreviations: PEA – pulmonary endarterectomy; BAP – balloon pulmonary angioplasty; 6MWT – 6-minute walking test; PASP – pulmonary artery systolic pressure; TAPSE – tricuspid annular plane systolic excursion; CI – cardiac index; mPAP – mean pulmonary arterial pressure; RAP – right atrial pressure; PVR – pulmonary vascular resistance.

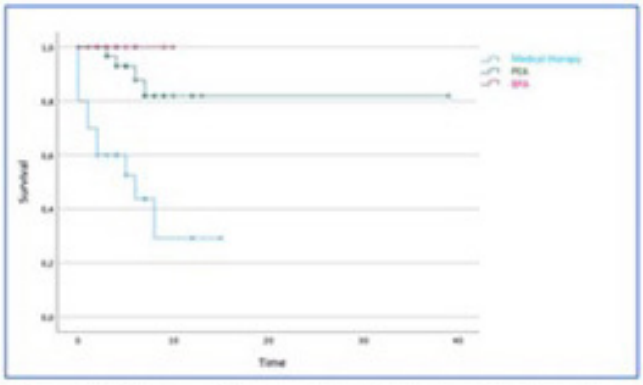
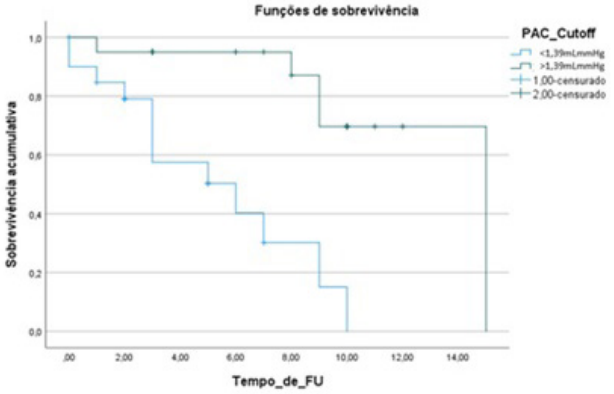


Figure 1 Kaplan Meier analysis showed that patients submitted to interventions (pulmonary endarterectomy or balloon pulmonary angioplasty) had better survival compared to medical therapy (Log-rank test p<0.001).

CO 47 Figure

events (composite endpoint of admissions and mortality). TAPSE/sPAP ratio < 0.55 has been described as a non-invasive marker of severity in PAH. After ROC curve analysis, TAPSE/sPAP ratio < 0.379 had the best specificity and sensitivity in our population. Pulmonary vasculature is a highly compliant system but pts with PAH have a lower PAC. PAC can be estimated by a simplified calculus, dividing stroke volume per pulse pressure. A cut-off of lower than 1.39mL/mmHg had been proposed as conveying worse prognosis and we thus divided our population using this value. In our cohort 40 pts had all the parameters at RHC that enabled calculation of PAC: 20 above and 20 below 1.39 mL/mmHg. Kaplan-Meyer analysis showed a significant difference between two groups (p = 0.001, 95%CI 6.82-11.1).



Conclusions: In this specific population NTproBNP, alkaline phosphatase, uric acid and COMPERA at beginning were predictors of CV events. In line with proposed pathophysiology, PAC showed to be a marker of severity and a previously proposed cut-off of 1.39 mL/mmHg revealed a positive association with prognosis not only in LES but in other CTD.

CO 49. ABDOMINOPELVIC CT FOR CANCER SCREENING IN PATIENTS WITH UNPROVOKED PULMONARY EMBOLISM - A CLOSED DISCUSSION?

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Introduction: Pulmonary embolism (PE) may be the earliest sign of cancer. Early diagnosis of malignancy leads to improved overall survival. ESC guidelines suggest a focused clinical assessment before proceeding to abdominopelvic computed tomography (CT) in patients with an unprovoked PE. However, there is insufficient evidence to draw conclusions on the effectiveness of screening for occult malignancy in these patients (pts). Our study aimed to establish whether routine abdominopelvic CT allowed earlier malignancy diagnosis and improved outcomes.
Methods: Retrospectively single-center study of pts admitted with PE diagnosis established by CT pulmonary angiogram and without a previous diagnosis of cancer, from 2019 to 2020. Clinical records were examined to establish whether routine abdominopelvic CT increased the detection rate of underlying malignancy.
Results: A total of 253 pts with PE diagnosis and no previous history of malignancy were included (42% male; mean age 68 years). Eighty-nine (35%) pts underwent abdominopelvic CT in order to exclude malignancy (of those, 87% performed the exam during the current hospitalization). Extended screening for malignancy was associated with a significantly longer hospital stay (13 ± 14 *vs.* 7 ± 8 days, p < 0.001). Anaemia or thrombocytopenia did not influence the decision for screening (p = 0.625). Thirteen out of 89 had evidence of malignancy on abdominopelvic CT (diagnostic profitability of 14%). The most diagnosed primary tumours were colorectal (39%), lung (15%) and ovarian (15%). About half of patients (54%) were diagnosed on stage IV (metastatic), 3 pts (23%) on stage III, and 1 patient for stages I and II. In the subgroup of pts in which malignancy screening was not performed, 7 pts (4%) were diagnosed with cancer during the follow-up (mean time difference between PE and diagnosis of 16 ± 7 months). Of those, 2 pts were diagnosed in stage IV and 3 pts in stage III. There was no difference in all-cause mortality between the group of patients who were submitted to routine abdominopelvic CT after unprovoked PE and those who were not (p = 0.145).
Conclusions: We found that the prevalence of occult cancer was high among pts with a first unprovoked PE. Even though routine abdominopelvic CT helps in the diagnosis of underlying malignancy it does so at advanced stages and does not provide a significant reduction in overall mortality.

CO 50. CTEPH: RELEVANCE OF THE NEW 2022 ESC/ERS DEFINITION OF PULMONARY HYPERTENSION AND IMPACT ON DIAGNOSIS ACCURACY BY RIGHT HEART CATHETERIZATION

Bárbara Lacerda Teixeira, André Grazina, Luís Almeida Morais, João Reis, Ana Galrinho, Francisco Albuquerque, Inês Ferreira, Miguel Antunes, Ricardo Carvalheiro, Duarte Cacela, Rúben Ramos, António Fiarresga, Rui Cruz Ferreira

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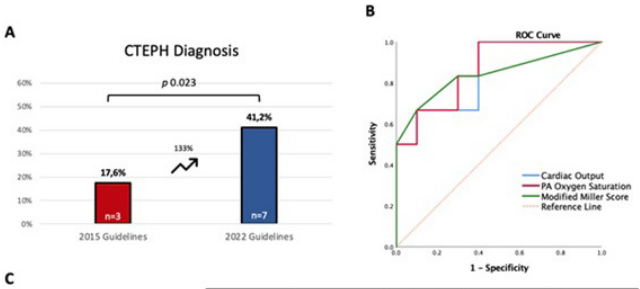
Introduction: The hemodynamic definition of pulmonary hypertension (PH) has been updated, lowering of the mean pulmonary arterial pressure (mPAP) threshold from 25 to 20 mmHg. Plus, pulmonary vascular resistance > 2 Wood units and pulmonary arterial wedge pressure < 15 mmHg are essential for the definition of pre-capillary PH according to the new 2022 ESC/ERS Guidelines. However, the impact of these revised criteria on the number of patients (P) reclassified as PH has not been extensively studied, namely in chronic thrombo-embolic pulmonary hypertension (CTEPH) population.
Objectives: To analyze the proportion of P reclassified as CTEPH according to the new 2022 ESC/ERS hemodynamic criteria in the subset of acute PE P treated with Catheter Directed Therapies (CDT) after 3 months of effective anticoagulation and to compare their clinical and hemodynamic profile.
Methods: A prospective registry of consecutive intermediate-high- and high-risk PE P submitted to CDT in a single tertiary center was used. Clinical, biomarkers, echocardiographic, CT, pulmonary angiogram and right heart catheterization (RHC) data were systematically collected at admission and 3 months after CDT. P were divided in groups according to the old and new hemodynamics criteria for PH. The predictive accuracy of RHC parameters were assessed w/a ROC curve analysis.



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RHC PARAMETERS	AUC	p	Cut-off according to Youden's index	Sensivity (%)	Specificity (%)
2015 GUIDELINES					
Modified Miller Score	0,726	0,231			
Pulmonary artery oxygen saturation in %	0,615	0,545			
Cardiac Output in L/min	0,718	0,253			
2022 GUIDELINES					
Modified Miller Score	**0,842**	**0,026**	2	83,3	70,0
Pulmonary artery oxygen saturation in %	**0,867**	**0,017**	69	83,3	70,0
Cardiac Output in L/min	**0,850**	**0,023**	5,2	71,4	90,0

Figure 1.

Results: 17 P (60% women, mean age 59 ± 16 years) had baseline and 3 months follow-up assessment and were included. Among these, 4 (23.5%) were reclassified to have pre-capillary PH, meaning that, at 3 months of follow-up, RHC showed that 7 P had PH according to the new guidelines instead of only

3 (41.2% *vs.* 17.6%, p = 0.023). Patients that developed CTEPH were more likely to be older (p = 0.014), female (p = 0.05), to have an acute-on-chronic PE presentation (p = 0.027) and to have a longer duration of symptoms (p = 0.018). No difference between groups in the type of CDT used. Regarding PH predictors in RHC, higher residual perfusion defects (assessed by modified Miller index), lower cardiac output (CO) and lower PA oxygen saturation showed diagnostic prediction for CTEPH according to the new guidelines but not according to previous ones. In ROC curve analysis, AUC for modified Miller was 0.814 with Sn of 71% and Sp 70% for a cut-off of 2, for CO was 0.871 with Sn of 71% and Sp 90% for a cut-off of 5.2 L/min and for PA oxygen saturation was 0.867 with Sn of 83% and Sp 70% for a cut-off of 69%.
Conclusions: The new 2022 ESC/ERS criteria for PH have led to a significant increase in patients classified as CTEPH after intermediate-high- and high-risk PE submitted to CDT. With the new cut-offs, among hemodynamic parameters at 3 months of PE patients submitted to CDT, residual perfusion defects, lower CO and lower PA oxygen saturation have shown to correlate with the presence of CTEPH. With the prevalence increase of CTEPH diagnosis, better care should be attended in the acute and chronic phases of this disease.

Sábado, 15 Abril de 2023 | 08:30-09:30

Sala Vega | Comunicações Orais - Sessão 11 - Síndromes coronárias agudas

CO 51. PRETREATMENT WITH PARENTERAL ANTICOAGULATION IN PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Francisco Albuquerque, Daniel Gomes, Jorge Ferreira, Pedro Lopes, Afonso Félix de Oliveira, Pedro de Araújo Gonçalves, Rui Campante Teles, Manuel de Sousa Almeida

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Introduction and objectives: According to ESC guidelines, parenteral anticoagulation is recommended for all patients presenting with ST-segment elevation myocardial infarction (STEMI) during primary percutaneous coronary intervention (PPCI). However, no specific recommendations are made regarding the timing of administration. In fact, whether upstream anticoagulation improves clinical outcomes in STEMI patients is not well established. We conducted a systematic review and meta-analysis of current evidence on parenteral anticoagulation timing for patients presenting with STEMI.
Methods: We performed a systematic search of electronic databases (PubMed, CENTRAL and Scopus) until December 2022. Studies were considered eligible if they a) compared upstream anticoagulation with administration at the catheterization lab; and b) enrolled patients with STEMI undergoing PPCI. Studies comparing different anticoagulants were excluded from the analysis. Random-effects meta-analyses were performed. Efficacy outcomes included TIMI flow-grade pre- and post-PPCI, in-hospital cardiogenic shock (CS) and 30-day all-cause mortality. Safety outcome was defined as major in-hospital bleeding events.
Results: Overall, 9 studies were included (all non-randomized), with a total of 69.571 patients (30.693 in the pretreatment arm). In all but one, anticoagulation strategy was exclusively based on unfractionated heparin. Pretreatment was associated with a significant reduction in the incidence of 30-day all-cause mortality (OR 0.61; 95%CI 0.47-0.80; p < 0.001) and in-hospital CS (OR 0.69; 95%CI 0.59-0.81; p < 0.001). Upstream anticoagulation was also associated with a significant increase of spontaneous reperfusion of the culprit artery before PPCI (pre-PPCI TIMI > 0: OR 1.47; 95%CI 1.35-1.60; p < 0.001) and TIMI flow ≥ 2 after coronary intervention (OR 1.28; 95%CI 1.05-1.56; p = 0.016). Regarding safety outcomes, pretreatment was not associated with an increase of in-hospital major bleeding (OR 1.01; 95%CI 0.70-1.44; p = 0.970). Multiple sensitivity analyses, including propensity-matched populations, showed consistent results.
Conclusions: Upstream anticoagulation was associated with a significantly lower risk of 30-day all-cause mortality, the incidence of in-hospital cardiogenic shock and improved reperfusion of the culprit artery. These benefits were not accompanied by an increased risk of major bleeding, suggesting an overall clinical benefit of early anticoagulation in patients presenting with STEMI. These results require confirmation in a randomized clinical trial.

CO 52. SYSTEMATIC REVIEW AND META-ANALYSIS ON THE EFFICACY AND SAFETY OF P2Y12 INHIBITOR PRETREATMENT FOR PRIMARY PCI IN STEMI

João Presume, Daniel Gomes, Jorge Ferreira, Francisco Albuquerque, Manuel S. Almeida, Miguel Sousa Uva, Carlos Aguiar, Miguel Mendes

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

Introduction: One of the cornerstones of antithrombotic therapy in patients with ST-segment elevation myocardial infarction (STEMI) is dual antiplatelet therapy (DAPT) with both aspirin and P2Y12 inhibitors, which is associated with better outcomes. Yet, the optimal timing for its initiation is still uncertain. The aim of this study was to perform a systematic review and meta-analysis of evidence on pretreatment with P2Y12 inhibitors in combination with aspirin in patients with STEMI undergoing primary percutaneous coronary intervention (PCI).
Methods: We performed a systematic search of electronic databases Pubmed, CENTRAL, and Scopus until April 2022. Studies were eligible if they were comparing P2Y12 inhibitor upstream administration *vs.* downstream use in patients with STEMI submitted to PCI. Studies with patients receiving fibrinolysis or medical therapy only were excluded. Outcomes were assessed at the shortest follow-up available.
Results: Out of 2,491 articles, 3 RCT and 15 non-RCT studies were included, with a total of 79,300 patients (66.1% pretreated, 66.0% treated with Clopidogrel). Pretreatment was associated with reduction in definite stent thrombosis (OR 0.59 [0.37-0.94] - Figure 1.1), all-cause death (OR 0.77 [0.60-

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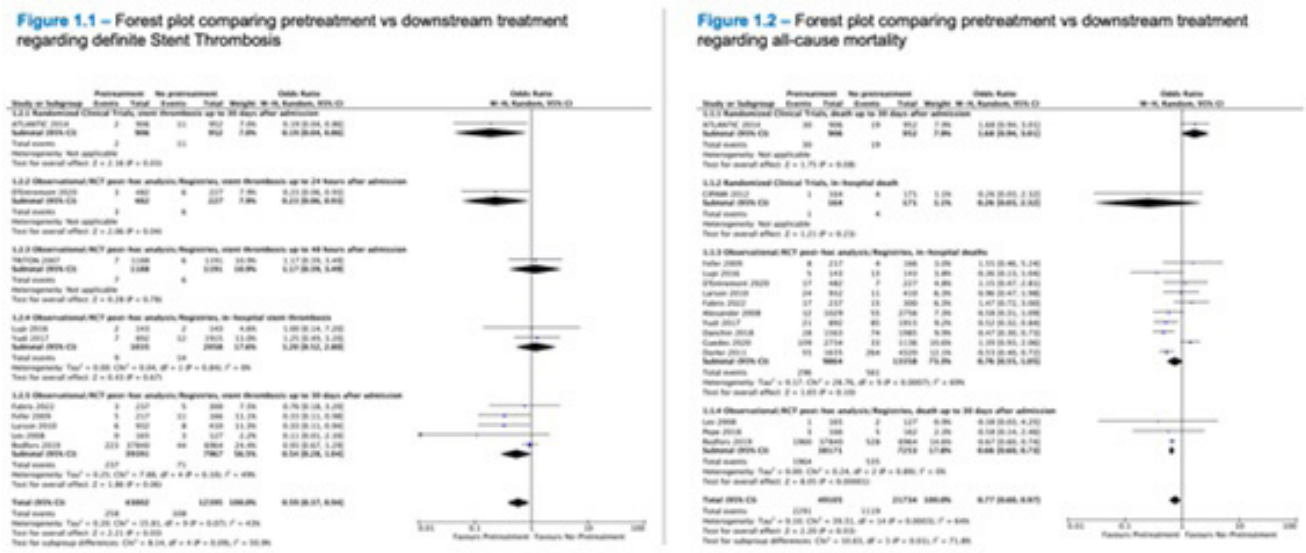

CO 52 Figure

0.97] – Figure 1.2), and cardiogenic shock (OR 0.60 [0.48-0.75]). It was also associated with a lower incidence of TIMI flow < 3 pre-PCI (OR 0.78 [0.67-0.92]). However, incidence of recurrent MI was not significantly reduced (OR 0.93 [0.57-1.52]). Regarding safety, pretreatment was not associated with a higher risk of major bleeding events (OR 0.83 [0.75-0.92]).
Conclusions: P2Y12 pretreatment was associated with better pre-PCI coronary perfusion, lower incidence of definite stent thrombosis, cardiogenic shock, and, possibly, all-cause mortality with no sign of potential harm encountered.

CO 53. THE INFLUENCE OF WEATHER IN THE FORECASTING OF STEMI OCCURRENCE

Vítor Hugo Pereira[1], João Serafim[1], Carlos Braga[1], Patrício Costa[2]

[1]Hospital de Braga, EPE. [2]Universidade do Minho.

Forecasting applied to health data is expanding, but its application to ST-elevation myocardial infarction (STEMI) incidence data has not been explored. Although several works study seasonal and circadian patterns and the influence of the weather in the occurrence of acute myocardial infarction (AMI), none have been conducted in Portugal, to our knowledge. This study aimed to develop predictive models of STEMI incidence in our region. Additionally, our purpose was to find temporal patterns of STEMI onset and assess the relationship between weather variables and STEMI occurrence. Clinical data from 2011 to 2021 on STEMI incidence was collected from our hospital. Meteorological data were obtained for the same region and period. The frequencies of STEMI onset by month, day of the week and time of the day were registered. A time series analysis was performed. ARIMA and Neural Network Autoregression (NNAR) forecasting models were applied to the STEMI time series. Moreover, cross-correlation functions between MI and meteorological time series were explored. A total of 3391 cases were enrolled. There were significant differences in the monthly and circadian distribution of STEMI incidence ($p < 0.001$), being winter months and morning hours the most frequent. No weekly variation was found. NNAR model was more accurate in predicting STEMI incidence than ARIMA model (MAPE: 11.24 *vs.* 17.26). For a certain period, our region temperature and solar radiation were inversely related to the number of STEMI cases, but higher air humidity was associated with more events. There is a seasonal and circadian pattern for STEMI onset. Colder, wetter, and less sunny periods are associated with higher STEMI incidence. Neural network models seem more suitable than ARIMA for STEMI incidence forecasting.

CO 54. COMPLETE REVASCULARIZATION *VS*. CULPRIT-ONLY PCI IN STEMI PATIENTS WITH MULTIVESSEL DISEASE: A LONG-TERM FOLLOW-UP ANALYSIS (8 YEARS) OF REINFARCTION AND ALL-CAUSE MORTALITY

André Alexandre, David Sá-Couto, André Luz, João Faria, Andreia Campinas, Anaisa Pereira, Mariana Santos, Raquel Santos, Bruno Brochado, João Silveira, Severo Torres

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

Introduction: For STEMI patients with multivessel coronary artery disease, the optimal treatment of the non-culprit artery has been controversial. Most randomised studies show that complete revascularization is associated with a reduction in the incidence of reinfarction when compared to a culprit-only percutaneous coronary intervention (PCI) strategy. However, overall effects on long-term all-cause mortality are still unclear.
Objectives: To determine whether complete percutaneous revascularization has a positive impact on long-term reinfarction and all-cause mortality in STEMI patients with multivessel disease when compared to culprit-only PCI.
Methods: This is a retrospective study of STEMI patients admitted to primary PCI between Jan 2008 to Dec 2013 and followed for 8 year-interval. Patients with multivessel coronary artery disease were classified according to the revascularization strategy in two groups: complete percutaneous revascularization *vs.* culprit-only PCI. The primary endpoint was all-cause mortality. The secondary endpoints were reinfarction and target vessel failure (TVF).
Results: From a total of 584 STEMI patients, 302 had multivessel disease and were included in the analysis: 49.7% (n = 150) had 2-vessel disease; 50.3% (n = 152) had 3-vessel disease. Mean follow-up time was 6.95 (± 2.29) years. 74% were male; median age was 63 years. Patients with multivessel disease were classified according to the revascularization strategy: 104 (34%) patients underwent complete percutaneous revascularization *vs.* 198 (66%) patients who underwent culprit-only PCI. There were no significant differences between groups regarding baseline clinical characteristics, except for age (patients in the complete revascularization group were younger: 60 *vs.* 66 years; $p < 0.001$) and smoking (more common in the complete revascularization group: 60% *vs.* 42%; p = 0.003). Regarding angiographic characteristics, there were no differences between groups, except for no-reflow (more common in the culprit-only PCI group: 7% *vs.* 1%; p = 0.020) and drug-eluted stents (more common in the complete revascularization group (69% *vs.* 47%; p = 0.001). Multivariate analysis with Cox regression revealed that culprit-only PCI was independently associated with a higher risk of reinfarction (adjusted HR 2.46;

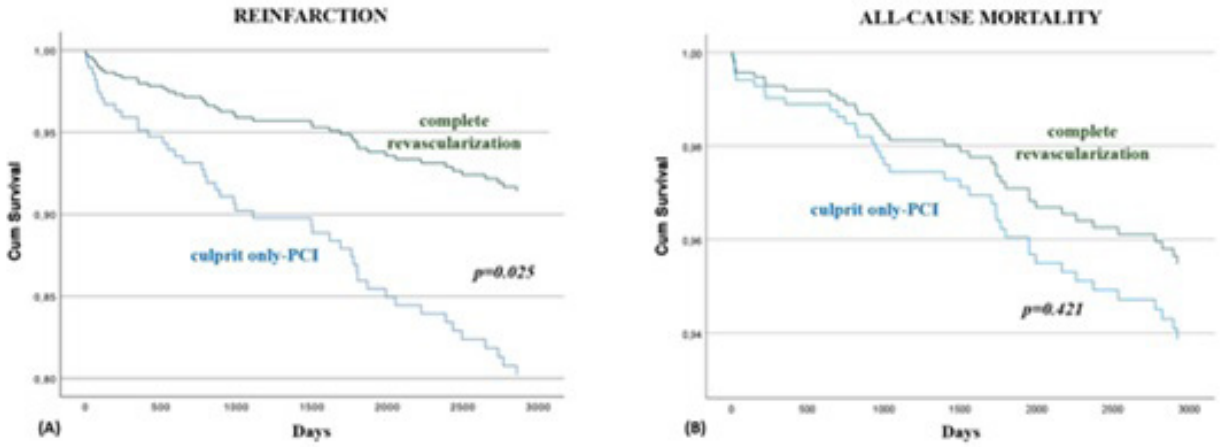

Figure 1: Adjusted model event-free survival curve for the incidence of reinfarction **(A)** and all-cause mortality **(B)** according to the revascularization strategy.

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95%CI 1.12-5.38; p = 0.025) and TVF (adjusted HR 2.37; 95%CI 1.02-5.48; p = 0.044) when compared to complete percutaneous revascularization, but with no significant differences in the primary endpoint of all-cause mortality (adjusted HR 1.37; 95%CI 0.64-2.93; p = 0.421).
Conclusions: Our study corroborates the benefits of complete revascularisation for STEMI patients with multivessel disease with regard to the incidence of reinfarction, while demonstrating the lack of effect on all-cause mortality at long-term follow-up.

CO 55. SEQUENTIAL KASH SCORE EVALUATION RESULTS IN NEAR PERFECT MORTALITY RISK PREDICTION IN ACUTE MYOCARDIAL INFARCTION

Rafaela G. Lopes, Débora Sá, Isabel Cruz, Bruno Bragança, Inês Gomes Campos, Mauro Moreira, Glória Abreu, António Drumond, Aurora Andrade, Joel Ponte Monteiro

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Introduction: KAsH is the first continuous multiplicative score able to predict in-hospital mortality in patients with myocardial infarction (MI). It has been validated in the context of first medical contact to predict mortality during hospitalization.
Objectives: To test the predictive value of systematic KAsH evaluation during the first 48h of hospitalization.
Methods: Multicentric study of consecutive patients admitted with myocardial infarction in two tertiary centers. Patients' medical history, clinical management and outcome data were collected. KAsH was calculated at hospital admission, 24 hours and 48 hours of hospitalization using the following formula: KAsH = Killip-Kimbal × Age × Heart-Rate/Systolic Blood Pressure. KAsH was categorized into 4 sub-groups using the recommended cut-offs: < 40 (KAsH 1); 40-90 (KAsH 2); 90-190 (KAsH 3); > 190 (KAsH 4). A cumulative continuous and categorized score at 48 hours was analyzed. The score's capacity to predict in-hospital mortality was analyzed using ROC curves, their respective area under the curve (AUC) and 95% confidence intervals.
Results: 196 patients were included, with mean age of 66.8 ± 12.6 years, 74% were male, 43% had ST-elevation myocardial infarction (STEMI) and in-hospital mortality of 6%. Daily KAsH evaluation led to significant improvements in mortality risk prediction: admission - AUC 0.905 (0.853-0.958); 24h - AUC 0.950 (0.917-0.984); 48h - AUC 0.946 (0.908-0.984). Categorization did not significantly impact the score's risk prediction: Admission - AUC 0.892 (0.827-0.958); 24h - AUC 0.923 (0.857-0.990); 48h - AUC 0.912 (0.848-0.976). Subgroup analysis at 48 hours excellent predictive capacity in both the STEMI (AUC = 0.891, 95%CI 0.820-0.961) and NSTEMI groups (AUC = 0.991, 95%CI 0.974-1.00). There were no differences between centers.
Conclusions: This work shows that systematically recalculating KAsH score since admission results in near perfect hospital mortality prediction, regardless of categorization or center, showing a significant improvement of risk prediction comparing to KAsH at admission alone. This work supports the use of this score in routine clinical practice.

Sábado, 15 Abril de 2023 | 09:30-10:30

Sala Vega | Comunicações Orais - Sessão 12 - Fibrilhação auricular: novas perspetivas sobre os mecanismos

CO 56. ASSOCIATION BETWEEN EPICARDIAL ADIPOSE TISSUE VOLUME AND RECURRENCE OF ATRIAL FIBRILLATION AFTER CATHETER ABLATION

Bárbara Lacerda Teixeira, Pedro Silva Cunha, Ana Sofia Jacinto, Guilherme Portugal, Bruno Valente, Ana Lousinha, Madalena Coutinho Cruz, Ana Sofia Delgado, Manuel Brás, Margarida Paulo, Cátia Guerra, Ruben Ramos, Ilária Fontes, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: In patients (pts) undergoing catheter ablation of atrial fibrillation (AF), up to one third have arrhythmia recurrence after a first ablation. Epicardial adipose tissue (EAT) secretes proinflammatory adipokines, and has been considered to be closely related to AF, with a potential role in the recurrence of AF after catheter ablation.
Objectives: To evaluate the association between the volume of EAT measured by cardiac angio-CT and arrhythmia recurrence in pts submitted to catheter ablation of AF.

Methods: Single-center retrospective study of consecutive AF pts submitted to ablation between 2011 and 2020, with, at least, one-year follow-up. Epidemiological, clinical, laboratory, echocardiography and angio-CT related data were retrieved. A standardized protocol for quantification of EAT, thoracic adipose volume (TAV) and left atrium volume (LAV) was performed. After comparison of groups using Chi-square and Mann-Whitney analysis, an appropriate Cut-Off of EAT for our population was determined using ROC Curve, and Kaplan Meier survival curves were used to estimate the risk of events (recurrence of AF).
Results: 344 pts (63.1% men) were included, with a mean age of 57.4 ± 10.9 years and a median follow-up time of 22 months. During follow-up, 31.7% (n = 109) had recurrence of AF. Baseline characteristics were similar between groups, except for persistent AF, which was higher in pts with recurrence (25% *vs.* 46%, p = 0.011). AF recurrence was associated with higher EAT (p = 0.040) and higher LAV (p < 0.001), but not with TAV (p = 0.115) nor body mass index (BMI) (p = 0.123). In pts with AF recurrence, values of EAT above a cut-off of 151 cm^3 predicted the endpoint of time to recurrence (HR 2.05, IC [1.180-3.566], p = 0.01), with pts presenting a median of 11 months survival free from recurrence, compared to a median of 15 months in those with EAT values bellow the aforementioned cut-off (log-rank p = 0.008).

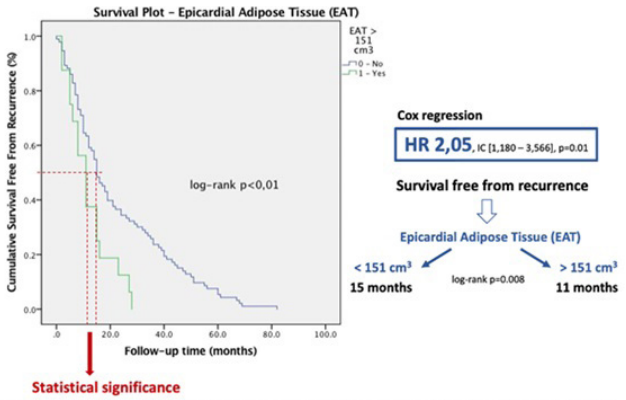

Figure 1: Kaplan–Meier survival estimates of time to recurrence of AF in patients with AF undergoing catheter ablation, stratified by preprocedural angio-CT measured EAT volume of ≤151 cm3 versus >151 cm3 (log-rank, p = 0.008).

Conclusions: EAT may serve as a predictor of AF recurrence after ablation, with pts showing an EAT volume > 151 cm^3 presenting a statistically significant lower survival free from recurrence.

CO 57. LOW VOLTAGE AND LOW WAVE SPEED ARE RARELY PRESENT OUTSIDE THE LEFT ATRIUM-PULMONARY VEINS JUNCTION IN PAROXYSMAL ATRIAL FIBRILLATION BUT FREQUENTLY PRESENT IN PERSISTENT FORMS

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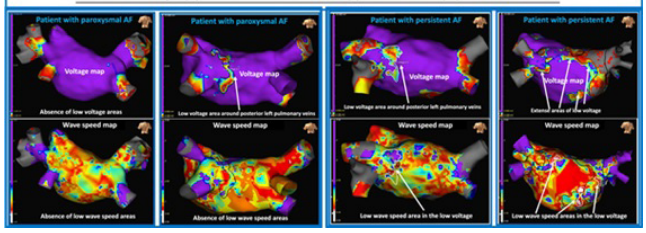
Introduction and objectives: Multielectrode high-density catheters have enabled acquisition of comprehensive and dense maps of electrogram's amplitude and timing. However, automated activation and voltage mapping are flawed by catheter orientation in relation to the wavefront activation. Omnipolar mapping technology (OT) uses both unipolar and bipolar signals to obtain OT signals and increases the accuracy of automatic point acquisition allowing for a high- density map in a quick and efficient way. The aim of this study was to automatically assess with OT, the left atrium (LA) voltage and wave speed propagation map in sinus rhythm (SR) according to the type of atrial fibrillation (AF).
Methods: We studied 12 consecutive patients referred for ablation of AF, either paroxysmal (PAF) (n = 6) or persistent (Pers-AF) (n = 6) using catheters with OT. Patients with Pers-AF were cardioverted, and a voltage and propagation wave speed map in SR was obtained before ablation in all patients. The cut-off value for low voltage areas (LVAs) was less than 0.1 mV and for low wave speed (LWS) was less than 0.4 mm/ms. Results were compared according to the type of AF.
Results: The results are depicted in the Table. The median duration of AF in Pers-AF was 15 (5-24) months and those patients had a higher CHADSVASC score, but the two groups did not differ regarding other demographic and anatomical evaluated parameters. Patients with Pers-AF displayed presence of LVAs in 100% of cases in comparison with 17% for PAF patients (p = 0.015) and the total LVA in cm^2 was also significantly higher, (p = 0.002). Also, the number of LWS areas and the total area of LWS were higher in Pers-AF than PAF (p = 0.041 and p = 0.015), and were more frequently located outside the PV-LA junction in Pers-AF than in PAF, p = 0.015.

	PAF n=6	Pers-AF n=6	P value
Age in years, median (Q_1-Q_3)	55 (46-63)	64 (61-68)	0.065
Male gender, n (%)	4 (67)	4 (67)	1.000
Idiopathic, n (%)	6 (100)	4 (67)	0.455
BMI in Kg/m^2, median (Q_1-Q_3)	29 (27-32)	32 (26-32)	0.699
Indexed LA vol in ml/m^2, median (Q_1-Q_3)	35 (32-40)	45 (40-55)	0.093
LVEF in %, median (Q_1-Q_3)	48 (39-55)	55 (52-56)	0.093
CHADSVASC, median (Q_1-Q_3)	1 (0-2)	3 (2-4)	0.041
N points in the map, median (Q_1-Q_3)	2700 (2575-2736)	3078 (2858-3241)	0.065
Presence of LVAs, n (%)	1 (17)	6 (100)	0.015
N of LVAs, median (Q_1-Q_3)	0 (0-1)	3 (1-4)	0.009
Total area of LVA in cm^2, median (Q_1-Q_3)	0 (0-0.4)	7.7 (2.7-15.7)	0.002
LVAs in the PV-LA junction, n (%)	1 (17)	4 (67)	0.242
LVAs in the LA body, n (%)	0 (0)	4 (67)	0.061
Presence of LWS areas, n (%)	2 (33)	6 (100)	0.061
N of areas of LWS, median (Q_1-Q_3)	0 (0-2)	3 (1-3)	0.041
Total area of LWS in cm^2, median (Q_1-Q_3)	0 (0-0.7)	2.1 (0.7-4.1)	0.015
LWS in the PV-LA junction, n (%)	2 (33)	4 (67)	0.567
LWS in the LA body, n (%)	0 (0)	5 (83)	0.015



Conclusions: Patients with PAF never presented LVAs or LWS outside the PV-LA junction. On the contrary, patients with Pers-AF have frequently anatomical and electrophysiological abnormalities in the LA body. These findings may suggest the need for a wider ablation strategy in Pers-AF.

CO 58. CHARACTERIZATION OF ROTOR PHENOMENA WITH HIGH-DENSITY BODY SURFACE ELECTRODE MAPPING IN PERSISTENT ATRIAL FIBRILLATION AND IMPACT OF PULMONARY VEIN ISOLATION

Mário Martins Oliveira[1], Pedro Silva Cunha[1], Sérgio Laranjo[1], Guilherme Portugal[1], Bruno Valente[1], Ana Lousinha[1], Barbara Teixeira[1], Manuel Braz[1], Josep Boque[2], Ana Sofia Delgado[1], Rui Cruz Ferreira[1]

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Introduction: Rapid rotational activations have been proposed to be implicated in atrial fibrillation (AF) maintenance. CardioInsight (ECGi) high-density body surface electrode mapping of atria has been used to identify atrial rotor activities to guide persistent AF ablation (PersAF). Stability and reproducibility of rotor identification across the atria during AF have not been well-validated. Also, the impact of pulmonary veins isolation (PVI) on the dynamics of rotors remains unknown. We aim to evaluate the spatial pattern of rotors distribution in PersAF patients (P) undergoing PVI.
Methods: Fourteen P (mean age 57.7 years; 78.5% men), who underwent catheter radiofrequency ablation with ECGi mapping, to identify high-yield rotors, projected onto cardiac computed tomography scan per protocol. Unipolar electrogram files of 10-sec duration were recorded before vascular catheterization (step 1) and repeated after 3D voltage electroanatomic mapping (CARTO system) (step 2), and PVI (step 3). Rotor activities were recognized automatically (phase map analysis) and checked manually. A wave rotating > 2.0 times around a spatially stable core was considered for the present analysis. A biatrial schema (Bordeaux atrial classification) with 7 regions was used: left PV and left atrial appendage (region 1); right PV and posterior interatrial grove

(region 2); posterior left atrium (LA) (region 3); upper half of the right atrium (RA) and RA appendage (region 4); lower half of the RA (region 5); anterior LA and roof (zone 6); anterior interatrial grove (region 7).
Results: A total of 152 rotors were seen in 11P (78.5%). Rotors were most commonly observed in region 2 (mean number of rotors [MNR]: 3.7), followed by zones 1 and 4 (MNR: 2.2; 2.1; respectively) and zones 3, 6 and 7 (MNR: 1.0; 0.8 and 1.6; respectively) (p 50%) in the number of rotors and number of rotations was observed in all but zones 5 and 6.
Conclusions: ECGi high-density phase mapping of atria identified high-yield stable and reproducible rotors in most PersAF P. Right PV and posterior interatrial grove showed a higher number of rotors, with more rotational activity. Antral PVI may obtain a reduction in rotor activity. Future validation of ECGi technology contribution for understanding mechanistic-based ablation of PersAF is needed.

CO 59. UNDERSTANDING THE COMPLEX STRUCTURE OF THE LEFT ATRIUM FROM CARDIAC CT - A MACHINE LEARNING-BASED RADIOMICS MODEL TO PREDICT POST-ABLATION RECURRENCE OF ATRIAL FIBRILLATION

João Bicho Augusto[1], Pedro Cunha[2], Sérgio M. Laranjo[2], Guilherme Portugal[2], Bruno Valente[2], Ana Lousinha[2], Bárbara Teixeira[2], André V. Monteiro[2], Margarida Paulo[2], Cátia Guerra[2], Mário M. Oliveira[2]

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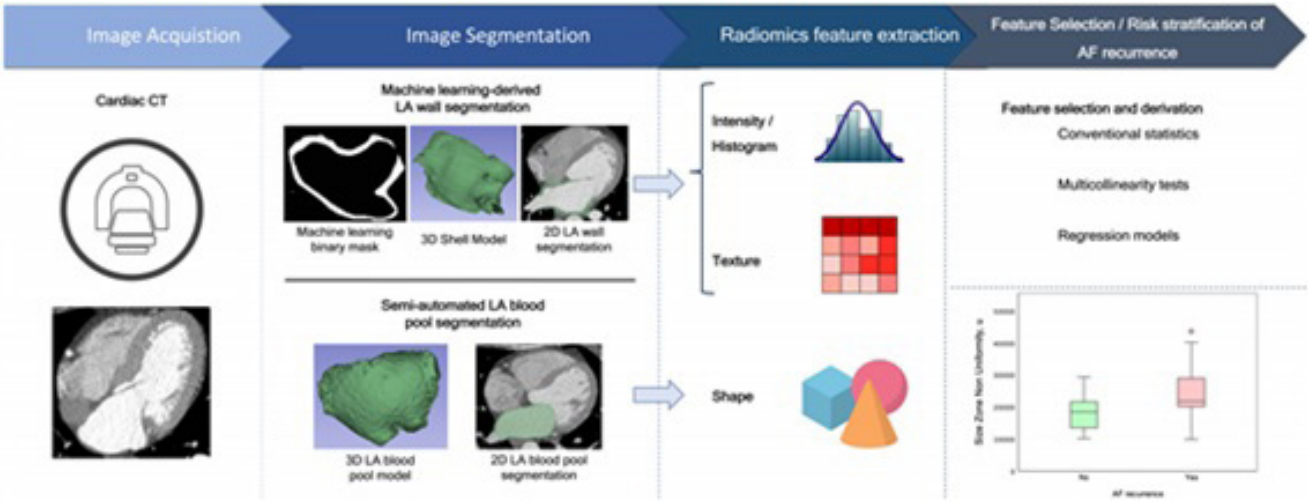
Introduction: Complex properties of the left atrial (LA) wall and cavity could help understand the pathophysiology of atrial fibrillation (AF) and the risk of recurrence after ablation. Beyond conventional cardiac CT measures, radiomics allow extraction of high-dimensional data and deep quantitative phenotyping of the LA.
Objectives: We aimed to assess radiomics models based on LA wall images from cardiac CT to predict the risk of AF recurrence after ablation.
Methods: Cardiac CT images from 37 patients obtained immediately prior to AF ablation were prospectively collected and reviewed. The LA wall was segmented using a machine-learning LA wall segmentation tool with minimal input from the user. The LA cavity was segmented using a semi-automated tool. A total of 140 radiomics features were extracted (without wavelet decomposition) using the PyRadiomics library, which included first-order and textural features from the LA wall, and shape and size features from the LA cavity. Features with a high variance inflation factor were excluded from the analysis. A model of radiomics signatures was built using least absolute shrinkage and selection operator (LASSO) regression to explore the prognostic value for AF recurrence within 12 months. Flow chart is summarized in Figure.
Results: Size zone non-uniformity (SZN), an LA wall texture feature, was the only independent predictor of AF recurrence at 12 months follow-up. SZN measures the variability of size zone volumes in the image, with a lower value indicating more homogeneity in size zone volumes. SZN was significantly higher (suggesting more LA wall heterogeneity) in patients with AF recurrence (median 24,567 [IQR 19,729-30,286] *vs.* 18,481 [IQR 13,485-21,623], p = 0.03). C-statistics showed good ability in predicting AF recurrence, with AUC 0.712 (95% confidence interval 0.539-0.886). The survival analysis revealed a log-rank Mantel-Cox test with a chi-square of 103 (p < 0.001).
Conclusions: The complex structure of the LA wall through radiomics conveys information beyond conventional CT imaging. We present a novel non-invasive tool to measure heterogeneous atrial tissue. Heterogenous LA walls are more prone to AF recurrence post-ablation, likely reflecting a higher susceptibility to re-entry mechanisms, high conduction anisotropy, or a combination of these.

CO 60. LEFT-SIDED ATYPICAL FLUTTER: A LOOK INTO THE MECHANISMS IN PATIENTS NOT SUBMITTED TO PRIOR LINEAR ABLATION

Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Margarida Martins, Afonso Nunes Ferreira, Gustavo Lima da Silva, Sara Neto, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: The decrease in the use of linear ablation for atrial fibrillation treatment has reduced the frequency of iatrogenic feft-sided atypical flutters (AFl). However, AFl are becoming increasingly frequent, associated with population age and risk factors for atrial scar. Revising the mechanisms of non-iatrogenic AFl may lead to a better procedure workflow.
Objectives: To describe the mechanisms of non-iatrogenic AFl.
Methods: Retrospective single-center study of AFl patients (pts) submitted high-density mapping from 2018 to 2022. Patients submitted to any prior left atrial linear ablation were excluded. Map collection was performed just visualizing the voltage map and a comprehensive workflow was applied for activation map interpretation, starting by facing the mitral annulus and following the sequence of colors to systematically identify all potential circuits, their common-isthmuses, and eventual slow-conduction sites. Entrainment maneuvers were performed to confirm the circuit interpretation if sinus rhythm was not restored with the completion of the planned ablation set.
Results: A total of 59 pts were included (male: 56% male; 67 ± 13 years), 28 previously submitted to atrial fibrillation ablation, restricted to pulmonary vein (PV) isolation. About 88% presented a macro-reentrant mechanism,



CO 59 Figure

either restricted to the left atrium (N = 50) or biatrial (N = 2) and involving 2 or 3 loops in 61% - Figure 1. Perimitral loop was the most frequent reentrant circuit, representing 60% of macro-reentrant arrhythmias (N = 30) and exhibiting an evident out-of-proportion predominance of counterclockwise rotations (73% *versus* 27%). Among perimitral flutters with at least one additional loop, a balanced distribution was recognized of rotations around the left and right PVs (10 *versus* 10). Image 2 represents the linear ablation lines produced in each pt. As a result of the existence of additional loops producing common-isthmuses locations in various atrial regions, the classical inferior mitral isthmus line (from the mitral annulus to the left inferior PV) would only terminate as much as 53% of the perimitral AFl. The mechanism-tailored ablation strategy, particularly targeting the AFl common-isthmuses, resulted in restoration of sinus rhythm in 96.6% of pts (N = 57).

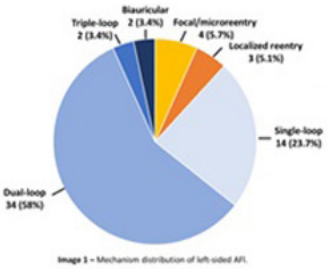


Image 1 – Mechanism distribution of left-sided AFl.

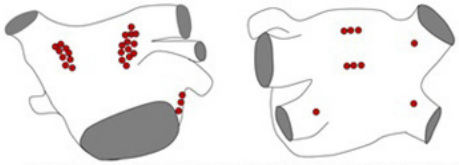


Image 2 – Schematic representation of critical isthmus in macro-reentrant AFl with more than one loop. Each dot represents one patient.

Conclusions: In pts not previously submitted to linear ablations, AFl are predominantly caused by macro-reentrant circuits involving a perimitral rotation but not necessarily possible to treat with a conventional mitral isthmus line. With current high-density mapping tools, a comprehensive analysis of the substrate and activation maps and a mechanism-tailored ablation strategy results in an unprecedently high acute success rate.

Sábado, 15 Abril de 2023 | 10:30-11:30

Sala Aquarius | Comunicações Orais - Sessão 13 - Taquicardia ventricular e morte súbita cardíaca

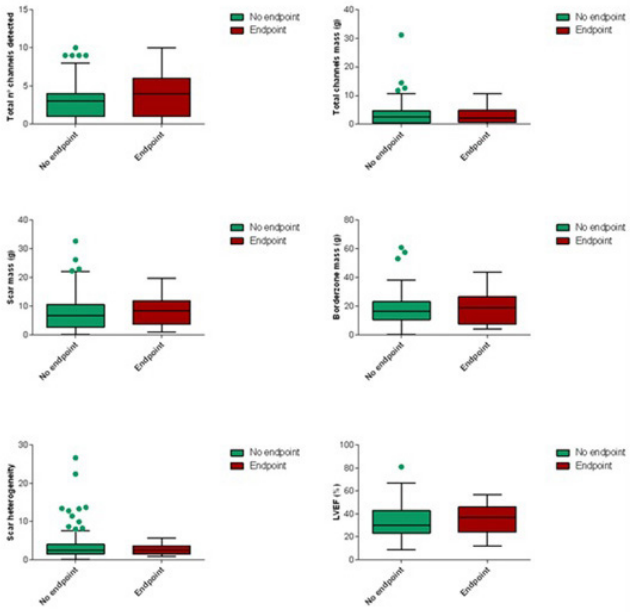
CO 61. USING THE 3D ARCHITECTURE OF SCAR TO PREDICT LIFE-THREATENING VENTRICULAR ARRHYTHMIAS - STILL A LONG WAY TO GO

Rita R. Amador, Ana Rita Bello, Pedro Freitas, Sara Guerreiro, João Abecasis, Ana Coutinho Santos, Carla Saraiva, Pedro Galvão Santos, Francisco Moscoso Costa, Maria Salomé Carvalho, Pedro Carmo, Diogo Cavaco, Francisco Morgado, António Miguel Ferreira, Pedro Adragão

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

Introduction: Late gadolinium enhancement (LGE) has been proposed as an independent predictor of ventricular arrhythmias.

Objectives: The purpose of this study was to assess if myocardial scar characterization could enhance the risk stratification for life-threatening arrhythmias and sudden cardiac death (SCD).
Methods: We included patients with an indication for ICD or CRT-D implantation who underwent cardiac magnetic resonance for clinical proposes since February/2018 and in whom a 3D-LGE dataset was obtained. Patients with channelopathies (n = 2) or inappropriate imaging quality (imaging artifacts; n = 7) were excluded. Scar characterization using ADAS software was performed in 3D-LGE datasets in all but 5 patients, where 2D datasets were used. The primary endpoint was the composite of appropriate ICD therapy (classified as ATP or shock) or SCD.
Results: A total of 116 patients were analysed (mean age 66 ± 14 years; 81% male; mean LVEF 34 ± 14%; 74 patients with ischemic and 42 with non-ischemic cardiomyopathy; 40 patients received a device in the setting of secondary prevention). During a median follow-up of 2.3 years (IQR 1.3-3.3 years) there were 23 events (18 appropriate ICD therapies [9 shocks and 9 ATP], 3 episodes of VT under the threshold for ICD therapy and 2 SCD). No statistically significant differences were found between patients with or without events in terms of scar mass, border zone (BZ) mass, BZ channels (BZC), BZC mass, number of channels detected, and scar heterogeneity (BZ mass/scar mass ratio) - all p values > 0.2 (Figure). Restricting the analysis to only primary prevention cases yielded similar results. Overall, 26 patients did not show any channel. Four of these experienced an arrhythmic event, yielding a negative predictive value of 83% (95%CI 64-93%) for the absence of channels.



Conclusions: In this cohort with still relatively limited follow-up duration, no single parameter reflecting scar tissue characterization was able to predict appropriate device therapies or sudden cardiac death.

CO 62. EXTRACORPOREAL MEMBRANE OXYGENATION'S ROLE IN REFRACTORY ELECTRICAL STORM WITH NO STRAIGHTFORWARD TREATMENT - HOW MUCH TIME WORTHS?

Catarina Martins da Costa, Isabel Durães Campos, Ana Rita Ferreira, Ana Lebreiro, Gonçalo Pestana, Luís Adão, Luís Filipe Macedo, José Pinheiro Torres, José Artur Paiva, Roberto Roncon-Albuquerque Jr

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Refractory electrical storm is a very severe condition that may be rescued by percutaneous venoarterial extracorporeal membrane oxygenation

Table 1. Patient's characteristics

#	SEX	AGE	CVRF	ES ETIOLOGY	FINAL TREATMENT
1	M	58	Yes	ACS	Palliative
2	M	74	Yes	AdHF	EPS
3	M	54	Yes	AdHF	HxT
4	F	32	Yes	Lymphocytic myocarditis	HxT
5	F	60	Yes	ACS	EPS
6	M	67	Yes	AdHF	Palliative
7	F	51	Yes	ACS	AA
8	M	62	Yes	subACS	Palliative
9	F	43	No	Eosinophilic myocarditis	AA + CCT
10	M	22	No	Idiopatic	EPS
11	M	57	Yes	AdHF	HxT
12	M	58	No	ACS	HxT
13	M	44	Yes	Ischemic scarr	SympAb
14	M	1	No	Myocarditis	AA + CCT
15	F	57	Yes	Iatrogenic?	AA
16	F	48	Yes	Idiopathic*	AA

*Hereditary arrhythmia?; AA - antiarrytmic drugs; AdHF – advanced heart failure; CCT – corticotherapy; CVRF- cardiovascular risk factors (at least one of hypertension, smoking habits, dyslipidemia, diabetes melitus; obesity); EPS – electrophysiology study and ablation; HxT – heart transplant; F- female; M – male; N – normal; SympAb - Sympathetic blockage; VA – vasospastic angina; VT/FV – ventricular tachycardia/ ventricular fibrillation; X -unknow

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(VA-ECMO). ECMO data in this context are limited. The authors aimed to study the utility of emergency VA-ECMO in rES with no specific treatment.
Methods: Retrospective study of rES cases supported with VA-ECMO at a tertiary centre from April 1st 2016 to June 1st 2022. Patients with acute coronary syndrome (< 48h) or with evident treatment were not included. Follow-up data was retrieved from electronic records.
Results: Sixteen patients were included (49 ± 18 years-old), most men and with cardiovascular risk factors. Ten patients were admitted with ongoing rES. Cardio-respiratory arrest pre-VA-ECMO cannulation occurred in 11 patients. VA-ECMO was started 4 (8) days post-admission and was maintained for 14 ± 9 days. Definitive treatment included antiarrhythmic drugs (4, 25%, 2 of them with concomitant myocarditis treatment); emergency heart transplant (4, 25%); electrophysiological study and catheter ablation (3, 19%); and sympathetic blockage (1, 6%). In 3 refractory cases, palliative care was provided. Thirteen patients that underwent VA-ECMO due rES were discharged with no concomitant neurological deficits (overall survival: 81%). Half of patients presented minor vascular complications, and one had a major fatal complication. During follow-up, 19 ± 16 months, no rES recurrence was reported. See table 1 for detailed data.
Conclusions: In this single-centre study, emergency VA-ECMO offered valuable hemodynamic support in rES, allowing patient stabilization until definitive treatment in a high proportion of cases. A multi-disciplinary approach was crucial for the survival of these patients and included an intensive care medicine department with a high-volume ECMO centre, a cardiology department with an electrophysiology laboratory and a thoracic surgery department with a heart transplant program.

CO 63. NOVEL EPICARDIAL ACCESS TECHNIQUE FACILITATED BY CARBON DIOXIDE INSUFFLATION OF THE PERICARDIUM FOR ABLATION OF ARRHYTHMIAS

Bruno Tereno Valente[1], Pedro Cunha[1], Guilherme Portugal[1], Ana Lousinha[1], Paulo Osório[1], André Viveiros Monteiro[2], Mário Oliveira[1]

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Introduction: Epicardial access for mapping and ablation of the epicardial substrate may be required in catheter ablation of arrythmias. High complication rates are associated with the standard epicardial access approach. Recently, a novel method of intentional coronary vein (CV) exit with pericardial CO_2 insufflation to facilitate epicardial access has been described. This study describes our initial experience with this technique.
Methods: Patients undergoing consecutive epicardial ablation between September 2021 and June 2022 at our hospital were included in this study. Via femoral venous access, a branch of the coronary sinus was sub-selected and intentional CV exit was performed with a high tip load coronary angioplasty wire. A microcatheter was then advanced over the wire into the pericardial space, followed by pericardial CO_2 insufflation, facilitating subxiphoid pericardial puncture. In one patient access was performed from right atrial appendage because congenital anomalous return of the coronary sinus to left atrium.
Results: Nine patients underwent epicardial access attempt for arrythmia mapping and ablation. All patients had successful intentional CV exit and CO_2 facilitated epicardial access except one patient because of adhesions from previous heart surgery. The type of ablations performed were 6 ventricular tachycardia, one epicardial accessory pathway ablation and one left epicardial flutter ablation. All the patients had previous endocardial unsuccessful ablations.
Conclusions: This is the first case series of epicardial access facilitated by CO_2 insufflation in Portugal. This technique enabled successful epicardial access in all patients except one patient due to strong epicardial adhesions, there was no adverse outcomes from epicardial access. The extreme safety of this approach allowed to perform epicardial ablations not only of ventricular arrhythmias but also of atrial arrythmias successfully, an additional potential to explore in the field of epicardial ablations.

CO 64. CAUSES OF SUDDEN DEATH IN A YOUNG (40 YEARS OLD) SOUTH EUROPEAN POPULATION: A POSTMORTEM STUDY

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[1]Hospital do Espírito Santo, EPE, Évora. [2]Instituto Nacional de Medicina Legal. [3]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [4]St Bartholomew's Hospital/Reino Unido.

Objectives: To describe the annual incidence and the leading causes of sudden non-cardiac and cardiac death (SCD) in children and young adult Portuguese population.
Methods: We retrospectively reviewed autopsy of sudden unexpected deaths reports from the Portuguese National Institute of Legal Medicine and Forensic Sciences' database, between 2012 and 2016, for the central region of Portugal, Azores and Madeira (ages 1-40: 26% of the total population). Young adults with sudden unexpected death were included. Violent deaths were excluded.

Table – Anatomopathological diagnosis in sudden cardiac death victims

Main anatomopathological diagnosis	N = 112, n (%)	Mean age ± SD (years-old)	Gender predominance
Atherosclerotic coronary artery disease Type VI complicated lesion (AHA classification) *	**37 (33,0)** 16 (14,3)	34 ± 4 (**p<0,047**)	Male (83,8%; **p=0,032**)
LVH** Evolution towards dilation Associated with fibrosis With extensive area of myocardial scar Associated myxomatous mitral valve disease	**17 (15,2)** 8 (7,1) 4 (3,6) 2 (1,8) 1 (0,9)	33 ± 8	NS
Hypertrophic CM***	**3 (2,7)**	19 ± 9,5 (**p=0,001**)	NS
Acute pulmonary embolism With documented deep venous thrombosis	**14 (12,5)** 9 (8,0)	33 ± 6	Women (78,6%; **p<0,001**)
Dilated LV Probable etiology: Post-partum Ethanolic Ischemic Post-myocarditis	**10 (8,9)** 2 (1,8) 2 (1,8) 1 (0,9) 1 (0,9)	31 ± 8	NS
Valvular Heart disease Myxomatous mitral valve disease Severe aortic stenosis Degenerative mitral valve disease	**7 (6,2)** 4 (3,6) 2 (1,8) 1 (0,9)	36 ± 4	NS
Acute myocarditis	**5 (4,5)**	20 ± 11 (**p=0,002**)	NS
Acute pulmonary edema/acute heart failure	**5 (4,5)**	34 ± 5	NS
Ascending aorta dissection and pericardial tamponade	**5 (4,5)**	30 ± 8	NS
Congenital Heart Disease Corrected	**5 (4,5)** 3 (2,7)	33 ± 4	NS
Left ventricular fibrosis Mild and multifocal fibrosis Fibrosis with myocardial scar	**2 (1,8)** 1 (0,9) 1 (0,9)	38 ± 4	NS
Arrhythmogenic Right Ventricle CM	**1 (0,9)**	30	NS
Acute left main coronary artery dissection	**1 (0,9)**	24	NS

Legend: *Corresponds to clinical type 1 myocardial infarction, ** Not meeting criteria for Hypertrophic CM, ***Two cases with anatomopathological and genetic data, one case with a previously known diagnosis and whose heart was not sent for anatomopathological analysis.
AHA = American Heart Association; CM = Cardiomyopathy, NS = non-significant

Results: During a 5-year period, 159 SD were identified, corresponding to an annual incidence of 2.4 (95%confidence interval, 1.5-3.6) per 100,000 people-years. Victims had a mean age of 32 ± 7 years-old, and 72.3% were male. There were 70.4% cardiac, 16.4% respiratory, 7.5% neurologic and 3.1% digestive causes of SD. The most frequent cardiac histopathological diagnosis was atherosclerotic coronary artery disease (CAD) (33.0%), with acute myocardial infarction identified as a final cause of SCD in 18.9% of the cases. There were 15.2% victims with left ventricular hypertrophy, with a diagnosis of hypertrophic cardiomyopathy only possible in 2.7%. 12.5% of deaths were due to acute pulmonary embolism. Acute myocarditis (4.5%) had the highest prevalence in children and teenagers. The prevalence of cardiac pathological findings of uncertain significance was 30.4%.
Conclusions: The annual incidence of SD was low. Atherosclerotic CAD was diagnosed in 33.0% victims, suggesting the need to intensify primary prevention measures in the young. The high prevalence of pathological findings of uncertain significance emphasizes the importance of molecular autopsy and screening of first-degree relatives.

CO 65. IDIOPATHIC ISOLATED LEFT BUNDLE BRANCH BLOCK - A BENIGN FINDING OR SOMETHING MORE?

Catarina Amaral Marques, André Cabrita, Miguel Martins de Carvalho, João Calvão, Catarina Martins da Costa, Ana Filipa Amador, Ana Isabel Pinho, Cátia Oliveira, Luís Daniel Santos, Miguel Rocha, Helena Santos Moreira, Pedro Mangas Palma, Elisabete Martins, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction and objectives: Idiopathic isolated left bundle branch block (LBBB) is a rare diagnosis, implying exclusion of structural heart disease and/or ischemia, mainly in patients (pts) with cardiovascular risk factors (CVRF). Natural history and prognosis of this entity remain poorly studied. Our aim was to characterize a population of pts with idiopathic LBBB and preserved left ventricular ejection fraction (LVEF > 50%).
Methods: Retrospective study of LBBB adult pts screened from a large tertiary care hospital electrocardiographic database from 2011 to 2017. Only idiopathic LBBB pts with LVEF > 50% and follow-up (FU) echocardiographic and clinical data were included in the analysis.

Results: 39% of all 641 LBBB pts were identified as idiopathic cases. Final cohort study (LVEF > 50%) had 152 pts. 61% were female, median age at pts' first-ever LBBB report was 61 years and 87% presented at least 1 CVRF. Median FU time was 8 years. During FU, 35 pts developed left ventricular dysfunction (2/3 mild dysfunction; 1/3 moderate or severe dysfunction). Causes for dysfunction (Figure) were identified in 13 pts, while the remaining 23 were possible LBBB-induced. All latter pts were submitted to additional testing (non-invasive ischemia testing in 78%; coronariography in 70%; cardiac magnetic resonance in 35%) to exclude other causes of LBBB. Overall median time-to-dysfunction was 8 years after first-ever LBBB report. Regarding clinical presentation of all idiopathic LBBB pts with LVEF > 50%, 60% were asymptomatic, while 17%, 14% and 7% presented with chest pain, heart failure symptoms and syncope/pre-syncope, respectively. 25 pts needed cardiac implantable electronic devices (CEID), namely 15 pacemakers, 1 implantable cardioverter defibrillator and 7 cardiac resynchronization therapy devices. Focusing pts outcomes, 18% presented at least 1 cardiovascular (CV) event needing hospitalization: 9% due to advanced conduction disturbances/complete heart block, 4% ischemic cerebrovascular event, 1% acute myocardial infarction, and 4% heart failure hospitalization. Only one patient died during FU due to CV cause. Baseline characteristics (age, sex, CVRF) were comparable between patients with and without LVEF drop, as well as between patients with known causes for LVEF drop *versus* possible LBBB-induced. No differences in time-to-dysfunction were found between the latter (Log-rank = 0.713).

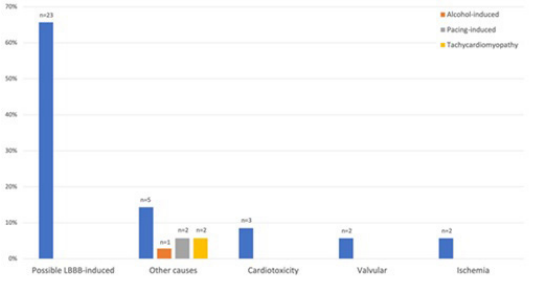

Figure 1 – Causes of left ventricular dysfunction during follow-up of idiopathic isolated left bundle branch block (LBBB) patients with initially preserved ventricular function.

Conclusions: Our data show that about one-quarter of pts with idiopathic LBBB and preserved LVEF later develop ventricular dysfunction and an important proportion are possible LBBB-induced. Additionally, 18% presented at least one CV event needing hospitalization, and 16% needed a CEID. Our study sheds some light on a largely unknown topic, bringing to discussion whether isolated idiopathic LBBB is, as it has been increasingly suggested, a not-so benign finding that may require follow-up.

Sábado, 15 Abril de 2023 | 10:30-11:30

Sala Vega | Comunicações Orais - Sessão 14 - Transplante cardíaco

CO 66. SPECKLE-TRACKING ECHOCARDIOGRAPHY FOR PREDICTION OF ADVERSE HEMODYNAMIC PARAMETERS IN HEART TRANSPLANT PATIENTS

Francisco Barbas de Albuquerque, Ana Raquel Carvalho Santos, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira da Silva, Valdemar Gomes, Lídia de Sousa, Rui Cruz Ferreira

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Introduction: Invasive right heart (RH) catheterization for hemodynamic assessment is widely used in heart transplant (HT) patients. Speckle-

Table 1.	Predictors of unfavorable hemodynamic by speckle-traking echocardiography														
Parameter	GLS			GWI			GCW			GWW			GWE		
	AUC	p value	CI 95%	AUC	p value	CI 95%	AUC	p value	CI 95%	AUC	p value	CI 95%	AUC	p value	CI 95%
PCWP > 15	.54	.60	.38 - .70	.51	.92	.35 - .67	.48	.82	.47 - .76	.77	**.001**	.64 - .91	.61	.15	.47 - .76
CVP > 8	.60	.21	.44 - .75	.44	.42	.44 - .71	.43	.35	.27 - .58	.75	**.001**	.11 - .39	.57	.34	.44 - .71
CI < 2.5	.67	.07	.48 - .87	.68	.06	.52 - .83	.71	**.027**	.56 - .61	.73	**.016**	.57 - .89	.41	.36	.21 - .71
PAPi < 2	.60	.16	.46 - .74	.62	.11	.47 - .77	.61	.17	.46 - .75	.62	.12	.47 - .77	.52	.77	.37 - .67
CPO < 0.6	.51	.97	.20 - .83	.60	.63	.20 - .99	.70	.34	.39 - .90	.53	.89	.0 -1	.56	.79	.0 - .90
mPAP > 20	.44	.91	.38 - .61	.57	.27	.45 - .69	.54	.49	.42 - .67	.64	**.02**	.23 - .48	.56	.31	.44 - .67

CO 66 Figure

tracking echocardiography through global longitudinal strain (GLS) and myocardial work (MW) have emerged for myocardial functional assessment in many cardiac conditions. In HT patients, it is unclear whether GLS and MW can predict unfavorable hemodynamic parameters.

Objectives: To assess whether GLS and MW can predict unfavorable hemodynamic parameters in HT patients.

Methods: Retrospective analysis of consecutive patients submitted to RH catheterization between February 2016 and November 2022. Transthoracic echocardiography (TTE) performed at the same day was used to calculate GLS and MW values, namely global work index (GWI), global constructive work (GCW), global wasted work (GWW) and global work efficiency (GWE). Area under curve (AUC) of Receiving Operator Curves (SPSS®) was performed to assess GLS and MW values for adverse hemodynamic parameters prediction. Statistical differences with a p-value < 0.05 were considered significant.

Results: From a total of 189 RH catheterization, 114 entered the primary analysis. Mean age was 49 years, 78% were male, mean left ventricular ejection fraction was 59 ± 10%. Mean GLS (%) value was -13 ± 3, mean GWI (mmHg%) was 1161 ± 396, mean GCW (mmHg%) was 1531 ± 449, mean GWW (mmHg%) was 160 ± 112 and mean GWE (%) was 89 ± 8.5. AUC results of GLS, GWI, GCW, GWW and GWE values for RH hemodynamic parameters prediction are depicted in Table 1. GWW was significantly increased in patients with central venous pressure (CVP) > 8 mmHg (p = 0.001), cardiac index (CI) < 2.5 L/min/m^2, and mean pulmonary artery pressure (mPAP) > 20 mmHg (p = 0.021). Both GWW and GCW were increased when pulmonary capillary wedge pressure (PCWP) was > 15 mmHg (p = 0.001 and p = 0.027, respectively). GLS, GWE and GWI were not significantly associated with any adverse hemodynamic parameter. GWW > 124 mmHg% had sensitivity (S) of 80% and specificity (Sp) of 61% to predict CI < 2.5 L/min/m^2, a S of 81% and a Sp of 60% for PCWP > 15 mmHg and a S of 75% and Sp of 55% for CVP > 8 mmHg. GCW > 1,451 mmHg% had a S of 80% and Sp of 61% to predict CI < 2-5 L/min/m^2.

Conclusions: In our HT patient's population, GLS was slightly impaired (-13%) suggesting some subclinical myocardial dysfunction associated. Also, this study demonstrated that GWW could predict adverse hemodynamic parameters in HT patients. Hence, myocardial work might be a useful tool to routinely use in HT patients' clinical approach.

CO 67. GLOBAL LONGITUDINAL STRAIN AND MYOCARDIAL WORK AS A NOVEL TOOL FOR ACUTE CELLULAR REJECTION PREDICTION IN HEART TRANSPLANT PATIENTS

Francisco Barbas de Albuquerque, Ana Raquel Carvalho Santos, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira da Silva, Valdemar Gomes, Lídia de Sousa, Rui Cruz Ferreira

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

Introduction: In heart transplanted (HT) patients, endomyocardial biopsy (EMB) remains the gold-standard for acute cellular rejection (ACR) detection. Non-invasive measurements to detect ACR are scarce. Global longitudinal strain (GLS) and myocardial work (MW) have emerged as a novel tool for myocardial function assessment. Whether GLS and MW parameters can confidently predict ACR in HT patients is not stablished.

Objectives: To determine whether GLS and MW parameters by speckle tracking echocardiography can predict ACR in HT patients.

Methods: Retrospective analysis of consecutive patients submitted to EMB between February 2016 and November 2022, who performed transthoracic echocardiography (TTE) at the same day. Significant ACR was defined as ≥ 2R on EMB, according to the ISHLT 2004 grading. The left ventricular (LV) GLS of each corresponding EMB were calculated by speckle tracking technique. Non-invasive blood pressure was measured and registered during TTE performance. MW parameters, namely global work index (GWI), global constructive work (GCW), global wasted work (GWW) and global work efficiency (GWE) were automatically generated by the software.GLS, GWI, GCW, GWW and GWE values were assessed by area under curve (AUC) of Receiving Operator Curves (SPSS®) for the prediction of ACR. Statistical differences with a p-value < 0.05 were considered significant.

Results: From a total of 189 EMB during the study period, 113 entered the primary analysis. Significant ACR was observed in 5 (4.4%) patients. Mean age was 49 years, 78% were male, mean left ventricular ejection fraction was 59 ± 10% and mean systolic blood pressure was 129 ± 18 mmHg. Mean GLS (%) was -13 ± 3, mean GWI (mmHg%) was 461 ± 397, mean GCW (mmHg%) was 1532 ± 450, mean GWW (mmHg%) was 160 ± 112 and mean GWE (%) 89 ± 9. AUC results of GLS and MW parameters are depicted in Table. GLS (p = 0.003), GCW (p = 0.003) and GWI (p = 0.003) were significantly associated with ACR, while GWW and GWE were not. ACR did not occur for GLS values < -11.4% as its sensitivity (S) was 100% and specificity (Sp) was 75%. GCW > 1069 mmHg% had a S of 80% and a Sp of 90%, and GWI > 721 mmHg% had a S of 80% and Sp of 88%.

Table.1	Acute cellular rejection prediction		
	AUC	p value	95% CI
GLS (%)	.888	.003	.809 - .966
GWI (mmHg%)	.889	.003	.827 - .951
GCW (mmHg%)	.896	.003	.826 - .966
GWW (mmHg%)	.601	.447	.102 - .696
GWE (%)	.610	.406	.405 - .815

Conclusions: Non-invasive ACR detection remains a clinical challenge. This study demonstrates that LV function assessment by speckle tracking echocardiography techniques, namely GLS and MW might be very useful in HT patients' clinical approach. In our population, GLS ruled out ACR for values below -11.4%. Furthermore, GWI and GCW were significantly associated with ACR, which might suggest subclinical LV involvement in the rejection process. These techniques shall be done routinely in HT patients. More studies addressing this issue are needed to draw more robust conclusions.

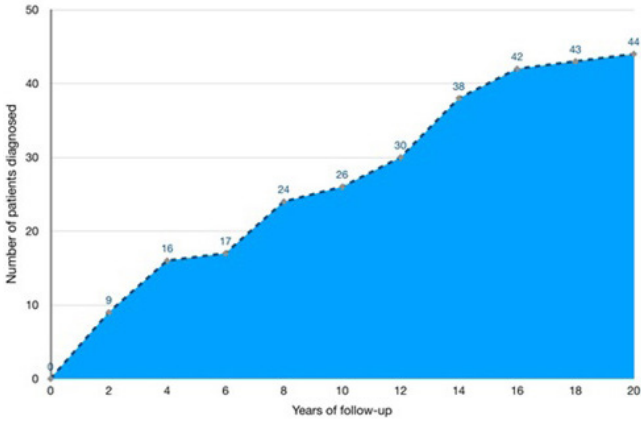
CO 68. KEEPING TRACK OF CARDIAC ALLOGRAFT VASCULOPATHY IN THE 21ST CENTURY - A SINGLE-CENTER EXPERIENCE

Mariana Sousa Paiva, Sérgio Maltês, Christopher Strong, Daniel A. Gomes, Rita Reis Santos, Rita Bello, Bruno Rocha, Catarina Brízido, António Tralhão, Carlos Aguiar, Miguel Mendes

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

Introduction: Cardiac allograft vasculopathy (CAV) remains one of the major determinants of long-term morbidity and mortality associated with orthotopic heart transplantation (OHT). The aim of our study is to describe the incidence of CAV in a cohort of OHT recipients and to identify CAV predictors.
Methods: Single-center retrospective cohort including consecutive OHT patients who underwent CAV screening either by invasive coronary angiography (ICA) or coronary CT angiography (CCTA) from 2000-2021. CAV was classified according to International Society for Heart and Lung Transplantation (ISHLT) nomenclature. Cox regression analysis was performed to explore the association between clinical variables and CAV development.
Results: Overall, 88 patients (mean age 46 ± 14 years at the time of OHT, 72% men, 24 patients (27%) with previous ischemic cardiomyopathy) were included. The mean donor age was 32 ± 12 years and the mean cold ischemia time was 156 ± 46 min. The baseline immunosuppressive scheme included prednisolone in all patients, mofetil mycophenolate in 81 (92%), tacrolimus in 44 (50%), cyclosporin in 41 (47%) and mTOR inhibitors (mTORi) in 8 (9%). After OHT, 67 (76%) developed hypertension and 36 (41%) diabetes. Most (89%) were under statin therapy. During the first year, 19 (22%) patients experienced acute ≥ 2R cellular or humoral rejection. Furthermore, 12 patients (14%) developed donor-specific antibodies during follow-up. A total of 8 patients had documented CMV infection after OHT. During a median follow-up of 11 years (IQR 5-17), 44 (50%) patients developed ISHLT defined CAV (Figure): CAV1 in 31 (35%) patients, CAV2 in 5 (6%) and CAV3 in 8 (9%). All CAV patients were started on aspirin therapy; 14 initiated mTORi; 5 underwent coronary angioplasty; and 1 patient underwent re-transplantation. The only CAV predictor in our cohort was donor age (HR 1.05, 95%CI 1.01-1.083, p = 0.012). Over 20 years, there were 20 deaths (23%), of whom 5 (6%) were directly related with CAV.

Figure 1. Cumulative incidence of CAV over 20 years of follow-up



Conclusions: Over a median follow-up of 11 years, half of our OHT cohort developed at least mild CAV, culminating in one re-transplant and five CAV-related deaths. Donor age was a predictor of CAV. These findings highlight the importance of preventive measures and systematic CAV screening in OHT recipients.

CO 69. ANTIBODY-MEDIATED REJECTION - A MAJOR COMPLICATION AFTER HEART TRANSPLANTATION

Sandra Amorim[1], Pedro Rodrigues Pereira[1], Roberto Pinto[1], Paulo Araújo[1], José Pinheiro Torres[1], Marta Andrade[1], Sandra Tafulo[2], José Silva Cardoso[1], Filipe Macedo[1], Paulo Pinho[1]

[1]Centro Hospitalar Universitário de S. João, EPE. [2]Instituto Português de Sangue e Transplantação.

Introduction: Acute cellular rejection is the mechanism of most immune-related injury in cardiac transplant recipients. However, antibody-mediated rejection (AMR) is gaining increasing recognition as a major complication after heart transplantation (HT) associated with increased mortality and cardiac allograft vasculopathy (CAV). AMR results from activation of the humoral immune arm and the production of donor-specific antibodies (DSA) that bind to the cardiac allograft causing myocardial injury predominantly through complement activation. We sought to investigate the prevalence and predictors of AMR and its association with graft dysfunction, mortality, and CAV.
Methods: Prospective cohort study, from 2016 to 2021, with 71 adult heart transplant recipients (excluded pts with hospital mortality, not due to rejection) with endomyocardial biopsies searching for AMR according to ISHLT grading: histologic findings and immunofluorescence for C4d.
Results: AMR was present in 20 pts (28.2%). 7 had early AMR (< 1 y of HT) and 13 had late AMR (median 77 months post-HT). 18 pts had AMR1, 1 had AMR2 and in 1 pt diagnosis of AMR was made by severe allograft dysfunction combined with DSA and high titters of C1q-binding antibodies. DSA were detected in 66% and 7 pts (35%) had concurrent acute cellular rejection. Graft dysfunction occurred in 9 pts (45%, all late AMR). 5 pts received intravenous methylprednisolone, 3 received IVIg, 3 received plasmapheresis, 2 received rituximab, 7 received high dose of oral prednisolone and 5 pts received optimization of immunosuppressive therapy. Prognosis of pts with graft disfunction was poor (20% death/retransplant): cardiac death in 2 pts, infection in 1 pt and retransplant in 1 pt. Pts with AMR were more likely to have anti-HLA antibodies before HT (90.9% *vs.* 53.9%, p = 0.03), graft dysfunction (40.0% *vs.* 3.9%), acute cellular rejection episodes (≥ 2R ISHLT) (90.0% *vs.* 54%, p < 0.01), acute cellular rejection < 1 year post-HT (80.0% *vs.* 36.0%, p < 0.01) than those without AMR. No association was found between CAV, age, female gender, ECMO use and presence of AMR. Overall survival at 5 and 10 years was not different in pts with or without AMR. At 12 y there was a decrease in survival (57% *vs.* 79%) in pts with AMR.
Conclusions: Late AMR is frequently associated with graft dysfunction and an increased risk of mortality. Early diagnosis and treatment of AMR, particularly in those with pre-HT alossensibilization or with episodes of cellular rejection, may therefore be important to reduce the consequences of chronic inflammation leading to development of myocardial fibrosis and graft dysfunction.

CO 70. THE IMPACT ON THERAPEUTIC APPROACH AFTER CORONARY COMPUTED TOMOGRAPHY IN A HEART TRANSPLANT PATIENT POPULATION

Ana Amador, João Calvão, Catarina Martins da Costa, André Cabrita, Catarina Marques, Ana Pinho, Luís Santos, Cátia Oliveira, Mariana Vasconcelos, Sandra Amorim, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Although coronary angiography (CA) remains the gold standard for coronary allograft vasculopathy (CAV) screening, coronary computed tomography (CCT) has been used as non-invasive alternative. There is sparse data regarding how the CCT findings impact subsequent medical approach.
Methods: From January 2021 to April 2022, we prospectively included heart transplant (HT) recipients who performed CCT for CAV detection at a university hospital centre. Clinical, CCT and CA data were collected.
Results: We included 38 patients (pts), 23 (60.5%) men with mean age of 58 ± 14 years. The main cause of transplantation was familial dilated

cardiomyopathy (42.1%), followed by ischemic cardiopathy (31.6%). Median graft duration was 10 years (IQR 9) and 65.8% had previous rejection. At CCT time, 97.4% of pts had LEVF ≥ 60%, 89.5% pts had ≥ 1 cardiovascular risk factor (CVRF), 18.4% had peripheral arterial or cerebrovascular disease (PA/CVD), 94.7% pts took anti-thrombotics (86.8% anti-platelets and 7.9% anticoagulants) and all took anti-lipids (71.0% statins, 5.3% ezetimib, 26.7% both). Median calcium score was 17 (IQR 231) and 32 pts completed CCT: 7, 24 and 1 patients had ISHLT-CAV classification of 0, 1 and 2, respectively. Most patients (37.5%) had both calcified and hypodense plaques and median number of affected segments was 2 (IQR 3). The remained 6 pts had extensive coronary calcification and a CA was performed: 3, 1 and 2 had ISHLT-CAV classification of 1, 2 and 3, respectively. Four (10.5%) pts needed additional ischemia testing: the one with CAV3 and both the pts with CAV2; also one pt with CAV1 but suboptimal quality of CCT images. CCT also detected cardiac thrombus and pulmonary nodules in 2 and 4 pts, respectively. Findings in CCT lead to therapeutic changes in 10 (26.3%) pts - all had changes in anti-lipids. One pt also changed anti-thrombotics and anti-hypertensive (aspirin to warfine due to cardiac thrombus and titulation of amlodipine) and other pt with CAV1 with hypondense plaques and 21 years of graft switched immunosuppressant to everolimus. Therapeutic changes were associated with diabetes after HT (p = 0.043), but there were no significant associations with other CVRF, sex, age, previous PA/CVD, ischemic etiology, graft duration, plaque characteristics, calcium score, CAV classification nor previous rejection. However, our small sample size may not have the power to expose such associations. During the mean follow up of 12.2 ± 4.2 months, there were no deaths, PCI, ACS, ventricular arrythimias or stroke. 3 pts had de novo rejection (1 humoral, 1 cellular and 1 both) - the last one, evolved from CAV1 to CAV3 and was submitted to a new heart transplant.
Conclusions: Therapeutic changes (mainly anti-lipids) occurred in about 25% of pts after CCT, and were only associated with diabetes after HT. More studies are needed to access how CCT may guide therapy according to plaque burden.

Sábado, 15 Abril de 2023 | 11:30-12:30

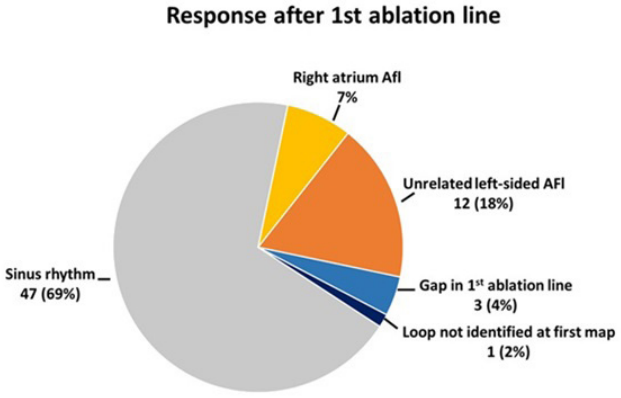
Sala Vega | Comunicações Orais - Sessão 15 - Fibrilhação auricular e *flutter* atípico

CO 71. ATYPICAL FLUTTER: EFFECTIVENESS OF A SYSTEMATIC STRATEGY BASED ON COMPREHENSIVE HIGH-DENSITY MAP ANALYSIS

Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Beatriz Garcia, Catarina Oliveira, Patrícia Teixeira, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: High-density mapping tools expanded the mechanism characterization of atypical flutters (AFl), but a systematic analysis of substrate and activation maps is critical for proper interpretation and targeted ablation strategy.
Objectives: Between 2016 and 2017, we developed a comprehensive stepwise workflow for AFl map interpretation in 25 patients (pts). This study evaluates its effectiveness in a validation cohort.
Methods: Prospective single-center study of pts with left-sided AFl referred for ablation from 2018 to 2022. Pts with prior AFl ablation procedures were excluded. Complete high-density map collection was performed using Carto, Ensite or Rhythmia, while displaying only voltage data. The comprehensive workflow was applied for activation map interpretation, starting by facing the mitral annulus and following the sequence of colors to systematically identify all potential circuits, their common-isthmuses and slow-conduction sites. Additional algorithms (Coherent, Ripple, SparkleMap or LumiPoint) were used subsequently, at operator description, for interpretation validation purposes. A mechanism-tailored ablation strategy was applied targeting AFl common-isthmuses. If AFl persisted after completion of 1st ablation set, remap was performed and the mechanism was characterized. Acute success was defined as conversion to sinus rhythm with the completion of the final ablation set. Entrainment maneuvers were only used to confirm the circuit interpretation if AFl persisted after completion of the planned ablation set.
Results: A total of 68 pts were included in the AFl validation cohort (male 61.8%; 67 ± 13 years old). Substrate maps revealed low-voltage areas (< 0.3 mV) out of the PV in 88%. AFl mechanism was macro-reentrant in 90%, most often with dual-loop circuits (51%, N = 35) and including a perimitral rotation (53%, N = 36 pts). The 1st set of mechanism-tailored ablation restored sinus rhythm in 47 pts (69%). The residual AFl (N = 21) was found to be: (1) same AFl using an ablation line gap in 3 pts; (2) same AFl using a loop previously not recognized in 1 pt; (3) a completely different AFl using a distinctive circuit (N = 12); or (4) a right-sided peri-tricuspid flutter in 5 pts. Completion of the ablation set resulted in sinus rhythm restoration in 19 of these 21 pts, resulting in an overall acute success rate of 97% (66/68). In the remaining 2 pts, response to entrainment maneuvers was compatible with conduction persistence through the ablation line, being unsuccess explained by ablation failure.



Conclusions: This comprehensive stepwise workflow for AFl high-density map allows a mechanism-tailored ablation strategy resulting in a very high acute success rate. Our study enforces that if AFl persists after the 1st ablation set and a remap is pursued, additional targeted ablation results in a final procedural success.

CO 72. PROCEDURAL RELATED *VERSUS* IDIOPATHIC ATYPICAL ATRIAL FLUTTER

M. Inês Barradas[1], Paulo Fonseca[2], João Almeida[2], Marco Oliveira[2], Helena Gonçalves[2], João Primo[2], Anabela Tavares[1], Ricardo Fontes-Carvalho[2]

[1]Hospital do Divino Espírito Santo, Ponta Delgada. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Atypical atrial flutter (AFLA) is a macro-reentrant atrial tachycardia not using the cavotricuspid isthmus (CTI). It is often associated with cardiac surgery or previous ablation, mainly pulmonary vein isolation (PVI) and AFLA not related to ablation or previous cardiac surgery is rare.
Methods: We performed a retrospective single-center review of all patients treated for AFLA ablation in our center from October 2008 to July 2022. Our study aimed to review and compare the incidence, clinical and electrophysiologic characteristics and acute and long-term results of AFLA

ablation, according to previous atrial procedure. Three groups were defined: group 1 (G1) - idiopathic AFLA not related to previous ablation or cardiac surgery (n = 18), group 2 (G2) - previous ablation (n = 32) and group 3 (G3) - previous cardiac surgery (n = 14). All patients underwent radiofrequency ablation with 3D mapping system.

Results: From 64 patients (61.0 ± 11.28 years, 60.9% male, follow-up (FUP) 58.5 ± 47.79 months) 32 (50.0%) had previous catheter ablation (35.9% PVI, 21.9% CTI, 3.1% accessory pathway), 14 (21.9%) previous cardiac surgery and 18 (28.1%) corresponded to AFLA not related to ablation or previous cardiac surgery. There were no significant differences in baseline demographic and clinical characteristics between the groups except for the higher prevalence of atrial fibrillation (AF) in G2 ($p < 0.01$) and valvular and congenital heart disease in G3 ($p < 0.01$). Echocardiographic data was similar between groups (left ventricular ejection fraction 55.1 ± 10.44%, moderate to severe left atrial (LA) dilatation in 25 (39.0%)). Low-voltage areas (LVA) were identified in 38 (59.4%) patients and were more prevalent in G1 (G1 77.8%, G2 46.9% and G3 71.4%, $p = 0.021$). There was no difference in the number of induced AFLA (1.3 ± 0.74 AFLA per patient, in 7 (10.9%) no arrhythmia was induced), anatomical location (LA 70.3% and right atrium 29.7%) or ablation strategy (table 1). Concomitant PVI or re-PVI was more prevalent in G2 (G1 11.1%, 0.0%; G2 0.0%, 46.9%; G3 7.1%, 0.0%; $p < 0.01$) and ablation of ectopic pulmonary triggers in G1 (G1 44.4%, G2 6.3%, G3 21.4%, $p < 0.01$). Acute ablation success was achieved in 87.5% and was similar in all patients. Atrial arrhythmia (AA) recurrence (AF, atrial tachycardia or flutter) occurred in 32.8% at 1 year, 35.9% at 2 years and 40.6% at FUP (14.1 ± 41.41 months after ablation) and was similar between groups, as well as visits to the emergency department due to AA, cardiovascular hospitalizations, ischemic stroke and death by all causes.

Conclusions: In our cohort of patients, patients with idiopathic AFLA had more frequently LVA suggestive of scaring or fibrosis, suggesting atrial cardiomyopathy. Although the additional ablation strategy differ between the groups, ablation success was achieved in the majority of patients and acute and long-term outcomes did not differ between the groups.

Table 1: Electrophysiologic characteristics of AFLA:

Procedural data	AFLA (n=64)	Group 1: Idiopathic AFLA (n=18)	Group 2: Previous ablation (n=32)	Group 3: Previous cardiac surgery (n=14)	p
General procedure parameters:					
Fluoroscopy time, mean ± SD (minutes)	15.3 ± 14.70	8.70 ± 4.95	18.21 ± 15.69	16.0 ± 13.39	ns
Procedure time, mean ± SD (minutes)	145.8 ± 44.15	142.0 ± 34.27	152.6 ± 49.66	135.0 ± 40.6	ns
Intraprocedural cardioversion, n (%)	14 (21.8)	2 (11.1)	8 (25.0)	4 (28.6)	ns
Complications, n (%)	7 (10.9)	0 (0.0)	5 (15.6)	2 (14.3)	ns
Hospitalization duration, mean ± SD (days)	1.0 ± 1.61	1.22 ± 0.65	1.8 ± 1.90	1.5 ± 1.73	ns
Number of AFLA induced:					
• 0, n (%)	7 (10.9)	2 (11.1)	4 (12.5)	1 (7.1)	ns
• 1, n (%)	37 (57.8)	12 (66.7)	15 (46.9)	10 (7.1)	
• 2, n (%)	16 (25.0)	3 (16.7)	10 (31.3)	3 (21.4)	
• ≥ 3, n (%)	4 (6.3)	1 (5.6)	3 (9.4)	0 (0.0)	
Substrate pattern:					
Low-voltage areas, n (%)	38 (59.4)	14 (77.8)	15 (46.9)	10 (71.4)	0.021
• Right atrium, n (%)	9 (14.1)	3 (16.7)	3 (9.4)	3 (21.4)	
• Left atrium , n (%)	29 (45.3)	11 (61.1)	12 (37.5)	6 (42.9)	
Large low-voltage areas, n (%)	19 (29.7)	9 (50.0)	8 (25.0)	6 (26.1)	ns
Anatomical location:					
Left atrium, n (%)	45 (70.3)	14 (77.8)	24 (75.0)	7 (50.0)	ns
• Peri-pulmonary, n (%)	23 (35.9)	6 (33.3)	14 (43.8)	3 (21.4)	
• Peri-mitral, n (%)	8 (12.5)	3 (18.8)	4 (12.5)	1 (7.1)	
• Roof-dependent, n (%)	1 (1.6)	4 (22.2)	1 (3.1)	0 (0.0)	
• Low voltage anterior, n (%)	9 (14.1)	1 (5.6)	2 (6.2)	3 (21.4)	
• Low voltage posterior, n (%)	4 (6.3)	14 (77.8)	3 (9.4)	1 (7.1)	
Right atrium, n (%)	19 (29.7)	4 (22.2)	8 (25.0)	7 (50.0)	
• Scar/ incisional, n (%)	12 (18.8)	2 (11.1)	5 (15.6)	5 (23.7)	
• Upper loop reentry, n (%)	2 (3.1)	1 (5.6)	0 (0.0)	1 (7.1)	
• Lower loop reentry, n (%)	2 (3.1)	0 (0.0)	2 (6.3)	0 (0.0)	
• Free-wall, n (%)	2 (3.1)	4 (22.2)	1 (3.1)	0 (0.0)	
• Superior vena cava, n (%)	1 (1.6)	0 (0.0)	0 (0.0)	1 (7.1)	
Additional ablation:					
Ectopic pulmonary triggers, n (%)	13 (20.3)	8 (44.4)	2 (6.3)	3 (21.4)	< 0.01
PVI, n (%)	3 (4.7)	2 (11.1)	0 (0.0)	1 (7.1)	< 0.01
Re-PVI, n (%)	15 (23.4)	0 (0.0)	15 (46.9)	0 (0.0)	< 0.01
CTI ablation, n (%)	17 (26.6)	2 (11.1)	8 (25.0)	7 (50.0)	0.045
Acute ablation outcomes:					
Immediate termination, n (%)	29 (45.3)	13 (72.2)	12 (37.5)	4 (6.3)	ns
Another AFLA terminated with additional ablation, n (%)	12 (18.8)	3 (16.7)	6 (18.8)	3 (21.4)	
Another AFLA not sustained, n (%)	2 (3.1)	0 (0.0)	2 (6.3)	1 (7.1)	
Another AFLA not terminated with additional ablation, n (%)	3 (4.7)	0 (0.0)	2 (6.3)	1 (7.1)	
Degenerated in AF, n (%)	1 (1.6)	1 (5.6)	0 (0.0)	0 (0.0)	
Not terminated, ECV, n (%)	5 (7.8)	0 (0.0)	3 (9.4)	2 (14.3)	
Not induced, n (%)	7 (10.9)	1 (5.6)	5 (15.6)	1 (7.1)	
Induced but not sustained, n (%)	5 (7.8)	0 (0.0)	3 (9.4)	2 (14.3)	
Acute success, n (%)	56 (87.5)	17 (94.4)	27 (84.4)	11 (78.6)	ns

AFLA: atypical atrial flutter; SD: standard deviation; PVI: pulmonary vein isolation; CTI: cavotricuspid isthmus; AF: atrial fibrillation; ECV: electrical cardioversion.

CO 72 Figure

CO 73. SEX DIFFERENCES IN TIME TO ATRIAL FIBRILLATION RECURRENCE AFTER CATHETER ABLATION

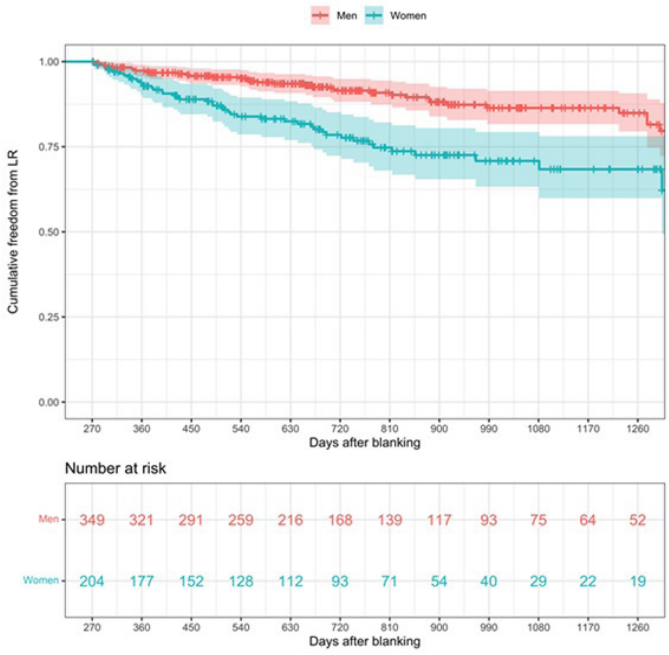
Ana Inês Aguiar Neves[1], Augusto Sá Carvalho[2], Sílvia O. Diaz[2], Mariana Ribeiro Silva[1], Gualter Santos Silva[1], João Almeida[1], Paulo Fonseca[1], Marco Oliveira[1], Helena Gonçalves[1], Francisca Saraiva[1], António S. Barros[1], Francisco Sampaio[1], João Primo[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: The rate of recurrence of atrial fibrillation (AF) after catheter ablation tends to be higher in women than in men, and as such sex may be an independent risk factor for AF recurrence after pulmonary vein isolation. However, the impact of sex on time to AF recurrence after catheter ablation is still uncertain.

Methods: Single-centre retrospective study including all patients who underwent a first procedure of AF catheter ablation (radiofrequency or cryoablation) between 2017 and 2021. Late recurrence (LR) was defined as any AF recurrence after a 90-day blanking period post-catheter ablation. The effect of sex on the cumulative freedom from LR was estimated using the Kaplan-Meier method and compared using the log-rank test and Cox proportional hazards model, adjusted for clinically relevant characteristics (age, body mass index (BMI), persistent AF, hypertension, thyroid disfunction and dilated left atrium.

Results: A total of 656 patients were included in the analysis, 32% of whom were women. Median follow-up after catheter ablation was 27 months (minimum 6, maximum 68 months). Compared to men, women who underwent catheter ablation were older (median age 62 *vs.* 56 years), had higher BMI (median 27.9 *vs.* 27.1 kg/m^2), and had higher prevalence of hypertension (54% *vs.* 45%), thyroid disfunction (28% *vs.* 10%) and valvular disease (15% *vs.* 8.4%). After covariate adjustment, women had a higher



CO 73 Figure

risk of LR (hazard ratio [HR] 1.67, 95% confidence interval [CI] 1.18-2.36; p = 0.04). However, Kaplan-Meier curves showed that this effect was not constant over time and that HR diverged after 1-year follow-up. A reanalysis after a time split at 1-year follow-up showed that women had a higher risk of LR after 1-year from catheter ablation (HR 2.53; 95%CI 1.56-4.12; p < 0.001), but not within the first year after the procedure (HR 1.43; 95%CI 0.97-2.11; p = 0.072). Persistent AF was also an independent predictor of LR (HR 2.00; 95%CI 1.42-2.83; p < 0.001).

Conclusions: Recurrence of AF following catheter ablation is more frequent in women after one year. Sex did not impact AF recurrence within the first year after catheter ablation. Further studies are needed to unveil the association between the physiological and biological processes leading to the link between late AF recurrence and sex.

CO 74. ECG-PATCH ASSESSMENT OF ATRIAL FIBRILLATION DURING THE VERY-EARLY BLANKING PREDICTS LATE BLANKING PERIOD RECURRENCE: PRELIMINARY DATA FROM A PROSPECTIVE REGISTRY

Miguel Marques Antunes, Pedro Silva Cunha, Bárbara Lacerda Teixeira, Sara Alves, Guilherme Portugal, Bruno Valente, A. S. Delgado, M. Brás, Madalena Coutinho Cruz, M. Paulo, Ana Lousinha, C. Guerra, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction: Ablation of atrial fibrillation (AF) is a procedure that causes significant atrial tissue lesions, with transient, albeit significant tissue oedema and inflammation. These mechanisms may trigger early rhythm abnormalities that do not necessarily correlate with future arrhythmias, and, therefore, evaluation of AF recurrence is currently validated by routine ECG and ambulatory 24h Holter monitoring, only after a 3-month blanking period. However, recent data have shown that AF episodes occurring during the blanking period are common and may predict late AF recurrences. The E-Patch (Bio Tel Heart) is an innovative, thin single-use adhesive electrode with extended continuous ECG monitoring for up to 120h.
Objectives: To assess if continuous extended monitoring in the very-early blanking period can be associated with event recorder data performed in the late blanking period after AF ablation.
Methods: Single-centre, prospective, longitudinal study, including consecutive patients (P) 24h after AF ablation, monitored with the E-patch. The effectiveness of the device in continuously recording within 5 days after ablation was analyzed, as well as the occurrence of AF episodes during an external 7- day loop-recorder, obtained in the 2nd-month post-ablation.
Results: A total of 30P were included (57% male, 63 ± 8 years). AF ablation was performed with radiofrequency (RF) energy in 14P and with a balloon of cryoenergy in 16P. All P were in sinus rhythm at the beginning of the recording. The mean number of hours of recording was 113 ± 16, with no discomfort complaints in the use of the device or interpretation artefacts. During the E-patch monitoring, a total of 10P (33%) presented AF (AF burden 6.8% of the recording, IQR 3.0-20%). All 30P underwent an external loop recorder for 7 days 2 months post-ablation, with 40% showing AF periods (> 30 seconds duration). All 10P that had AF detection in the very-early E-patch recording had also recurrence in the 2 nd month of extended 7-day continuous recording. Very- early AF detection had a sensitivity of 83.3% and a specificity of 100% to detect late blanking period AF (ROC 0.916 ± 0.06; 95%CI 080-1.0).
Conclusions: The use of the E-patch very-early after AF ablation is effective for AF detection and is highly predictive of AF recurrence in the late blanking period. These findings require validation in larger studies to assess the potential of very-early assessment in the determination of a higher risk for AF recurrence.

CO 75. DIAGNOSTIC YELD AND CLINICAL IMPLICATIONS OF IMPLANTABLE LOOP RECORDER FOR ARRYTHMIA INVESTIGATION: A SINGLE CENTER EXPERIENCE

Pinheiro Candjondjo, Leonor Parreira, Dinis Mesquita, Ana Fátima Esteves, Joana Silva Ferreira, Jéni Quintal, Rui Antunes Coelho, Pedro Amador, Rita Marinheiro, José Farinha, Artur Lopes, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Objectives: Implantable loop recorders (ILR) are indicated in a variety of clinical situations for continuous cardiac monitoring and have become an important diagnostic tool in detecting infrequent cardiac arrhythmias. We intended to analyze ILR indications, effectiveness and diagnostic yield in a single center experience.

Table 2 - Events detected by the ILR according to the indication for implantation.

Recorded events	Indications						p value
	Overall	Syncope	Palpitations	Suspected paroxysmal AF	Stroke	Brugada syndrome	
		n (%)	n (%)	n (%)	n (%)	n (%)	
	N=142	91 (64.1)	32 (22.5)	8 (5.6)	5 (3.5)	4 (4.2)	
Atrial fibrillatio n (%)	35(24.6)	17 (18.7)	12 (37.5)	5 (62.5)	1 (16.7)	0 (0)	0.013
Pauses n (%)	28(19.7)	23 (25.3)	3 (9.4)	0 (0)	2 (33.3)	0 (0)	0.098
PSVT n (%)	6 (4.2)	4 (4.4)	2 (6.3)	0 (0)	0 (0)	0 (0)	0.88
VT n (%)	4 (2.8)	2 (2.2)	1(3.1)	0 (0)	0 (0)	1 (20)	0.20
AV block n (%)	3 (2.1)	3 (3.3)	0 (0)	0 (0)	0 (0)	0 (0)	0.79
Atrial flutter n (%)	3 (2.1)	1(1.1)	1(3.1)	1 (12.5)	0 (0)	0 (0)	0.29

AF: atrial fibrillation; PSVT: Paroxysmal supraventricular tachycardia; VT: Ventricular tachycardia; AV block: Atrioventricular block.

Table 3 - Therapy established in response to ILR events according to the indication for implantation

Therapeutic Interventions	Indications						p value
	Overall N=142	Syncope	Palpitations	Suspected paroxysmal AF	Stroke	Brugada syndrome	
		n (%)	n (%)	n (%)	n (%)	(%)	
		91 (64.1)	32 (22.5)	8 (5.6)	5 (3.5)	4 (4.2)	
Pacemaker implant n (%)	17 (12)	17 (18.7)	0 (0)	0 (0)	0 (0)	0 (0)	0.029
ICD implant n (%)	3 (2.1)	0 (0)	1 (3.1)	0 (0)	0 (0)	2 (40)	0.001
EP study/ablation n (%)	17 (12)	8 (8.8)	8 (25)	1(12.5)	0 (0)	0 (0)	0.11
Anticoagulation n (%)	21(15)	11 (12.1)	8 (25)	1 (12.5)	1 (16.7)		0.39
Start AAD/AAD therapy change n (%)	33(23)	6 (6.6)	6 (18.8)	1 (12.5)	0 (0)	0 (0)	0.24

AF: atrial fibrillation; ICD: implantable cardioverter defibrillator; EP: eletrophysiological study, AAD: Anti-arrhythmic drugs.

CO 75 Figure

Methods: In this retrospective observational single-center study we included patients who received the ILR from October 2013 to November 2022. All patients were provided with the remote monitoring system. The primary endpoint was events detected by the ILR, either automatically or triggered by the patient and the secondary endpoint was a change in the clinical management after the event detection.
Results: This study included 142 patients (mean age 63.02 ± 15 years, 46.5% men). The most frequent indications for ILR implantation were unexplained syncope, n = 91 (64.1%), non-documented palpitations, n = 32 (22.5%) and screening for suspected undiagnosed paroxysmal atrial fibrillation (AF), n = 8 (5.6%). During a mean follow-up of 23.0 ± 25.2 months (range 0-105 months), the primary endpoint was met in 69 (48.6%) patients with a time to diagnosis of 10.8 ± 10.5 months (range 0-42 months) and the secondary endpoint in 53 (37.3%) patients. Overall, atrial fibrillation was the most common event recorded, n = 35 (24.6%), followed by sinus pause, n = 28 (19.7%), while atrio-ventricular block and atrial flutter were recorded in n = 3 (2.1%) and n = 3 (2.1%), respectively. Among patients with unexplained syncope, the most common events were sinus pause, n = 23 (25.3%) and AF, n = 17 (18.7%). Regarding changes in clinical management following an event detection the most frequent intervention was starting or changing anti-arrhythmic drug treatment, n = 33 (23%), followed by starting anticoagulation drug treatment, n = 21 (15%), pacemaker implantation, n = 17 (12%) and electrophysiology study/ablation procedure, n = 17 (12%). During the follow-up, all-cause hospital admission rate was 20.4% (n = 29), with only one recorded cardiovascular admission, and all-cause mortality rate was 7% (n = 10), with no cardiovascular deaths recorded.
Conclusions: The ILR is a valuable tool for the diagnosis of undocumented suspected arrhythmic events, often leading to a change in the clinical management of the patient.

Sábado, 15 Abril de 2023 | 13:00-14:00

Sala Vega | Comunicações Orais - Sessão 16 - Ciência básica

CO 76. ZNF259 RS964184 GENETIC VARIANT IS ASSOCIATED WITH METABOLIC SYNDROME IN A PORTUGUESE POPULATION

Débora Sá[1], Maria Isabel Mendonça[1], Marina Santos[1], Margarida Temtem[1], Francisco Sousa[1], Sónia Freitas[1], Sofia Borges[1], Eva Henriques[1], Mariana Rodrigues[1], Graça Guerra[1], António Drumond[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: Zinc finger protein (ZPR1) has been associated with defects in transcription and cell cycle progression. Additionally, the promoter site of ZPR1 binds to peroxisome proliferator-activated receptor gamma (PPARG), which plays a crucial role in insulin sensitivity and obesity. It's not consensual in its association with Metabolic Syndrom (MetS).
Objectives: To estimate the influence of the ZNF259 rs964184 variant in MetS appearance.
Methods: A case-control study was performed with 3134 subjects (mean age 52.8 ± 8.1 years, 76.4% male) recruited from the Research Unit database, a regional quality clinical registry of hospital admissions. 1756 were patients

with MetS and 1378 controls without MetS. MetS was diagnosed according to the International Diabetes Federation (IDF) criteria. The ZNF259 rs964184 C>G was genotyped with the TaqMan PCR assay (Applied Biosystems 7300 Real-Time). The bivariate analysis evaluated the genotypic and allelic distribution in the two groups, with and without MetS. Multivariate Logistic Regression assessed the variables independently associated with MetS.
Results: There were significant differences in genotype and allele distributions for the ZNF259 C>G variant between patients with MetS and without MetS. Wild-type genotype CC was increased in the non-MetS group, whereas the risk GG was higher in patients with MetS (p = 0.008). Similarly, C allele frequencies were significantly higher in the non-MetS group, while the G allele was highly present MetS population (p = 0.002). After multivariate logistic regression, GC genotype (OR = 1.23; 95%CI: 1.05-1.45; p = 0.011) and GG genotype (OR = 1.59; 95%CI: 1.01-2.50; p = 0.047) remained as independent risk factors for Metabolic Syndrome.

Genotype and allele frequencies distribution of ZNF259 C>G variant

SNP	Genotype/allele	MetS	Without MetS	P-value
rs964184C>G	CC	1149 (65.4)	967 (70.2)	0.008
	CG	548 (31.2)	381 (27.6)	
	GG	59 (3.4)	30 (2.2)	
	C allele	2846 (81.0)	2315 (84.0)	0.002
	G allele	666 (19.0)	441 (16.0)	

Variables independently associated with Metabolic syndrome (Logistic regression)

Variables	B	S.E.	Wald	df	OR (95% CI)	P-value
Male sex	0.178	0.088	4.139	1	1.195 (1.007-1.420)	0.042
Age	0.059	0.005	152.357	1	1.060 (1.050-1.070)	<0.0001
ZNF259			9.422	2		0.009
CG	0.208	0.082	6.423	1	1.231 (1.048-1.445)	0.011
GG	0.462	0.232	3.954	1	1.587 (1.007-2.503)	0.047
Constant	-3.049	0.270	127.686	1		<0.0001

Conclusions: This study presents novel data and findings that may have important implications for assessing MetS risk in our population. For the first time in a Portuguese population, we demonstrated that ZNF259 genetic changes are significantly associated with more than 60% increased probability of having Metabolic Syndrome.

CO 77. TCF21 GENE AND CARDIOVASCULAR EVENTS IN A CORONARY POPULATION

Ana Débora Câmara de Sá[1], Maria Isabel Mendonça[1], Marina Santos[1], Margarida Temtem[1], Francisco Sousa[1], Eva Henriques[1], Sofia Borges[1], Sónia Freitas[1], Mariana Rodrigues[1], Graça Guerra[1], António Drumond[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: Recent research showed that TCF21 expression in precursor cells that migrate into the disease lesions contributes to the fibrous cap, stabilizing the lesions and preventing heart attacks. Targeted deletion of the transcription factor encoded by the TCF21 was associated with vascular smooth muscle cell disruption impairing the fibrous cap structure, increasing cardiovascular (CV) disease risk. Its association with CV events is unknown.
Objectives: Analyze the TCF21 rs12190287 variant G>C evaluating its association with atherosclerosis severity and the appearance of cardiovascular (CV) events.
Methods: We performed a prospective study with 1.716 coronary artery disease (CAD) patients (mean age 53.3 ± 7.8 years). TCF21 rs12190287 G>C was genotyped by TaqMan genotyping assay (Applied Biosystems) in all patients. The severity of CAD was graded according to the number of obstructed coronary arteries with at least 70% narrowed lumen. Chi-squared tests were used to determine differences in CAD severity by genotype. We performed a first multivariate logistic regression analysis to assess the independent risk variables associated with CAD severity. After that, we presented a second multivariate Cox regression to evaluate independent variables related to CV events. Kaplan Meier estimated the survival curves.
Results: 48.0% of patients with the risk genotype CC were associated with more than two obstructed coronary arteries (CAD severity) *vs.* 9.2% in the GG wild genotype (p = 0.002). Multivariate analysis (logistic regression) showed that the CC genotype had a high risk of CAD severity (OR = 2.95; p = 0.001) than GG. After Cox regression analysis, which takes into account the time to the first event, the CC genotype remained in the equation with an HR of 1.38; 95%CI 1.02-1.88; p = 0.040. The survival events free at ten years is 49.1% in the CAD patients with the GG genotype, then drops to 39.6% with the CC risk genotype.

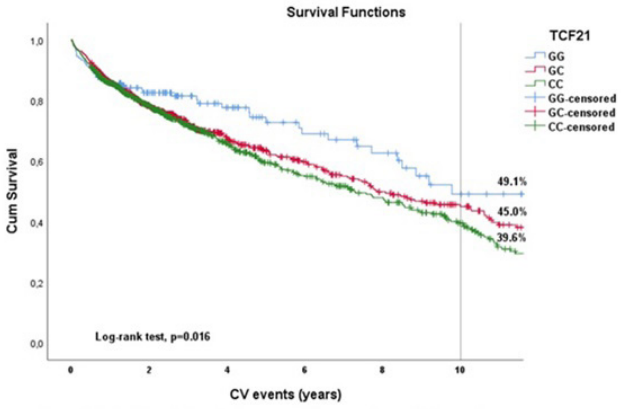


Fig. - This graph plots the Kaplan-Meyer survival curves for TCF21 genotypes

Variables independently associated with CV events occurrence (Cox regression)

Variables	B	S.E.	Wald	df	HR (95% CI)	p-value
Age	0.013	0.005	7.012	1	1.013 (1.003 – 1.023)	**0.008**
TCF21			5.977	2		0.050
GC	0.177	0.160	1.226	1	1.194 (0.873 – 1.633)	0.268
CC	0.324	0.158	4.222	1	1.383 (1.015 – 1.883)	**0.040**

Conclusions: This work shows that the GG wild genotype protects against CAD severity. In contrast, the CC genotype is associated with an increased risk of CAD severity. The patients with this allelic variant had a worse survival event free. Future research with the implementation of epigenetic and genetic therapeutics targeted to deleterious genes will allow the eradication of coronary heart disease worldwide.

CO 78. IDENTIFYING PLASMA LIPID SIGNATURES FOR CARDIOVASCULAR RISK ASSESSMENT IN HFPEF PATIENTS

Sílvia O. Diaz[1], António S. Barros[1], Pedro Palma[1], António Angélico-Gonçalves[1], Francisco Vasques-Nóvoa[1], Francisca Saraiva[1], José A. Belo[2], Otília V. Vieira[2], Adelino F. Leite-Moreira[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]CEDOC-FCMUNL.

Introduction: The role of plasma lipids is well-established in cardiovascular diseases (CVD). Lipids may contribute to the development and progression of HFpEF by increasing inflammation and impairing the ability of the heart to relax and fill with blood. Still, a comprehensive evaluation of the plasma lipidome in patients with Heart Failure with preserved Ejection Fraction (HFpEF) is missing, predominantly for cardiovascular risk stratification.
Objectives: To profile the plasma lipidome of patients with stable HFpEF using top-down shotgun lipidomics and to explore its associations with CV events.
Methods: Sixty HFpEF patients from the *NetDiamond* cohort were included. A total of 101 lipids were measured, normalized to their total sum (to reduce bias between subjects), log-transformed (to reduce skewness) and standardized (to give the same importance to all lipids). The primary endpoint was a composite of cardiovascular death or hospitalization due to HF or acute HF episode. Clinical data (age, sex, estimated glomerular filtration rate (eGFR), BNP and use of statin) was condensed through principal component analysis (PCA) into a single score (PC1) to be leveraged as regression adjustment. The association between each plasma lipid and a cardiovascular event was explored through Cox regression analysis,

adjusted to the clinical data score (PC1). Models were internally validated with bootstrapping (resampling with repetitions, recomputed 1,000 times). Hazard ratios (HR), p-values and c-index were recovered.
Results: For a median follow-up of 39 months (maximum 59 months), 21 patients registered an event. A significant association was found and corroborated with bootstrapping for 8 lipids (4 phosphocholines (PC), 1 phosphoethanolamine (PE), 1 phosphatidylinositol (PI), 1 sphingomielin (SM), and 1 cholesterol ester (CE) and the primary endpoint event in our population. Lipids positively associated were (ordered by decreasing HR): PE18:0-18:2, PC18:0-22:5, PC14:0-18:1, PI18:0-18:2, PC(O)16:0-18:0, and PC16:0-22:5; while negative associations were found for SM42:1:2 and CE20:4. Median c-index ranged from 0.69 to 0.80, showing moderately robust predictive models.
Conclusions: Despite the small cohort and the low number of events, we identified lipids potentially associated with a cardiovascular event. These preliminary results revealed that plasma lipidomic might help stratify patients at risk of cardiovascular death, HF hospitalization, and acute HF episodes.

CO 79. VARIABILITY OF THE ANTITHROMBOTIC EFFECT OF ACETYLSALICYLIC ACID WITH THE ADMINISTRATION OF DIFFERENT DOSAGES: REALITY OR MYTH?

Joana Lima Lopes, Mariana Passos, Carolina Mateus, Inês Fialho, Vanessa de Oliveira, Diana Sousa Mendes, David Roque

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

Introduction: We rely on the antithrombotic effect of acetylsalicylic acid (ASA) in a number of pathologies, although other beneficial effects are known, such as its anti-inflammatory properties, when administered in higher doses (500 mg, 1,000 mg per os). However, whether the anti-inflammatory effect decreases the antithrombotic potency of ASA is not known. This gap in evidence may lead to an unnecessary use of two drugs (one antithrombotic and one anti-inflammatory) that could be replaced by ASA alone. This scenario presents frequently: post-infarct pericarditis or when in doubt between non-ST segment elevation myocardial infarction *vs.* myopericarditis. In such cases, the use of ASA could assure both antithrombotic and anti-inflammatory effects. Since the antithrombotic effect of ASA is not scientifically proved for higher doses, currently we use ASA 100 mg as an antithrombotic agent and ibuprofen as an anti-inflammatory. This experimental study intends to assess whether ASA maintains its antithrombotic effect when administered in an anti-inflammatory dose.
Methods: Twenty healthy volunteers were recruited. They all had their platelet function assessed in a qualitative manner, using PFA-200 Innovance technology. The volunteers were randomized into four groups, with 5 participants each. The participants of groups 1, 2, 3 and 4 ingested ASA 100 mg, 300 mg, 500 mg and 1.000 mg respectively, in a blind experiment. One hour after ingestion (peak of action), the volunteers' platelet function was reassessed. PFA-200 evaluates platelet function through platelet occlusion time (OT), which is measured in milliseconds (ms). Normal platelet function translates into OT of 82-150ms. If the OT is higher than 150ms, the patient is anti-aggregated.
Results: Prior to ASA administration, 19/20 volunteers had OT within the reference range. Afterwards, in all four groups, volunteers reached OT > 150 ms, regardless of the ASA dose administered. Mean OT values for each group were 188 ms [SD-23], 205 ms [SD-63], 262 ms [SD-44] and 232 ms [SD-47], respectively. Overall SD was 32 ms.
Conclusions: ASA maintains its antithrombotic effect when administered in an anti-inflammatory dose. There is no clear correlation between the potency of antithrombotic effect and the ASA dose administered. This was a pilot study that supports the maintenance of the antithrombotic effect of ASA in higher doses, but further and larger studies are required to corroborate these results.

CO 80. KETONES' IMPACT ON A DYSMETABOLIC RAT MODEL OF HEART FAILURE WITH PRESERVED EJECTION FRACTION

Alexandre Gonçalves[1], Daniela Miranda[1], Cláudia Mendes[1], Carolina Silva[1], Inês Alves[1], Panagiotis Peppas[1], Mónica Zuzarte[2], Alexandre Rodrigues[1], Liliana Leite[1], José Sereno[1], Maria Vidigal[2], Adelino Leite-Moreira[1], Henrique Girão[2], Vasco Sequeira[3], Inês Falcão-Pires[1]

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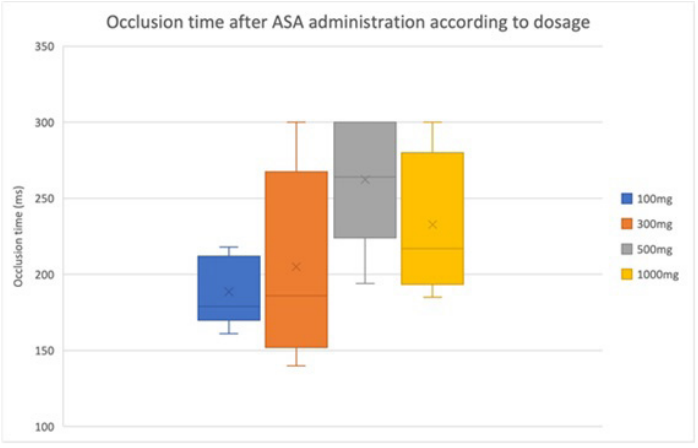
Heart Failure with Preserved Ejection Fraction (HFpEF) affects 1.1-5.5% of the general population whilst being associated with poor prognosis and hospitalization. This is particularly concerning given that, until very recently, pharmacological options were extremely limited. While the specific mechanisms through which these drugs reduce all-cause mortality remains unknown, data from the recent EMPEROR-Preserved trial has shown associations with increased ketone levels that may be key to the effects observed. Previous studies have shown that increasing ketone levels may have beneficial effects on cardiovascular field, but their potential impact on HFpEF remains unknown. In this study, we explore ketone increase as a potential therapeutical option for HFpEF. To this end, at 16 weeks of age, 30 ZSF1 Lean (Controls) and 30 ZSF1 Obese rats (a well characterized dysmetabolic HFpEF animal model), were randomly assigned to remain on control diet, change to a ketogenic diet (KD) or keep the regular chow whilst having ketone salts (KS) delivered through drinking water. Glucose and B-hydroxybutyrate levels were monitored throughout the study. Metabolic and functional assessments including oral glucose tolerance test, VO2max, echocardiography and PET/CT were conducted throughout the protocol, culminating with terminal procedures at 23-30 weeks of age. Fresh samples were used to study mitochondrial respiration and assess isolated cardiomyocyte function. By 23



CO 79 Figure

weeks of age, baseline hyperglycaemia was reduced by up to 48% with KD and KS on these diabetic HFpEF rats, while glycaemic tolerance was improved only under the KD. By itself, HFpEF appears to promote 11-Acetoacetate uptake similarly to both treatments under control conditions, hinting at the metabolic shift that must be occurring on the starving HFpEF hearts. Importantly, both KD and KS were shown to significantly reduce HFpEF-associated cardiac fibrosis and hypertrophy. The extent of these changes was further studied on isolated cardiomyocytes, where we observed improvements in calcium handling with KS (peak Ca2+ to 90% baseline) and contractile function with both therapies (time to peak, peak height, baseline sarcomere length and Tau). Lastly, these changes seemed to be accompanied by a significant reduction in cardiac complex II mitochondrial respiration on HFpEF with KS, which might constitute a defence mechanism against oxidative stress. Taken together, our data seem to suggest that increased ketone levels may alleviate or even reverse some of the cardiometabolic impairments associated with the HFpEF phenotype in this rat model and our follow-up studies may shed further light on this potential.

Sábado, 15 Abril de 2023 | 14:00-15:00

Sala Vega | Comunicações Orais - Sessão 17 -Síndromes coronárias crónicas

CO 81. VALIDATION AND POTENTIAL USEFULNESS OF THE UPDATED PROMISE MINIMAL RISK TOOL IN PATIENTS WITH SUSPECTED CORONARY ARTERY DISEASE UNDERGOING CORONARY CT ANGIOGRAPHY

Maria Rita Giestas Lima[1], Pedro M. Lopes[1], Francisco Albuquerque[1], João Presume[1], Pedro Freitas[1], Cláudia Silva[1], Sara Guerreiro[1], João Abecasis[1], Carla Saraiva[1], Ana Coutinho Santos[1], Pedro Gonçalves[1], Miguel Mendes[1], António Ferreira[1], Hugo Marques[2]

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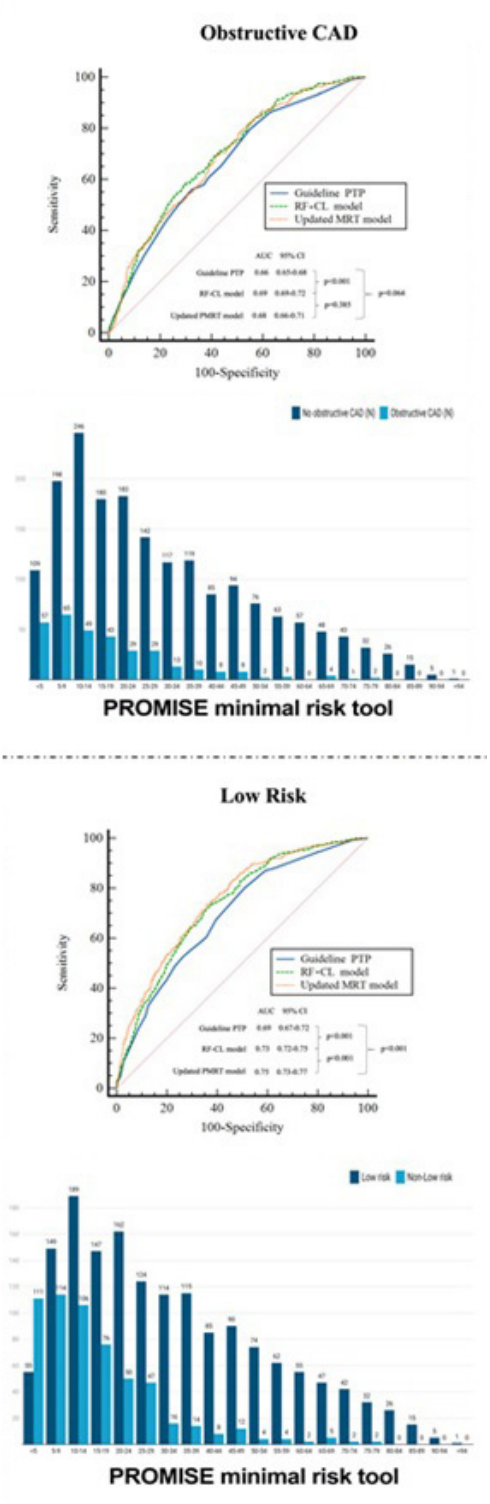
Introduction: The steady decline in test positivity among patients with suspected coronary artery disease (CAD) has raised interest in developing strategies to identify patients who may not require testing. The updated PROMISE minimal-risk tool (PMRT) was developed specifically for this purpose, but never tested in our population. The aim of this study was to assess the diagnostic performance of this new tool, and to compare it with the guideline-recommended pre-test probability (PTP) and with the risk factor-weighted clinical likelihood (RF-CL) model in a Portuguese cohort of symptomatic patients undergoing coronary computed tomography angiography (CCTA).

Methods: We conducted a two-centre cross-sectional study of symptomatic patients undergoing CCTA for suspected CAD. Key exclusion criteria were age < 30 years, known CAD, suspected acute coronary syndrome or symptoms other than chest pain or dyspnoea. A simplified version of the updated PMRT (without HDL-C), the guideline PTP, and RF-CL score were calculated for each patient. Obstructive CAD was defined as any luminal stenosis ≥ 50% on CCTA. 'Low risk' was defined as absence of obstructive CAD and coronary artery calcium (CAC) score < 100 (both conditions present, where CCTA results are unlikely to change patient management). The cut-off value of the PMRT with 95% positive predictive value for identifying patients with 'Low risk' was identified in ROC curve analysis.

Results: A total of 2,162 patients (mean age 60 ± 11 years, 59% female) were included. Overall, 14.9% (N = 323) of patients had obstructive CAD, and 73.5% (N = 1,589) fulfilled the criteria for 'Low risk'. Patients with 'Low risk' were more frequently female, had higher prevalence of non-anginal chest pain and had fewer cardiovascular risk factors. For obstructive CAD, the discriminative power of the updated PMRT was similar to the one provided by the guideline PTP and RF-CL models (Figure 1A). However, for identifying patients with 'Low risk', the updated PMRT showed greater discriminative power than the guideline PTP and RF-CL models. The PMRT cut-off value with 95% positive predictive value for detecting patients at "Low risk" was identified as > 46%. A total of 458 patients (21.2%) had a PMRT > 46%.



Conclusions: In this cohort of symptomatic patients undergoing CCTA, the updated PMRT showed similar discriminative power for obstructive CAD, but greater discriminative power to identify "Low risk" than the guideline-recommended PTP and the RF-CL models. The criterion that identified "Low Risk" with 95% positive predictive value was present in roughly one fifth of patients undergoing CCTA, who would be less likely to derive benefit from testing.

CO 82. DETECTION OF CORONARY ARTERY DISEASE USING EPICARDIAL ADIPOSE TISSUE RADIOMICS IN NON-CONTRAST COMPUTED TOMOGRAPHY

Fábio Sousa Nunes[1], Carolina Santos[2], Wilson Ferreira[1], Mónica Carvalho[1], João Pedrosa[3], Miguel Coimbra[3], Ricardo Ladeiras Lopes[2], Nuno Ferreira[1], Luís Vouga[1], Jennifer Mancio[4], Ricardo Fontes Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto. [3]Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência - INESC TEC. [4]King's College of London.

Introduction: Dysfunctional epicardial adipose tissue (EAT) is an active player in the pathophysiology of atherosclerosis. EAT can be quantified noninvasively by computed tomography (CT) and its volume and attenuation have been investigated as imaging biomarkers of coronary artery disease (CAD). Radiomic analysis allows thorough phenotyping of adipose tissue which has the potential of capturing the underlying tissue biology. The objective was to characterize the CTradiomic profile of EAT associated with coronary atherosclerosis and to derive the EAT radioproteomic signature of CAD.
Methods: We extracted radiomic features from the EAT in non-contrast CT images of 192 patients from the EPICHEART study (NCT03280433) to build a machine learning model to discriminate patients with CAD (i.e., > 50% stenosis in invasive angiography) from patients without CAD. Among the 1037 extracted radiomic features, we performed features selection to identify the best performing features for CAD classification and build a radiomic signature of CAD. Subsequently, a multivariate XGBoost model was trained using the entire dataset in a 6-fold stratified cross-validation. Furthermore, in a nested-case-control group of 21 patients with EAT proteomics, a spearman correlation was performed to determine the association between the EAT radiomics and proteomics of CAD.
Results: CAD patients showed accumulation of EAT with higher median gray level values and heterogeneous texture in non-contrast CT images. This phenotype was correlated with upregulation of pro-calcifying (Annexin-A2), pro-inflammatory (IGHM) and adipocyte fatty acid transport (FABP4) proteins. EAT radiomic signature of CAD added to calcium score (CCS) improved the performance of CCS alone and provided an area under the curve of 0.81 (95%CI: 0.69-0.93), sensitivity of 0.83, negative predictive value of 0.87, F1 score of 0.77 and accuracy score of 0.79 (Figure).

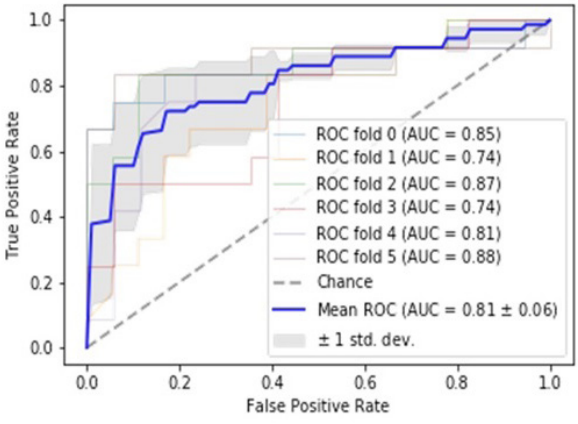


Figure 1. Receiver operating characteristics curve of epicardial adipose tissue radiomics combined with calcium score to discriminate CAD from non-CAD patients.

Conclusions: In non-contrast CT images, radiomic profiling of EAT detected significant EAT gray-level and texture differences between patients with and without CAD. This EAT radiomic phenotype was correlated with upregulation of inflammatory, calcifying and fatty acid import proteins and when added to CCS improved the detection of CAD, supporting CT radiomics interpretability and its potential diagnostic applications.

CO 83. THE ROLE OF CARDIOVASCULAR RISK FACTORS IN CORONARY VASOSPASM WITH FLUOROPYRIMIDINES

Isabel Cardoso, Vera Ferreira, Tânia Mano, Inês Guerreiro, Leonor Fernandes, André Grazina, Sofia Jacinto, Ricardo Carvalheiro, André Ferreira, Pedro Rio, Luís Almeida Morais, Rui Cruz Ferreira

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

Introduction: Fluoropyrimidines are widely used in the treatment of solid tumours, including adenocarcinomas of gastrointestinal tract, lung and breast. Cardiac toxicity typical presents as chest pain, predominantly caused by vasospasm. The precise role of cardiovascular (CV) risk factors on the risk of coronary vasospasm is yet to be defined.

Table 1 Baseline Characteristics	
Age, yrs	72 (IQR 17)
Male	24 (59)
Median Stage of cancer	
I	1 (2)
II	5 (12)
III	17 (41)
IV	14 (34)
Upper GI cancer	10 (24)
Colorectal GI cancer	20 (49)
Lung cancer	2 (5)
Breast cancer	8 (20)
Thymus	1 (2)
Hypertension	34 (83)
Hyperlipidemia	22 (54)
Diabetes mellitus	17 (42)
Smoking	10 (24)
Ischemic heart disease	16 (39)
Previous acute coronary syndrome	11 (27)
CKD	5 (12)
Beta-blockers	17 (42)
ACE inhibitor/ARB	28 (68)
Nitrate	10 (24)
Calcium-channel blocker	11 (27)
Statins	26 (63)
Vasospasm presentation	
Patient 1 Typical chest pain ST segment elevation in the inferior leads Coronary angiography excluded CAD	
Patient 2 Typical chest pain during drug infusion Positive intracoronary provocative test	
Approach to patients with chest pain	
Patient 3 Typical chest pain Troponin T elevation Died before excluding CAD due to oncological disease progression	
Patient 4 One episode of chest pain previous and during treatment Stress echocardiography excluded ischemia Normal levels of troponin T Medical therapy optimization	
Patient 5 One episode of atypical chest pain Stress echocardiography excluded ischemia Normal levels of troponin T Medical therapy optimization	
Patient 6 STEMI Normal levels of troponin T Coronary angiography: three vessel disease CABG	
Patient 7 STEMI Coronary angiography: occlusion Angioplasty of the LAD	
Values are mean ± SD, media; IQR - interquartile range or % (n). ACE = angiotensin-converting enzyme; ARB = angiotensin II receptor blocker. ASA= acetylsalicylic acid; CKD= chronic kidney disease; GI= gastrointestinal CAD=coronary artery disease STEMI= ST-elevation myocardial infarction LAD = left anterior descendent artery CABG= coronary artery bypass grafting CAT= computed tomography angiography	

Objectives: To evaluate the prevalence and risk factors for coronary artery vasospasm in high-risk patients (pts) under treatment with fluoropyrimidines.
Methods: We conducted a retrospective analysis of all pts who received fluoropyrimidines (5-fluorocil and oral pro-drug capecitabine) at a single center cardio oncology clinic, between April 2021 and October 2022. Vasospasm was diagnosed based on the presence of typical *de novo* chest pain concomitant with treatment with fluoropyrimidines, new ST-segment changes or elevated biomarkers and/or positive intracoronary provocative test and exclusion of coronary artery disease.
Results: We analysed 41 patients with a median age of 72 (IQR 62-79) years old, mostly males (59%) with a high burden of CV risk factors (49% of the patients had more than 2 CV risk factors), 10 pts (24%) were current smokers (Table). 16 Pts (39%) had history of ischemic heart disease. Episodes of non-persistent chest pain were reported in 7 pts (17%), although vasospasm was only confirmed in 2 of these patients (5%) (Table). Active smoking was significantly associated with the occurrence of chest pain during treatment (p = 0.047). No association between CV risk factors and vasospasm was found (p = 0.67). No association was found between chest pain and use of beta-blockers (p = 0.42) or with ischemic heart disease (p = 0.69). No difference between the type of drug administered or route of administration (oral capecitabine or 5-fluorocil) and the presence of chest pain was verified (p = 0.70). A significant association was found between chest pain and chemotherapy suspension (p = 0.01). All patients diagnosed with vasospasm suspended therapy. Mortality during follow-up was 12%. Mortality was associated in 80% of the patients to progression of oncological disease, no deaths were attributed to cardiovascular events.

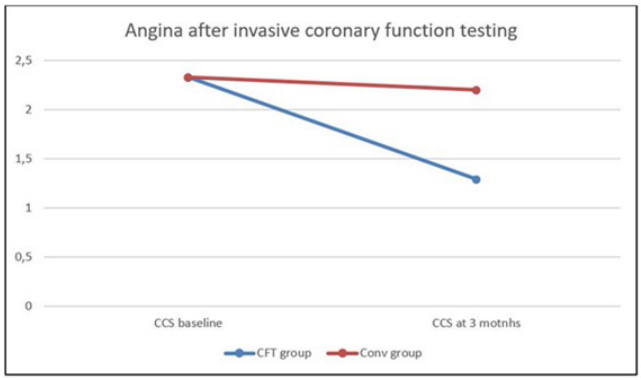
Conclusions: In our cohort of high-risk cardiovascular patients under fluoropyrimidine treatment, the prevalence of de novo chest pain was 17%, while, coronary vasospasm occurred only in 5%. These patients need a precise evaluation with tailored made decisions, because, as we proved, presenting de novo chest pain has major clinical impact leading to chemotherapy suspension. Active smoking was identified as a risk factor for chest pain during treatment.

CO 84. ANGINA BEYOND STRUCTURAL CORONARY DISEASE: TAILORING MEDICAL THERAPY USING CORONARY FUNCTION TESTING

André Paulo Ferreira, Miguel Marques Antunes, Vera Ferreira, Tiago Mendonça, Tiago Pereira-da-Silva, Hugo Rodrigues, Filipa Silva, Cristina Fondinho, Ana Santana, Rui Cruz Ferreira, Rúben Ramos

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

Introduction: Invasive coronary function testing (CFT) performed in patients with ischemia with no obstructive coronary artery disease (INOCA), is helpful in determining the mechanism of angina. However, it still is neither widely accepted nor applied in many medical centers.
Objectives: The aim of this study was to test whether medical therapy guided by CFT improves angina symptoms of patients with INOCA in a real-world clinical environment.
Methods: Patients with INOCA that underwent coronary function testing between July 2021 and October 2022 were included in this single-center prospective study. They were compared to a contemporary cohort of INOCA patients that underwent invasive coronary angiography (ICA) without function testing (Conv group). A standardized protocol was used in all patients in the CFT group and consisted of the assessment of fractional flow reserve, coronary flow reserve, index of microvascular resistance, and of provocative testing with acetylcholine. Coronary vasomotion disorders were diagnosed based on the criteria proposed by the Coronary Vasomotor Disorders International Study Group. Medical therapy was tailored for the final diagnosis in the CFT group. The study's primary endpoint was angina symptoms variation from the baseline as assessed by the Canadian Cardiovascular Society Score (CCS).
Results: A total of 56 CFTs were performed in the CFT group during the study period. Patient mean age was 64 ± 12 years and 57.1% were female. A total of 111 standard ICAs were performed in the Conv group. There were no significant differences between the groups' demographics. In the CFT group, isolated epicardial vasospasm was found in 16 (28.6%) patients, isolated coronary microvascular dysfunction (CMD) in 9 (16.1%), and a combination of CMD and coronary vasospasm in 9 (16.1%) patients. Only 1 patient (1.8%) had isolated microvascular spasm. The intervention in the CFT group resulted in a modification to previously instituted medical therapy in 64.3% of patients at discharge, resulting in a significant reduction in the Canadian Cardiovascular Society Score (-1.04 ± 0.80 U in the CFT group *vs.* -0.13 ± 0.42 U in the Conv group, p < 0.001) at 3 months. After a median follow-up time of 6 months, major adverse cardiac events were similar between both groups (1.8% CFT group *vs.* 2.9% Conv group, p = 0.664).



Conclusions: An invasive, standardized, multi-parametric protocol for the evaluation of coronary vasomotion disorders is feasible and safe in clinical practice, and allows for individualized medical therapy, which may improve angina symptoms in INOCA patients at a short-term follow-up.

CO 85. A BETTER UNDERSTANDING OF CORONARY ARTERY DISEASE MOLECULAR BIOLOGY THROUGH AN INTERMEDIATE PHENOTYPE

Ana Débora Câmara de Sá[1], Maria Isabel Mendonça[1], Marina Santos[1], Margarida Temtem[1], Francisco Sousa[1], Sónia Freitas[1], Mariana Rodrigues[1], Eva Henriques[1], Sofia Borges[1], Graça Guerra[1], Ilídio Ornelas[1], António Drumond[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: Coronary Artery Disease (CAD) remains a common cause of death worldwide; over half of these deaths are asymptomatic until the first fatal presentation. Previous studies have often compared coronary artery calcification (CAC) with coronary stenosis or its sequelae. However, the genetic contribution to CAC in sub-clinical atherosclerosis is controversial.
Objectives: This study intended to assess the relationship between a set of single nucleotide polymorphisms associated with CAD (GWAS) and CAC score in an asymptomatic population.
Methods: Prospective study performed in an asymptomatic cohort from GENEMACOR population-based sample of 1207 subjects aged 51.7 ± 8.3, 73.8 male, without apparent prior CAD. CAC score was performed by cardiac computed tomography and reported as Agatston units according to the Hoff nomogram (Low, Moderate and High-risk categories). For the present work, we considered two groups: Group 1 (0 ≤ CAC < 100 and Percentile < 50) and Group 2 (CAC ≥ 100 or Percentile ≥ 50). We genotyped thirty-three single nucleotide polymorphisms (SNP) associated with CAD by TaqMan real-time PCR. Anthropometric, conventional, and biochemical risk factors were assessed. The association of these SNPs with CAC score groups were evaluated by bivariate and multivariate logistic regression analysis, and the dominant genetic model was considered for comparison.
Results: After bivariate analysis, only PHACTR1 rs1332844 C>T (CT+TT genetic model) showed a significative association with CAC score (OR = 1.45; 95%CI 1.09-1.94; p = 0.011). Multivariate logistic regression analysis, adjusted to traditional risk factors, genetic model and CAC score showed

Variables independently associated with high CAC Group (Logistic regression)

Variables	B	S.E.	Wald	df	OR (95% CI)	p-value
rs1332844 C>T (CT+TT)	0.405	0.154	6.922	1	1.500 (1.109-2.028)	0.009
Age	0.029	0.008	12.586	1	1.029 (1.013-1.046)	<0.0001
Smoking	0.665	0.145	20.954	1	1.945 (1.463-2.586)	<0.0001
Hypertension	0.371	0.136	7.467	1	1.449 (1.111-1.891)	0.006
Obesity	0.312	0.142	4.843	1	1.367 (1.035-1.805)	0.028
Diabetes	0.828	0.189	19.253	1	2.289 (1.581-3.314)	<0.0001
Constant	-2.810	0.436	41.464	1	0.060	<0.0001

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that PHACTR1 rs1332844 remained in the equation as significantly associated to CAC score (p = 0.009) together with age (0.0001), hypertension (0.006), diabetes (0.0001), smoking (0.001) and obesity (0.028).
Conclusions: PHACTR1 genetic variant is known to contribute to atherosclerosis and plaque formation. In the present study it showed a significant association with plaque calcium. More research in this field is critical to understanding the genetic basis of CAD through an intermediate phenotype, plaque calcification. We highlight this point since it can be crucial for the prognosis and therapy of the asymptomatic population.

Sábado, 15 Abril de 2023 | 15:00-16:00

Sala Vega | Comunicações Orais - Sessão 18 - Insuficiência cardíaca: tratamento

CO 86. CHANGES IN HEALTH-RELATED QUALITY OF LIFE AND TREATMENT EFFECTS IN CHRONIC HEART FAILURE: A META-ANALYSIS

António Afonso Angélico Gonçalves[1], Ana Rita Ferreira Leite[1], João Sérgio Neves[1], Francisca Saraiva[1], Liliana Brochado[1], Javed Butler[2], Milton Packer[3], Faiez Zannad[4], Francisco Vasques Nóvoa[1], Adelino Leite-Moreira[1], João Pedro Ferreira[1]

[1]Facultade de Medicina da Universidade do Porto. [2]Baylor Scott and White Research Institute, University of Mississippi. [3]Baylor University Medical Center, Dallas TX and Imperial College. [4]Inserm, Centre d'Investigations Cliniques - Plurithématique.

Introduction: Heart failure (HF) is associated with poor health status, high morbidity and mortality. A recent FDA guidance draft proposes patient-centered outcomes, such as health status, as acceptable endpoints for clinical trials. However, it is not well-established how health status changes correlate with treatment effects on "hard" clinical outcomes.
Objectives: To study the association between treatment-induced changes in health status, assessed by the Kansas City Cardiomyopathy Questionnaire-23 (KCCQ-23), and "hard" clinical outcomes in chronic HF.
Methods: Systematic search of phase III-IV RCTs in chronic HF, where the impact of pharmacological treatments on KCCQ-23 score and clinical outcomes throughout follow-up were evaluated. We studied the association between treatment-induced changes in KCCQ-23 and the corresponding treatment effect on clinical outcomes (composite of HF hospitalization or cardiovascular death, HF hospitalization, cardiovascular death, and all-cause death) using weighted, random effects meta-regression.
Results: Sixteen HF trials, published between 2009 and 2022, were included, enrolling a total of 65,664 participants. Treatment-induced KCCQ-23 changes were moderately correlated with treatment effects on HF hospitalization or cardiovascular mortality (regression coefficient (RC) = −0.047, 95%CI: −0.085 to −0.009, p = 0.016; R^2 = 49%), a correlation that was mainly driven by HF hospitalization (RC = −0.076, 95%CI: −0.124 to −0.029, p = 0.002; R^2 = 56%). The correlations between treatment-induced KCCQ-23 changes and cardiovascular death (RC = −0.029; 95%CI: −0.073 to 0.015; p = 0.20; R^2 = 10%) and all-cause death (RC = −0.019, 95%CI: −0.057 to 0.019, p = 0.32; R^2 = 0%) were weak and statistically non-significant.
Conclusions: Treatment-induced changes in KCCQ-23 were moderately correlated with treatment effects on HF hospitalizations but were not correlated with the effects on cardiovascular and all-cause mortality. Changes in patient-centered outcomes (i.e., KCCQ-23) may reflect symptomatic changes in the clinical course of HF that may lead to hospitalization, but do not appear to be strongly correlated with mortality. Large outcome trials should continue to assess HF hospitalization and mortality as a robust mean of evaluating treatment effects.

CO 87. EFFECTIVENESS AND SAFETY OF SACUBITRIL/VALSARTAN IN PATIENTS WITH CHRONIC KIDNEY DISEASE - A REAL-WORLD EXPERIENCE

Sara Couto Pereira, Tiago Rodrigues, Afonso Nunes-Ferreira, João R. Agostinho, Fausto J. Pinto, Dulce Brito

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Sacubitril/valsartan is a cornerstone treatment in patients with heart failure and reduced ejection fraction (HFrEF). Data regarding the effectiveness and safety of sacubitril/valsartan in patients with chronic kidney disease (CKD) are scarce. We aimed to evaluate the effectiveness and safety of sacubitril/valsartan in patients with HFrEF and CKD in a real-world setting.
Methods: We included consecutive ambulatory HFrEF patients followed in a HF clinic that initiated sacubitril/valsartan between February 2017 and October 2020, stratified by CKD (excluding those in stage 5/under dialysis). Demographic and clinical data, all-cause mortality and hospitalizations due to acute decompensated HF during the 12 months before sacubitril/valsartan initiation and during follow up were retrospectively evaluated. Primary outcomes were the incidence rate per 100 patient-years and the annualized

	CKD (n=77)			No CKD (n=102)			P-value
	S/V		RR (95% CI)	S/V		RR (95% CI)	
	Before	After		Before	After		
Incidence rate (per 100 person-years)							
Crude[a]	77.9	31.9	0.410 (0.216, 0.777)	66.3	16.3	0.246 (0.122, 0.495)	0.296
Adjusted[b]	67.7	28.8	0.425 (0.234, 0.773)	64.0	16.3	0.254 (0.133, 0.487)	0.261
Annualized LOS (days/year)							
Crude[a]	7.3	1.8	0.246 (0.161, 0.377)	6.0	1.1	0.178 (0.110, 0.287)	0.332
Adjusted[c]	6.5	1.6	0.250 (0.164, 0.379)	5.9	1.1	0.180 (0.112, 0.289)	0.319

Table 1. Effect of treatment initiation with Sacubitril/Valsartan on the incidence rate and annualized LOS of hospitalizations due to HF decompensation stratified by CKD at baseline
CKD: chronic kidney disease (eGFR < 60 mL/min/1.73m²); eGFR: estimated glomerular filtration rate; HF: heart failure; LOS: length of stay; RR: rate ratio; S/V: sacubitril/valsartan; [a] Model with treatment, CKD and interaction; [b] Model with treatment, CKD and interaction, and adjusted for age, sex, NYHA and anemia (final model); [c] Model with treatment, CKD and interaction, and adjusted for age, sex, ejection fraction, NYHA and anemia (final model)

CO 87 Figure

length of stay (LOS) of acute decompensated HF hospitalizations (HHF). Secondary outcomes were all-cause mortality, NYHA class improvement and titration of sacubitril/valsartan.

Results: We included 179 patients, 77 with CKD at baseline (11 in stage 4). CKD patients were older (72 ± 10 *vs.* 65 ± 12 years, p < 0.001), had higher NT-proBNP plasma values (4,623 ± 5,266 *vs.* 1,901 ± 1,835 pg/mL, p < 0.001) and high incidence of anaemia (p < 0.001), without other significant differences. Most of them were at NYHA functional class II (69% in CKD group *vs.* 79%, p = NS). During a mean follow up of 19 ± 11 months, a significant and similar improvement in NYHA class (-0.53, 95%CI: [-0.67, -0.38] in CKD patients *vs.* -0.55, 95%CI: [-0.67,-0.43], p = 0.670) and a significant reduction in the rate of HHF was observed after sacubitril/valsartan initiation (67.7 to 28.8 hospitalizations per 100 patient-years in CKD group, adjusted rate ratio = 0.425, 95%CI: [0.234, 0.773]; p = NS between the two groups, Table). There was a significant reduction in annualized LOS of 5 days in both groups (p = 0.319, Table). CKD patients had a higher rate of all-cause mortality during follow up, without significant differences compared to non-CKD patients (HR = 2.405, 95%CI: [0.841; 6.879], p = 0.102). There were no significant differences between the two groups regarding maximum dose of sacubitril/valsartan achievement and withdrawal during follow up.

Conclusions: In this real-world population study in patients with HFrEF and CKD sacubitril/valsartan was effective on reducing hospitalization rates and length of stay without affecting all-cause mortality.

CO 88. ISCHEMIC AND NONISCHEMIC HEART FAILURE WITH REDUCED EJECTION FRACTION: ASSESSING LEFT ATRIAL STRAIN IMAGING AFTER SACUBITRIL/VALSARTAN THERAPY

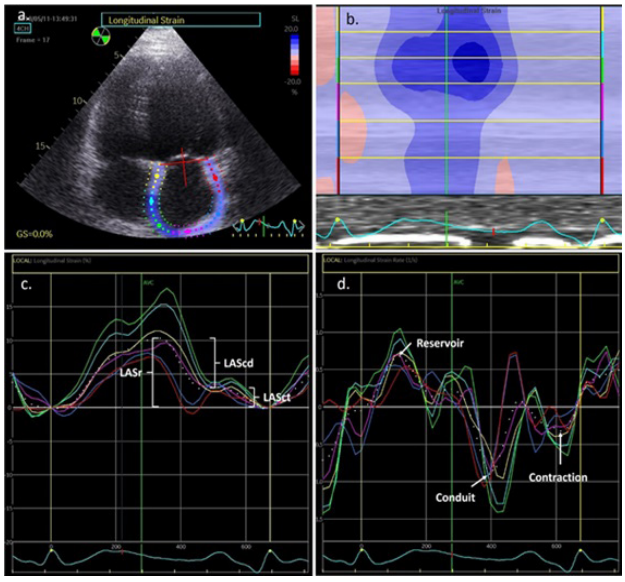
Pedro Garcia Brás, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira da Silva, Isabel Cardoso, José Viegas, André Grazina, Sofia Jacinto, Rita Teixeira, Bárbara Teixeira, Ana Teresa Timóteo, Pedro Rio, Ana Galrinho, Rui Soares, Rui Cruz Ferreira, Luísa Moura Branco

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

Introduction: Sacubitril/valsartan (SV) is currently a mainstay of heart failure with reduced ejection (HFrEF) therapy, with proven results in reverse left ventricular (LV) remodeling. However there is limited data regarding left atrial (LA) strain parameters assessment after SV therapy in different HFrEF etiologies. The aim of this study was to evaluate improvement in LA volume, strain and strain rate parameters before and after SV therapy in ischemic HFrEF patients (P) and nonischemic HFrEF P.

Methods: Prospective evaluation of echocardiographic data of HFrEF patients under optimized guideline-directed medical therapy. LA mechanics were assessed by 2D speckle-tracking at baseline and after 6 months of SV therapy. LA volume, reservoir phase strain (LASr), conduit phase strain (LAScd) and contraction phase strain (LASct) and respective phases' strain rate (SR) were compared (Figure).

Results: 35 P were evaluated, mean age 59 ± 11 years, 83% male gender, 40% atrial fibrillation and 43% with ischemic etiology. While there was a significant reduction in LA volume index (LAVi) in nonischemic HFrEF P (56.2 ± 26.9 mL/m² *vs.* 44.5 ± 15.8 mL/m², p = 0.005), there was only a mild nonsignificant reduction in ischemic HFrEF P (44.9 ± 12.6 mL/m² *vs.* 42.6 ± 16.2 mL/m², p = 0.442). There was a significant improvement in LASr both in nonischemic HFrEF P (10.08 ± 4.82% *vs.* 14.96 ± 7.76%, p = 0.001) and ischemic HFrEF P (13.53 ± 7.42% *vs.* 17.73 ± 7.89%, p = 0.011). While ischemic HFrEF P had a significantly improved LAScd (-6.39 [-8.48--4.38]% *vs.* -7.81 [-10.89--6.9]%, p = 0.033), nonischemic HFrEF P showed a trend to improvement (-5.47 [-9.53--4.22]% *vs.* -6.02 [12.5--4.22]%, p = 0.059). On the contrary, nonischemic HFrEF P showed a significantly improved LASct (-6.17 ± 4.44% *vs.* -10.62 ± 4.82%, p < 0.001) while ischemic HFrEF P showed a trend to improvement (-8.23 ± 3.58% *vs.* -11.14 ± 2.65%, p = 0.052). Regarding SR, the authors found an improved reservoir phase SR (0.47 ± 0.21 s-1 *vs.* 0.65 ± 0.24 s-1, p = 0.001) and contraction phase SR (-0.58 [-1.1-0.33] s-1 *vs.* -1.22 [-1.51--0.71] s-1, p = 0.016) in nonischemic HFrEF P, *versus* a statistically non-significant improvement in ischemic HFrEF P (reservoir SR 0.51 ± 0.24 s-1 *vs.* 0.64 ± 0.2 s-1, p = 0.065) and contraction phase SR (0.89 [-1.25--0.66] s-1 *vs.* -1.07 [-1.28-1.03] s-1, p = 0.285). However, there was a significant increase in conduit phase SR in ischemic HFrEF P (-0.46 [-0.63--0.29] s-1 *vs.* -0.55 [-0.7--0.41] s-1, p = 0.023), in contrast to nonischemic HFrEF P (-0.52 [-0.79--0.28] s-1 *vs.* -0.63 [-0.9--0.35] s-1, p = 0.184).



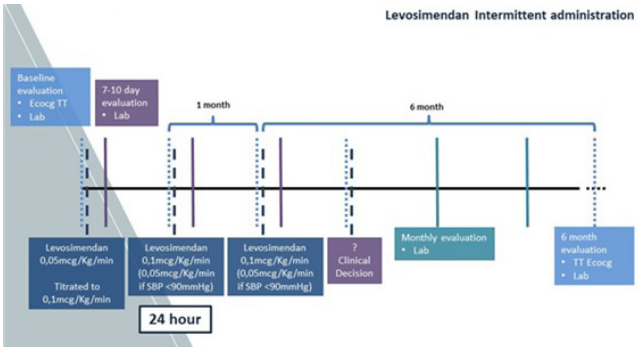
Conclusions: After 6 months of SV therapy, there was significant improvement in LA strain and strain rate parameters. Ischemic HFrEF P showed a significantly improved conduit function (LAScd and SR) while nonischemic HFrEF P revealed improved reservoir and contractile function (LASr, LASct, reservoir and contraction phase SR) as well as significant reduction in LAVi.

CO 89. LEVOSIMENDAN - SINGLE CENTER EXPERIENCE WITH INTERMITTENT 24H ADMINISTRATION

Miguel Azaredo Raposo, João R. Agostinho, Joana Brito, Beatriz Silva, Rafael Santos, Tatiana Guimarães, Hugo Corte Real, Fausto J. Pinto, Dulce Brito

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Advanced heart failure (AdHF) remains a challenging condition as effective treatment is restricted to heart transplant (HT) and left ventricle assist devices (LVAD). These therapies lack availability and are contraindicated or deemed futile in a significant number of patients (pts). Intermittent administration of the inodilator Levosimendan is a valuable strategy to reduce acute heart failure admissions and improve quality of life.
Objectives: To describe the experience of a tertiary hospital Heart Failure Unit with the intermittent intravenous (IV) administration of Levosimendan (24-hour infusion period).
Methods: Retrospective, single-centre study. A predefined protocol that suggested monthly administrations of Levosimendan was followed - Figure 1. At least 3 initial administrations were also suggested. The need for subsequent infusions and the respective schedule was guided by clinical and laboratorial parameters. Clinical, laboratorial and administration schedule data was collected. The year before the first Levosimendan infusion was compared to the following, regarding the number of unprogrammed HF admissions for each pt. One-year HF related mortality rate was estimated using the Seattle Heart Failure Model and was compared to the observed rate in the study population.
Results: From December 2017 to November 2022, a total of 20 pts underwent intermittent 24-hours Levosimendam administrations. The population had a mean age of 60 ± 21y and 80% were male. Ischemic heart disease (10 pts), dilated cardiomyopathy (9 pts) and valvular heart disease (1 pt) were the HF etiologies. Before the first infusion, mean left ventricle ejection fraction (LVEF) was 24% (IQR 24-28.5) and all patients had LVEF < 35%. 17(85%) pts were in NYHA functional class III and 3 (15%) in class IV. 13 (65%) pts were too old or had contraindication for HT or LVAD and 7 (35%) were either waiting HT or LVAD or being evaluated for these therapies. During a mean follow-up (FUP) time of 20.7 ± 15.7 months, mean number of infusions per patient was 6.75 ± 5.68. 6 pts had marked clinical improvement and had the protocol withheld after a mean number of 3.2 ± 1.5 infusions. 2 of those patients were waiting for HT evaluation which was suspended. Intermittent administrations led to a reduction in the number of HF hospitalizations (2.35, IQR 1.25-2.75 *vs.* 0.85, IQR 0-1; p = 0.001) during FUP. Overall mortality rate at the end of FUP was 45%. One pt underwent LVAD implant. The observed 1-year HF related mortality rate was 12.5%, compared to 16% estimated by the Seattle Heart Failure Model. No severe adverse events were reported.



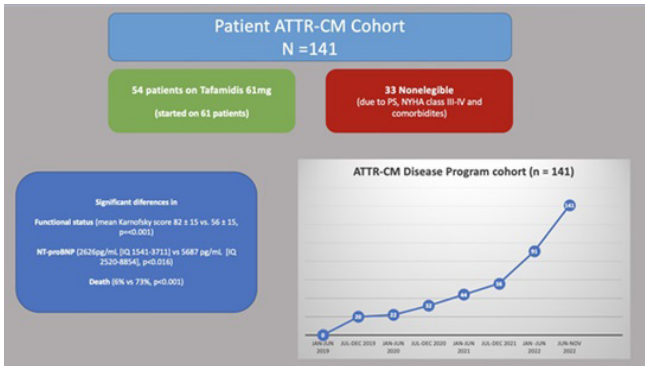
Conclusions: In this single center series of pts with AdHF, despite a doubtful impact in mortality, intermittent 24h Levosimendan administrations led to a significant reduction in HF hospitalizations. Also, a non-negligible proportion of pts actually improved and are stable without the need for advanced therapies.

CO 90. ATTR-CM IN A REAL-WORLD REFERRAL CENTER: A 3-YEAR EXPERIENCE DIAGNOSIS AND TREATMENT CHALLENGES

Ana Rita Bello, Sérgio Maltês, Mariana Paiva, Rita Amador, Andreia Marques, Catarina Oliveira, Carlos Aguiar, Miguel Mendes, Bruno Rocha

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

Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is a rare and an underdiagnosed cause of heart failure (HF). Appropriate local diagnostic and treatment pathways in specialized outpatient clinics are critical to guarantee optimal patient management.
Objectives: To describe our center's three-year experience in diagnosing and treating an ATTR-CM cohort. Secondly, to assess the elegibility to disease-modifying treatment, as per center protocol, and patient outcomes.
Methods: This is a single-center retrospective registry including all-comers with HF due to ATTR-CM between 2019 and 2022. Diagnosis was established according to the previously published algorithm by Gilmore *et al.*, as per site protocol. Each patient had at least 2 hospital visits per-year.
Results: A total of 141 patients were included (mean age 82 ± 6 years-old; 84% male; median NT-proBNP 3,012 pg/mL [IQ 2077 - 7584]; 26% with left ventricle ejection fraction < 50%); median GLS -6.5% [-124 - -7.2]). The majority had ATTR-CM diagnosis confirmed by the non-invasive algorithm - all patients performed 99mTc-HMDP bone scintigraphy (all but one patient with grade 2-3 Perugini) and 13 patients (11%) had endomyocardial-biopsy confirmed ATTR-CM diagnosis. Genetic test was performed in 30% of the patients and gene variants were detected in 9 patients (6%) - most with a Val50Met (n = 5) mutation. A total of 61 patients (43.2%) were started on disease-modifying therapy with tafamidis 61 mg; 33 patients (23%) were considered non-eligible due to poor functional status, severe HF symptoms (NYHA III-IV) or other significant comorbidities. When assessing patients started on tafamidis, these showed a better functional status (mean Karnofsky score 82 ± 15 *vs.* 56 ± 15, p < 0.001; mean frailty score 3 ± 1 *vs.* 5 ± 2, p < 0.001), and lower NT-proBNP (2,626 pg/mL [IQ 1,541-3,711] *vs.* 5,687 pg/mL [IQ 2,520-8,854]). During a median follow up of 12 months [IQ 2.8 - 15]; 22 patients died, of these, 4 were previously prescribed tafamidis. No drug-related severe adverse events were reported. The number of patients in this follow-up increases every year, currently, at a rate of 47 patients per year.



Conclusions: Appropriate ATTR-CM recognition and patient management in specialized rare-disease programs is essential. Early diagnosis through implementation of in-hospital alert pathways may identify ATTR-CM at an earlier stage, thus allowing patients to initiate disease-modifying therapies before cardiac damage ensues and prognosis is irreversibly affected.

Sábado, 15 Abril de 2023 | 16:00-17:00

Sala Vega | Comunicações Orais - Sessão 19 - Saúde digital e economia da saúde

CO 91. THE WAITING 4 SURGERY STUDY - BURDEN OF IN-HOSPITAL CARE

Inês Gomes Campos, Inês Oliveira, Isabel Cruz, Bruno Bragança, Rafaela G. Lopes, Joel Ponte Monteito, Inês Gonçalves, Aurora Andrade

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Patients with coronary artery and valvular diseases with surgical indication represent a significant proportion of hospitalizations. The Waiting 4 Surgery study (W4S) aims to better study this group of patients, their burden of hospital care and identify those with event-free admissions. In this work, we analyze both the economical and hospital-care burden of this group of patients.
Methods: Retrospective study of consecutive patients admitted between 2019 and 2021 with coronary artery and/or aortic valve diseases waiting for coronary artery bypass graft (CABG), aortic valve replacement (AVR; surgical or percutaneous) or both. Total admission time and the cost associated with the hospitalization were analyzed. For event-free hospitalization, the following events were considered: death, re-infarction, cardiac pulmonary arrest (CPA), stroke, ventricular tachycardia, acute heart failure (AHF), rest chest pain and reintroduction of intravenous (IV) drugs. We performed a secondary cost analysis for patients with event-free hospitalization after the first 5 days of admission.
Results: Total of 184 patients were included, mean age 67.9 years, 70.1% male, 71.2% submitted to CABG and 20.7% to AVR (6.5% to both). During admission 23.9% of patients reintroduced IV drugs, 20.1% had chest pain, 5.4% had AHF and 2.2% had CPA. No deaths, strokes of re-infarctions were observed. The total time of hospitalization was 3,259 patients/days, representing an occupation rate of 18.6% and a total cost of 1,898,447€ (10,318€/patient and 632,816€/year). Mean admission time was 17.6 days. Total cost for CABG and AVR patients was 1,479 613€ and 594,562€, respectively. Total of 115 patients had an event-free hospitalization (62.5%). The total time of event-free hospitalization was 1,650 patients/days, representing an occupation rate of 9.42% and a total cost of 979 710€ (6,575€/patient and 326,570€/year). Mean event-free admission time was 14.3 days. Total cost for CABG and AVR in event-free patients was 863 155€ and 223,258€, respectively.
Conclusions: The W4S study demonstrates the impact patients waiting for surgery represent in hospital care: a very high economic and logistic burden. The majority of patients showed an event-free admission, and identifying such patients for early discharge and ambulatory management together with surgical centers should be a priority.

CO 92. TELEMONITORING AORTIC VALVULAR INTERVENTION WAITING LIST PATIENTS PROGNOSTIC VALUE

António Maria Rocha de Almeida, Miguel Carias Sousa, Cláudia Magro, Liliana Boieiro, Sandra Sofia, Rita Rocha, Francisco Cláudio, Marta Paralta Figueiredo, Kisa Congo, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

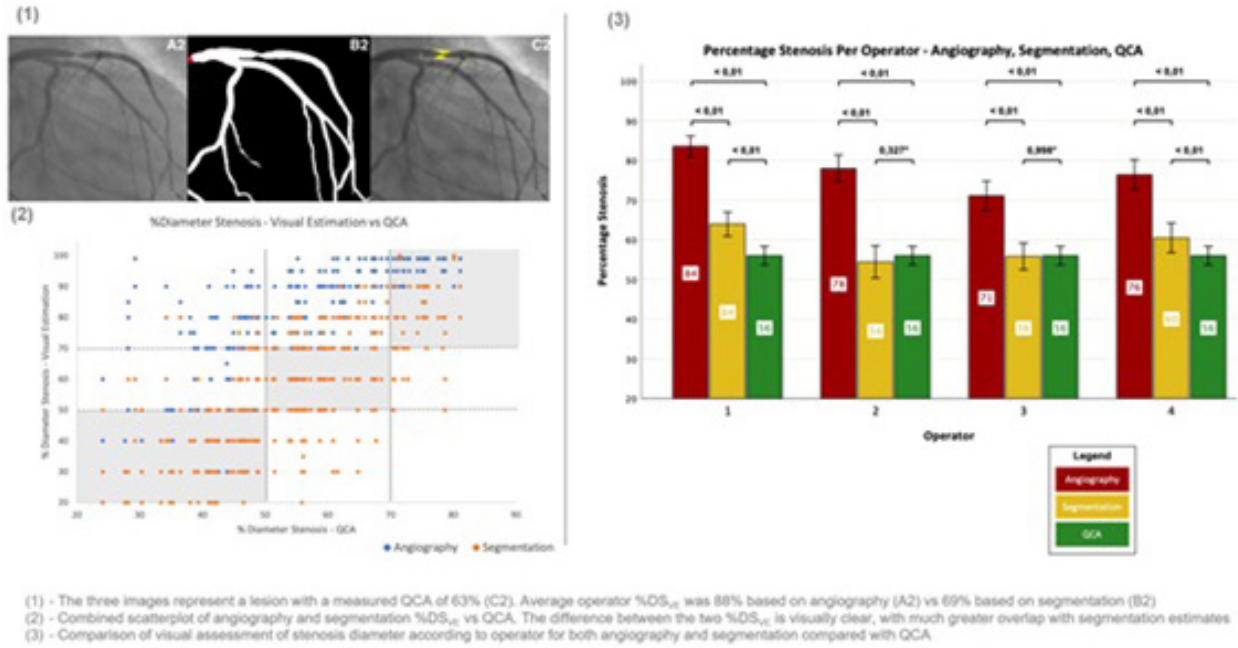
Introduction: Aortic stenosis is the most common valve disease requiring intervention. Severe aortic stenosis has very poor prognosis and early intervention is strongly recommended. However, the pathway needs to be optimized. According to a single clinical risk stratification, the intervention is scheduled, and the patient is listed in the waiting list. To prevent significant clinical and prognosis deterioration while waiting, a telemonitoring program was started, associated with a fast-track pathway to intervention. Telemonitoring program included vital signs, ECG, weight, and symptomatic daily assessment. It required the input of the parameters on platform. Weekly, each patient was contacted to verify his status. The monitoring continued one after month for follow-up. This study aims to evaluate the prognostic value of the telemonitoring program in management of aortic valve intervention waiting list patients.
Methods: Retrospective cohort of 125 patients listed to aortic valve intervention was divided into two groups: one that were on telemonitoring program, of 40 patients, and other of 110 patients that were traditionally schedule, for 18 months.
Results: Population of both groups were not statistical significantly different in terms of age or sex distribution ($p > 0.05$). Of the 125 patients, 108 were subjected to TAVI, 2 to surgical aortic valve replacement. The median waiting time on telemonitored group was 36 days [IR 46], with 3 deaths (7.5%), 2 of cardiovascular cause (5%). 6 patients (23%) were anticipated due to worsening of symptoms: 1 syncope (2.5%), 1 chest pain (2.5%), and 4 dyspnea (2.5%). None was hospitalized while waiting. The median waiting time on non-monitored group was 66 [IR 23] days, with 15 deaths (18%), 3 (4%) of cardiovascular, 6 (7%) of non-cardiovascular and 6 (7%) of unknown cause. 6 (7%) patients were hospitalized when they were listed for TAVI and 4 (5%) were previously listed and were hospitalized when TAVI was performed. There was a statistically significant decrease of mortality and hospitalization in the telemonitored group ($p = 0.05$). There was also a statistically significant shorter period of waiting time on the telemonitored group ($p < 0.05$), due to the anticipation of more symptomatic patients.
Conclusions: The telemonitoring allows the clinical reassessment and re-stratification of the patients on the waiting list. It permits a constant optimization and a dynamically reorganization of the waiting list, verifying whom might benefit more of an earlier intervention, to apply the fast-track pathway.

CO 93. ENHANCING THE EYES OF INTERVENTIONAL CARDIOLOGISTS: IMPACT OF ARTIFICIAL INTELLIGENCE IN OPERATOR ASSESSMENT OF CORONARY LESIONS

Beatriz Valente Silva[1], Miguel Nobre Menezes[2], João Lourenço Silva[3], Tiago Rodrigues[2], João Silva Marques[2], Cláudio Guerreiro[4], João Pedro Guedes[5], Manuel Oliveira Santos[6], Arlindo L Oliveira[3], Fausto J. Pinto[2]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa. [3]INESC-ID/Instituto Superior Técnico, University of Lisbon. [4]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [5]Centro Hospitalar e Universitário do Algarve, EPE/Hospital de Faro. [6]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: The assessment of the severity of coronary stenosis is essential for revascularization decisions. Percentage stenosis can be assessed by visual assessment (%DSVE) or quantitative coronary angiography (QCA). However, multiple studies have shown that visual inspection tend to overestimate the percent diameter stenosis compared to QCA. We have previously developed an artificial intelligence (AI) model capable of accurate coronary angiography segmentation. In this study we aimed to assess the impact of segmentation in the operators' perception of lesion severity, by comparing the %DSVE evaluated by angiography *vs.* AI-segmented images.
Methods: Multicentric retrospective study of pts undergoing PCI or invasive physiology in four Portuguese centres. QCA was assessed with a validated software in the angiography images. A dedicated python script was written for measuring the diameters in the AI-segmented images, thus excluding differences between the two image groups. Operators then blindly assessed %DSVE in both the angiography and segmented images, in random order, with two separate sessions (at least a week apart) for each image group. Angiography QCA was used as reference.
Results: We included 123 lesions from a total of 90 patients. There were no significant differences between the angiography and AI-segmented images:



(1) - The three images represent a lesion with a measured QCA of 63% (C2). Average operator $\%DS_{VE}$ was 88% based on angiography (A2) vs 69% based on segmentation (B2)
(2) - Combined scatterplot of angiography and segmentation $\%DS_{VE}$ vs QCA. The difference between the two $\%DS_{VE}$ is visually clear, with much greater overlap with segmentation estimates
(3) - Comparison of visual assessment of stenosis diameter according to operator for both angiography and segmentation compared with QCA

CO 93 Figure

the median difference in lesion diameter was 0.1 mm and the mean QCA was 56 ± 13% *vs.* 55 ± 13% (p = 0.071) in the angiography *vs.* AI-segmented images, respectively. Thus, operators were able to proceed with %DSVE estimation because differences could only be attributed to visual perception rather than actual differences between the two groups. When considering QCA as reference, operators tended to overestimate lesion severity in angiography images (77% ± 20% *vs.* 56% ± 13%, p < 0.001) to a much greater degree than with segmentation (59% ± 20% *vs.* 56% ± 13%, p < 0.001). For lesions with a QCA between 50 and 70%, an even higher discrepancy was found (angiography: 83% ± 13% *vs.* 60% ± 5%, p < 0.001; segmentation: 63% ± 15% *vs.* 60% ± 5%, p < 0.001). Similar findings were observed for QCA < 50% lesions. For lesions with a %DSQCA > 70%, visual estimation was usually in agreement with QCA in both groups. Agreement between visual estimation and QCA across QCA strata (< 50%, 50-70%, > 70%) was approximately double in the segmentation group (60% *vs.* 30%; p < 0.001). Operator heterogeneity was also reduced with segmentation.

Conclusions: Our study suggests that visualization of segmented images seems to render visual estimation of stenosis severity more objective, significantly reducing the tendency to overestimate, while reducing operator heterogeneity. The visual assessment of coronary lesions with segmented images may therefore lead to a lower likelihood of unwarranted revascularization, while potentially increasing the use of functional assessment, as recommended by current guidelines.

CO 94. DIGITAL PATIENT TOOL FOR REPORTING QUALITY OF LIFE AFTER ATRIAL FIBRILLATION CATHETER ABLATION: OUTCOMES FROM A PORTUGUESE HEALTHCARE CENTRE

Rafael Silva Teixeira[1], Mariana S. Brandão[1], João Gonçalves Almeida[1], Paulo Fonseca[1], Cátia Isabel Costa[1], Ana Mosalina Manuel[1], Francisco Ramires[2], Madalena Plácido[2], Martim Sousa[2], Marco Oliveira[1], Helena Gonçalves[1], João Primo[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]PROMPTLY Health.

Introduction: Even though symptoms drive indication in AF ablation, they have not been consistently incorporated as standard primary outcomes in ablation trials. Only recently, attention has focused on the benefits of ablation on quality of life (QOL) associated with AF.

Objectives: To determine the magnitude and durability of clinical benefits provided by AF ablation.

Methods: We implemented a digital follow-up (FUP) program for patients (pts) with AF referred for ablation in our high-volume centre since December 2020. FUP included scheduled visits and remote monitoring through a new digital health platform allowing real-time interaction between patients and doctors. The primary outcome was QoL as measured by the AF Effect on QoL (AFEQT) summary score reported by pts using the digital patient-engagement tool. The primary outcome was analysed using a repeated-measures non-linear mixed model with random baseline score, time as fixed effects and month 12 response included as outcome variable. Subgroups analysis examined the effect of baseline AFEQT score on primary outcome.

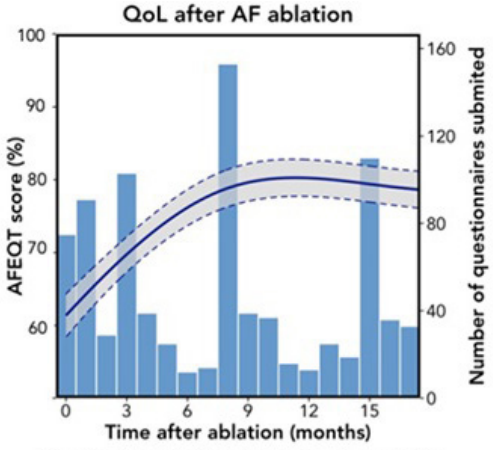


Figure. Quality of life of AF patients after catheter ablation

Results: From the 305 ablations performed, 253 pts were enrolled until September 2022 (age 60 ± 11 years, 33% female, 78% paroxysmal). During FUP time (mean 11.9 ± 5.8 months), 1,225 AFEQT questionnaires were collected from 222 different pts. Overall questionnaire completeness rate was 54.5%. Mean baseline AFEQT score was 64 ± 14 points and 80 ± 16 points at 12 months (absolute improvement of 18 ± 4 points, relative improvement of

33.2 ± 22.0%, p < 0.001). Absolute improvement in QoL varied as a function of baseline AFEQT score (p < 0.001). For patients with the lowest tertile (score range 0-57) the mean improvement was 15.6 ± 14.6 points, the middle tertile (score range 57-70) increased in 17.6 ± 1.9 points and the highest tertile had the highest absolute improvement (22.0 ± 2.3 points). Relative improvement was similar between subgroups (p = 0.07). During FUP, AF recurred in 34 pts (14.5%), 14 of which during the first month of FUP (6%). Less than 7% of pts had at least one emergency department visit (n = 16) and no deaths were reported.
Conclusions: Among pts with symptomatic AF, ablation led to significant improvements in QoL at 12 months, independent of baseline levels.

CO 95. DIGITAL FOLLOW-UP PROGRAM FOR PATIENTS UNDERGOING ATRIAL FIBRILLATION ABLATION: THE EXPERIENCE OF A PORTUGUESE CENTER

Mariana S. Brandão[1], Rafael Silva-Teixeira[1], João Gonçalves Almeida[1], Paulo Fonseca[1], Ana Mosalina Manuel[1], Francisco Ramires[2], Paulo Santos Ferreira[2], Martim Sousa[2], Marco Oliveira[1], Helena Gonçalves[1], João Primo[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]PROMPTLY Health.

Introduction: Atrial fibrillation (AF) carries significant burden in health expenditure worldwide. Digital health technology may improve healthcare delivery, but its applicability in clinical practice and related outcomes remain a gap in evidence.
Objectives: To report the implementation of a digital follow-up program (FUP) for patients (pts) submitted to AF ablation in a Portuguese center.
Methods: A digital FUP was implemented at a high-volume ablation center in 2020. The program featured: a web platform for professionals to record Clinician Reported Outcome Measurements (CROMs), during remote medical visits, and access Patient Reported Outcomes Measurements (PROMs); and an app for pts to report symptoms, vital signs, anthropometric and electrocardiographic data, and to complete questionnaires (AFEQT, Epworth, STOP-BANG, nutritional). Completeness rate was defined by the ratio of queries completed/queries sent at each timepoint. The mHealth App Usability Questionnaire (MAUQ) questionnaire was sent to pts and doctors; pts also received a Patient Reported Experience Measure (PREMs) 15 days after the ablation, from which a Net Promotor Score (NPS, -100 to 100) was calculated to express user's satisfaction. This retrospective analysis includes data collected from December 2020 to September 2022.
Results: From the 305 ablations performed, 253 pts were enrolled in the digital FUP: age 60 ± 11 years, 67% male, 78% paroxysmal AF, body mass index 27.4 ± 4.2 kg/m^2. During a mean follow-up time of 11.9 ± 5.8 months, 1120 CROMs were registered; 1,449 PROMs were collected, including 5,865 metrics reported by 90 different pts. App usage, measured by unique logins/month, was recorded in 54% of pts, of whom 13% submitted symptom checks weekly. 160 PREMs were registered; NPS scores for ablation and the app were 85.5 and 31.5, respectively [Fig.]. Questionnaires' overall completeness rate was: 54.5% for AFEQT, 14.4% for Epworth; and 20.8% for STOP-BANG, that identified 55% of pts at high risk for sleep apnea. Nutritional assessment was completed by 18.7%; obese/pre-obese status was found in 21% and 48%, respectively; 18 pts were enrolled in a nutritional program. All doctors "agreed"/"strongly agreed" to overall satisfaction with the app.
Conclusions: The digital FUP was feasible and aided comorbidities assessment. Strategies to improve patient's engagement and digital literacy are warranted. Further studies are needed to evaluate the platform's impact on clinical outcomes.

Sábado, 15 Abril de 2023 | 17:00-18:00

Sala Vega | Comunicações Orais - Sessão 20 - Tromboembolismo pulmonar agudo

CO 96. IN-HOSPITAL MORTALITY AND REPERFUSION RATE IN OCTAGENARIANS WITH HIGH-RISK PULMONARY EMBOLISM: A NATIONWIDE POPULATION-BASED COHORT STUDY IN PORTUGAL FROM 2010 TO 2018

Rita Calé[1], Raquel Ascenção[2], Carolina Bulhosa[3], Hélder Pereira[1], Margarida Borges[2], João Costa[2], Daniel Caldeira[2]

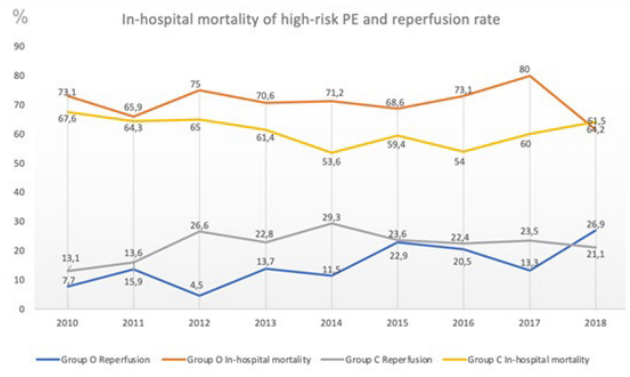
[1]Hospital Garcia de Orta, EPE. [2]Faculdade de Medicina da Universidade de Lisboa. [3]Evigrade, an IQVIA company, Lisboa.

Introduction: Reperfusion is the standard treatment in high-risk pulmonary embolism (HR-PE) to unload right ventricle and prevent mortality. However, several registries report reperfusion underuse and elderly patients are often undertreated due to the fear of bleeding with thrombolysis. The aim of

Figure. App usability questionnaire - patients' results.

CO 95 Figure

this study was to assess in Portugal, epidemiological data about the rate of reperfusion and mortality of HR-PE in octogenarians (≥ 80 years-old).
Methods: Nationwide population-based temporal trend study on the outcome of HR-PE in octogenarians who were admitted in hospitals of the National Health Service in Portugal between 2010 and 2018. International Classification of Diseases (ICD), 9th and 10th revision, were used. HR-PE was defined as patients with PE who developed shock or cardiac arrest. Patients were divided in two groups: O- octogenarians (≥ 80 years) and C- control group (18-79 years-old). Trends in the use of reperfusion treatment, defined by use of thrombolysis or pulmonary embolectomy, and trends in in-hospital mortality were assessed. Multivariate regression analysis was performed to evaluate the independent predictors to in-hospital mortality.
Results: From 2010-2018, 1,696 pts were hospitalized for HR-PE (group O- 447 pts; group C- 1,249 pts). The mortality in octogenarians with HR-PE was very high and has not significantly decreased over the years (73.1% in 2010 to 61.5% in 2018; R^2 = -0.135; p = 0.829; Figure). The in-hospital mortality is on average 10% higher compared to group C (71.1% *vs*. 60.9%; p = 0.001). Reperfusion therapy (all with systemic thrombolysis) was underuse in octogenarians, but its use has been increasing over the last few years (7.7% in 2010 to 26.9% in 2018, R^2 = 0.484; p = 0.022). There was no registry of surgical pulmonary embolectomy or catheter-directed therapy in group O. There was 1.5% (1 in 68 patients) of intracranial bleeding in octogenarians with HR-PE submitted to thrombolysis (*versus* 2.5% in group C; p = 0.597). In octogenarians, in-hospital mortality was significantly lower in pts who received thrombolytic treatment (52.9% *vs*. 74.2%; p = 0.0004). The independent predictors to in-hospital mortality were age (OR 1.02; 95%CI 1.1-1.02); Charlson Comorbidity Index (OR 1.09; 95%CI 1.04-1.13) and reperfusion (OR 0.56; 95%CI 0.44-0.72).



Legend of figure 1:
In-hospital mortality of high-risk PE in octogenarians and group control (<80 years-old) through the years 2010-2018. Mortality of high-risk PE remained constant and high over the years in both octogenarians (R^2=-0.135; p=0.829) and group C (R^2=-0.115; p=0.196). The rate of reperfusion in patients with high-risk PE was very low but has increased slightly over the years in octogenarians (R^2=0.484; p=0.022). The reperfusion rate maintained constant in group C (R^2=0.099; p=0.212).

Conclusions: In Portugal, systemic thrombolysis in octogenarians was underuse nevertheless its use has been increasing over the last few years. Thrombolytic therapy is associated with lower mortality in elderly with acceptable risk of intracranial bleeding.

CO 97. CLINICAL, ECHOCARDIOGRAPHIC, ANALYTICAL AND IMAGING PARAMETERS: WHICH ARE THE MAIN PROGNOSTIC FACTORS IN HOSPITALIZED PATIENTS WITH ACUTE PULMONARY EMBOLISM?

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Hospital do Divino Espírito Santo, Ponta Delgada.

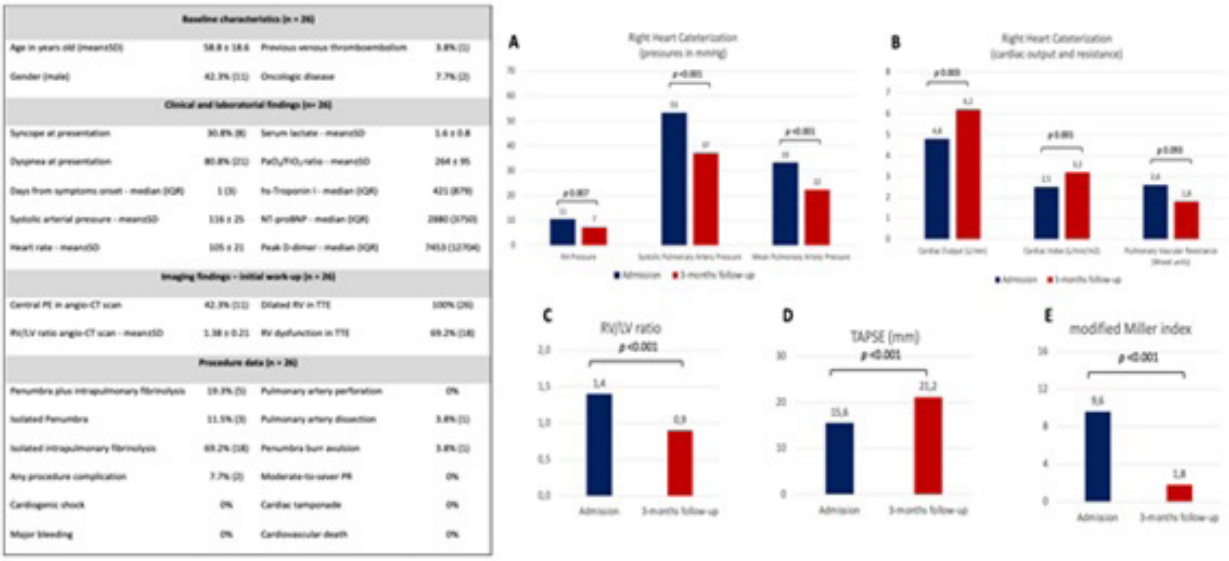
Introduction: Acute pulmonary thromboembolism (PE) is a life-threatening condition and an early diagnosis and adequate therapy are critical. Mortality in PE still remains very high in spite of progress in diagnostic tools. Several parameters for risk stratification have been reported with a variable importance on clinical practice.
Objectives: To compare the performance of different parameters (clinical, echocardiographic, analytical and imaging parameters) in predicting adverse in-hospital events in acute PE.
Methods: We retrospectively assessed consecutive patients from a single center registry who were hospitalized with acute PE. Four different parameters were determined: Clinical and echocardiographic (PESI class and PESI-Echo score), analytical (lactate and troponin I admission values) and anatomical imaging (central or peripheral thrombi location) parameters. A composite outcome of adverse in-hospital events (including cardiogenic shock, acute respiratory failure, severe bleeding events or in-hospital mortality) was determined. Discriminative power of each parameter was assessed by receiver operating characteristic curve analysis.
Results: A total of 131 patients (mean age of 67.6 ± 15.3 years-old, female 71%) were included. Regarding baseline comorbidities, 63.4% of the patients had hypertension, 27.4% had a recent hospitalization or major surgery and 19.8% had a medical history of active cancer. Besides anticoagulation, 7 patients (5.3%) underwent fibrinolysis. Overall in-hospital mortality was 8.4% and 3.8% of the patients had a severe bleeding event, respiratory failure or cardiogenic shock. According to the PESI classification, 29.8% of the patients were included in class V, 26.7% in class III and 17.6% in class II. PESI classification had a weak positive correlation with the outcome (p < 0.001; r = 0.37), like PESI-Echo score (p 0.018; r = 0.36). Attending to in-hospital adverse events, 72.2% occurred in PESI class V patients (p = 0.020). Both analytical parameters (lactate and troponin I) determined at hospital admission had a good discriminative power in predicting the composite in-hospital outcome. Discriminative power was superior for lactate and troponin I (AUC 0.864, 95%CI 2.8-187; p < 0.001) *vs*. imaging data (AUC 0.64, p = 0.12). Comparing all-four parameters, PESI-Echo score had the best discriminative power (AUC 1.0, p = 0.008), followed by PESI class (AUC 0.925) and lactate value at hospital admission (AUC 0.856). The cut-off value for PESI-Echo was 211.
Conclusions: Clinical, echocardiographic and analytical parameters showed overall good performance in stratifying in-hospital adverse events. Its routinely use for risk stratification had significant impact on prognosis.

CO 98. CATHETER-DIRECTED THERAPIES IMPACT ON INTERMEDIATE-HIGH- AND HIGH-RISK PULMONARY EMBOLISM PATIENTS

André Grazina, Bárbara Lacerda Teixeira, Luís Almeida Morais, António Fiarresga, Ruben Ramos, Lídia de Sousa, João Reis, Ana Galrinho, Ana Santana, Helena Teles Antunes, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Intermediate-high- and high-risk pulmonary embolism (PE) patients treated with anticoagulation alone are associated with a considerable risk of circulatory collapse, death, or long-term pulmonary hypertension. Pulmonary Embolism Response Teams (PERT) have been created to deliver PE patients a better care. Catheter Directed Therapies (CDT), with mechanical thrombolysis and/or local fibrinolysis allow faster reperfusion and hemodynamic improvement without the systemic hemorrhagic effects of systemic fibrinolysis. The clinical evidence of its benefits is lacking.
Objectives: This analysis aims to describe the hemodynamics, morphological and perfusion improvement in intermediate-high- and high-risk acute PE patients submitted to CDT.
Methods: Prospective registry of consecutive intermediate-high- and high-risk PE patients submitted to CDT (mechanical thrombolysis with Penumbra aspiration system and/or intrapulmonary local fibrinolysis with alteplase) in a single tertiary center. A multiparametric follow-up protocol was designed to evaluate echocardiographic, CT-scan, pulmonary angiogram, and right heart catheterization data at admission and at 3 months after CDT. The paired samples t-Test was used for the analysis of the variables.
Results: 26 PE patients (42.3% male, mean age 59 years old) were submitted to CDT (19% combined Penumbra and local fibrinolysis, 12% isolated Penumbra and 69% isolated local fibrinolysis). Baseline characteristics,



CO 98 Figure

laboratorial, imaging and procedure data are summarized in the Figure. No major bleeding was seen during or after the procedure. 1 pulmonary artery dissection and 1 Penumbra burr partial avulsion occurred, both with conservative treatment with good result. 3 patients died during the follow-up (1 for oncologic disease, 1 for septic shock and 1 after discharge with undetermined cause). Of the remaining, 18 patients completed the 3-month follow-up protocol. At 3 months, a significant improvement was seen in the patients' hemodynamics with 3.3mmHg mean drop of RA pressure (p 0.007), 16.1 mmHg mean drop of systolic PA pressure (p < 0.001), 8.0 mmHg mean drop of mean PA pressure (p < 0.001), 1.4 L/min and 0.7 L/min/m^2 mean increases in cardiac output and index (p 0.003, p 0.001), and a tendency to a 0.8 Wood units decrease in the pulmonary vascular resistance (p 0.093). It was also seen an improvement in the perfusion defects with a mean drop of 7.9 points in the modified Miller index (p < 0.001) and an improvement in the RV function with a mean decrease of 0.5 in the RV/LV ratio by CT-scan (p < 0.001), a mean increase of 5.6 mm in TAPSE (p < 0.001) and a decrease of median NT-proBNP levels in 2,866 pg/ml (p < 0.001).

Conclusions: In patients with intermediate-high- and high-risk PE, the use of CDT with mechanical thrombolysis and/or local fibrinolysis is safe and associated with improvement in hemodynamics, RV function and perfusion defects.

CO 99. ACUTE AND MIDDLE-TERM OUTCOMES OF INTERMEDIATE-HIGH-RISK ACUTE PULMONARY EMBOLISM PATIENTS SUBMITTED TO CATHETER-BASED THERAPY - A SINGLE-CENTRE PILOT STUDY

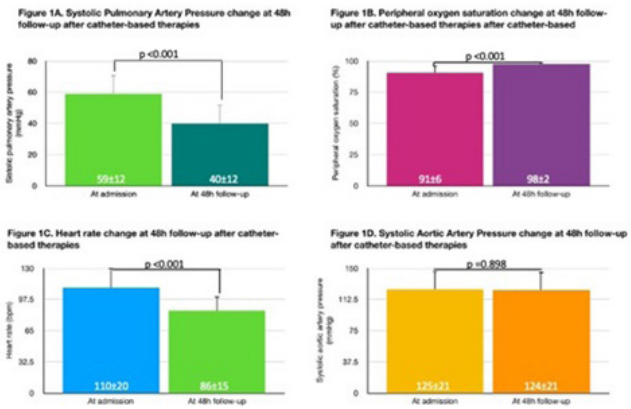
Mariana Sousa Paiva, Sílvio Leal, Daniel A. Gomes, Francisco Albuquerque, Afonso Félix de Oliveira, João Brito, Nélson Vale, Sérgio Madeira, Luís Raposo, Eduardo Infante Oliveira, Pedro de Araújo Gonçalves, Henrique Mesquita Gabriel, Rui Campante Teles, Manuel Sousa Almeida, Miguel Mendes

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

Introduction: The increasing evidence of efficacy and safety of catheter-based approaches is changing the treatment paradigm of acute pulmonary embolism (PE). However, the demonstration of their clear prognostic benefit in intermediate-risk patients is still lacking. Our aim was to evaluate the acute and middle-term outcomes of patients with intermediate-high-risk acute PE submitted to catheter-based therapy.

Methods: Retrospective analysis of a single centre cohort study of patients with acute PE of intermediate-high-risk, undergoing percutaneous therapy through mechanical thrombectomy (MT), catheter-derived thrombolysis (CDL) or combined technique. PESI and sPESI scores at admission were calculated. Efficacy endpoints were defined as the change in systolic pulmonary artery pressure (sPAP), heart rate (bpm), systolic blood pressure (SBP) and peripheral oxygen saturation (SpO2) from baseline and 48 hours (mmHg). Safety endpoints were defined as rate of major adverse events, i.e., a composite of death, major bleeding, and device-related serious adverse events (SAE) (intraprocedural clinical deterioration, pulmonary vascular injury, and cardiac injury), at 30 days (%).

Results: From December 2019 to October 2022, 41 patients were submitted to catheter-based therapy for acute PE of intermediate-high-risk, 25 (61%) females, mean age of 60 ± 17 years old. At admission, all patients had RV dilatation and high serum troponin, and the majority (90%) exhibited RV systolic dysfunction. The average PESI was 110 ± 24, and average sPESI was > 1. In total, 10 patients underwent MT, 9 CDL and 22 a combined technique. The average procedure time was 115 ± 61 min. At 48h follow-up, sPAP (59 *vs.* 40 mmHg, p < 0.0001), HR (110 ± 20 *vs.* 85 ± 15 bpm, p < 0.0001) and SpO2 (91 ± 6% *vs.* 97 ± 2%, p < 0.001) were significantly reduced, whereas systolic blood pressure (125 ± 21 *vs.* 124 ± 21 mmHg, p = 0.858) did not differ significantly. In terms of safety at 30 days, the composite endpoint was observed in 15% (n = 7) of the patients, composed by 3 deaths, 2 non-fatal major bleedings, and 2 additional device-related SAE.



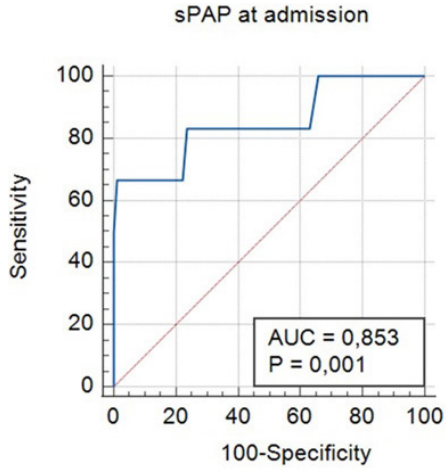
Conclusions: In our series, catheter-based therapy for intermediate-high-risk acute pulmonary embolism showed good acute and middle-term efficacy and safety results with a low 30-day mortality rate. Further studies with a broader population will reinforce these findings.

CO 100. PREVALENCE AND PREDICTORS OF CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION FOLLOWING SEVERE FORMS OF ACUTE PULMONARY EMBOLISM

Joana Pargana[1], Rita Calé[2], Mariana Martinho[2], João Santos[2], Patrícia Araújo[2], João Morgado[2], Ernesto Pereira[2], Tiago Judas[2], Sofia Alegria[2], Filipa Ferreira[2], Francisca Delerue[2], Hélder Pereira[2]

[1]Faculdade de Medicina da Universidade de Lisboa. [2]Hospital Garcia de Orta, EPE.

Introduction and objectives: The true prevalence of chronic thromboembolic pulmonary hypertension (CTEPH) after pulmonary embolism (PE) in the Portuguese population remains unknown and underdiagnosis remains a concern. Therefore, we aimed to assess the prevalence and risk factors of CTEPH two years after a symptomatic high (HR) and intermediate-high risk (IHR) PE in a Portuguese referral center for pulmonary hypertension.
Methods: This retrospective cohort study included patients admitted with PE between 2014-2019 in a tertiary care hospital, according to the International Classification of Diseases (ICD-9 and ICD-10) and stratified at the hospital admission in HR and IHR criteria as recommended by European Society of Cardiology (ESC). We evaluated the prevalence of CTEPH in all consecutive pts hospitalized with severe forms of PE who survived 3 months after the acute PE event. Independent predictors of CTEPH were further evaluated by multivariable regression analysis.
Results: Of the 969 pts admitted with PE between 2014-2019, 194 were stratified as HR (5.4%) and IHR (14.7%) PE. After exclusion of the 54 pts who died and 11 pts without follow-up in the first 3 months, 129 pts were included in the analysis. During a median follow-up of 41.0 (24.0-58.5) months, overall prevalence of suspected CTEPH by clinical, Doppler echocardiography and V/Q lung scan was 6.2% (8 pts). CTEPH was confirmed by right heart catheterization in 4 of those pts (3.1%). Increased sPAP at admission (OR 1.12; 95%CI 1.04-1.22; p = 0.005) and the presence of varicose veins in the lower limbs (OR 7.47; 95%CI 1.53-36.41; p = 0.013) were predictors of CTEPH. sPAP at admission > 60 mmHg identified pts with CTEPH at the follow-up with a sensitivity and specificity value of 83.3% and 76.3%, respectively (Figure - ROC curve).



Conclusions: In our cohort, the prevalence of CTEPH in the survivors of severe forms of acute PE was 6.2%. The presence of varicose veins and sPAP at the admission of the index event were identified as early predictors of CTEPH and could assist to early recognition of CTEPH after PE. A systolic pulmonary artery pressure above 60 mmHg at the index event is highly suggestive of acute on chronic CTEPH.

Sábado, 15 Abril de 2023 | 18:00-19:00

Sala Vega | Comunicações Orais - Sessão 21 - Miocardiopatia hipertrófica

CO 101. OUTCOMES AND SAFETY OF DISOPYRAMIDE AND NADOLOL IN A COHORT OF HYPERTROPHIC CARDIOMYOPATHY PATIENTS

Isabel Cardoso, José Miguel Viegas, Pedro Brás, Miguel Marques Antunes, Rita Teixeira, André Grazina, Ana Galrinho, Luísa Branco, Ana Leal, Sílvia Aguiar Rosa, Rui Cruz Ferreira

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

Introduction: Disopyramide is a class Ia antiarrhythmic, used simultaneously with beta-blockers, to reduce left ventricle outflow tract (LVOT) gradient in hypertrophic cardiomyopathy (HCM) patients (P). Although its efficacy has been proven it is not widely used, in part for risk of arrhythmias. Furthermore, the combination of disopyramide and nadolol has limited access in our country.
Objectives: To evaluate the efficacy and safety of disopyramide and nadolol in a cohort of obstructive HCM P.
Methods: We conducted a retrospective analysis of all HCM P treated with disopyramide and nadolol between January 2020 and October of 2022 at a cardiomyopathy clinic. Disopyramide and nadolol were initiated in symptomatic HCM patients with LVOT obstruction, refractory to maximally tolerated doses of beta-blockers and/or calcium-channel antagonists. The routine initial dose was 100 mg of disopyramide twice a day and nadolol 40 mg twice a day. An electrocardiogram (ECG) was performed at the day of disopyramide initiation and after one week to monitor the QT interval and heart rate (HR). In the absence of relevant corrected QT (cQT) interval prolongation disopyramide was titrated, as well as nadolol according to HR, to twice the dose. Correction for heart rate was made with Fridericia's formula. Clinical and echocardiographic revaluation was performed after 3 months.
Results: 16P were included, 9 females (56%), mean age 54 ± 24 years, 4P (25%) had atrial fibrillation (AF), 8P (50%) had an Implantable Cardioverter Defibrillator (ICD), 2P (13%) underwent Morrow myectomy and 2P alcoholic septal ablation. Regarding the previous medication: 5P (31%) were treated with bisoprolol, 6P (38%) with bisoprolol and verapamil, 2 with carvedilol and 1 with propranolol. The mean basal LVOT gradient was 90 ± 38 mmHg, mean N-terminal pro b-type natriuretic peptide (NT-proBNP) 1,238 ± 1,025 pg/ml. There was a significant reduction in LVOT gradient in P treated with disopyramide and nadolol, mean LVOT gradient after 3 months was 44 ± 30 mmHg (p = 0.047), 3P (19%) had LVOT gradient inferior to 30 mmHg. No recurrence of AF was identified. Of the patients started on disopyramide, 3 developed anticholinergic side effects: two xerostomia and one prostatism. In total 3P discontinued disopyramide: one due to cQT interval prolongation and 2 due to anticholinergic side effects. However, globally there was no significant cQT interval prolongation with disopyramide (p = 0.63) (Table).

	Pre-D+P	Post-D+P	p-value
Heart rate (bpm)	67 ± 11	60 ± 11	0.70
PR (ms)	184 ± 25	188 ± 29	0.67
QRS (ms)	120 ± 26	128 ± 34	0.89
cQT (ms)	426 ± 41	452 ± 44	0.63

Table 1. Electrocardiographic Characteristics Before and After Initiation of Disopyramide and Nadolol. D+P= Disopyramide+Nadolol

Conclusions: Disopyramide and nadolol significantly reduced LVOT gradient, with no significant cQT interval prolongation or major adverse events.

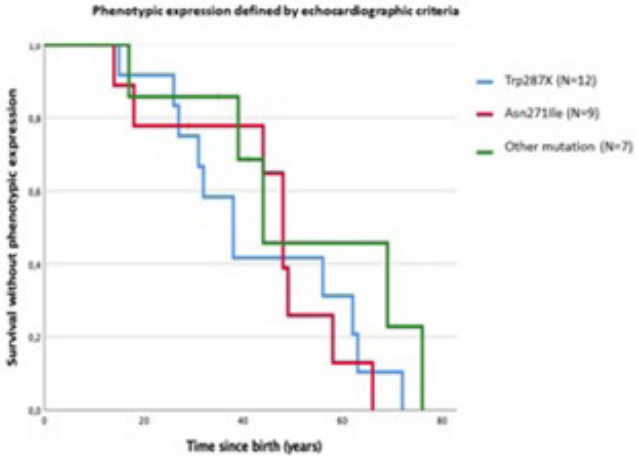
CO 102. PHENOTYPES AND NATURAL HISTORY OF TNNT2 GENE MUTATION CARRIERS WITH FAMILIAL HYPERTROPHIC CARDIOMYOPATHY: A LONG FOLLOW UP STUDY

Catarina Gregório[1], Beatriz Garcia[1], Sofia Morgado[2], Nuno Cortez Dias[1], Oana Moldovan[3], Fausto J. Pinto[1], Hugo Madeira[4], Dulce Brito[1]

[1]Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa. [2]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [3]Genetic Department, Santa Maria University Hospital CHULN, CAML, CCUL. [4]CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction and objectives: In hypertrophic cardiomyopathy (HCM), variants (Vs) in cardiac troponin T gene *(TNNT2)* have been associated with high risk of sudden cardiac death (SCD) and mild left ventricular hypertrophy (LVH). We did a retrospective longitudinal observational study of a cohort with HCM and *TNNT2* Vs.
Methods: The study group comprised 11 probands with Vs in *TNNT2* gene (G+) and 17 G+ out of 51 relatives. Clinical, ECG and echocardiographic (echo) data, and 5-year estimation risk of SCD applying ESC score, were evaluated at the time of diagnosis (T0) and compared with those at the last follow up (Fup) visit (T1). Lifelong time to disease presentation was estimated by Kaplan-Meier survival analysis method.
Results: At T0, from the 28 genetic carriers, 20 had HCM phenotype (G+Ph+), 8 had no LVH (G+/Ph-). Four different *vs.* were identified by Next Generation Sequencing in the 11 families (F): p.Trp287ter [6F, n = 12]; p.Asn271Ile (2F, n = 9); p.Arg278Cys (2F, n = 5); and p.Lys66Asn (1F, n = 2). Two Vs were known as pathogenic/likely pathogenic; 2 are classified as VUS (Vs of unknown significance), but both co-segregated with the disease in the families. During a median Fup of 13 (8-19) years (y), penetrance of the 4 Vs was 86%. The 20 G+/Ph+ pts, 9 males, aged 44 (30-59)y, had maximal wall thickness (MWT) of 16.5 (14.0-21.0) mm; 6 pts had diffuse LVH and 3 were obstructive. Left atrial dimension (LAD) was 37.0 (33.4-43.3) mm. Three patients (pts) had normal ECG. Thirteen (65%) pts had an uneventful evolution; 7 (35%) needed hospitalization related to HCM, including 2 cases of septal myectomy and 2 that evolved to a dilated phase. No SCD occurred. There were 2 non-cardiac deaths. At T1, MWT was 19.0 (14.0-21.0) mm (p = NS *vs.* T0) but LAD increased significantly [46.3 (38.0-52.6) mm, p < 0.001]; 2 pts had atrial fibrillation; 4 were obstructive forms. The median ESC risk score [1.6 (1-2.6) at T0)] came to 1.9 (1-2.6) and similarly for all the different Vs. Only 4 out the 8 G+/Ph- pts developed LVH but, in the remaining, ECG abnormalities emerged. Groups did not differ in gender, age at diagnosis, and Fup time. All Vs behave similarly regarding echo expression (Figure).

Fig.1. Time to phenotypic expression of disease in twenty-eight *TNNT2* mutation carriers.



Conclusions: HCM associated with *TNNT2* mutations expressed phenotypically at all ages; ECG abnormalities were frequent even in the absence of LVH;LVH was variable, but mild to moderate in most patients; the natural history associated with these 4 variants in the *TNNT2* gene was benign in most patients. No SCD occurred.

CO 103. PERSISTING SYMPTOMS DESPITE OPTIMAL MEDICAL TREATMENT IN PATIENTS WITH OBSTRUCTIVE HCM NOT ELIGIBLE FOR SEPTAL REDUCTION THERAPY: INSIGHTS FROM AN INTERNATIONAL REGISTRY

Mariana S. Brandão[1], Niccolo' Maurizi[2], Brian Claggett[3], Euan A. Ashley[4], Adam S. Helms[5], Neal Lakdawala[6], Michelle Michels[7], Alexandre C. Pereira[8], Sara Saberi[9], Christopher Semsarian[10], James S. Ware[11], Sharlene M. Day[12], Carolyn Y. Ho[6], Iacopo Olivotto[13], on behalf of the Share Registry Investigators (Sarcomeric Human Cardiomyopathy Registry)

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Department of Cardiology, Lausanne University Hospital, Lausanne, Switzerland. [3]Cardiovascular Division, Brigham and Women's Hospital, Boston, MA, USA. [4]Stanford Center for Inherited Heart Disease, CA, USA. [5]Department of Internal Medicine, University of Michigan, USA. [6]Brigham and Women's Hospital, Heart and Vascular Center, MA, USA. [7]Department of Cardiology, Thoraxcenter, Erasmus Medical Center Rotterdam, Netherlands. [8]Heart Institute (InCor), University of Sao Paulo Medical School, Brazil. [9]Department of Internal Medicine, University of Michigan, USA. [10]Agnes Ginges Centre for Molecular Cardiology at Centenary Institute, University of Sydney, Australia. [11]National Heart and Lung Institute and Royal Brompton Cardiovascular Research Centre, Imperial College London, United Kingdom. [12]Department of Medicine, University of Pennsylvania, Philadelphia, USA. [13]Cardiomyopathy Unit, Careggi University Hospital, Florence, Italy.

Introduction: Patients with hypertrophic cardiomyopathy (HCM) and left ventricular outflow tract obstruction (LVOTO) who remain symptomatic despite optimal medical therapy (OMT) may not be eligible to, or compliant with, septal reduction therapies (SRT), including myectomy and alcohol septal ablation. This subset represents an unmet clinical need, potentially amenable to cardiac myosin inhibitors (CMI), new agents targeting the molecular basis of HCM.
Objectives: To evaluate the prevalence, in an international consortium, of patients with obstructive HCM with persisting symptoms despite OMT, fulfilling the enrollment criteria for the EXPLORER-HCM trial.
Methods: In this cross-sectional analysis, we enrolled HCM patients in New York Heart Association (NYHA) class ≥ II at the most recent evaluation, aged ≥ 18 years, with LVOT gradient ≥ 50 mmHg and left ventricular ejection fraction [LVEF] ≥ 55%. Patients on disopyramide were excluded, according to EXPLORER-HCM criteria.
Results: Of 10,225 HCM patients (85% Caucasian, 61.4% male, mean age at diagnosis 44 ± 20 years), 8,874 patients with complete data were included in the analysis, of whom 2067 (23%) had obstructive HCM [Figure]. Of these, 48% had symptoms at baseline, and 39.7% remained symptomatic despite OMT. SRT, mostly myectomy, was performed in 346 patients (42%) of this group. The remaining 474 (59%) patients were not treated invasively (age at diagnosis 54 ± 16 years, 47% male, 15% with pathogenic/likely pathogenic gene variants, mean LVEF 69 ± 7%, mean LVOT gradient 77 ± 39 mmHg). Of these 474, 16.7% (n = 79) were on Disopyramide. According to the EXPLORER-HCM enrollment criteria, 192 of the 474 patients (40%) were potentially eligible for CMI. Eligible patients were mostly female (51%), Caucasian (92%), and were older at diagnosis (56 *vs.* 53 years, p =.038). Most (75%) were in NYHA class II. At baseline, mean maximal wall thickness was 19 ± 5 mm, and LVOT gradient was 91 ± 31 mmHg; mean LVEF was 70 ± 7%; 83.3% had late gadolinium enhancement on cardiac magnetic resonance.
Conclusions: Most patients with obstructive HCM present persisting symptoms despite optimal medical therapy. Of these, less than half undergo SRT; 40% of the remaining symptomatic would be potential

candidates for CMI according to the EXPLORER-HCM criteria. More liberal criteria for CMI introduction (such as the possibility to combine them with disopyramide) would expand the indication by a further 17% in this group. Optimization of care in this pt subset is warranted.

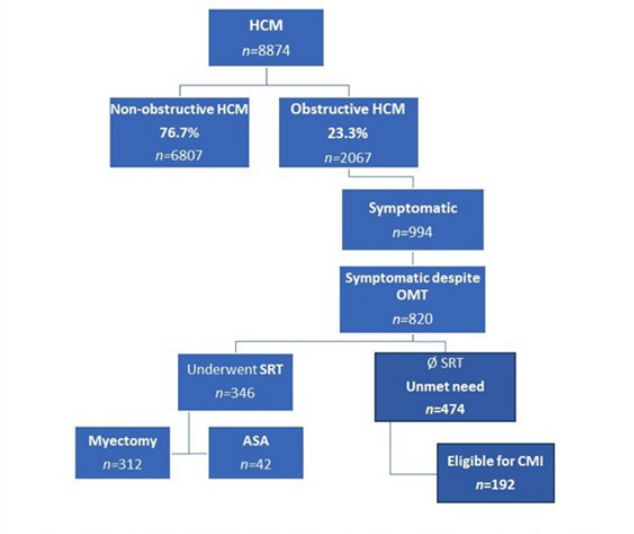


Figure 1. ASA: alcohol septal ablation. CMI: cardiac myosin inhibitor. HCM: hypertrophic cardiomyopathy. OMT: optimized medical therapy. SRT: septal reduction therapy

CO 104. ASSESSMENT OF MYOCARDIAL WORK IN SARCOMERE GENE MUTATION CARRIERS AND OVERT HYPERTROPHIC CARDIOMYOPATHY

Carla Marques Pires[1], Miltiadis Triantafyllou[2], Ricardo Prista Monteiro[3], George Joy[3], Ana Ferreira[3], Konstantinos Savvatis[3], Luís da Rocha Lopes[3]

[1]Hospital de Braga, EPE. [2]Halmstad Hospital. [3]Barts Heart Centre, Barts Health NHS Trust, London.

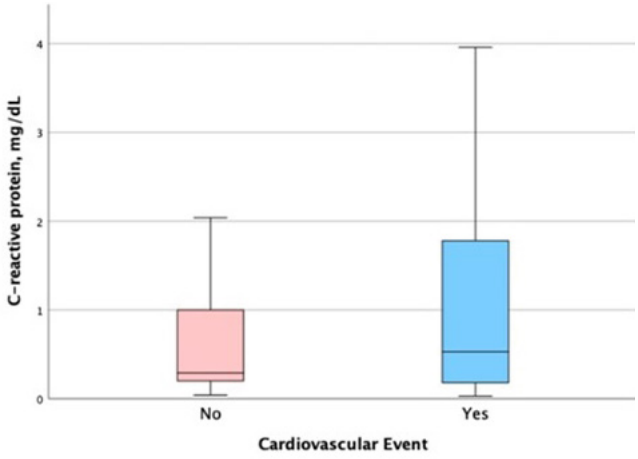
Introduction: Hypertrophic cardiomyopathy (HCM) is a common genetic heart disease defined by unexplained hypertrophy and often characterized by diastolic and systolic dysfunction. In recent studies, HCM patients were found to have impaired left ventricular (LV) myocardial work (MW), a more load-independent parameter compared to global longitudinal strain (GLS). MW was never studied in sarcomere mutation carriers.
Objectives: To compare MW between sarcomere mutation carriers, healthy controls and overt HCM.
Methods: A single centre study with a case-control design. The study population comprised 3 groups: overt HCM patients with a likely pathogenic/pathogenic sarcomere gene variant (n = 51), carriers (n = 51) and age and sex matched (to the carriers) healthy controls (n = 32). All participants (pts) underwent a transthoracic echocardiogram including myocardial deformation analysis to calculate global longitudinal strain (GLS) and MW. MW was calculated from same-day non-invasive blood pressure evaluation. Global work index (GWI), Global constructive work (GCW), Global work efficiency (GWE) and Global wasted work (GWW) were obtained.
Results: GWI (1,695 mmHg% *vs.* 1,869 mmHg%, p = 0.001) and GCW (1,993 mmHg% *vs.* 2,244 mmHg%, p < 0.001) were lower in sarcomere mutation carriers compared to controls. LVEF and GLS were similar between the two groups (p = 0.233). HCM pts were older (p < 0.001), less likely female (p = 0.01) and had a higher prevalence of cardiovascular (Cv) comorbidities, including hypertension (p < 0.001), compared with sarcomere gene mutation carriers. Global work index (GWI) (1,209 mmHg% *vs.* 1,695 mmHg%), global constructive work (1,456 mmHg% *vs.* 1,993 mmHg%, p < 0.001) and global work efficiency (GWE) (89% *vs.* 95%, p < 0.001) were significantly lower in overt HCM compared with sarcomere mutation carriers. GWW was higher (117 mmHg% *vs.* 95 mmHg%, p = 0.006) in overt HCM.
Conclusions: In this study, we show for the first time that MW indexes were significantly worse in sarcomere gene mutation carriers compared to controls. GLS and MW indexes were also significantly different between overt HCM and sarcomere gene mutation carriers. These data suggest that MW is more sensitive to early changes than GLS and could play a major role in the evaluation and follow-up of sarcomere mutation carriers.

CO 105. UNVEILING THE ROLE OF SYSTEMIC INFLAMMATION IN HYPERTROPHIC CARDIOMYOPATHY - A NEW PREDICTOR OF CARDIOVASCULAR EVENTS

Inês Pereira de Miranda, Filipa Gerardo, Mariana Passos, Carolina Mateus, Joana Lima Lopes, Inês Fialho, Marco Beringuilho, David Roque, Carlos Morais, João Bicho Augusto

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

Introduction: Hypertrophic cardiomyopathy (HCM) is an important cause of major cardiovascular events. Appropriate risk stratification is still lacking, with some patients still being overtreated (risk of inappropriate ICD therapies and other ICD-related complications) while others undertreated (risk of sudden cardiac death). Inflammation could play a crucial role in risk stratification.
Objectives: To test systemic inflammation biomarkers in HCM patients to predict long-term cardiovascular events.
Methods: We included all consecutive HCM patients seen at our institution in a 10-year period. We collected data regarding demographic and clinical aspects, as well as systemic inflammation markers such as erythrocyte sedimentation rate (ESR), C-related protein, ferritin and albumin (the latter an inverse/negative marker of inflammation). We analyzed the structural phenotype of HCM using echocardiography and cardiac MRI imaging. Our primary endpoint was a composite of cardiovascular events that included admission for acute/decompensated heart failure, malignant arrhythmia, cardiac syncope, cardiovascular or sudden cardiac death, myocardial infarction, ischemic stroke and/or complete heart block.
Results: A total of 106 HCM patients were included, 52 were male (49.1%), with a mean age of 70 ± 16 years (range 27-95 years). Of note, median CRP levels across all patients were 0.45 (interquartile range 0.19-1.64) mg/dL and median ferritin values were 266 (interquartile range 97-316) ng/mL. The best regression model (using backwards conditional input method) was consistent with a role of CRP (odds ratio [OR] 0.60 [95%CI 0.37-1.00], p = 0.048) and ferritin (OR 1.01 [1.00-1.01], p = 0.049) as independent predictors of primary endpoint. Patients who had a cardiovascular event had significantly higher values of CRP (median 0.53 [0.18-1.78] *vs.* 0.29 [0.20-1.00] mg/dL p = 0.023) and ferritin (median 309 [76-276] *vs.* 177 [155-477] ng/mL, p = 0.032).



Conclusions: Low-grade systemic inflammation is a predictor of cardiovascular events in HCM and likely plays a role in the pathogenesis of the disease. Given the unmet need for therapies in HCM, modulating this inflammatory response could be a novel useful treatment target.

Domingo, 16 Abril de 2023 | 08:30-09:30

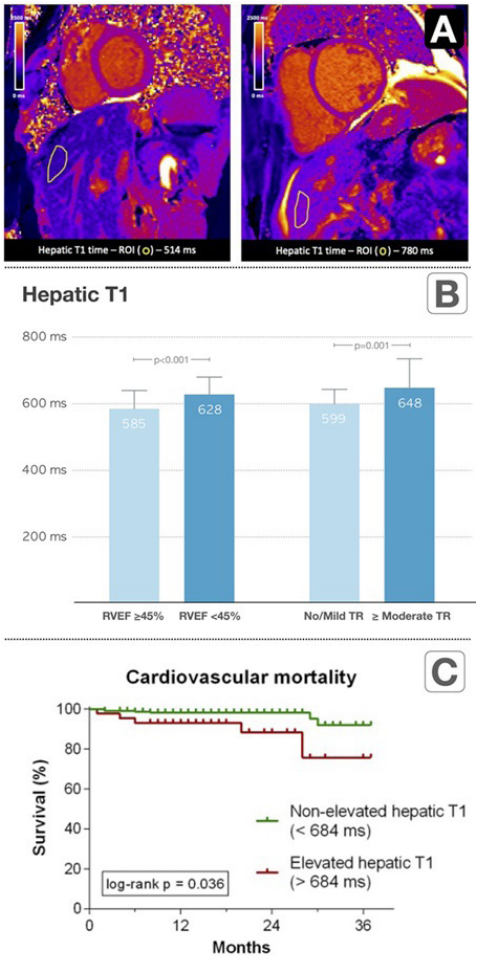
Sala Aquarius | Comunicações Orais - Sessão 22 - Ressonância magnética e cardiologia nuclear

CO 106. HEPATIC T1 MAPPING: A NEW EASILY OBTAINED BIOMARKER FOR HEART FAILURE PATIENTS UNDERGOING CARDIAC MAGNETIC RESONANCE

Rita Reis Santos, Mariana S. Paiva, Pedro Freitas, Sérgio Maltês, Rita Carvalho, Joana C. Pereira, Miguel Domingues, Ana C. Santos, Cláudia Silva, Sara Guerreiro, João Abecasis, Carla Saraiva, Miguel Mendes, António M. Ferreira

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

Introduction: Hepatic venous pressure overload and subsequent liver damage are frequent in patients with Chronic Heart Failure (CHF) but are difficult to quantify except in the late stages of disease. Myocardial T1 mapping is now commonly performed in patients undergoing cardiac magnetic resonance (CMR), with short axis images usually intercepting the liver, therefore allowing the opportunistic measurement of hepatic T1 values. The aim of this study was to quantify hepatic T1 values in HF patients undergoing CMR, and to assess its clinical and prognostic significance as a biomarker in this setting.



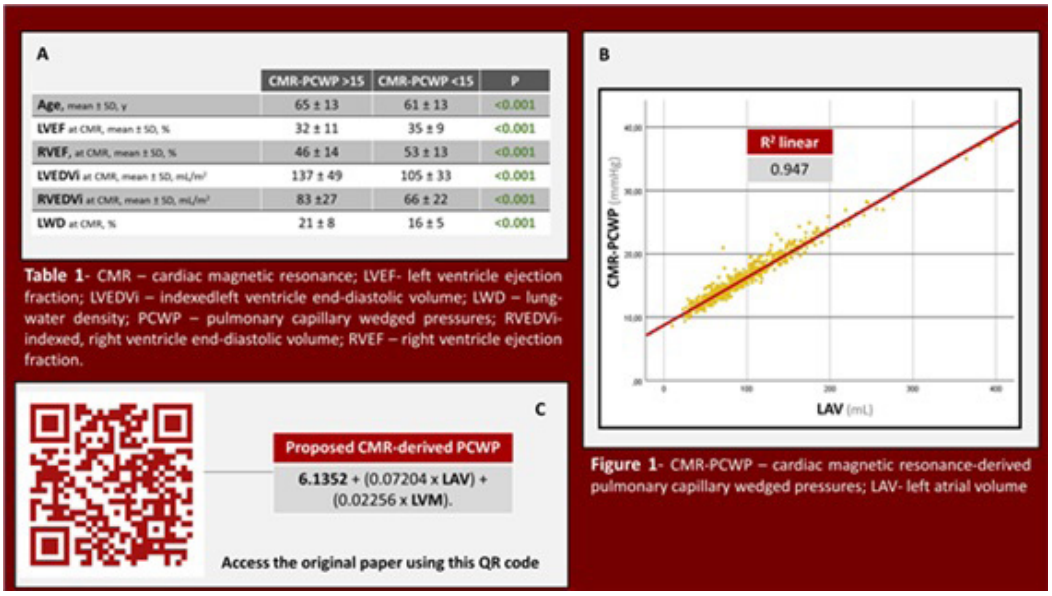
Methods: Consecutive patients with CHF (LVEF £ 50%) who underwent CMR at a single centre since Jan2019 were retrospectively identified. Those with known chronic liver disease, cardiac amyloidosis or suspected alcoholic cardiomyopathy were excluded. Native myocardial T1 mapping [MOLLI 5(3)3 sequence] basal short axis images were used to measure hepatic T1, with the region of interest drawn in the liver, avoiding organ vessels. A control group of subjects without known cardiovascular disease (n = 57) was used to define the limits of normality for hepatic T1 values. The clinical significance of hepatic T1 values was assessed by its relationship with markers of right-sided CHF, and its prognostic value by the association with cardiovascular mortality.
Results: A total of 267 patients (mean age 62 ± 15 years, 69% men, 38% with ischemic cardiomyopathy) were included. Median LVEF was 35% (IQR 26 - 44%) and median RVEF was 51% (IQR 40 - 59%). Overall, 46 patients (17%) had hepatic T1 values above 684 ms (the upper limit of normal for controls). Patients with elevated hepatic T1 had significantly higher RV volumes and lower RVEF (all p values < 0.03). Hepatic T1 values were significantly higher in patients with RVEF < 45% and in those with moderate or severe tricuspid regurgitation (Figure), and were also inversely correlated with RVEF (Spearman R -0.20, p < 0.001). During a median follow-up period of 17 months (IQR 11-24), there were 11 cardiovascular deaths. Elevated hepatic T1 was associated with an increased risk of this endpoint (HR 3.04, 95%CI 1.02-9.11, p = 0.047).
Conclusions: Hepatic T1 values can be easily measured in standard myocardial T1 maps, are associated with markers of right-sided heart failure, and have prognostic value in patients with HF. Further studies are warranted to assess the potential clinical usefulness of this new biomarker.

CO 107. CRITICAL APPRAISAL OF A NON-INVASIVE MODEL TO DERIVE PULMONARY CAPILLARY WEDGE PRESSURE FROM CARDIAC MAGNETIC RESONANCE IN HEART FAILURE PATIENTS - LOOK BEFORE YOU JUMP

Sérgio Maltês, Mariana Sousa Paiva, Rita Reis Santos, Bruno M.L. Rocha, Gonçalo J.L. Cunha, Joana Pereira, Rita Carvalho, Miguel Domingues, Cláudia Silva, Sara Guerreiro, Pedro Freitas, João Abecasis, Miguel Mendes, António M. Ferreira

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

Introduction: Cardiac magnetic resonance (CMR) is increasingly used to assess heart failure (HF) patients, but the hemodynamic information it provides is somewhat limited. Recently, a large study proposed a physiological model to estimate pulmonary capillary wedge pressure from CMR data (CMR-PCWP). Our goals were to assess the clinical determinants and correlates of this new tool, as well as to determine its prognostic significance in HF patients.
Methods: Consecutive patients with HF and left ventricular ejection fraction (LVEF) < 50% were identified in a single center CMR registry. Standard measurements of left ventricular mass (LVM) and biplanar left atrial volume (LAV) were used to calculate CMR-PCWP as per the proposed model: 6.1352 + (0.07204 × LAV [mL]) + (0.02256 × LVM [g]). We evaluated the correlation between CMR-PCWP and other parameters, including lung water density (LWD- lung-to-liver signal ratio in parasagittal HASTE images). The prognostic significance of CMR-PCWP was assessed using a composite endpoint of all-cause death or HF hospitalization.
Results: A total of 578 patients (mean age 63 ± 14years, 72% male, mean LVEF 34 ± 10%, 45% ischemic etiology) were included. Mean CMR-PCWP was 16 ± 4 mmHg, with 298 patients (52%) showing values ≥ 15 mmHg. Patients with elevated CMR-PWCP were older, had lower LVEF and RVEF, higher ventricular volumes and higher LWD values (Table, Figure A). CMR-PCWP showed a moderate correlation with LWD (Spearman's R 0.42, p < 0.001) and a reasonable discriminative power to identify those with elevated LWD (AUC ROC curve 0.695, p < 0.001). During a median follow-up of 25 (13-51) months, there were 69 deaths and 72 HF hospitalizations. CMR-PCWP was an independent predictor of the primary endpoint (HR 1.08, 95%CI 1.04-1.12, p < 0.001), alongside with age (HR 1.02 per year, 95%CI 1.004-1.040, p = 0.014), NYHA (HR 1.34 per class, 95%CI 1.07-1.68, p = 0.010) and NT-proBNP (HR 1.004 per 100 pg/mL, 95%CI 1.002-1.006, p < 0.001). However, a very



CO 107 Figure

strong correlation was found between CMR-PCWP and LAV, where 95% of the variance (R^2 = 0.947, Figure B) of CMR-PCWP is explained solely by LAV. The discriminative power of CMR-PCWP and LAV to predict events was similar (AUC 0.67 *vs.* 0.67, p-value for comparison = 0.724).
Conclusions: In this cohort of patients with HF and LVEF < 50%, CMR-derived PCWP seems to be a mere surrogate of LAV and is unlikely to add any useful diagnostic or prognostic information to other already established CMR measurements.

CO 108. UTILIZATION OF 18-FDG-PET/CT IN THE DIAGNOSIS OF PROSTHETIC VALVE ENDOCARDITIS

Gonçalo Ferraz Costa, Gonçalo Terleira Batista, Diogo Fernandes, Eric Monteiro, Joana Guimarães, Ana Luísa Silva, Mariana Simões, Tatiana Santos, Ana Vera Marinho, Gracinda Costa, Rodolfo Silva, Lino Gonçalves, Maria João Ferreira

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

Introduction: The diagnosis of infective endocarditis (IE) remains a clinical challenge. Diagnostic accuracy of the modified Duke criteria is suboptimal for native valve endocarditis (NVE) and even worse in the presence of prosthetic valve infection (PVE). We aim to evaluate the diagnostic performance of 18F-FDG PET in patients with suspected IE referred to perform PET/CT.
Objectives: We aim to understand the diagnostic value of 18F-FDG PET/CT in suspected PVE.
Methods: A retrospective study was performed at a tertiary center with 18F-FDG PET/CT and included all referred patients for this exam for suspected IE between May 2016 and January 2022. The choice to perform 18F-FDG PET/CT and the IE suspicion were based on the attending endocarditis team and did not follow a standardized protocol. Baseline demographic characteristics of patients, including all relevant clinical data, were collected from hospital records at hospital admission. The final diagnosis of IE (gold standard) was established by consulting the final diagnosis attributed to the patient by the Endocarditis team at the time of hospital discharge or death, after possession of clinical, microbiological, and imaging information as well as clinical response. Sensitivity, specificity, and positive and negative predictive values of 18F-FDG PET/CT in the evaluation of PVE were estimated.
Results: In total, 87 patients were included (mean age of 62 ± 19 years, 62% of the male gender), of which 38 had at least one prosthetic valve. In the latter group, approximately 71% were male, with a median age of 63 (IQR 59-77) years. 26% were diabetic, 66% had dyslipidaemia and 74% were hypertensive. Regarding the prothesis characteristics, 71% had an aortic position, 18% mitral position and the rest had multiple valve prothesis. 58% had biological valves, 5% of the patients had both mechanical and biological and one patient (3%) had a Mitraclip. Additionally, one single patient had prosthetic material due to previous truncus arteriosus surgical correction. Fever was present in 84% of patients and 16% had signs of heart failure. Moreover, 13% had evidence of vascular phenomena. One patient, who also had an implanted cardiac device, had pocket infection signs. Laboratory results showed a mean CRP of 14.3 mg/dL and mean leucocyte count of 10.8 G/L. Only 47% had a positive blood culture. 37.5% had echocardiographic findings suggesting IE with the presence of vegetations in 77% of these. According to the Duke Criteria, 55% were classified as “possible diagnosis”, 29% with “definitive diagnosis” and 13% as “rejected diagnosis”. Of the suspected PVE patients, compatible findings in 18F-FDG PET/CT observed in 25 patients. Calculated sensibility was 95% and specificity was 86%.
Conclusions: Our study suggests that 18F-FDG PET/CT is a great imaging tool of for patients with PVE suspicion.

CO 109. DIAGNOSTIC VALUE OF 18-FDG-PET/CT IN THE DIAGNOSIS OF CARDIAC IMPLANTABLE DEVICES

Gonçalo Terleira Batista, Gonçalo Ferraz Costa, Ana Luísa Silva, Mariana Simões, Tatiana Santos, Eric Monteiro, Joana Guimarães, Diogo Fernandes, Rafaela Fernandes, Ana Vera Marinho, Gracinda Costa, Rodolfo Silva, Lino Gonçalves, M.J. Ferreira

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

Introduction: The diagnosis of infective endocarditis (IE) remains a clinical challenge. Diagnostic accuracy of the modified Duke criteria is suboptimal, particularly in the presence of cardiac implantable electronic devices (CIED).
Objectives: We aim to understand the diagnostic value of 18F-FDG PET/CT in suspected CIED infection.
Methods: A retrospective analysis was performed at a tertiary center with 18F-FDG PET/CT and included all referred patients for this exam for suspected IE between May 2016 and January 2022. The choice to perform 18F-FDG PET/CT and the IE suspicion was based on the attending endocarditis team and did not follow a standardized protocol. Baseline

demographic characteristics of patients, including all relevant clinical data, were collected from hospital records at hospital admission. The final diagnosis of IE (gold standard) was established by consulting the final diagnosis attributed to the patient by the Endocarditis team at the time of hospital discharge or death, after possession of clinical, microbiological, and imaging information as well as clinical response. Sensitivity, specificity, and positive and negative predictive values of 18F-FDG PET/CT in the evaluation of CIED infection were estimated.
Results: In total, 87 patients were included (mean age of 62 ± 19 years, 62% of the male gender), of which 10 had CIED. In this subgroup, approximately 45% were male, with a median age of 75 (IQR 60-83) years. Moreover, 40% were diabetic, 65% had dyslipidemia and 75% were hypertensive. Regarding the CIED, pacemaker was the most common device found (65%), followed by cardiac resynchronization therapy defibrillator (15%), cardiac defibrillator (10%), and cardiac resynchronization therapy pacemaker (5%). Fever was present in 80% of patients and 40% had signs of heart failure. However, only one patient presented with signs of pocket infection. Laboratory results showed a mean C-reactive protein of 15.9 mg/dL and a mean leucocyte count of 10.5 G/L. Only 55% had a positive blood culture and 40% had echocardiographic findings suggesting IE with 26% presenting with moderate-severe valve regurgitation. According to the Duke Criteria, 60% were classified as "possible diagnosis", 20% with "definitive diagnosis"; and 20% as "rejected diagnosis". Of the suspected CIED infection patients, compatible findings in 18F-FDG PET/CT were observed in 7 patients. Calculated sensibility was 78% and specificity was 100%.
Conclusions: Our study suggests that 18F-FDG PET/CT is a great imaging tool for patients with CIED infection suspicion.

CO 110. AORTIC VALVE MICROCALCIFICATION ASSESSED BY 18F-SODIUM FLUORIDE POSITRON EMISSION TOMOGRAPHY/ COMPUTED TOMOGRAPHY: IS THERE A LINK BETWEEN VALVE UPTAKE AND CARDIOVASCULAR RISK?

João Borges-Rosa[1], Rodolfo Silva[1], Andreia Gomes[1], Célia Domingues[2], Ana Rita M. Gomes[1], Diogo de Almeida Fernandes[1], Eric Alberto Monteiro[1], Gonçalo Ferraz Costa[1], Gustavo M. Campos[1], Joana Guimarães[1], Manuel Oliveira-Santos[1], Antero Abrunhosa[1], Miguel Castelo-Branco[1], Lino Gonçalves[1], Maria João Ferreira[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Positron emission tomography-computed tomography (PET-CT) with 18F-sodium fluoride (18F-NaF) has been used in clinical research to characterize active microcalcification in aortic valve disease. However, its role in apparently healthy patients remains unknown. We aimed to characterize the aortic valve uptake of 18F-NaF in patients with high cardiovascular (CV) risk without known aortic valve disease.
Methods: Forty high CV-risk individuals without previous CV events or known aortic valve disease were scanned with 18F-NaF PET-CT. Aortic valve uptake of 18F-NaF was evaluated in 3-D multiplanar fusion images, considering top to bottom of the aortic valve for the establishment of circular regions of interest (ROI) around the valve. Maximum and mean standardized uptake values (SUV) estimated for each slice and the whole valve were corrected for blood-pool activity (mean of five ROI in the mid lumen of superior vena cava) by subtraction (corrected uptake per lesion, CUL) and division (tissue to background ratio, TBR). All patients underwent transthoracic echocardiography for aortic valve evaluation.
Results: The patients presented a mean age of 64.63 ± 8.87 years and 65% were males. The mean SCORE2 was 13.28 ± 8.48 and the mean ASCVD was 32.30 ± 20.55. Median CUL was 0.52, IQR 0.41-0.64, and median TBR was 1.62, IQR 1.47-1.75. The mean peak aortic valve velocity was 1.71 ± 0.41 m/s while the mean peak and mean gradients were 12.18 ± 5.47 mmHg and 6.50 ± 3.13 mmHg, respectively. Only 2 patients fulfilled the echocardiographic criteria for mild aortic stenosis. Patients were grouped according to the 50th percentile of both the ASCVD risk score and the SCORE2. Maximum SUV was associated with higher CV risk predicted by ASCVD risk score (1.60, IQR 1-30-2.10 *vs.* 1.30, IQR 1.25-1.55; p < 0.01) and SCORE2 (1.60, IQR 1.30-1.95 *vs.* 1.30, IQR 1.15-1.65; p = 0.02), but not mean SUV. After correction for blood-pool activity, higher CV risk was associated with increased CUL both for ASCVD risk score (0.59, IQR 0.52-0.92 *vs.* 0.44, IQR 0.28-0.53; p < 0.01) and SCORE2 (0.59, IQR 0.52-0.84 *vs.* 0.43 0.27-0.53; p < 0.01). Higher CV risk was also associated with increased TBR, both for ASCVD risk score (1.71, IQR 1.59-1.77 *vs.* 1.51, IQR 1.25-1.66; p < 0.01) and SCORE2 (1.70, IQR 1.59-1.77 *vs.* 1.51, IQR 1.25-1.66; p < 0.01). There were no significant correlations between echocardiographic variables and neither maximum SUV, mean SUV, CUL, nor TBR.
Conclusions: Increased aortic valve uptake of 18F-NaF is associated with higher CV risk predicted by ASCVD risk score and SCORE2. In this cohort without known aortic valve disease, there was no link between aortic valve uptake of 18F-NaF and echocardiographic variables. Further studies with larger populations must confirm these findings and evaluate the potential role of increased aortic valve uptake of 18F-NaF in predicting disease progression.

Domingo, 16 Abril de 2023 | 08:30-09:30

Sala Vega | Comunicações Orais - Sessão 23 - Intervenção valvular aórtica percutânea

CO 111. COMPARISON OF MORTALITY SCORES PERFORMANCE IN TRANSCATHETER AORTIC VALVE REPLACEMENT: SUITING UP TO PERCUTANEOUS INTERVENTION

Pedro Alves da Silva, Beatriz Silva, Joana Brito, Ana Margarida Martins, Beatriz Garcia, Catarina Oliveira, Miguel Raposo, Ana Abrantes, Catarina Gregório, Daniel Cazeiro, Cláudia Jorge, Miguel Nobre Menezes, Pedro Carrilho-Ferreira, Pedro Pinto Cardoso, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: As transcatheter aortic valve replacement (TAVR) is increasingly relevant for patients with severe symptomatic aortic stenosis, having a reliable procedure specific risk-prediction tool is paramount to provide high-quality care. Surgical scores as the EuroScore II and the Society of Thoracic Surgeons (STS) score II have been widely used to identify patients with high surgical risk in whom percutaneous treatment might be more favorable. However, current literature lacks a consensual specific predictive model for short-term and mid-term prognosis in patients undergoing transcatheter aortic valve implantation (TAVI).
Objectives: We aimed to access short and midterm (30 days and one year) mortality and to access the ability of a directly adapted score in estimating mortality in a real-world population.
Methods: We conducted a retrospective observational study in patients who implanted TAVR in a single center. Surgical mortality scores - EUROSCORE II and STS score II - and adapted score Society of Thoracic Surgeons (STS)/ American College of Cardiology (ACC) transcatheter valve therapy (TVT) score were used to estimate mortality. Predictive abilities of these three scores were compared using area under the receiver operating characteristics (ROC) curve for 30-day and one year mortality.
Results: From January 2018 to December 2021, 416 patients were submitted to TAVR procedure in our center. The mean age was 83+-6 years old and 229 (55%) were female. 94% had hypertension, 80% dyslipidemia, 40% diabetes *mellitus*, 35% coronary artery disease, 32% chronic kidney disease. Mean ejection fraction was 56%. During a mean follow-up (FUP) of 816 ± 492 days, 30-day mortality was 1.7% and after 1 year mortality rate was 12.2% (higher than reported in PARTNER 3 trial, 8.5%). The Mean EuroSCORE was 3.4 ± 3.2, mean STS-II 3.9 ± 1.8 and mean value for STS/ACC-TVT score was 3.55 ± 1.34.

ROC curve analysis showed a significantly higher discriminative power of STS/ACC-TVT (AUC 0.749, 95%CI 0.681-0.818) compared with surgical scores (p = 0.001) (Figure). We also divided population into quartiles and compared the mortality rate at 30 days and 1 year in each quartile using either STSII or STS/ACC-TVT; As can be seen in figure 2, mortality rates correlated better with the STS/ACC-TVT score than with the STS score.

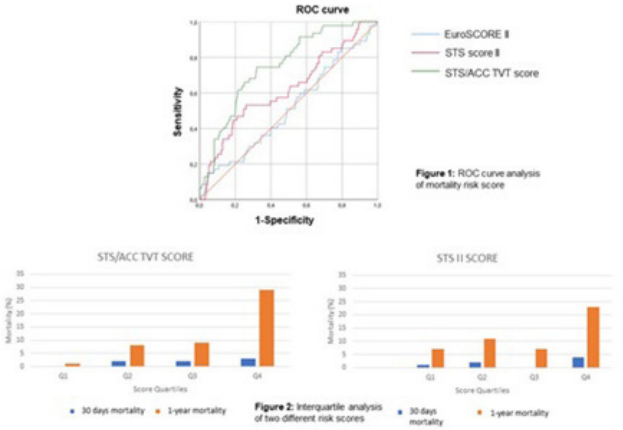


Figure 1: ROC curve analysis of mortality risk score

Figure 2: Interquartile analysis of two different risk scores

Conclusions: A score adapted to a TAVI population showed better predictive capacity than traditional surgical scores. Less preponderance of previous surgical status, relevance of access site and more adapted weight of age might explain the best performance of STS/ACC-TVT score. Surgical scores are helpful in choosing treatment option, but adapted scores are better to predict pos-TAVR mortality.

CO 112. OVERCOMING AGE BORDERS: TAVI FOR NONAGENARIANS - A SINGLE CENTER EXPERIENCE

Mariana Sousa Paiva, Daniel A. Gomes, Afonso Félix de Oliveira, Francisco Albuquerque, Mariana Gonçalves, João Brito, Luís Raposo, Henrique Mesquita Gabriel, Tiago Nolasco, Pedro Araújo Gonçalves, Jorge Ferreira, Rui Campante Teles, Manuel Sousa Almeida

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Introduction: Transcatheter aortic valve implantation (TAVI) is now recommended as the standard treatment for the elderly with severe aortic stenosis (AS). Nonetheless, there is scarce data regarding short- and middle-term outcomes in patients ≥ 90 years.
Objectives: The aim of our study was to describe procedural characteristics and clinical outcomes of a cohort of nonagenarians submitted to TAVI at our center.
Methods: Single-center retrospective analysis on prospectively collected data of consecutive patients ≥ 90 years that integrated our program, undergoing TAVI from 2008 to 2021. Successful TAVI, procedural complications, and 30-day/1-year mortality rates were defined according to the VARC-2 definition. We performed a sub-group analysis by dividing the cohort in tertiles according to the date of the procedure.
Results: Ninety patients were included with a mean age 92 ± 2 years, 69% women, and a mean EuroSCORE II of 6 ± 3% (Table). A total of 34 patients (38%) had coronary artery disease, 28 (31%) had chronic kidney disease (CKD), 12 (13%) had peripheral artery disease, and 11 (12%) had a previous stroke. At baseline, mean aortic gradient was 54 ± 17 mmHg and 73 (81%) patients had preserved left ventricular ejection fraction. The transfemoral approach was used in most patients (96%), and in 75 (83%) a self-expanding valve was implanted. TAVI was successfully implanted in all patients. The median in-hospital time was 9 (IQR 5-23) days and most common side effects were need for permanent pacemaker implantation (n = 15, 17%) and access-related bleeding (BARC 2 and 3a types) in 11 (12%) patients. All-cause mortality at 30 days and 1 year were 7% and 14%, respectively. The mean survival was 3.0 ± 2.0 years, comparing favorably to the expected mean survival for the cohort based on life expectancy tables (weighted mean of 2.8 ± 0.4, Portuguese National Institute of Statistics), although not reaching statistical significance. Furthermore, in our sub-group analysis, we observed that 30d and 1y mortality has gradually improved over the years (p < 0.05 for the 1st *vs.* 2nd and 3rd tertiles, Table).

Table 1. Baseline characteristics and outcomes in nonagenarians submitted to TAVI between 2008 and 2021

Clinical characteristics	Total patients (n=90)
Age – years	92±2
Female sex – no. (%)	62 (68.9)
EuroSCORE II* – %	6±3
NYHA class – no. (%)	
II	38 (42.2)
III or IV	52 (57.8)
Coronary artery disease – no. (%)	34 (37.8)
Previous myocardial infarction – no. (%)	10 (11.1)
Previous coronary intervention – no. (%)	
CABG	2 (2.2)
PCI	24 (26.7)
Permanent pacemaker – no. (%)	11 (2.2)
Echocardiography	
Mean aortic-valve gradient – mmHg	54 ±17
Mean LVEF – (%)	55±9
Procedural characteristics	
Self-expandable valve – no. (%)	73 (81.1)
Transfemoral access – no. (%)	86 (95.6)
Clinical outcomes	
Vascular complications – no. (%)	5 (5.6)
Major bleeding – no. (%)	4 (4.4)
New pacemaker – no. (%)	15 (16.6)
Stroke or TIA – no. (%)	3 (3.3)
30-day all-cause mortality – no. (%)	6 (6.6)
1st tertile (November 2009 – December 2016)	4 (4.4)[a]
2nd tertile (January 2017 – December 2018)	2 (2.2)[b]
3rd tertile (January 2019 – December 2021)	0 (0)[c]
1-year all-cause mortality – no. (%)	13 (14.4)
1st tertile (November 2009 – December 2016)	8 (8.9)[c]
2nd tertile (January 2017 – December 2018)	2 (2.2)[d]
3rd tertile (January 2019 – December 2021)	3 (3.3)[d]

Plus-minus values are means ± standard deviation. CABG denotes coronary-artery bypass grafting, COPD chronic obstructive pulmonary disease, LVEF left ventricular ejection fraction, NYHA New York Heart Association, PCI percutaneous coronary intervention, TIA transient ischemic attack, TAVI transcatheter aortic-valve implantation.
* Frailty was determined by the heart team according to prespecified criteria.
† Moderate or severe mitral regurgitation was defined as regurgitation of grade 3+ or higher.
[a,b,c,d] Each subscript letter denotes a subset of categories whose column proportions do not differ significantly from each other at the 0.05 level.

Conclusions: In our cohort of nonagenarian patients with severe aortic stenosis, TAVI procedures were performed successfully, with low risk of severe complications, and excellent age-adjusted survival rates. These data illustrate that age alone should not discourage adequate treatment of these patients.

CO 113. AORTIC INSUFFICIENCY IN PATIENTS WITH AORTIC STENOSIS SUBMITTED TO TAVR: DOES IT INFLUENCE THE OUTCOME?

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Introduction: Transcatheter aortic valve replacement (TAVR) has become a mainstay therapy for high-risk patients with symptomatic severe aortic stenosis (AS). Many of the landmark trials that studied the role of TAVR in patients with severe AS did not include subjects with mixed aortic valve disease (MAVD), and hence it has been challenging to extrapolate the excellent outcomes of TAVR to this group of patients. The incidence of MAVD is expected to increase because of an aging population and an associated increase in the incidence of degenerative heart valve disease. The natural course of these patients seems to be worse than those with either pure AS or AR and prior studies evaluating the utility of TAVR in treating MAVD have had mixed results, and the outcomes remain unclear.

Objectives: In this analysis we sought to report the short-term outcomes after TAVR among patients with MAVD compared to those with pure AS.
Methods: Single center, retrospective, observational study including patients who underwent transfemoral-access TAVR for severe valve AS. Data was collected from the electronic medical records. Patients were classified according to the nature of the valve disease: mixed aortic valve disease (MAVD), defined as severe AS and at least moderate aortic regurgitation (AR) or pure severe AS (with no or trivial AR). The primary endpoint was the composite of all-cause mortality, heart failure hospitalization or stroke.
Results: A total of 244 patients (median age 83 years, 45.9% male) were included in this analysis. Among these, 62 patients (25%) had MAVD. Overall, patients with MAVD had less prevalence of diabetes *mellitus*, and previous percutaneous coronary intervention and showed lower left ventricular ejection fraction (LVEF); higher NTproBNP at admission and higher length of stay (Table). The MAVD group also had a higher prevalence of post-TAVR AR (24.6% *vs.* 12.8%; p = 0.029), but no differences were observed in the primary endpoint, despite pure AS showing numerically higher rates of events (13.5% in pure AS group *vs.* 8.1% in the MAVD group, p = 0.142).

Table 1.

	All patients (n = 244)	Pure AS (n = 182)	MAVD (n = 62)	*p value*
Age – yrs	83 [78-86]	83.0 [78.5-86]	83.0 [75.8-85.0]	*0,249*
Male sex	112 (45.9)	86 (47.3)	26 (41.9)	*0.468*
Body mass index	26.7 [23.9-29.7]	27.3 [24-30]	25.4 [23.1-27.7]	***0.048***
Hypertension	194 (79.5)	147 (80.8)	47 (75.8)	*0.403*
Diabetes mellitus	78 (32)	66 (36.3)	12 (19.4)	***0.014***
Dyslipidemia	174 (71.3)	131 (72)	43 (69.4)	*0.693*
Smoking history	25 (10.2)	16 (8.8)	9 (14.5)	*0.199*
Atrial fibrillation	86 (35.4)	65 (35.9)	21 (33.9)	*0.772*
Previous ACS	27 (11.1)	19 (10.4)	8 (12.9)	*0.593*
Previous PCI	76 (31.1)	64 (35.2)	12 (19.4)	***0.020***
Previous CABG	12 (4.9)	9 (4.9)	3 (4.8)	*0.973*
Pulmonary disease	29 (11.9)	20 (11)	9 (14.5)	*0.459*
PVD	60 (24.6)	48 (26.4)	12 (19.4)	*0.268*
Hemoglobin, g/dL *	12.2 [10.9-13.3]	12.2 [10.9-13.3]	11.9 [11.0-13.3]	*0,598*
Creatinine, mg/dL *	0.98 [0.80-1.41]	0.97 [0.81-1.41]	0.99 [0.79-1.40]	*0,964*
NTproBNP, pg/mL *	2205 [940-5547]	1873 [876-4645]	3281 [989-7912]	***0,025***
AV Mean Gradient, mmHg	45 [40-55]	45 [40-55]	45 [40-56]	*0,869*
LVEF, %	56 [47-60]	57 [50-60]	55 [44-60]	***0,020***
Other significant valve disease	82 (34.3)	60 (33.7)	22 (36.1)	*0.738*
Transcatheter aortic valve				
Self-expanding	209 (85.7)	154 (84.6)	55 (88.7)	*0.427*
Need for pacemaker	51 (20.1)	39 (21.4)	12 (19.4)	*0.674*
Vascular complications	21 (8.6)	15 (8.2)	6 (9.7)	*0.728*
Post-TAVR AR	38 (15.8)	23 (12.8)	15 (24.6)	***0.029***
Length of stay (days)	4 [3-5]	3 [3-5]	4 [3-7.3]	***0.002***
Primary endpoint	33 (13.5)	28 (15.4)	5 (8.1)	*0.142*

Values are median [interquartile range] or n (%)
* Values at admission
ACS, Acute coronary syndrome; AR, Aortic regurgitation; AV, Aortic valve; LVEF, Left ventricular ejection fraction; PVD, Peripheral vascular disease; PVL, Paravalvular leak; TAVR, Transcatheter aortic valve replacement.

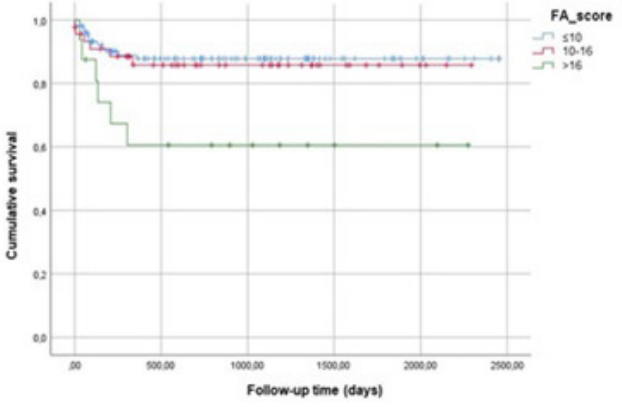
Conclusions: TAVR in MAVD is not associated with worse outcomes, despite higher prevalence of post-TAVR AR and lower LVEF. This could be explained by LV remodeling induced by concomitant AR, making it easier for these patients to tolerate post-TAVR AR.

CO 114. AF IN TAVR PATIENTS: DOUBLE TROUBLE MEANS DOUBLE CARE

Catarina Gregório, Pedro Alves da Silva, Beatriz Valente Silva, Joana Brito, Ana Margarida Martins, Ana Beatriz Garcia, Catarina Simões de Oliveira, Ana Abrantes, Miguel Azaredo Raposo, João Santos Fonseca, Miguel Nobre Menezes, João Silva Marques, Cláudia Jorge, Pedro Carrilho Ferreira, Fausto J. Pinto, Pedro Cardoso

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Atrial fibrillation (AF) and aortic stenosis share multiple common risk factors and aortic valve stenosis itself is associated with a higher rate of AF. Patients submitted to transcatheter aortic valve replacement (TAVR) are particularly frail and AF is associated with increased mortality, ischemic and hemorrhagic events. Thus, a thorough approach, especially in such a frail population, is warranted to reduce morbi-mortality. Bearing this in mind, a risk assessment tool derived from ENVISAGE-AF trial was recently developed to stratify the mortality risk of AF patients after completion of successful TVR.
Objectives: To characterize a population of patients with AF who implanted TAVR and test a newly proposed mortality score to estimate prognosis in this population.
Methods: Single-center observational retrospective study including consecutive pts with AF who implanted TAVI from 2017 to 2021. Clinical data was collected at baseline and during follow-up. The AF mortality score groups pts in three crescent strata of severity (0-10; 11-16; > 16) by summing seven variables: age, creatinine clearance, duration of AF, NYHA class, alcohol consumption, peripheral artery disease and prior major bleeding. Kaplan Meyer survival analysis was performed using SPSS statistics.
Results: For 5 years, 621 pts underwent TAVR, of which 189 (30.4%) had previously diagnosed AF. 102 pts were female, mean age of 82.6 ± 6.1 years. More than half (53%) had permanent AF, 28% paroxysmal AF and 19% persistent AF. During a mean follow up of 953 days, 8 (4.2%) pts suffered a major hemorrhagic event, two pts had ischemic arterial events (peripheral and mesenteric) and no venous thrombotic events were observed. As anticipated, the event rate was high: at 1 year follow-up, 27 were admitted for cardiovascular events (3 with acute myocardial infarction and 4 with stroke). 26 pts died after 1-year (13.7%) and 30 died during available FUP (15.8%). The aforementioned AF mortality score was applied to our pts at baseline, before TAVR: 63%, 17.5% and 8.5% of patients were categorized as low, moderate or high risk. Patients in the high risk group (score > 16) had a significantly higher rate of events during follow-up - figure1. Lower and intermediate groups failed to show a clear separation in terms of risk estimation between them, which may be attributed to the paucity of events in these two groups.



Conclusions: AF and aortic stenosis are both burdensome diseases and AF increases the risk of events in the TAVR population. We showed that a newly proposed score that stemmed from ENVISAGE-AF can effectively select pts at high risk of mortality, in whom close clinical surveillance should be particularly rigorous.

CO 115. WHEN VALVE NEEDS ELECTRICAL WIRES - ESTIMATING PACEMAKER IMPLANTATION AFTER TAVR

Ana Margarida Martins, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Catarina Oliveira, Beatriz Garcia, Ana Abrantes, Miguel Raposo, Catarina Gregório, João Fonseca, Fernando Ribeiro, Tiago Rodrigues, João Silva Marques, Miguel Nobre de Menezes, Pedro Carrilho Ferreira, Cláudia Jorge, Pedro Cardoso, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Widespread availability and expanded indication of transcatheter aortic valve replacement (TAVR) modified the paradigm of

aortic stenosis. Despite an elevated success rate, there are procedure related complications that need to be considered. One of the most frequent is conduction defects requiring permanent pacemaker (PPM) implantation resulting in prolonged hospital length of stay and hospitalization cost. Several risk factors for PPM implantation after TAVR have been described, and, recently, the Emory Risk Score (ERS) was developed as a predictive tool for need of new PPM implantation post-TAVR in patients (pts) who implanted a balloon-expandable valve. Our aim was to evaluate risk factors associated with PPM after TAVR and to validate the ERS in our population after implantation of both balloon-expandable and self-expanding valves.

Methods: We conducted a retrospective, observational and single center study involving pts submitted to TAVR between 2018 and 2021. Clinical, ECG and procedural data was obtained at time of TAVR and during follow-up. The predictive discrimination of the scoring system for the risk for PPM placement after TAVR was evaluated using receiver-operating characteristic (ROC) curve analysis. To estimate additional predictors of PPM implantation we used Cox proportional hazards regression models.

Results: We gathered a total of 416 pts (mean age 82 ± 6.1 years, 55% female). The most frequently implanted valves were Evolut Pro and Sapien 3 ultra in 39.4% and 26.6% of pts. During follow-up 110 pts (26%) needed device implantation (94% double chamber pacemaker; 6% CRT-P or CRT-D), most frequently due to AV block. On univariate analysis, QRS width was the only factor predictive of pacemaker implantation (HR 1.018, 95%CI 1.007-1.028; p = 0.027). We found no other clinical, ECG or procedural characteristics to be predictive of device implantation. The ERS is composed of 4 variables - history of syncope, right complete branch block, QRS width > 140 mseg and valve oversizing > 16% - and revealed a good sensitivity and specificity in estimating device implantation. We applied this score to our population and ROC curve analysis showed a significant prediction capacity (AUC 0.761 95%CI 0.699-0.822, p = 0.031). This analysis was also performed analysing separately both subgroups of self-expandable valves (Medtronic Evolut and Evolut R) and balloon expandable valves (Edwards Sapiens). ROC curve analysis in both showed a good correlation with events (Figure).

Conclusions: PPM is one of the most common complications following TAVR. In our population, the ERS accurately predicted the need for PPM. Routine use of such tools may stratify pts at higher risk of pacemaker implantation and thus best define patient allocation and resource utilization to reduce number of hospitalization days.

Domingo, 16 Abril de 2023 | 09:30-10:30

Sala Vega | Comunicações Orais - Sessão 24 - Tomografia computorizada cardíaca

CO 116. COMPUTED TOMOGRAPHY-DERIVED MYOCARDIAL EXTRACELLULAR VOLUME IN PATIENTS WITH SEVERE AORTIC STENOSIS: CORRELATION WITH MARKERS OF VENTRICULAR DYSFUNCTION

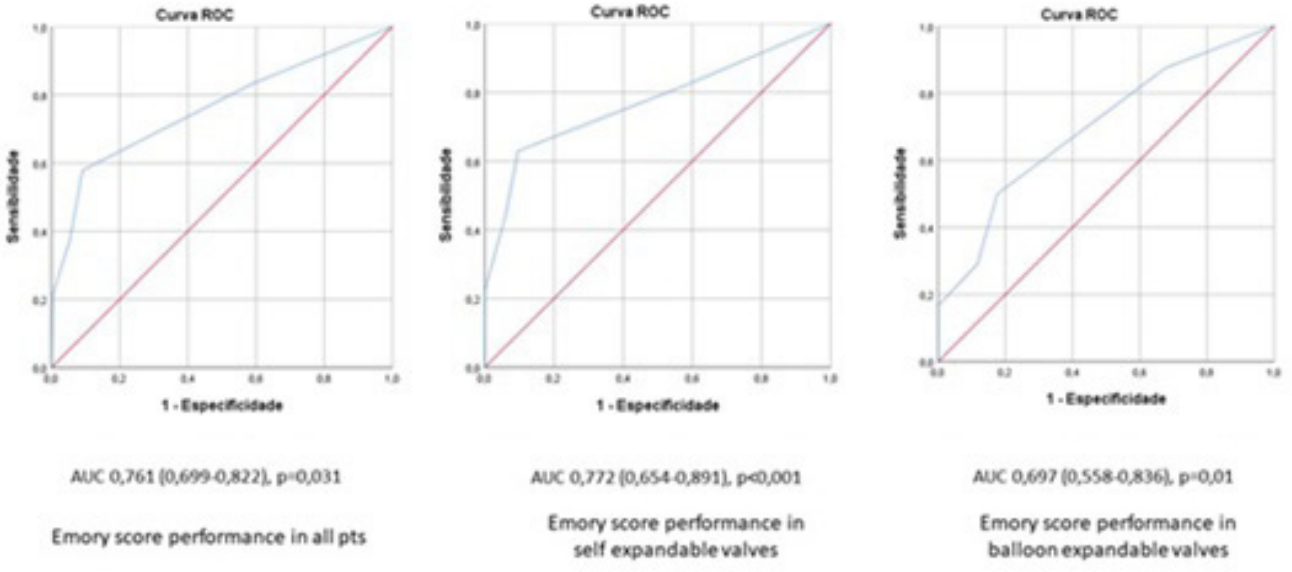
Pedro M. Lopes, Rita Reis Santos, Francisco Albuquerque, Pedro Freitas, Cláudia Silva, Sara Guerreiro, João Abecasis, Ana Coutinho Santos, Carla Saraiva, Miguel Mendes, António M. Ferreira

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

Introduction: Myocardial fibrosis is a potential adverse prognostic marker in patients with severe aortic stenosis (AS) and can be quantified using non-invasive imaging measures, such as the extracellular volume fraction (ECV). Although computed tomography (CT) for transcatheter aortic valve replacement (TAVR) planning was originally developed to assess the aortic valve complex and access routes, it has evolved to include the measurement of ECV for myocardial tissue characterization.

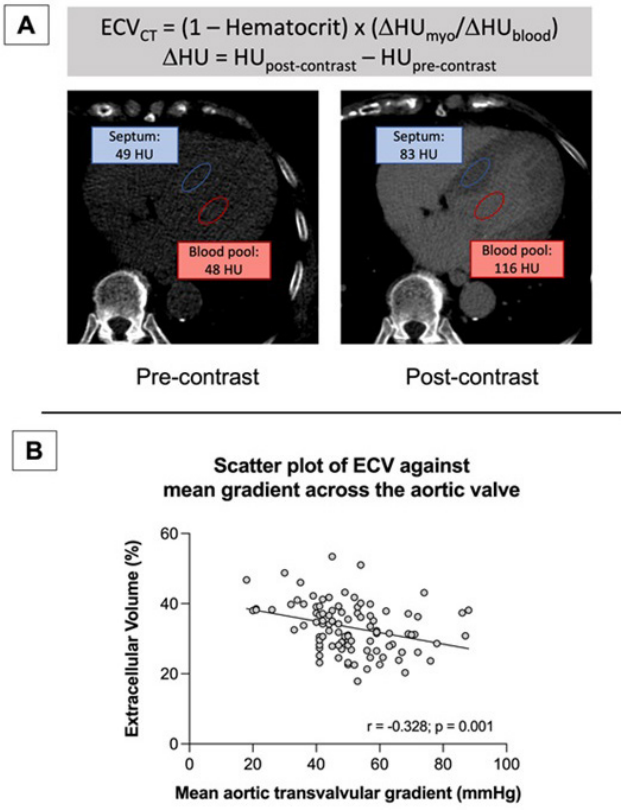
Objectives: This study aimed to determine associations between CT-derived ECV (ECV_{CT}) and clinical and echocardiographic markers of ventricular function in patients with severe AS referred for TAVR-planning CT.

Methods: Single-center prospective study enrolling all consecutive patients with severe symptomatic AS referred for TAVR-planning CT between April and November 2022. CT was performed on a 192-slice dual-source 3rd generation scanner (Siemens Somatom Force) and ECV_{CT} was acquired during TAVR-planning using an additional 5-minute post-contrast low-radiation-dose prospective acquisition. ECV_{CT} was calculated as the ratio of change in CT attenuation (Hounsfield units [HU]) of the septal myocardium and the left ventricle (LV) blood pool before and after contrast administration, according to the equation: $ECV_{CT} = (1 - \text{hematocrit}) \times (DHU_{myo}/DHU_{blood})$ (Figure 1A).



CO 115 Figure

Results: A total of 102 patients were included (mean age 81 ± 7 years; 46% male; mean valvular transaortic gradient 51 ± 14 mmHg; mean aortic valve area 0.7 ± 0.2 cm²; mean LV ejection fraction (EF) by 2D echocardiogram 57 ± 11%). No patient had a clinical diagnosis of cardiac amyloidosis. Overall, the mean ECV_{CT} value was 33.4 ± 7.0%. Myocardial ECV_{CT} values significantly differed between AS subtypes, with higher values in patients with low-gradient AS (n = 13, 13%; ECV_{CT} 40.3 ± 4.8% *vs.* 32.4 ± 6.7%, p < 0.001) (Figure 1B). Additionally, myocardial ECV_{CT} values correlated with markers of LV and right ventricular (RV) dysfunction, including lower LV EF (r = -0.354, p < 0.001), worse LV global longitudinal strain (r = 0.420, p = 0.002), reduced TAPSE (r = -0.230, p = 0.043) and RV S wave by tissue doppler imaging (r = -0.321, p = 0.010) and higher NT-proBNP values (r = 0.347, p = 0.002).



Conclusions: In patients with severe AS scheduled for TAVR-planning CT, ECV_{CT} values are significantly higher in those with low-gradient AS and correlated with several measures of biventricular dysfunction. This CT parameter may be useful to identify a subgroup of patients with higher risk of adverse prognosis.

CO 117. A NOVEL MARKER OF CARDIOVASCULAR RISK STRATIFICATION: THE ROLE OF TOTAL CARDIOVASCULAR CALCIUM SCORE USING CARDIAC CT

Mariana Passos, Inês Pereira de Miranda, Filipa Gerardo, Inês Fialho, Joana Lima Lopes, Carolina Mateus, Marco Beringuilho, Pedro Magno, José Loureiro, David Roque, Carlos Morais, João Bicho Augusto

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

Introduction: It is widely accepted that coronary and valve calcification measured by cardiac CT, individually, are associated with cardiovascular events and mortality. However, the role of an encompassing marker of cardiovascular atherosclerosis could be more representative of the real cardiovascular risk.

Objectives: To determine the prognostic value of a combined coronary, valvular and aortic calcium score to predict long-term major adverse cardiac and cerebrovascular events (MACCE).

Methods: We conducted a single center study on 316 consecutive patients who underwent cardiac CT scan between January 2018 and December 2019. We excluded patients with poor imaging quality, constrictive pericarditis, prosthetic valves and/or devices. The calcium score of coronary arteries (CA), mitral valve (MV), aortic valve (AoV), ascending aorta (AAo) and aortic arch (AAc) were calculated from non-contrast ECG-gated CT using the Agatston method and were combined to derive a valvular (VA = MV+AoV), total cardiac (TC = CA+VA) and total cardiovascular (TCV = TC+AAo+AAc) calcium scores (Fig.1A). The primary endpoint was a composite of MACCE, defined as all-cause death, stroke, myocardial infarction and hospital admission for heart failure.

Results: A total of 275 CT scans were suitable for analysis. Mean age was 59.6 ± 12.3 years, 48.4% were female. A total of 183 (66.7%) patients presented calcification in at least one location. Patients with calcification on any of the prespecified locations had higher prevalence of hypertension, dyslipidemia and type 2 diabetes *mellitus* (DM) than those without any calcium (p < 0.05). After a median follow-up of 3.18 [IQR 2.84-3.69] years, 40 (14.5%) patients had met the primary endpoint. Regression analyses demonstrated that all CA, VA, TC and TCV scores were independent predictors of MACCE (p < 0.05 for all). The best prediction models included calcium score (all combinations), age, sex, type 2 DM and smoking status (Figure 1B). The model with TCV score was the most powerful predictor of MACCE (χ^2 47.8), followed by TC score (χ^2 43.1). Of interest, the model with CA score had the poorest performance (χ^2 35.4).

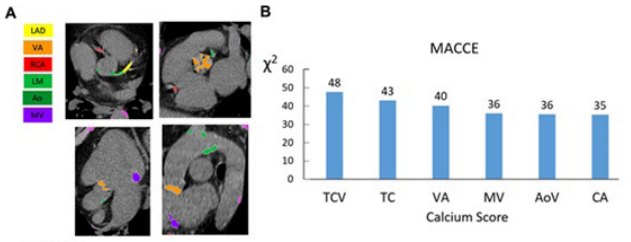


Figure 1:

A: Example of a calcium score calculated from non-contrast CT using the Agatston method.

B: Model that includes the presented calcium score + all the following: age, sex, type 2 diabetes and smoking status.

Ao = aorta; AoV = aortic valve; CA = coronary arteries; LAD = left descending artery; LM = left main; MV = mitral valve; RCA = right coronary artery; TC = total cardiac; TCV = total cardiovascular; VA = valvular.

Conclusions: Coronary calcium score is a quick way to stratify risk in clinical practice, but its performance is too focused on coronary events. Total cardiovascular calcium score, however, is more encompassing, also quick to measure, and a more truthful depiction of the patient's cardiac and cerebrovascular risk, potentially allowing a more tailored and timely approach to risk factors in clinical practice.

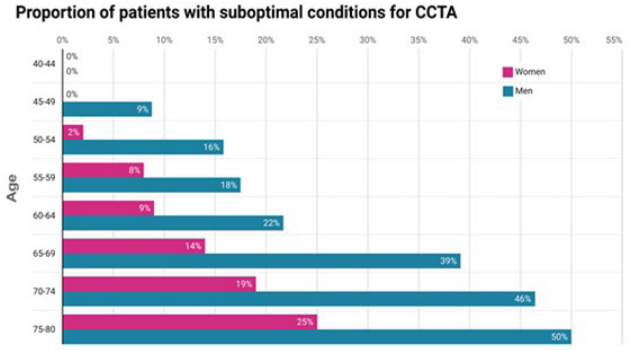
CO 118. CHOOSING BETWEEN CORONARY CT ANGIOGRAPHY AND FUNCTIONAL TESTS IN PATIENTS WITH SUSPECTED CORONARY ARTERY DISEASE - MIND THE (GENDER) GAP

Mariana Sousa Paiva, João Presume, Pedro Freitas, Pedro Lopes, Daniel A. Gomes, Rita Reis Santos, Sara Guerreiro, João Abecasis, Ana Coutinho Santos, Carla Saraiva, Miguel Mendes, António M. Ferreira

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

Introduction: There is a need for a simple method to choose between a functional *vs.* anatomical test as first line approach to patients with suspected coronary artery disease (CAD). While European Guidelines base the decision on pretest probability (PTP) without a clear threshold, American Guidelines rely uniquely on age, with a 65-year-old cut-off for both genders. The aims of this study were: 1) to assess the proportion of patients undergoing coronary CT angiography (CCTA) in whom a functional test could have been more suitable due to extensive coronary artery calcification (CAC)

and/or inconclusive CCTA results; 2) compare PTP *vs.* age to predict the presence of these suboptimal conditions for CCTA.
Methods: Individuals 40-80 years old were identified in a single center registry of patients with stable chest pain or dyspnea who underwent CCTA. Patients with known CAD, severe valvular disease, or irregular heart rhythms were excluded. PTP of obstructive CAD was calculated using age, sex, and symptom typicality. Patients were considered to have suboptimal conditions for CCTA if extensive CAC was present (defined conservatively as an Agatston score > 400) or if one or more segments > 2mm were deemed non-evaluable despite CAC score ≤ 400.
Results: A total of 884 patients (57% women, mean age 62 ± 10 years) were included. Symptoms consisted of chest pain in 705 patients (80%). The median PTP of obstructive CAD was 22% (IQR 14-32). Overall, 162 patients (18%) had suboptimal conditions for CCTA due to CAC score > 400 (n = 140), or ≥ 1 non-evaluable segments (n = 22). The proportion of patients with suboptimal conditions for CCTA was significantly higher in men than in women (27% *vs.* 12%, respectively; p < 0.001). For both genders, the discriminative power to predict suboptimal CCTA conditions was significantly higher for age than for PTP (c-statistic in men 0.74 *vs.* 0.64, p < 0.001; in women 0.71 *vs.* 0.62, p = 0.012). In every age group, the proportion of patients with suboptimal conditions for CCTA was at least 2 times higher in men than in women, with a 10-15 year gap between genders (Figure).



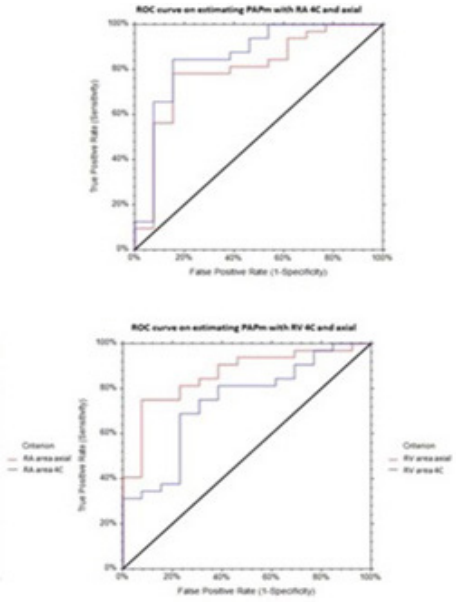
Conclusions: Suboptimal conditions for a fully diagnostic CCTA were found in 18% of patients, were more strongly associated with age than with PTP, and were at least 2 times more frequent in men than in women across all age groups. These findings support the use of an age cut-off for anatomical *vs.* functional testing in men, and the use of CCTA as first line test in most women regardless of age.

CO 119. ANGIOCT IN PULMONARY HYPERTENSION - SHOULD WE RENDER MULTIPLE VIEWS?

Miguel Azaredo Raposo, Pedro Alves da Silva, Joana Brito, Beatriz Silva, Catarina Oliveira, Ana Abrantes, Catarina Gregório, Joana Rigueira, João Inácio, Rui Plácido, Fausto J. Pinto, Ana G. Almeida

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Cardiac AngioCT has established itself as an essential method of cardiac imaging over the latest years, namely in the pulmonary hypertension (PH) field. PH is a multifactorial disease and its diagnosis relies on invasive hemodynamic parameters by right heart catheterization (RHC). AngioCT acquires cardiac and great vessel images in its standard views - axial and four-chamber (4C) rendered - and has the potential to replace the need for some invasive diagnostic procedures.
Objectives: To compare data from measurements obtained with AngioCT in 4C and axial views with hemodynamic parameters in PH patients.
Methods: Consecutive pts with precapillary PH were submitted to angioCT and RHC within a median interval of 6 months. AngioCT measurements in both axial and 4C views and hemodynamic parameters from RHC were collected. ROC curve analysis was used to evaluate the association between CT measurements and an established cut-off of mean pulmonary artery pressure (mPAP) of 35 mmHg.
Results: We selected 47 patients (mean age: 64 ± 16 years, 60% male) 12 with group 1 PH and 37 with group 4 PH. Patients had a mean mPAP of 44 ± 16 mmHg, NT-proBNP 1,109 ± 1,860 ng/mL, 56% were in OMS functional class (FC) II and 21% in FC III. Right ventricular area (RVA) and right atrial area (RAA) in axial and 4C views significantly correlated with mPAP (RVA axial: r 0.463, p = 0.001; RVA 4C: r 0.405, p = 0.006, RAA axial: r 0.374, p = 0.01; RAA 4C: r 0.595, p < 0.001), independently from pts' PH clinical group. In ROC analysis, both RVA in axial and 4C view had a significant association with mPAP ≥ 35 mmHg (AUC 0.839, p < 0.001; AUC 0.740 p = 0.012, respectively) and pulmonary vascular resistance (RVP). Likewise, RAA in axial and 4C view were associated with mPAP ≥ 35 mmHg (AUC 0.56, p < 0.000; AUC 0.856 p < 0.001; AUC 0.785, p = 0.003 respectively). Neither of these views showed superiority in predicting severe PH (RV 4C and axial, p = 0.08; RA 4C and axial, p = 0.18).



Conclusions: Our findings support that in PH population, axial view is no different from 4C view measurements and that they have equivalent associations with hemodynamic parameters. These results may obviate the need to render 4C chamber in several settings and thus optimize time and resources.

CO 120. REPRODUCIBILITY OF EPICARDIAL ADIPOSE TISSUE RADIOMICS IN NON-CONTRAST COMPUTED TOMOGRAPHY

Fábio Sousa Nunes[1], Carolina Santos[2], Wilson Ferreira[1], Mónica Carvalho[1], João Pedrosa[3], Miguel Coimbra[3], Nuno Ferreira[1], Ricardo Ladeiras Lopes[2], Luís Vouga[1], Jennifer Mancio[4], Ricardo Fontes Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto. [3]Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência - INESC TEC. [4]King's College of London.

Introduction: Many factors can negatively impact radiomic features reproducibility, and, consequently, their diagnostic & prognostic accuracy. Although several deep learning solutions for automatic pericardial segmentation already exist, the impact of contouring variability on epicardial adipose tissue (EAT) radiomic features values is not known.
Methods: We segmented the pericardium in 192 non-contrast CT scans manually by a trained operator and using the semi-automatic pericardial segmentation Syngo.via Frontier Cardiac Risk Assessment Research Prototype

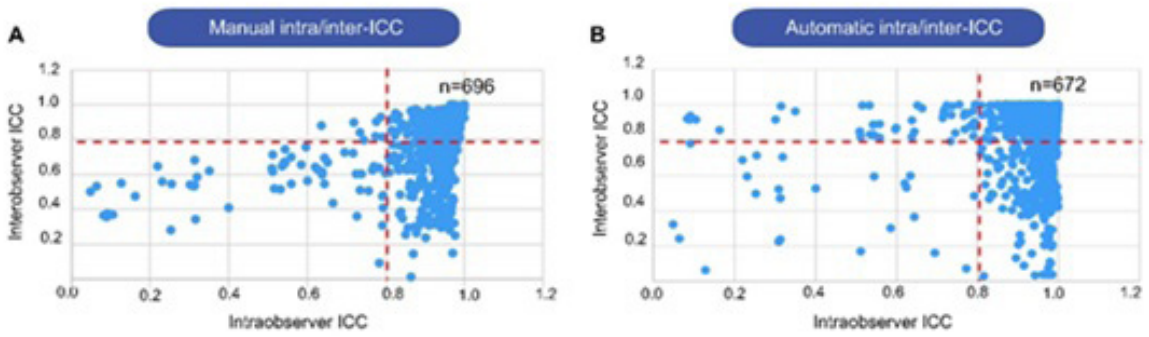


Figure 1: **Intra-correlation coefficient (ICC) among 1037 EAT radiomic features.** (A) Comparison manual 2 operators (B) Comparison manual vs semi-automatic.

CO 120 Figure

(Siemens Healthinees, Erlangen, Germany). The same operator repeated the segmentation in 20 random cases (intra-observer), which were also segmented by another operator with same level of training (inter-observer). Intraclass coefficient correlation (ICC) was used to measure the variability between EAT radiomic features extracted after segmentation by all the methods.

Results: Manual segmentation rendered 961 (93%) and 699 (67%) features with a very good intra-observer and inter-observer ICC (> 0.80), respectively. The inter-observer variability between manual *vs.* semi-automatic segmentation was not different: there were 692 (67%) features with ICC > 0.80. Very good intra- & inter-observer ICC were found in 696 features obtained by manual segmentation (A) and 672 with manual *vs.* semi-automatic method (B). Full data analysis will provide a detailed description of the most reliable features per each feature family.

Conclusions: We observed very good intra-and inter-observer ICC and similar results between the manual and semi-automatic segmentation methods. This study supports current recommendation for semi-automatic segmentation of large dataset and will yield a better understanding the most stable EAT radiomic features with a potential for clinical translation.

Domingo, 16 Abril de 2023 | 10:30-11:30

Sala Vega | Comunicações Orais - Sessão 25 - Prevenção cardiovascular e reabilitação

CO 121. THE PREDICTIVE ABILITY OF THE NEW EUROPEAN SCORE2 IN PRIMARY PREVENTION OF AN ASYMPTOMATIC POPULATION

Margarida Temtem[1], Maria Isabel Mendonça[1], Marina Santos[1], Débora Sá[1], Francisco Sousa[1], Sofia Borges[1], Sónia Freitas[1], Eva Henriques[1], Mariana Rodrigues[1], António Drumond[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: The European Society of Cardiology updated SCORE (Systematic Coronary Risk Evaluation) to the new SCORE2 algorithm, recommended for cardiovascular risk assessment in individuals without known cardiovascular disease (CVD) or diabetes to predict a ten-year risk of mortality or any CV events.

Objectives: Evaluate the applicability of the new European SCORE2 in an asymptomatic moderate-risk region population for Major Adverse Cardiovascular Events (MACE) prediction.

Methods: Our study population comprises 1113 asymptomatic individuals without known CAD (mean age 53.3 years, 73.9 male) enrolled from the prospective arm of the GENEMACOR Study with a follow-up period over 5.9 ± 4.3 years. The population was categorized according to SCORE2 into three risk groups (low-intermediate < 5%; high 5-10%; very high > 10%). We defined the primary endpoint of all-cause cardiovascular events (death and any CVD non-fatal event). Chi-square evaluates the traditional risk factor's percentage, Harrel C statistics assess how good the risk model is in CV events discrimination, and Kaplan-Meier estimates the survival.

Results: The study population presented dyslipidemia (68.8%), hypertension (51.0%), smoking (23.8%), family history (13.2%) and physical inactivity (43.0%). SCORE2 value at ten years of follow-up was 6.0 ± 3.3. C-index with 95%CI showed good events discrimination ability (C index = 0.725; 95%CI 0.645-0.805). At ten years of follow-up, Kaplan-Meier analysis estimated that event-free occurred in 99% of individuals in the low/moderate category, 89% in the high and only 73% in the very high-risk category.

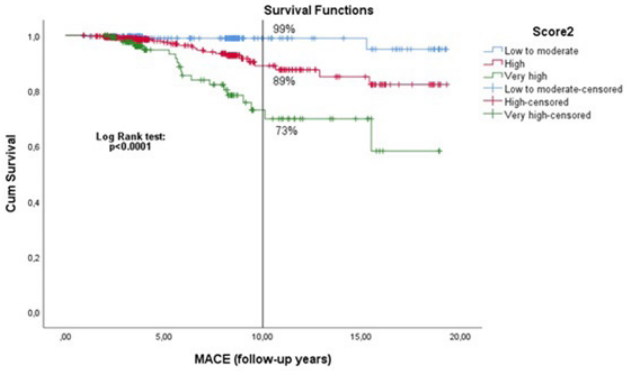


Fig. - This graph shows the Kaplan-Meier curves for the three risk groups at ten years

Events discrimination ability

Models	Events occurrence
	C-index (95% CI)
European Score2	0.725 (0.645 – 0.805)

Conclusions: SCORE2 algorithm showed a good quality discrimination model into risk categories (low/moderate, high and very-high-risk) and presented a good ability to predict future events in our population.

CO 122. ATTAINMENT OF LDL-CHOLESTEROL GOALS IN PATIENTS WITH PREVIOUS MYOCARDIAL INFARCTION: A REAL-WORLD CROSS-SECTIONAL ANALYSIS

Daniel A. Gomes, Mariana Sousa Paiva, Pedro Freitas, Francisco Albuquerque, Rita Lima, Rita Reis Santos, João Presume, Rita Bello, Sérgio Maltês, Marisa Trabulo, Carlos Aguiar, Jorge Ferreira, António M. Ferreira, Miguel Mendes

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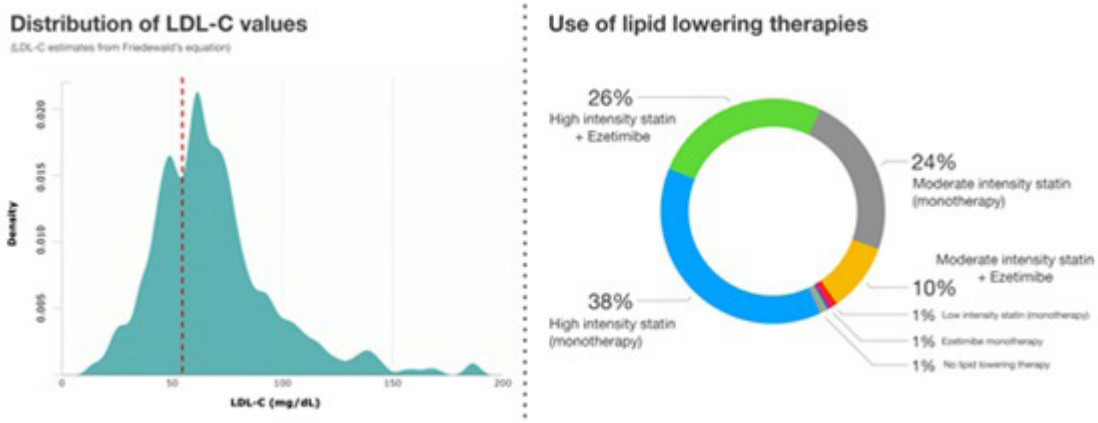
Introduction: ESC guidelines recommend an LDL-cholesterol (LDL-C) < 55 mg/dL for patients with established cardiovascular disease. While the Friedewald's equation to estimate LDL-C is still widely used, the newer Martin-Hopkins' formula has shown greater accuracy. The aims of this work were: 1) to assess the proportion of patients reaching their LDL-C goal and the therapies used, and 2) to assess the impact of using the Martin-Hopkins' method instead of Friedewald's formula on the proportion of controlled patients.
Methods: Single-centre cross-sectional study including consecutive post-myocardial infarction patients followed by 20 different cardiologists in a tertiary hospital. Data were collected retrospectively from clinical appointments that took place after April 2022. Only those with an available ambulatory lipid profile performed at the hospital's lab were considered. For each patient, LDL-C levels and goal attainment were estimated by both Friedewald's and Martin-Hopkins' equations.
Results: A total of 400 patients were included (age 67 ± 13 years, 77% male, 31% diabetics). The last myocardial infarction had occurred a median of 4.5 years before the appointment. Using Friedewald's equation, median LDL-C under therapy was 64 mg/dL [IQR (50-81)]. Overall, 125 patients (31%) had LDL-C within target (Figure 1A). High intensity statins were used in 256 patients (64%), 146 (37%) were under ezetimibe, and 2 (0.5%) were under PCSK9 inhibitors. Combination therapy of high intensity statin + ezetimibe was used in 102 patients (26%) (Figure 1B). These patients had a median LDL-C of 61mg/dL [IQR (45-75)], with 35% attaining LDL-C levels < 55 mg/dL, and 11% remaining above 100 mg/dL. Applying the Martin-Hopkins method would reclassify a total of 31 patients (7.8% of total). Among those deemed controlled by the Friedewald's equation, 27 (21.6%) would have a Martin-Hopkins' LDL-C above the target, while 4 (1.5%) of the uncontrolled patients would have a recalculated LDL-C < 55 mg/dL. The following medical appointment was scheduled a median of 8 months (IQR 6-11) later.
Conclusions: In this cross-sectional study, less than one third of post-myocardial infarction patients followed in a tertiary hospital's cardiology clinic had LDL-C values within the goal, with a prescription pattern suggesting a large underutilization of readily available therapies. Applying the Martin-Hopkins' formula to calculate LDL-C would reclassify roughly one fifth of presumably controlled patients into the non-controlled group.

CO 123. CLINICAL AND GENETIC CHARACTERISTICS OF PATIENTS WITH A CLINICAL DIAGNOSIS OF FAMILIAL HYPERCHOLESTEROLEMIA IN PORTUGAL

Ana Margarida Medeiros, Ana Catarina Alves, Joana Rita Chora, Beatriz Raposo Miranda, Mafalda Bourbon

Instituto Nacional de Saúde Dr. Ricardo Jorge.

Objectives: Familial Hypercholesterolemia (FH) is a common genetic disorder of lipid metabolism with an increased risk of coronary artery disease (CAD) due to lifelong exposure of elevated LDL-C levels. FH is caused by pathogenic/likely pathogenic (P/LP) variants in *LDLR*, *APOB*, *PCSK9*. Variants in FH phenocopies genes (*LDLRAP1*, *APOE*, *LIPA*, *ABCG5*, *ABCG8*), LDL-C polygenic risk score (PRS) and hyper-Lp(a) can mimic the FH phenotype. In this work we present the clinic and genetic results of the Portuguese FH Study cohort.
Methods: A biochemical and genetic study was performed to 1005 index-cases (IC) with clinical diagnosis of FH, referred to the Portuguese FH Study until December 2021. Since 2017, genetic diagnosis is performed by an NGS panel with 8 genes and 6-SNPs to determine PRS.
Results: A total of 106 IC (18%) with clinical diagnosis of FH had suffered a premature CV event with a mean age of 43.9 ± 9.2 years. Mean LDL-C values for adults was 232.4 ± 86.8 mg/dL and for children 191.3 ± 57.4 mg/dL. FH was genetically confirmed in 418 IC (406 heterozygous (HtFH), 4 true-homozygous, 7 compound-heterozygous, 1 double-heterozygous), all carrying P/LP variants in the 3 genes causing FH. Cascade screening identified 581 HtFH, one compound-heterozygous and one *LDLR-APOB* double-heterozygous. In the FH-negative cohort (N = 590), 33% have hyper-Lp(a), 17% have high PRS, 1% have other monogenic cause and 1% have one pathogenic variant in *ABCG5/ABCG8*. Also, 5% carry variants of unknown significance (VUS) in FH genes and 5% carry VUS (in heterozygosity) in FH phenocopies genes. In the remaining 38% FH-negative IC the cause of dyslipidemia was not identified. In the group of adults IC FH-positive CAD and premature CAD (pCAD) were statistically significant higher in the group with hyper-Lp(a) when compared with IC with normal Lp(a) levels (CAD: 31.5% *vs.* 13.6%, p = 0.005; pCAD: 27% *vs.* 9%, p = 0.002). The same results were obtained for the FH-negative cohort (CAD: 27% *vs.* 16.7%, p = 0.038; pCAD: 24.5% *vs.* 14%, p = 0.029).
Conclusions: FH was confirmed genetically in 41% of the cohort. In 50% of the negative ICs the FH phenotype can be caused by hyper-Lp(a) or high PRS. A small part of these has heterozygous pathogenic variants in *ABCG5/8* that should be further investigated since it could be the cause of hypercholesterolemia. The use of the described NGS FH diagnostic panel is important to identify FH/FH-phenocopies and personalize each patient's treatment accordingly to reduce their increased risk of CAD.



CO 122 Figure

CO 124. GLOBAL CARDIAC MICROCALCIFICATION ACTIVITY AS A MEASURE OF THE CARDIOVASCULAR RISK BURDEN: AN EXPLORATORY STUDY USING SODIUM FLUORIDE IN HIGH CARDIOVASCULAR RISK PATIENTS

João Borges-Rosa[1], Manuel Oliveira-Santos[1], Andreia Gomes[1], Ana Rita M. Gomes[1], Diogo de Almeida Fernandes[1], Eric Alberto Monteiro[1], Gonçalo Ferraz Costa[1], Gustavo M. Campos[1], Joana Guimarães[1], Rodolfo Silva[1], Antero Abrunhosa[2], Miguel Castelo-Branco[2], Lino Gonçalves[1], Maria João Ferreira[1]

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

Introduction: Sodium fluoride (18F-NaF) uptake in positron emission tomography with computed tomography (PET-CT) identifies active microcalcification both in atherosclerotic plaques and the aortic valve. We aimed to evaluate global cardiac microcalcification activity with 18F-NaF, as a measure of the microcalcification burden, in high cardiovascular (CV) risk patients. Additionally, as an exploratory endpoint, we evaluated the association between global cardiac microcalcification and diastolic dysfunction.
Methods: High CV-risk individuals without previous CV events from a single centre were prospectively scanned with 18F-NaF PET-CT. Total cardiac 18F-NaF uptake was measured as global molecular calcium score (GMCS), which was calculated by summing the product of mean standardized uptake value and volume of the region of interest on every slice within the borders of the heart. The result was then divided by the number of slices to adjust for the volume.
Results: We included sixty-five patients with a mean age of 64.0 ± 9.0 years and 38.5% females. There was a high rate of CV risk factors, including hypertension (95.4%), diabetes (84.6%), dyslipidemia (78.5%), obesity (58.5%), smoking (26.2%) chronic kidney disease (18.5%), and family history of premature coronary disease (9.2%). The mean 10-year risk of fatal and nonfatal cardiovascular events predicted by ASCVD risk score was 30.54 ± 18.4. Median GMCS was 221.42 [IQR 144.55-317.58]. Individuals with > 5 CV risk factors (46.2%) had increased overall GMCS compared to those with a lower number of CV risk factors (295.29, IQR 159.37-356.87 *vs*. 186.16, IQR 122.57-281.78; p = 0.03). Thirty-three patients underwent diastolic dysfunction evaluation by echocardiography. All patients had normal left ventricle ejection fraction, mean of 62.86 ± 3.58%. Mean E/A was 0.88 ± 0.27, mean septal e' velocity 0.07 ± 0.02 m/s, mean lateral e' velocity 0.08 ± 0.02 m/s, and mean average E/e' 10.7 ± 3.3. The mean peak tricuspid regurgitation velocity was 2.14 ± 0.59 m/s and the median indexed left atrium volume was 37, IQR 29-44 mL/m^2. After applying the algorithm for diagnosis of diastolic dysfunction in subjects with normal ejection fraction, 21.2% had diastolic dysfunction and 36.4% had a normal diastolic function, while 42.4% were indeterminate. There was no correlation between echocardiographic variables of diastolic function and GMCS, except for indexed left atrium volume (r = 0.83, p < 0.01). There was no association between GMCS and diastolic function categories.
Conclusions: In a high CV risk cohort, the global cardiac microcalcification assessed by GMCS was associated with the burden of CV risk factors. Additionally, despite a strong positive correlation between GMCS and indexed left atrium volume, we found no association between GMCS and echocardiographic variables of diastolic function.

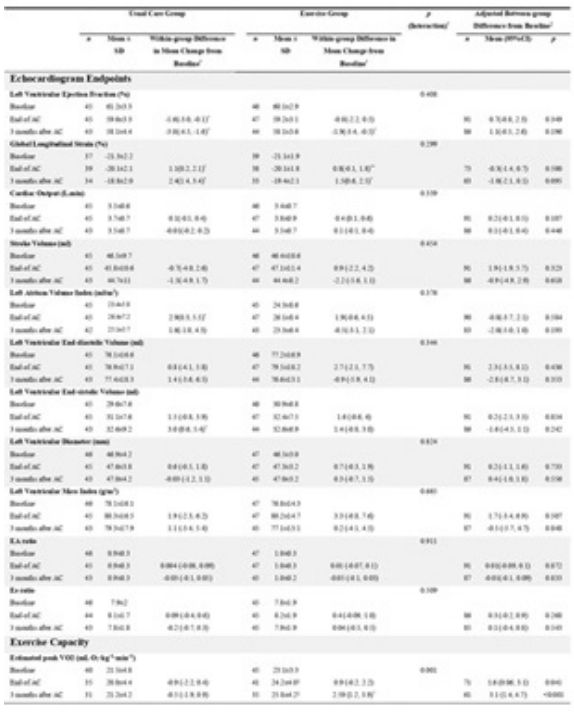
CO 125. EFFECTS OF EXERCISE TRAINING ON CARDIAC TOXICITY MARKERS IN WOMEN WITH BREAST CANCER UNDERGOING CHEMOTHERAPY WITH ANTHRACYCLINE: A RANDOMIZED CONTROLLED TRIAL

Pedro Antunes[1], Ana Joaquim[2], Francisco Sampaio[2], Eduardo Vilela[2], Madalena Teixeira[2], Jorge Oliveira[2], António Ascensão[3], Andreia Capela[2], Anabela Amarelo[2], Cristiana Marques[2], Sofia Viamonte[2], Alberto Alves[4], Dulce Esteves[1]

[1]Universidade da Beira Interior. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [3]Universidade do Porto. [4]Universidade da Maia.

Introduction: Breast cancer (BC) survivors treated with anthracycline-containing chemotherapy have increased risk of cardiac dysfunction. It is well established that exercise training is effective to mitigate some chemotherapy-related side effects. Recently, exercise training has also been suggested as a potentially approach to prevent anthracycline-related cardiac dysfunction, but clinical-based evidence is scarce.
Objectives: We here analyzed the effects of a supervised exercise training program (SETP) on cardiac toxicity markers in women with early-stage BC receiving anthracycline-containing chemotherapy.
Methods: Ninety-three women with early-stage BC were randomized to a SETP plus usual care (exercise group, n = 47) or usual care alone (UC group, n = 46). The SETP consisted of 3 sessions per week (planned exercise sessions ranged from 60 to 72), combining aerobic and resistance training, conducted concurrently across the chemotherapy length. The primary endpoint was the change in left ventricular ejection fraction (LVEF) from baseline to the end of anthracycline-containing chemotherapy. Secondary endpoints included global longitudinal strain (GLS) and other echocardiographic parameters, exercise capacity [estimated peak oxygen consumption (pVO2)], circulating biomarkers (NT-proBNP and troponin I), and safety of the SETP. These study endpoints were assessed at the end of anthracycline-containing chemotherapy, and 3 months after this point.
Results: All patients were prescribed 4 cycles of doxorubicin plus cyclophosphamide (AC). Mean adherence to SETP frequency was 63.2 ± 26.9%. There were no between-group differences in LVEF change at the end of AC [mean difference: 0.7%, 95% confidence interval (CI): -0.8, 2.3; p = 0.349] or 3 months after AC [1.1% (95%CI: -0.5, 2.6; p = 0.196] (Table). Compared to the UC group, estimated pVO2 significantly increased in the exercise group at the end of AC (1.6 mLO2·kg−1·min−1; 95%CI: 0.06, 3.1; p = 0.041) and 3 months after AC (3.1 mLO2·kg^{-1}·min^{-1}; 95%CI: 1.4, 4.7; p < 0.001) (Table). No between-group differences were found in other secondary endpoints. No serious adverse events occurred during exercise sessions.

Table 1: Change in Echocardiogram Endpoints and Exercise Capacity (Intention-to-treat Analysis)



Legend:
Data are expressed as mean ± standard deviation or mean (95% CI).
AC: doxorubicin plus cyclophosphamide; SD: standard deviation.

*Within-Group Difference in Mean Change and Interaction was based on linear mixed models, controlling for group, time and interaction (fixed effects).
†Adjusted Between-Group Difference was based on linear mixed models, controlling for group, time and interaction (fixed effects) and for baseline outcome, heart rate, and total cumulative doxorubicin dose (covariate) in echocardiogram endpoints, and for baseline outcome and total cumulative doxorubicin dose (covariate) in estimated peak VO2.
‡Denotes a significant p-value<0.05.
**Denotes a significant p-value<0.1.
†Denotes a significant p-value<0.05 between groups.

Conclusions: Although no significant exercise-related effects were seen on cardiac toxicity markers (LVEF and GLS), exercise training demonstrated to be safe and significantly improved exercise capacity in BC patients undergoing anthracycline-containing chemotherapy.
Trial registration: ISRCTN32617901.

Domingo, 16 Abril de 2023 | 11:30-12:30

Sala Vega | Comunicações Orais - Sessão 26 - Doenças do miocárdio

CO 126. CARDIAC AMYLOIDOSIS SCREENING: STILL A LONG WAY TO GO

Filipa Gerardo, Carolina Saca, Aurora Monteiro, Pedro Santos, Carolina Carvalho, Mariana Passos, Inês Fialho, Inês Miranda, Carolina Mateus, Joana Lima Lopes, Marco Beringuilho, Daniel Faria, Renata Ribeiro, João Augusto

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

Introduction: There are several red flags for cardiac amyloidosis (CA) that can be used for a stepwise amyloidosis screening strategy based on cardiac and extracardiac findings.
Objectives: To identify the incidence of patients that meet the screening criteria for CA in a real-world population, as defined by consensus document from the European Society of Cardiology (ESC) Working Group on Myocardial and Pericardial Diseases. **Methods:** We conducted a single-centre retrospective study during a 2-year time frame to identify suspected cases of CA and determine the incidence of in-hospital screening criteria. Demographic, clinical and echocardiography data was reviewed for all cases. Keeping with the aforementioned ESC consensus documents, patients were considered appropriate for screening if the left ventricular posterior wall thickness was ≥ 12mm and if one of the following was present: heart failure ≥ 65 years; aortic stenosis ≥ 65 years; hypotension or normotensive if previously hypertensive; sensory involvement or autonomic dysfunction; peripheral polyneuropathy; proteinuria; skin bruising; bilateral carpal tunnel syndrome; ruptured byceps tendon, subendocardial/transmural late gadolinium enhancement or increased extracellular volume; reduced longitudinal strain with apical sparing; decreased QRS voltage to mass ratio; pseudo Q waves on ECG; atrioventricular conduction disease or possible family history.
Results: A total of 221 electronic medical charts were reviewed. Of these, 133 (60.2%) met the criteria for screening for CA and 68 (32.4%) had at least 2 criteria. 104 patients (49.5%) had heart failure ≥ 65 years, 57 patients (27.1%) had proteinuria and 50 patients (23.8%) had aortic stenosis ≥ 65 years. Of this cohort, only 5 patients (2.8%) underwent screening for TTR CA with diphosphonate (HMDP) scintigraphy and free light chain screening and 2 met the criteria for CA (2 out of 5, 40%). These 5 patients fulfilled a total of 14 criteria. Of interest, global longitudinal strain < -15% was found in 20 patients (10%) and 9 of these (45%) had apical sparing pattern.
Conclusions: There is a notably high proportion of patients that meet the screening criteria for cardiac amyloidosis in the real-world. However, appropriate work-up and screening is still lacking for most, suggesting a need for increased awareness amongst physicians.

CO 127. TRANSTHYRETIN-DIRECTED ANTISENSE OLIGONUCLEOTIDE THERAPY EFFECTS ON ATTRV MYOCARDIOPATHY - A SINGLE-CENTER EXPERIENCE

Catarina Gregório[1], João R. Agostinho[1], Ana Beatriz Garcia[1], Joana Brito[1], Pedro Alves da Silva[1], Beatriz Valente Silva[1], Ana Margarida Martins[1], Catarina Simões de Oliveira[1], Ana Abrantes[1], Miguel Azaredo Raposo[1], João Santos Fonseca[1], Miguel Santos[2], Catarina Campos[2], Conceição Coutinho[1], Isabel Conceição[2], Fausto J. Pinto[1]

[1]Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa. [2]Neurology Department, Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Hereditary transthyretin amyloidosis (ATTRv) is a multisystemic disease with a heterogenous presentation that includes cardiomyopathy and polyneuropathy. Important advances have been made regarding disease-modifying therapies. Inotersen and patisiran are transthyretin-directed antisense oligonucleotide approved for the treatment of polyneuropathy. However, their effects on cardiomyopathy related parameters are not well defined.
Objectives: To study the effect of patisiran and inotersen on cardiac function and structure in a population with ATTRv and evidence of cardiac involvement at baseline.
Methods: Single center retrospective study of patients with ATTRv and definite or possible diagnosis of amyloid cardiomyopathy (defined either by a positive bone scintigraphy or interventricular septum or posterior wall dimension ≥ 12 mm or index left ventricular mass ≥ 95 g/m^2 in female and ≥ 115 g/m^2 in male in the absence of abnormal loading conditions). Demographic, clinical, therapeutic and echocardiographic data was recorded. Wilcoxon Test was used to evaluate disease progression.
Results: A total of 46 patients were treated with either patisiran (32) or inotersen (14). From those, 8 patients fulfilled criteria for amyloid cardiomyopathy (7 had a positive bone scintigraphy and 1 patient had left ventricle hypertrophy without an abnormal loading condition), 3 were medicated with inotersen and 5 with patisiran. The median age was 76 years (IQR 68.8-79) and 88% were male. Globally, at baseline, median left ventricular ejection fraction was 60% (IQR 54-60), index left ventricular mass (LVM), 168 g/m^2 (IQR 120-182), posterior wall (PW) dimension, 13 mm (IQR 12-15), interventricular septum (IVS), 17 mm (IQR 13-19) and left atrial volume (LAV) 45 mL/m^2 (IQR 38-67). Median NTproBNP was 1,148 pg/ml (IQR 595-3397) and 7 patients were in NYHA functional class I and 1 in class II. At follow-up (FUP), a significant reduction in LVM was noted (145 g/m^2; IQR 113/187; $p < 0.043$). NYHA class worsened (class I: 3; class II: 5; $p = 0.046$), however, although not significantly, NTproBNP decreased (795 pg/ml; IQR 425-1726). The small sample size precluded any comparison between both medications. However, NTproBNP reduction was manly driven by patisiran group (3,071 pg/ml; IQR 1,079-5,891 *vs.* 555 pg/ml; 425-555 pg/ml) and LVM reduction by inotersen's (142 g/m^2; IQR 120-142 *vs.* 115 g/m^2; IQR 108-115). During the FUP none of these patients had a heart failure related admission or died.
Conclusions: This small sized sample study of patients with ATTRv myocardiopathy suggest that transthyretin-directed antisense oligonucleotide therapy may halt cardiac involvement progression and may even induce cardiac reverse remodeling.

CO 128. SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITORS IN PATIENTS WITH TRANSTHYRETIN AMYLOID CARDIOMYOPATHY - RESULTS FROM A PATIENT SERIES

Daniel Inácio Cazeiro, João R. Agostinho, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Catarina Gregório, Ana Abrantes, Miguel Azaredo Raposo, Pedro Morais, Isabel Conceição, Dulce Brito, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is a disease characterized by the accumulation of insoluble amyloid fibrils composed of misfolded transthyretin protein in the myocardium. Tafamidis 61 mg once daily was the first therapy approved for ATTR-CM treatment. However, its beneficial effects on prognosis and quality of life are only apparent after at least 15 months of treatment. Sodium-glucose cotransporter 2 inhibitors (SGLT2i) were recently proven to be effective on reducing heart failure (HF) admissions in patients (pts) with HF independently of left ventricular ejection fraction. However, the effects of SGLT2i in ATTR-CM patients are not known.
Objectives: To study the tolerance and clinical effect of SGLT2i therapy on top-of tafamidis 61 mg daily in pts with ATTR-CM.
Methods: We performed a retrospective analysis comparing a group of ATTR-CM pts treated with tafamidis 61 mg that were started on SGLT2i with a control group composed of pts with ATTR-CM treated with tafamidis

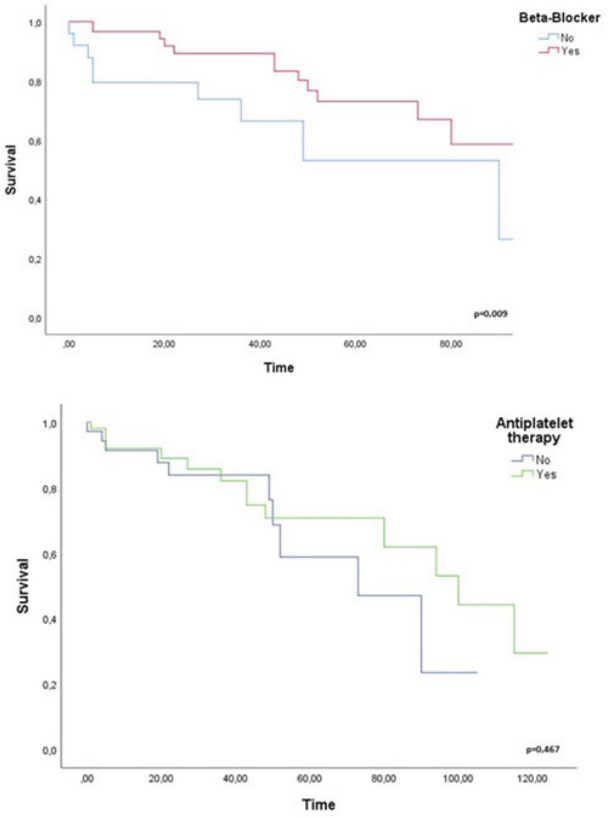
61 mg that were not started on SGLT2i. Clinical characteristics, estimated glomerular filtration rate (eGFR), plasma NTproBNP levels, loop diuretic doses and HF admissions were compared within the study group before and after SGLT2i start, and between both groups.
Results: Twenty-four pts were enrolled (median age 82 years; 92% male). The study group included 14 pts and the control group included 10 pts. The mean follow-up (FUP) time was 5 months (IQR 3-7months). In the study group, after SGLT2i initiation a significant decrease in NYHA functional class was noted (before: NYHA I – 1 pt; NYHA II – 10 pts; NYHA III – 3 pts *vs.* after: NYHA I – 2 pts; NYHA II – 12 pts; p = 0.046). eGFR, NTproBNP and diuretic doses did not change after therapy initiation. However, only one HF admission was registered in the 5 months before SGLT2i initiation and none afterwards. Comparing the study group with the control group no significant differences were found regarding NYHA functional class, EGFR, NTproBNP or diuretic doses at FUP. However, at the beginning of FUP pts of the control group seemed to present a milder form of HF when considering NTproBNP, although this difference was not statistically significant (NTproBNP: 793 pg/ml, IQR 360-3,664 *vs.* 1,208 pg/ml, IQR 764-3,302). In the control group, one pt had two HF admissions.
Conclusions: Despite the small sample size, the present study showed that SGLT2i may be associated with NYHA functional class improvement in patients with ATTR-CM related HF. Despite no impact on HF admissions in this study, SGLT2i may have a potential role in ATTR-CM treatment, and studies with larger populations are needed.

CO 129. BETA-BLOCKERS AND ANTIPLATELET THERAPY IN TAKOTSUBO SYNDROME - TO DO OR NOT TO DO?

Pedro Rocha Carvalho, Isabel Moreira, Marta Catarina Bernardo, Catarina Carvalho, Catarina Ferreira, Fernando Gonçalves, Pedro Magalhães, José Paulo Fontes, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de São Pedro.

Introduction: Sympathetic nerve stimulation and catecholamine storm are the main players in the pathogenesis of Takotsubo Syndrome (TTS), however, the impact of beta-blockers (BB) remains uncertain. Conversely, despite recent evidence suggesting a lack of benefit, antiplatelet therapy is still extensively prescribed in patients with TTS.
Objectives: To study if BB and antiplatelet therapy use after discharge in patients with TTS are associated with lower long-term major cardiovascular events.
Methods: Retrospective study with patients discharged with the diagnosis of TTS in a single center from January/2013 to November/2022. The primary outcome was a composite of cardiovascular mortality, heart failure hospitalization, stroke, and TTS recurrence (MACCE).
Results: A total of 103 patients were included in this study (85.7% females; mean age 71 ± 12 years old), 84.8% presenting with chest pain and 41.2% presenting with ST-segment elevation on electrocardiogram. During hospitalization, 37 had heart failure, 9 had a cardiogenic shock, 4 had left ventricular outflow tract obstruction, 7 patients needed ionotropic support, 14 needed mechanical ventilation and 4 died. Compared with the other without BB, patients discharged on BB (69.9%) had similar age (69.0 ± 12 *vs.* 73 ± 12 years, p = 0.093), cardiovascular risk factors, ST-segment elevation at admission (36.6% *vs.* 53.8%, p = 0.14), pro-BNP levels at admission [2800 [IQR 741;6,039 mg/dl] *vs.* 3,996 [IQR 1,224;10,031 mg/dl], p = 0.23] and peak T troponin (0.4 IQR [0.22;0.70]) *vs.* 0.54 IQR [0.30;1.5]), p = 0.10. There was no difference in left ventricular ejection fraction on admission (39.5% *vs.* 39%, p = 0.74) and at discharge (54% *vs.* 54%, p = 0.85). However, there was a higher percentage of men in the group of patients without BB therapy (8.3% *vs.* 30.8%, p = 0.005). Antithrombotic therapy given during hospitalization and on discharge was similar in patients with and without beta-blocker prescription. During a median follow-up of 41 months [14;59], 24 patients (27.3%) experienced a MACCE event. On adjusted Cox regression analysis, patients under BB therapy showed a significantly lower risk for MACCE events (adjusted HR: 0.338; 95%CI: 0.135 to 0.849), however, this was not true for antiplatelet therapy (HR: 0.733; 95%CI: 0.315 to 0.1.704, p = 0.477).



Conclusions: In this study, patients discharged on beta-blockers had a significant risk reduction of cardiovascular mortality, heart failure hospitalizations, stroke or takotsubo syndrome recurrence. Antiplatelet therapy, however, failed to show a similar risk reduction benefit.

CO 130. CARDIOVASCULAR MAGNETIC RESONANCE IN NEUROMUSCULAR DISORDERS - LOOKING AHEAD

Ana Amador, Catarina Martins da Costa, João Calvão, Catarina Marques, André Cabrita, Ana Pinho, Luís Santos, Cátia Oliveira, António José Madureira, Elisabete Martins, Teresa Pinho, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Neuromuscular disorders (NMD) have a wide range of different cardiac presentations. Cardiac magnetic resonance (CMR) has an established role in diagnosis and risk stratification. We sought to access how CMR performs in predicting events in a real cohort of NMD patients (pts).
Methods: We included consecutive patients followed in a tertiary clinical center with neuromuscular disorders (NMD) from January 2012 to December 2018. Clinical and CMR data were collected. During follow-up (FUP), we considered major adverse cardiovascular events (MACE) as a composite of device implantation, ventricular tachycardia/appropriate shock therapy and death.
Results: A total of 65 patients (pts) were included, 33 (51%) women, with mean age of 32 ± 16 years. Most patients had myotonic dystrophy (34, 52%), followed by limb-girdle muscular dystrophy (22; 34%); the remained 9 (13%) had other NMD. About half had inferior limbs predominantly affected and 74% had none, mild or moderate functional impairment. Regarding cardiac manifestations, 18% had cardiac symptoms, 97% were in sinus rhythm, median PR and QRS duration were 169 (IQR 47) and 101 (IQR 11), respectively; median BNP was 26 (IQR 25) mg/dl. Regarding CMR, 43.3% of pts had ≥ one abnormality. Six pts had left ventricle dilation and 7 had left ventricle ejection fraction (LVEF) 55%. Three pts had significant hypertrophy (> 12 mm) and there were isolated cases of hypertrabeculation, segmental alterations or right ventricle dilation. Regarding tissue characterization, 2 pts had T2 hyperintensity, 8 had early gadolinium enhancement (EGE) and 22 had late

CMR variables	Total n=65	No-event group n=50	Event group N=15	P value
Left ventricle ejection fraction (LVEF), %	62 (8)	63 (8)	50 (27)	0,004*
Left Ventricle End-diastolic volume index (LVEDVI), mL/m²	65 (21)	64 (19)	71 (47)	0,205
Left Ventricle End-systolic volume index (LVESVI), mL/m²	23 (12)	22 (10)	40 (36)	0,018
Left Ventricle Stroke volume index (LVSVI), mL/m²	39 (14)	40 (14)	38 (16)	0,291
Cardiac index (CI), L/min/m²	2,6 (1,0)	2,6 (1,0)	2,8 (1,0)	0,827
Left Ventricle Mass Index (LVMI), g/m²	47 (15)	46 (15)	47 (23)	0,361
Right ventricle ejection fraction (RVEF), %	62 (8)	62 (8)	59 (14)	0,097
Right Ventricle End-diastolic volume index (RVEDVI), mL/m²	60 ± 17	60 ± 17	55 ± 18	0,984
Right Ventricle End-systolic volume index (RVESVI), mL/m²	22 (12)	22 (11)	25 (19)	0,627
Right Ventricle Stroke volume index (RVSVI), mL/m²	36 ± 9	37 ± 9	33 ± 9	0,286
E wave peak velocity, cm/s	59 (24)	60 (20)	49 (35)	0,872
A wave peak velocity, cm/s	37 (11)	37 (11)	38 (11)	0,707
E/A ratio	1,7 (1,0)	1,8 (0,8)	1,1 (1,2)	0,707
Left atrium pre-contraction volume, mL	31 ± 8	31 ± 8	----	----
Left atrium ejection fraction (LAEF), %	63 (49)	63 (49)	----	----

Table 1: CMR parameters, divided according to occurrence of events – majority expressed as medians (interquartile range – IQR); some expressed as mean ± standart deviation.

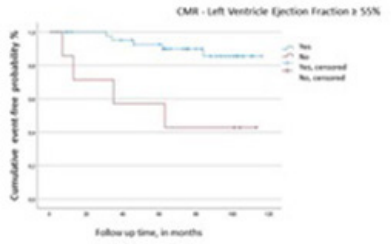


Figure 1: Kaplan Meier Curve of composite of events divided according to cutoff 55% of left ventricle ejection fraction.

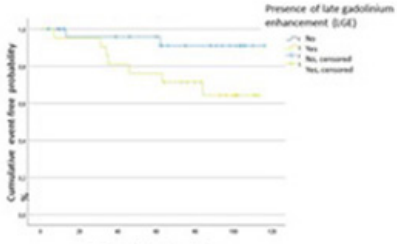


Figure 2: Kaplan Meier Curve of composite of events divided according to presence/absence of late gadolinium enhancement (LGE).

CO 130 Figure

gadolinium enhancement (LGE). LGE was located mainly intramyocardium (45%) or subepicardial (36%) and the most affected segments were basal and medium inferolateral (40%). During a median FUP of 77 (IQR 33) months there were 7 deaths, 8 implanted devices (4 pacemakers and 4 CRT-D, 3 in primary prevention) and one sustained ventricular tachycardia in holter; there were no shock therapies. Table 1 describes some CMR parameters according to the occurrence of events. Using Kaplan Meier curves, there were associations between LVEF < 55% and presence of LGE with occurrence of all events (log rank test, p = 0.002 and p = 0.045, respectively), but no association were found with age, LGE pattern nor number/distribution of affected segments. Using Cox Regression, we found that the LVEF < 55% was associated with 6 fold higher risk of events (HR crude 6.15; 95%CI 1.65-22.93), that remained significant after adjusting for LGE (HR adjusted 4.81, 95%CI 1.07-15.9).
Conclusions: In our cohort, CMR LVEF < 55% and the presence of LGE were significantly associated with events during FUP, reinforcing the role of this technique on risk stratification of NMD populations.

Domingo, 16 Abril de 2023 | 12:30-13:30

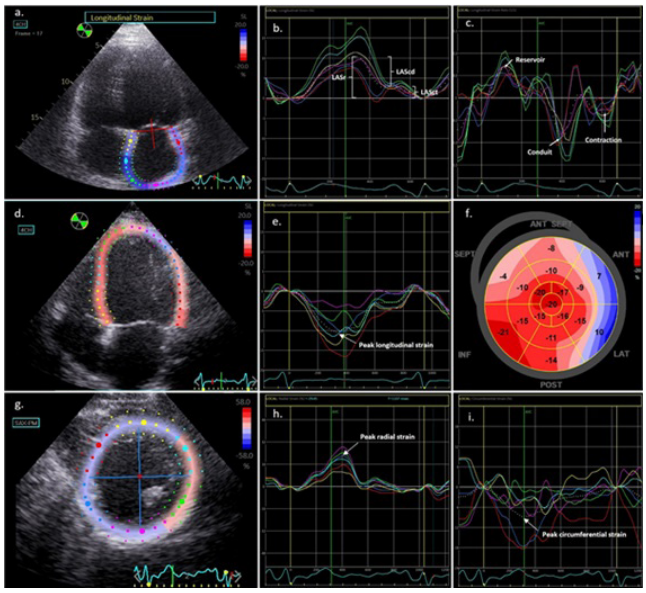
Sala Vega | Comunicações Orais - Sessão 27 - Ecocardiografia

CO 131. LEFT ATRIAL AND LEFT VENTRICULAR STRAIN IMAGING EVALUATION OF HEART FAILURE WITH REDUCED EJECTION FRACTION PATIENTS UNDER SACUBITRIL/VALSARTAN: ATRIAL FIBRILLATION SUBSTUDY

Pedro Garcia Brás, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira da Silva, Luísa Moura Branco, Pedro Rio, Tânia Mano, João Reis, Alexandra Castelo, Vera Ferreira, Isabel Cardoso, Ana Teresa Timóteo, João Abreu, Rui Cruz Ferreira

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

Introduction: While sacubitril/valsartan (SV) is increasingly used in heart failure with reduced ejection fraction (HF), data is limited regarding its improvement in left atrial (LA) and left ventricular (LV) strain parameters, particularly in patients (P) with atrial fibrillation (AF). Our aim was to evaluate the difference in LA and LV strain before and after 6 months of SV therapy in HF P in sinus rhythm (SR) and in AF.
Methods: Prospective evaluation of HF P under optimized guideline-directed medical therapy. LA and LV parameters were assessed by 2D speckle-tracking at baseline and after 6 months of SV therapy. LA reservoir strain (LASr), conduit strain (LAScd) and respective phases' strain rate (StR) as well as LV longitudinal, radial and circumferential (circ) strain (Figure) and respective StR were evaluated in SR P and AF P *vs.* baseline.



Results: 35 P, mean age 59 ± 11 years, 83% male and 40% in AF. There was a significant improvement in LASr (13.85 ± 5.9% *vs.* 19.78 ± 6.5%, p < 0.001), LAScd (-6.00 [-8.26--4.38]% *vs.* -7.25 [-10.84--4.75]%, p = 0.024) and reservoir StR (0.54 ± 0.20 s^{-1} *vs.* 0.74 ± 0.15 s^{-1}, p = 0.001) with SV therapy *vs.* baseline in SR P. Although there was a trend to improvement in AF P, it was not statistically significant: LASr (7.00 ± 3.64% *vs.* 9.04 ± 4.5%, p = 0.08), LAScd

(-6.25 [-10.78--3.91]% *vs.* -7.35 [-14.38--5.26]%, p = 0.056), reservoir StR (0.38 ± 0.23 s^{-1} *vs.* 0.46 ± 0.24 s^{-1}, p = 0.135) and conduit StR (-0.34 [-0.6--0.27] s^{-1} *vs.* -0.42 [-0.72--0.34] s^{-1}, p = 0.09). Results were similar concerning longitudinal LV function in SR P: Peak longitudinal strain (-6.12 ± 1.97% *vs.* -9.98 ± 2.60%, p < 0.001), systolic strain rate (StRs) (-0.32 ± 0.11 s^{-1} *vs.* -0.50 ± 0.12 s^{-1}, p < 0.001), early diastolic strain rate (StRe) (0.24 [0.17-0.41] s^{-1} *vs.* 0.50 [0.27-0.65] s^{-1}, p = 0.001). AF P improved peak longitudinal strain (-4.48 ± 1.68% *vs.* -7.79 ± 2.33%, p < 0.001) and StRe (0.27 [0.20-0.41] s^{-1} *vs.* 0.44 [0.25-0.52] s^{-1}, p = 0.014). Regarding radial function there was significant improvement in SR P: peak radial strain (5.87 [4.89-9.43]% *vs.* 11.28 [7.64-14.28]%, p = 0.001), StRs (0.68 ± 0.25 s^{-1} *vs.* 0.95 ± 0.3 s^{-1}, p = 0.002) and StRe (-0.66 ± 0.31 s^{-1} *vs.* -1.1 ± 0.62 s^{-1}, p = 0.005). In AF P while peak radial strain significantly improved (5.22 [3.98-9.21]% *vs.* 12.85 [8.77-14.85]%, p = 0.005), there was no improvement in StRs and StRe. Circ function was significantly higher compared to baseline in SR P: peak circ strain (-7.49 ± 2.3% *vs.* -10.68 ± 2.4%, p < 0.001), StRs (-0.79 [-1.1--0.62] s^{-1} *vs.* -0.98 [-1.25--0.77] s^{-1}, p = 0.009) and StRe (0.84 ± 0.26 s^{-1} *vs.* 0.98 ± 0.23 s^{-1}, p = 0.025) while AF P did not significantly improve peak circ strain (-8.0 ± 2.4% *vs.* -8.22 ± 1.72%, p = 0.855), StRs or StRe.

Conclusions: After 6 months of SV therapy there was a significant improvement in LA and global LV strain parameters in SR P and peak longitudinal and radial strain in AF P. These findings suggest that SV may have a higher effect in reverse LA and LV remodeling in P in SR compared to P in AF.

CO 132. LEFT ATRIAL STRAIN AND INTEGRATED BACKSCATTER: PREDICTORS OF RECURRENCE AFTER PAROXYSMAL, PERSISTENT, AND LONG-STANDING PERSISTENT ATRIAL FIBRILLATION CATHETER ABLATION

Pedro Garcia Brás, Pedro Silva Cunha, Ana Teresa Timóteo, Guilherme Portugal, Ana Galrinho, Sérgio Laranjo, Madalena Coutinho Cruz, Bruno Valente, Pedro Rio, Ana Sofia Delgado, Margarida Paulo, Manuel Brás, Rui Cruz Ferreira, Mário Oliveira, Luísa Moura Branco

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

Introduction: Left atrial (LA) strain by two-dimensional (2D) speckle tracking (STE) allows for the characterization of LA myocardial deformation. Integrated backscatter (IBS) is a promising tool for noninvasive quantification of myocardial fibrosis. The aim of this study was to compare LA phasic strain, strain rate and IBS between paroxysmal (PAF), persistent (PersAF), and long-standing persistent AF (LsAF) and evaluate its association with AF recurrence post-index catheter ablation (CA).

Methods: Analysis of consecutive patients with symptomatic PAF and PersAF who underwent index CA and had performed an echocardiogram in our

Figure 1

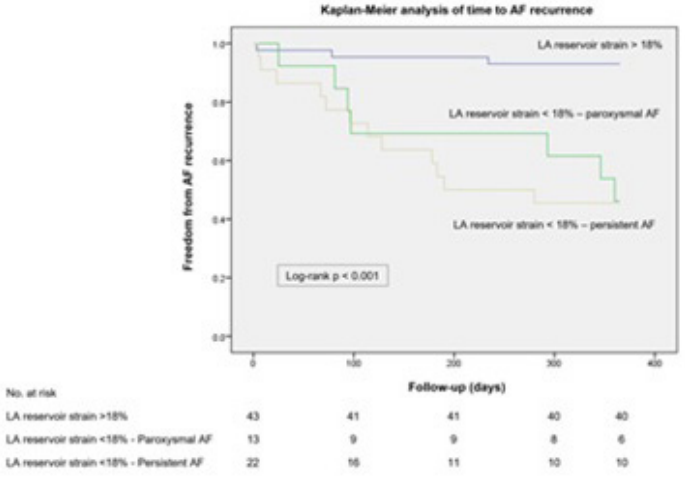
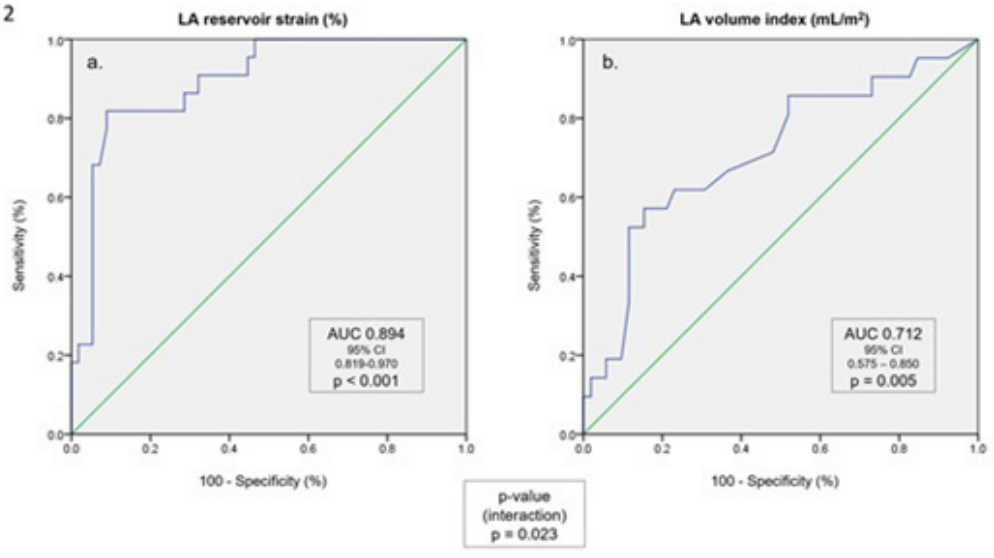


Figure 2



CO 132 Figure

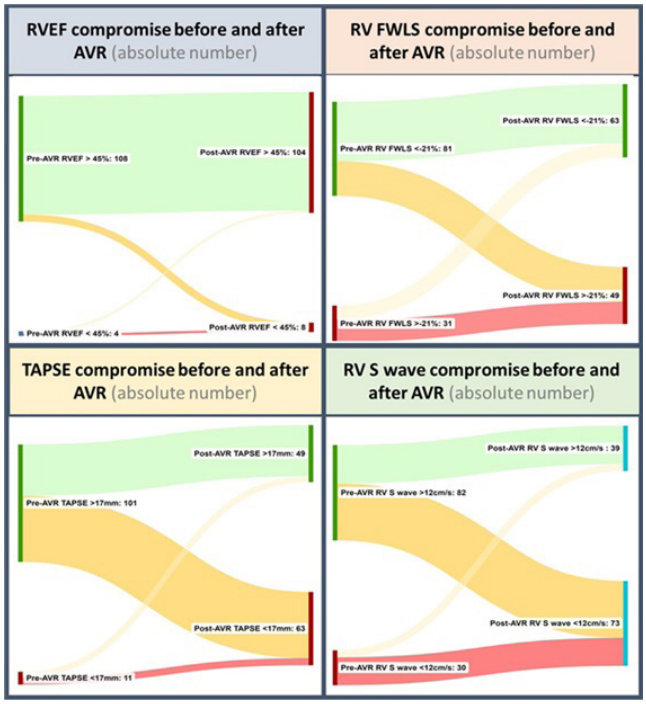
center prior to AF CA. LA longitudinal strain in the reservoir phase (LASr), conduit phase (LAScd) and contraction phase (LASct), the respective phases' strain rate and IBS were assessed by 2D STE at baseline. AF recurrence was documented with 12-lead ECG, 24h Holter monitoring or external loop recorder.
Results: We analyzed 78 patients, 31% with PersAF (46% LsAF), 65% male, mean age 59 ± 14 years, who underwent CA and were followed-up for 12 months. AF recurrence occurred in 22 (28%) patients. Lower values of LA strain and strain rate were found in patients with PersAF, especially in LsAF, both in the reservoir (LASr 9.2 ± 4.9 *vs.* 23.9 ± 9.4, p < 0.001) and conduit (LAScd -5.3 ± 2.8 *vs.* -11.3 ± 7.3, p < 0.001) phases, comparing to patients with PAF. LA strain was lower in patients with AF recurrence in all phases of the cardiac cycle (LAsct was only evaluated in patients in sinus rhythm during the echocardiogram). IBS values were not significantly different in patients with AF recurrence after CA (111.1 ± 24.2 *vs.* 105.9 ± 33.5, p = 0.044). In a multivariable model, LASr (HR 0.82, 95%CI 0.75-0.90, p < 0.001) and LAScd (HR 1.084, 95%CI 1.02-1.15, p = 0.010) were independent predictors of AF recurrence after CA. The strain rates in the reservoir and contractile phases were also linked with AF recurrence. A LASr of < 18% was associated with a significantly higher rate of AF recurrence both in patients with PAF and with PersAF (Figure 1 - Kaplain-Meier curves) with a sensitivity of 86% and a specificity of 70%. Analyzing the ROC curves for AF recurrence, LASr presented a higher predictive power when compared to LA volume index (AUC 0.894 *vs.* AUC 0.712, p = 0.023) (Figure 2). In patients with PAF in sinus rhythm during the echocardiogram, LASct also correlated with AF recurrence. PAF patients who experienced AF recurrence had a higher baseline IBS (109.3 ± 22.1 dB *vs.* 94.7 ± 14 dB, p = 0.016); however, IBS was not a significant predictor of AF recurrence after CA (HR 0.99 [95%CI 0.98-1.01], p = 0.482).
Conclusions: Patients with PersAF and LsAF showed a significantly impaired LA phasic strain. LA phasic strain parameters were predictors of AF recurrence after CA, independently of LA volume. LASr < 18% showed a higher predictive power for AF recurrence compared to LA volume. IBS was not associated with AF recurrence.

CO 133. SERIAL GLOBAL AND LONGITUDINAL RV FUNCTIONAL ASSESSMENT IN SYMPTOMATIC, SEVERE AORTIC STENOSIS UNDERGOING AVR

Sérgio Maltês

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

Introduction: Right ventricular (RV) dysfunction is currently regarded as an end-stage marker of of cardiac damage in patients with severe aortic stenosis (AS). However, global RV assessment prior to and after aortic valve replacement (AVR) has largely been neglected and little is known about RV response after AVR.
Objectives: to describe the prevalence of RV dysfunction in a group of patients with severe AS referred to surgical AVR, and to evaluate post-operative evolution, as assessed by both CMR and echocardiography.
Methods: Single-center prospective cohort study of patients with isolated severe symptomatic high-gradient AS submitted to surgical AVR. Those with previous known cardiomyopathy were excluded. All patients performed same day transthoracic echocardiogram (TTE) and CMR both before surgery and at the 3rd to 6th post-operative month. Global RV dysfunction was defined by an RVEF < 45% at CMR. Echocardiographic evidence of RV dysfunction was defined by: tricuspid annular plane excursion (TAPSE) < 17 mm, free wall longitudinal strain (FWLS) > - 21% or RV S' wave by tissue Doppler imaging < 12 cm/s.
Results: A total of 112 patients were included (mean age 71 ± 8 years; mean valvular transaortic gradient 61 ± 18 mmHg; mean indexed aortic valve area 0.4 ± 0.1 cm^2/m^2; mean indexed systolic volume 48 ± 11 mL/m^2, mean LV ejection fraction by CMR pre and post-AVR: 60 ± 10% and 59 ± 8%; mean pulmonary artery systolic pressure pre-AVR: 35 ± 10 mmHg). Only four of the patients (3.4%) had pre-operative stage 4 cardiac damage (RV dysfunction) as assessed by CMR. Moreover, only FWLS at TTE was significantly related to CMR RVEF at both pre-operative (Spearman R = -0.337, p < 0.001) and post-operative evaluation (Spearman R = -0.217, p = 0.026). Contrary to CMR RVEF (58 ± 15% *vs.* 57 ± 8%, p = 0.461), there was a significant worsening of all TTE parameters at post-operative evaluation - overall, 32%, 20% and 25% of patients met one, two or three echocardiographic parameters of RV dysfunction (Figure).



Conclusions: RV dysfunction is common after AVR is patients with severe AS as assessed by common TTE parameters, but this is not accompanied by significant impairment of RVEF. Overall, only FWLS showed a consistent, albeit only moderate, correlation with RVEF at pre and post-AVR. These results highlight the limitations of longitudinal function indexes in evaluating post-surgical global RV function.

CO 134. WHAT HAPPENS TO MYOCARDIAL WORK AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT?

Francisco Barbas de Albuquerque, Bárbara Lacerda Teixeira, Ana Galrinho, António Valentim Gonçalves, Inês Rodrigues, André Grazina, Alexandra Castelo, André Paulo Ferreira, Tiago Mendonça, Rúben Ramos, António Fiarresga, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Novel echocardiographic speckle-tracking techniques such as global longitudinal strain (GLS) and myocardial work (MW) have been used in many cardiac conditions for myocardial functional assessment. In severe aortic stenosis (SAS) this evaluation is more challenging since left ventricular (LV) systolic pressure (SP) does not equal non-invasive systolic pressure (NISP) owing to the fixed obstruction of a stenotic valve. Few studies have evaluated the immediate impact of transcatheter aortic valve replacement (TAVR) in patients with SAS.
Objectives: To assess differences in GLS and MW parameters values, pre- and post-TAVR, in patients with SAS.
Methods: One-single center retrospective analysis of consecutive patients with SAS submitted to TAVR, between January 2018 and December 2021, who performed transthoracic echocardiography (TTE) before and after the procedure. NISP was determined at TTE performance. For pre-TAVR assessment, corrected SP by adding the mean aortic gradient was introduced in the software for MW parameters calculations, namely global work index (GWI), global constructive work (GCW), global wasted work (GWW) and global work efficiency (GWE). Continuous variables were assessed for normality using Shapiro-Wilk test. Normal variables were represented as

mean and standard deviation (SD) and compared using a paired-sample t-test. Non-normal variables were represented as median and interquartile range (IQR) and compared using a Wilcoxon-Signed rank test. Statistical significance was defined as two-sided p value < 0.05. All statistical analysis were done with JASP® (version 0.16.0.0).

Results: 50 patients entered the primary analysis. Mean age was 82 years and 56% were female sex. Before TAVR, mean aortic gradient was 49 ± 15 mmHg, mean aortic valve area was 0.76 ± 0.22 cm^2 and LV ejection fraction was 52 ± 11%. The table represents the mean GLS and MW parameters values pre- and post-TAVR from our study population. Patients had significant lower values of GWI (1,764.4 ± 704.9 vs. 1,197 ± 372.6, p < 0.001) and GCW (2,309.5 ± 810.9 vs. 1,627.8 ± 488.5, p < 0.001) post-TAVR when compared with the pre-TAVR values. There were no significant differences in GLS (p = 0.837), GWW (p = 0.055) and GWE (p = 0.438) values pre- and post-TAVR.

Table 1.	Pre- and post-TAVR GLS and Myocardial Work data		
Parameter	Pre-TAVR	Post-TAVR	*p* value
GLS (%)	13.2 ± 3.9	12.8 ± 4.8	0.837
GWI (mmHg%)	1764.4 ± 704.9	1197 ± 372.6	**< 0.001**
GCW (mmHg%)	2309.5 ± 810.9	1627.8 ± 488.5	**< 0.001**
GWW (mmHg)	306 [220.5-493]	264.5 [191.8-385.5]	0.055
GWE (%)	82.3 ± 10	82.2 ± 6	0.438
Systolic BP (mmHg)	171 ± 25	125 ± 16	**< 0.001**

Conclusions: In our study population, GLS was impaired in patients with SAS and it remained identical after TAVR, suggesting un underlying myopathy that does not reverse immediately after the procedure. Furthermore, MW as assessed by GWI was significantly reduced after TAVR. This reflects the reduced workload needed after the procedure.

CO 135. PROFILING RVOT SYSTOLIC FLOW MORPHOLOGY IN PRECAPILLARY PULMONARY HYPERTENSION

Ana Abrantes, Beatriz Valente Silva, Pedro Alves da Silva, Joana Brito, Ana Beatriz Garcia, Catarina Simões de Oliveira, Ana Margarida Martins, Catarina Gregório, Miguel Azaredo Raposo, João Santos Fonseca, Marta Vilela, Daniel Inácio Cazeiro, Joana Rigueira, Rui Plácido, Fausto J. Pinto, Ana G. Almeida

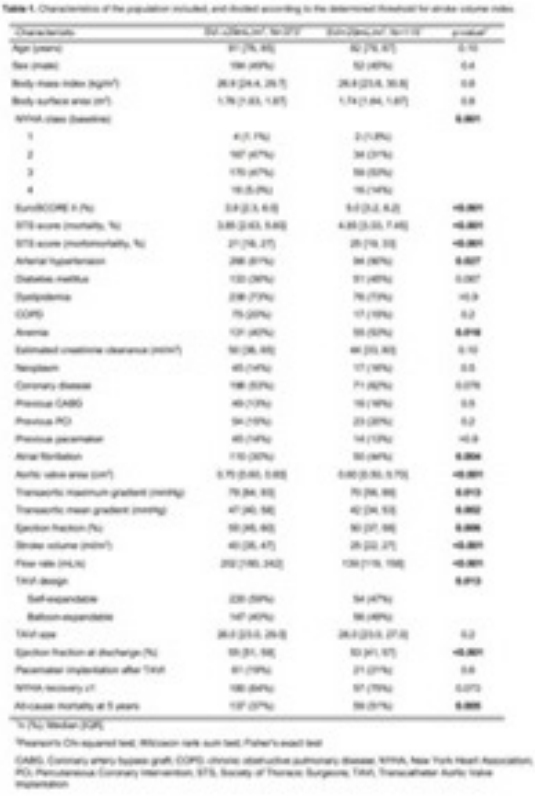
Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

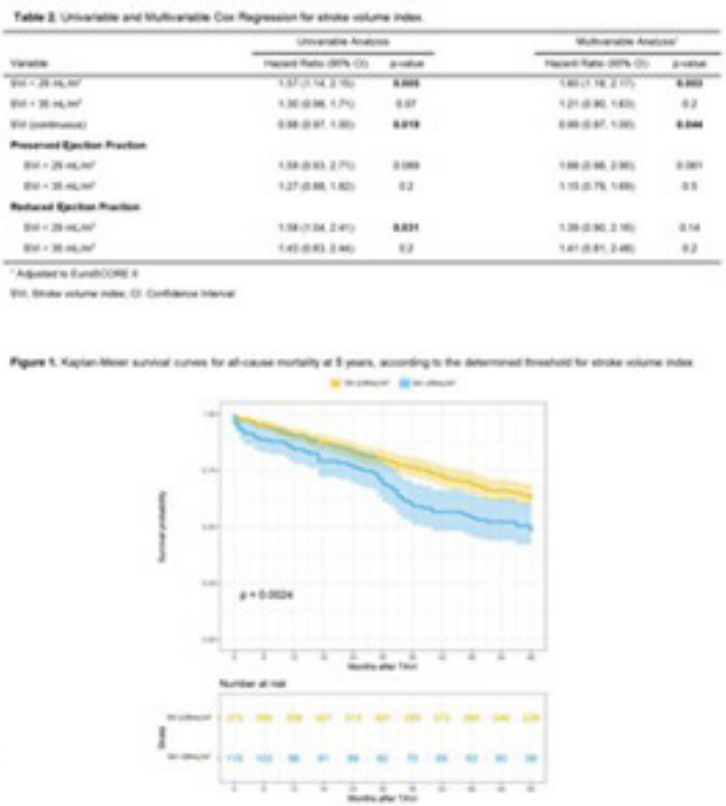
Introduction: In patients (pts) with pulmonary hypertension (PH), right ventricular outflow tract (RVOT) systolic Doppler flow envelope is frequently abnormal, showing a mid-systolic notch that suggests elevation of pulmonary vascular resistance (PVR). Recent studies have demonstrated that other parameters, such as time-to-notch, may be indicators of elevated pulmonary artery pressures (PAP) and disease severity, conveying an important prognostic value.

Objectives: To evaluate the correlation between RVOT systolic flow morphology and hemodynamic parameters in pts with PH.

Methods: Retrospective, single-center study of consecutive pts diagnosed with pulmonary arterial hypertension (PAH) and chronic thromboembolic PH (CTEPH). We included pts who performed right heart catheterization (RHC) and transthoracic echocardiogram (TTE) within a six month period. RVOT systolic Doppler flow envelope was analyzed by measuring the ejection time (ET), time-to-notch (TN), pulmonary acceleration time (PAT), deceleration slope, pre- and post-notching velocity peak. Clinical, epidemiological, TTE and RHC data were recorded. For statistical analysis, Student's T tests, Chi-square and non-parametric tests were performed when appropriate.

Results: We included 79 pts, 42 with PAH (53%) and 37 with CTEPH (47%). 52 pts were women (66%) with a mean age of 58.06 ± 15.3 years.





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The mean follow-up (FUP) was 3.6 ± 2.8 years. Most pts (92.3%) were symptomatic with a WHO functional status of II or III, despite specific PH treatment (69.4% PDE5 inhibitors, 63% endothelin receptor antagonists). In our analysis a higher TN correlated negatively with hemodynamic parameters such as mPAP (p = 0.02), PVR (p = 0.015), and mean right atrial pressure (mRAP), (p = 0.02). Similarly, pts with higher ET showed lower mPAP and sPAP in right ventricular catheterization (p = 0.044, p = 0.05 respectively). As previously reported, lower PAT showed a positive association with sPAP (p = 0.008), pulse pressure in pulmonary artery (p = 0.028), mRAP (p = 0.022), cardiac index (p = 0.01) and pulmonary vascular resistance (p = 0.04). When attempting to stratify TN and ET we noted a positive correlation with higher COMPERA score during FUP and lower clinical events, despite lack of clear statistical significance (p = 0.1). Regarding the remaining RVOT flow variables no statistically significant correlations were found.
Conclusions: This study shows that TN and ET accurately correlate with PAP and PVR, mirroring disease severity. Therefore, RVOT systolic flow profile is a non-invasive parameter that can be used as a valid tool when evaluating patients with PH.

Domingo, 16 Abril de 2023 | 13:30-14:30

Sala Vega | Comunicações Orais - Sessão 28 - Doença valvular e endocardite

CO 136. DEFINING A PROGNOSTICALLY RELEVANT THRESHOLD FOR STROKE VOLUME INDEX IN SEVERE AORTIC STENOSIS PATIENTS UNDERGOING TRANSCATHETER VALVE IMPLANTATION

Diogo Santos Ferreira[1], Silvia Diaz[2], Isabel Fernandes[2], Cláudio Guerreiro[1], Mariana Brandão[1], Fábio Nunes[1], Rafael Teixeira[1], Eulália Pereira[1], Francisco Sampaio[1], Gustavo Pires-Morais[1], Bruno Melica[1], Lino Santos[1], Alberto Rodrigues[1], Pedro Braga[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

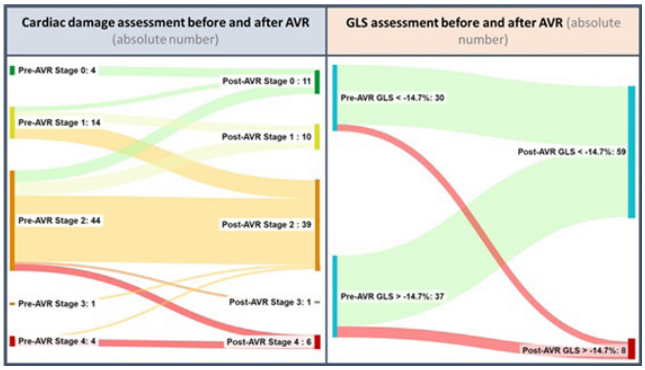
Introduction: The most commonly used parameter to define low-flow conditions in patients with severe aortic stenosis (SAS) is a stroke volume index (SVi) below 35 mL/m^2. Low-flow status has been associated with a worse prognosis, including in patients undergoing transcatheter aortic valve implantation (TAVI). However, recent studies have suggested different cut-offs defining a low-SVi associated with worse survival after valvular intervention.
Objectives: Assess the prognostic impact of SVi before TAVI in SAS treatment and determine a relevant threshold in this context.
Methods: A single-centre retrospective analysis of all TAVI performed in 2011 and 2019 was conducted. Cases without pre-intervention echocardiograms available were excluded. The primary endpoint was defined as time to all-cause death of last follow-up over the five years after intervention. Surv_cutpoint from survival package in R was used to evaluate optimal low-SVi cutpoints associated with worse survival in SAS patients undergoing TAVI. Low-flow patients were compared with normal-flow counterparts using the determined low-SVi definition. The prognostic value of low-SVi at different cut-offs was assessed using Kaplan-Meier curves and log-rank test, as well as Cox proportional hazard model adjusted for EuroSCORE II. Patients were further divided as having preserved or reduced ejection fraction (EF, < 52%). p < 0.05 was considered statistically significant.
Results: From 657 TAVI performed, 488 (74%) cases were included, with a median follow-up of 56 months. There was not a statistically significant association between SVi < 35 mL/m^2 and higher mortality after TAVI (p = 0.07). An optimal cutpoint of low-SVi was defined at < 29 mL/m^2 (n = 115, 24%), and these patients were in more advanced New York Heart Association (NYHA) class, had a higher estimated surgical risk, had a higher prevalence of hypertension, anemia and atrial fibrillation. Low-SVi patients also had lower EF, lower functional aortic valve area and lower transvalvular gradients, and were more frequently treated with balloon-expandable valves. SVi < 29 mL/m^2 was associated with worse survival after intervention, including after adjusting to EuroSCORE II [hazard ratio (HR) 1.60 (1.18-2.17), p = 0.003], and in a reduced [HR 1.58 (1.04-2.41), p = 0.031], but not preserved, EF subset. When analyzed as a continuous variable, a higher SVi was associated with better survival after TAVI [HR 0.98 (0.97-1.00), p = 0.019].
Conclusions: SVi is a prognostically-relevant measure in SAS patients undergoing TAVI. Contrary to a classically defined threshold of < 35 mL/m^2, a SVi < 29 mL/m^2 was associated with higher mortality after treatment in our population.

CO 137. CARDIAC DAMAGE EXTENT IN PATIENT WITH ISOLATED SEVERE AORTIC STENOSIS REFERRED TO SURGICAL AORTIC VALVE REPLACEMENT: IS IT REVERSIBLE AFTER SURGERY?

Sérgio Maltês, João Abecasis, Rita Reis Santos, Maria Rita Lima, Sara Guerreiro, Telma Lima, Pedro Freitas, Regina Ribeiras, Maria João Andrade, José Pedro Neves, Miguel Mendes

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

Introduction: Aortic stenosis (AS) may lead to progressive and adverse cardiac remodeling. A recently proposed staging classification regarding extravalvular cardiac damage in AS patients undergoing aortic valve intervention was shown to have significant prognosis implications. However, cardiac damage evolution and reversibility after intervention remain unknown.
Objectives: To assess extravalvular cardiac damage evolution after surgical aortic valve replacement (SAVR) in patients with isolated severe AS.



Methodology: we performed a single-center, prospective cohort study enrolling consecutive patients with severe AS undergoing SAVR. Those with previous cardiomyopathy or concomitant severe valve dysfunction beyond AS were excluded. All patients performed transthoracic echocardiogram (TTE) and cardiac magnetic resonance (CMR) within 3 months before SAVR as well as at the 3rd to 6th post-operative month. Patients were classified according to the extent of cardiac damage into 4 groups: stage 0: no damage; stage 1: left ventricle (LV) hypertrophy (indexed LV mass > 95 g/m^2 [women] or > 115 g/m^2 [men]), LV diastolic (E/e' > 14) or systolic (ejection fraction < 50%) dysfunction; stage 2: dilated left atrium (> 34 mL/m^2) or atrial fibrillation; stage 3: pulmonary hypertension (systolic pulmonary artery pressure ≥ 60 mmHg); stage 4: significant right ventricle (RV) dysfunction. Global longitudinal strain (GLS) was also assessed to further characterize the extent of LV damage - a GLS > -14.7% was considered abnormal. Due to the impact of on-pump cardiac surgery on RV systolic longitudinal function, RV ejection fraction assessed by CMR (< 45%) was used to define significant post-operative RV dysfunction.

Results: A total of 67 patients were included (mean age 71 ± 8 years; 50% male; mean valvular transaortic gradient 60 ± 19 mmHg; mean indexed aortic valve area 0.4 ± 0.01 cm^2/m^2; mean LV ejection fraction by TTE 58 ± 9%). Overall, a significant number of patients still showed some sign of structural cardiac damage after surgery - 14 *vs.* 10 on stage 1, 44 *vs.* 39 on stage 2, 1 *vs.* 1 on stage 3 and 4 *vs.* 4 patients on stage 4 after SAVR (Figure). However, a statistically significant improvement in the number of patients at stage 0 after surgery (4 *vs.* 11, paired McNemar test p = 0.016) was observed, as well as a significant improvement in GLS (mean GLS pre and post AVR -14.8 ± 3.6% *vs.* -16.6 ± 3.3%, respectively; 45 *vs.* 21% patients with abnormal GLS before and after AVR, p = 0.001).
Conclusions: Extravalvular cardiac damage is common in a selected cohort of severe AS patients and potentially reversible after SAVR. A significant improvement in GLS was observed after surgery, suggesting that longitudinal strain may be afterload dependent and amenable for improvement post-AVR.

CO 138. TRANSCATHETER AORTIC VALVE IMPLANTATION INFECTIVE ENDOCARDITIS CHARACTERIZATION AND OUTCOMES

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

Introduction: Transcatheter aortic valve implantation (TAVI) is nowadays a well-established procedure for the treatment of severe aortic stenosis (AS). Infective endocarditis (IE) after TAVI is a rare but potentially fatal complication. Registries report incidences of IE after TAVI from 0% to 14%. Severe infections and peri-valvular involvement seem to be frequent, requiring surgical intervention and valve-in-valve procedures in 11.4% and 6.4% of the cases, respectively. Data on microbiological profile, infection severity, outcomes and appropriate treatment of these patients remains sparse.
Objectives: This analysis aims to describe the IE incidence after TAVI as well as to characterize the population regarding microbiological profile, infection severity and outcomes.
Methods: Retrospective descriptive analysis of patients submitted to TAVI in a single tertiary Portuguese center.
Results: 642 consecutive patients underwent TAVI. During the follow-up, 12 patients developed prosthetic aortic valve IE (rate of 1.9%). Baseline characteristics, microbiological profile, clinical manifestations, and outcomes are summarized in table 1. Mean age is 77.7 years old, 83% of the patients are male and comorbidities are frequent with diabetes in 42%, chronic kidney disease in 42%, coronary artery disease in 45%, left ventricular dysfunction in 33% and permanent pacemaker in 42% of the patients. Blood cultures revealed gram-positive bacteria in 42% (*Staphylococcus* in 25%), gram-negative bacteria in 33% and absence of microorganisms in 25% of the cases. Valvular vegetations were present in most of the cases with leaflet destruction and severe aortic regurgitation in 1 patient. 3 patients had peri-prosthetic involvement, all with prosthetic dehiscence and severe leak and 1 with aortic pseudoaneurysm. Embolic events occurred in 25% of the patients, mainly to central nervous system. The median time to development of IE after TAVI was 114 days, with 4 patients developing IE less than one month after TAVI. Despite the relative high rates of severe infection, with peri-valvular involvement and embolic phenomenon, none of the patients was accepted to surgical treatment and valve-in-valve procedures was not attempted. 1 patient with severe leak was submitted to percutaneous leak closure with technical success. All the remaining underwent antibiotic treatment alone. The mortality rates were 17% at 30 days and 50% at 1 year.
Conclusions: Infective endocarditis remains a rare but severe complication of TAVI procedures, with high mortality rates. Patients are often old, frail and unsuitable for surgical intervention. Efforts should be made to better prevent IE and to define appropriate antibiotic regimens in these patients. The use of valve-in-valve procedures to treat prosthetic dehiscence with leak is lacking data.

Baseline characteristic			
Age in years old (mean±SD)	77.3 ± 8.8	Previous stroke (n)	8% (1)
Gender (male)	83% (10)	Atrial fibrillation (n)	25% (3)
BMI in Kg/m^2 (mean±SD)	25.3 ± 3.5	Permanent PM (n)	42% (5)
Arterial hypertension (n)	100% (2)	Euroscore II (IQR)	3.7 (2.1)
Dyslipidemia (n)	75% (9)	STS Score (IQR)	3.2 (1.2)
Diabetes (n)	42% (5)	Basal NYHA class (mean±SD)	2.8 ± 0.6
CKD, KDIGO stage ≥ 3 (n)	42% (5)	Mean aortic gradient in mmHg (mean±SD)	50.0 ± 16.7
hemodialysis (n)	8% (1)		
Coronary artery disease (n)	42% (5)	LVEF <50% (n)	33% (4)
previous MI (n)	17% (2)		
previous CABG (n)	17% (2)	Bicuspid aortic valve (n)	8% (1)
Peripheral artery disease (n)	17% (2)	Valvular calcium score (IQR)	2200 (1544)
Microbiological profile			
Staphylococcus epidermidis (n)	17% (2)	Enterococcus *spp* (n)	8% (1)
Staphylococcus aureus (n)	8% (1)	Gram-negative bacteria (n)	33% (4)
Streptococcus *spp* (n)	8% (1)	Blood culture-negative (n)	25% (3)
Clinical manifestations/ findings			
Valvular vegetations (n)	75% (9)	Intraprosthetic severe AR (n)	8% (1)
Periprosthetic involvement (n)	25% (3)	Embolic phenomenon (n)	25% (3)
Dehiscence; severe leak (n)	25% (3)	Central Nervous System (n)	17% (2)
Pseudoaneurysm (n)	8% (1)	Splenic (n)	8% (1)
Abscess (n)	0% (0)	Peripheric/ limbs (n)	0% (0)
Outcomes			
Total follow-up, days (IQR)	365 (214)	Antibiotic treatment alone (n)	92% (11)
Time to IE, days (IQR)	114 (163)	Cardiac surgery (n)	0% (0)
30-day mortality (n)	17% (2)	Valve-in-valve procedure (n)	0% (0)
1-year mortality (n)	50% (6)	Percutaneous leak closure (n)	8% (1)

Table 1. TAVI infective endocarditis baseline characteristics, microbiological profile, clinical manifestations, and outcomes

CO 139. IN-HOSPITAL MORTALITY IN INFECTIVE ENDOCARDITIS: A SCORE COMPARISON

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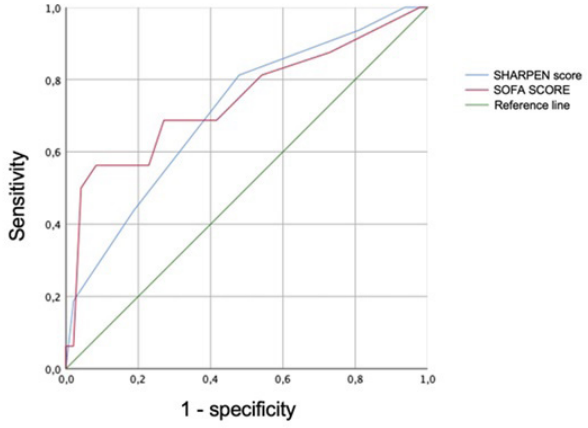
Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Infective endocarditis (IE) is associated with high level of mortality. It is crucial to promptly identify patients with higher risk. SHARPEN score (Systolic BP, Heart failure, Age, Renal function, Pneumonia, Elevated peak CRP, and Non-intravenous drug abusers) was developed to predict in hospital mortality (IHM) in patients presenting with IE. SOFA score is commonly used to predict clinical outcomes of critically ill patients.
Objectives: Evaluate SHARPEN's score (ShS) performance and how it compares to the SOFA score (SS) in predicting in-hospital mortality.
Methods: Retrospective study of 64 patients admitted for IE in a Cardiology Department from 2018 to 2022. Baseline characteristics, microbiological and imaging findings and disease severity were analyzed. SHARPEN score was calculated at admission, and each patient was classified as low-moderate (ShLM) (2-10 points) or high (ShH) (11-20 points) risk. The SOFA score was also calculated at admission, and the population was divided into two groups: SC 0-6 points (SSL) and SC ≥ 7 points (SSH). Chi-square and Mann-Whitney U were used for comparison between groups and IHM. Discrimination for in-hospital mortality was assessed with the ROC curve.

Results: Mean age was 68 ± 77 years; 67.2% were men. IHM was 25%. 56.3% of patients had ShH. 28.1% of patients had SSH. Patients in ShH group had greater prevalence of previous diagnosis of heart failure (50% *vs.* 7.1%; χ^2 = 13.465; p < 0.01; OR = 13), acute kidney injury (91.7% *vs.* 32.1%; χ^2 = 24.737; p < 0.01; OR = 23.22), anemia during hospital stay (100% *vs.* 82.1%; χ^2 = 6.973; p = 0.01), admission lower hemoglobin (p < 0.01), higher leucocyte and creatinine measurements (p = 0.05 and p < 0.01, respectively). Patients in SSH group had greater prevalence of chronic kidney disease (44.4% *vs.* 10.87%; χ^2 = 9.01; p < 0.01, OR 6.56), acute kidney injury (88.9% *vs.* 56.52%; χ^2 = 6; p = 0.02; OR = 6.15) and higher admission creatinine (p = 0.02). Patients with ShH were associated with a significant higher IHM and presenting 4.7 times higher likelihood of IHM compared with ShLM (36% *vs.* 11%; χ^2 = 5.418; p = 0.02; OR = 4.71). Patients with SSH had a 5.6 times higher likelihood of IHM compared with SSL (50% *vs.* 15.2%; χ^2 = 8.348; p = 0.01; OR = 5.57). When comparing ShS and SS they were statistically significative and similar in predicting IHM (AUC 0.712, p = 0.01 *vs.* AUC 0.745, p = 0.01, respectively).

Fig. 1 – ROC curve



Conclusions: In our population both scores performed equally well at identifying patients with increased risk of IHM. Both scores are adequate at predicting higher risk of adverse outcomes.

CO 140. A LIGHT AT THE END OF THE TUNNEL - COULD INFECTIVE ENDOCARDITIS EPIDEMIOLOGY AND BURDEN BE CHANGING FOR THE BETTER?

Rafaela Fernandes, Mariana Simões, Ana Rita Gomes, Gustavo Campos, João Rosa, Vanessa Lopes, Eric Monteiro, Gonçalo Costa, Joana Guimarães, Diogo Fernandes, Carolina Saleiro, Ana Sofia Martinho, Luís Paiva, Joana Moura Ferreira, Lino Gonçalves

Centro Hospitalar de Coimbra, EPE/Maternidade Bissaya Barreto.

Introduction: Infective endocarditis (IE) is not a common disease but has high morbidity and mortality rates. In Portugal, the burden of IE is increasing due to the epidemiological profile changes, an aged population with severe comorbidities and a greater number of prosthetic valve and device-related infections.
Methods: Retrospective observational study that included all cases of IE in adult patients, admitted to Cardiology wards in a University Hospital Centre between 2005 and 2021. The patients were divided into two cohorts (cohort 1: patients admitted from 2005 to 2013, cohort 2: patients admitted from 2014 to 2021). Our purpose was to characterize the epidemiological profile of this disease. A revision of informatized clinical files was performed and statistical analysis was conducted using SPSS software.
Results: A total of 230 patients were included, with 95 patients in cohort 1 and 135 in cohort 2. The median hospital stay was 41 (ID = 34) days, and the median follow-up time was 607 (ID = 1,946) days. A male predominance was observed (cohort 1 with 73/76.8% patients and cohort 2 with 95/70.4% patients). The median age was 62(ID = 22) years in cohort 1 and 67 (ID = 21) years in cohort 2. The in-hospital mortality rate was higher in cohort 1 (30.5% in cohort 1 *versus* 20% in cohort 2). Cohort 2 has a higher number of patients with prosthetic valves (11/8.1%). *Staphylococcus epidermidis* (10/10.5%) and *Staphylococcus aureus* methicillin-susceptible (MSSA) (10/10.5%) were the more frequent causative agents identified in cohort 1. In cohort 2 the most frequent microorganisms identified were *Staphylococcus aureus* methicillin-resistant (MRSA) (18/13.3%) and *Enterococcus faecalis* (15/11.1%). In 33 (24.4%) patients from cohort 2, IE was considered a nosocomial infection.
Conclusions: The slightly higher age in cohort 2 is indicative of an older population, with more comorbidities and a rapidly increasing rate of nosocomial infections. There is no doubt that nowadays, IE is even more severe. However, in our study we found that the prognosis is improving. Our in-hospital mortality rate has decreased in the last years, probably because of a better diagnosis, and improved medical and surgical treatments.

Domingo, 16 Abril de 2023 | 14:30-15:30

Sala Vega | Comunicações Orais - Sessão 29 - *Score* cálcio coronário

CO 141. CORONARY ARTERY CALCIUM SCORE IS A PREDICTIVE TOOL FOR CARDIOVASCULAR EVENTS IN AN ASYMPTOMATIC POPULATION

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Introduction: Recent research highlights the role of the coronary artery calcium score (CAC Score) in evaluating the severity of subclinical atherosclerosis in asymptomatic individuals without apparent cardiovascular disease (CVD). However, the influence of the CAC score on the prognosis of an asymptomatic population is not consensual.
Objectives: Investigate the role of the CAC score as a predictive tool for the occurrence of cardiovascular events in an asymptomatic population without known CVD.
Methods: 1,195 asymptomatic subjects (mean age 55.1 ± 6.9 years, 73.8% male) selected from the prospective arm of the GENEMACOR study were followed up during 5.9 ± 4.3 years. CAC score was performed by cardiac computed tomography and reported as Agatston units according to the Hoff Nomogram in low, moderate and high-risk categories. The bivariate analysis evaluated CV events in the three CAC score risk categories and in traditional risk factors (TRFs) individually. Multivariable Cox proportional hazard ratios (HR) with 95% confidence intervals (95%CI) assessed the variables independently associated with CV events occurrence. Kaplan-Meier estimated the survival in the CAC risk categories.
Results: None of the TRFs showed significant differences in the CV events percentages. As the CAC score category increases, the percentage of CV events rises (p < 0.0001). After Cox regression analysis, the high CAC risk category remained a strong CV events predictor (HR = 3.71; 95%CI 1.66-8.27; p = 0.001), along with age and smoking (Table). At fifteen years of follow-up, 95.3%, 92.8%, and 84.3% survived in the low, moderate and high-risk categories, respectively (long rank test; p < 0.0001).

Table – Variables independently associated with events occurrence (Cox regression)

Variables	B	S.E.	Wald	df	HR (95% CI)	p-value
CAC score			11.219	2		0.004
Moderate	0.454	0.468	0.942	1	1.575 (0.629-3.944)	0.332
High	1.310	0.409	10.247	1	3.706 (1.662-8.266)	0.001
Smoking	0.715	0.354	4.078	1	2.044 (1.021-4.092)	0.043
Age	0.089	0.024	13.293	1	1.093 (1.042-1.146)	<0.001

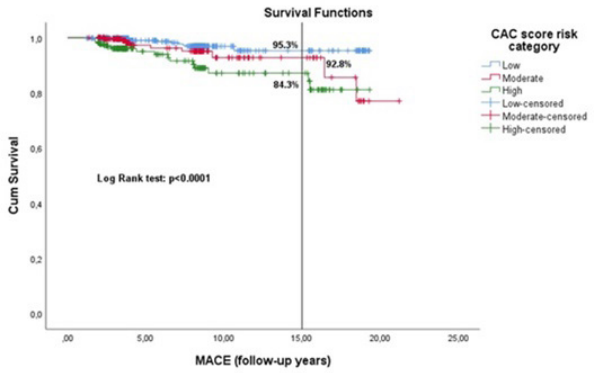

Fig. - This graph plots the Kaplan-Meier curves for the three risk groups at fifteen years

Conclusions: The presence of coronary calcifications indicated a worse prognosis in our asymptomatic population. CAC score is an excellent predictive tool for the asymptomatic subjects with coronary atherosclerosis in progression and could help initiate preventive therapy.

CO 142. INFLUENCE OF AGE ON THE DIAGNOSTIC VALUE OF CORONARY ARTERY CALCIUM SCORE FOR RULING OUT CORONARY STENOSIS IN SYMPTOMATIC PATIENTS

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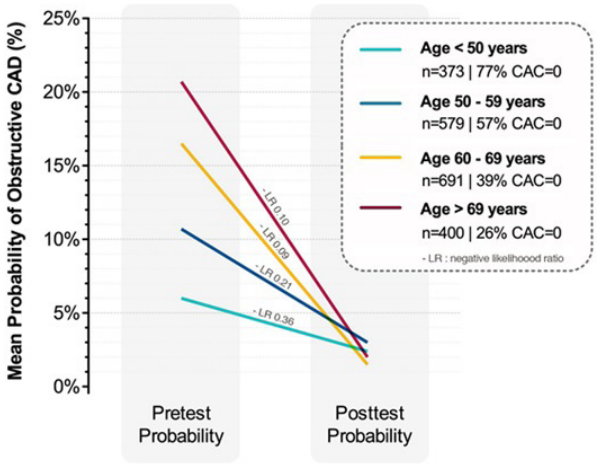
[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Hospital da Luz Lisboa.

Introduction: The 2021 Guideline for the Evaluation of Chest Pain supports the use of coronary artery calcium (CAC) score as a reasonable first-line test to identify patients with a low likelihood of obstructive coronary artery disease (CAD) who may not require additional testing (class IIa, LOE B). However, a recent study from a large cohort of Northern European patients raised concerns about the added diagnostic value of CAC = 0 in younger patients. The aim of this study was to assess the influence of age on the value of CAC = 0 in symptomatic patients undergoing coronary computed tomography angiography (CCTA).
Methods: We conducted a two-center cross-sectional study assessing symptomatic patients with suspected CAD who underwent CAC score and CCTA. Key exclusion criteria were age < 30 years, known CAD, suspected acute coronary syndrome, or symptoms other than chest pain or dyspnea. Pretest probability of obstructive CAD was calculated based on age, sex and symptom typicality, according to the guideline-recommended method. Obstructive CAD was defined as any luminal stenosis ≥ 50% on CCTA. The diagnostic likelihood ratios and negative predictive values (NPV) were used to assess the diagnostic value of a CAC score of 0 to rule out obstructive CAD.
Results: A total of 2,043 patients (mean age 60 ± 11 years, 60% women) of whom 990 (48.5%) had a CAC score of 0 were included in the analysis. Symptom characteristics were: 38% non-anginal chest pain, 30% atypical angina, 19% dyspnea, and 13% typical chest pain. Overall, the prevalence of obstructive CAD was 12.8% (n = 262). Pretest probability of obstructive CAD increased progressively with age, from 6.0% in patients young than 50 years to 20.7% in those 70 years or older. Contrariwise, the prevalence of patients with a CAC score = 0 decreased from 77% in patients younger than 50 years, to 26% in those who where 70 years or older. The added diagnostic value of a CAC score = 0 was lower in younger patients, with negative likelihood ratios ranging from 0.36 (64% decrease in the likelihood of CAD) in patients younger than 50 years, to 0.09 and 0.10 (~90% decrease in the likelihood of CAD) in those aged 60-69 years and 70 years or older, respectively (Figure). Despite this, the prevalence of obstructive CAD among patients with a CAC score = 0 was low across all age groups: 2.4% (i.e., NPV = 97.6%) in those younger than 50 years, 3.0% (NPV = 97.0%) among those aged 50-59 years, 1.5% (NPV = 98.5%) in patients between 60-69 years, and 2.0% (NPV = 98.0%) among those 70 years or older.



Conclusions: In a cohort of symptomatic patients undergoing CCTA for suspected CAD, the added diagnostic value of a CAC score of zero decreases significantly at younger ages. However, this "diminishing return" of CAC in younger patients if offset by their lower pretest probabilities, yielding high negative predictive values independently of age.

CO 143. COULD A HIGH EPICARDIAL ADIPOSE TISSUE VOLUME INCREASE THE ABILITY OF THE CALCIUM SCORE TO DISCRIMINATE CARDIOVASCULAR EVENTS IN AN ASYMPTOMATIC POPULATION?

Margarida Temtem[1], Maria Isabel Mendonça[1], João Adriano Sousa[1], Marco Serrão[1], Marina Santos[1], Débora Sá[1], Francisco Sousa[1], Sónia Freitas[1], Sofia Borges[1], Eva Henriques[1], Mariana Rodrigues[1], António Drumond[1], Ana Célia[1], Roberto Palma dos Reis[2]

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

Introduction: Evidence indicates that an elevated calcium score (CAC) is a risk marker for subclinical atherosclerosis and cardiovascular (CV) events in the asymptomatic population. Recent research has shown that high epicardial adipose tissue (EAT) volume is associated with coronary calcification and CV events It is unknown whether the association between the two risk markers improved the ability to predict CV events.
Objectives: Evaluate whether a high EAT volume added to the CAC score improves the predictive ability to discriminate CV events in an asymptomatic population without apparent cardiovascular disease (CVD).
Methods: A prospective cohort was performed with 1,024 participants (mean age 51.6 ± 8.2 years, 75.6% male) selected from controls of the GENEMACOR Study. CAC score was performed by cardiac computed tomography, and CAC severity was reported as an absolute Agatston unit stratified for age and sex-percentile (according to the Hoff Nomogram). EAT volume was measured with a quantitative semi-automated procedure using a postprocessing

workstation-TeraRecon Aquarius Workstation (version 4.4.7, TeraRecon, Inc., San Mateo, CA, USA). We evaluated the discriminative ability of the CAC model without (model 1) and with EAT volume (model 2) using the ROC curve along with respective AUC and Harrel C statistics. Categorical free Net Reclassification Improvement (cfNRI) and Integrated Discrimination Index (IDI) reclassified patients.
Results: CAC model showed a C Index of 0.733 (95%CI 0.633-0.833), which increased to 0.756 (95%CI 0.638-0.874) when EAT volume was included in the model. The difference between the two C indexes was significant (delta C statistic = 0.023; p = 0.020). CfNRI reclassified 63.6% of the population (p = 0.0003), and IDI improved the discrimination when EAT was included in CAC model (IDI = 0.011; p = 0.015).

Evaluation of the incremental value of EAT to the CAC model

	Estimate	95% CI	P-value
C-statistic Model 1	0.733	0.633 – 0.833	-
C-statistic Model 2	0.756	0.638 – 0.874	-
ΔC-statistic	0.023		***0.020***
cfNRI, %	63.6	29.4 – 97.8	***0.0003***
IDI	0.011	0.002 – 0.021	***0.015***

Conclusions: Our findings displayed that the CAC score associated with a high EAT volume increased the predictive and discriminative ability to event occurrence. Improving the identification of high-risk patients at a subclinical stage could avoid atherosclerosis progression and events occurrence through preventive measures.

CO 144. "PROGNOSTIC CHANGE" OF ADDING CORONARY CALCIUM SCORE AND GENETIC RISK SCORE TO EUROPEAN SCORE2 IN A MODERATE RISK REGION

Margarida Temtem[1], Roberto Palma Reis[2], Marco Serrão[1], Marina Santos[1], Débora Sá[1], Francisco Sousa[1], Mariana Rodrigues[1], Sónia Freitas[1], Eva Henriques[1], Sofia Borges[1], Graça Guerra[1], Ilídio Ornelas[1], António Drumond[1], Ana Célia Sousa[1], Maria Isabel Mendonça[1]

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

Introduction: Cardiovascular disease is a public health issue remaining the leading cause of death worldwide. One of its main contributors is coronary artery disease (CAD), a complex multifactorial disease with the influence of hereditary and environmental factors. It's crucial to improve cardiovascular risk assessment which is a real challenge in our daily clinical practice. SCORE 2 enhanced the identification of individuals at higher risk of developing CAD, but it remains scanty. Coronary Artery Calcification (CAC) score and Genetic contributions could improve CV risk stratification in primary prevention.
Objectives: Evaluate the impact of including CAC score and Genetic Risk Score (GRS) to the European SCORE2 in MACE prediction and cardiovascular risk stratification in our asymptomatic population.
Methods: 945 asymptomatic subjects (mean age 52.9 ± 6.8 years, 74.0% male) selected from the prospective arm of the GENEMACOR study were followed up during 5.4 ± 4.1 years. The population was categorized according to SCORE2 into three risk groups (low-intermediate < 5%; high 5-10%; very high > 10%). CAC score was performed by cardiac computed tomography and reported as Agatston units according to the Hoff Nomogram in low, moderate and high-risk categories. The GRS was created from 33 genetic variants associated with CAD by GWAS, choosing those with a hazard ratio (HR) higher than 1. Multivariable Cox proportional hazard ratios (HR) with 95% confidence intervals (95%CI) assessed the variables independently associated with CV events occurrence. We evaluated the discriminative ability of the Score2, CAC score and GRS using the Harrel C statistics.
Results: Cox regression analysis showed that the highest categories of SCORE2, CAC and GRS remained in the equation with an HR of 16.6 (p = 0.008), HR of 3.6 (p = 0.006) and HR of 3.2 (p = 0.022), respectively, when compared with the lowest categories. C-statistic demonstrated that the predictive value for MACE was 0.671 for SCORE2, increased to 0.799 (p = 0.002) when adding CAC score and improved to 0.808 (p = 0.012) when adding mGRS (Table), showing a better discrimination capacity for MACE.

Variables independently associated with events occurrence (Cox regression)

Variables	B	S.E.	Wald	df	HR (95% CI)	p-value
Score2			8.505	2		0.014
High	1.989	1.041	3.651	1	7.306 (0.950-56.181)	0.056
Very high	2.808	1.066	6.943	1	16.570 (2.053-133.749)	0.008
CAC score			10.446	2		0.005
Moderate	-2.276	0.683	0.164	1	0.759 (0.199-2.894)	0.686
High	1.269	0.462	7.555	1	3.556 (1.439-8.786)	0.006
GRS above median	1.166	0.509	5.241	1	3.210 (1.183-8.714)	0.022

CAC Score – Coronary artery calcium Score; GRS – Genetic Risk Score; CI – Confidence interval. Statistically significant for p<0.05.

Incremental discriminative capacity

Models	Total events occurrence	
	C-index (95% CI)	P-value
Score2	0.671 (0.585 – 0.757)	
Score2 + CAC Score	0.799 (0.709 – 0.889)	**0.002**
Score2 + CAC Score + GRS	0.808 (0.714 – 0.902)	**0.012**

CAC Score – Coronary artery calcium Score; GRS – Genetic Risk Score; CI – Confidence interval. Statistically significant for p<0.05.

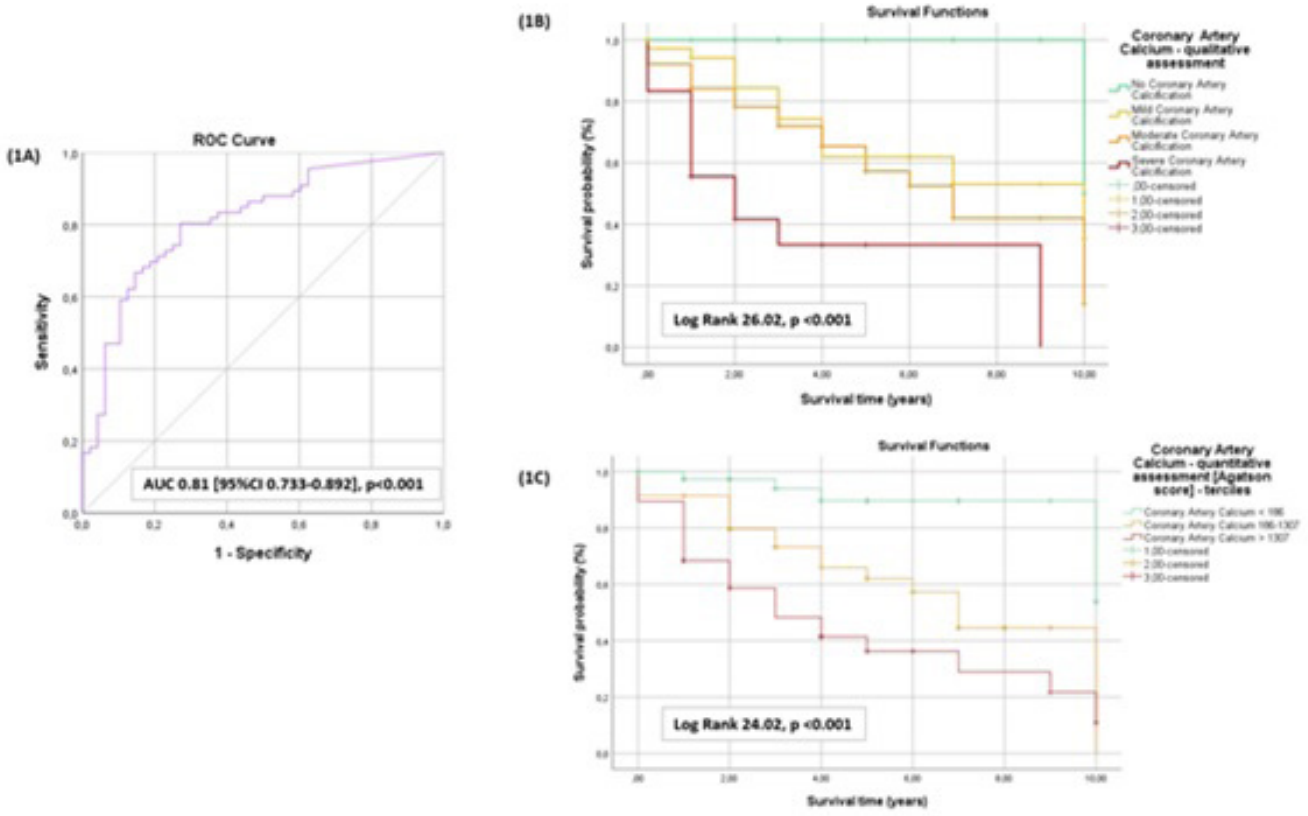
Conclusions: Our results highlight the importance of adding CAC score and mGRS to SCORE2 in primary prevention to improve cardiovascular risk stratification and MACE prediction. Larger prospective multicenter cohorts with longer follow-up should reproduce and validate these findings.

CO 145. CORONARY ARTERY CALCIUM IDENTIFIED ON NON-GATED CHEST CT SCANS - A WASTED OPPORTUNITY TO AVOID THE TRAGEDY

Beatriz Valente Silva[1], Miguel Nobre Menezes[2], Rui Plácido[2], Cláudia Jorge[2], Joana Rigueira[2], Joana Brito[2], Pedro Alves da Silva[2], Catarina Oliveira[2], Ana Margarida Martins[2], Beatriz Garcia[2], Ana Abrantes[2], João Fonseca[2], Miguel Raposo[2], Catarina Gregório[2], Ana Almeida[2], Fausto J. Pinto[2]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria, Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Coronary artery calcium (CAC) is an independent predictor of cardiovascular events. While it is traditionally performed utilizing gating with specific acquisition parameters, CAC can be identified in non-gated standard chest computed tomography (CT). This study aimed to assess CAC on chest CTs, evaluating its correlation with coronary lesions on coronary angiography (CAG) and prognosis.
Methods: We retrospectively reviewed patients (pts) who underwent CAG due to acute coronary syndrome (ACS) who had undergone a prior non-gated non-contrast chest CT. CAC was qualitatively evaluated by visual assessment (mild/ moderate/severe) and quantitatively assessed using Agatson score and stratified by terciles. Evaluation was performed by an investigator blinded to CAG report.
Results: We included 114 pts after reviewing 1000 CAGs: 67% male, mean age 68 years, 78% hypertension, 62% dyslipidemia, 38% chronic kidney disease, 38% diabetes. The mean time difference between CT and CAG was 23 months. CAG was performed due to unstable angina in 33% of pts, NSTEMI in 52% and STEMI in 16%. Significant lesions were found in 57% (69% performed PCI and 17% surgical revascularization). CAC was visual classified as mild, moderate and severe in 31%, 33% and 16% of pts, respectively. Moderate or severe CAC was an independent predictor of significant lesions on CAG [OR 22, 95%CI 8-61, p < 0.001] and all-cause mortality [OR 4, 95%CI 2-9, p = 0.001]. Pts with severe CAC had higher peak troponin than those with mild/moderate CAC (1,780 *vs.* 315 ng/L, p = 0.024). Quantitative CAC score accurately predicted significant lesions (AUC 0.81, p < 0.001; Figure 1A), with higher scores in this subgroup (1,308 *vs.* 120, p < 0.001) and strongly correlated with SYNTAX score (p < 0.001). Survival analysis stratified by severity of CAC assessment is shown in Figure 1B and 1C. The most severely calcified artery in the CT often matched the culprit vessel of future ACS, with 79%, 60% and 50% concordance for left anterior descending, circumflex,



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and right coronary artery, respectively. While significant CAC was identified in 80% of CTs, formal reporting was as low as 25%, even with severe CAC, where only 2/18 reports mentioned it. Furthermore, only 62% pts were on statin therapy at the time of CAG.
Conclusions: CAC evaluation in chest CTs was feasible and strongly associated with the extent/severity of coronary artery disease on CAG, as well as mortality. Notwithstanding, CAC underreporting was frequent and statin therapy underused, suggesting a simple and common opportunity for preventive care.

Sexta-feira, 14 Abril de 2023 | 14:00-15:30

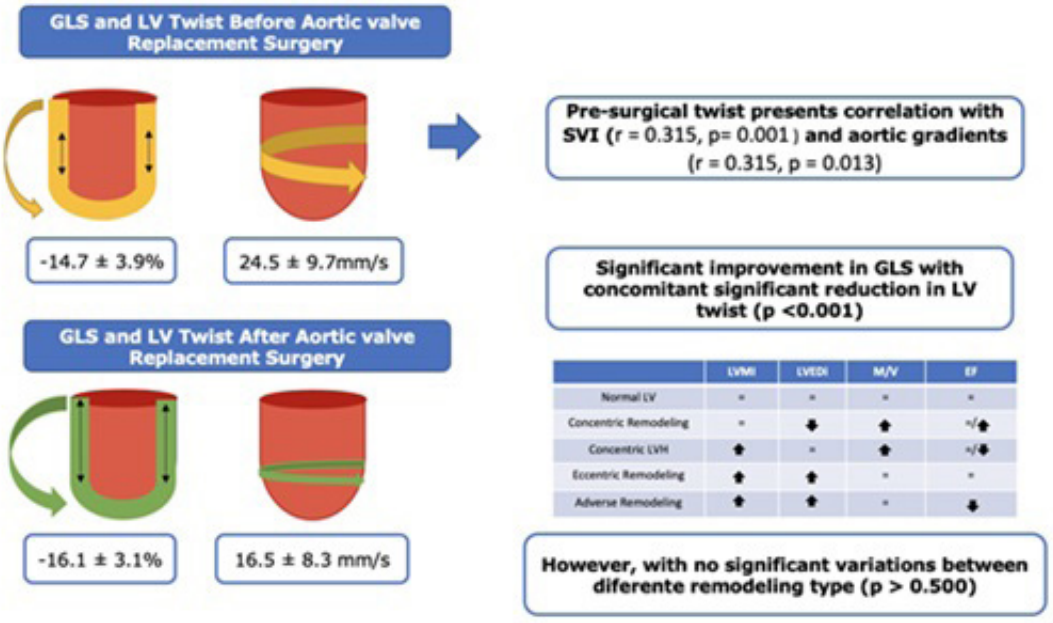
Sala Aquarius | Prémio do Jovem Investigador

CO 146. LEFT VENTRICULAR TWIST IN PATIENTS WITH SEVERE AORTIC STENOSIS: MEANING AND EVOLUTION AFTER SURGERY

Ana Rita Bello[1], João Abecasis[1], Sérgio Maltês[1], Rita Reis Santos[1], Rita Lima[1], Carla Reis[1], Luís Oliveira[2], Sara Guerreiro[1], Pedro Freitas[1], António Ferreira[1], José Pedro Neves[1], Miguel Mendes[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Universidade NOVA de Lisboa.

Introduction: Structural and functional left ventricular (LV) remodeling is the result of myocardial adaptation to chronic pressure overload in patients with severe aortic stenosis (AS). Changes in LV Rotational dynamics are supposed to occur due to increased afterload in order to maintain LV ejection fraction (EF) in this setting. However, data regarding rotational dynamics with AS severity and their evolution after aortic valve replacement (AVR) are scarce.
Objectives: To describe LV twist in patients with severe AS according to LV remodeling and assess its evolution after surgical AVR.
Methods: Single center prospective cohort study of patients with classical isolated severe AS referred to surgical AVR. Complete transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR) were performed before surgery for both valvular and LV remodeling assessment. TTE was performed at the 3rd to 6th post-operative month. LV twist was defined as the peak difference in systolic rotations of LV apex and base as viewed from the apex and calculated at bidimensional strain in short axis views. LV remodeling was categorized by CMR according to Figure 1. Correlation analysis was performed for indexes of AS severity and LV function.
Results: A total of 80 patients with classical high flow, high gradient, preserved LV EF (46% male; mean age 71 ± 8 years old; mean aortic valve [AV] gradient 61 ± 17.6 mmHg, mean AV area 0.73 ± 0.18 cm^2, mean LVEF: 58 ± 9%) were included. LV twist before surgery was 24.5 ± 9.7% and this was modestly correlated with both LV flow (r = 0.315, p = 0.001) and AV gradients (r = 0.315, p = 0.013). Rotational indexes were no different across distinct types of LV remodeling. After AVR there was a significant decrease in LV twist (24.5 ± 9.7% *vs.* 16.5 ± 8.3%, p < 0.001), despite significant improvement in global longitudinal strain (-14.7 ± 3.9% *vs.* -16.1 ± 3.1%, p < 0.001) and maintenance of preserved LVEF (58 ± 9% *vs.* 60 ± 8%, p = 0.07).
Conclusions: As LV twist has an inverse relation to GLS after AVR, this may represent a compensatory mechanism for LVEF preservation in patients with severe AS. Rotational mechanics seems to be independent from structural LV remodeling in this setting.



CO 146 Figure

CO 147. PRIORITIZE-TAVI SCORE - A NOVEL CLINICAL TOOL "PREDICTING MORTALITY OR URGENT TAVI" ON WAITING LIST

Francisco Albuquerque, Daniel Gomes, Pedro Freitas, Maria Rita Lima, Miguel S. Domingues, João Brito, Luís Raposo, Tiago Nolasco, Henrique Mesquita Gabriel, Maria João Andrade, Regina Ribeiras, António Ferreira, Pedro de Araújo Gonçalves, Manuel de Sousa Almeida, Rui Campante Teles

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

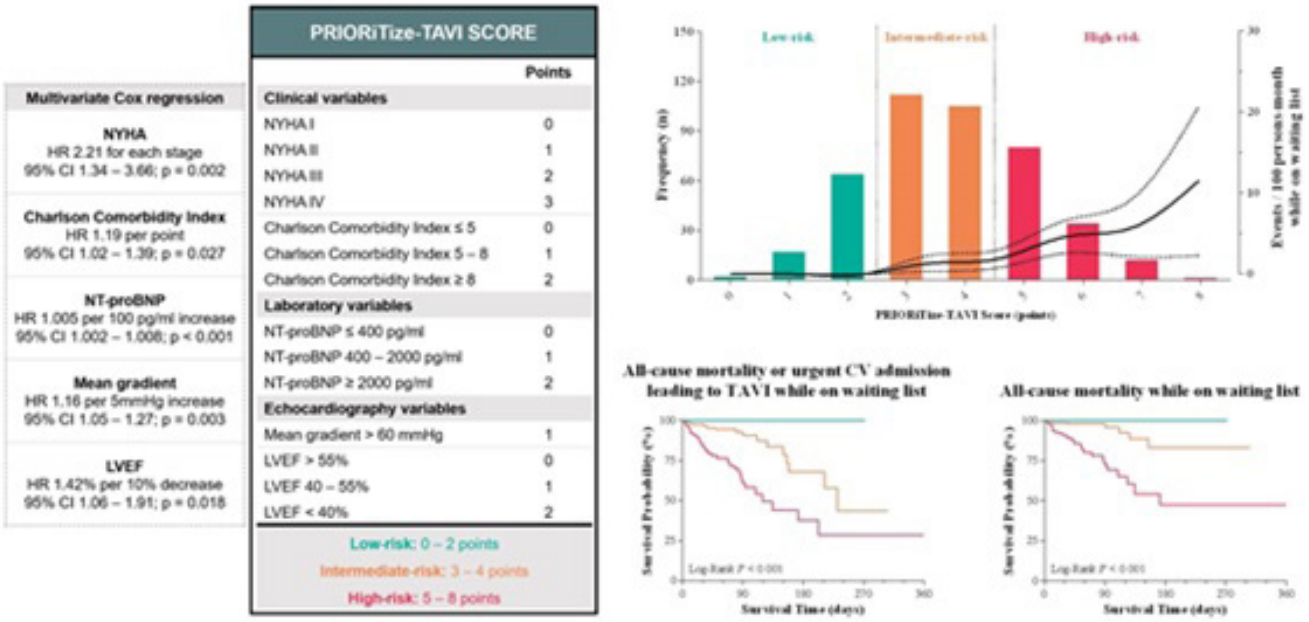
Introduction: Waiting list (WL) for transcatheter aortic valve implantation (TAVI) has been increasing and prioritization strategies are lacking. We sought to derive a simple clinical score to predict increased risk of adverse outcomes in patients waiting for TAVI.
Methods: Single-center retrospective study of all consecutive ambulatory patients accepted for TAVI (Jan/2017-Jun/2022). Patients were admitted to active WL after Heart Team meeting and waiting time was defined as the interval between the date of the meeting and the date of TAVI or the primary outcome. The primary outcome was a composite of all-cause mortality while on WL or urgent CV admission leading to TAVI. Demographic, clinical, echo and CT-angio variables were collected, including the Charlson Comorbidity Index which accounts for age, renal disease, and comorbidities. A raw risk score weighted on β-coefficients was developed after identifying independent predictors of the primary outcome at multivariate analysis (Cox Regression). The raw score was simplified to a point system weighted on the positive and negative predictive values of each variable. Discrimination ability was assessed by the area under the ROC curve (AUC). Internal validation was performed with bootstrapping (1000 samples). Kaplan-Meier (KM) survival analysis according to risk categories was performed.
Results: We identified 427 patients (83 ± 6 years; 56% female; ES II 4.4% [IQR 3.1-6.2%]). Median WL time was 44 days (IQR 26 - 76 days). While on active WL, 54 patients (12.6%) attained the primary endpoint (34 deaths and 20 urgent admissions for TAVI). Five independent predictors of the primary endpoint were identified: Charlson Comorbidity Index; NYHA class; NT-proBNP; LVEF and aortic mean gradient (see figure for adjusted hazard ratios). The simplified point system and its distribution across the cohort are depicted in the figure. Patients were stratified into 3 risk strata: low (< 2 points; n = 83 [20%]; 0 events [0%]); intermediate (3-4 points; n = 217 [51%]; 18 events [8.3%]) and high-risk patients (5-8 points; n = 127 [29%]; 36 events [28.3%]). There were no significant differences between the discriminative power of the raw score and the simplified model (AUC 0.77 [95%CI 0.71-0.83] *vs.* AUC 0.77 [95%CI 0.71-0.83]; p for comparison = 0.96). KM survival curves showed a progressive survival disadvantage along strata: 0 events per 100 persons-month in the low-risk; 2 events (95%CI 1-3) per 100 persons-month in the intermediate-risk; and 5 events (95%CI 3-7) per 100 persons-month in the high-risk group. Similar results were obtained by restricting the analysis to all-cause mortality.
Conclusions: A score to predict the risk of adverse events in patients waiting for TAVI was developed from five easy to ascertain variables. Risk strata provided by the PRIORiTize-TAVI model may inform medical decision-making for priority assignment of patients in waiting list.

CO 148. CORONARY ARTERY CALCIUM SCORE AS A GATEKEEPER FOR FURTHER TESTING IN PATIENTS WITH LOW PROBABILITY OF OBSTRUCTIVE CORONARY ARTERY DISEASE: A COST-EFFECTIVENESS ANALYSIS

Daniel A. Gomes, Francisco Albuquerque, Pedro Lopes, Pedro Freitas, Cláudia Silva, Sara Guerreiro, João Abecasis, Ana Coutinho Santos, Carla Saraiva, Jorge Ferreira, Pedro de Araújo Gonçalves, Hugo Marques, Miguel Mendes, António M. Ferreira

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

Introduction: Current guidelines recommend not to routinely test patients with chest pain and low pretest probability (PTp < 15%) of obstructive coronary artery disease (CAD) but envisage the use of risk modifiers such as coronary artery calcium score (CACS) to refine patient selection for testing. The aim of this study was to assess the cost-effectiveness (CE) of three different testing strategies in the approach to symptomatic patients with low PTP of obstructive CAD: A) not test; B) perform CACS, withholding testing if = 0 and proceeding to coronary CT angiography (CCTA) if > 0; and C) perform CCTA in all cases, without prior CACS.
Methods: We developed a CE model using data from a two-centre study of 1385 patients with non-acute chest pain and PTp < 15% who underwent CACS



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immediately followed by CCTA. Key input data included the proportion of patients with obstructive CAD on CCTA (10.3%), the proportion with CACS = 0 (57%), and the negative predictive value of CACS for obstructive CAD on CCTA (98.9%), which was considered the gold standard for this simulation. The CE of each strategy was defined as the cost per correct diagnosis. Direct costs were calculated using the price list from the Portuguese National Health Service. Indirect costs, including incidental findings, were estimated according to the literature. The cost attributable to a false-negative was set at 3-times the cost of a false-positive, as customary.

Results: Not testing would correctly classify 89.7% of cases, and would cost €121,433 per 1,000 patients, due to the costs imputed to false negatives. Using CACS as a gatekeeper for CCTA would correctly diagnose 98.9% of cases, and cost €247,116 per 1,000 patients. Employing CCTA as first line test would correctly classify all patients, at a cost of €271,007 for 1,000 diagnosed patients. Overall, the added cost for an additional correct diagnosis was €1,366 for CACS ± CCTA strategy *vs.* no testing, and €2,172 for CCTA *vs.* CACS ± CCTA. The corresponding cost-effectiveness thresholds (CET) were €943 - €3,450 for men; and €1,527 - €1,972 for women (Table).

PTP < 15%	Testing strategy	Costs (€ per 1.000 patients)	Correct diagnoses (%)	False-negatives (%)	ICER (€ per additional correct diagnosis)
Overall	Defer testing	€121.433	89.7%	10.3%	€1.366
	CACS±CCTA	€247.116	98.9%	1.1%	€2.172
	CCTA	€271.007	100.0%	0.0%	
Male sex	Defer testing	€147.370	87.5%	12.5%	€943
	CACS±CCTA	€258.621	99.3%	0.7%	€3.450
	CCTA	€282.771	100.0%	0.0%	
Female sex	Defer testing	€114.358	90.3%	9.7%	€1.527
	CACS±CCTA	€244.130	98.8%	1.2%	€1.972
	CCTA	€267.799	100.0%	0.0%	

Conclusions: Not testing patients with low PTP of obstructive CAD should be disfavored unless the CET is below €1,366 per correct diagnosis. First-line CCTA yields the most correct diagnoses and is cost-effective above CET over €2,172 per additional correct diagnosis. Using CACS as a gatekeeper for further testing is cost-effective between these thresholds, which are wider for men than for women. These findings may inform decisions on testing, but the most suitable strategy will ultimately depend on the costs and amount of missed diagnoses stakeholders are willing to accept.

CO 149. INTRAVASCULAR IMAGING MODALITIES IN CORONARY INTERVENTION: INSIGHTS FROM 3D-PRINTED PHANTOM CORONARY MODELS

Catarina Simões de Oliveira, Tiago Rodrigues, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Margarida Martins, Beatriz Garcia, Ana Abrantes, Miguel Raposo, Catarina Gregório, Helena Santiago, Daniela Ricardo, Fausto J. Pinto, João Silva Marques

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Several studies have been performed comparing luminal measurements between OCT and IVUS, with conflicting results. OCT is consistently found to have smaller minimal lumen area (MLA) measurements However, head-to-head comparative assessment in clinical practice is difficult. 3D-printing allows creation of anatomically correct models that have an appropriate elastic response and obey geometric scaling laws. Those models offer a unique opportunity to accurately assess the performance of intravascular imaging modalities.

Objectives: Compare the diagnostic performance of intravascular imaging modalities using a standard 3D-printed coronary artery in a pulsatile flow realistic simulator. Assess if OCT underestimates intravascular dimensions against IVUS and explore potential causes and corrections.

Methods: A standard realistic left main (LM) anatomy with an eccentric ostial left anterior descending artery (LAD) lesion was replicated using 3D-printing and connected to a realistic pulsatile flow simulator that was used in the cath lab. After provisional stenting and optimization according to a standardized study protocol, intravascular imaging was obtained. Modalities included 20MHz digital IVUS (IVUS), 60 MHz rotational IVUS (IVUS HD) and OCT. Imaging data was blindly reviewed and analyzed offline. We assessed luminal area and diameters at standard locations for coregistration (distal LAD, MLA, distal LM bifurcation and LM stent edge).

	MLA (mm)		distal LM (mm)		prox LM stent edge (mm)		distal LAD (mm)	
	Dmin	Dmax	Dmin	Dmax	Dmin	Dmax	Dmin	Dmax
cOCT	2,53±0,56	2,87±0,74	5,24±1,09	6,05±1,32	5,36±1,21	5,89±1,99	3,21±0,45	3,64±0,54
IVUS	2,51±0,60	2,88±0,79	5,58±0,90	6,10±1,32	5,36±0,79	6,20±1,25	3,5±0,66	3,79±0,30
IVUS HD	2,61±0,74	3,03±0,83	5,24±0,77	5,99±1,11	5,20±1,00	5,96±0,45	3,42±0,35	4,04±0,61

Figure 1: OCT and IVUS measures

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Results: OCT measurements using auto-calibration significantly underestimated luminal areas when compared to IVUS (mean diff 3.0 ± 1.9 mm^2; $p < 0.0001$) and IVUS HD (mean diff 2.7 ± 1.3 mm^2; $p < 0.0001$). No significant differences were found between IVUS and IVUS HD luminal areas ($p = 0.921$). A significant systematic dimensional error was found in OCT auto-calibration by comparing known reference diameter of guiding catheter (1.8 mm) to measured mean diameter (1.68 ± 0.04 mm) ($p = 0.004$). By applying a correction factor based on the reference guiding catheter area to OCT (cOCT) the luminal areas became not significantly different compared to IVUS ($p = 0.058$) and IVUS HD ($p = 0.07$). Also, by applying a geometric correction to OCT dimensions resulted in clinically non-significant differences between cOCT, IVUS and IVUS HD diameters (Table).
Conclusions: Our findings suggest that automatic spectral calibration method for OCT is inaccurate and results in a systematic underestimation of luminal dimensions. Guiding catheter dimensions are easily and precisely known and can be used as reference for geometric calibration. When guiding catheter correction is applied the performance of OCT estimation of phantom model dimensions is significantly improved. These results may be clinically relevant and need to be clinically validated.

CO 150. DEVELOPMENT OF A MACHINE LEARNING MODEL USING 12-LEAD ECG TO IMPROVE ACUTE DIANOSIS OF PULMONARY EMBOLISM

Beatriz Valente Silva[1], Miguel Nobre Menezes[1], João Marques[2], Arlindo L Oliveira[2], Pedro Alves da Silva[1], Joana Brito[1], Beatriz Garcia[1], Catarina Oliveira[1], Ana Margarida Martins[1], Fausto J Pinto[1]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria, Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa. [2]INESC-ID/Instituto Superior Técnico, University of Lisbon.

Introduction: Pulmonary embolism (PE) is a life-threatening condition. Given the lack of specificity in symptoms and clinical decision rules, diagnostic uncertainty in PE remains high and in most of the cases requires confirmation by computed tomography pulmonary angiogram (CTPA). This could be critical to decide fibrinolysis indication in hemodynamic unstable patients (pts) with PE suspicion in out-of-hospital setting or if CTPA is not immediately available. The implementation of artificial intelligence (AI) in medical diagnosis has attracted major attention last

	Wells score + D-Dimer threshold of 500 ng/mL	Geneva score + D-Dimer threshold of 500 ng/mL	Wells score + age-adjusted D-Dimer cut-off	Geneva score + age-adjusted D-Dimer cut-off	YEARS algorithm	PEGeD algorithm	Artificial intelligence model
Sensitivity, % (95% CI)	90 [75-97]	90 [75-97]	90 [75-97]	90 [75-97]	88 [72-96]	87 [72-96]	50.00 [33-67]
Specificity, % (95% CI)	12 [5-23]	12 [5.47-22.82]	18 [10-30]	18 [10-30]	29 [19-42]	31 [20-43]	100 [94-100]
PPV, % (95% CI)	37 [27-48]	37 [27-48]	39 [29-50]	39 [29-50]	42 [31-53]	42 [31-54]	100 [82-100]
NPV, % (95% CI)	67 [35-90]	67 [35-90]	75 [48-93]	75 [48-93]	79 [58-94]	80 [59-93]	77.38 [67 -86]
AUC (95% CI)	0.51 [0.39-0.63]	0.54 [0.43-0.65]	0.51 [0.39-0.63]	0.54 [0.43-0.65]	0.58 [0.47-0.69]	0.59 [0.48-0.70]	0.75 [0.64-0.86]

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years. Electrocardiography (ECG) signals and patterns can be detected by AI networks with precision. The purpose of this study was to develop an AI model for predicting PE using 12-lead ECG.

Methods: We extracted 1,014 ECGs of pts admitted to emergency department who underwent CTPA due to PE suspicion: 911 ECGs were used for development of the AI model (derivation cohort) and 103 ECGs were used for testing the PE prediction model (validation cohort). An AI algorithm based on an ensemble neural network was developed using 12-lead ECG signal. The primary endpoint was the diagnosis of PE. To evaluate the performance of the AI model, we compare the performance of AI model against the recommend clinical prediction rules for PE based on clinical probability and D-dimer measurement (Wells and Geneva criteria combined with fixed and age-adjusted D-dimer cut-off, YEARS and PEGeD algorithms).

Results: On validation cohort, AI model achieves greater specificity to detect PE than the commonly used clinical prediction rules ($p < 0.001$) (Table). The AI model showed a specificity of 100%, which is particularly relevant in the context of fibrinolysis decision. Although the sensitivity of the AI model is lower ($p = 0.001$), the biggest gain of this model is to provide security to the physician to establish a definitive diagnosis. Globally, the AI model performed significantly better than all the other models (AUC 0.75, $p < 0.001$), which had nearly no discriminative power. The incidence of typical PE ECG features (S1Q3T3, right bundle branch block and V1-V3 T wave inversion) was similar in pts with and without PE, meaning that AI model provided information beyond these findings and can improve PE prediction. ECGs were included regardless of cardiac rhythm (including pacing), so these findings can be generalized to all pts. Model performance is similar across gender.

Conclusions: In this study we developed and validated a deep learning-based AI algorithm for PE detection using a 12-lead ECG with superior performance when compared to traditional clinical prediction rules.

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POSTERS (PO)

Congresso Português de Cardiologia 2023

14 a 16 de Abril de 2023

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 1) - Ablação fibrilhação auricular

PO 1. USE OF FLUOROSCOPY AND RADIATION EXPOSURE DURING AF ABLATION: A SINGLE-CENTER 10-YEAR EXPERIENCE

Miguel Sobral Domingues, Daniel A. Gomes, Francisco Moscoso Costa, Gustavo Rodrigues, Daniel Matos, Gabriela Bem, João Carmo, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Francisco Belo Morgado, Pedro Adragão

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

Introduction: The number of patients referred for atrial fibrillation (AF) ablation has been increasing over the years. Currently, technological improvements make AF ablation a relatively fast and predictable procedure. Notwithstanding, the technique still relies on fluoroscopy, and its effects remain a concern for both patients and health care professionals.

Objectives: The aim of this study was to assess the impact of technological advances on the use of fluoroscopy in AF ablation, and to analyze the radiation dose used in contemporary procedures.

Methods: Single-center prospective registry including patients submitted to first radiofrequency point-by-point pulmonary vein isolation (PVI) using CARTO® mapping system since 2013 to November 2022. Patients with additional targets other than PVI, and those in whom single-shot techniques were employed, were excluded (n = 375). Fluoroscopy duration and absorbed (mGy) and effective dose of radiation (mSv) were assessed for each patient. Effective radiation dose was estimated by multiplying dose-area product (Gy.cm^2) by a conversion coefficient of 0.15 mSv (Gy·cm^2)$^{-1}$.

Results: A total of 1027 patients (mean age 61 ± 11 years, 61.7% male, 81.4% with paroxysmal AF) were included. Overall, median fluoroscopy duration was 8.5 minutes (IQR 5.4-14.4). Over the last decade, there was a significant decrease of fluoroscopy times (from 20.7 [IQR 13.6-25.4] to 6.4 [IQR 4.5-10.7] minutes, *p for trend* < 0.001). The reduction of X-ray duration was more expressive from 2014 and 2015, corresponding to the introduction of pressure catheters (STSF®) and image integration in electroanatomic mapping, respectively (Figure). There was also a decrease on radiation dose over the years. In 2022, median absorbed radiation per procedure was 119 mGy (IQR 69-223), and median estimated effective radiation dosage was 0.94mSv (IQR 0.68-3.95).

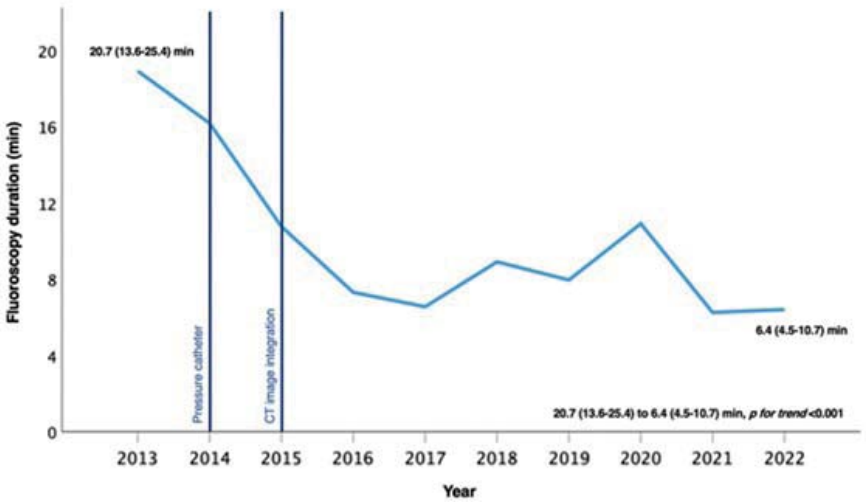


Figure PO 1

Conclusions: Over the last decade there was a significant reduction in fluoroscopy use during AF ablation, associated with the introduction of newer technologies. PVI is currently a very low radiation exposure procedure, comparable to coronary calcium scoring.

PO 2. VERY-EARLY DETECTION OF ATRIAL FIBRILLATION IN PATIENTS AFTER ABLATION EVALUATED BY A HOME-BASED WEARABLE ECG-PATCH

Miguel Marques Antunes, Pedro Silva Cunha, Bárbara Lacerda Teixeira, Sara Alves, Guilherme Portugal, Bruno Valente, A. S. Delgado, M. Brás, Madalena Coutinho Cruz, M. Paulo, Ana Lousinha, C. Guerra, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction: Evaluation of atrial fibrillation (AF) recurrence after AF ablation has been validated by routine ECG and ambulatory 24-h Holter monitoring after a 3-month blanking period. However, assessment of heart rhythm after AF ablation, conducted with the use of intermittent or continuous recording systems, has shown that early recurrences are common, often asymptomatic, and may predict late AF recurrences. The E-Patch (Bio Tel Heart) is an innovative thin, single-use adhesive electrode with extended continuous ECG monitoring for up to 120 hours.
Objectives: To describe and characterize predictors of early AF recurrence based on the very- early blanking period after AF ablation.
Methods: Single-centre, prospective, longitudinal study, including consecutive patients (P), 24 hours after AF ablation, monitored with the E- patch. Baseline characteristics at the time of AF ablation as well as the effectiveness of the device in continuously recording within 5 days after ablation were analyzed. A logistic regression model was used to derive predictors of very-early AF recurrence.
Results: A total of 40P were included (60% male, 62 ± 9 years). AF ablation was performed with radiofrequency energy in 23P and with cryoballoon in 17P. All P were in sinus rhythm at the beginning of the E- patch recording. The mean number of hours of recording was 113 ± 18. During E-patch recording 11P (27.5%) presented AF (AF burden 27.4% of the recording, IQR 5.5-32.3%) and 7P (18%) had sinus pauses. In a multivariate logistic regression model, a higher CHADS2VAS2C index and a higher average heart were associated with an OR 3.0 (95%CI 1.13-8.1, p = 0.027) and OR 1.23 (95%CI 1.02-1.48, p = 0.025) for AF recurrence, respectively. No significant differences were found between ablation modalities. There were no complaints about discomfort in the use oft he device, and there were no artefacts compromising the quality or the interpretation.
Conclusions: The use of the E-patch recording very-early after AF ablation is effective for AF detection. A higher CHADS2VAS2C index and average heart rate appear to be significantly predictive of very-early AF recurrence post-ablation.

PO 3. CRYOABLATION: PROCEDURAL OUTCOMES FOR A SUCCESSFUL PULMONARY VEIN ISOLATION

Ana Rita Teixeira, Pedro Silva Cunha, Ana Lousinha, Guilherme Portugal, Bruno Valente, Madalena Coutinho Cruz, Ana Sofia Delgado, Manuel Brás, Margarida Paulo, Inês Maia, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: A significant percentage of patients (pts) with recurrent atrial fibrillation (AF) undergo radiofrequency (RF) ablation after cryoballoon ablation (CBA). However, there is some lack in the literature about the pulmonary vein (PV) reconnection and procedural predictors of recurrence.
Objectives: To evaluate the efficacy of CBA and determine the clinical and procedural predictors of AF recurrence.
Methods: Single-centre retrospective study that included all pts with AF who underwent CBA between 2009 and 2020. AF recurrence was defined as any recurrence of AF, atrial flutter, or atrial tachycardia > 30 seconds (recorded in 12-lead electrocardiogram or Holter) after 90 days of CBA. Demographic, clinical and procedure related data was retrieved.
Results: We included 193 pts, 118 male (61%), mean age 57 ± 13 years. Paroxysmal AF was found in 154 (79.8%) pts. Most were treated with some antiarrhythmic drug (65.8%). The mean cryoablation time (MCT) was lowest for the right superior PV (RSPV): 313.98 ± 162.01s, p = 0.002. The nadir balloon temperature (NBT) was lower for the superior (left: -48.47 ± 9.88 ^{o}C, right: -49.23 ± 8.36 ^{o}C) compared with inferior PVs (left: -46.24 ± 7.54 ^{o}C, right: -46.67 ± 7.82 ^{o}C; p = 0.002). Procedural complications occurred in 16 (8.3%) pts. The success rate at one year was 85.5%. AF recurrence was present in 58 pts (30%), 16 ± 15 months after CBA. There was a statistically significant association between AF type (namely, persistent) and recurrences (p = 0.021). The MCT between right and left PVs (RPVs and LPVs, respectively) was significantly different in all pts (p = 0.010), however it was not when comparing recurrences and non-recurrences (LPVs: 374.81 ± 181.02s *vs.* 364.48 ± 196.49s, p = 0.45, RPVs: 330.21 ± 168.59s *vs.* 335.04 ± 185.46s, p = 1.00). NBT was more negative in non-recurrences compared to recurrences, with no statistical difference (LPVs: -47.70 ± 9.50 ^{o}C *vs.* -46.58 ± 7.02 ^{o}C, p = 0.87, RPVs: -48.11 ± 8.52 ^{o}C and -47.15 ± 8.70 ^{o}C, p = 1.47). No association was found between LA anatomy (4-PVs *vs.* variants) and recurrences (p = 0.09). Twenty-seven pts underwent a second ablation procedure, using RF. Among these, there were reconnection of 10 (37%) LSPVs, 10 (37%) LIPVs, 16 (59.3%) RSPVs and 15 (55.6%) RIPVs.
Conclusions: Cryoballoon ablation is a safe and successful procedure. Despite the higher incidence of conduction gaps in the right PVs, freezing time and nadir temperature was not significantly different between all PVs.

PO 4. IMPACT OF OBSTRUCTIVE SLEEP APNOEA ON LONG-TERM ATRIAL FIBRILLATION-FREE SURVIVAL AFTER CATHETER ABLATION

Guilherme Camões, Diogo de Almeida Fernandes, Patrícia Paiva, Joana Guimarães, Natália António, Lino Gonçalves

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

Introduction: Early rhythm-control therapy of atrial fibrillation (AF) (including catheter ablation) has been established as significantly lowering risk of adverse cardiovascular outcomes and improving overall survival and quality of life. Obstructive sleep apnoea (OSA) is a common but often overlooked comorbidity in patients with AF that may lead to difficulties in maintaining sinus rhythm. Data on the impact of its treatment on recurrence remain conflicting.
Objectives: To determine the prevalence of OSA in a population of AF patients submitted to catheter ablation and its impact on recurrence after a successful procedure.
Methods: Retrospective study of patients with AF consecutively submitted to catheter ablation in a tertiary centre between January 2017 and December 2020. The main outcome was AF recurrence after ablation. Sociodemographic variables and clinical data were retrieved for each patient, including type of AF, comorbidities, screening and diagnosis of OSA, treatment of OSA prior to ablation, time from ablation to recurrence of AF, method of ablation (radiofrequency or cryo). Statistical comparison between patients with and without OSA was made, including survival curves and Cox regression to determine time to recurrence and adjust for confounding variables.
Results: A total of 189 patients were included with a mean age of 63.49 ± 11.09 years. Mean follow-up time after ablation was 2.76 ± 1.56 years. Patients who recurred after ablation had undergone more electrical cardioversions prior to the procedure (1.640 ± 1.583 *vs.* 0.800 ± 0.966, p 0.002), had more persistent AF (p 0.036) and had more OSA (32.7% *vs.* 15.7%, p = 0.011). There were no differences regarding age, gender, body-mass index, history of hypertension, diabetes, chronic kidney disease or heart failure, method of ablation and diagnosis of OSA prior to ablation. Forty-nine patients (18.7%) had OSA, with only 16 (32.7%) having been diagnosed before ablation. OSA was screened in only 60 cases (31.7%), mostly due to symptoms (76.1%) and not per protocol. Patients with OSA had earlier recurrence of AF after ablation (p log-rank 0.012) with a hazard two times greater of recurrence, even after adjusting for age and gender (p 0.026; hazard-ratio

2.025; confidence interval 95% 1.086-3.775). One year recurrence rate was 31% in patients with OSA (*vs.* 15%). Regarding patients under treatment for OSA prior to ablation, there was no difference in survival (p log-rank 0.859). **Conclusions:** In real-world practice, OSA is still a largely underinvestigated condition that significantly impairs AF control and contributes to worse cardiovascular outcomes. Recurrence was 2 times higher in patients with OSA. No impact of treatment in time to recurrence was found. Efforts must be made to increase screening of this condition in order to improve outcomes. Further studies are needed to clarify the benefits of OSA treatment in AF recurrence.

PO 5. INVASIVE ATRIAL CONDUCTION INTERVAL AS A MARKER OF ATRIAL DISEASE AND AN INSTRUMENT OF PREDICTING ATRIAL FIBRILLATION RECURRENCE AFTER SUCCESSFUL

João Grade Santos, Mariana Martinho, Bárbara Ferreira, Diogo Cunha, João da Luz, Nazar Ilchyshyn, Oliveira Baltasar, Daniel Sebaiti, Khrystyna Budzak, João Simões, Rita Miranda, Sofia Almeida, Luís Brandão, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Catheter ablation for the treatment of Atrial Fibrillation (AF) is a modality of treatment in growing expansion. However, the sustained long-term response in preventing AF recurrence is poor for many patients and an adequate patient selection and tailored follow-up is paramount.
Objectives: Our aim was to assess the utility of invasive electrophysiological parameters of intra and inter atrial conduction, namely the interval between the earliest recorded atrial activity (the onset of the P-wave) and the atrial electrogram (PA) in the distal coronary sinus (CS) bipole, measured in the electrophysiological study prior to the catheter ablation, in predicting AF recurrences after a successful ablation.

Figure 1

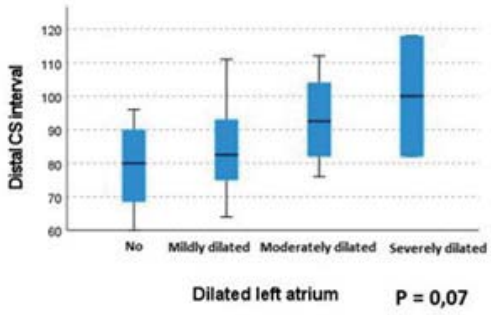
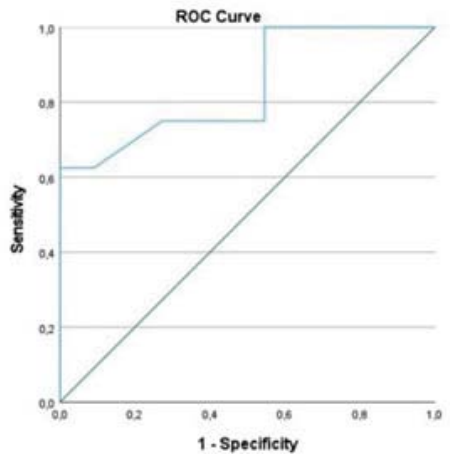


Figure 2



Methods: We performed a 2-year retrospective analysis, between November 2020 and April 2022, of all patients who underwent a successful catheter ablation for the treatment of atrial fibrillation and whose electrophysiological tracings were available in a single expert centre. Medical records were analysed for demographic, procedural data and outcomes.
Results: Forty-five (45) patients fulfilled all inclusion criteria and were analysed. The mean age was 62 ± 9.1 with a male preponderance (55.6%). The majority of patients (62%) had paroxistical AF, followed by long term persistent AF (27%) and persistent AF (11%). The average PA interval was 87 ± 14ms. There was a trend towards linear correlation between the PA interval and left atrium indexed volume although it did not reach statistical significancy (p = 0.07) (Figure 1). An AF recurrence occurred in 8 (17.8%) of patients at follow-up. A greater PA interval was a predictor of recurrence in the total follow up (OR 1.13; 95%CI 1.01-1.264, p = 0.03) and showed a good discriminative capacity with the ROC curve analysis (Figure 2) demonstrating an AUC of 0.84. There was a trend for prediction of recurrence at 6 months and 1 year (OR 1.04; 95%CI 0.98-1.10, p = 0.08 and OR 1.06; 95%CI 0.99-1.15, p = 0.07 respectively) although it did not reach statistical significancy.
Conclusions: This represents a proof-of-concept of, to our knowledge, one of the first studies on an invasive atrial conduction measurement as a predictor of Atrial Fibrillation recurrence after catheter ablation. Greater intra and inter atrial conduction delay (characterized by the PA interval measured in the distal CS) trends towards correlation with structural left atrium pathology and was associated with an increased recurrence rate at a short follow up. A greater sample size and subsequent sub-group analysis is required to assess its magnitude of effect and potential clinical application.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 2) - Cardio-oncologia

PO 6. RESPONSE TO CARDIAC RESYNCHRONIZATION THERAPY IN CANCER PATIENTS WITH HEART FAILURE

Catarina Gregório, Beatriz Valente Silva, Andreia Magalhães, Miguel Nobre Menezes, Paula Costa, Pedro Alves da Silva, Joana Brito, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Abrantes, Miguel Azaredo Raposo, Pedro Marques, João de Sousa, Fausto J. Pinto, Manuela Fiuza

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Heart failure (HF) is associated with poor clinical outcomes in cancer patients (pts). Although cardiac resynchronization therapy (CRT) is an important tool to improve prognosis, CRT has been historically underutilized in cancer pts.
Methods: Retrospective single-center review of pts who underwent CRT implantation from 2011 to 2022 with history of cancer. The main purpose of this study was to determine outcomes of CRT implantation in pts with cancer.
Results: A total of 44 pts with history of cancer underwent CRT implantation (61% male, mean age 72 years), with a mean follow-up of 29 ± 23 months. The most prevalent comorbidities were hypertension (91%), dyslipidemia (60%), chronic kidney disease (59%) and diabetes (45%). The most frequent sites of primary tumor were breast (27%), prostate (25%), colorectal (16%) and non-Hodgkin lymphoma (16%). Three patients had metastatic disease. The most prevalent HF aetiologies were ischemic (32%) and secondary to chemotherapy (32%), followed by non-chemotherapy related dilated cardiomyopathy (30%) and valvular heart disease (7%). Left ventricular ejection fraction (LVEF) increased from 29 ± 5% to 37 ± 12% (p = 0.002) after CRT [23 (52%) had an increase of at least 5% in LVEF and 16 pts (36%) had

an increase of at least 10% in LVEF from pre- to post-CRT implant]. There was a significant reduction in left ventricular end-systolic (LVESV) and end-diastolic volume post-CRT implant (p = 0.002 and p = 0.007, respectively). According to LVESV reduction, 11 pts (25%) were super responders (reduction of LVESV ≥ 30%), 4 pts (9%) responders (reduction of LVESV 15-29%), 3 pts (5%) non-responders (reduction of LVESV ≤ 14%) and 3 pts (7%) were considered progressor due to worsening of LVESV during follow-up. NYHA class function improved (p < 0.001) and NTproBNP had a significant reduction (p = 0.046) after CRT implantation. We found no difference in age, gender, comorbidities, HF prognosis-modifying pharmacological therapy and CRT response between pts with ischemic and non-ischemic HF. Mortality rate during follow-up was 36% (n = 16), mostly due to cardiovascular disease (44%). None of the deaths were attributable to neoplastic disease. Four patients died within 12 months after CRT implantation.
Conclusions: CRT improves LVEF, reverses left ventricular remodeling and improves symptoms in pts with cancer and HF, with a non-inferior response rate to that described in the general population.

PO 7. CARDIAC RESYNCRONIZATION THERAPY IN ANTHRACYCLINE-INDUCED CARDIOMYOPATHY

Beatriz Valente Silva[1], Andreia Magalhães[2], Miguel Nobre Menezes[2], Paula Costa[2], Catarina Gregório[2], Pedro Alves da Silva[2], Beatriz Garcia[2], Catarina Oliveira[2], Ana Margarida Martins[2], Miguel Raposo[2], Ana Abrantes[2], Pedro Marques[2], João de Sousa[2], Fausto J. Pinto[2], Manuela Fiuza[2]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria, Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Chemotherapy-induced cardiomyopathy has been increasingly recognised as patients (pts) are living longer with more effective treatments for cancer. Anthracyclines are known to cause heart failure (HF) and besides pharmacological treatment, some pts may be considered for cardiac resynchronization therapy (CRT). However, the role of CRT in anthracycline-induced cardiomyopathy (AIC) remains a matter of debate.
Methods: We performed a retrospective study of all pts undergoing CRT implantation at our center from 2011 to 2022, with a diagnosis of AIC (study group). Echocardiographic and clinical outcomes of these pts were compared to a control group with dilated myocardiopathy other than AIC.
Results: A total of 15 pts underwent CRT implantation with a diagnosis of AIC (43% male, mean age 66 ± 13 years) - study group. The most prevalent comorbidities were hypertension (86%), obesity (50%), diabetes (36%) and dyslipidemia (43%). Mean NYHA functional class pre-CRT implantation was II and mean NTproBNP was 7,900 ng/L. The control group included 15 pts with no differences regarding age, gender, comorbidities, NYHA functional class, left ventricular ejection fraction (LVEF), left ventricular end-diastolic volume (LVEDV) and left ventricular end-systolic volume (LVESV) compared to study group. Control group presented higher number of pts under angiotensin-converting enzyme inhibitors and spironolactone compared to study group (100 *vs.* 67%, p = 0.014; 47% *vs.* 7%, p = 0.013, respectively); no differences were found for beta-blockers and SGLT2 inhibitors. Study group demonstrated a significant increase of LVEF (from 30 ± 4% to 47 ± 9%, p = 0.005) and a significant decrease of LVEDV (from 165 ± 49 mL to 115 ± 24 mL, p = 0.021) and LVESV (from 109 ± 40 mL to 63 ± 19 mL, p = 0.011) after CRT implant. The same was verified for the control group. No difference was found regarding post-CRT LVEF, LVEDV and LVESV between groups. CRT *responders* (defined as improvement of LVEF > 5%) totalized 67% (N = 10) in the study group and 80% (N = 12) in the control group, which reflects a similar response for both groups (p = 0.557). In both groups, *super responders* (improvement of LVEF > 10%) occurred in 8 pts. Post-CRT improvement of NYHA occurred only for the study group (p = 0.007), although without significant decrease in NTproBNP levels. Three pts of the study group died during the follow-up, and although no deaths occurred in the control group, the difference was not statistically significant (p = 0.068).
Conclusions: This study demonstrated that CRT is an effective therapy for pts with anthracycline-induced cardiomyopathy, with expected benefit comparable to other dilated myocardiopathies.

PO 8. CARDIOVASCULAR DETERMINANTS OF CHEMOTHERAPY SUSPENSION IN A COHORT OF PATIENTS WITH HIGH CARDIOVASCULAR RISK

Isabel Cardoso, Vera Ferreira, Tânia Mano, Inês Guerreiro, Leonor Fernandes, André Grazina, José Viegas, Bárbara Teixeira, Pedro Rio, Luís Almeida Morais, Rui Cruz Ferreira

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

Introduction: The development of new cancer therapies has prolonged the lifespan of the oncologic population. However, cardiovascular (CV) events during cancer treatment are a concerning cause of morbidity and mortality. Adverse cardiovascular events can lead to permanent suspension of cancer therapies, affecting the overall survival of these patients (P).
Objectives: To describe cardiovascular events and risk factors leading to suspension of cancer treatment in a cohort of patients with high cardiovascular risk.
Methods: We conducted a retrospective analysis of all P referred to the cardio-oncology outpatient clinic between May 2021 and October 2022.
Results: 178P were included, 80 males (45%), median age of 69 (IQR 61-77) years, with a high burden of CV risk factors (42% of the patients had 2 or more CV risk factors) undergoing treatment for different types of cancer (Table). During follow-up 25P (14%) suspended cancer treatment. The cardiovascular causes for therapy suspension were heterogenous: 12P (48%) discontinued therapy due to left ventricle systolic disfunction (LVSD), 5P (20%) due to new onset of atrial fibrillation or atrial flutter, 2P (8%) due to coronary vasospasm, 3P (12%) for acute coronary syndromes during treatment, 2P (8%) due to myocarditis and 1P (4%) due to right ventricle disfunction. All the patients with LVSD initiated cardioprotective therapy, the 2P diagnosed with atrial flutter underwent catheter ablation and the patients with atrial fibrillation remained asymptomatic after medical therapy adjustment. In total 11P (44%) were able to resume therapy. A significant increase in high sensitive troponin (superior to 25% from baseline) during follow-up was identified has a risk factor for therapy suspension (p = 0.03).

Table 1 Baseline Characteristics

Median Stage of cancer	Patients (%)
I	18 (11)
II	42 (24)
III	49 (26)
IV	69 (39)
Breast cancer	47 (27)
Colorectal GI cancer	23 (13)
Hematologic neoplasms	14 (8)
Upper GI tract cancer	12 (8)
Lung cancer	21 (12)
Hypertension	91 (51)
Hyperlipidemia	63 (35)
Diabetes mellitus	41 (23)
Smoking	27 (15)
Obesity	11 (6)
Ischemic heart disease	37 (21)
Previous acute coronary syndrome	57 (15)
➢ In the last year	6 (3)
Atrial fibrillation	25 (14)
CKD	11 (6)
Beta-blockers	63 (38)
ACE inhibitor/ARB	80 (45)
ARNI	6 (3)
SGLT-2 inhibitors	11 (6)

ACE = angiotensin-converting enzyme; ARB = angiotensin II receptor blocker. ASA= acetylsalicylic acid; CKD= chronic kidney disease; GI= gastrointestinal CAD=coronary artery disease LAD = left anterior descendent artery CABG= coronary artery bypass grafting ARNI= angiotensin receptor neprilysin inhibitors SGLT-2= sodium-glucose cotransporter-2 inhibitors

Conclusions: In our cohort of patients with high cardiovascular risk, 14% had a cardiovascular event that led to discontinuation of cancer treatments. Cardiac biomarker troponin had an important role in identifying patients at risk. Close monitoring in a dedicated cardio-oncology outpatient clinic favoured promptly optimization of cardioprotective therapies and allowed 44% of patients to resume oncologic treatments.

PO 9. THE BENEFICIAL ROLE OF CARDIOPROTECTIVE DRUGS IN PREVENTING CARDIOTOXICITY IN HER2 POSITIVE BREAST CANCER - AN ECHOCARDIOGRAPHIC POINT-OF-VIEW

Cátia Oliveira, Luís Santos, Ana Pinho, Pedro Palma, Alexandra Freitas, Sara Costa, André Cabrita, Catarina Marques, Ana Filipa Amador, Catarina Costa, João Calvão, Ricardo Pinto, Mariana Paiva, Carla Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: In patients with breast cancer, anti-HER2-targeted therapies (AHT) are highly associated with cancer therapy-related cardiac dysfunction (CTRCD), which is the main reason for treatment interruption. Guidelines recommend CTRCD management with cardioprotective drugs (CPD). Our aim was to evaluate risk of CTRCD and the role of CPD in a subset of breast cancer patients treated with AHT.
Methods: We retrospectively analyzed a population of breast cancer female patients treated with AHT referred to Cardio-Oncology outpatient clinic from January 2017 to November 2021. All patients were evaluated with echocardiogram, high sensitivity troponin I (hs-cTnI) and BNP before treatment initiation and at least at 3, 6 months and 12-months after finishing oncologic treatment. CTRCD was defined as LVEF < 50% and/or GLS variation > 15% during follow-up. As CPD we considered renin-angiotensin-aldosterone system inhibitors and beta-blockers.
Results: A total of 169 patients were included with mean age of 52.3 ± 11.3 year-old; 50% of patients had a low baseline cardio-toxicity risk. At baseline, median hs-cTnI was 1.9 (IQRT 1.9-3.0) ng/L, median BNP was 20.8 (IQR 10.0-40.2) pg/L, mean LVEF was 62.9 ± 3.7% and mean GLS was -19.2 ± 2.4%. During follow-up (15.5 ± 5.3 months), 46% developed CTRCD with a higher prevalence in patients concurrently on anthracyclines (58.8% *vs.* 27.3%, p < 0.001). CPD was initiated or titrated in 43% of patients and 4.7% needed to suspend AHT; 63.7% of CTRCD patients recovered. When comparing patients already medicated with CPD prior to CTRCD (43%) to those naïve of CPD, the first group presented a significantly lower incidence of CTRCD [19.4% *vs.* 38.1%, p = 0.009, OR = 0.39 (95%CI 0.19-0.80)]. LVEF at 12 months was significantly lower in the patients with CTRCD (LVEF 59% *vs.* 61%, p = 0.026). We verified that patients with CTRCD medicated with CPD had a similar LVEF at 12 months when compared to patients with no CTRCD who were not medicated with CPD (LVEF 60% *vs.* 61%, p = 0.371). GLS at 12 months was tendentially lower between patients with and without CTRCD (GLS -17.9 *vs.* -18.6%; p = 0.055; IC 95% -0.16-1.73). The risk of developing CTRCD was 23% per patients-year.
Conclusions: Patients exposed to AHT had higher risk of developing CTRCD, especially when concurrently on anthracyclines therapy. Pre-treatment with CPD was significantly associated with a lower prevalence of CTRCD and with better echocardiographic outcomes in patients who developed CTRCD. These results highlight the importance of cardiac evaluation in AHT patients and strengthen the value of primary and secondary prevention.

PO 10. LEFT VENTRICULAR SYSTOLIC DYSFUNCTION AFTER ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: LONG-TERM CANCER INCIDENCE AND MORTALITY

David Sá Couto, André Alexandre, Andreia Campinas, André Frias, André Luz, Raquel Santos, Bruno Brochado, João Silveira, Severo Torres

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

Introduction: Myocardial infarction and heart failure have been linked to an excess risk of cancer, especialy for patients with moderate-to-severe left ventricular systolic dysfunction (MSLVSD). We aimed to study if MSLVSD after ST-segment elevation myocardial infarction (STEMI) was associated with a higher incidence of cancer and cancer-related mortality on a long-term follow-up of STEMI survivors.
Methods: A consecutive series of patients admitted with STEMI from 2008 until 2013, who were discharged alive, was followed for 8 years. MSLVSD was

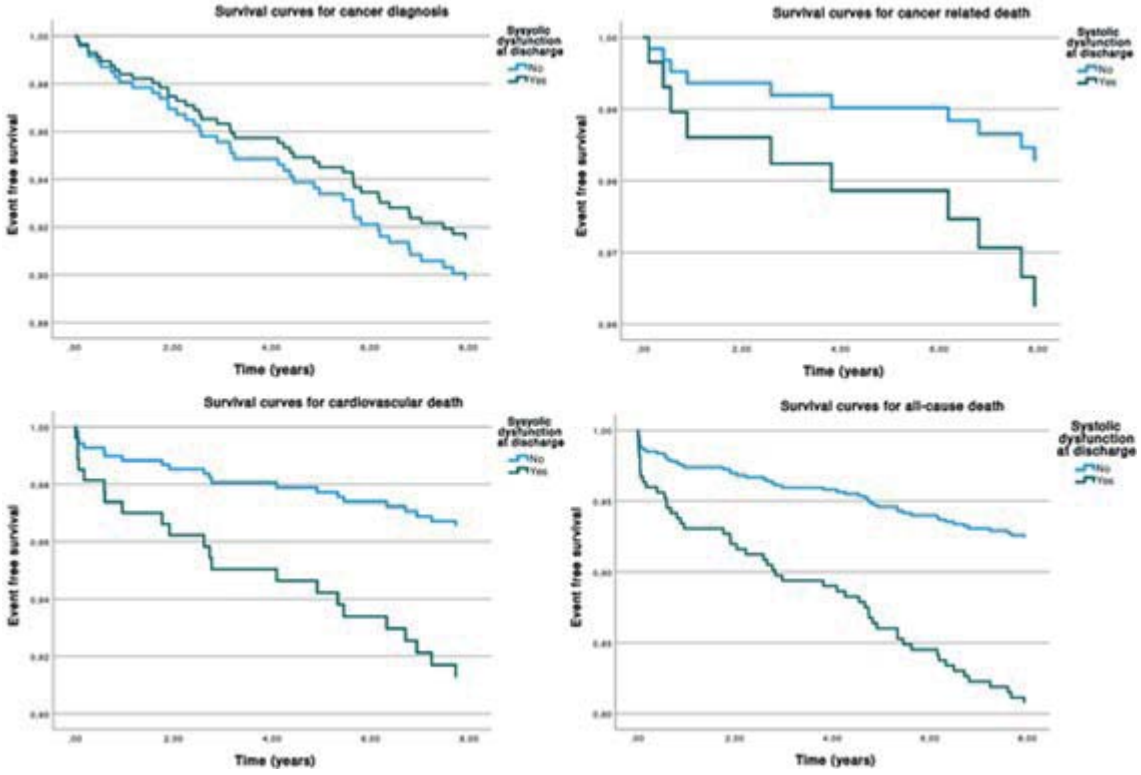


Figure PO 10

defined by a left ventricular ejection fraction (LVEF) < 40%. Patients were grouped according to their LVEF at discharge: < 40% (MSLVSD group) *vs.* ≥ 40%. The primary endpoints were cancer diagnosis and cancer-related death. Secondary endpoints included all-cause and cardiovascular (CV) death.
Results: From a total of 584 cases, 529 were considered for the analysis, excluding missing cases and in-hospital deaths. 391 (73.9%) were males, mean age was 62.2 years and mean follow-up time was 6.54 (± 2.68) years. 180 (34%) patients had MSLVSD. At end follow-up, cancer was diagnosed in 43 (8.1%) patients, 40% of gastrointestinal origin. Cancer incidence was approximately 1,250/100,000 people. year, with 21% of the diagnosis occurring in the first year. Overall, 52 (10.7%) patients died, 23 (44%) from CV causes, 10 (19%) from cancer. There were no significant differences in the incidence of cancer (hazard ratio (HR) 0.83; 95%CI [0.42-1.61]; p = 0.568) or cancer-related mortality (HR 2.20; 95%CI [0.64-7.59]; p = 0.219) between the groups. There was a higher risk of all-cause (HR 2.72; 95%CI [1.57-4.70]; p < 0.001) and CV death (HR 2.59; 95%CI [1.12-6.00]; p = 0.027) in the MSLVSD group.
Conclusions: MSLVSD post-STEMI was related to a higher mortality rate but not to increased cancer incidence or cancer-related death. However, cancer incidence appears to be higher than in the general population, which might be explained by shared risk factors with ischemic heart disease and increased surveillance of post-infarct patients. It is plausible that the detection rate of gastrointestinal cancer might be a reflection of exposure to potent antithrombotic drugs during the first year.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 3) - Cardiologia em populações especiais 1

PO 11. WHEN A MOTHER'S HEART SUFFERS A LITTLE MORE THAN USUAL: A CENTER EXPERIENCE OF HEART DISEASE DURING PREGNANCY

Catarina Simões de Oliveira, Tatiana Guimarães, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Ana Margarida Martins, Beatriz Garcia, Miguel Raposo, Ana Abrantes, Catarina Gregório, Rui Plácido, Arminda Veiga, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Maternal heart disease is increasingly prevalent and has emerged as one of the major causes of pregnancy-related mortality. Advanced maternal age, preexisting comorbidities namely hypertension and diabetes and the growing number of women with congenital heart disease surviving to childbearing age are some of the factors responsible for pregnancy related cardiovascular disease.
Objectives: To describe heart disease in pregnant women and pregnancy outcomes in an expert center for pregnancy and cardiac disease.
Methods: Single-center observational study of women followed in a tertiary center by a multidisciplinary team composed of Cardiologist, Obstetrics, Anesthesiology and Specialist Nurse. Clinical data regarding cardiovascular risk factors and disease, pregnancy and postpartum period were collected and a descriptive analysis was performed.
Results: A total of 111 women (mean age 31 ± 7 years) had a cardio-obstetrics follow-up. Main comorbidities were arterial hypertension (HTN) (14.4%), thyroid disease (9%), gestational diabetes (6.3%) and obesity (3.6%). Most women were referenced during pregnancy (87.3%; mean gestational time 22 ± 8 weeks), with 5.45% of pts initiating their FUP before pregnancy and 8.2% after. Valvular heart disease was the most frequent indication for Cardiologist referral (22.5%), followed by palpitations (17.1%), previous known arrhythmia (13.5%), chronic HTN (10.8%) and cardiomyopathy (8.1%) (Table). Regarding cardiovascular pregnancy complications, 5.9% of pts developed preeclampsia, half of them with a previously known diagnosis of HTN and the other half with an initial diagnosis. Caesarean was the delivery route in all of these cases. The mean gestational period was 37 ± 3 weeks; 19.8% of pregnancies ended with preterm labour and 8.2% presented with fetal growth restriction (FGR). Half of pregnant women with a fetus with FGR had arterial hypertension. In 31 cases, caesarean was the delivery route, 38.7% of them due to cardiovascular cause. Of these, 41.6% had cardiomyopathy with reduced ejection fraction, 33.3% aortic disease and 25% valvular heart disease.
Conclusions: Profound changes occur in the maternal circulation that have the potential to adversely impact maternal and fetal health, especially in the presence of underlying heart condition. Early and specialized multidisciplinary care in the ante, peri and postpartum is therefore essential to improve cardiovascular outcomes, mainly in more complex scenarios such as cardiomyopathy, aortic disease and valvular heart disease.

PO 12. PREGNANCY IN HIGH CARDIOVASCULAR RISK WOMEN: NOT ALWAYS A STATE OF GRACE

Ana Lobato de Faria Abrantes, Tatiana Guimarães, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Catarina Simões de Oliveira, Ana Margarida Martins, Ana Beatriz Garcia, Miguel Azaredo Raposo, Catarina Gregório, João Santos Fonseca, João Mendes Cravo, Diogo Rosa Ferreira, Rui Plácido, Arminda Veiga, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Cardio-obstetrics (CO) has gained an increased relevance over the past years, mirroring the importance of multidisciplinary management of

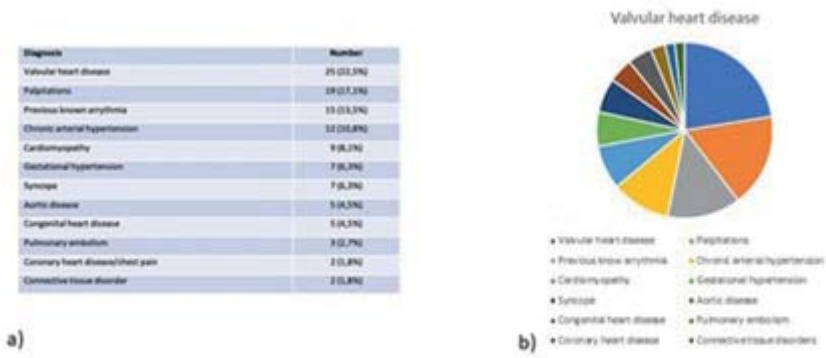


Figure 1: a) Diagnosis; b) valvular heart disease

Figure PO 11

cardiovascular (CV) disease during pregnancy. Maternal cardiovascular risk is stratified according to the modified World Health Organization (mWHO) classification, in women at high or extreme risk (mWHO III-IV) pregnancy should be carefully considered or avoided, respectively.
Objectives: To describe clinical outcomes of women with high CV risk during pregnancy, followed in an expert center.
Methods: Single-center observational study of women followed in a tertiary center by a multidisciplinary team composed of cardiologist, obstetrics, anesthesiology and specialist nurse. Clinical and echocardiographic data were recorded and a descriptive analysis was performed.
Results: We included 11 pts: 10 with a mWHO III - 4 pts with mechanical prosthesis (4 mitral and 2 aortic), 5 with dilated cardiomyopathy (DCM) and 1 with history of peripartum cardiomyopathy (PCM) with recovered ejection fraction (EF); and 1 pt with mWHO IV - Ehlers-Danlos syndrome. Mean age was 29 ± 6 years, no further CV risk factors were identified, only 1 pt developed gestational diabetes. Most pts (7) were referred to a Cardiology appointment during the second trimester, 2 pts during post-partum period and 1 pt obtained pre-counselling. No maternal death or miscarriage was identified. Regarding the 4 pts with mechanical prosthesis, 2 pts had to induce labor: one of them didn't have a CO follow-up (FUP) during pregnancy, and was admitted with severe acute pulmonary oedema associated with progression to respiratory failure resulting in an emergency c-section; the other one wasn't aware of her pregnancy until the 22th week of gestation, therefore adequate counseling wasn't provided, warfarin wasn't interrupted and vaginal labor was induced due to fetal death. The latest was the only pt with post-partum complications due to severe hemolytic anemia and endocarditis. The only pt who fulfill our CO program successfully completed her gestation with no adverse maternal or fetal events reported. 1 pt received pre-counseling and declined pregnancy after considering CV risks. In pts with DCM, a close FUP was performed (mean 2.8 ± 1.2 appointments) and mean EF at baseline was 36 ± 1.9%. Only 1 woman developed worsening of EF during pregnancy, with a 14% fall and c-section was performed at 36 weeks due to worsening heart failure with progression to cardiogenic shock during peripartum period. The PCM pt maintained a normal EF with no adverse outcomes recorded. The pt with extreme CV risk, who chose not to terminate pregnancy despite medical advice, was submitted to an intensive CO FUP with no major CV events.
Conclusions: In women at high CV risk, pre-pregnancy counseling and close CO monitoring, are essential to ensure adequate management of CV disease and minimize maternal and fetal complications.

PO 13. SEX-BASED DIFFERENCES IN QUALITY OF LIFE DURING PHASE II OF A CARDIAC REHABILITATION PROGRAM - A RETROSPECTIVE OBSERVATIONAL STUDY

Margarida Cabral, Rita Santos, Mariana Carvalho, José Ferreira Carvalho, Filipa Januário, Alexandre Antunes, João Morais

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Despite the benefits of cardiovascular risk factors control, functional capacity, morbidity and mortality, cardiac rehabilitation programs (CRP) have demonstrated an important role in improving quality of life and mental health. Furthermore, it has been reported that female patients have a worse quality of life and a slower improvement in mental health after acute coronary syndrome than male patients. Thus, this study aimed to investigate the effects of phase II of a hybrid CRP on the quality of life and mental health of patients with coronary artery disease and to compare its benefits between genders. A retrospective study was conducted and patients who had completed the phase II CRP between 2017 and 2022 were included. Patient selection and information collection were obtained through medical records. The outcomes were *Hospital Anxiety and Depression Scale* (HADS) and *EuroQol-5D score* (EQ-5D) results. Patients were divided into two groups: group 1 for female patients and group 2 for male patients. Variables were analysed at the beginning (T0) and the end (T1) of phase II. Group comparison tests were performed. A *p-value* less than 0.05 was statistically significant. Statistical analysis was performed using SPSS software v25.0. One hundred and fifty-eight patients were enrolled in phase II of the CRP and 126 completed it, of which 108 (85.7%) were men and 18 (14.3%) were women. Baseline characteristics (Table 1) are similar between groups, except for smoking, more prevalent in women (p-value = 0.04). At baseline (T0), we observed worse scores for both scales in women, with significant differences for anxiety (p-value < 0.01). During CRP phase II, both groups significantly improved their HADS score and only men improved the EuroQoL index (Table 2). However, differences in benefits were not significant for all variables. In conclusion, we observe an apparent worse quality of life and mental health in women at the beginning of phase II CRP, especially for the anxiety component. Despite that, female patients have the capacity of improving their well-being during CRP as well as men. Therefore, it is imperative to make efforts to include women, frequently underrepresented in CRPs.

TABLE 1. BASELINE CHARACTERISTICS

	Overall (n=126)	Group 1 (n=108)	Group 2 (n=18)	*p-value*
DEMOGRAPHIC CHARACTERISTICS				
Age, mean (SD)	55.8 (9.4)	55.9 (9.0)	55.3 (11.5)	0.79
Arterial hypertension, n (%)	79 (62.7)	67 (62.0)	12 (66.7)	0.71
Diabetes, n (%)	26 (20.6)	23 (21.3)	3 (16.7)	0.65
Dyslipidemia, n (%)	102 (81.0)	89 (82.4)	13 (72.2)	0.31
OSAHS, n (%)	30 (23.8)	27 (25.0)	3 (16.7)	0.44
Current smoker, n(%)	63 (50.0)	50 (46.3)	**13 (72.2)**	0.04
Former smoker, n(%)	33 (26.2)	30 (27.8)	3 (16.7)	0.32
ADMISSION DIAGNOSIS				
STEMI, n (%)	50 (39.7)	44 (40.7)	6 (33.3)	0.55
NSTEMI, n (%)	50 (39.7)	44 (40.7)	6 (33.3)	0.55
Unstable angina, n (%)	1 (0.8)	1 (0.9)	0 (0.0)	1.00
Other, n (%)	2 (1.6)	2 (1.9)	0 (0.0)	1.00

OSAHS - Obstructive sleep apnea/hypopnea syndrome; STEMI - ST-elevation myocardial infarction; NSTEMI - non-ST-elevation myocardial infarction

TABLE 2. RESULTS AND GROUP COMPARISON

	Group 1 (n=108)				Group 2 (n=18)				*p-value*
	T0	T1	*p-value (T0/T1)*	△1 T1-T0	T0	T1	*p-value (T0/T1)*	△2 T1-T0	*(△1/△2)*
EUROQOL-5D									
EuroQoL-5D index, median (IQR)	0.70 (0.42)	0.77 (0.31)	**<0.01**	(+) 0.07 (0.19)	0.66 (0.17)	0.68 (0.26)	0.19	(+) 0.08 (0.16)	0.86
HADS									
HADS anxiety, mean (SD)	6.8 (3.6)	4.7 (2.3)	**<0.01**	(-) 1.9 (3.0)	9.9 (4.1)	3.0 (2.8)	**0.01**	(-) 3.0 (1.9)	0.41
HADS depression, mean (SD)	4.7 (3.3)	3.2 (2.5)	**<0.01**	(-) 1.4 (2.1)	5.7 (3.4)	1.0 (0.0)	**0.02**	(-) 1.6 (1.5)	0.81

HADS - Hospital Anxiety and Depression Scale

Figure PO 13

PO 14. SAFETY AND TOLERABILITY OF SGLT2 INHIBITORS FOR THE TREATMENT OF DIABETES *MELLITUS* IN HEART TRANSPLANT RECIPIENTS

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

Introduction: Diabetes *mellitus* is common after orthotopic heart transplantation (OHT) due to steroid and tacrolimus induced hyperglycemia. Sodium-glucose co-transporter 2 inhibitors (SGLT2i) are well-known for their cardio-renal protective effects. However, little information is published regarding its use in the OHT population, raising concerns about the possibility of genital and urinary infections or other side effects. The aim of this study was to analyse the safety of SGLT2i in the OHT population.
Methods: Retrospective analysis of OHT patients treated with SGLT2i in a single center. The development of side effects was evaluated in this cohort. Furthermore, analytic variables before and 6 months after treatment in patients naïve to SGLT2i before OHT were compared using the paired sample t-test or the Wilcoxon signed-rank test.
Results: 13 patients (P) with OHT were treated with SGLT2i. Median follow-up after SGLT2i initiation was of 12 months (IQR 10.5-16.5). 12P (92.3%) were male, and the median age was 62 years (IQR 53-71). 3P (23.1%) were under SGLT2i treatment at the time of OHT; 10P (76.9%) started treatment with SGLT2i after OHT, with a median time from transplant to SGLT2i initiation of 36.5 months (IQR 20.8-141.3). Patients were immunosuppressed with prednisolone (100%), mycophenolate mofetil (90%) and tacrolimus (50%) or everolimus (50%). Besides DM, the main comorbidities present were arterial hypertension (90%), chronic kidney disease (70%) and dyslipidaemia (70%). No SGLT2i related side effects were reported in the time of follow-up, namely balanitis, vulvovaginitis, urinary tract infections or urinary symptoms, hypoglycemia, dizziness or skin rash. One case of asymptomatic bacteriuria that did not require treatment was reported. There were no episodes of treatment discontinuation during follow-up. In the 10 patients naïve to SGLT2i before OHT, there were no statistically significant differences in HbA1c, kidney function, lipid profile and NTproBNP before and 6 months after treatment initiation (Table 1), despite a numerical improvement in kidney function and NTproBNP values.
Conclusions: In our cohort of patients with OHT, treatment with SGLT2i was well-tolerated and there were no related side effects. The possibility of employing this medication in the OHT group with a high burden of cardio-renal events is strengthened by this data.

PO 15. THE WAITING 4 SURGERY STUDY - PREDICTION OF IN-HOSPITAL EVENTS

Inês Gomes Campos, Inês Oliveira, Isabel Cruz, Bruno Bragança, Rafaela G. Lopes, Joel Ponte Monteiro, Inês Gonçalves, Aurora Andrade

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Patients with coronary artery and valvular diseases with surgical indication represent a significant proportion of hospitalizations. The Waiting 4 Surgery study (W4S) aims to better study this group of patients and their burden of hospital care. In this work, we aim to identify those with event-free admissions.
Methods: Retrospective study of 184 consecutive patients admitted between 2019 and 2021 with coronary artery and/or aortic valve diseases waiting for coronary artery bypass graft (CABG) and aortic valve replacement (AVR). Patients with less than 5 days of hospitalization and those in continuous need of intravenous (IV) drugs were excluded (n = 35). The primary endpoint was a composite of death, re-infarction, cardiac pulmonary arrest (CPA), stroke, ventricular tachycardia (VT), acute heart failure (AHF), rest chest pain and reintroduction of IV drugs. Two approaches were performed to predict events: A) A logistic regression identified independent predictors of in-hospital events. Predictors were combined into a score model; B) A pre-specified clinical score using 7 variables associated with the need to maintain in-hospital care was used. The scores were evaluated using ROC curve analysis.
Results: Total of 149 patients were included, mean age 67.8 years, 71% were submitted to CABG, 21% to AVR and 8% to both. The composite primary endpoint occurred in 23.3% of patients; 16.1% needed reintroduction of IV drugs, 15.4% reported chest pain and 2.7% had AHF. VT, CPA, re-infarction, stroke and death did not occur. 62.5% of patients had an event-free admission. The variables identified as independent predictors were arterial hypertension, chronic kidney disease, use of beta blockers, calcium channel blockers and QRS duration > 120 ms. The additive score model showed association with in-hospital events ($p < 0.014$), and a moderate prediction accuracy (AUC = 0.670). In the group of patients with score = 0, 1 event occurred (rest chest pain). The clinical score did not show association with the occurrence of events ($p = 0.067$; AUC of 0.572). In the group of patients with clinical score = 0, 10 events occurred (rest chest pain).
Conclusions: This study shows that clinical criteria often used to decide for hospital stay did not predict events during admission. A variable derived score has moderate predictive power for the occurrence of events but showed no capacity to identify patients that could safely wait for surgery at home. Most patients had a benign hospital stay.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 4) - Cardiopatias congénitas

PO 16. ATRIAL FLUTTER ABLATION IN CONGENITAL HEART DISEASE

Catarina Simões de Oliveira, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Beatriz Garcia, Ana Margarida Martins, Miguel Raposo, João Ribeiro, Afonso Nunes Ferreira, Gustavo Lima Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Atrial flutter (Afl) is a common cause of decompensation in patients (pts) with congenital heart disease (CHD), particularly in the ones with complex anomalies. Catheter ablation is an attractive treatment option in these pts.

Variable	Pre-SGLT2i	6 months post-SGLT2i	p-value
HbA1c %	7.19 ± 0.65	7.55 ± 1.45	0,285
LDL cholesterol mg/dL	80.5 (IQR 64.5-98.0)	89.0 (IQR 68.5-108.5)	0,286
HDL cholesterol mg/dL	54 (IQR 39-68.3)	51.0 (IQR 47.25-60.75)	0,905
Serum creatinine mg/dL	1.5 ± 0.52	1.53 ± 0.68	0,946
Glomerular filtration rate mL/min/1.73 m^2	57.0 (IQR 11.9-130.9)	59.2 (IQR 33.5-79.5)	0,305
Albumin/Creatinin ratio mg/g	64.6 (IQR 11.9-130.9)	40.0 (IQR 9.1-155.8)	0,515
NTproBNP pg/mL	1377.5 (IQR 448.0-2596.8)	1343.5 (IQR 239.8-2398.2)	0,959

Table 1 - Analytic variables before and 6 months after treatment with SGLT2i

Figure PO 14

		Chamber	Circuit	Mechanism	Ablation line
1	Tetralogy of Fallot repaired	RA	Four loops	1) lateral wall scar related; 2) counterclockwise CTI; 3) inferior vena cava clockwise	Intra-scar line
2	Tetralogy of Fallot	RA	Single loop	Counterclockwise CTI	CTI
3	Ostium primum ASD + aortic coarctation surgically corrected	LA	Dual loop	Perimitral counterclocwise + around right pulmonary veins	Anterior mitral line
4	Ostium secundum ASD defect repaired	RA	Single loop	Counterclockwise CTI	CTI
5	Ostium secundum ASD repaired	RA	Single loop	Clockwise CTI	CTI
6	Ebstein anomaly	RA	Single loop	Counterclockwise CTI	CTI
7	Ebstein anomaly	RA	Single loop	Lateral wall scar related	Intercava line
8	Eisenmenger syndrome in RV hipoplasia	RA	Single loop	Lateral wall scar related	Intra-scar line

ASD – atrial septal defect; CTI – cavotricuspid isthmus; RA – right atrium; LA – left atrium

Figure PO 16

Objectives: Characterization of the AFl mechanism in context of CHD.
Methods: Retrospective single-center study of consecutive pts with CHD submitted to AFI ablation between 2015 and 2022. Electroanatomical high-density voltage and activation maps were collected with multipolar catheters using Carto, Ensite or Rhythmia mapping systems. Acute success was defined as conversion to sinus rhythm after the critical isthmus ablation.
Results: Eight patients with CHD were treated. The CHD complexity was severe, moderate and mild in 1, 5 and 2, respectively. All AFI presented macro reentrant mechanism. The circuit was right-sided in 7/8, presenting a peri-tricuspid rotation in 5 pts (counterclockwise in 3 and clockwise in 2). Of note, 1 of them presented a complex 3-loop circuit with rotations around an incisional lateral wall scar, tricuspid annulus and inferior vena cava. In 2 pts, a non-cavotricuspid isthmus (CTI) dependent single loop mechanism was recognized, involving a slow-conduction isthmus at an incisional lateral wall scar. Regarding the patient with left AFI, the macro-reentry was dual-loop with a counterclockwise perimitral rotation and a loop around the right pulmonary veins. This was the only pt that converted into a 2nd AFI, which presented a right-sided dual loop mechanism, with a rotation around a pericardial patch and a clockwise CTI loop. The critical isthmus ablation resulted in acute success in all pts, who remained free from recurrences during follow-up.
Conclusions: AFI ablation is an effective strategy in pts with CHD.

PO 17. LATE ATRIAL TACHYARRHYTHMIAS IN ADULT FONTAN PATIENTS

Mariana Ferreira Carvalho, Izidro Borges, João Dias, Diogo Faim, Patrícia Vaz Silva, Dina Rodrigues, António Pires

Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Fontan surgery is a palliative surgical procedure used in children with univentricular hearts. One of the late complications is the development of atrial tachyarrhythmias affecting usually in adulthood and its risk factors are still poorly defined.
Objectives: We aim to assess the predictors of the development of atrial tachyarrhythmias (atrial fibrillation and atrial flutter) in adults' patients previously submitted to Fontan surgery.
Methods: Single-center retrospective cohort study of patients ≥ 18 years of age with Fontan circulation followed at our tertiary care center of adult congenital heart disease outpatient setting. The median follow-up time was 4 (2-9) years. Demographic, clinical and imaging records were collected. Logistic regression analysis was performed to assess independent predictors of atrial arrythmias.
Results: 32 patients were included (age 38.9 ± 9.1 years, 61% men). After a mean of 10.2 ± 7.1 years, atrial tachyarrhythmias was noted in 11 patients (34.4%), of which 4 developed had atrial fibrillation (12.5%). Variables identified as significant independent predictors for the development of atrial arrhythmia were older age at the time of initial repair (OR: 3.0, CI: 1.7-4.6, p < 0001), number of prior cardiac surgeries (OR: 2.2, 95%CI: 1.89-4.5, p = 0.025), and prior atriopulmonary Fontan surgery (OR: 6.12, 95%CI: 2.3-15.2, p = 0.003).
Conclusions: Older age at surgery, atriopulmonary connection and number of prior surgeries are significant independent risk factors for the presence of late atrial tachyarrhythmias in adult survivors of Fontan procedure.

PO 18. WORST PROGNOSIS RISK FACTORS IN TETRALOGY OF FALLOT

Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Catarina Amaral Marques, André Cabrita, Ana Isabel Pinho, Cátia Oliveira, Luís Daniel Santos, Teresa Pinho, Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Repaired Tetralogy of Fallot (ToF) may present several complications in adult life. We studied our cohort of adult ToF patients to access which risk factors may be related to these complications.
Methods: We included patients with repaired tetralogy of Fallot with active follow-up between 2000 and 2022 in a single tertiary center. Clinical, analytical, electrocardiography and echocardiography data were collected. During follow up (FUP), we considered major adverse cardiovascular events (MACE) as a composite of death, ventricular tachycardia or proposed to pulmonary valve replacement (PVR).
Results: Of the 217 eligible patients (male 115 (53%)), 59 (27%) reached the primary outcome (47 PVR, 10 deaths and 3 ventricular tachycardia) at a median follow up of 35 (interquartile range - IQR - 16) years. Transannular patch (event *vs.* no event: 69% *vs.* 49%; p = 0.013) and QRS duration above 160 ms (64% *vs.* 38%; p = 0.001) were associated with outcome (Figure for Kaplan-Meier curves). Right auricle-right ventricle gradient (34 (20) *vs.* 27 (13) mmHg; p = 0.02), B-type natriuretic peptide (57 (99) *vs.* 40 (36) pg/mL; p < 0.001) were also predictors of events. Previous shunt (50% *vs.* 42%; p = 0.200), Down syndrome (7% *vs.* 5%; p = 0.304), gradient pulmonary artery-right ventricle (19 (21) *vs.* 20 (16) mmHg; p = 0.589) did not show relation with events.
Conclusions: In this observational study of patients with ToF, transannular patch history, QRS wide above 160 ms, RV systolic pressure, among others, were predictive of events during the follow-up. Prospective clinical trials are needed to confirm this data.

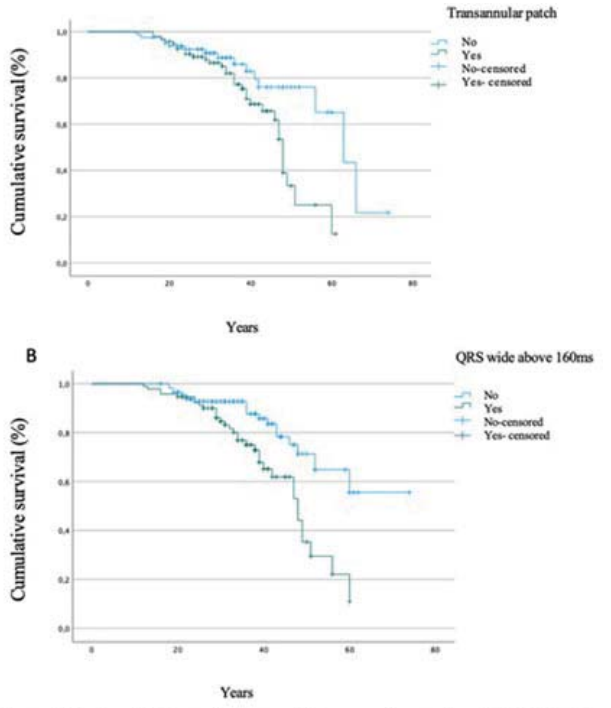


Figure 1.[Kaplan- Meir survival curve A) transannular patch and B) QRS wide above 160ms.

PO 19. ADULTS' KNOWLEDGE AND PERCEPTION OF THEIR CONGENITAL HEART DISEASE: A SINGLE CENTER COSS-SECTIONAL STUDY

Francisco Barbas de Albuquerque, Inês Ferreira Neves, Ana Rita Teixeira, Tânia Branco Mano, Tiago Rito, Pedro Oom da Costa, Rui Cruz Ferreira, Lídia de Sousa

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

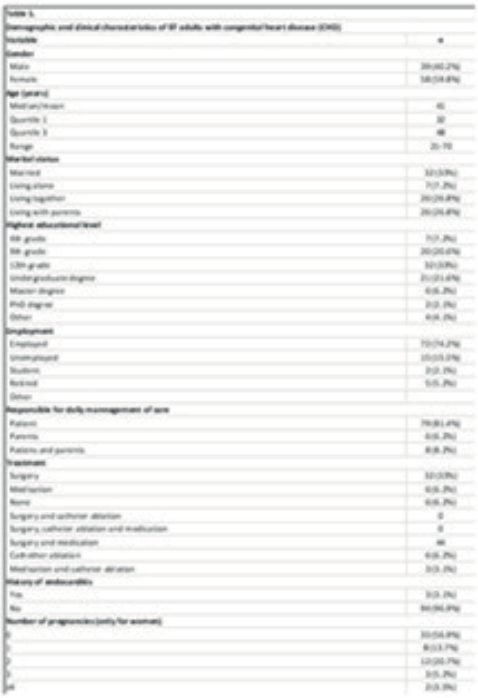
Introduction: A great proportion of patients with congenital heart disease (CHD) reach adulthood and face daily challenges living with a chronic illness. Healthcare management of these patients is complex requiring a multidisciplinary approach. To date, few studies have focused on adult patients' understanding of their CHD.

Objectives: To assess adults' knowledge of their CHD on 4 domains: (1) disease and treatment, (2) preventive measures, (3) physical activity, (4) reproductive issues.

Methods: One single center cross-sectional study. Patients were opportunistically recruited to participate in the study at their CHD medical visit, between October 2022 and December 2022. The authors translated Leuven Knowledge Questionnaire for CHD to Portuguese language. Patients that were willing to participate filled the survey before entering the physician's room. Demographic and clinical variables were gathered during patients' interview and from clinical records. After run-in period, data were analyzed in SPSS® for the descriptive analysis. Categorical values were reported as counts and percentages.

Results: From a total of 344 patients observed during recruitment period, 97 accepted to participate in the study. Demographic and clinical characteristics of the study population are described in the Table. Mean age was 41 years, 60% were female, 34% have an education level above 12th grade and 74% are employed. The 3 most prevalent CHD were Tetralogy of Fallot (16%) and atrial septal defect type secundum (13%) and ventricular septal defect (10%). Approximately half of the patients knew the name of their CHD and 41% could describe or locate the lesion on the pictured diagram. 38% could identify at least two symptoms of clinical deterioration. Three-fourths of patients did not know what endocarditis is and only 14% could tell fever was the main symptom of the disease. The majority of patients did not know the risk factors for endocarditis. 73% of patients are aware that they should choose an occupation adequate to their physical status and 75% knew that they are allowed to engage in sexual intercourse if capable of doing so. Only 20% had adequate knowledge about the hereditary nature of their condition. 43% of women knew the risk of clinical deterioration during pregnancy.

Conclusions: This study showed our patients have high levels of education and employment. Still, large proportions of adults have lack of knowledge about important issues in vary domains. These findings reinforce the need to improve patients' education about their disease. In addition, it highlights the importance of guideline recommendations on multidisciplinary teams to achieve high quality of care in adults with CHD.



Primary medical diagnosis (cont.)	
Tetralogy of Fallot	15 (15.5%)
Atrial septal defect (ASD) type secundum	13 (13.4%)
Ventricular septal defect (VSD)	10 (10.3%)
Bicuspid Aorta	8 (8.2%)
Coarctation of the aorta (CoAo)	7 (7.2%)
Transposition of great arteries (TGA)	6 (6.2%)
Pulmonary stenosis	5 (5.2%)
Atrioventricular septal defect	5 (5.2%)
Patent ductus arteriosos (PDA)	2 (2.1%)
ASD type primum	2 (2.1%)
Fontan circulation	2 (2.1%)
Ebstein anomaly	2 (2.1%)
Double-outlet ventricle	2 (2.1%)
Eisenmenger syndrome	2 (2.1%)
CoAo + PDA	2 (2.1%)
TGA + VSD	2 (2.1%)
Pulmonary atresia	1 (1%)
Marfan syndrome	1 (1%)
ASD type sinus venosus	1 (1%)
Mitral cleft leaflet	1 (1%)
VSD + ASD	1 (1%)
Interrupted aortic arch + VSD	1 (1%)
Tricuspid atresia + VSD	1 (1%)
Cor triatrium	1 (1%)
Aortic stenosis	1 (1%)
Other	2 (2.1%)
Complexity of CHD	
Mild	43 (44.3%)
Moderate	46 (47.4%)
Severe	8 (8.2%)

Figure PO 19

PO 20. RASOPATIAS - QUEM VÊ CARAS, VÊ MUTAÇÕES? EXPERIÊNCIA DE UM CENTRO TERCIÁRIO

Catarina F. Silva[1], Andreia Constante[1], Sílvia Gomes[1], Sofia Nunes[2], Inês Carvalho[2], Petra Loureiro[1], Conceição Trigo[1], Margarida Venâncio[2], Fátima Pinto[1], Diana Antunes[2]

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

As RASopatias são um conjunto de entidades clínicas causadas por mutações germinativas da via RAS/MAPK. Neste grupo estão incluídas a Síndrome de Noonan, Síndrome de Leopard e Síndromes cardio-facio-cutâneas, que é estimado terem uma prevalência mundial de 1:1.000. Caracterizam-se por dismorfismos faciais, baixa estatura (BE), atraso do desenvolvimento psicomotor (ADPM) e doença cardíaca (DC). O objetivo deste trabalho foi a caracterização fenotípica e molecular dos doentes seguidos no nosso centro. Foram analisados os processos dos doentes seguidos na Consulta de Genética (2011-2022) e 45 casos de RASopatia confirmada molecularmente foram incluídos neste estudo. A prevalência calculada de RASopatia no nosso centro é de 1:40.000 (45:1,8 milhões). Dos doentes incluídos neste estudo, 82% (N = 37) apresentam dismorfismos, 29% (N = 13) ADPM e 40% (N = 18) BE. Quanto ao envolvimento cardíaco, 73% (N = 29) apresentam fenótipo positivo: 66% (N = 19) estenose da válvula pulmonar e 34% (N = 10) miocardiopatia hipertrófica. Em 44% dos casos (N = 20) havia história familiar relevante. Dos 12 casos familiares, apenas 66% (N = 8) fizeram rastreio de DC e 50% (N = 4) foram diagnosticados com doença. A idade média dos casos índex foi de 6 anos (0-46 anos). Apesar de 22% (N = 10) dos casos apresentarem manifestações no período pré-natal apenas um caso teve confirmação molecular nesse período. Duas famílias recorreram a diagnóstico pré-implantatório em gravidezes subsequentes. As mutações mais prevalentes na nossa amostra foram detetadas no gene *PTPN11* - 58% (N = 26) - e no gene *RAF1* - 13% dos doentes (N = 6). Das 10 mutações detetadas nesta amostra apenas uma não foi previamente reportada - gene *LZTR1*. A prevalência e o número de casos confirmados foram inferiores ao esperado. Estes resultados reforçam a hipótese de um padrão de subdiagnóstico das RASopatias, possivelmente relacionado com formas subtis de doença. A menor percentagem de fenótipo cardíaco no grupo de indivíduos diagnosticado através de rastreio familiar vem fundamentar a hipótese de que as RASopatias no global poderão ter uma menor expressão de DC. Estudos adicionais são necessários para melhor compreender a influência desta via na DC, nomeadamente na miocardiopatia hipertrófica. Uma maior sensibilização dos profissionais relativamente a este grupo nosológico poderá contribuir para aumentar as taxas de diagnóstico e melhorar o respetivo seguimento médico.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 5) - Cirurgia cardíaca

PO 21. OUTCOMES OF MODERATE STENOSIS IN BICUSPID AORTIC VALVE - SURGERY TO ALL?

Ana Margarida Martins, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Catarina Oliveira, Beatriz Garcia, Ana Abrantes, Catarina Gregório, Miguel Raposo, João Fonseca, Fausto J. Pinto, Ana Almeida

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Bicuspid aortic valve (BAV) is the most common congenital heart defect, with high prevalence of significant aortic valvulopathy, especially stenosis. Current valvular guidelines are unclear regarding surgical indications for moderate aortic stenosis (AS). In the past few years, several studies have reported that patients (pts) with moderate AS might not have a benign prognosis. There is lack of information comparing outcomes of BAV pts submitted or not to surgery.
Methods: Series of patients who did echo evaluation for bicuspid aortic disease on Echocardiography Laboratory from October 2010 to September 2021. Baseline demographic, clinical and echocardiography data were collected. Follow-up data with aortic surgery and all-cause mortality were registered. Pts were classified into 4 groups according to moderate or severe aortic stenosis and surgery: group 1 moderate AS + surgery; group 2 moderate AS; group 3 severe AS + surgery; group 4 severe AS. Statistical analysis with Kaplan-Meier curves was used to compare survival between the 4 groups.
Results: We identified 55 BAV pts with, at least, moderate AS on echocardiogram (group 1: 11 pts, group 2: 10 pts, group 3: 25 pts, group 4: 9 pts). Baseline characteristics were similar between groups without statistical differences (p = NS). Kaplan-Meier survival curves showed that patients submitted to surgery had better survival results independently of severity. However, pts with moderate AS not submitted to surgery had worse prognosis than moderate AS who underwent surgery and severe AS who underwent surgery (log rank 11,726, p = 0.008, Figure).

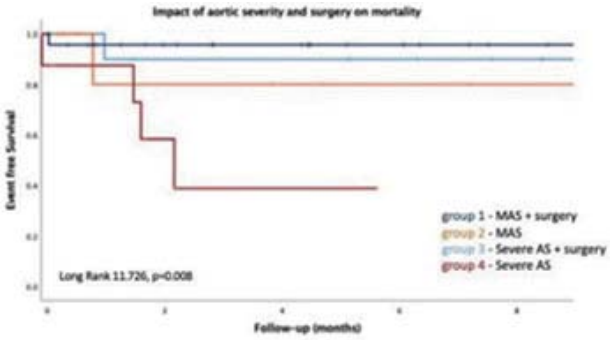


Figure 1- Impact of aortic severity and surgery on mortality

Conclusions: In our study, surgery in BAV pts with AS showed better survival results than pts without surgery. Although moderate AS in BAV pts have worse prognosis compared with those who underwent surgery. We found that moderate AS is associated with worse prognosis, not only in calcified aortic disease. Studies to understand predictors of worse prognosis in moderate AS, including BAV pts, are warranted.

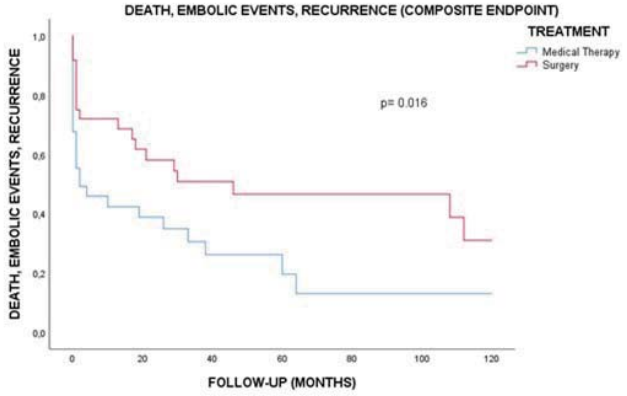
PO 22. SURGICAL *VERSUS* MEDICAL THERAPY IN PATIENTS WITH INFECTIVE ENDOCARDITIS AND SURGERY INDICATION: A RETROSPECTIVE STUDY

Marta Catarina Bernardo, Isabel Martins Moreira, Catarina Ribeiro Carvalho, Pedro Rocha Carvalho, Pedro Mateus, Sofia Silva Carvalho, Ilídio Moreira

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

Introduction: Infective endocarditis is a condition associated with poor outcomes. Even though we have guidelines that establish which patients could benefit from surgery, the decision to perform it is not straightforward and there are many factors to be considered before we decide surgical approach.
Objectives: To establish the impact of surgery *versus* medical treatment in patients with surgical indication according to the ESC guidelines, in our population. The primary outcome was a composite of death, embolic events, and recurrence of infective endocarditis.
Methods: We performed a retrospective study of the patients admitted to our center between 2000 and 2020, with the diagnosis of infective endocarditis. After selecting the patients with surgical indication, according to ESC guidelines, we divided them into two groups: group A (submitted to surgery) and group B (medical therapy only).
Results: A total of 70 patients (65.7% males, 34.3% females, mean age 68.5 ± 15.2) were included. Of these 51.4% were submitted to surgery and 48.6% received only medical therapy. The group A patients were significantly

younger (mean age 63.03 ± 16.03 *versus* 75.52 ± 10.40, p < 0.001). There were no statistically significant differences in terms of previous history of heart failure (p = 0.09), valvular heart disease (p = 0.83), ischemic heart disease (p = 0.47), diabetes (p = 0.50), obesity (p = 0.17), chronic kidney disease (p = 0.68). In terms of local complications, group A had a higher prevalence of severe valvular regurgitation (72.2% *vs.* 36.4%, p = 0.003), with no statistically significant differences in abscess, aneurysm, or fistula. During a mean follow-up of 28.66 ± 39.07 months, 42 pts (60%) experienced the composite endpoint. Group A had significantly better outcomes compared to group B (47.2% *versus* 26.5%, p = 0.016). In a multivariate regression analysis, after adjusting for all the possible confounders, including age, not performing surgery was an independent predictor of the composite endpoint (HR 2.23 95%CI: 1.16-4.55, p = 0.02) (Figure).



Conclusions: In patients with surgical indication, surgery was associated with a significant improvement in prognosis. In our population, older patients were more likely to receive medical therapy. However, surgery was associated with better outcomes, independently of age, which suggests that this shouldn't be the only factor that determines whether surgery is performed or not.

PO 23. PREDICTORS OF IN-HOSPITAL MORTALITY IN TYPE A ACUTE AORTIC DISSECTION

Isabel Martins Moreira, Pedro Rocha Carvalho, Catarina Ribeiro Carvalho, Marta Catarina Bernardo, Pedro Mateus, Inês Silveira, Ilídio Moreira

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

Introduction: Stanford Type A Acute Aortic Dissection (AAD) is the most common life-threatening disorder affecting the aorta and is associated with a high rate of in-hospital mortality, even in patients that are surgically treated. Early recognition of patients that are at increased risk of death is important to guide clinicians for optimal treatment.
Objectives: To determine predictors of in-hospital mortality in patients with type A AAD in our center.
Methods: We performed a retrospective analysis of patients admitted with type A AAD in our center in the last 10 years. Association between patient characteristics and in-hospital mortality was evaluated.
Results: A total of 75 patients with acute aortic syndrome were selected and 49 (65.3%) patients with Stanford type A AAD were identified. Among these patients, 59.2% were male, with a mean age of 64 ± 13 years. Hypertension was the most prevalent risk factor (62.5%), followed by dyslipidemia (31.3%), obesity (25%), smoking (14.6%) and previous cardiovascular disease (8.3%). At admission, most prevalent symptoms were chest pain (64.6%), abdominal pain (22.9%) and syncope (22.9%). 33.3% of patients presented with cardiogenic shock, 28.6% had ischemic ECG changes and 58.3% had pericardial effusion. Median aortic diameter was 51.0 mm (IQR 47-58) and the dissection extended to the abdominal aorta in 49.6% of patients and to the supra-aortic trunks in 8.2%. 70.8% of patients underwent emergent cardiothoracic surgery, 4 patients died before surgery and 8 were not eligible due to multiple comorbidities. Total in-hospital mortality was 39.6%, with a median length of hospital stay of 9 days (IQR 2-19). Among patients that were treated surgically, 18.2% died before discharge. In a multivariate regression analysis, independent predictors of in-hospital mortality were age (OR 1.122, 95%CI 1.003-1.255) and cardiogenic shock at admission (OR 25.914, 95%CI 1.324-507.391). Non-fatal cardiac arrest was also associated with higher mortality (p < 0.001). There were no other significant differences in in-hospital mortality regarding risk factors, clinical presentation and aortic characteristics.
Conclusions: In our study, total in-hospital mortality in patients with type A AAD was 39.6%. Even in patients submitted to emergent cardiothoracic surgery, in-hospital mortality rate was 18.2%. In this group of patients, age and cardiogenic shock at admission were independent predictors of in-hospital mortality.

PO 24. TEN YEARS FOLLOW-UP AFTER AORTIC VALVE REPLACEMENT WITH BIOPROSTHESIS TRIFECTA: A SINGLE CENTER RETROSPECTIVE COHORT

Rui Cerqueira[1], Cândida Gonçalves[2], Joana Araújo[2], Soraia Moreira[1], Pedro Palma[3], Jorge Almeida[4], Mário J. Amorim[4], Paulo Pinho[4], Sílvia O. Diaz[2], António S. Barros[2], André P. Lourenço[5], Francisca Saraiva[2], Adelino Leite-Moreira[1]

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Introduction: St. Jude's Trifecta (TF) bioprosthesis were adopted at most centers due to their unique design and hemodynamic performance. However, concerns regarding durability have been raised and long-term follow-up studies (≥ 10 years) are scarce.
Objectives: To report hemodynamic performance as well as early and long-term results of TF valve.
Methods: In this longitudinal, single-center study, consecutive patients that underwent surgical aortic valve replacement with TF, from July 2011 to June 2019 were included. Pre-, intra- and post-operative data, including routine and first outpatient ambulatory postoperative transthoracic echocardiogram (TTE) (median 4 months) were collected. Hospital mortality was defined as in-hospital or within the first 30 days after surgery. Survival and need for reoperation were accessed in December 2021. Median follow-up was 4 years and maximum was 10.5 years. Kaplan-Meier method was used for time-to-event outcomes (all-causes mortality and need for reoperation).
Results: We included 1084 patients, 54% being male, with a mean age of 74 ± 8 years. Surgery priority was elective in 840 (78%) of cases. Most patients received a TF prothesis of size 23 (35%), followed by size 21 (30%). There were 563 (52%) multiple procedures, mostly coronary artery bypass grafting (46% within the multiple procedures). Bypass and clamping times were 86 ± 31 minutes and 62 ± 22 minutes, respectively for isolated procedures, and 143 ± 27 minutes and 100 ± 40 minutes, respectively, for multiple procedures. Hospital mortality was 6%. Excluding these patients, cumulative survival at 1-, 3-, 5- and 10-years, were, respectively, 96%, 89%, 78% and 52%. There were 27 patients who needed reoperation: 16 due to endocarditis, 5 due to structural valve deterioration (SVD) and 6 due to non-structural valve dysfunction. Freedom from reoperation at 1-, 3-, 5- and 10- years were of 99%, 98%, 98% and 95%, respectively. At follow-up TTE (n = 995), transvalvular mean gradient was 11 ± 4 mmHg and the effective orifice area mean was 2.1 ± 0.5 cm^2. Patient-prosthesis mismatch occurred in 79 (9.1%), being severe in 8 (0.9%) cases.
Conclusions: Our findings confirm the satisfactory hemodynamics and safety profile of TF bioprosthesis. Long-term results are comparable with published TF series and there seems to be no particular sign of adverse valve-related events in our population.

PO 25. FREEDOM SOLO STENTLESS BIOPROSTHESIS FOR AORTIC VALVE REPLACEMENT - CLINICAL AND HEMODYNAMIC EVALUATION THROUGH SYSTEMATIC REVIEW AND META-ANALYSIS

José Vicetro Saraiva, Francisca Almeida Saraiva, Rui João Cerqueira, Silvia O. Diaz, António S. Barros, André P. Lourenço, Adelino Leite-Moreira

Faculdade de Medicina da Universidade do Porto.

Introduction: The freedom Solo valve was introduced in 2004 as a modified version of the Pericarbon Freedom stentless valve. In theory, its characteristics meet most of the required for the perfect valve. It is utmost important to collect and systemize evidence of survival and complications, to support its safety and satisfactory outcomes.
Objectives: To describe, through a systematic review, early and long-term outcomes after aortic valve repair (AVR) with the Freedom Solo Stentless Bioprosthesis.
Methods: A literature review was performed using 3 databases (Pubmed, Web of Science and Cochrane library). Studies with sample size above 30 patients and that reported at least one of the following outcomes: mortality, immediate complications, need for reoperation or hemodynamic evaluation were included. Articles addressing specific subgroups were excluded (e.g. infective endocarditis). Baseline, operative and post-operative data were collected from each included paper for Freedom Solo patients. Random effects models were used to compute pooled estimates by generalized linear mixed-effects model and logit-transformed for proportions and by inverse variance method for continuous variables.
Results: From 357 records screened, 60 studies were selected for eligibility assessment. Out of these, 31 studies were included in this meta-analysis. Studies' sample size ranged between 30 and 625, totalizing 6,926 patients, pooled proportion for men: 49%, 95%CI: 45-53. The pooled mean age was 74 years (95%CI: 74-75). The main indication for the procedure was aortic stenosis, accounting for 75% (95%CI: 68-77) of patients. The pooled proportion of concomitant procedures was 27% (95%CI: 12-50) and the pooled mean Logistic Euroscore (available in 13 studies) was 9.5%, 95%CI: 8.5-10.4. Regarding early outcomes, hospital mortality occurred in 2% (95%CI: 2-3) of patients (reported in 25 studies), bleeding problems in 4% (95%CI: 2-6, 16 studies) and neurological events in 2% (95%CI: 2-3, 16 studies). Pacemaker implantation was needed in 2.2% (15 studies). The follow-up time ranged from 5 days to 9 years. The hemodynamic data at the maximum follow-up time showed mean pressure gradient and effective orifice area of 10 mmHg (95%CI: 8-12) and 1.56 cm^2 (95%CI: 1.17-1.95), respectively. Survival rates at 1-, 3- and 5-years ranged between 88% and 99% (reported in 16 studies), 83% and 96% (9 studies) and 59% and 94% (11 studies), respectively.
Conclusions: Aortic valve replacement with the Freedom Solo bioprosthesis can be considered a safe procedure, as supported by the satisfactory early and mid-term outcomes.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 6) - Cuidados intensivos em síndromes coronárias agudas

PO 26. PREVIOUS USE OF AMIODARONE AND ITS EFFECT ON ARRHYTHMIC EVENTS AND OUTCOMES IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

Vanda Devesa Neto, João Fiuza, Joana Correia, Gonçalo Ferreira, Nuno Craveiro, Luis Ferreira Santos

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Episodes of cardiac arrhythmias routinely manifest during or following an acute myocardial infarction (AMI) and are associated with worse outcomes. This study aims to assess if patients previously treated with oral amiodarone had fewer episodes of detectable atrial fibrillation (AF) and sustained ventricular tachycardia (VT) and its impact on in-hospital mortality (IHM) and 12-month mortality (12MM) after an AMI episode.
Methods: A retrospective analysis of 1,251 patients admitted to a Cardiology department diagnosed with AMI was performed. Usual medication before hospital admission was confirmed in every patient. The Chi-square test (χ^2) was used to evaluate the association between previous use of oral amiodarone and episodes of VT and AF during the hospital stay, as well as the association with IHM. In addition, 12MM was evaluated with a Kaplan-Meier survival analysis. Logistic regression model was used to assess the predictive value of the significant variables for the presence of VT and AF.
Results: Mean patient age was 69 (± 13); 69% were men. 69% had ST-elevation myocardial infarction. 8% had a previous diagnosis of AF. Patients previously treated with oral amiodarone and beta-blockers were 3% and 28%, respectively. 64% of patients previously treated with oral amiodarone continued the prescription during their hospital stay. 1.3% had an episode of sustained VT during hospital stay, and 5% had an episode of paroxysmal AF. Cardiogenic shock occurred in 5% of patients. IHM and 12MM were, respectively, 7% and 13%. Previous treatment with oral amiodarone was significantly associated with fewer episodes of sustained VT during hospital stay (χ^2 = 15.674; p < 0.01; OR 8.9) and with fewer IHM (χ^2 = 3.313; p = 0.042; OR 2.4). No significant association was found between the previous use of amiodarone and detectable episodes of AF (p = 0.49). Patients who experienced episodes of sustained VT had significantly higher IHM (χ^2 = 60.865; p < 0.001; OR 19) and 12MM (χ^2 = 4.176; p = 0.03; OR 4.2). In logistic regression analysis, amiodarone's effects were independent of beta-blocker use (p < 0.01).
Conclusions: Previous use of amiodarone in patients admitted with acute myocardial infarction was associated with fewer episodes of sustained VT and IHM. Although prophylactic treatment with antiarrhythmic drugs is not indicated in acute myocardial infarction, in patients previously treated with amiodarone, its maintenance can be useful to prevent arrhythmic events.

PO 27. A VERY LONG STORY: INTRA-AORTIC BALLOON PUMP (IABP) COUNTERPULSATION IN PATIENTS WITH ACUTE CORONARY SYNDROME - A 18-YEARS SINGLE-CENTER EXPERIENCE.

Rui Antunes Coelho[1], Daniel Caeiro[2], Marisa Passos Silva[2], Fábio Nunes[2], Rafael Teixeira[2], Marta Ponte[2], Adelaide Dias[2], Pedro Braga[2], Ricardo Fontes de Carvalho[2]

[1]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Intra-aortic balloon pump (IABP) counterpulsation provides mechanical support for patients with cardiogenic shock. Despite that, the IABP-SHOCK II trial concluded that the use of IABP did not significantly reduce 30-day mortality in patients with cardiogenic shock complicating acute myocardial infarction. 2017 ESC Guidelines downgraded the use of IABP from a class IIb to a class III in patients with STEMI and cardiogenic shock. IABP should be considered for haemodynamic support in patients with mechanical complications (i.e. severe mitral insufficiency or ventricular septal defect) - class IIa recommendation.
Objectives: The aim of this study is evaluate the clinical characteristics and outcomes of patients with coronary acute syndrome receiving IABP in a tertiary hospital before and after the ESC Guidelines downgration of recommendation class.
Methods: We performed a retrospective observational cohort study of all patients that received IABP in two different intensive care units (general and cardiac), from January 2005 up to August 2022.
Results: In an 18-years period, 691 patients underwent IABP. After 2019, we observed a 36% reduction in annual median of IABP implantations (47 cases/year until 2018 *vs.* 17 as of 2019; p = 0.008). Regarding the group who received IABP until 2018, the group evaluated from 2019 onwards had a significantly higher percentage of patients with mechanical complications related to acute coronary syndrome (30.5% *vs.* 9.8%, p < 0.001) and severe impairment of ejection fraction - LVEF < 30% (55.9% *vs.* 33.4%, p 0.001). This subgroup had more patients undergoing PCI during hospitalization (71.2% *vs.* 39.3%, p = 0.01) and fewer patients undergoing CABG (22.0% *vs.* 39.3%, p < 0.001). There were

Patient characteristics	All (n = 691)	Patients until 2018 (n = 632)	Patients from 2019 (n = 59)	p
IABP implantations/year, median (IQR)	**44 (18-51)**	**47 (33-57)**	**17 (10-18)**	**0,008**
Age in years, median (IQR)	69 (58-76)	68 (58-76)	70 (61-78)	0,145
Male gender, n (%)	504 (72,9)	459 (72,6)	45 (76,3)	0,677
Hypertension, n (%)	460 (66,6)	424 (67,1)	36 (61,0)	0,319
Diabetes mellitus, n (%)	222 (32,1)	199 (31,5)	23 (39,0)	0,249
Dyslipidemia, n (%)	441 (63,8)	403 (63,8)	38 (64,4)	0,959
Smoking, n (%)	255 (36,9)	232 (36,7)	23 (39,0)	0,750
Body mass index in Kg/m², median (IQR)	27,7 (24,6-29,8)	27,7 (24,9-29,4)	26,0 (23,9-29,7)	0,158
Creatinine clearance in ml/min, median (IQR)	57,3 (37,0-81,9)	60,6 (34,3-82,7)	50,5 (37,9-80,7)	0,764
Previous coronary disease, n (%)	247 (35,7)	231 (36,6)	16 (27,1)	0,146
Previous stroke, n (%)	51 (7,4)	45 (7,1)	6 (10,2)	0,430
Previous peripheral arterial disease, n (%)	48 (6,9)	42 (6,6)	6 (10,2)	0,219
Previous valvular disease	44 (6,4)	40 (6,3)	4 (6,8)	0,783
Family history of CAD, n (%)	36 (5,2)	36 (5,7)	0 (0,0)	0,064
Indication for IABP, n (%)				
Cardiogenic shock	280 (40,5)	253 (40,0)	27 (45,8)	0,342
High risk PCI	128 (18,5)	111 (17,6)	17 (28,8)	**0,029**
Refractory angor or support up to CABG	283 (41,0)	268 (42,4)	15 (25,4)	**0,008**
Class Killip-Kimball, n (%)				0,275
III	86 (12,4)	78 (12,4)	8 (13,6)	
IV	323 (46,7)	293 (46,3)	30 (50,8)	
Mechanical complications of ACS, n (%)	80 (11,6)	62 (9,8)	18 (30,5)	**<0,001**
30% ≤ LVEF < 40%, n (%)	117 (22,6)	106 (22,9)	11 (18,7)	**0,007**
LVEF <30%, n (%)	207 (35,7)	174 (33,4)	33 (55,9)	**0,001**
Days with IABP, median (IQR)	2 (1-4)	2 (1-4)	2 (1-4)	0,237
Days in hospital, median (IQR)	8 (4-14)	8 (4-14)	8 (4-13)	0,776
PCI, n (%)	380 (55,5)	338 8(53,5)	42 (71,2)	**0,011**
CABG, n (%)	260 (37,8)	247 (39,3)	13 (22,0)	**<0,001**
Inotropics, n (%)	91 (49,7)	63 (50,8)	28 (47,5)	0,743
Lower limb ischemia, n (%)	13 (1,9)	13 (2,1)	0 (0,0)	0,292
IABP rupture, n (%)	1 (0,1)	1 (0,2)	0 (0,0)	
Bleeding, n (%)	11 (1,6)	9 (1,4)	2 (3,4)	
In-hospital mortality, n (%)	166 (24,1)	146 (23,1)	20 (33,9)	0,064

Table 1 - Characteristics of patients that received IAPB before and after ESC Guidelines change of recommendation class (2018).

Figure PO 27

no statistically significant differences between these two periods regarding the remaining clinical characteristics, cardiogenic shock criteria (present in 45% of patients); Killip-Kimball class; use of inotropes (49.7%); number of days with IABP (median = 2 days); days of hospitalization (median = 8 days); percentage of significant complications related to IABP (5.1%) and in-hospital mortality (24.1%). **Conclusions:** After the change in ESC Guidelines (2018), the number of patients that received IABP in our center decreased considerably (annual median of 47 *vs.* 17, p = 0.008). From 2019 onwards, there was a significant change in the second main indication for IABP (after cardiogenic shock), which became high-risk PCI (28.8% *vs.* 17.6% of cases; p = 0.029) and not refractory angor or support up to CABG (25.4% *vs.* 42.4%; p = 0.008). Despite the significant reduction in the number of procedures, more mechanical complications related to acute coronary syndrome (30.5% as of 2019 *vs.* 9.8% until 2018; p < 0.001) and severe impairment of ejection fraction (55.9% of patients *vs.* 33.4%; p = 0.001), the complications rate related to IABP and in-hospital mortality did not increase significantly.

PO 28. IABP IN CARDIOGENIC SHOCK - AFTERMATH 10 YEARS APART FROM IABP-SHOCK TRIAL

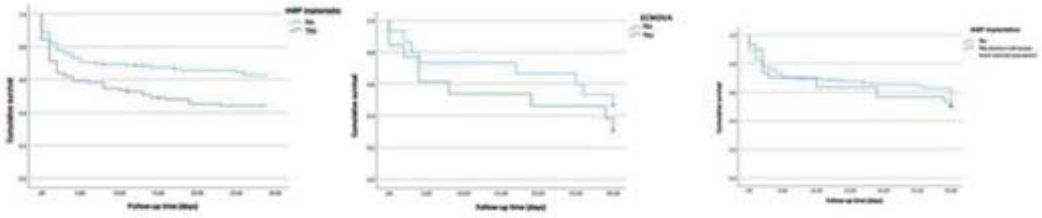
Ana Margarida Martins, João R. Agostinho, Pedro Alves da Silva, Beatriz Valente Silva, Joana Brito, Catarina Oliveira, Beatriz Garcia, Catarina Gregório, Miguel Raposo, Ana Abrantes, João Fonseca, Rafael Santos, Tatiana Guimarães, Cláudia Jorge, Miguel Nobre de Menezes, Hugo Corte-Real, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Acute myocardial infarction complicated by cardiogenic shock (AMI-CS) has a dismal prognosis. Theoretically, intra-aortic balloon counterpulsation (IABP) could provide a hemodynamic benefit by afterload reduction and improvement in coronary perfusion, but, in 2012, the IABP-SHOCK-II trial found no survival benefit. However, these results don't always reflect real-world data and different centers practices. This study aimed to compare outcomes of AMI-CS pts who implanted IABP with a matched population without IABP.

Methods: Single center retrospective study was conducted. We searched for IABP use between 2012 and 2022 and selected pts with AMI-CS. Clinical, lab, echo and cath data were obtained at time of IABP and during FUP. IABP group (IABPG) was then compared with a case-controlled population matched by the type of AMI, age, ejection fraction and culprit vessel. Primary endpoint was defined as 30-day mortality. Secondary endpoint was defined as significant bleeding during hospital stay, peripheral ischemic complications, sepsis, stroke, anoxic encephalopathy and acute kidney injury (AKI).

Results: We enrolled 216 pts who had ACS-CS, 108 in each group. In the IABPG 67.6% were male, mean age of 67 ± 12.9 years, whereas in the control group (CG) 73.1% were male, 67 ± 11.6 years. In both groups, proportion of STEMI and NSTEMI was the same. In IABPG, 13 pts had mechanical complications (*vs.* 5 in CG). IABP was used to perform LV unloading in 13 pts with ECMO therapy. Remainder characteristics are shown on the Table. 30-day mortality rate was significantly higher in the IABPG (61.5% *vs.* 48.1%; p = 0.015) (Figure 1). Despite selecting case control-matched pts, lactate levels were significantly different between them (IABPG 5.9 *vs.* CG 3.4 mmol/L; p = 0.001), suggesting that clinical severity at time of IABP implantation was higher. To best correlate both groups, we selected the bottom half pts based on median lactate levels in the IABPG (4.5 mmol/L). The 2 groups matched according to lactate had no differences regarding 30-day mortality (50% *vs.* 48.1%; p = 0.87) (Figure 2). We also compared IABP pts with ECMO with case-matched controls and noticed that survival rates were higher in the CG, without statistical significance (69% *vs.* 46%, p = 0.175) (Figure 3). Regarding secondary endpoints, sepsis and vascular complications (p < 0.001 and p =



	IABP (n=108)	Control (n=108)
Age (mean, ± SD)	66.6 ± 12.7	66.8 ± 11.6
Male sex	73 (67.6%)	79 (73.1%)
BMI (mean, ±SD)	28 ±4.3	27 ± 4.8
CV risk factors		
Current smoking	45 (41.7%)	39 (36.1%)
Hypertension	82 (75.9%)	75 (69.4%)
Hypercholesterolemia	66 (61.1%)	53 (49.1%)
Diabetes Mellitus	38 (35.2%)	34 (31.5%)
Prior myocardial infarction	24 (22.2%)	14 (13%)
Prior stroke	8 (7.4%)	3 (2.8%)
Peripheral artery disease	5 (4.6%)	3 (2.8%)

	IABP (n=108)	Control (n=108)
Signs of impaired organ perfusion		
Altered mental status	73 (67.5%)	63 (58.3%)
Cold, clammy extremities	77 (71.2%)	62 (57.4%)
Oliguria	39 (36.1%)	14 (12.9%)
Serum lactate >2 mmol/L	92 (85.1%)	47 (43.5%)
Serum lactate (mean, ±SD)	5.9 ±4.6	3.0 ± 5.8
Creatinine - mg/dl (mean, ±SD)	1.9 ± 0.9	1.4 ± 5.9
Nº of diseased vessels (mean, ±SD)	2.0 ± 1.01	1.8 ± 0.9
Infarct-related artery - DA	63 (58.3%)	51 (47.2%)
Left ventricular ejection fraction (mean, ±SD)	33.5 +-13.8	35.11 +-12.8

Figure PO 28

0.006) were higher in IABPG; conversely incidence of anoxic encephalopathy was lower in the IABPG (4.6% *vs.* 13.2%, p = 0.011). No differences were noted in respect to other endpoints.
Conclusions: In our population, IABP use failed to show benefit in 30-day mortality and was even associated with a higher death rate, which might be explained by the use of IABP in more severe cases. In fact, when comparing populations with similar lactate, there were no differences. The same was seen in pts who also had ECMO therapy. IABP is not free of complications and its use should be restricted to selected pts.

PO 29. EXTERNAL VALIDATION OF A CLINICAL SCORE IN PREDICTING INTRAHOSPITAL DEATH IN MYOCARDIAL INFARCTION: THE KASH SCORE

Rafaela G. Lopes, Isabel Cruz, Bruno Bragança, Inês Gomes Campos, Inês Oliveira, Mauro Moreira, Glória Abreu, Aurora Andrade, Joel Ponte Monteiro

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Complex risk scores in myocardial infarction (MI) have limited applicability in the clinical practice. The KAsH score is a score design to predict in hospital mortality in MI patients, simple and easy to used at first medical contact. However there are no papers regarding its external validation.
Objectives: To test the applicability of KAsH score in predicting in-hospital all-cause mortality in a different cohort of MI patients.
Methods: We analysed a cohort of 132 patients admitted consecutively in our coronary care unit with a diagnosis of myocardial infarction during the first semester of 2019. Patients' demographic, clinical management and clinical outcome data were collected. KAsH was calculated at hospital admission using the following formula: KAsH = Killip-Kimball × Age × Heart-Rate/Systolic Blood Pressure. KAsH was categorized into 4 sub-groups using the recommended cut-offs: < 40 (KAsH 1); 40-90 (KAsH 2); 90-190; (KAsH 3); > 190 KAsH 4. The score's capacity to predict in-hospital mortality was analyzed using ROC curves and their respective area under the curve (AUC).
Results: The cohort had a mean age of 67.6 ± 12.7 years, 75% were male and 39.4% had ST-elevation myocardial infarction (STEMI). In-hospital mortality was 3.8%. The score displayed excellent discriminative power in the MI population (AUC = 0.905, SD 0.035, 95%CI 0.837-0.997, 83.3% sensitivity and 89.68% specificity), both in STEMI (AUC = 0.930, 95%CI 0.849-1.00) and non STEMI (AUC = 0.924, 95%CI 0.866-0.982) subgroups. KAsH categorization resulted in clear mortality group division (KAsH 1 - 0.0%; KAsH 2 - 2.6%; KAsH 3 - 22.2%; KAsH 4 - 33.3%). The score retained an excellent discriminative capacity (AUC = 0.905; 95%CI 0.820-0.990), corresponding to a significant increase in predictive power comparing to the Killip-Kimball classification (*vs.* 0.741) in all MI subgroups.
Conclusions: This study shows that KAsH score, relying only in four clinical variables, has high predictive power and is consistent in different populations. Even after categorization, KAsH score remained highly discriminative capacity in prognostic prediction comparing to the widely used Killip-Kimball classification. Hence, this work validates KAsH score in a different population and steps should be taken towards the widespread clinical use of this score.

PO 30. THE IMPORTANCE OF CONGESTION ASSESSMENT BY RIGHT HEART CATHETERIZATION IN CARDIOGENIC SHOCK PATIENTS

Ana Rita Bello, João Presume, Daniel Gomes, Catarina Brízido, Christopher Strong, Jorge Ferreira, António Tralhão

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

Introduction: Beyond the cardinal feature of low cardiac output, the presence of left and/or right-sided congestion may influence patient outcomes in the setting of cardiogenic shock. We aimed to describe the prevalence of different congestion profiles and their prognostic impact through invasive hemodynamic evaluation using the pulmonary artery catheter (PAC).
Methods: Single-center retrospective analysis of consecutively admitted patients to the cardiac intensive care unit (CICU) with cardiogenic shock of all etiologies, from January 2018 to November 2022, in whom a PAC was placed. Cardiogenic shock was defined by the presence of systolic blood pressure < 90 mmHg or vasopressor support, plus signs of clinical hypoperfusion and/or serum lactate ≥ 2 mmol/L. The decision of pulmonary artery catheterization was left at clinician's discretion. All patients required a cardiac index (CI) < 2.2 L/min/m^2 obtained by thermodilution. Right-sided or left-sided congestion were dichotomously (+/-) defined using central venous pressure (CVP) and pulmonary artery wedge pressure (PCWP) measurements, respectively. Four different congestion profiles [(A): CVP-/PCWP-, (B): CVP+/PCWP-, (C): CVP-/PCWP+, (D): CVP+/PCWP+)] were built based on the best cut-off for CVP and PCWP found by ROC curve analysis. Study endpoint was 30-day mortality.
Results: During the study period, 145 patients were admitted to the CICU with a diagnosis of cardiogenic shock, of whom 44 had a PAC inserted during their CICU stay showing low CI. Mean patient age was 58 ± 16 years and 71% were male. The main etiology of cardiogenic shock was acute myocardial infarction (n = 25). Mean left ventricular ejection fraction was 24 ± 11%. 30-day mortality was 34% (n = 15). Mean CVP was 10 ± 5 mmHg and mean PCWP was 18 ± 8 mmHg. ROC curve analysis yielded 9 mmHg (CVP) and 16 mmHg (PCWP) as the most discriminative cut-offs for 30-day mortality. After hemodynamic congestion profiling, 19 patients were categorized as (A), 4 as (B), 4 as (C) and 17 as (D). 30-day mortality was 5.3%, 50.0%, 25.0% and 52.9%, respectively (p = 0.013, chi-square test).

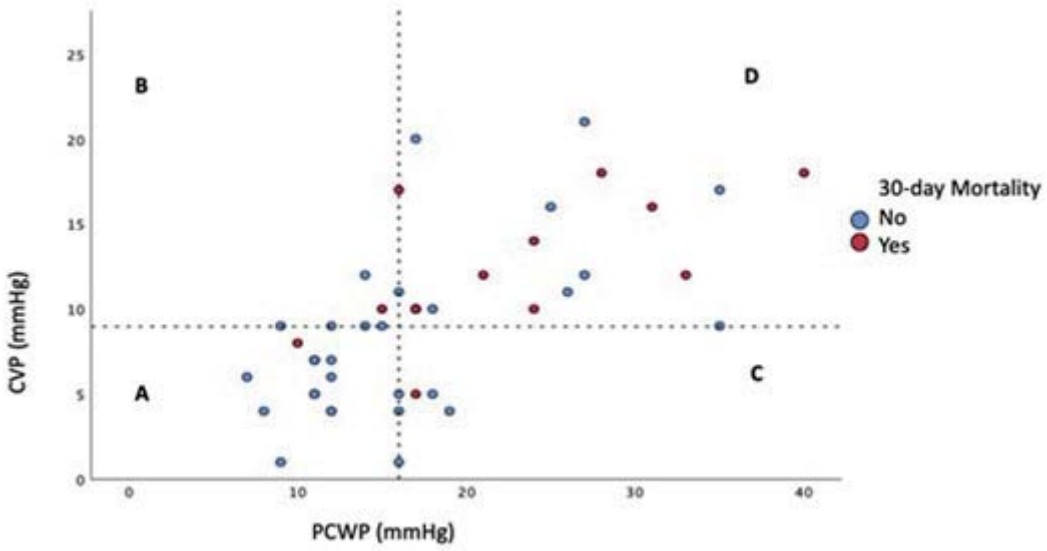


Figure PO 30

Conclusions: In cardiogenic shock patients, individual congestion subsets were identified which translated into significantly different 30-day mortality. Pulmonary artery catheterization may contribute to better patient phenotyping and help devise targeted therapeutic strategies leading to improved outcomes.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 7) - Saúde digital e economia da saúde

PO 31. WHAT IS THE COST OF DISCUSSING PATIENTS IN HEART TEAM IN THE PORTUGUESE NATIONAL HEALTH SYSTEM?

Carolina Pereira Mateus[1], Miguel Santos[1], Sérgio Bravo Baptista[1], Márcio Madeira[2], Marta Marques[2], Inês Fialho[1], Mariana Passos[1], Joana Lopes[1], Marco Beringuilho[1], Inês Miranda[1], Filipa Gerardo[1], Pedro Farto e Abreu[1], José Neves[2], Carlos Morais[1]

[1]Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra. [2]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: The Heart Team (HT) concept was first used formally during the SYNTAX trial, published in 2009. While the concept of the HT is good and endorsed in the guidelines, it keeps a multidisciplinary team of specialists away from clinical tasks during the meeting time. Our purpose was to determine the cost per patient of a HT discussion, since this has not been described for the Portuguese National Health Service.
Methods: Using the prospective database of a HT consisting of a Cardiology Department of a non-surgical center with around 1,500 ward and 250 cardiac ICU admissions per year, and its referral Cardiac Surgery, we determined the number of patients (pts) discussed, the time per patient discussed, and determined the cost per patient in 1,000 consecutive patients discussed. The HT at our center is usually composed of four doctors: clinical cardiologist, interventional cardiologist (IC), cardiac imaging specialist and the cardiac surgeon. Each meeting is prepared by an IC in advance. We considered the standard public hospital medical wage (2,746.24€ per month, 40 h per week).
Results: From January 2018 to December 2021, 1,020 patients were discussed in 69 HT meetings. Each meeting lasts 90 minutes. The interventional cardiologist takes around 3 hours to prepare each meeting and update the database. This yields a mean number of 14.8 patients discussed per meeting, with 6.1 minutes each. Considering the value of 3 hours of the IC (51.6€) plus the 90 minutes of four doctors meeting (103.2€), the whole meeting cost is 154.8€. Thus, the cost per patient discussed was 10.47€.
Conclusions: In the Portuguese National Health Service, the cost per patient discussed in Heart Team is very low, making it one of the most cheapest and effective strategies for complex surgical cardiac patient management.

PO 32. [SALUS] REMOTE MONITORING OF PHYSIOLOGIC PARAMETERS AND ASSESSMENT OF CARDIOVASCULAR PATIENTS

João Brito[1], Helena Fonseca[2], Rodrigo Leão[3], Sérgio Laranjo[2], Hugo Ferreira[1]

[1]Instituto de Biofísica e Engenharia Biomédica. [2]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [3]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital Santo António dos Capuchos.

The activity of the autonomic nervous system (ANS) results from the antagonistic effects of its sympathetic and parasympathetic components. They are responsible for the regulation of the heart rate and blood pressure in order to maintain homeostasis during physiological stress. Disturbances in this system have been associated with syncope or atrial fibrillation, for example. Therefore, the evaluation of the ANS is essential for diagnostic and prognostic purposes. To comprehensively assess the ANS at the hospital, we developed a wearable IoT device, SALUS, which measures heart rate (HR), various heart rate variability (HRV) parameters, the low to high frequency ratio (LF/HF), respiratory rate (RR), oxygen saturation (SpO2), and peripheral vascular resistance (PVR). We conducted this study to assess the reliability of this new device by comparing it to gold-standard devices in clinical practice. SALUS was tested in the Syncope Unit following the Frontal Tilt Test protocol with glycerol trinitrate applied to all consecutive patients admitted during May 2022. The Task Force Monitor (TFM) was used to collect HRV and PVR data, and the uMEC10 cardiac monitor was used for measuring HR and SpO2. All these parameters were compared with those measured by the SALUS in the first 5 minutes of the Tilt Test acquisition. Linear regression and Bland-Altman analysis (limits of agreement, LA = [+-1.96 × standard deviation], and bias) were used to evaluate the comparisons statistically. Eleven patients were studied, representing a heterogeneous sample, as no exclusion criteria were defined for this pilot study. The results obtained for the values of

HR (R^2 = 0.99; LA = [-0.53; 0.82] bpm; bias = 0.15 bpm), SpO2 (R^2 = 0.83; LA = [-0.80; 1.24]%; bias = 0.22%), and LF/HF (R^2 = 0.77; LA = [-0.33; 0.32]; bias = 0) suggest a robust agreement between the parameters measured by SALUS and the reference devices. Regarding PVR, the agreement is weaker (R^2 = 0.43; LA = [-45.0; 594.6]; bias = 274.8), as expected given the known variability of the TFM in determining these values and the individual variability, here possibly increased due to the clinical heterogeneity of the studied sample. However, the PVR results are thus promising, requiring studies with larger sample sizes to prove and establish SALUS as a first-line comprehensive tool for evaluating cardiovascular patients.

PO 33. DOES WATCHING SPORTS IMPACT YOUR HEART?

Ana L. Silva, Gonçalo Terleira Batista, Mariana Simões, Tatiana Pereira dos Santos, José Luís Martins, Lino Gonçalves

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

Introduction: Emotional stress triggers cardiovascular events. Watching sports games induces emotional and physiological responses in viewers through neuroendocrine mechanisms that increase myocardial oxygen demand, and raise the risk of arrhythmias and thrombotic events, mainly in patients with known cardiac disease. However, epidemiological studies have been inconsistent, with several studies showing an increase in cardiovascular events, while others report a protective or no effect.
Objectives: Assess the effect of watching sports events on the incidence of cardiovascular events.
Methods: PubMed and Embase were systematically searched to identify appropriate articles. Reference lists were then hand-searched for additional relevant articles. To be included, articles had to assess the association between cardiovascular events and sports events supporters. Using random effects analysis, pooled association measures were calculated for mortality, arrhythmias, and myocardial infarction (MI). Subgroup analysis was conducted based on gender. Publication bias and between-study heterogeneity were evaluated.
Results: There were nineteen studies included in the analysis. The pooled relative risks for mortality, arrhythmias, and MI were 1.45 (0.98-2.15; 95%CI; I2 = 70%; p = 0.02), 1.31 (0.98-1.77; 95%CI; I2 = 85%; p < 0.01) and 1.11 (0.98-1.24; 95%CI; I2 = 91%; p < 0.01), respectively. The null association persisted in the subgroup analyses by gender for mortality, MI, and the combined endpoint MI/stroke (non-significant relative risks).
Conclusions: Overall, this analysis suggests that watching sports events is not associated with an increased risk of death, arrhythmias, or myocardial infarction, regardless of gender.

PO 34. EFFECTIVENESS OF AN ELECTRONIC ALERT ON INAPPROPRIATE NT-PROBNP SHORT-TERM REPEAT TESTING

Inês Pereira de Miranda, Inês Fialho, João Bicho Augusto, João Nabais, Teresa Sardinha, Daniella Azevedo, Miguel Santos

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

Introduction: NT-proBNP is an expensive laboratory marker used as a diagnosis and prognosis biomarker in heart failure (HF). In patients with acute decompensated HF (ADHF), it can be useful at admission and at discharge, but repeated measurement over a short period of time is potentially inappropriate and associated with unnecessary costs. The aims of this study were to determine the effectiveness of an electronic alert on reducing the prevalence of inappropriate use of NT-proBNP and estimate the potential cost savings.
Methods: An electronic alert was implemented on 25th Nov 2022, prompting doctors to type a clinical justification for ordering NT-proBNP whenever a result was available in the previous 5 days. The alert can easily be dismissed by typing a single character. The percentage of potentially inappropriate testing (repeat in ≤ 5 days) was determined after the implementation (intervention period, from 25th Nov-15th Dec 2022) and compared to 2 control periods: 1st Oct-24th Nov 2022 (control period A) and 25th Nov-15th Dec 2021 (control period B). A €29.60 cost per test was used. Chi-square was used for statistical analysis.
Results: The total number (n) of NT-proBNP orders and the percentage (%) of repeat testing in ≤ 5 days was: during the intervention period n = 1,022 and 20%; during the control period A n = 2.543 and 22%; during the control period B n = 840 and 20%. The percentage of potential inappropriate testing was not significantly different when comparing the intervention period to the control period A (p = 0.74) and control period B (p = 0.48). The total number of NT-proBNP tests per year is around 11,000. A strategy that would reduce potential 20% inappropriate tests would save €65,120 per year.
Conclusions: Around 20% of NT-proBNP tests are ordered within 5 days or less of a previous test. An electronic alert prompting doctors to type a clinical justification for the NT-proBNP whenever a result was available in the previous 5 days is not effective. An effective intervention to reduce inappropriate testing could save over €65.000 year in a moderate dimension hospital. More effective strategies are necessary.

PO 35. 3D- SIMULATOR TRAINING IN INTERVENTIONAL CARDIOLOGY: A POTENTIAL GAME CHANGER?

João Borges-Rosa[1], Carolina Sequeira[2], Ana Rita M. Gomes[1], Diogo de Almeida Fernandes[1], Eric Alberto Monteiro[1], Gil Cunha[1], Gonçalo Ferraz Costa[1], Gustavo M. Campos[1], Joana Guimarães[1], Rafaela Fernandes[1], Vanessa Lopes[1], Gustavo Norte[3], Manuel Oliveira-Santos[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra. [3]Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Bragança.

Introduction: Three-dimensional (3D) printing has rapidly evolved in cardiology as a useful tool in the diagnosis and planning of percutaneous interventions. Moreover, the simulation of these procedures in 3D models provides the opportunity to manipulate real devices and learn intervention skills in a realistic, controlled, and safe environment with potential benefits in training programs. However, to ensure that simulators provide a realistic comparison to real-life they must undergo scientific validation. We aimed to evaluate the 3D printed simulator SimuHeart® for face and content validity and to demonstrate its value as a training tool.
Methods: We recruited cardiologists, sub-specialists, cardiology residents, nurses, and technicians from sixteen Portuguese hospitals. Participants performed a simulation protocol on the 3D-printed simulator SimulHeart®. All participants received a 30-minute introduction followed by a demonstration of each task and finally attempted to perform it

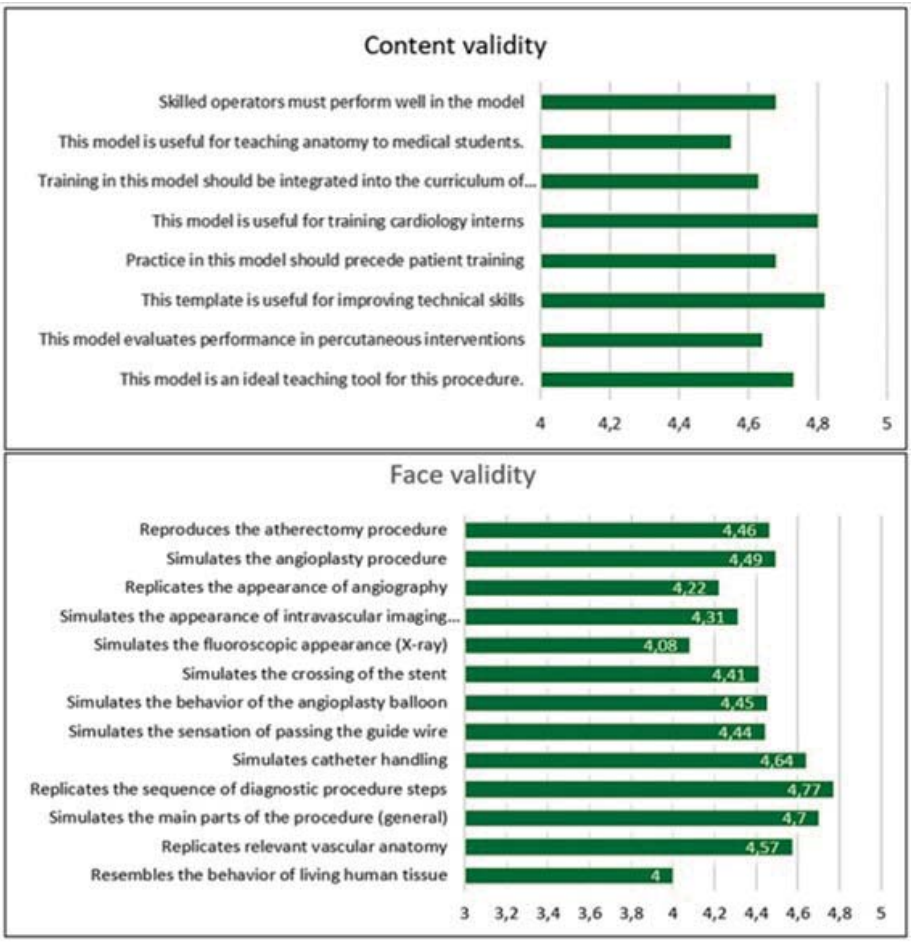


Figure 1: Content (A) and face (B) validity of the 3D printed simulator (SimulHeart®). Each variable was evaluated in a 5-point scale.

Figure PO 35

for 2 hours (selective coronary catheterization by radial or femoral access; angioplasty of calcified lesions with rotational atherectomy/ litoplasty; and transcatheter aortic valve implantation). A post-training questionnaire with 3 main areas (the appearance of the simulation, simulation content, and satisfaction/self-efficacy) was administered to all participants.

Results: We included 56 participants, mean age 35.6 years and 55.4% males: 16 "experts" (cardiologists and sub-specialists), 26 "novices" (cardiology residents), and 14 others (cardiology nurses and technicians). The overall mean score of face validity was 4.38 ± 0.35 (Figure 1A), while the overall mean score of content validity was 4.69 ± 0.32, (Figure 1B). There was no statistically significant difference in the scores of "experts" and "novices". In the questionnaire satisfaction/self-efficacy, 75% strongly considered that the course improved theoretical knowledge, and 61% considered it strongly improved skills. 68% strongly agreed that after the simulation training, they felt confident to explain the procedure to a patient while 82% agreed or strongly agreed that they felt confident to perform the procedure on a patient. 86% of all participants strongly agreed they would recommend the course to colleagues. Additionally, 96% "agreed" or "strongly agreed" that the simulator should be integrated into the cardiology residency curriculum. The mean score (on a 10-point Likert scale) in general terms for the use of the model in training was 9.41 ± 0.80.

Conclusions: 3D printed simulator SimulHeart® showed good face and content validity. 3D simulation might play an important role in interventional cardiology training programs. In this study, strong support was found from both "experts" and "novices" for its inclusion in resident education. Further research is required to correlate simulation to clinical performance.

Sexta-feira, 14 Abril de 2023 | 11:00-12:00

Jardim de Inverno | Posters (Sessão 1 - Écran 8) - Dislipidemia, diabetes e obesidade

PO 36. CORONARY ARTERY DISEASE AND APOLIPOPROTEIN LEVELS: ANALYSIS OF PATIENTS REFERRED TO A CARDIAC REHABILITATION PROGRAM

Ricardo Carvalheiro, Inês Ferreira Neves, Ana Raquel Santos, Pedro Rio, Ana Sofia Silva, Luciano Alves, Rui Cruz Ferreira

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

Objectives: To evaluate the lipid profile, including apolipoproteins (Apo) A-I, B and lipoprotein (a) (Lp[a]) levels, and its correlation to the degree of coronary heart disease (CAD) in patients referred to a cardiac rehabilitation (CR) program.

Methods: Retrospective cohort study of 97 patients with CAD referred to a CR program with lipid profile analysis between January 2021 and October 2022. Patients were grouped by number of coronary arteries affected (1.2 or 3), and lipid profile parameters were compared between the groups.

Results: 83 (85.6%) of patients (P) were male, and the mean age was of 57 ± 9 years. Most patients were referred after an acute myocardial infarction, with 73P (75.3%) having had a STEMI and 14P (14.4%) an NSTEMI. At presentation, mean BMI was 28.0 ± 6.2 kg/m^2 and mean abdominal circumference was 101.3 ± 11.6 cm. 50P (51.5%) were active smokers, 19P (19.6%) had diabetes, 50P (51.5%) had dyslipidemia, and 95P (97.8%) were under statin therapy. 60P (62.5%) had 1 vessel disease, 23P (24.0%) had 2 vessel disease, and 13 (13.5%) had 3 vessel disease. At presentation, mean ApoA1 was 127.3 ± 18.4 mg/dL, ApoB 67.3 ± 20.3 mg/dL, ApoB/ApoA1 ratio 0.56 ± 0.17; median Lp(a) was 22.0 mg/dL (IQR 22-58). There was a statistically significant difference in mean triglyceride levels (F(2.93) = 6.283, p = 0.003), ApoB levels (F(2.93) = 3.603, p = 0.031) and ApoB/ApoA1 ratio (F(2.92) = 3.324, p = 0.04) between groups of patients according to the number of coronary arteries occluded, as determined by one-way ANOVA. A Tukey post hoc test revealed that triglyceride levels were statistically significantly higher in patients with two vessel disease (129.5 ± 44.0, p = 0.012) and three vessel disease (134.0 ± 108.0, p = 0.028) compared to patients with one vessel disease (91.2 ± 37.8); patients with two vessel disease had higher ApoB levels (76.7 ± 24.5, p = 0.024) and ApoB/ApoA1 ratio (0.6 ± 0.19, p = 0.047) compared to patients with one vessel disease (63.78 ± 17.65 and 0.51 ± 0.15, respectively). There were no statistically significant differences between the groups regarding total cholesterol, LDL cholesterol, HDL cholesterol, ApoA1 and Lp(a).
Conclusions: In our cohort, patients with two vessel disease had higher ApoB levels and ApoB/ApoA1 ration compared to patients with one vessel disease. There were no statistically significant differences between the groups regarding Lp(a) levels.

PO 37. POLYMORPHISMS OF THE RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM ARE ASSOCIATED WITH OBESITY IN A PORTUGUESE POPULATION

Ana Célia Sousa[1], Roberto Palma dos Reis[2], Carolina Morna[1], Jéssica Chaves[1], Diogo André[1], Fabiana Gouveia[1], Eva Henriques[1], Sónia Freitas[1], Mariana Rodrigues[1], Sofia Borges[1], Maria João Oliveira[1], Graça Guerra[1], Ana Isabel Freitas[1], Ilídio Ornelas[1], Maria Isabel Mendonça[1]

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

Introduction: Obesity is well recognized as a severe public health problem and results from complex interactions between multiple genes and environmental factors that remain poorly understood. Previous research points out that obesity activates the renin-angiotensin-aldosterone system (RAAS), increasing angiotensin levels that are involved in energy balance and fat metabolism. However, these complex mechanisms need to be clarified.
Objectives: Investigate whether there is an association between two genetic RAAS variants and the susceptibility to obesity in a Portuguese male population.
Methods: With a sample of 873 male participants selected from the control arm of GENHYMAPE study, two groups were formed: 246 with obesity and 627 non-obese. Obesity was considered when individuals presented a body mass index ≥ 30 kg/m^2. ACE I/D rs4340 and ACE 2350 G>A rs4343 were genotyped in all individuals using Taqman Real-Time PCR assay (Applied Biosystems 7300 Real-Time). The chi-squared test was performed, and the probability (OR) of having obesity was calculated under the models of heredity, selecting the recessive as the best model. Subsequently, a multivariate logistic regression analysis was performed with ACE genetic variants, adjusted for the variables associated with obesity (age, diabetes and physical inactivity).
Results: The genetic variant ACE DD rs4340 was more frequent in the obese group (OR = 1.408; p = 0.024). Similarly, the second ACE variant, 2350 GG genotype, was more prevalent in the individuals with obesity (OR = 1.507; p = 0.010). After multivariate logistic regression, the ACE 2350 GG genotype remained in the equation (OR = 1.538; p = 0.008), along with type 2 diabetes and physical inactivity (Table).
Conclusions: The genetic variants of RAS, ACE rs4340 and rs4343, are associated with the onset of obesity, but only the rs4343 showed an independent association with 54% increased probability of obesity. In the present work, polymorphic genetic alterations favour the onset of obesity and individuals carrying these genetic variants are more predisposed to developing obesity. Preventive measures, mainly lifestyle changes, should be implemented.

PO 38. SYNERGISTIC EFFECT OF TWO VARIANTS OF THE ACE GENE ON THE APPEARANCE OF OBESITY IN A PORTUGUESE POPULATION

Ana Célia Sousa[1], Roberto Palma dos Reis[2], Jéssica Chaves[1], Fabiana Gouveia[1], Carolina Morna[1], Mauro Fernandes[1], Eva Henriques[1], Sónia Freitas[1], Mariana Rodrigues[1], Sofia Borges[1], Maria João Oliveira[1], Graça Guerra[1], Ana Isabel Freitas[1], Ilídio Ornelas[1], Maria Isabel Mendonça[1]

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

Introduction: Obesity is an important risk factor for cardiovascular disease. Several studies prove that, in addition to behavioral factors, there is a strong genetic component underlying the wide variation in body weight. However, the identification of susceptibility genes has been very limited, as well as their respective interactions.
Objectives: The present work intends to investigate whether there is synergism between two genetic variants of Angiotensin Converting Enzyme (ACE), I/D and ACE A2350G, and the onset of obesity.
Methods: A case-control study was performed with 873 male subjects: 246 obeses and 627 controls, without obesity. Obesity was considered when the body mass index was ≥ 30 kg/m^2. The frequency of polymorphic variants of the ACE gene, ACE rs4340 I/D and ACE rs4343 A2350G, were evaluated in both groups and the Odds Ratio (OR) of having obesity was calculated under the inheritance models (dominant, recessive, additive and allelic). Finally, we evaluated the synergistic effect between the two variants of the ACE gene on the onset of obesity, through multivariate analysis.
Results: There is a synergistic effect between the two ACE variants (DD and 2350GG) on the onset of obesity, in the recessive model (OR = 1.528; 95%CI 1.107-2.110; p = 0.010). When performing a multivariate analysis with other risk factors for obesity, namely age, diabetes and physical inactivity, the interaction between the two variants remained in the equation with statistical significance (OR = 1.513; 95%CI 1.098-2.087; p = 0.011).
Conclusions: There is a significantly and independently synergistic effect between the ACE genetic variants, rs4340 and rs4343, in the appearance of obesity in a male population. This result points to the existence of genetic variants of ACE that favor the appearance of obesity in our population. Obesity is not explained in a simple way with a single polymorphism in a gene, as there are synergistic effects between several polymorphisms of the same gene.

Variables independently associated with Obesity

Variables	B	S.E.	Wald	df	Odds ratio (95% CI)	P-value
Diabetes	0.972	0.200	23.686	1	2.644 (1.787 – 3.910)	<0.0001
Physical inactivity	0.620	0.157	15.505	1	1.859 (1.365 – 2.530)	<0.0001
ACE A2350G (GG)	0.430	0.163	6.958	1	1.538 (1.117 – 2.117)	0.008
Constant	-1.586	0.140	128.941	1	0.205	<0.0001

Figure PO 37

Synergistic effect between ACE A2350G and ACE I/D

ACE A2350G	ACE I/D	Obesity		Odds Ratio (95% CI)	P value
		Yes (n=246)	No (n=627)		
AA+AG	II+ID	131 (53.3)	387 (61.7)	Reference	-----
AA+AG	DD	23 (9.3)	62 (9.9)	1.096 (0.653 – 1.840)	0.729
GG	II+ID	2 (0.8)	4 (0.6)	1.477 (0.267 – 8.158)	0.653
GG	DD	90 (36.6)	174 (27.8)	1.528 (1.107 – 2.110)	**0.010**

Variables independently associated with obesity (Logistic regression)

Variables	B	S.E.	Wald	df	Odds ratio (95% CI)	P value
Diabetes	0.968	0.200	23.534	1	2.633 (1.781 – 3.894)	<0.0001
Physical inactivity	0.616	0.157	15.306	1	1.851 (1.360 – 2.519)	<0.0001
ACE A2350G (GG)*ACE I/D (DD)	0.414	0.164	6.397	1	1.513 (1.098 – 2.087)	0.011
Constant	-1.575	0.139	128.951	1	0.207	<0.0001

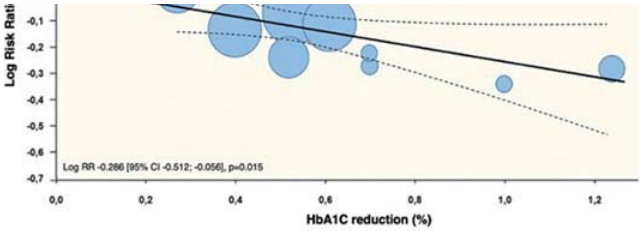
Figure PO 38

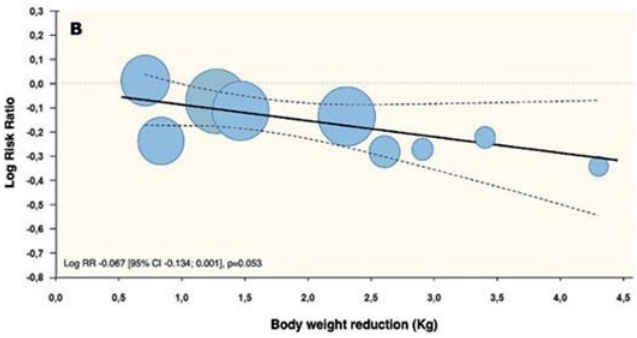
PO 39. ASSOCIATION BETWEEN INTENSITY OF GLYCEMIC CONTROL WITH GLP-1 RECEPTOR AGONISTS AND RISK OF ATHEROSCLEROTIC CARDIOVASCULAR DISEASE: A SYSTEMATIC REVIEW AND META-REGRESSION

Daniel A. Gomes, João Presume, Jorge Ferreira, Pedro de Araújo Gonçalves, Manuel Sousa Almeida, Miguel Mendes

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

Introduction: Several glucagon-like peptide-1 receptor agonists (GLP-1 RAs) have shown to reduce major adverse cardiovascular events (MACE) in patients with type 2 diabetes *mellitus* (DM). However, this reduction has not been consistent among different GLP-1 RAs. We conducted a systematic review and meta-regression analyses to evaluate the association between the intensity of glycemic control achieved by GLP-1 RAs therapy in patients with type 2 DM and the reduction of MACE as well as to identify potential mechanisms involved.





Methods: Electronic databases (MEDLINE, CENTRAL, SCOPUS) were searched through November 2022. Studies were considered eligible if they were cardiovascular outcomes randomized trials (CVOTs) comparing GLP-1 RAs *versus* placebo in type 2 DM patients. Trials including non-diabetic patients and GLP-1 RAs refused by European Medicines Agency or US Food and Drug Administration were excluded. The outcome of interest was 3-point MACE (CV death, MI, or stroke). Random-effects meta-analyses and meta-regression evaluated associations between glycemic control with GLP-1 RAs and study outcomes. Secondary meta-regression analyses were performed for body weight and blood pressure (BP) variation.

Results: Overall, 8 CVOTs were included, with a total of 60,080 patients (30,694 treated with GLP-1 RAs). GLP-1 RAs were associated with a lower incidence of 3P-MACE (RR 0.876; 95%CI 0.821-0.935, p < 0.001). Mean HbA_{1C} reduction was 0.57% in patients treated with GLP-1 RAs *vs.* placebo. Meta-regression showed that higher reductions of HbA_{1C} levels were associated with lower risk of 3P-MACE (Log RR -0.286 [95%CI -0.512; -0.056], p = 0.015), which translates into an estimated relative risk reduction of 25% for each 1% reduction in HbA1C (Figure 1A). There was a non-significant association between glycemic control and each of the 3P-MACE outcomes analyzed separately. Body weight reduction was also associated with a lower risk of 3P-MACE (Log RR -0.067 [95%CI -0.134; 0.001], p = 0.053), despite not meeting statistical significance (Figure 1B). Systolic BP decrease was not associated with reduced risk of 3P-MACE.

Conclusions: The better the glycemic control with GLP-1 RAs in type 2 DM patients, the greater the reduction in 3P-MACE. Body weight reduction may also play a potential role.

PO 40. LDL LEVELS IN VERY HIGH CARDIOVASCULAR RISK PATIENTS - A CALL FOR INTENSIVE LIPID-LOWERING THERAPY

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Hospital Distrital de Santarém, EPE.

Introduction: European society of cardiology (ESC) guidelines on dyslipidemias were published in 2019 updating the LDL recommended values for very high cardiovascular (CV) risk patients from < 70 mg/dL to < 55 mg/dL, as lower LDL levels improve prognosis in this population. This study aims to evaluate LDL levels in a population of very high CV risk and its trend over the years, assess its prognosis impact on acute coronary syndromes (ACS) admissions and evaluate the lipid-lowering therapy medication regimen in this population.

Methods: Retrospective study based on the analysis of patients who were admitted due to ACS between 2017 and 2021 and that before admission were already in the very high CV risk category. LDL levels variation was assessed from 2017 to 2021. Lipid-lowering therapy regimen was assessed using three categories: No statin, statin alone, and statin plus ezetimibe. Outcomes of admission were assessed according to LDL levels and the following endpoints were evaluated: proportion of STEMI, left ventricular dysfunction (< 50%), complications during admission and mortality.

Table2. LDL variation from 2017 to 2021

Variable	Total population n. * (%) (n=228)	2017 (n= 44)	2018 (n= 58)	2019 (n=53)	2020 (n=31)	2021 (n=42)	p value
LDL level*	80± 33 mg/dL	82 ± 28 mg/dL	85±27 mg/dL	79±28 mg/dL	78±32 mg/dL	77±26 mg/dL	
Patients with LDL <70mg/dL	71 (31%)	10 (23%)	13 (22%)	18 (34%)	12 (39%)	18 (43%)	
Proportion of patients with LDL <55mg/dL	36 (16%)	3 (7%)	4 (7%)	9 (17%)	8 (26%)	12 (29%)	
LDL level in 2017 *versus* 2021		82 ± 28 mg/dL				77±26 mg/dL	0.683

Table 3. Outcomes of admission according to LDL levels

Variable	Total Population n.* (%) (n=228)	LDL ≥ 70mg/dL n= 157 (69%)	LDL<70mg/dL n=71 (31%)	p value
STEMI (%)	74 (32,5%)	63 (40,1%)	14 (19,7%)	0.025
LV Ejection fraction <50% (%) *	101 (44,2%)	72 (45,9%)	29 (40,1%)	0.326
Complications during the admission (Sustained ventricular tachycardia, inotropic or vasopressor therapy; mechanical circulatory support; mechanical ventilation; cardiac arrest) (%)	34 (17.1%)	29 (18.5 %)	5 (7,1%)	0.031
Mortality (%)	18 (7,9%)	15 (9,5%)	3 (4.2%)	0,132

*missing values

Figure PO 40

Results: 228 patients were included, mean age of 67 ± 11.6 years and 65% male. Overall, only 31% of the patients had LDL values < 70 mg/dL (82 ± 28 mg/dL), and only 16% of the patients had LDL < 55 mg/dL. Mean LDL levels in 2021 were slightly lower than in 2017, without significance (p = 0.283). ACS admission outcomes analysis revealed that patients with LDL > 70 presented with a significantly higher proportion of STEMI (p = 0.025) and had significantly more complications during admission (p = 0.031). Analysis of lipid-lowering therapy regimens revealed that most of the patients are treated with statin alone (70.6%) and only 26.7% of the patients are treated with statin + ezetimibe.
Conclusions: Most of the patients in the very high CV risk category who are admitted due to ACS are above the ESC LDL recommended levels, translating into worse outcomes. Only a small percentage of this population is treated with combination lipid-lowering therapy. The results of this study restate the need for aggressive lipid-lowering therapy in very high CV risk patients.

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

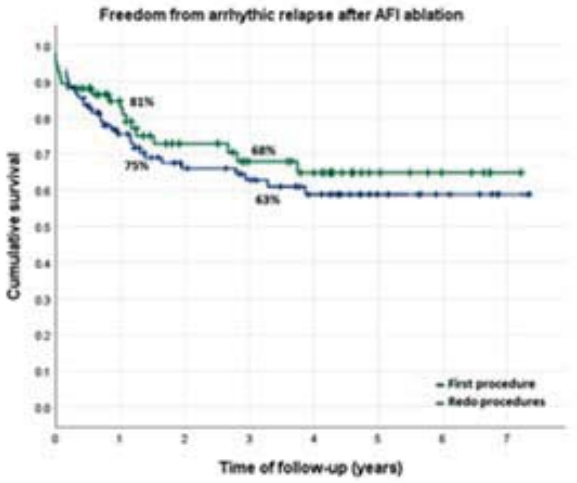
Jardim de Inverno | Posters (Sessão 2 - Écran 1) - Arritmias - Miscelânea

PO 41. LONG TERM EFFECTIVENESS OF LEFT SIDED AFL ABLATION

Joana Brito, Beatriz Valente Silva, Pedro Alves Silva, Afonso Nunes Ferreira, Gustavo Lima da Silva, Ana Bernardes, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: The technological advance in the electroanatomical mapping along with the enhanced experience in atrial flutter (AFl) ablation made room for a better comprehension of the circuits involved and led to more effective procedure. Long-term results of AFl ablation guided through high-density mapping are still unknown.
Objectives: To evaluate the long-term success of left-sided AFl ablation.
Methods: Single-center retrospective study of left-sided AFl patients (pts) submitted to a high-density mapping and ablation from 2015 to 2022 and with a minimum post-procedure follow-up of 6 months. The ablation strategy consisted in linear applications transecting the critical shared isthmus in pts with macro-reentrant circuits, and focal applications in the ones with micro/localized reentries. Acute success was defined as conversion to sinus rhythm with the planned ablation set. The procedure endpoint was the demonstration of conduction block in a remap during pacing close to the ablation line. Arrhythmic relapse was defined as atrial fibrillation or AFl recurrence. Kaplan-Meyer analysis was used to estimate the event-free survival during follow-up and Cox regression was used to identify the predictors of arrhythmic relapse.
Results: A total of 82 pts were included (63% male, 67 ± 12 years old), including 21% with ischemic and 12% with dilated cardiomyopathy. About 53% had been submitted to a prior pulmonary vein isolation, including a left atrial linear ablation in 17%. Acute success was achieved in 93%, persisting conduction through the ablation line in the remaining 6 pts. After a single procedure, the 1-year success rate was 75%, decreasing to 63% at 3-years. During a mean follow-up 3 ± 2 years, 14 (17%) were submitted to a second procedure, consisting in typical AFl ablation in 2, PVI in 1, focal tachycardia ablation in 1 and atypical AFl redo in 8 pts. Among pts undergoing atypical AFl redo, a completely new circuit was recognized in 2, but the dominant mechanism was scar-related in relation to the previous ablation (N = 4) or gap-related (N = 4). After additional redo procedures, freedom from arrhythmia recurrence increased to 81% at 1 year and 68% at 3 years (Figure). In 4 pts (5.5%) AV nodal ablation was performed due to persistent arrhythmia. Arrhythmic relapse was significantly more common in older pts (72 ± 8 *vs.* 64 ± 12, p = 0.028). No other clinical or procedural characteristics were significantly associated with relapse.



Mechanism of the redo procedures	N = 14
Counterclockwise peritricuspide flutter, n(%)	2 (14.3)
Pulmonary vein isolation , n(%)	1 (7.1)
Right atrium focal arrythmia , n(%)	1 (7.1)
Scar from previous ablation, n(%)	4 (28.6)
Gap from previous ablation, n(%)	4 (28.6)
New atrial flutter, n(%)	2 (14.3)

Figure PO 41

Conclusions: Left sided AFL ablation, based on a systematic mapping approach aimed to clarify the arrhythmia mechanism and to validate the conduction block over the ablation line, is highly successful, allowing sinus rhythm restoration in the vast majority of pts.

PO 42. CATHETER ABLATION FOR ATYPICAL ATRIAL FLUTTER: CHARACTERIZATION AND RECURRENCE PREDICTORS

M. Inês Barradas[1], Paulo Fonseca[2], João Almeida[2], Marco Oliveira[2], Helena Gonçalves[2], João Primo[2], Anabela Tavares[1], Ricardo Fontes-Carvalho[2]

[1]Hospital do Divino Espírito Santo, Ponta Delgada. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Atypical atrial flutter (AFLA) is a macro-reentrant atrial tachycardia not using the cavotricuspid isthmus. Due to recent innovations in technology, catheter ablation has emerged as the most viable option to treat AFLA. Data related to electrophysiologic characteristics and predictor prognostic factors is limited.

Methods: We performed a retrospective single-center review of all consecutive patients treated for AFLA ablation in our center from October 2008 to July 2022. All patients underwent radiofrequency ablation with a 3D mapping system. Our study aimed to analyze long-term outcomes after catheter ablation and to identify predictors for atrial arrhythmia (AA) recurrence (documented atrial fibrillation (AF), atrial tachycardia, or atrial flutter).

Results: From 64 patients (mean age 61.0 ± 11.28 years, 60.9% male and mean follow-up period (FUP) 58.5 ± 47.79 months) 32 (50.0%) had history of previous catheter ablation (35.9% PVI), 14 (21.9%) previous cardiac surgery and 18 (28.1%) corresponded to AFLA not related to ablation or previous cardiac surgery. Most patients (79.7%) had paroxysmal AFLA, 50% concomitant AF, 50% were on anthyarrhytmic drugs (AAD) and 35.9% underwent previous electrical cardioversion (ECV). Mean left ventricular ejection fraction was 55.1 ± 10.44%, 25 (39.1%) patients had moderate to severe left atrial (LA) dilatation and 11 (17.2%) right atrial (RA) dilatation. Low-voltage areas (LVA) were identified in 38 (59.4%) patients. A total of 81 AFLA were present or induced (1.3 ± 0.74 AFLA per patient) and in 7 (10.9%) patients an atrial arrhythmia was not induced. The LA was involved in 70.3% and the RA in 29.7%. The location of the circuit is described in table 1 as well as ablation details. Acute procedural success was achieved in 87.5%. AA recurrence occurred in 32.8% at 1 year, 35.9% at 2 years and 40.6% at FUP (14.1 ± 41.41 months after ablation), for which 3.1% had re-ablation (17.0 ± 23.99 months after index ablation), 5 (7.8%) ECV and 15 (23.4%) maintained or initiated AAD. 10 (15.6%) went to the emergency department (ED) due to AA (mean time since ablation until the first ED visit 31.4 ± 69.07 months). One patient had an ischemic stroke and 6 patients cardiovascular (CV) hospitalization. There were 5 non-CV deaths and there were no CV deaths. Female gender was an independent predictor of AA recurrence (15 (60.0%) *vs.* 11 (31.4%), hazard ratio (HR): 3.496 [95%CI: 1.761-200.000], p = 0.046) as well as moderate or severe LA dilatation (14 (51.9%) *vs.* 3 (17.6%), HR 3.257 [95%CI 1.715-38.462], p = 0.033). The presence of fibrosis or the ablation strategy were not associated with recurrence.

Table 1: Electrophysiologic characteristics of AFLA:

Procedural data	**AFLA (n=64)**
General procedure parameters:	
Fluoroscopy time, mean ± SD (minutes)	15.3 ± 14.70
Procedure time, mean ± SD (minutes)	145.8 ± 44.15
Intraprocedural cardioversion, n (%)	14 (21.8)
Complications, n (%)	6 (9.4)
Hospitalization duration, mean ± SD (days)	1.0 ± 1.61
Number of AFLA induced:	
• 0, n (%)	7 (10.9)
• 1, n (%)	37 (57.8)
• 2, n (%)	16 (25.0)
• ≥ 3, n (%)	4 (6.3)
Substrate pattern:	
Low-voltage areas, n (%)	38 (59.4)
• Right atrium, n (%)	9 (14.1)
• Left atrium , n (%)	29 (45.3)
Large low-voltage areas, n (%)	19 (29.7)
Anatomical location:	
Left atrium, n (%)	45 (70.3)
• Peri-pulmonary, n (%)	23 (35.9)
• Peri-mitral, n (%)	8 (12.5)
• Roof-dependent, n (%)	1 (1.6)
• Low voltage anterior, n (%)	9 (14.1)
• Low voltage posterior, n (%)	4 (6.3)
Right atrium, n (%)	19 (29.7)
• Scar/ incisional, n (%)	12 (18.8)
• Upper loop reentry, n (%)	2 (3.1)
• Lower loop reentry, n (%)	2 (3.1)
• Free-wall, n (%)	2 (3.1)
• Superior vena cava, n (%)	1 (1.6)
Acute ablation outcomes:	
Immediate termination, n (%)	29 (45.3)
Another AFLA terminated with additional ablation, n (%)	12 (18.8)
Another AFLA not sustained, n (%)	2 (3.1)
Another AFLA not terminated with additional ablation, n (%)	3 (4.7)
Degenerated in AF, n (%)	1 (1.6)
Not terminated, ECV, n (%)	5 (7.8)
Not induced, n (%)	7 (10.9)
Acute success, n (%)	56 (87.5)

AFLA: atypical atrial flutter; SD: standard deviation; AF: atrial fibrillation; ECV: electrical cardioversion.

Conclusions: AFLA most frequently originated in the LA, LVA were frequent, as well as the presence of structural changes and previous ablation or cardiac surgery. In our cohort study, female gender and the severity of LA dilatation were independent predictors of AA recurrence.

PO 43. PULMONARY VEIN ISOLATION WITH ADDITIONAL SUBSTRATE ABLATION FOR ATRIAL FIBRILLATION RESULTS IN AN INCREASED RISK FOR THE DEVELOPMENT OF ATYPICAL ATRIAL FLUTTER

Inês Ferreira Neves, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Hélder Santos, André Monteiro, Rita Contins, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction: Pulmonary vein isolation (PVI) is the cornerstone of atrial fibrillation (AF) catheter ablation. Several extra pulmonary vein (PV) ablation strategies for substrate modification (PVI plus) have been employed to AF patients. It has not been proven that this approach decreases the recurrence of AF, and it could contribute to increase the risk of developing atypical atrial flutter.
Methods: Patients submitted to AF catheter ablation at our centre between 2005 and 2020 were included. Using logistic regression, we did a retrospective analysis of the association between the application of PVI plus strategies (such as ablation of the cavo tricuspid isthmus (CTI), ganglion plexus, isolation of the superior vena cava (SVC), mitral isthmus ablation and atrial roof line ablation) and the development of atypical flutter later submitted to ablation.
Results: Five hundred and seventy-five patients were included (64% males, age 57 ± 12 years [between 14 and 81], 68.2% with paroxysmal AF) with > 1-year follow-up. Five hundred and five (87.8%) had PVI alone. From the 575 patients, 11 (1.9%) developed an atypical flutter during the follow-up, which was later submitted to ablation. The odds of a patient submitted to a PVI plus strategy developing atypical atrial flutter are 13.92 times higher than the one of those submitted to a stand-alone PVI technique, with a p value < 0.001 (95%CI 3.96-48.87).
Conclusions: Additional substrate ablation for AF significantly increases the risk of developing atypical auricular flutter.

PO 44. NON-INVASIVE ELECTROCARDIOGRAPHIC MAPPING USING AN ENDO-EPICARDIAL SYSTEM SHOWS BETTER ACCURACY FOR ATRIAL ARRHYTHMIAS THAN VENTRICULAR ARRHYTHMIAS

Leonor Parreira[1], Pedro Carmo[1], Sílvia Nunes[1], Joana Pinho[1], Stepan Zubarev[1], Mikhail Chmelevsky[1], Rita Marinheiro[2], Lia Marques[2], António Ferreira[1], Dinis Mesquita[2], Duarte Chambel[2], Pedro Machado[1], Pedro Amador[2], Pedro Adragão[1]

[1]Hospital da Luz Lisboa. [2]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction and objectives: Electrocardiographic imaging (ECGI) is capable of performing an activation map with a single beat. The Amycard

	VAs N=37	AAs N=17	P value
Age in years, median (Q_1-Q_3)	56 (41-62)	63 (56-72)	0.037
Male gender (%)	51%	42%	0.742
Number of leads, median (Q_1-Q_3)	139 (119-155)	140 (118-149)	0.553
Success, n (%)	30 (81)	17 (100)	0.084
Agreement			
PM, n (%)	28 (76)	17 (100)	0.044
NM, n (%)	36 (97)	17 (100)	1.000
No-match, n (%)	1(3)	0 (0)	1.000

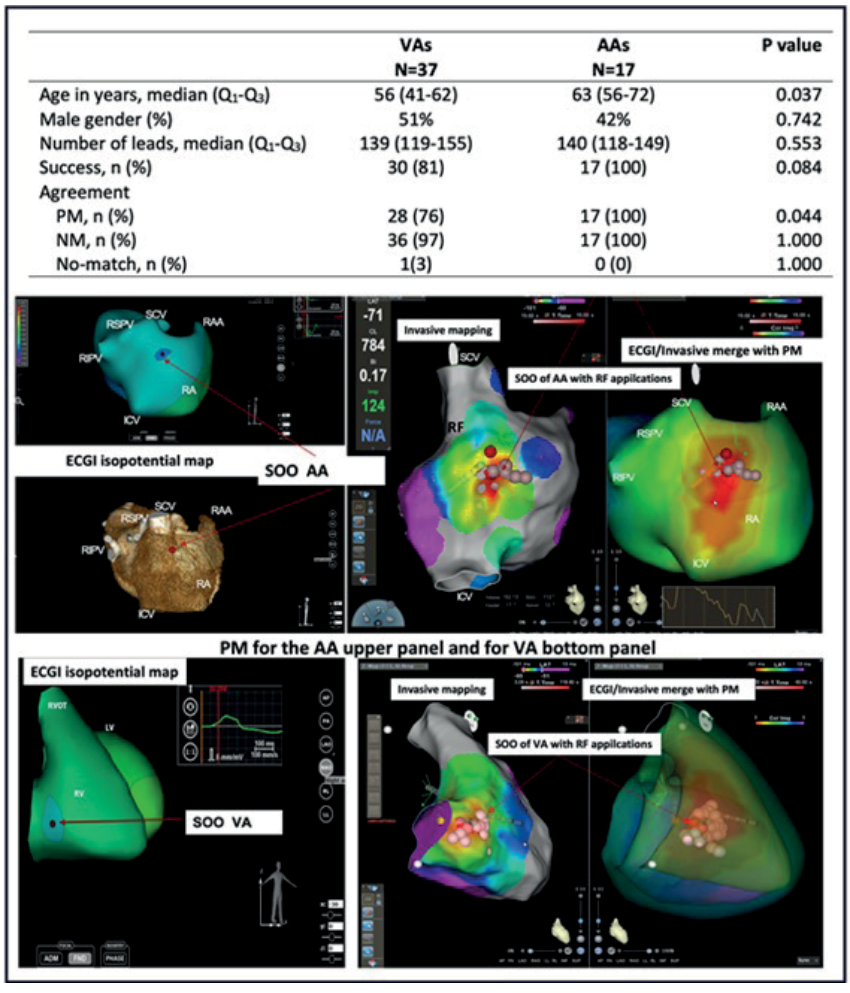


Figure PO 44

system (EP Solutions SA, Switzerland) allows for the reconstruction of endo-epicardial potentials both in the ventricles and the atria. The aim of this study was to compare the accuracy of the system to predict the site of origin (SOO) of ventricular focal arrhythmias (VAs) *versus* atrial focal arrhythmias (AAs).

Methods: We studied 55 consecutive patients referred for ablation of VAs or AAs that had an ECGI performed before ablation. The localization of the VAs and AAs based on the ECGI and invasive electroanatomic mapping was performed using a segmental model of the atria and the ventricles. A perfect match (PM) was defined as a predicted location within the same anatomic segment, whereas a near match (NM) as a predicted location within the same segment or a contiguous one. The number of leads used for ECGI mapping, the agreement between the ECGI and the invasive map, and the success of the procedure were evaluated.

Results: Ablation was performed in 49 patients. Patients with AAs were older. We mapped 54 arrhythmias, 37 VAs (37 patients) and 17 AAs (12 patients). The results according to the atrial or ventricular origin of the arrhythmia are depicted in the table. The AMYCARD system correctly identified the SOO of both VAs and AAs in the same segment or a contiguous one in 100% of AAs and 97% of VAs, p = 1.000. However, the percentage of a PM (Figure) was higher for AAs than for VAs (100% *vs.* 76%, p = 0.044).

Conclusions: The endo-epicardial ECGI correctly identified the origin of both ventricular and atrial arrhythmias. However, the accuracy was higher for the latter.

PO 45. PATIENTS WITH IMPLANTABLE CARDIAC DEVICES UNDERGOING RADIATION THERAPY: A SINGLE CENTER EXPERIENCE

Fernando Ribeiro Mané, Inês Conde, Rodrigo Silva, Rui Flores, Sofia Ramos, Marina Amorim, Maria Rodrigues, Cristiana Braga, Catarina Barbosa, Sandra Paiva, Paulo Medeiros, Sónia Magalhães, Carina Arantes, Adília Rebelo, Sérgia Rocha

Hospital de Braga, EPE.

Introduction: Radiation therapy is a known risk factor for cardiac implantable electronic devices (CIEDs) malfunction. However, the management of CIEDs during radiotherapy is heterogeneous across centers and the frequency of complications is variable.

Objectives: We aimed to evaluate the prevalence of CIED malfunction in patients submitted to radiotherapy after adequate risk stratification and management according to a predefined protocol.

Methods: Retrospective observational cohort study that included patients with CIEDs chronically followed in our center and submitted to radiotherapy. CIED management during the treatment period was conducted according to pre-defined institutional protocol (Figure). Data were collected on patient and device baseline characteristics, radiation exposure during treatment (two main measures: cumulative dose (Gy) and photon energy (mV)) and CIEDs malfunction events.

Results: We included 55 patients with a mean age of 77 ± 10 years. Most patients were male (72%). Median follow-up was 18 months. Ten percent of patients were defibrillator carriers, as most were pacemaker carriers (90%). Of these, 28% were pacemaker dependent. Regarding radiation exposure, the most common treatment region was pelvic-prostatic (47%), followed by thoracic (19%), yet only 1 patient had the CIED located in the clinical target volume (2%). When radiation dose was analyzed, only 1 patient had cumulative dose on device > 20 Gy (defined as high dose) and 3 (5%) patients had intermediate low range doses (2-5 Gy). Despite these results, analysis of photon energy demonstrates that most patients (75%) were exposed to neutron generating energy (> 10 MV). The sample was mainly classified as low risk according to the institution protocol (70%), followed by intermediate risk (28%), and only 1 patient was classified as high-risk (2%). Device malfunction was detected in 1 patient (2%), and specifics are presented in the Table.

Conclusions: Radiotherapy is safe in patients with CIEDs when adequate surveillance and follow-up is undergone, as was observed in this cohort. Nonetheless, the major criteria used to stratify patients is dubious and may lead to misclassifications of risk. In our sample many patients were exposed to neutron generating energy, with potentially more risk of CIED malfunction but not frequently included in most protocols regarding device management. As events are so rare, larger studies are needed to improve risk management in this population.

Figure 1: Institutional protocol

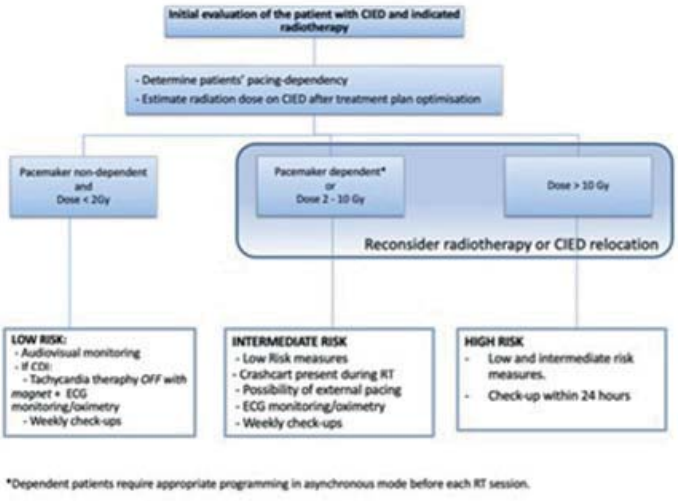


Table 1: Device malfunction characterization

Type of malfunction	Telemetry Delay
Timing	Halfway during treatment sessions
Age	75
Sex	Male
Type of CIED	Pacemaker-DDDR
Manufacturer	SJM/Abbott
Location	Right chest
Pacemaker dependent	Yes
Treatment region	Pelvic-prostatic
Device radiation dose (Gy)	<2 (low dose)
Photon energy (MV)	15 (neutron producing)
Risk according to protocol	Intermediate Risk
Adverse clinical event	None
Reversibility	In the end of treatment.

Figure PO 45

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 2) - Cardiologia em populações especiais 2

PO 46. LONG-TERM PROGNOSIS OF ELDERLY PATIENTS UNDERGOING ATRIAL SEPTUM DEFECT CLOSURE: ARE WE ACTING TOO LATE?

Maria Rita Giestas Lima, Sérgio Maltês, Sérgio Madeira, Inês Carmo Mendes, Duarte Martins, Luís Miguel Abecasis, José Pedro Neves, Rui Anjos, Miguel Mendes

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

Introduction: Atrial septum defects (ASD) are the third most common congenital heart defect affecting adults and often goes unrecognized due to the absence of significant symptoms and unspecific signs at physical examination. Yet, long-term exposure to chronic right heart volume overload can have deleterious effects, with almost all patients becoming symptomatic by the fifth or sixth decade. However, whether ASD closure in an elderly patient affects their average life expectancy (ALE) is still unknown.
Objectives: To assess the relationship between ASD closure and ALE in a Portuguese cohort of patients older than 65 years old.
Methods: Single-centre retrospective study including all consecutive patients older than 65 years old that underwent isolated ASD closure (surgical or percutaneous) between January 1998 and December 2020. Baseline characteristics were assessed as well as the predicted ALE (as determined per pre-defined national ALE tables) for every given patient at the time of the ASD closure.
Results: A total of 37 patients with a mean age at closure of 69 ± 5 years, 76% female, were included. Most patients presented with heart failure (62%), 14% with ischemic stroke, and 51% had an atrial arrythmia. 22% patients had severe tricuspid regurgitation, the mean systolic pulmonary artery pressure (SPAP) was 50 ± 11 mmHg and the median Qp/Qs was 2.1 [1.2-2.5]. Five patients were treated surgically. The mean size of the ASD was 21 ± 7 mm and those treated surgically were larger (24 ± 7 mm *vs.* 21 ± 9 mm). During the mean follow up of 9.3 ± 5.2 years, 16 patients died (37%). The mean age of death was 79.4 ± 5.8 years and did not differ significantly from the expected mean ALE of 84.3 ± 1.3 years (p = 0.304). Patients who did not reach the predicted ALE at the time of the procedure (N = 12, 33%) had higher SPAP (58 ± 10 *vs.* 46 ± 8 mmHg; p = 0.001) and presented more frequently with severe tricuspid regurgitation (42 *vs.* 12%, p = 0.040) (Figure 1A). There was no difference in terms of mortality regarding method of closure (p = 0.096).
Conclusions: Overall survival of elderly patients that underwent late ASD closure did not differ significantly from the expected ALE, nevertheless one-third of the patients died prematurely. A premature death was associated with higher SPAP and a more severe tricuspid regurgitation. These results suggest that late-ASD closure does not overcome the effects of long-term right chamber overload and pulmonary hypertension, thus arguing in favour of earlier intervention.

PO 47. CARDIAC REHABILITATION IN OLDER POPULATIONS - NEVER TOO LATE TO IMPROVE CV HEALTH

Marta Miguez de Freitas Vilela[1], Beatriz Valente Silva[2], Pedro Alves da Silva[2], Joana Brito[2], Catarina Simões de Oliveira[2], Ana Beatriz Garcia[2], Ana Margarida Martins[2], Miguel Azaredo Raposo[2], Catarina Gregório[2], João Santos Fonseca[3], Paula Sousa[2], Nelson Cunha[2], Inês Ricardo[2], Rita Pinto[2], Fausto J. Pinto[2], Ana Abreu[2]

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Introduction: Age is one of the most determinant cardiovascular risk factors and the prevalence of cardiovascular disease is higher after 70 years old. Referral to cardiac rehabilitation programs for elder individuals is often overlooked since such patients are deemed as frail, high risk and may show lack of competence when attending these programs.
Objectives: To assess differences in clinical characteristics and outcomes between pts > 70 years old with younger ones.
Methods: Prospective cohort study which included consecutive pts who were participating in a center-based CR program lasting 8-12 weeks from

A

		PATIENTS WHO HAVE REACHED ALE PREDICTED	PATIENTS WHO HAVEN'T REACHED ALE PREDICTED	p
Total number of patients, n (%)		25 (68%)	12 (33%)	
Age of closure, mean±SD (years)		69.8±4.6	68.3±4	0.356
Age of death, mean±SD		84.5±1.3	82.4±4.5	**0.003**
Male sex, n (%)		8 (32%)	1 (8%)	0.116
AF/AFL, n (%)		11 (44%)	8 (67%)	0.408
Chronic disease, n (%)		2 (8%)	1 (8%)	0.218
LVEF, n (%)	≤40	2 (8%)	0 (0%)	0.142
	41-49	0 (0%)	1 (8%)	0.143
	≥50	23 (92%)	11 (92%)	0.972
Clinical Presentation				
Heart Failure, n (%)		13 (52%)	10 (83%)	0.066
NYHA Class I/II, n (%)		22 (88%)	9 (75%)	0.178
Echocardiographic Findings				
Severe Tricuspid Regurgitation, n (%)		3 (12%)	5 (42%)	**0.040**
SPAP, mean±SD (mmHg)		46.1±8.3	58.9±10.2	**0.001**
Qp/Qs, median [P25-P75]		1.6 [1.2-2.5]	2.35 [2.15-3.3]	0.808

B

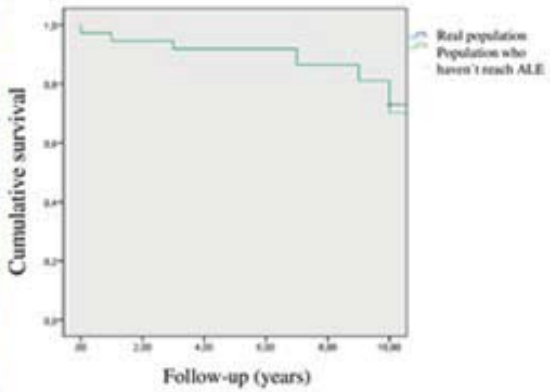

Figure 1 – A) Baseline Patients' Characteristics and Results - ALE – Average life expectancy; AF/AFL – Atrial fibrillation/Atrial flutter; Qp/Qs – Pulmonary flow/systemic flow; LVEF – Left ventricle ejection fraction; NYHA – New York Heart Association; SD – Standard Deviation; SPAP – Systolic Pulmonary Arterial Pressure. B) Survival Curves

Figure PO 46

2019 to 2021. We analysed prevalence of risk factors, lab echocardiographic and CPET data in women who were enrolled in the program. Statistical analysis was performed with Chi-square and Wilcoxon tests.
Results: From a pool of 349 patients, only 74 (21%) were 70 or more years old. In this group most of pts were male (90.5%), mean age of 75.2 ± 4.34 year-old. 90% pts had arterial hypertension (n = 67), 76% had dyslipidemia, 34% were diabetic and 57.5% were smokers or past smokers. Most patients were in NYHA II (64.2%) and the remainder in NYHA I (29.9%) and III (6%). Mean ejection fraction was 52 ± 14%. NTproBNP in first evaluation 1,335 pg/mL, LDL-c 80.4 mg/dL and HDL 46.8%. Both groups (< 70 and > 70 years) were relatively homogeneous, except for differences in sex (male sex mor prevalent (p = 0.019) and hypertension (p = 0.006). Interestingly there were no significant differences in both groups regarding hospital admissions, rate of reinfarction and cardiovascular death. In both groups we noted a significant improvement in echo and CPET, reaching statistical significance in ejection fraction variation (p = 0.01), duration of CPET (p = 0.048) workload peak; however, in contrast to younger patients, VO2 peak improvement was non significative.
Conclusions: Although there is a higher prevalence in cardiovascular disease among older people, CR referral is far lower. As we can see, such interventions are safe and effective, also in older pts and thus we should identify factors going against their inclusion in CR programs and prioritize risk stratification.

PO 48. PROGNOSIS IN OLDEST ADULTS AFTER HOSPITALIZATION IN A CARDIAC INTENSE CARE UNIT - THE AGE PARADOX

Isabel Cruz[1], Rafaela Lopes[1], Bruno Bragança[1], Inês Campos[1], Inês Oliveira[1], Maria Luísa Olim[2], Joel Monteiro[1], Marta Ponte[3], Adelaide Dias[3], Daniel Caeiro[3], Rui Pontes dos Santos[1], Aurora Andrade[1], Ricardo Fontes de Carvalho[3]

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Introduction: With increasing age more critically ill oldest-old adults are being admitted in cardiac intense care units (CICU). This is a particularly frail subgroup of patients (pts), often underrepresented in clinical trials, in whom long term follow-up data is lacking. It is unknown if traditional measures of prognosis apply to this group of pts.
Objectives: Identify independent predictors of prognosis in oldest-old adults after admission in CICU.
Methods: Unicentric, retrospective analysis of consecutive pts with ≥ 80 years admitted in CICU, in an urgent setting, during 2018. Pts were evaluated regarding baseline characteristics specifically age and sex and background comorbidities, functional status (independent and partially dependent) and occurrence of in-hospital complications. A 4-years follow-up was performed. Variables associated with long-term mortality, re-admission and urgent evaluation were identified. Group comparison tests (Pearson´s Chi^2 and *t-tests*) as well as a Cox regression were used to identify independent predictors of long-term mortality.
Results: A total of 104 pts with ≥ 80 years were admitted to the CICU. The mean age was 83.9 ± 3.1 years and 66.1% of pts were male. 44.2% of patients died during follow-up. Group comparison tests revealed partially dependent (p =.022), absence of HTA (p = 0.032), background of coronary artery (p = 0.012), cerebrovascular (p = 0.019) and major valvular disease (p = 0.003) to be associated with long-term mortality. Conversely, age (p = 0.238) and hospital complications (p = 0.694) were not associated with long-term mortality. Furthermore, Cox regression isolated autonomy as the sole predictor of long-term mortality (p = 0.035, OR 1.95, 95%CI 1.050-3.624), with clear and early distinction of survival curves.
Conclusions: Our analysis revealed that in the group of the oldest-old pts admitted in a CICU, paradoxically, age at admission was not correlated with mortality at follow-up. One the other hand, functional status was the only independent predictor of mortality, with clear risk distinction between independent and dependent patients. Risk score and traditional variables of prognosis should be validated before use, in this subgroup of patients.

PO 49. CARDIOVASCULAR PREVENTION AND CORONARY ARTERY DISEASE IN THE YOUNG - A SINGLE CENTRE ANALYSIS

Carolina Miguel Gonçalves, Margarida Cabral, Mariana Carvalho, Adriana Vazão, Sara Fernandes, Fátima Saraiva, Jorge Guardado, João Morais

Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: In contrast to older adults, cardiovascular events in the young appear to be increasing. Therefore, identifying risk factors is of the uttermost importance to improve cardiovascular prevention.
Objectives: To identify risk factors related to coronary artery disease (CAD) in the young.
Methods: Retrospective, single-centre analysis of 171 patients - younger than 45 years - admitted for invasive stratification because of suspected coronary heart disease, during a 5-year period. Two cohorts were defined according to the presence of significant CAD and its baseline characteristics and cardiovascular risk factors compared. Multivariate logistic regression was performed to assess predictors of CAD in our population.
Results: Overall, median age was 42 ± 6 years, 82% were male and significant CAD was diagnosed in 67% of patients. A high frequency of cardiovascular risk factors was observed, namely overweight (73%), smoking (61%) and dyslipidemia (42%). After univariate analysis, gender (p = 0.049), age (p = 0.005), smoking (p = 0.032), low-density lipoprotein cholesterol (p = 0.005) and total cholesterol (p = 0.003) were significantly associated with significant CAD in coronary angiography. However, after multivariate logistic regression, only age (OR = 1.123; 95%CI [1.036-1.217]; p = 0.005) and low-density lipoprotein cholesterol (OR = 1.016; 95%CI [1.004-1.028]; p = 0.009) remained as independent factors for CAD.
Conclusions: As several modifiable risk factors have an impact on cardiovascular disease, there is an urgent need to improve primary prevention in the young. Conversely, a more thorough investigation is needed in the cases where no significant coronary disease is found. In our population, only age and low-density lipoprotein cholesterol were independent risk factors for significant CAD, however other modifiable risk factors should not be neglected.

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 3) - Doença arterial coronária

PO 51. TIMING OF INVASIVE STRATEGY IN NSTE-ACS AND CHRONIC KIDNEY DISEASE: COULD IT INFLUENCE THE OCCURRENCE OF ARRHYTHMIC AND PUMP FAILURE EVENTS?

Mariana Martinho, Rita Calé, João Grade Santos, Bárbara Marques Ferreira, Diogo Santos Cunha, Nazar Ilchyshyn, João Mirinha Luz, Oliveira Baltazar, Ana Rita Pereira, Gonçalo Morgado, Cristina Martins, Ana Catarina Gomes, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Chronic Kidney Disease (CKD) is related to higher rates of ventricular arrhythmias (VA), heart failure (HF) and poor outcomes in Non-ST Segment Elevation Acute Coronary Syndromes (NSTE-ACS). Although early percutaneous coronary intervention (PCI) is recommended by European guidelines in the presence of high-risk features, CKD pts are less often submitted to early PCI (< 24h). It is not well established how timing PCI correlates with VA or HF.
Objectives: To evaluate how time to PCI in different CKD stages affects 2 primary endpoints: in-hospital mortality and VA (VA); in-hospital mortality and HF (HF).

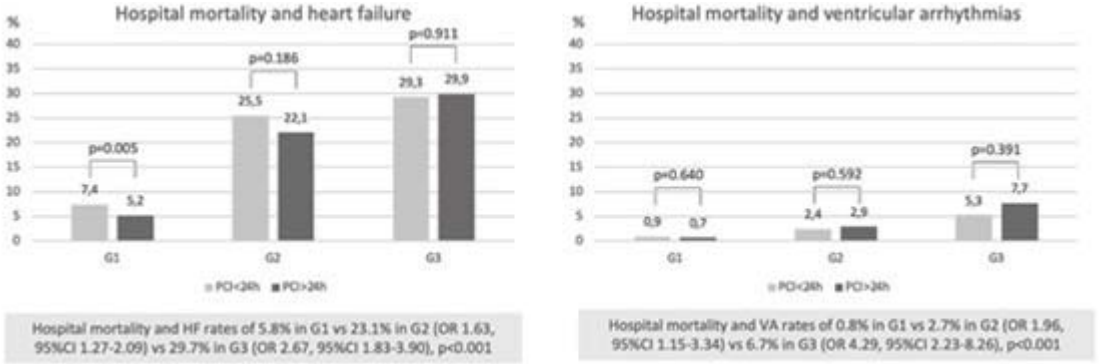


Figure PO 51

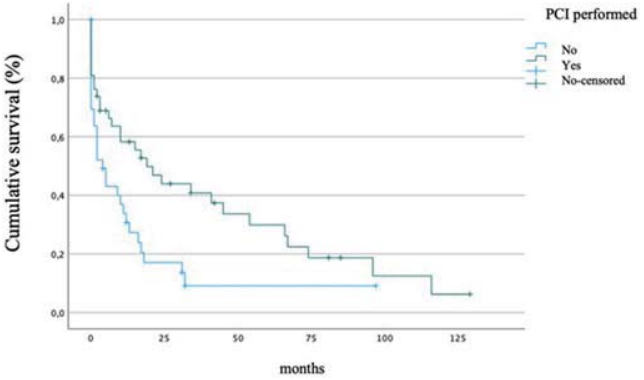
Methods: Retrospective study of a national registry on ACS. Of 32,334 ACS pts, 6,200 pts with NSTE-ACS submitted to PCI were included. CKD was stratified according to estimated glomerular filtration rate (eGFR): (G1) eGFR > 60 mL/min; (G2) eGFR 30-59 mL/min; (G3) eGFR < 29 mL/min. Logistic regression analysis was used to determine independent predictors of the primary endpoints and to test the interaction between CKD severity and the effect of time to PCI (early < 24h *vs.* late > 24h) on outcomes.
Results: Distribution between CKD groups was 74.7% in G1, 20.0% in G2 and 5.3% in G3. CKD severity was associated with older age and cardiovascular comorbidities. GRACE score was > 140 for eGFR < 60 mL/min: 117 ± 29 in G1, 152 ± 30 in G2 and 169 ± 35 in G3, p < 0.001. Despite having similar pt-delay times, G2 and G3 had significantly higher door-to-balloon time (23 ± 51h *vs.* 34 ± 57h *vs.* 54 ± 93h, p < 0.001). While 73.5% of G1 pts had early-PCI, this rate decreased significantly for the other groups: 69.4% and 59.1%, respectively (p < 0.001). Regarding adverse events, time to PCI was significantly associated with HF (45 ± 57h *vs.* 56 ± 63h, p = 0.01), but not with VA (27 ± 55h *vs.* 40 ± 90h, p = 0.175). CKD severity was an independent predictor for both endpoints. However, when CKD severity was tested for interaction with time to PCI, there was no effect on outcomes. Results within each CKD group are displayed in the Figure.
Conclusions: Although advanced CKD stages are associated with adverse outcomes (in-hospital mortality, pump failure and malignant arrhythmias) and less early PCI rates, their worst prognosis does not seem to be related with timing to PCI. This suggests that early outcomes are more related to comorbidities and clinical severity of ACS presentation.

PO 52. IT'S NOT TOO LATE - PERCUTANEOUS ANGIOGRAPHY IN A 90-PLUS POPULATION

Catarina Martins da Costa, Ana Filipa Amador, João Calvão, Catarina Marques, André Cabrita, Cátia Pinho, Luís Santos, Ana Isabel Pinho, Marta Tavares Silva, João Carlos Silva, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Elderly people represent a vulnerable but increasing population presenting to percutaneous coronary intervention (PCI). The benefit of revascularization in acute coronary syndromes (ACS) is well-stablished. However, the benefit in elderly patients has been questioned, considering the patient's expected survival, functional and cognitive status, comorbidities, procedure's risk and need for extended anti-thrombotic therapy.
Objectives: To evaluate the effect of PCI on the prognosis of a group of very old patients with acute coronary syndrome (ACS).
Methods: We retrospectively analyzed all consecutive very old patients (≥ 90-year-old) admitted with ACS submitted to coronarography (CA) in one tertiary center, from January 2008 to December 2021. Clinical features were collected, including major adverse cardiac events (MACE), a defined composite endpoint of all-cause death, ischemic stroke, ACS, or hospitalization for acute heart failure, which were compared according if PCI was performed or not. Q-square, Cox regression and Log-rank tests were applied.
Results: A total of 79 patients were enrolled; 43 of them underwent PCI. Groups were comparable in basal characteristics, with similar median age at the event (92 years old, interquartile range IQR: 3). Most patients with ST-elevation (STE) ACS (n = 45) had PCI (70% *vs.* 41%, p = 0.01), while in non ST-elevation (NSTE) ACS and unstable angina there was higher proportion of non-PCI (30% *vs.* 58%, p = 0.01). Individuals submitted to PCI were more likely to have single or double lesion vessel (76% *vs.* 27%, p < 001), while non-PCI patients presented more complex disease (23% *vs.* 25%, p = 0.5). Among the PCI-patients, the majority was singly revascularized (86%) and submitted to stent implantation (83%). Regarding in-hospital mortality, there was no difference between groups: 21% in the PCI group *versus* 33% in the non-PCI control group (p = 0.2). During median follow-up time of 6 months (IQR: 27), mortality was similar in both groups (79% *vs.* 67%; p = 0.1). Nevertheless, overall MACE-free survival was significantly longer in PCI group than in the no-PCI group, and PCI treated patients had a risk of MACE 52% lower than the patients assigned to medical therapy (hazard ratio 0.508, p = 0.007) (Figure).



Conclusions: Very old patients presenting with ACS treated with either PCI presented longer MACE-free survival. These finding suggest that very old patients with ACS and single vessel disease may benefit systematically from PCI with stent. Efforts should be made to optimize care in this under-represented population in the clinical trials.

PO 53. SEX IMPACT IS NOT CONSTANT OVER TIME AFTER CORONARY ARTERY BYPASS GRAFTING

Inês Sousa[1], Sílvia Diaz[1], Rui J. Cerqueira[2], Ana Filipa Ferreira[1], Mário J. Amorim[3], Paulo Pinho[3], André P. Lourenço[4], António S. Barros[1], Francisca Saraiva[1], Adelino Leite-Moreira[5]

[1]UnIC@RISE, Department of Surgery and Physiology, Faculty of Medicine of the University of Porto. [2]UnIC@RISE, Department of Surgery and Physiology, Faculty of Medicine of the University of Porto. Department of Cardiothoracic Surgery, Centro Hospitalar Universitário São João. [3]Department of Cardiothoracic Surgery, Centro Hospitalar Universitário São João. [4]UnIC@RISE, Department of Surgery and Physiology, Faculty of Medicine of the University of Porto. Department of Anaesthesiology, Centro Hospitalar Universitário São João. [5]UnIC@RISE. Department of Surgery and Physiology, Faculty of Medicine of the University of Porto, Department of Cardiothoracic Surgery, Centro Hospitalar Universitário São João.

Introduction: Data about the impact of sex after coronary artery bypass grafting (CABG) have been conflicting and mainly focused on first 5-years of follow-up.
Objectives: To compare long-term survival after CABG between women (W) and men (M).
Methods: Longitudinal, retrospective, single-center study including consecutive patients who underwent primary isolated CABG between 2004 and 2014. This study obtained a random sample of 150 W and 150 M. The primary outcome was all-causes mortality, checked on December 2022. Time-to-event outcomes were studied using Kaplan-Meier curves and log-rank test and multivariable Cox Regression. Median follow-up was 11 years and the maximum of 19 years.
Results: From 3,894 patients who underwent primary isolated CABG during the study period, 80% were men. The random sampling of 300 patients evidenced that W were older (median 68 *vs.* 64 years, p < 0.01) and had higher incidence of cardiovascular risk factors, such as arterial hypertension (87% *vs.* 70%, p < 0.01), diabetes (55% *vs.* 39%, p < 0.01) and obesity (35% *vs.* 20%, p < 0.01). They also had more frequently renal disease than M (70% *vs.* 55%, p < 0.01), while M had more often peripheral arterial disease (23% *vs.* 9%, p < 0.01) and active smoking habits (22% *vs.* 4%, p < 0.01). Although the prevalence of 3-vessels disease was similar between W and M (71% *vs.* 75%, p = 0.48), the median number of grafts was higher in M *vs.* W (3 *vs.* 2, p = 0.01) and M had higher utilization of bilateral internal mammary artery (40% *vs.* 21%, p < 0.01). At 5-, 10- and 15-years of follow-up, W *vs.* M presented 88% *vs.* 90%, 70% *vs.* 70%, and 42% *vs.* 56%, respectively (log-rank test, p = 0.25). Kaplan-Meier curves evidenced that the hazard of sex is not proportional over time. The overall multivariable Cox regression model evidenced no differences for sex (HR: 0.97, 95%CI: 0.66-1.42, p = 0.88). A split analysis at 10-years of follow-up showed that sex impacts only for patients who reached 10-years of follow-up, specifically that women have worse survival outcome (HR: 2.0, 95%CI: 1.02-4.10), while no effect of sex was evidenced within patients whose follow-up was less than 10-years (HR: 0.77, 95%: 0.49-1.20).
Conclusions: Women have similar outcomes to men during early and mid-term follow-up, but worse survival results after 10-years of follow-up. Further studies are needed to establish the risk of W and improve their outcomes after CABG.

PO 54. OUTCOMES OF DIABETIC PATIENTS SUBMITTED TO CHRONIC TOTAL OCCLUSION PCI

Hugo Alex Costa, Miguel Espírito Santo, Raquel Fernandes, Daniela Carvalho, João Bispo, João Guedes, Hugo Vinhas, Jorge Mimoso, Ilídio Jesus

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

Introduction: Coronary chronic total occlusions (CTO) are relatively common findings in the context of coronary angiography. The indication for revascularization of this type of lesions remains controversial. There

Table 1 - Clinical characteristics and outcomes of CTO patients treated by PCI, regarding the presence of DM2

			CTO PCI			
			Non DM2 (n=107, 60,5%)	DM2 (n=70, 39,5%)	Total (n=177)	p value
Gender	Male	n (%)	93,0 (86,9)	53,0 (55,7)	146 (82,5)	
	Female	n (%)	14,0 (13,1)	17,0 (24,3)	31,0 (17,5)	0,055
Age	*Mean±SD - years*		62,4±11,7	67,9±10,1	64,5±11,4	**0,010**
Hypertention		n (%)	77,0 (72,0)	55,0 (78,6)	132 (74,6)	0,323
Dyslipidemia		n (%)	77,0 (72,0)	52,0 (74,3)	129 (72,9)	0,734
Smoker		n (%)	23,0 (23,5)	26,0 (32,9)	49,0 (27,7)	0,287
Obesity		n (%)	17,0 (16,0)	15,0 (21,4)	32,0 (18,2)	0,364
Heart failure history		n (%)	12,0 (11,2)	15,0 (21,4)	27,0 (15,3)	0,065
Previous stroke		n (%)	3,00 (2,80)	5,00 (7,10)	8,00 (4,50)	0,174
Atrial fibrillation		n (%)	13,0 (12,1)	9,00 (12,9)	22,0 (12,4)	0,889
Chronic renal disease		n (%)	4,0 (3,70)	10,0 (14,3)	14,0 (7,90)	**0,011**
Ischemic heart disease		n (%)	60,0 (56,1)	38,0 (52,3)	98,0 (55,3)	0,417
Chronic lung disease		n (%)	7,00 (6,50)	3,00 (4,30)	10,0 (5,60)	0,525
Clinical indication	***ACS***	n (%)	57,0 (53,3)	35,0 (50,0)	92,0 (52,0)	
	CCS - HF	n (%)	50,0 (46,7)	35,0 (50,0)	85,0 (48,0)	0,670
CCS score	***CCS I e II***	n (%)	85,0 (79,4)	48,0 (68,6)	133 (75,1)	
	CCS III e IV	n (%)	22,0 (20,6)	22,0 (31,4)	44,0 (24,9)	0,102
Contralateral access		n (%)	48,0 (44,9)	28,0 (40,0)	76,0 (42,9)	0,529
CTO vessel	***LCA***	n (%)	60,0 (56,1)	38,0 (54,3)	98,0 (55,4)	
	RCA	n (%)	47,0 (43,9)	32,0 (45,7)	79,0 (44,6)	0,815
Approach	***Antegrade***	n (%)	93,0 (86,9)	54,0 (91,4)	157 (88,7)	
	Retrograde	n (%)	14,0 (13,1)	6,00 (8,60)	20,0 (11,3)	0,354
Symptoms recurrence	***Total***	n (%)	16,0 (15,5)	15,0 (22,7)	31,0 (18,3)	0,238
2 years follow-up	***Angina***	n (%)	6,00 (5,80)	10,0 (15,2)	16,0 (9,50)	**0,048**
	Heart failure symptoms	n (%)	9,00 (8,70)	7,00 (10,6)	16,0 (9,50)	0,686
Acute coronary syndrome						
2 years follow-up		n (%)	2,00 (1,90)	1,00 (1,50)	3,00 (1,80)	0,838
Mortality						
2 years follow-up		n (%)	3,00 (2,90)	3,00 (4,50)	6,00 (3,60)	0,576
Radiation dose						
Air Kerma	Median (IQR) - mGy		1840 (2030)	1932 (1804)	2043 (1784)	0,309
Kerma area product	Median (IQR) - Gy.Cm2		120(113)	104 (124)	120 (113)	0,81
LVEF at baseline	Mean±SD - %		47,1±10,3	47,2±10,7	47,1±10,5	0,772
LVEF after PCI	Mean±SD - %		50,6±9,53	52,2±9,84	51,2±9,73	0,361
			p<0,001	p<0,001		
Creatinine clearence	*Mean±SD - ml/min*		80,6±24,5	69,3±27,9	77,1±26,6	**0,006**
PCI time	*Mean±SD - min*		136±56,0	126±65,0	132±56,0	0,278
Contrast volume	*Mean±SD - ml*		270±96,5	225±84,8	254±94,3	**0,009**

ACS, Acute coronary syndrome; CCS, Canadian cardiovascular society; CTO, Chronic total occlusion; DM2, Type 2 diabetes mellitus; HF, Heart failure; Interquartile range; LCA, Left coronary artery; LVEF, Left ventricular ejection fraction; PCI, Percutaneous coronary intervention; RCA, Right coronary artery; SD, Standard deviation

Figure PO 54

is little knowledge about clinical outcomes between type 2 diabetic (DM2) and nondiabetic patients submitted to CTO by percutaneous coronary intervention (PCI).
Objectives: Our aim was to analyze the clinical benefit and outcomes of diabetic patients submitted to CTO PCI. Additionally, we specifically aimed to identify independent predictors to symptoms recurrence in this population.
Methods: A retrospective analysis was carried out of CTO patients submitted to PCI between 2019-2020. Patients were divided in two groups regarding previous DM2 (with-DM2 and without-NDM2). Composite primary outcome (recurrence of angina and/or heart failure (HF) symptoms) and secondary outcomes (myocardial infarction and death) were compared between both groups. Independent predictors of primary outcome were assessed by multivariate logistic regression. P value < 0.05 indicates statistical significance.
Results: A total of 177 patients were identified, with a mean age of 65 ± 11 years, 82.5% male. 75% showed hypertension, 40% with diabetes, 73% with dyslipidemia, 18% with obesity and HF in 15%, without differences between groups. DM2 patients were older with a mean age of 67.9 ± 10.1 (p = 0.010), with more chronic renal failure (14.3%, p = 0.011), worst creatinine clearance 69.3 ± 27.9 (p = 0.006) and less use of contrast during PCI (225 ± 84.8, p = 0.009). Both groups improved LVEF after intervention (p < 0.001). Symptoms recurrence occurred in 18% of patients after 2 years. Composite primary outcome was not significant higher in DM2 group (15.5% *vs.* 22.7%, p = 0.238). Angina recurrence was significant higher in DM2 group (5.80% *vs.* 15.2%, p = 0.043). Secondary outcomes were low after 2 years, without difference between groups. Right coronary artery (RCA) CTO vessel treated was an independent predictor for total symptoms recurrence after PCI (p = 0.014, OR 2.86, 95%CI 1.24 to 6.60), although presence of diabetes was not (p = 0.324, OR 1.53, 95%CI 0.66 to 3.53).
Conclusions: DM2 patients submitted to CTO PCI were not associated with higher two-years total symptoms recurrence, mortality or myocardial infarction when compared with NDM2. Isolated angina recurrence was more frequent in DM2 patients. RCA CTO was an independent predictor for total symptoms recurrence.

PO 55. HOW ARE INTERVENTIONAL CARDIOLOGISTS MAKING THEIR TREATMENT DECISIONS DURING INVASIVE CORONARY ANGIOGRAPHY?

Maria Teresa Barros[1], Miguel Santos[2], Pedro Magno[2], José Loureiro[2], Luís Brizida[2], Pedro Farto e Abreu[2], Carlos Morais[2], Sérgio Bravo Baptista[1]

[1]Faculdade de Medicina da Universidade de Lisboa. [2]Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.

Introduction: Indications for revascularization in coronary artery disease (CAD) have clearly identified criteria and although there are several studies looking at the adequacy of these decisions per patient or per procedure, there is no information on the way operators are doing their treatment decisions at a lesion level.
Methods: All consecutive patients (pts) who underwent coronary angiography in a single year were evaluated and all significant (> 50% lesions) were recorded. The study's primary endpoint was the criteria for revascularization used in each lesion and the adequacy of this treatment decision according to the guideline-based indications (including culprit lesions in ACS, lesions with proved ischemia by invasive or non-invasive imaging tests, lesions > 90% and single lesions with a positive ischemia test).
Results: Of an initial group of 1,525 significant lesions (in 544 pts), in 166 lesions the decision was to undergo further non-invasive testing (which means no treatment decision was made at the time of the procedure). Additionally, 345 lesions were in pts referred for surgical revascularization. The remaining 1,014 lesions were included in the analysis. The proportion of treatment decisions made according to the current evidence-based guidelines (primary endpoint) was 47.2%, as compared to 24.5% treatment decisions only based on the operator's opinion. The remaining 28.3% (287 lesions) treatment decisions were influenced by other anatomical, clinical or other circumstantial factors (including CTO's, small vessels, very distal lesions and/or coronary bypass in the same territory). When this last group was excluded from the analysis, the percentage of non-guideline-based treatment decisions in the remaining 727 lesions was 34.1%. In this last group, when only non-culprit lesions were accounted (n = 425), this percentage went up to 58.1%. Importantly, if we only consider the lesions for which there was no clear guideline-based indication for revascularization (n = 298), a treatment decision was immediately made without further evidence (that is, without using the available tools for invasive ischemia assessment - FFR or iFR) in 83.2% of the cases. Non-guideline-based treatment decisions were associated with older pts (median 71 *vs.* 68 y, p = 0.01) and longer procedures (median 60 *vs.* 54 min, p = 0.005).
Conclusions: At a lesion-level, around one quarter of the treatment decisions in CAD pts was made without evidence-based information, but this number was significantly higher when only non-culprit lesions or lesions suitable for invasive ischemia evaluation were considered.

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 4) - Doença valvular

PO 56. PROGNOSTIC IMPACT OF LOW-FLOW CONDITIONS IN PERCUTANEOUS TREATMENT OF SEVERE AORTIC STENOSIS -A MATTER OF FLOW *VERSUS* VOLUME

Diogo Santos Ferreira[1], Silvia Diaz[2], Isabel Fernandes[2], Cláudio Guerreiro[1], Mariana Brandão[1], Rafael Teixeira[1], Fábio Nunes[1], Eulália Pereira[1], Francisco Sampaio[1], Gustavo Pires-Morais[1], Bruno Melica[1], Lino Santos[1], Alberto Rodrigues[1], Pedro Braga[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Low-flow status is a prognostic predictor of mortality after transcatheter aortic valve implantation (TAVI) for severe aortic stenosis (SAS). However, the best parameter to truly assess flow is still unknown. Although it has been classically defined using stroke volume index (SVi), transaortic flow rate (FR - stroke volume divided by left ventricle ejection time) has recently been suggested to be superior to SVi, more closely reflecting valvular resistance and being independent of body surface area.
Objectives: Assess the prognostic impact of low-FR (< 200 mL/s) and low-SVi (< 35 ml/m^2) before TAVI in survival after percutaneous intervention for SAS.
Methods: All consecutive TAVI performed in a single-centre between 2011 and 2019 were retrospectively analyzed, and only cases with pre-intervention echocardiograms available were included. Low-flow patients were defined as having a basal FR < 200 mL/s or SVi < 35 mL/m^2, and compared with normal-flow cases. The primary endpoint was defined as time to all-cause death of last follow-up over five years. The prognostic value of flow (using FR or SVi) was assessed using Kaplan-Meier curves, log-rank test and Cox proportional hazard model adjusted for EuroSCORE II. A secondary analysis divided patients according to preserved and reduced ejection fraction (EF, < 52%).
Results: From 657 TAVI performed, 490 (74.6%) cases were included, with a median follow-up of 56 months. From those, 59.6% had low-FR, and 43.3% had low-SVi. Low-flow patients were of higher surgical risk (EuroSCORE II and STS scores), had more advanced New York Heart Association (NYHA) classes, worse estimated creatinine clearance, and suffered more frequently from coronary artery disease. Low-FR patients were also older, and less predominantly male. Atrial fibrillation was more prevalent among low SVi cases. Functional aortic valve area was lower in low-flow patients using both assessments, but low-SVi was also associated with lower transaortic gradients, as well as lower EF before and after TAVI. A low-FR was associated with worse survival [hazard ratio (HR) 1.43 (1.06-1.92), p = 0.019], even after adjusting for EuroSCORE II [HR 1.39 (1.03-1.90), p = 0.034], contrary to low-SVi (p = 0.06 and p = 0.2 for uni- and multivariable analysis, respectively).

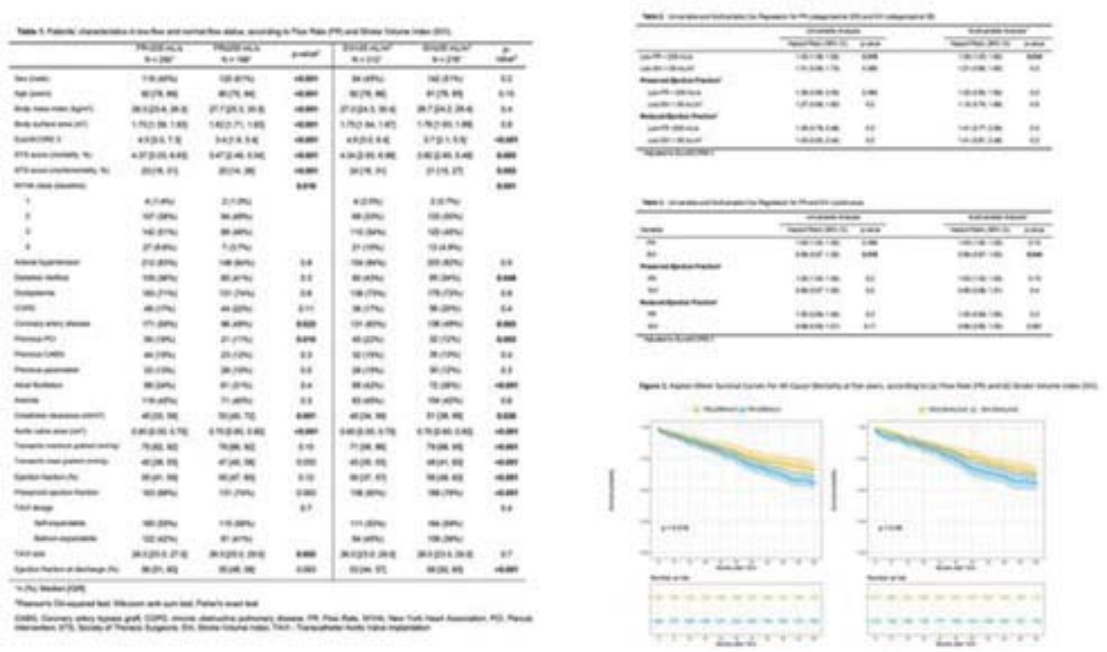


Figure PO 56

When considering FR and SVi as continuous variables, a higher SVi (but not FR) was associated with improved survival [HR 0.98 (0.97-1.00), p = 0.018; HR 0.99 (0.97-1.00), p = 0.044 for uni- and multivariable analysis, respectively]. When stratifying according to preserved and reduced EF, both FR and SVi did not predict all-cause mortality.

Conclusions: Low-flow conditions are common in SAS population subjected to TAVI, being frequently associated with more advanced symptoms and higher procedural risk. Low-FR negatively impacts survival after intervention. SVi is also prognostic as a continuous variable, but not at a < 35 ml/s cut-off.

PO 57. PROGNOSTIC IMPLICATIONS OF AORTIC STENOSIS PROGRESSION RATE

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Introduction: Aortic stenosis (AoS) is a progressive disease of the aortic valve (AoV) and ultimately of the myocardium, potentially fatal. Most studies assume that the rate of AoS progression is time-invariant while recognizing wide variability between patients (pts) and among the same patient.

Objectives: 1) evaluate the rate of AoS progression, 2) cluster pts into rapid progressors (RP) and slow progressors (SP) and explore possible predictors, and 3) evaluate the impact of progression rate on cardiac damage and survival.

Methods: We retrospectively identified 914 pts (age 76 ± 8 years, 52% female, median follow-up time 6.8 years) with mild to severe AoS who had undergone > 1 echocardiogram from 2012 to 2020. Seriated echocardiograms, biomarkers, and clinical records were consulted, providing a multiparametric data frame for modeling AoS progression and consequences. Bayesian hierarchical models were trained using machine learning algorithms (MLA) to predict aortic peak velocity (AoPV) as a function of time. After selecting the best model, individual AoS acceleration rates were estimated from the posterior distribution, and pts were clustered in RP and SP using MLA.

Results: AoPV was best modeled by a logistic function of time. 483 pts were clustered as RP (53%) and 431 as SP (47%) with acceleration rates estimated at 0.14 ± 0.02 years-1 and 0.09 ± 0.02 years-1, respectively (p < 0.01). No association between progression rate and clinical variables was found. At 8 years, RP had a higher incidence of cardiac damage than SP (p = 0.01). Rapid progression was associated with higher mortality (Hazard Ratio (HR) 1.28, p = 0.02), persisting after adjustment for demographics, comorbidities, AoS severity, and time-dependent AoV replacement (HR 1.36, p < 0.01). A 5-year mortality prediction model incorporating AoS progression rate to age, gender and AoS severity displayed higher performance (AUROC 0.82, p < 0.01, Brier score 0.11, net clinical benefit of 2% assuming a threshold predicted probability of death of 50%) than a model without the progression rate.

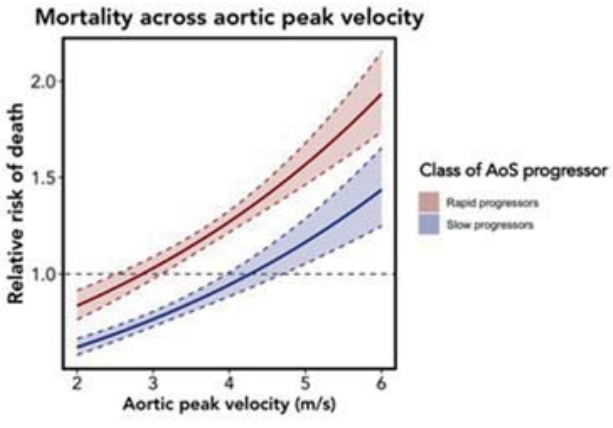

Figure. Mortality effect of class of AoS progression across the range of baseline aortic peak velocity

Conclusions: A nonlinear model of AoS progression and two clusters of progressors were identified. Rapid progression was associated with earlier cardiac damage and higher mortality, independent of baseline AoS severity. Incorporating AS acceleration rate in clinical practice can improve AoS stratification and provide a proactive time frame for follow-up and intervention.

PO 58. ANOTHER WAY TO STUDY RISK FACTORS FOR AORTIC VALVE CALCIFICATION

Diana Vale Carvalho[1], Rita Veiga[2], Margarida Cabral[3], Raquel Ferreira[1], Mesquita Bastos[1], Rita Faria[4], Nuno Ferreira[4]

[1]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro. [2]Hospital Distrital de Santarém, EPE. [3]Centro Hospitalar de Leiria/Hospital de Santo André. [4]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Aortic stenosis is the most prevalent valvular pathology and the degenerative etiology is the most common in developed countries. Some evidence suggests that atherosclerosis risk factors may also be involved in the development of aortic stenosis.
Objectives: This study aims to clarify which cardiovascular risk factors best correlate with aortic valve calcification, using a method of quantification of valve calcium volume.
Methods: A retrospective study included patients who submitted cardiac surgery and underwent prior concontrast computed tomography (CT). Aortic valve calcification volume (AVCV) was quantified using a volume-rendering method.
Results: 148 patients were included (mean age = 70.5 ± 4.9y; 60.8% men). Most patients underwent aortic valve replacement surgery (66.9%). The mean value of the aortic valve calcification volume was 1.640 ± 1.030 cm^3. The mean value of the mean gradient in the aortic valve assessed by echocardiography was 50.79 ± 15.37 mmHg). Dyslipidemia and arterial hypertension were the most prevalent risk factors (77% and 75%, respectively). Most cardiovascular risk factors were associated with higher AVCV, except for diabetes and smoking history. Regarding the history of cardiovascular disease, it was observed that only patients with a history of coronary artery disease had higher volumes of calcium in the aortic valve. The univariate analysis found that dyslipidemia was the only risk factor/comorbidity that was significantly associated with higher AVCV (1.154 ± 1.456 *vs.* 1.802 ± 1.523 p = 0.025). Considering the volume of calcium as a method of assessing the severity of aortic stenosis, it was observed that there is a positive, moderate and statistically significant correlation between AVCV and the mean gradient in the aortic valve (ρ = 0.5; p < 0.001).
Conclusions: Cardiovascular risk factors are also associated with the development of degenerative aortic stenosis, which may have therapeutic implications in the future. Dyslipidemia appears to be a determining risk factor in the development of aortic valve calcification. Sometimes it is sometimes difficult to assess the severity of aortic stenosis, therefore the determination of the AVCV may be an alternative method for diagnosis.

PO 59. SCREENING FOR CARDIAC AMYLOIDOSIS IN PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI)

André Lobo[1], Marta Catarina Almeida[1], Silvia Diaz[2], Francisco Sampaio[1], António Barros[2], Francisca Saraiva[2], Bruno Melica[1], Mariana Brandão[1], Diogo Santos-Ferreira[1], Fábio Sousa Nunes[1], Rafael Silva-Teixeira[1], Marta Leite[1], Ana Inês Neves[1], Ricardo Fontes-Carvalho[1]

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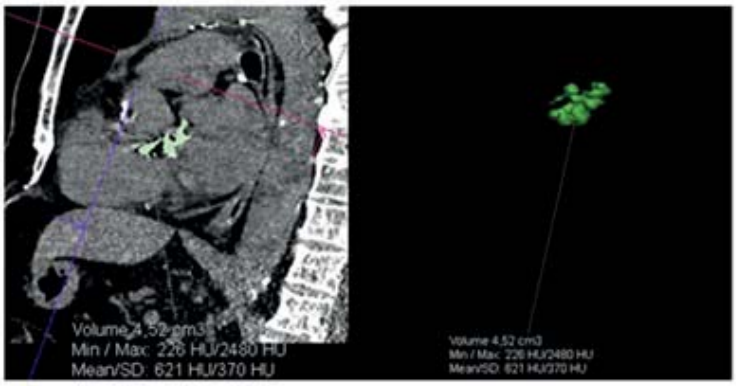
Introduction: Cardiac amyloidosis is increasingly recognized as a cause of heart failure (HF), although it remains underdiagnosed. Since 2021, according to Garcia-Pavia, Pablo et al., screening is recommended for patients with



CARDIOTHORACIC SURGERY TYPE	N (%)
CORONARY ARTERY BYPASS GRAFT (CABG)	7,4% (n=11)
AORTIC VALVE REPLACEMENT (AVR)	55,4 % (n= 82)
CABG + AVR	11,5 % (n= 17)
MITRAL VALVE SURGERY	3,4% (n=5)
OTHER SURGERY	22,3% (n=33)

Table 1 – Type of surgical procedure

		AVCV	
RISK FACTORS/COMORBIDITIES	PREVALENCE		p
DYSLIPIDEMIA	75,0% (n=111)	1,154 ± 1,456 vs 1,802 ± 1,523	**0,025**
ARTERIAL HYPERTENSION	77,0 % (n= 114)	1,523 ± 1,765 vs 1,690 ± 1,457	0,58
DIABETES	39,9 % (n= 59)	1,688 ± 1,633 vs 1,567 ± 1,37	0,64
SMOKING HISTORY	27,0% (n=40)	1,724 ± 1,590 vs 1,414 ± 1,347	0,274
OBESITY	37,8 % (n=56)	0,1541 ± 1,565 vs 1,980 ± 1,387	0,104
CHRONIC KIDNEY DISEASE (GFR<60 ML/MIN/1.73M²)	29,1% (n=43)	1,630 ± 1,512 vs 1,811 ± 1,596	0,518
HISTORY OF CORONARY ARTERY DISEASE	43,2% (n=64)	1,580 ± 1,501 vs 1,724 ± 1,586	0,575
HISTORY OF PERIPHERAL ARTERIAL DISEASE	8,1% (n=12)	1,659 ± 1,548 vs 1,429 ± 1,349	0,62
HISTORY OF CEREBROVASCULAR DISEASE	9,5% (n=14)	1,644 ± 1,547 vs 1,596 ± 1,407	0,911

Table 2- Characterization of the population regarding risk factors and comorbidities and their relationship with valve calcium volume.
Legend: AVCV: aortic valve calcification volume.

Figure PO 58

clinical red flags and left ventricular wall thickness (LVT) ≥ 12 mm. One of the clinical red flags is aortic stenosis in patients older than 65. Thus, it is expected that some TAVI patients fulfill these screening criteria.
Objectives: To unveil how many patients undergoing TAVI at our center fulfilled the screening criteria for amyloidosis, and to compare their characteristics against patients not eligible for screening. To evaluate the influence of a higher degree of LVT (defined as LVT ≥ 16 mm) in patients fulfilling screening criteria compared to those not eligible.
Methods: We evaluated all patients submitted to TAVI in our center from 2007 to 2021. Only patients followed at our center were included. We evaluated patient's baseline characteristics, LVT, amyloidosis red flags, and the presence of screening criteria. Relevant outcomes were death due to all causes, CV death, HF NYHA, atrial fibrillation (AF) or auricular flutter diagnosis, pacemaker implantation, Acute Coronary Syndrome, Stroke, hospitalization, hospitalization due to HF, emergency department (ED) visit, ED visit due to HF, evaluated at 1-, 3-, 5-year and at the end of the study follow-up.
Results: 260 patients were included, of which 77% (n = 200) met the criteria for cardiac amyloidosis screening. Only 1 patient was screened, although results were not yet available. Sixteen percent (n = 15) of patients in the screening group reported the development of AF/Flutter at the 5-year follow-up, while it only occurred in 14% (n = 3) of the non-screening group (p = 0.045). There were no differences in all-cause mortality (HR: 1.03; CI [0.64-1.66] p > 0.9) according to screening eligibility; or other outcomes. Comparing patients without screening criteria and patients with screening criteria and LVT ≥ 16 mm (n = 27), we found that the need to go to the ED (1 or more times) reported at the 1-year follow-up was higher in patients with screening criteria and LVT ≥ 16 mm (81%, n = 21) compared to those without screening criteria (57%, n = 33, p = 0.035). There were no differences in all-cause mortality (HR:1.41; CI [0.72-2.76] p = 0.3) according to the screening eligibility and LVT ≥ 16 mm; or other outcomes.
Conclusions: Cardiac amyloidosis remains underdiagnosed, corroborated by the low screening rate in our sample. However, applying the newest screening criteria may be challenging, as screening rates may drastically increase. We did not find differences in the clinical profiles of patients with screening criteria or a prognostic value of such criteria in our population, even when a higher degree of LVT is present. Further research is needed to explore who benefits from amyloidosis screening.

PO 60. OUTCOMES AFTER TRANSCATHETER EDGE-TO-EDGE REPAIR OF PRIMARY MITRAL REGURGITATION - A SINGLE-CENTRE EXPERIENCE

Diogo Santos Ferreira[1], Fabiana Duarte[2], Silvia Diaz[3], Cláudio Guerreiro[1], Mariana Brandão[1], Fábio Nunes[1], Rafael Teixeira[1], Eulália Pereira[1], Francisco Sampaio[1], Lino Santos[1], Alberto Rodrigues[1], Pedro Braga[1], Gustavo Pires-Morais[1], Bruno Melica[1], Ricardo Fontes-Carvalho[1]

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Introduction: Mitral regurgitation (MR) is the second-most frequent valvular disease in Europe, with prognostic implications. Although mitral

Table 1. Characteristics of study population, according to the composite endpoint, defined as all-cause death or heart failure hospitalization (HHF) over follow-up.

Characteristic	Free from events N = 18[1]	Death/HHF N = 19[1]	p-value[2]
Age (years)	82 [76, 84]	79 [76, 82]	0.4
Sex (male)	11 (61%)	11 (58%)	0.8
Body mass index (kg/m^2)	23.7 [22.6, 26.4]	24.9 [22.9, 28.6]	0.3
Body surface area (m^2)	1.70 [1.57, 1.79]	1.73 [1.67, 1.90]	0.3
EuroScore II	2.6 [1.6, 6.3]	4.0 [2.4, 5.2]	0.4
STS Mortality	2.80 [1.47, 4.98]	3.91 [2.35, 6.37]	0.2
STS Morbimortality	14 [9, 18]	16 [14, 24]	**0.030**
Baseline NYHA class			0.6
2	6 (35%)	5 (26%)	
3	11 (65%)	14 (74%)	
Diabetes mellitus	6 (33%)	4 (21%)	0.5
Arterial hypertension	14 (78%)	14 (74%)	>0.9
COPD	7 (39%)	4 (21%)	0.2
Atrial fibrillation	7 (39%)	17 (89%)	**0.001**
RAS-inhibitors	14 (78%)	14 (74%)	>0.9
Beta-blockers	9 (50%)	10 (53%)	0.9
Mineralocorticoid Receptor Antagonists	7 (39%)	8 (42%)	0.8
Basal NTproBNP levels (pg/mL)	1,565 [599, 3,946]	1,243 [1,069, 2,880]	>0.9
Estimated glomerular filtration rate (mL/m^2)	60 [43, 64]	54 [35, 62]	0.2
Hemoglobin (g/dl)	12.10 [10.70, 12.90]	12.90 [11.40, 14.45]	0.3
Baseline MR severity			0.4
3	5 (28%)	3 (16%)	
4	13 (72%)	16 (84%)	
Ejection fraction (%)	53 [50, 56]	54 [50, 59]	>0.9
TAPSE (mm)	18.00 [16.25, 21.25]	19.00 [16.00, 21.00]	>0.9
Estimated systolic pulmonary artery pressure (mmHg)	52 [36, 57]	50 [40, 58]	0.9
Left atrial biplane volume (mL/m^2)	92 [83, 132]	106 [76, 159]	0.8
Device time (minutes)	100 [90, 140]	140 [105, 200]	**0.019**
Residual MR post-intervention (≥2)	8 (47%)	11 (58%)	0.5
Residual MR at discharge (≥2)	8 (47%)	16 (89%)	**0.008**
Mean gradient at discharge (mmHg)	3 [3, 4]	4 [3, 6]	0.3
NYHA class (one year)			0.8
1	2 (25%)	3 (25%)	
2	5 (62%)	6 (50%)	
3	1 (12%)	3 (25%)	
NYHA class improvement	5 (62%)	8 (67%)	>0.9

[1]Median [IQR]; n (%)

[2]Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test; Wilcoxon rank sum exact test

Figure PO 60

transcatheter-edge-to-edge repair (TEER) should be considered in selected severe secondary MR patients, with demonstrated benefits over follow-up, percutaneous intervention of primary MR (PMR) may be considered in inoperable cases, for which there is a lack of consistent evidence regarding improvement of outcomes.
Objectives: Characterize the population undergoing TEER for PMR, respective clinical and echocardiographic response, and outcomes over follow-up.
Methods: All mitral TEER procedures for PMR conducted in a single-centre between 2015 and 2021 were retrospectively analyzed. The primary endpoint was defined as a composite of all-cause mortality or first heart failure (HF) hospitalization after intervention. Clinical, echocardiographic and blood-analysis data were assessed and explored as characteristics associated with the endpoint defined, using Pearson's Chi-squared test, Wilcoxon rank sum test and Fisher's exact test, as appropriate. $p < 0.05$ was considered statistically significant.
Results: Thirty-seven patients with PMR were treated, with a median follow-up of 27 months. Mean age was 78 years-old, with a slight predominance of male sex (59%). Mean EuroSCORE II was 4.30 ± 3.0. About 24% of cases presented with a mixed MR, with a predominant primary etiology. The most common mechanism for PMR was prolapse (58%), followed by flail (27%) and calcification (12%), more frequently involving the posterior leaflet (56%), with a mean MR graded at 3.8 (1-4). Functional success after intervention was achieved in 95% of cases. There was no intra- or immediate post-intervention mortality. One patient suffered from a major access site vascular complication, namely formation of arteriovenous fistula. Two patients (5%) died over the first 12 months, both about 8 months after TEER. One patient was hospitalized for HF in the first year, over the second month of follow-up. Primary endpoint occurred in 51% of patients over a median follow-up of 27 months. After one year of intervention, 65% of patients presented an improvement of at least 1 New York Heart Association (NYHA) HF class, and mean MR was graded at 2.3 (1-4). There was a statistically significant higher estimated STS morbimortality score, a higher frequency of atrial fibrillation and more frequent MR grade ≥ 2 at discharge among patients reaching the primary endpoint.
Conclusions: TEER for PMR is a safe and effective intervention in reducing MR in selected patients, with few severe adverse events over the first year, and two-thirds presenting an improvement in HF functional capacity in this period. Mortality and HF hospitalization remains very frequent in the medium-term in this high-risk populations, occurring in half of patients over a median follow-up of 27 months.

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 5) - Doenças do miocárdio

PO 61. THE ROLE OF CARDIAC MAGNETIC RESONANCE ON THE DIAGNOSIS OF COVID-19 RELATED MYOCARDITIS

Rafaela Fernandes, Gonçalo Terleira Batista, Joana Moura Ferreira, Nádia Moreira, Bruno Graça, Vanessa Lopes, Gustavo Campos, Sofia Martinho, Carolina Saleiro, Diana Campos, Ana Rita Gomes, João Rosa, Paulo Donato, Lino Gonçalves, Maria João Ferreira

Centro Hospitalar de Coimbra, EPE/Maternidade Bissaya Barreto.

Introduction: Cardiac magnetic resonance (CMR) is the gold standard for non-invasive evaluation of cardiac function, structure and tissue composition. COVID-19 related myocarditis is a rare event but can cause long-term myocardial injury. CMR abnormalities are found in 26-60% of recovered patients.
Methods: Retrospective observational study that included all cases of myocarditis in adult patients, confirmed by CMR, admitted to Cardiology wards in a University Hospital Centre between 2019 and 2022. The purpose was to assert CMR abnormalities and the diagnostic value in COVID-19 patients. The patients were divided into two cohorts according to the year of admission. Thoroughly revision of informatized clinical files was performed and statistical analysis was conducted using SPSS software.
Results: A total of 48 patients with myocarditis confirmed by CMR were included. Most myocarditis cases (30/62.5%) happened in the second cohort (years 2021 to 2022), which represents an increase of 1.67%. Two (6.7%) were attributed to COVID-19 infection, 2 (6.7%) happened after COVID-19 vaccination and in 1 (2.1%) case the patient had been vaccinated 37 days prior and COVID-19 infection also occurred 28 days prior to the diagnosis. In both cases related to COVID-19 vaccination, the vaccine used messenger ribonucleic acid technology and happened 2 days after inoculation. In all patients there was a non-ischemic (subepicardial or mid myocardial) late T1 gadolinium enhancement. However, in patients with COVID-19 related myocarditis there was a positive correlation with increased extracellular volume (ECV) found in CMR (Pearson's Qui Square = 23.489, $p < 0.001$). For patients with myocarditis associated with COVID-19 vaccination, there were no statistically significant findings when comparing CMR findings in T1 and T2. As for structure and cardiac remodulation, neither COVID-19 infection myocarditis or COVID-19 vaccination related myocarditis had statistically significant differences in the exams performed during the acute and late phases of the disease.
Conclusions: Increased ECV in CMR is highly associated with COVID-19 infection myocarditis. This could indicate the high inflammatory process induced, while being absent from COVID-19 vaccine related myocarditis could point to different pathways in which the cardiovascular system is affected. These patients need to be followed for further years to better understand this infection and how it affects the cardiovascular system.

PO 62. MYOCARDITIS ASSOCIATED WITH SARS-COV-2 INFECTION OR COVID-19 VACCINATION: A VERY RARE ADVERSE EVENT?

Rita Almeida Carvalho, Miguel S. Domingues, António Tralhão, António Ferreira, Marisa Trabulo, Jorge Ferreira, Miguel Mendes

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Introduction: There have been numerous reports of suspected cases of myocarditis following SARS-CoV-2 infection and coronavirus disease 2019 (COVID-19) vaccination. Case series studies from several countries suggest that the risk for both conditions is rare and higher in the 1-28 days after infection or vaccination, particularly in young males who received a booster dose of mRNA vaccines (BNT162b2 and mRNA-1273).
Objectives: The aim of this study was to assess the incidence, clinical course and temporal association with SARS-CoV-2 infection and COVID-19 vaccination after the beginning of the COVID-19 pandemic (COVID), in comparison with a similar time period before the pandemic (Pre-COVID).
Methods: Retrospective single-center study of patients admitted to the hospital for myocarditis between September 2017 and September 2022. Myocarditis diagnosis was established according to the 2013 European Society of Cardiology (ESC) position statement for clinically suspected myocarditis. Patients with myocarditis diagnosed since March 2020 were considered the COVID group. Outcomes were assessed as a composite of death, acute heart failure, sustained ventricular arrythmia (VA) or *de novo* left ventricular ejection fraction (LVEF) < 50%.
Results: A total of 67 patients were included (mean age 40 ± 19 years; 76% males). Overall, 36 (54%) patients were included in the Pre-COVID and 31 (46%) patients in the COVID group. The incidence was 14.4 persons/year and 12.4 persons/year in the Pre- and COVID group, respectively. Clinical features and outcomes did not differ between groups (Table). Overall, in the COVID group, three (10%) patients presented with myocarditis 1-28 days after vaccination, all of which had received a BNT162b2 vaccine booster dose. In the same group, two (6%) patients had myocarditis 1-28 days after infection, both with acute heart failure and LVEF < 50% during hospitalization.

	Pre-COVID Group (N=36)	COVID Group (N=31)	p-value
Age ± SD – years	39 ± 19	40 ± 19	p=0,28
Male – no. (%)	29 (81)	22 (71)	p=0,36
Peak cTnT (IQR) – ng/mL	532 (994)	402 (712)	p=0,39
Peak CRP (IQR) – mg/dL	4,5 (9,1)	4,8 (9,7)	p=0,62
Composite outcome – no. (%)	3 (8)	5 (16)	p=0,46
Death	0 (0)	0 (0)	-
Acute heart failure	1 (3)	2 (7)	p=0,59
Sustained VA	0 (0)	1 (3)	p=0,46
LVEF <50%	3 (8)	5 (16)	p=0,46
Hospital stay (IQR) – days	4 (3)	4 (4)	p=0,22

SD – standard deviation
cTnT – troponin T concentration
IQR – interquartile range
CRP – C-reactive protein
VA – ventricular arrythmia
LVEF – left ventricular ejection fraction

Conclusions: In our small series, the incidence and clinical course of myocarditis did not differ during a similar time span period before and after the beginning of the COVID-19 pandemic. In the COVID group, 16% of myocarditis cases were temporally associated with either SARS-CoV-2 infection or COVID-19 vaccination, particularly after a booster dose of mRNA vaccines. Patients with myocarditis 1-28 days after SARS-CoV-2 infection experienced worse outcomes.

PO 63. THE PREDICTIVE ROLE OF RIGHT AND LEFT VENTRICULAR LONGITUDINAL STRAIN MEASURED BY TWO-DIMENSIONAL ECHOCARDIOGRAPHY IN WILD-TYPE TRANSTHYRETIN CARDIAC AMYLOIDOSIS

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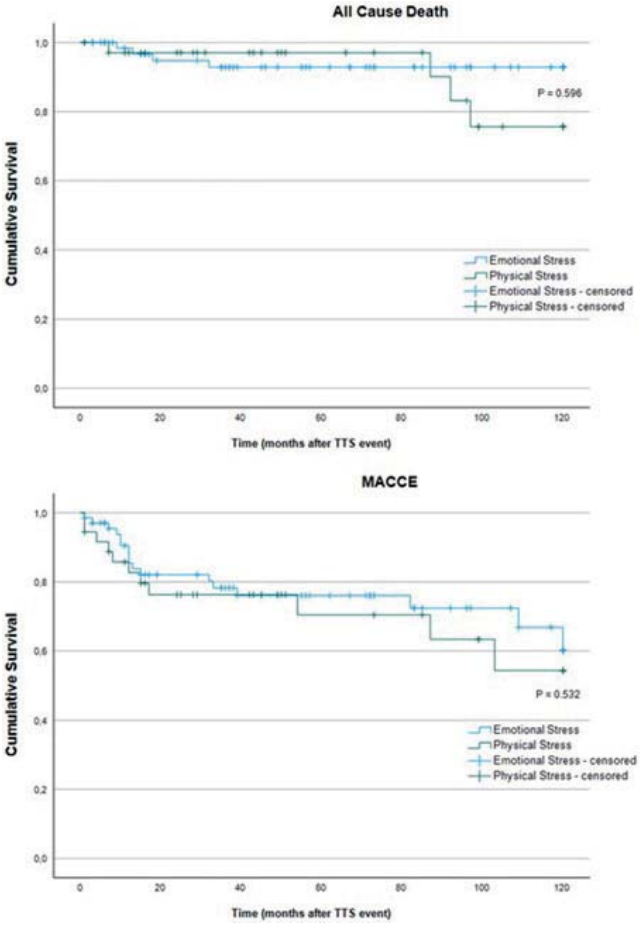
Introduction: Wild-type transthyretin amyloid cardiomyopathy (ATTR-CM) is a biventricular disease. The prognostic implications of left ventricular systolic dysfunction (LVSD) are well defined. However, there are only few studies assessing the association between right ventricular (RV) systolic function and outcomes. This study aimed to investigate the prognostic value of right and left ventricular longitudinal deformation in wild-type transthyretin ATTR-CM patients.
Methods: This is a retrospective single-center study including all patients with diagnosis of wild-type ATTR-CM between January 2014 and August 2021. ATTR-CM diagnosis was based on the AHA diagnostic criteria. The primary endpoint was the composite endpoint of hospitalization due to heart failure (HF) or death for any cause. Clinical and echocardiographic data were compared between patients reaching and not reaching the primary endpoint. RV strain analysis was obtained from the free wall of the RV based on the RV-focused apical 4- chamber view. The use of -13% as a prognostic cut-off value of RV free wall strain was supported by the receiver operating characteristic curve. Cox regression analysis was performed to identify independent predictors of the primary endpoint.
Results: 60 patients with wild-type ATTR-CM were included. The median age was 87 [69; 97]. 68.3% of patients were male and baseline left ventricular ejection fraction (LVEF) was 52 ± 14%. The median follow-up was 40 [1; 107] months. During follow-up, the primary endpoint occurred in 34 patients (56.7%); 22 patients died within 2.5 years of their diagnosis, 10 of them by cardiovascular cause. Patients reaching the primary endpoint had a lower mean LVEF (48 ± 13% *vs.* 58 ± 12%, p = 0.003) and mean global longitudinal strain (GLS) (-9 ± 2% *vs.* 14 ± 2%, p < 0.001). The fractional area change (FAC) was lower (31 ± 9% *vs.* 36 ± 8%, p = 0.031) and RV free wall strain was significantly worse (-9 ± 2 *vs.* -16 ± 5, p < 0.001). Kaplan-Meier curves showed that primary endpoint-free survival was lower in patients with reduced LVEF (31 ± 6 *vs.* 71 ± 9 months, p = 0.004), GLS < -12% (22 ± 4 *vs.* 87 ± 8 months, p < 0.001), FAC < 35% (34 ± 6% *vs.* 68 ± 9%, p = 0.024) and RV free wall strain < -13% (23 ± 3 *vs.* 101 ± 6 months, p < 0.001). In Cox regression analysis, reduced LV GLS and RV free wall strain remained independent predictors of the primary endpoint (HR 0.80, 95%CI 0.646-0.991, p = 0.041; HR 0.83, 95%CI 0.698-0.987, p = 0.035, respectively).
Conclusions: Reduced LV GLS and RV free wall strain are independent predictors of the occurrence of the primary endpoint of hospitalization due to HF or death of any cause in wild-type ATTR-CM patients.

PO 64. TAKOTSUBO SYNDROME - DIFFERENT TRIGGERS IN DIFFERENT POPULATIONS?

Ana Isabel Pinho, Luís Daniel Santos, Cátia Oliveira, Catarina Amaral Marques, André Cabrita, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Paula Dias, Gonçalo Pestana, Carla Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Previously believed to be a self-limiting and benign condition related to stressful triggers, Takotsubo Syndrome (TTS) has been increasingly recognized as a much more heterogeneous entity.
Objectives: To explore differences in demography and clinical characteristics among patients (pts) with TTS related to emotional and physical triggers and compare outcomes.



Methods: A retrospective cohort of 142 TTS pts admitted to our hospital, defined according to the revised Mayo Clinic diagnostic criteria, was collected. The baseline characteristics of these pts and the occurrences during hospitalization were analyzed. Kaplan-Meier survival analysis was used to assess long-term mortality and MACCE (composite of recurrence, acute coronary syndrome, heart failure, arrhythmias, stroke and death).
Results: A stressful trigger was identified in 111 (78%) pts. In 65%, TTS was triggered by emotional stressors and, in 35%, by physical factors. The

prevalence of males was significant higher in the TTS group related to physical stress (23% *versus* 1%, p < 0.01). In TTS related to physical stress, we found a greater frequency of neurologic diseases (33% *vs.* 13%, p = 0.009) and a lower percentage of overweight (18% *vs.* 40%, p = 0.016). Prevalence of other cardiovascular risk factors and psychiatric disorders were similar between the 2 groups (p = 0.616 and p = 0.444, respectively). No age differences were observed among the groups (p = 0.502). Typical chest pain was more frequent in the emotional stress group, whereas dyspnea and syncope were more common in the physical stress group (p < 0.001). Pts with TTS related to physical stress presented higher Killip class (p < 0.001), with signs and symptoms of congestive heart disease in 62% (vs 26%) and a greater proportion of severe left ventricular dysfunction on admission (46% *vs.* 26%, p = 0.035). This group had a longer hospital stay (9 days, IQR 11 *vs.* 6 days, IQR 17, p < 0.001), and a higher rate of in-hospital complications (69% *vs.* 32%, p < 0.001). We found no difference in the incidence of death during hospitalization between groups (5% for physical triggers *vs.* 1% for emotional triggers, p = 0.282). Comparison of mortality and MACCE at 10 years showed a slight trend towards a worse prognosis in the TTS group related to physical stress without statistically significance (Figure).

Conclusions: Pts with TTS triggered by physical stress were more often males, had more neurologic comorbidities, presented with more severe systolic dysfunction, dyspnea and syncope and had more intra-hospital complications than pts with TTS triggered by emotional stress. Our study supports the idea that under the general entity of TTS, there could be different clinical and demographic profiles. Therefore, our results question the traditional perception of TTS as a commonly benign entity.

PO 65. LEFT BUNDLE BRANCH BLOCK CARDIOMYOPATHY - AN INTRIGUING AND DEFIANT ENTITY FROM DIAGNOSIS TO TREATMENT

Catarina Amaral Marques, André Cabrita, Miguel Martins de Carvalho, Catarina Martins da Costa, Ana Filipa Amador, João Calvão, Luís Daniel Santos, Ana Isabel Pinho, Cátia Oliveira, Helena Santos Moreira, Pedro Mangas Palma, Miguel Rocha, Elisabete Martins, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Left bundle branch block cardiomyopathy (LBBB-CM) is an increasingly recognized entity, where electromechanical dyssynchrony seems to play a central role in left ventricular dysfunction (LVD) development. This is a challenging and scarcely studied topic, as causality dilemma between LBBB and LVD is still unsolved. Our aim is to increase current evidence on the subject by analyzing a population of idiopathic LBBB patients (pts) who developed, at some point, LVD not explained by other causes.

Methods: Retrospective study of LBBB adult pts screened from a large tertiary care hospital electrocardiographic database from 2011 to 2017. After careful evaluation, only possible LBBB-CM pts with serial follow-up (FU) echocardiographic and clinical data were included in the analysis.

Results: 53 pts were identified as possible LBBB-CMP. At baseline, 44% presented left ventricular ejection fraction (LVEF) > 50%, while 56% had LVD. 51% were female and mean age at first-ever LBBB report was 59 years-old. All cohort presented echocardiographic mechanical desynchrony, and additional testing to exclude other causes of LVD (non-invasive ischemia testing in 78%; coronariography in 68%; cardiac magnetic resonance in 38%). Median FU time was 10 years. Worst-LVD was reported as severe in 49% of pts, moderate in 23% and mild in 28%. Median time-to-dysfunction in those with initial LVEF > 50% was 8 years. 77% of pts presented heart-failure (HF) symptoms. 40% and 42% presented at least 1 CV event and CV hospitalization, respectively. Most events and/or hospitalizations were due to acute decompensated HF. 2 CV deaths were observed. Cardiac resynchronization therapy (CRT) devices were implanted in 47% of pts. All presented clinical improvement after implantation, and LVEF significantly increased (pre-CRT median LVEF of 24% *vs.* 48% post-CRT; p < 0.001). When comparing pts with *vs.* without CRT (Figure), better LVEF improvements were achieved in CRT group (median LVEF improvement of 27% in CRT *vs.* 11%; p < 0.001). Repeating the latter analysis in pts who only presented at least moderate dysfunction, higher LVEF increase was also reported in CRT group (median LVEF improvement of 27% in CRT pts *vs.* 14%; p = 0.002), and significantly more CRT pts recovered LV function (50% CRT *vs.* 14% non-CRT; p = 0.028). Notably, no differences were found in rates of medical HF therapy between groups (p = 1).

Conclusions: Our data shows LBBB-CM as a diagnosis of exclusion, where careful evaluation of other LVD etiologies should be performed and discarded. We highlight important morbidity rates in this population, namely HF hospitalizations, as well as the apparently critical role of CRT implantation in these pts. All our CRT pts responded excellently to the therapy. Thus, our study raise awareness to the emerging question of whether this entity can be reversed after LBBB correction with CRT and if early intervention would be desirable.

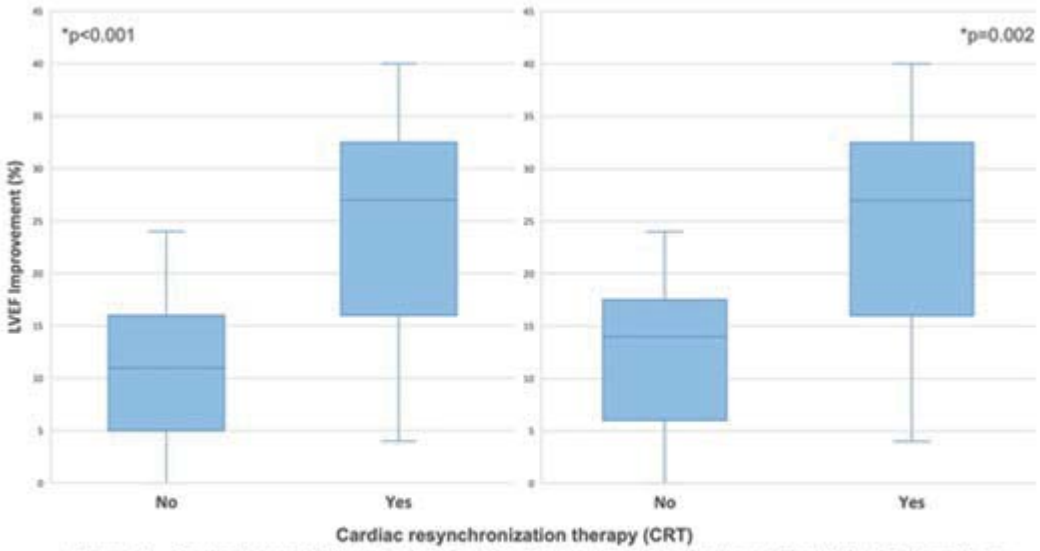


Figure 1 – Comparison of left ventricular ejection fraction (LVEF) improvement in LBBB-CM pts with or without CRT.
Left-side of mage with all cohort; right-side with pts presenting at least moderate dysfunction.
* p<0.05. Non-parametric tests were used.

Figure PO 65

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 6) - Enfarte agudo do miocárdio 1

PO 66. RE-INFARCTION DURING HOSPITALIZATION FOR ACUTE MYOCARDIAL INFARCTION: PREVALENCE, PREDICTORS AND IMPACT ON MORTALITY

Miguel Carias de Sousa, Marta Paralta, António Almeida, Francisco Cláudio, Rita Rocha, Bruno Piçarra, Ângela Bento, Manuel Trinca

Hospital do Espírito Santo, EPE, Évora.

Introduction: Reinfarction is defined as recurrence of clinical signs and symptoms of ischemia in patients with previously diagnosed acute myocardial infarction (AMI).
Objectives: To determine the prevalence of Reinfarction (RI) during hospitalization for AMI, identify predictors and evaluate its impact on in-hospital mortality.
Methods: We studied 6,900 patients diagnosed with AMI included in a national multicenter registry. We considered 2 groups: patients with RI and patients without RI. We recorded age, gender, cardiovascular history, heart rate (HR) and blood pressure (BP) on admission, electrocardiographic presentation, coronary angiography performed, number of vessels with lesions, number of angioplasties performed, type of stent implanted and therapy during hospitalization. We evaluated left ventricular function (LVF) and the presence of the following complications: heart failure, mechanical complications, late high-grade arrhythmic complications, major bleeding and the need for transfusion support. In-hospital mortality was compared. Multivariate analysis was performed to identify predictors of RI and the impact of RI on in-hospital mortality.
Results: RI was found in 1.4% (99 patients). The patients with RI were older (70 ± 12 *vs.* 66 ± 14 years; p < 0.001), had higher prevalence of hypertension (83.8 *vs.* 68.4%, p = 0.001), history of stroke (14.1% *vs.* 8.1%, p = 0.028) and peripheral vascular disease (13.4% *vs.* 5.0%, p = 0.001). Except for the lower diastolic blood pressure in the patients with RI (76 ± 14 *vs.* 80 ± 17 mmHg, p = 0.01), there were no differences in the remaining vital parameters or in the Killip-Kimball class on admission. The presence of AMI without ST elevation was more prevalent in the patients with RI (67.7% *vs.* 53.7%, p = 0.006).The rate of coronary angiographies was similar between the 2 groups, however the patients with RI showed more multivessel disease (71.9% *vs.* 49.8%, p < 0.001), left main coronary disease (16.3% *vs.* 7.5%, p = 0.002), anterior descending disease (78.9% *vs.* 64.6%, p = 0.005) and the right coronary artery (71.1%% *vs.* 55.0%, p = 0.002). There were no differences in the number or type of vessels undergoing angioplasty. RI was associated with worse LVF (p < 0.001), higher prevalence of HF (40.4% *vs.* 16.1%, p < 0.001), major hemorrhage (7.1% *vs.* 1.5%, p = 0.001) and need for transfusion (6.1% *vs.* 1.9%, p = 0.01). In-hospital mortality was higher in patients with RI (11.1% *vs.* 3.0%, p < 0.001). Multivariate analysis, RI was an independent predictor of in-hospital mortality and the following were identified as independent predictors of RI: age, history of peripheral vascular disease and left main coronary disease.
Conclusions: RI is a rare complication, present in 1.4% of patients with AMI and is associated with an increase in in-hospital complications and mortality. Age, history of peripheral vascular disease and left main coronary disease were independent predictors of RI.

PO 67. ARE THE RESULTS OF THE COMPLETE TRIAL APPLICABLE TO ALL ACUTE CORONARY SYNDROMES?

Diana Vale Carvalho[1], Adriana Rei Pacheco[1], Raquel Ferreira[1], Ana Briosa[1], Em Nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[2]

[1]*Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro.*
[2]*CNCDC.*

Introduction: The COMPLETE trial demonstrated that coronary artery bypass grafting in patients admitted for acute coronary syndrome with ST-segment elevation (STEMI) was superior to culprit-lesion-only percutaneous coronary intervention (PCI) in reducing the risk of major adverse cardiovascular events.
Objectives: The aim of the study was to verify if the results of the COMPLETE trial apply to patients admitted with acute coronary syndrome with or without ST-segment elevation (STEMI and NSTEMI).

	CR	IR	p	OR	IC95% (OR)	
					IL	SL
SMOKING HISTORY	582 (38,0%)	180 (26,1%)	<0,001	0,58	0,47	0,70
ARTERIAL HYPERTENSION	933 (61,1%)	495 (72,2%)	<0,001	1,65	1,35	2,00
DIABETES	381 (25%)	231 (33,7%)	<0,001	1,53	1,25	1,86
DYSLIPIDEMIA	786 (51,6%)	392 (57,2%)	0,015	1,25	1,04	1,5
OBESITY	300 (23,6%)	134 (26,3%)	0,227	1,16	0,91	1,46
FAMILY HISTORY OF CD	98 (6,5%)	34 (5,0%)	0,186	0,76	0,51	1,14
PRIOR AMI	191 (12,5%)	154 (22,4%)	<0,001	2,03	1,6	2,56
PRIOR PCI	178 (11,6%)	122 (17,8%)	<0,001	1,64	1,27	2,10
PRIOR CABG	4 (0,3%)	66 (9,6%)	<0,001	40,42	14,67	111,36
CKD	36 (2,4%)	33 (4,8%)	0,002	2,10	1,3	3,4

Table 1 - Cardiovascular risk factors and comorbidities. CD – coronary disease; AMI: acute myocardial infarction; PCI: percutaneous coronary intervention; CABG: coronary artery bypass graft; CKD: chronic kidney disease

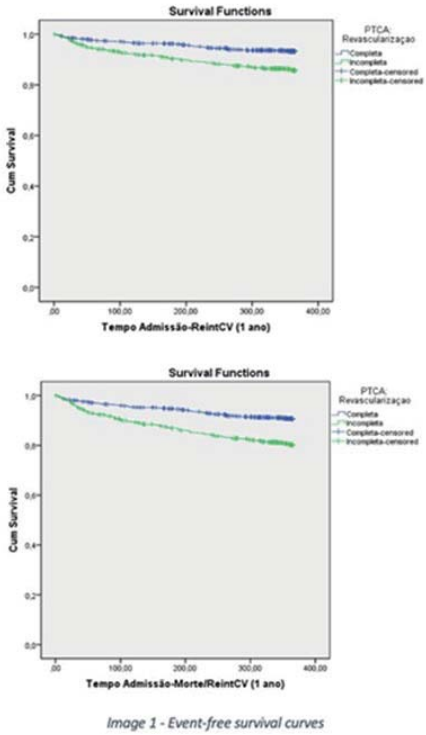


Image 1 - Event-free survival curves

Methods: Retrospective study conducted through the analysis of data provided by the National Center for Data Collection in Cardiology. Patients admitted for STEMI and NSTEMI from 1 January/2015 to 31 December/21 and who underwent PCI were included. Patients were divided into two groups: complete (CR) and incomplete (IR) revascularization. Death or hospital admission due to cardiovascular causes was considered the adverse event.
Results: 2,222 patients were included, 1532 with CR (68.9%) and 690 with IR (31.1%). The male gender was the most prevalent in both groups (76.2% in CR and 77.2% in IR). Mean age was significantly higher in the IR group (67.1 ± 11.9 *vs.* 62.5 ± 12.5, p < 0.001). STEMI was the admission diagnosis in 60% of patients with CR and 54.8% of those with IR [OR 0.81 (IC 0.67-0.97, p = 0.021)]. NSTEMI was the admission diagnosis in 40% of patients with CR and 45.2% of those with IR [OR 1.24 (IC 1.03-1.48, p = 0.021)]. Patients with IR more frequently presented Killip class > I (7.7% *vs.* 14.3%, p < 0.001). Most risk factors and cardiovascular comorbidities were more prevalent in the IR group, except for smoking history which was more frequent in CR (38.0% *vs.* 26.1%, p < 0.001), and obesity (23.6%vs26.3%, p = 0.227). Multivessel disease was documented in 22.3% of patients in the CR group. 0.1% of patients in the CR group and 2.2% of patients in the IR group underwent bypass surgery

in addition to PCI. Left ventricular ejection fraction was higher in the CR group (55 ± 11% *vs.* 51 ± 12%, p < 0.001). Considering the outcomes at 1 year, it was found that the CR group had fewer readmissions and deaths from cardiovascular causes at follow-up (10.5% *vs.* 21.0%, p < 0.001). In the event-free survival curve analysis, CR was associated with better survival (log rank test p-value < 0.001).
Conclusions: Complete revascularization is associated with a better prognosis in patients admitted for Acute Coronary Syndrome with or without ST-segment elevation, thus confirming the results of the COMPLETE study. In the Portuguese population, there is a tendency to attempt complete revascularization.

PO 68. PROGNOSIS OF PATIENTS WITH LEFT CIRCUMFLEX ARTERY-RELATED MYOCARDIAL INFARCTION BASED ON THE RESULTS OF A LARGE NATIONAL REGISTRY

Pedro Rocha Carvalho[1], Isabel Moreira[1], Catarina Carvalho[1], Marta Catarina Bernardo[1], Fernando Gonçalves[1], Pedro Mateus[1], José Paulo Fontes[1], 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 São Pedro. [2]CNCDC-Centro Nacional de Coleção de Dados em Cardiologia.

Introduction: Patients presenting with ST-elevation myocardial infarction (STEMI) have worse short-term outcomes in comparison to those with non-ST elevation myocardial infarction (NSTEMI). However, little is known about clinical differences and outcomes in patients with left circumflex artery (Cx) occlusion presenting with non-ST elevation myocardial infarction (NSTEMI).
Objectives: To evaluate the difference in clinical outcomes between patients with Cx-related STEMI *versus* Cx-related NSTEMI with and without artery occlusion.
Methods: ACS patients included in a national registry between October 2010 and January 2022 with culprit lesion on LCx were selected. Patients with previous history of coronary artery bypass graft were excluded. Patients were then divided into three groups based on the admission diagnosis and coronary angiography findings: Cx-related STEMI, NSTEMI with Cx occlusion ($NSTE_{CxO}$), and NSTEMI without Cx occlusion ($NSTE_{N}$). The primary outcome was a composite of in-hospital death, reinfarction, cardiac arrest, and heart failure.
Results: During the study period, a total of 2,211 patients with Cx-related MI were treated, and most (50.3%) presented with NSTEMI without Cx occlusion, 21.2% with NSTEMI with Cx occlusion and 28.5% with STEMI. Patients in the $NSTE_{CxO}$ and STEMI group were younger than $NSTE_{N}$ (62 ± 12 *vs.* 62 ± 13 *vs.* 65 ± 12, p < 0.001). Frequency of admission Killip class IV was 0.2% in $NSTE_{N}$, 0.6% in $NSTE_{CxO,}$ and 3.1% in the STEMI group (p < 0.001). Patients of $NSTE_{CxO}$ group were less frequently submitted to coronary angioplasty (70.4% *vs.* 86.7% in $NSTE_{N}$ *vs.* 95.5% in STEMI, p < 0.001), possibly because of longer delay from onset of pain to coronary angiography (median 454 *vs.* 330 minutes $NSTE_{N}$ and 184 minutes in STEMI, p < 0.001). During hospitalization, 285 patients (14.4%) experienced the composite endpoint. Patients in $NSTE_{CxO}$ group had an incidence of adverse events higher than $NSTE_{N}$ (in-hospital death 2.2% *vs.* 0.6%, p = 0.009, heart failure 13.4% *vs.* 10.9%, p = 0.264, cardiac arrest 1.9% *vs.* 1.1%, p = 0.195 and reinfarction 0.6% *vs.* 0.6%, p = 0.391) and lower than STEMI patients (in-hospital death 2.2% *vs.* 3.3%, p = 0.268, heart failure 13.4% *vs.* 19.7%, p = 0.079, cardiac arrest 1.9% *vs.* 7.1%, p < 0.001 and reinfarction 0.6% *vs.* 0.2%, p = 0.391). In a multivariate regression analysis, after adjusting for possible confounders, risk of composite endpoint was higher in STEMI group (HR 2.08, 95%CI: 1.51-2.87, p < 0.001) than in $NSTE_{N}$, but risk of composite endpoint in $NSTE_{CxO}$ was only marginally increased (HR 1.31, 95%CI: 0.90-1.90, p = 0.151). No statistically significant difference was noted in mortality at one year between NSTEMI and STEMI patients.
Conclusions: The STEMI group undoubtedly diverged from the NSTEMI group. NSTEMI with Cx occlusion seems to be an intermediate condition between NSTEMI without Cx occlusion and STEMI.

PO 69. ANTERIOR *VERSUS* NON-ANTERIOR STEMI: INCIDENCE OF REINFARCTION AND ALL-CAUSE MORTALITY AT LONG-TERM FOLLOW-UP

André Alexandre, David Sá-Couto, André Luz, João Faria, Andreia Campinas, Anaisa Pereira, Mariana Santos, Raquel Santos, Bruno Brochado, João Silveira, Severo Torres

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

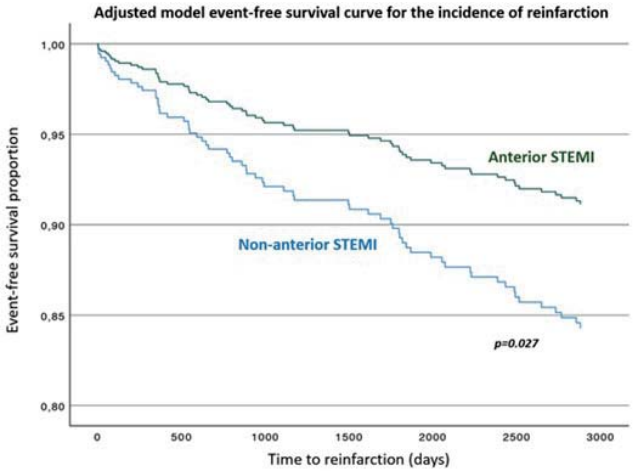
Introduction: Anterior STEMI due to left main stem (LMS) or left anterior descending (LAD) coronary artery occlusion has been associated with worse short-term outcomes and overall worse prognosis. Nevertheless, there is still conflicting data about the long-term risk of reinfarction and target vessel failure (TVF) in relation to the culprit vessel in STEMI patients.
Objectives: To determine whether the culprit vessel in STEMI patients has influence on long-term incidence of reinfarction, TVF, and all-cause mortality.
Methods: This is a retrospective study of STEMI patients admitted to primary PCI between Jan 2008 to Dec 2013 and followed for 8 year-interval. Patients

Predictor	Odds Ratio	CI 95%		p- value
STEMI	2,082	1,509	2,873	<0,001
$NSTEMI_{CxO}$	1,312	0,906	1,902	0,151
Male Sex	1,587	1,160	2,171	0,004
Age >75	2,566	1,898	3,468	<0,001
Arterial Hypertension	1,629	1,170	2,269	0,004
Peripheral Vascular Disease	1,709	1,022	2,859	0,041
Chronic Kidney Disease	1,799	1,016	3,188	0,044
Multivessel disease	1,838	1,371	2,463	<0,001
Coronary Angioplasty	0,659	0,453	0,957	0,029
LVEF< 50%	3,942	2,969	5,233	<0,001

Table 1- Multivariate Regression analysis

Figure PO 68

were classified according to the culprit vessel in two groups: anterior STEMI (LAD or LMS) *vs.* non-anterior STEMI (circumflex [CX] or right coronary artery [RCA]). The primary endpoint was reinfarction. The secondary endpoints were target vessel failure (TVF) and all-cause mortality.
Results: From a total of 584 STEMI patients, 532 were alive at discharge and considered for the analysis. 74% were male; median age was 61 years. Mean follow-up time was 6.94 (± 2.38) years. The most common culprit vessel was RCA (45.5%), followed by LAD (41.2%), CX (13.2%), and LMS (0.20%). Regarding the two main groups, 220 (41.4%) patients had an anterior STEMI and 312 (58.6%) patients had non-anterior STEMI. There were no significant differences between groups regarding baseline clinical characteristics, except for peripheral artery disease (less common in the anterior STEMI group: 4% *vs.* 11%; p = 0.011). The anterior STEMI group presented at a higher Killip class (20% *vs.* 15%; p = 0.046) and had higher hs-troponin T peak value (6.16 *vs.* 3.66 ng/mL; p < 0.001). A reduced left ventricular ejection fraction (LVEF) at discharge was also more common in the anterior STEMI group (78% *vs.* 43%; p < 0.001). In terms of angiographic characteristics, multivessel disease was more common in the non-anterior STEMI group (61% *vs.* 50%; p = 0.005), as well as PCI of non-culprit vessels (23% *vs.* 16%; p = 0.037) and the use of bare-metal stents (52% *vs.* 20%; p < 0.001). Regarding the primary endpoint, multivariate analysis with Cox regression revealed that non-anterior STEMI was independently associated with a higher risk of reinfarction which persisted after relevant variable adjustment (adjusted HR 1.96; 95%CI 1.08-3.67; p = 0.027) when compared to anterior STEMI group. Regarding the secondary endpoints (TVF and all-cause mortality), there were no significant differences between groups.



Conclusions: Although anterior STEMI is related to reduced LVEF at discharge and leads to worse short-term prognosis, our study showed that non-anterior STEMI is associated with an increased risk of reinfarction at long-term follow-up, with no differences in TVF or all-cause mortality.

PO 70. ELAPSED TIME FROM SYMPTOM ONSET TO CORONARY PERCUTANEOUS REVASCULARIZATION IN ACUTE CORONARY SYNDROMES: IS THERE A GENDER DIFFERENCE?

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

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

Introduction: Timely percutaneous coronary intervention (PCI) improves outcomes in patients (P) with ST-segment elevation myocardial infarction (STEMI) or high-risk non-ST-segment elevation (NSTE) acute coronary syndromes (ACS). Female P often have nonspecific symptomatology and thus may present later after symptom onset and therefore be at a higher risk for cardiovascular (CV) complications. The aim of this study was to compare the elapsed time from symptom onset to PCI between female and male ACS P as well as to compare ACS recurrence and CV mortality in a one-month follow-up.
Methods: Retrospective evaluation of consecutive P with ACS submitted to PCI enrolled in a single-center prospective ACS registry from 2005 to 2019. Elapsed time from symptom onset to PCI was calculated (in hh:mm) and P were followed up for one month for hospitalization for recurrent ACS or CV mortality. Data was compared between two groups: female P and male P.
Results: 4,039 P were evaluated, with a mean age of 63 ± 13 years, 28% female gender, female P were older: 68 ± 13 *vs.* 61 ± 12 years, p < 0.001, and had an inferior rate of previous ACS: 134 (3.3%) *vs.* 439 (10.9%) P, p = 0.013. The diagnosis at hospital admission, stratified according to gender, was unstable angina in 198 (4.9%) P: 61 (5.5%) female *vs.* 137 (4.7%) male, NSTEMI in 1050 (26%) P: 355 (31.8%) female *vs.* 695 (23.8%) male and STEMI in 2771 (68.6%) P: 695 (62.2%) female *vs.* 2076 (71.1%) male. The elapsed time from symptom onset to PCI was significantly higher in female P(female 08h28 ± 05h56 *vs.* male 06h59 ± 05h38, p < 0.001) as well as across the types of ACS: NSTEMI (female 11h23 ± 06h03 *vs.* male 10h33 ± 06h06, p = 0.037) and STEMI (female 06h54 ± 05h15 *vs.* male 05h44 ± 04h54, p < 0.001), while nonsignificant regarding unstable angina (female 09h03 ± 06h04 *vs.* male 7h51 ± 05h47, p = 0.187). There was no significant difference regarding CV complications during hospitalization, including cardiogenic shock: 60 (1.5%) female *vs.* 139 (3.4%) male, p = 0.421; mechanical ventilation: 45 (1.1%) female *vs.* 135 (3.3%) male, p = 0.440; or cardiac arrest 64 (1.6%) female *vs.* 140 (3.5%) male, p = 0.233; although there was a significantly inferior mortality rate in female P: 78 (1.9%) *vs.* 120 (3%) male, p < 0.001. In a 1-month follow-up, female P had a significantly inferior rate of hospitalization for recurrent ACS: female 11 (0.3%) *vs.* male 59 (1.5%) P, HR 0.48 (95%CI 0.25-0.92), p = 0.029 and no significant difference in CV mortality: female 12 (0.3%) *vs.* male 36 (0.9%) P, HR 0.87 (95%CI 0.45-1.67), p = 0.677.
Conclusions: In a tertiary hospital ACS population of predominantly STEMI P, female P had a significantly higher elapsed time from symptom onset to PCI, with 1 hour and 29 minutes difference (and 1 hour and 10 minutes

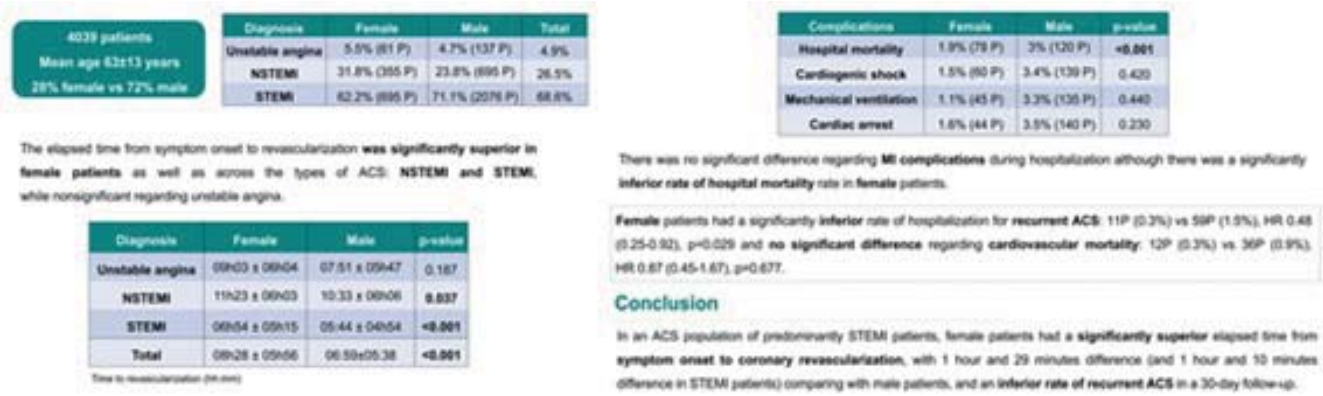


Figure PO 70

difference in STEMI P) compared to male P. Female P had a significantly inferior mortality rate and an inferior rate of recurrent ACS.

Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 7) - Ecocardiografia

PO 71. MODERATE AORTIC STENOSIS: NOT AS BENIGN AS IT SEEMS

Catarina Simões de Oliveira, Joana Brito, Pedro Alves da Silva, Beatriz Valente da Silva, Beatriz Garcia, Ana Margarida Martins, Catarina Gregório, Ana Abrantes, Miguel Raposo, Marta Vilela, Daniel Cazeiro, Joana Rigueira, Rui Plácido, Fausto J. Pinto, Ana Almeida

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

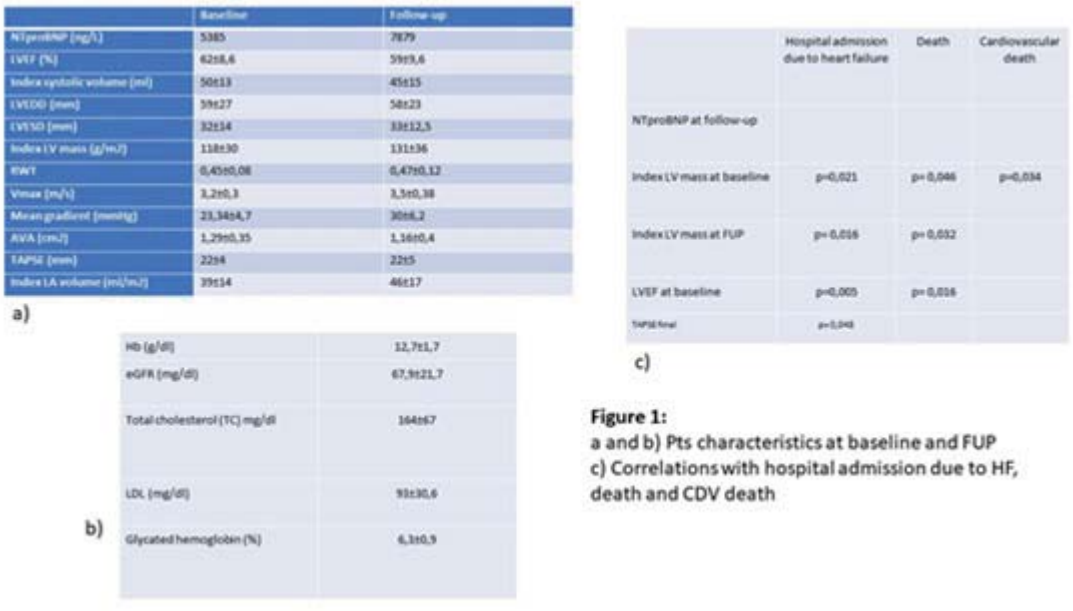
Introduction: Severe aortic stenosis (AS) represents an important cause of morbidity and mortality, being aortic valve replacement the cornerstone for prognostic shift. Although mild and moderate AS are regarded as low risk, its benign course has recently been challenged.
Objectives: To evaluate cardiovascular (CV) events and identify prognostic factors in patients (pts) with moderate AS.
Methods: Single center observational study of pts with moderate AS in consecutive echocardiographic evaluations, during a minimum follow-up (FUP) of 3 years. Clinical characteristics and laboratory and echocardiographic data were collected at baseline and during follow-up (FUP). Analyzed events at FUP included pre-syncope/syncope, chest pain, dysrhythmic episodes, hospital admission due to heart failure (HF), death and CV death. Statistical analysis was performed using Chi-square and Mann-Whitney tests.
Results: A total of 78 pts (74 ± 10 years; 52.6% males), were monitored during a mean FUP of 47 ± 16 months. The main CV risk factors were systemic arterial hypertension (83.3%), hypercholesterolemia (66.7%) and diabetes (41%). Atrial fibrillation was present in 39.8% of pts. At baseline, the mean left ventricular ejection fraction (LVEF) was 62 ± 8.6% and LV mass index (LVMI) was 118 ± 30 g/m^2. At FUP, NTproBNP was 7,879 pg/ml and echocardiographic evaluation depicted a LVEF of 59 ± 9.6% and a LVMI of 131 ± 36 g/m^2 (Table). At FUP, 6% of pts had pre-syncope/syncope, 13% chest pain and about 5% presented with a dysrhythmic episodes, namely complete atrioventricular block and ventricular ectopic beats. All patients with dysrhythmias had a mean aortic gradient greater than 30 mmHg (p = 0.030). Lower LVEF at baseline (p = 0.005), greater index LVMI at baseline (p = 0.021) and at FUP (p = 0.016) and right ventricular dysfunction at FUP (p = 0.048) correlated with hospital admission due to HF (28% of pts). During FUP, 29% of pts died, 14% from CV cause. Greater LVMI at baseline (p = 0.046) and at FUP (p = 0.032) and worse LVEF at baseline (p = 0.016) were associated with death, while a higher LVMI at baseline (p = 0.034) showed correlation with CV death.
Conclusions: Contemporary risk stratification of moderate AS is still incipient. However, less than severe AS is associated with CV events and death. In our population, about 1/3 of pts died at mean 4 years FUP, half of them from CDV death, although they didn't progress to severe AS. Further investigation is warranted to assess whether earlier intervention could improve outcomes in this subset of pts.

PO 72. JOINING EFFORTS FOR THE NON-INVASIVE EVALUATION IN PULMONARY HYPERTENSION: TAPSE/SPAP RATIO

Miguel Azaredo Raposo, Beatriz Garcia, Ana Abrantes, Pedro Alves da Silva, Margarida Martins, Joana Brito, Daniel Inácio Cazeiro, Joana Rigueira, Rui Plácido, Fausto J. Pinto, Ana G. Almeida

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Pulmonary hypertension remains an important challenge given its still elevated mortality rate and its complex clinical management, especially when it comes to risk stratification and imaging evaluation. In this respect, TAPSE/sPAP ratio obtained by echo is a surrogate of PA-RV coupling and has been suggested as a complementary approach to PH diagnosis and risk stratification. However, cut-offs for this ratio are yet to be clarified as recent guidelines refer a cut-off of 0.55, whilst other papers point that a lower cut-off of 0.35 could better estimate risk and prognosis.
Objectives: To analyse TAPSE/sPAP ratio impact in our population and to define an ideal cut-off to best correlate it with invasive hemodynamics and prognosis.
Methods: Single center retrospective study of patients with precapillary pulmonary hypertension who underwent right heart catheterization



	Baseline	Follow-up
NTproBNP (ng/L)	5385	7879
LVEF (%)	62±8,6	59±9,6
Index systolic volume (ml)	50±13	45±15
LVEDD (mm)	59±27	58±23
LVESD (mm)	32±14	33±12,5
Index LV mass (g/m2)	118±30	131±36
RWT	0,45±0,08	0,47±0,12
Vmax (m/s)	3,2±0,3	3,3±0,38
Mean gradient (mmHg)	23,34±4,7	30±6,2
AVA (cm2)	1,29±0,35	1,16±0,4
TAPSE (mm)	22±4	22±5
Index LA volume (ml/m2)	39±14	46±17

a)

Hb (g/dl)	12,7±1,7
eGFR (mg/dl)	67,9±21,7
Total cholesterol (TC) mg/dl	164±67
LDL (mg/dl)	93±30,6
Glycated hemoglobin (%)	6,3±0,9

b)

	Hospital admission due to heart failure	Death	Cardiovascular death
NTproBNP at follow-up			
Index LV mass at baseline	p=0,021	p= 0,046	p=0,034
Index LV mass at FUP	p= 0,016	p= 0,032	
LVEF at baseline	p=0,005	p= 0,016	
TAPSE final	p= 0,048		

c)

Figure 1:
a and b) Pts characteristics at baseline and FUP
c) Correlations with hospital admission due to HF, death and CDV death

Figure PO 71

(RHC) and echocardiography within a time frame of 2 months. Clinical, laboratorial, echo and cath data were collected and statistical analysis was performed using Chi-square test, Mann-Whitney test, as well as ROC curve analysis and Kaplan-Meier analysis of survival.
Results: We analysed 79 patients (66% female, mean age 58.06 ± 15.3) with pre-capillary pulmonary hypertension - 53% had group 1 PH and 47% group 4 PH - followed during a mean period of 3.6 ± 2.8 years. Most patients were under specific therapy (93%), mostly with PDE5 inhibitors and endothelin receptor antagonists. According to guidelines, echo derived TAPSE/sPAP ratio of 0.55 was used and it correlated with hemodynamic parameters, namely mPAP (p = 0.005), RAP (p = 0.007), cardiac output (p = 0.007) and cardiac index (p = 0.045) and pulmonary vascular resistance (p = 0.01). However, a ratio < 0.55 was not ideal to predict prognosis as it failed to show correlation with COMPERA score in follow-up (p = 0.69), clinical events (p = 0.31), progression to triple therapy or death (p = 0.45). Pts were alternatively divided into tertiles with ratios of < 0.29, 0.30-0.58 and > 0.59. These cut-offs showed a better positive correlation with COMPERA on follow-up (p = 0.05) and death. Kaplan-Meier curve analysis showed a clear separation of the three groups with these values. ROC curve analysis revealed that a cut-off of 0.39 had the best sensitivity and specificity to estimate clinical events (Figures).
Conclusions: TAPSE/sPAP ratio showed a good correlation with hemodynamic parameters in pts with precapillary pulmonary hypertension. Notwithstanding, a cut-off of 0.39 showed positive correlation with survival and prognosis.

PO 73. AUTOMATIC MULTI-VIEW POSE ESTIMATION IN FOCUSED CARDIAC ULTRASOUND

João Freitas, João Gomes-Fonseca, Cátia Oliveira, Vítor Hugo-Pereira, Jorge Correia-Pinto, Jaime C. Fonseca, Sandro Queirós

Universidade do Minho.

Introduction: Focused cardiac ultrasound (FoCUS) is an unvaluable tool at the bedside in the assessment of patients with acute/critical conditions. However, compared to a conventional echocardiography exam, FoCUS differs in the equipment used (inferior quality), in the examination scope (limited set of views) and in the operators (usually less experienced), which make FoCUS a primarily qualitative (bidimensional) exam.
Objectives: To develop an algorithm that automatically estimates the spatial relationship between five standard FoCUS cardiac views. The relative pose between views would allow to represent all in the same three-dimensional coordinate system, thus mitigating the major barrier towards the application of 3D quantitative cardiac image analysis methods to FoCUS.
Methods: An automatic pipeline for the generation of realistically looking (synthetic) FoCUS datasets, with both image and pose data, was developed using an ultrasound simulator and an image-to-image translation method. Leveraging of the created dataset, a novel framework for pose estimation contemplating three stages was implemented. In the first stage, a convolutional neural network based on an encoder-decoder architecture is proposed to regress line-based heatmaps representing the most likely areas of intersection between input images. In the second stage, the lines that best fit the regressed heatmaps are extracted through a multi-resolution grid search algorithm. In the final stage, the previously identified lines are used to create a system of non-linear equations, whose solution traduces the relative 3D pose between all input views.
Results and conclusions: Overall, the developed heatmap regression method proved to be feasible and accurate, outperforming the implemented baselines in all evaluation metrics. Similarly, the 3D view positioning method showed its feasibility for pose estimation. Altogether, the results for the developed framework are promising, suggesting its usefulness in a future clinical context.

PO 74. DIFFERENCES BETWEEN AL AND TRANSTHYRETIN CARDIAC AMYLOIDOSIS: A COMPARISON OF THE ECHOCARDIOGRAPHIC MORPHOLOGICAL VARIABLES

Ana Beatriz Garcia, Catarina Simões de Oliveira, Ana Margarida Martins, Beatriz Silva, Pedro Alves da Silva, Joana Brito, Ana Abrantes, Catarina Gregório, João Fonseca, Miguel Raposo, Marta Varela, Diogo Ferreira, João Cravo, Daniel Cazeiro, Rui Plácido, Ana Almeida, Fausto Pinto

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Cardiac amyloidosis (CA) is a restrictive cardiomyopathy caused by myocardial deposition of transthyretin proteins or immunoglobulin light chain (AL), associated with poor prognosis. Recent studies have tried to show ventricular and auricular geometry differences between CA subtype, as well as potential differences regarding clinical events, such as atrial fibrillation (AF).
Objectives: To identify differences in cardiac geometry of patients (pts) with CA and correlate with clinical outcomes.
Methods: Retrospective, single-center study of pts diagnosed with CA - hereditary (ATTRv), wild- type CA (ATTRwt) or AL - followed in a tertiary hospital. Clinical, epidemiological and echocardiographic data were collected. Statistical analysis was performed with non-parametric tests (Chi-square and Mann-Whitney).

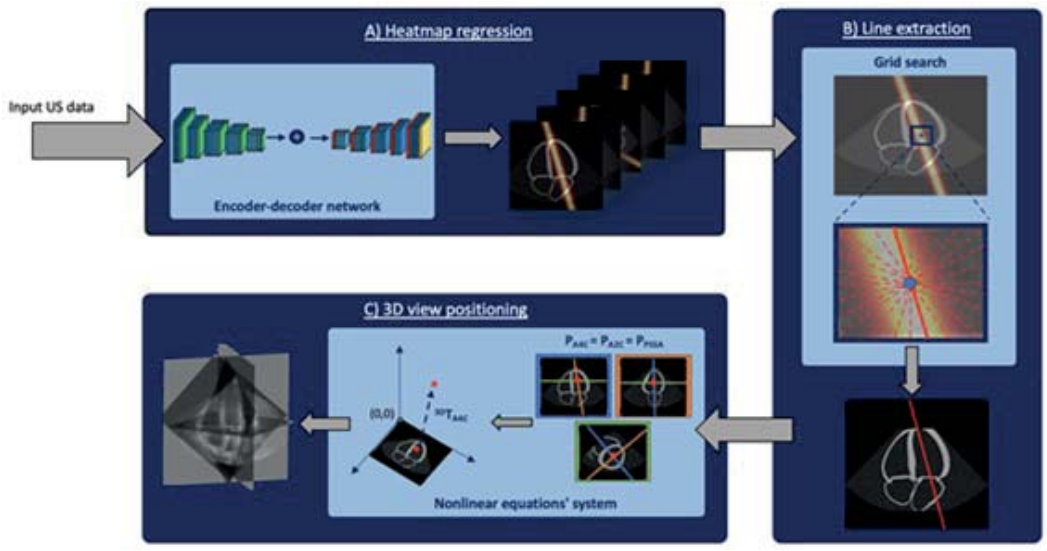


Figure PO 73

Results: We included 80 pts (median age 72 years ± 11; 85% male) with different types of CA - 42 ATTRv, 21 ATTRwt and 17 AL. Concerning clinical characteristic, 59% had arterial hypertension, 15% diabetes, 44% dyslipidaemia, 6% smoke habits and 50% had chronic kidney disease (eGFR < 60 mL/min/m²). We found significant differences regarding left ventricular geometry, with ATTRwt-patients presenting higher index left ventricular mass (186 ± 5 *vs.* 148 ± 47 *vs.* 167.5 ± 43, p = 0.003) increased septal and posterior wall thickness (17.7 ± 3 *vs.* 15.2 ± 3.2 *vs.* 16.1 ± 2.3, p = 0.035; 15.8 ± 3.5 *vs.* 13.5 ± 2.5 *vs.* 14.9 ± 2.4, p = 0.05, respectively) and lower ejection fraction as well as lower global longitudinal strain (48 ± 16.4 *vs.* 57.5 ± 8.6 *vs.* 53.9 ± 9.9, p = 0.028; -10.2 ± 4.2 *vs.* -13.7 ± 4.3 *vs.* -12.8 ± 5.9, p = 0.015). Pts with ATTRwt also had higher left atrial volume (p = 0.43). Furthermore, pts with AF had higher E/E´ ratio (14 ± 7 *vs.* 13.3 ± 1.1, p = 0.01), higher LA dimensions (p ≤ 0.001) and increased septal thickness (17.1 ± 3.5 *vs.* 15.2 ± 3.3, p = 0.035). In this analysis, a higher incidence of AF was reported in pts with ATTRwt (18% *vs.* 14% *vs.* 6%, p ≤ 0.001). ATTRwt pts presented higher mortality (p ≤ 0.001) during a mean follow-up of 3 years

Conclusions: Our study shows that there are important phenotype divergences according to CA subtypes, such as wall thickness and left atrial dilatation. These geometric differences may help to explain the higher incidence of AF observed in pts with ATTRwt, thereby acting as red flegs during FUP.

PO 75. IS MYOCARDIAL FIBROSIS APPROPRIATELY ASSESSED BY 2D STRAIN DERIVED INTEGRATED BACKSCATTER?

Maria Rita Giestas Lima[1], João Abecasis[1], Rita Reis Santos[1], Sérgio Maltês[1], Sara Guerreiro[1], Carolina Campino Padrão[1], Pedro Freitas[1], António Ferreira[1], Regina Ribeiras[1], Maria João Andrade[1], Nuno Cardim[2], Márcio Madeira[1], Sância Ramos[1], Miguel Mendes[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Calibrated integrated backscatter (cIBS) may be obtained from bidimensional (2D) strain echocardiography as a quantification measurement of myocardial ultrasound reflectivity. Increased collagen content of the myocardium modifies tissue reflectivity and cIBS is suggested as a marker of left ventricular (LV) fibrosis. However, its diagnostic accuracy is not established.

Objectives: To assess the correlation between cIBS by 2D strain and LV myocardial fibrosis (MF), as evaluated by non-invasive imaging and histopathology.

Methods: Correlation study from a cohort of 157 patients with severe symptomatic aortic stenosis (AS) referred for surgical aortic valve replacement (AVR). Patients with complete preoperative transthoracic echocardiography, cardiac magnetic resonance (CMR) and endomyocardial biopsy (EMB) obtained from the anterior basal septum at the time of AVR were selected. Two groups of 30 patients were evaluated, with and without late gadolinium enhancement (LGE) at CMR. IBS was obtained at QRS peak in decibels (dB) from both parasternal long axis (PLAX) and apical three chamber (A3C) cine clips at *Qanalysis* (Figure 1A). cIBS was calculated by subtracting the pericardial intensity from the average of the anteroseptal and basal inferolateral wall values. Correlation analysis was performed for the whole group of patients with global and segmental (anterior basal septum) values of native T1 and extracellular volume (ECV), and EMB collagen volume fraction (CVF) from Masson´s Trichrome staining. IBS values were compared in both groups of patients.

Results: 60 patients (73 [68-74] years, 45% male) with high gradient (mean gradient: 64 ± 20 mmHg), normal flow (45 ± 10 mL/m²), preserved ejection fraction (60 ± 9%) AS. Basal septal cIBS was -9.2 ± 9.5 dB and -16.3 ± 7.9 dB from A3C and PLAX views, respectively. These indexes did not correlate with basal septum thickness or global LV mass. Absolute and cIBS did not correlate neither with global and regional T1 and ECV values, nor with CVF at EMB (Figure 1B). These were not significantly different in both groups of patients and there was no correlation between cIBS values and mass of replacement MF in patients with LGE.

Conclusions: In these cohort of patients with classical severe AS, there was no correlation of cIBS with imaging markers of both replacement and diffuse MF. cIBS also didn´t correlate with CVF at histopathology. These findings suggest that reflectivity indexes are not suitable for myocardial tissue characterization in this setting.

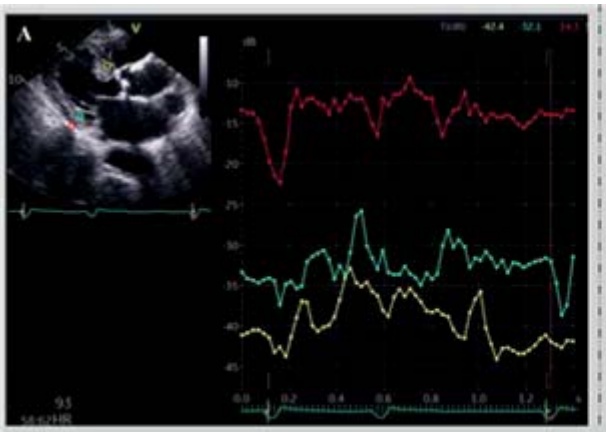
Sexta-feira, 14 Abril de 2023 | 14:30-15:30

Jardim de Inverno | Posters (Sessão 2 - Écran 8) - Endocardite

PO 76. PERFIL MICROBIOLÓGICO NA ENDOCARDITE INFECIOSA: ONDE ESTAMOS?

Rodrigo Pinto Silva[1], Vera Araújo[2], Pedro Apolinário[3], Fernando Mané[1], Rui Flores[1], Carla Rodrigues[1], Paulo Medeiros[1], Jorge Marques[1], Carina Arantes[1], Catarina Vieira[1]

[1]Hospital de Braga, EPE. [2]Universidade do Minho. [3]USF Fénix, ACES Marão e Douro Norte, Vila Real.



B

	cIBS A3C	p	cIBS PLAX	p
Overall				
IVS thickness (mm)	0.06	0.659	0.047	0.279
Indexed ventricular mass (gr/m²)	-0.099	0.452	0.105	0.423
T1 native of the anterior basal IVS (ms)	0.061	0.641	0.165	0.208
ECV basal anterior IVS (mL)	-0.024	0.859	-0.076	0.571
ECV indexed to the mass (mL/m²)	-0.141	0.293	-0.184	0.167
% Collagen Fraction Volume	0.122	0.354	-0.067	0.611
Patients with LGE in CMR				
% LGE mass	0.045	0.812	0.233	0.215

Figure 1 – A) IBS measurement by *Qanalysis* **B)** Correlation analysis between cIBS from A3C and PLAX views and several indexes of myocardial fibrosis. Legend: A3C – Apical 3 chambers view; cIB – Calibrated Integrated Backscatter; CMR – Cardiac Magnetic Resonance; dB – Decibel; ECV – Extracellular Volume; IVS – Interventricular Septum; LGE – Late Gadolinium Enhancement; PLAX – Parasternal longitudinal view

Figure PO 75

Introdução: Nos últimos anos tem-se registado uma evolução do perfil microbiológico da Endocardite infeciosa (EI), o que poderá ter implicações diagnósticas e terapêuticas.
Objetivos: Caracterização da população afetada por EI e avaliar se houve alterações no seu perfil microbiológico.
Métodos: Análise retrospetiva descritiva e analítica dos doentes internados com diagnóstico de EI entre janeiro de 1998 e dezembro de 2020 (N = 337). Foram definidos dois grupos temporais: de janeiro de 1998 a dezembro de 2009 (Grupo 1, N = 115) e de janeiro de 2010 a dezembro de 2020 (Grupo 2, N = 222).
Resultados: A idade média da população foi de 62 ± 16.77 anos, sendo 64.1% do sexo masculino. O modo de aquisição mais frequente foi a aquisição na comunidade (61.1%), seguindo-se a EI associada a cuidados de saúde (29.4%) e a associada ao uso de drogas endovenosas (9.5%). 39.5% dos doentes apresentavam material protésico intracardíaco de qualquer tipo, maioritariamente material protésico valvular (28.5% da população global). A taxa de doentes submetidos a cirurgia cardíaca foi de 32% e a taxa de mortalidade global foi de 23%. As hemoculturas (HC) foram positivas em 80.1% dos casos, sem diferença significativa na identificação ou não de agente entre os dois grupos (80.0% *vs.* 80.2%; p = 0.969). O agente microbiológico mais frequentemente identificado foi o *St. aureus* (22% da população), seguindo-se os *St.* coagulase negativos (14.5% da população) e os *Enterococcus* (8.6% da população). No Grupo 2, verificou-se uma maior prevalência de EI associada a cuidados de saúde (32.4% *vs.* 23.5%; p = 0.087) e uma menor prevalência de casos associados ao uso de drogas endovenosas (4.1% *vs.* 19.1%; p = 0.087), sem atingir significado estatístico. No Grupo 2, verificou-se uma diminuição significativa da prevalência dos *Staphylococcus* coagulase negativos (20.0% *vs.* 11.7%; p = 0.041) e dos *Streptococcus bovis* (11.3% *vs.* 5.0%; p = 0.032), assim como um aumento da prevalência dos *Enterococcus* (1.7% *vs.* 12.2%; p = 0.001). Verificou-se uma diferença estatisticamente significativa relativamente à presença de HC persistentemente positivas (definidas como 3 ou mais sets - 69.6% *vs.* 41.0%; p < 0.001).
Conclusões: No grupo mais recente verificou-se uma maior percentagem de casos associados a *Enterococcus* e uma menor percentagem de casos associados a *Staphylococcus* coagulase negativos e a *Streptococcus bovis.* O *Staphylococcus aureus* foi o microorganismo causador de doença mais frequentemente identificado e a sua prevalência tem-se mantido constante ao longo do tempo. Estes resultados traduzem provavelmente a evolução do próprio perfil de EI, com atingimento de uma população mais idosa, com mais comorbilidades e com maior contacto com serviços de saúde, o que deve influenciar a orientação dos doentes.

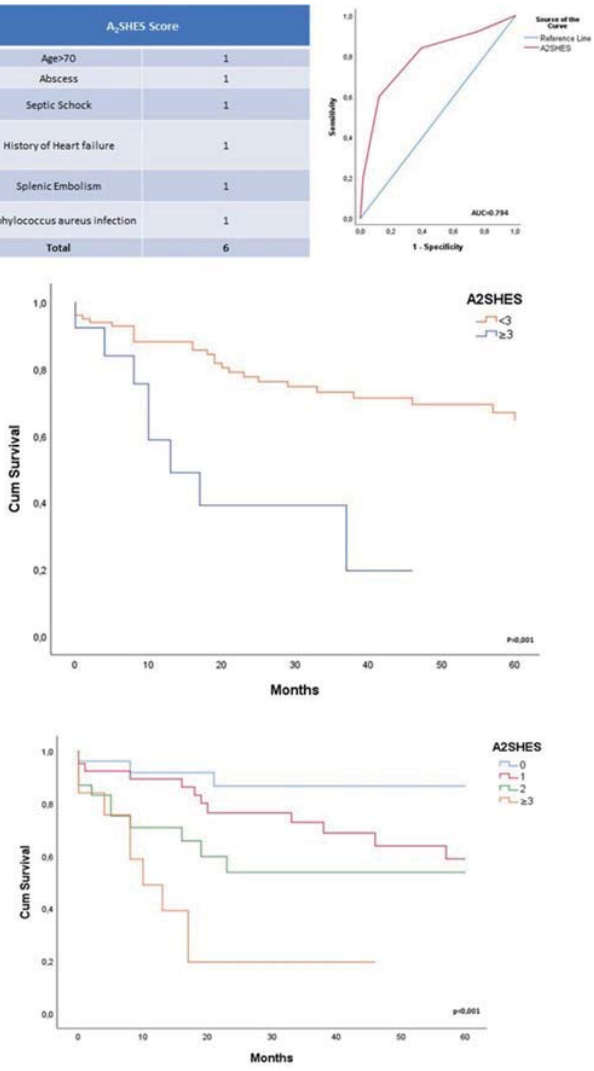
PO 77. A2SHES SCORE: A NOVEL SIMPLIFIED RISK SCORE FOR PREDICTING IN-HOSPITAL MORTALITY IN INFECTIVE ENDOCARDITIS

Pedro Rocha Carvalho, Isabel Moreira, Marta Catarina Bernardo, Catarina Carvalho, Fernando Gonçalves, José Paulo Fontes, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de São Pedro.

Introduction: Infective endocarditis (IE) is associated with high in-hospital mortality, despite improvements in therapeutic strategies. Moreover, there is a paucity of studies regarding the assessment of short-term prognosis in these patients.
Objectives: To develop a simplified risk score to predict in-hospital mortality.
Methods: This was a retrospective study that included all patients hospitalized in a single center with the diagnosis of infective endocarditis, between 2005 and 2020. Patients with possible or definite IE were included in the analyses. The selection of variables for the score in our population was based on multivariable Binary logistic regression models. The accuracy of the logistic regression models was assessed using C-statistic and Hosmer-Lemeshow test. The optimal A_2SHES Score cutoff was determined according to ROC curve analysis. Patients were categorized into two groups based on their initial A_2SHES Score. Baseline characteristics, management, and outcomes were compared between the two groups. The primary endpoint was in-hospital mortality and the secondary endpoint was 5-year mortality.
Results: A total of 145 patients were included in this study with a mean age of 67 ± 16 years, 64.8% male, and 85.5% presenting with left-sided IE. After a multivariable binary Logistic regression analysis, six variables were associated with in-hospital mortality and were included in the risk score: Age > 70 years, presence of Abscess, Staphylococcus aureus infection, previous Heart failure, splenic Embolization, and septic Shock. Based on ROC analysis, which showed AUC = 0.794, the optimal A_2SHES Score was 3 (with a sensitivity of 60% and a specificity of 88%). Furthermore, the calibration by Hosmer-Lemeshow was 0.974. The adjusted probability of in-hospital mortality for patients with A_2SHES Score ≥ 3 was 82.3%. In a multivariate regression analysis, after adjusting for valve surgery, A_2SHES Score ≥ 3 was an independent predictor of in-hospital death (HR 10.51, 95%CI: 3.9-18.33, p < 0.001). At five years follow-ups, using a Kaplan-Meyer survival analysis, mortality was higher in patients with A_2SHES Score ≥ 3 (log-rank p = 0.001).

A_2SHES Score	
Age>70	1
Abscess	1
Septic Schock	1
History of Heart failure	1
Splenic Embolism	1
Staphylococcus aureus infection	1
Total	6



Conclusions: Our risk score provides an accurate estimation of in-hospital mortality in patients with infective endocarditis and had excellent discriminative power in follow-up. Nevertheless, external validation in a larger population is still needed.

PO 78. PREDICTORS OF EARLY MORTALITY IN INFECTIVE ENDOCARDITIS - A SIX-YEAR SINGLE-CENTRE RETROSPECTIVE STUDY

Margarida S. Cabral, Sara Fernandes, Mariana Carvalho, Carolina Gonçalves, Rita Carvalho, Luís Graça Santos, Catarina Ruivo, João Morais

Centro Hospitalar de Leiria/Hospital de Santo André.

Infective endocarditis (IE) has been described as a challenging infective disease, due to its presentation and clinical progression variability. Its mortality remains high besides better disease knowledge and therapeutic progress. This study aimed to describe the clinical, microbiological and echocardiographic characteristics and to identify the predictors of early mortality.A retrospective study was conducted and patients diagnosed with definite or possible IE (according to the modified Duke criteria) between 2015 and 2021 were included. The main outcome was early mortality, including in-hospital and 3-month mortality. Group 1 represents patients alive 3 months after discharge and group 2 includes patients who died in the hospital or within 3 months after discharge. Group comparisons and multivariate logistic regression analysis were performed. A p-value less than 0.05 is statistically significant. Of the total 72 patients, 70.8% were male. The mean age was 68.7 years (Table 1). Fever was the main presentation feature at admission (Table 2). We counted 24 (33.3%) prosthetic valve endocarditis and 7 (9.7%) device-related IE. The most common isolated microorganisms were Streptococcus gallolyticus (n = 11, 15.3%) and Enterococcus faecalis (n = 10, 13.9%) (Table 3). Fourthy-eight patients (66.7%) developed local complications and 41 patients (56.9%) had systemic complications (Table 4). In-hospital mortality was 22.2% and early mortality was 29.2% (n = 21). In univariate analysis, the predictors of early mortality were: diabetes (p-value < 0.01), fever at presentation (p-value = 0.03) and sepsis during hospitalization (p-value < 0.01). In multivariate analysis, only diabetes (OR = 6.7, 95%CI [1.3, 34.9], p-value = 0.02, AUC = 0.856 [Figure]) was shown to be an independent factor of early mortality. Finally, twenty-two (30.6%) patients underwent surgical treatment, with a significant difference between groups with greater survival among those submitted to surgery (*p-value* = 0.01). This subgroup population characterization and the main indications for surgical treatment are represented in Table 5. In conclusion, we identified diabetic patients as an independent high-risk subgroup of patients hospitalized for IE. These results suggest caution in the clinical management of these patients. In the future, it might plausibly be considered as a possible indicator for a more invasive and earlier strategy, regardless of the presence or absence of other clinical complications. Large-scale studies are needed to confirm these results.

TABLE 1. BASELINE CHARACTERISTICS

	Overall (n=72)	Group 1 (n=51)	Group 2 (n=21)	p-value
Male, n (%)	51 (70.8)	35 (68.6)	16 (76.2)	0.52
Age in years, mean (dp)	68.7 ± 15.6	66.9 ± 16.9	73.2 ± 10.9	0.12
Arterial hypertension, n (%)	40 (55.6)	27 (2.9)	13 (61.9)	0.49
Diabetes, n (%)	22 (30.6)	10 (19.6)	12 (57.1)	<0.01
Heart failure, n (%)	16 (22.2)	13 (25.5)	3 (14.4)	0.30
Coronary artery disease, n (%)	10 (13.9)	7 (13.7)	3 (14.3)	0.95
Valvular heart disease, n (%)	30 (41.7)	21 (41.2)	9 (42.9)	0.90
Valve repair/replacement, n (%)	25 (34.7)	16 (31.4)	9 (42.9)	0.35
Dilated cardiomyopathy with ICD or CRT-D, n (%)	3 (4.2)	2 (3.9)	1 (4.8)	1.00
Congenital heart disease, n (%)	7(9.7)	5 (9.8)	2 (9.5)	0.97
Surgical correction of congenital anomaly, n (%)	3 (4.2)	2 (3.9)	1 (4.8)	1.00
Intravenous drug user, n(%)	1 (1.4)	1 (2.0)	0 (0.0)	1.00

ICD-implantable cardioverter-defibrillator; CRT-D-implantable cardiac resynchronization therapy defibrillator

TABLE 2. CLINICAL PRESENTATION

	Overall (n=72)	Group 1 (n=51)	Group 2 (n=21)	p-value
Fever, n (%)	48 (66.7)	38 (74.5)	10 (47.6)	0.03
Anorexia, malaise, weight loss, n (%)	37 (51.4)	24 (47.1)	13 (61.9)	0.25
Shortness of breathe, n (%)	16 (22.2)	11 (21.6)	5 (23.8)	0.84
Focal neurologic deficits, n (%)	10 (13.9)	8 (15.7)	2 (9.5)	0.49
Altered state of consciousness, n (%)	6 (8.3)	5 (9.8)	1 (4.8)	0.66
Chest pain, n (%)	3 (4.2)	2 (3.9)	1 (4.8)	1.00

TABLE 3. COMPLEMENTARY TESTS RESULTS

	Overall (n=72)	Group 1 (n=51)	Group 2 (n=21)	p-value
VEGETATION LOCATION				
Native valve, n (%)	39 (54.2)	26 (51.0)	13 (61.9)	0.40
Biologic prosthetic valve, n (%)	17 (23.6)	12 (23.5)	5 (23.8)	0.98
Mechanical prosthetic valve, n (%)	7 (9.7)	6 (11.8)	1 (4.8)	0.36
Implantable device, n (%)	7 (9.7)	5 (9.8)	2 (9.5)	0.97
Other, n (%)	2 (2.8)	2 (3.9)	0 (0.0)	1.00
MICROBIOLOGY BLOOD TEST RESULTS				
Gram-positive bacteria, n (%)	38 (52.8)	29 (56.9)	9 (42.9)	0.28
Gram-negative bacteria, n (%)	15 (20.8)	12 (23.5)	3 (14.3)	0.38
Intracellular microorganism, n (%)	7 (9.7)	3 (5.9)	4 (19.0)	0.09
No microbiological isolation, n (%)	12 (16.7)	7 (13.7)	5 (23.8)	0.30

TABLE 4. IN-HOSPITAL COMPLICATIONS

	Overall (n=72)	Group 1 (n=51)	Group 2 (n=21)	p-value
LOCAL COMPLICATIONS, n (%)	**48 (66.7)**	**32 (62.7)**	**16 (76.2)**	**0.27**
Valve regurgitation[1], n (%)	26 (66.7)	17 (65.4)	9 (69.2)	0.50
Prosthetic dysfunction[2], n (%)	14 (19.4)	10 (55.6)	4 (66.7)	0.63
Obstructive prosthetic valve, n (%)	9 (12.5)	6 (33.3)	3 (50.0)	0.46
Periprosthetic regurgitation, n (%)	4 (5.6)	4 (22.2)	0 (0.0)	0.54
Intraprosthetic regurgitation, n (%)	5 (6.9)	4 (22.2)	1 (16.7)	1.00
Leaflet/cusp perforation, n (%)	13 (18.1)	9 (17.6)	4 (19.0)	0.89
Abscess, n (%)	12 (16.7)	7 (13.7)	5 (23.8)	0.30
Pseudoaneurysm, n (%)	11 (15.3)	7 (13.7)	4 (19.0)	0.57
Fistula, n (%)	9 (12.5)	8 (15.7)	1 (4.8)	0.20
SYSTEMIC COMPLICATIONS, n (%)	**41 (56.9)**	**25 (49.0)**	**16 (76.2)**	**0.03**
Sepsis, n (%)	14 (19.4)	5 (9.8)	9 (42.9)	<0.01
Acute heart failure, n (%)	13 (18.1)	7 (13.7)	6 (28.6)	0.14
Cerebral embolization, n (%)	16 (22.2)	11 (21.6)	5 (23.8)	0.86
Splenic embolization, n (%)	10 (13.9)	7 (13.7)	3 (14.3)	0.95
Digital embolization, n (%)	5 6.9)	2 (3.9)	3 (14.3)	0.12
Renal embolization, n (%)	2 (2.8)	2 (3.9)	0 (0.0)	1.00
Retinal embolization, n (%)	1 (1.4)	1 (2.0)	0 (0.0)	1.00
Coronary embolization, n (%)	1 (1.4)	0 (0.0)	1 (4.8)	0.29

[1]At least moderate regurgitation; of the total number of affected native valves (n=39). [2]Of the total number of infective endocarditis of prosthetic valves (n=24).

TABLE 5. PATIENTS UNDERGONE SURGICAL TREATMENT

	Overall[1] (n=22)
BASELINE CHARACTERISTICS	
Male, n (%)	15 (68.2)
Age in years, mean (dp)	61.9 ± 14.2
Arterial hypertension, n (%)	8 (36.4)
Diabetes, n (%)	4 (18.2)
Heart failure, n (%)	5 (22.7)
Coronary artery disease, n (%)	1 (4.5)
Valvular heart disease, n (%)	6 (27.3)
Valve repair/replacement, n (%)	4 (18.2)
Dilated cardiomyopathy with ICD or CRT-D, n (%)	3 (13.6)
Congenital heart disease, n (%)	5 (22.7)
Surgical correction of congenital anomaly, n (%)	2 (9.1)
MAIN SURGICAL INDICATIONS	
Severe native valve dysfunction, n (%)	12 (16.7)
Device extraction, n (%)	5 (6.9)
Other local complication, n (%)	3 (4.2)
Prosthetic dysfunction, n (%)	1 (1.4)
Systemic complication, n (%)	1 (1.4)

[1] Of the total of patients undergone surgical treatment (n=22)

ICD-implantable cardioverter-defibrillator; CRT-D-implantable cardiac resynchronization therapy defibrillator

PO 79. CHOQUE NA ENDOCARDITE INFECIOSA

Rodrigo Pinto Silva[1], Vera Araújo[2], Pedro Apolinário[3], Inês Conde[1], Fernando Mané[1], Rui Flores[1], Carla Rodrigues[1], Paulo Medeiros[1], Jorge Marques[1], Carina Arantes[1], Catarina Vieira[1]

[1]Hospital de Braga, EPE. [2]Universidade do Minho. [3]USF Fénix, ACES Marão e Douro Norte, Vila Real.

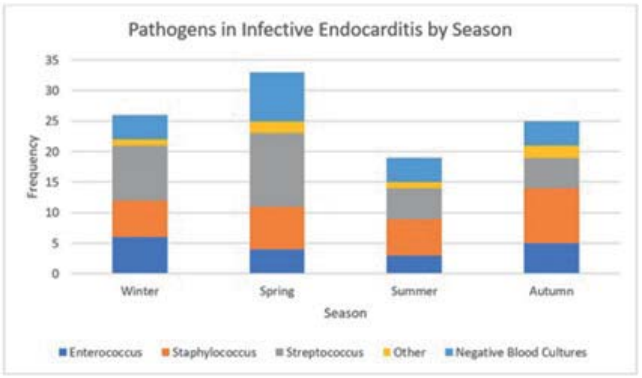
Introdução: A endocardite infeciosa (EI) tem registado uma evolução epidemiológica nos últimos anos, mantendo uma elevada incidência de choque e mortalidade.
Objetivos: Caracterizar uma população de doentes internados com EI e determinar preditores de choque.
Métodos: Análise retrospetiva de 337 doentes com diagnóstico de EI internados no nosso centro de janeiro de 1998 a dezembro de 2020.
Resultados: A população apresentava uma média de idades de 62 ± 16.77 anos e 64.1% eram do sexo masculino. A taxa de mortalidade global foi de 23% e a taxa de doentes submetidos a cirurgia cardíaca foi de 32%. As complicações intra-hospitalares mais frequentes foram: insuficiência cardíaca (11%), fenómenos embólicos *major* (26%) e choque (14%). Os doentes que desenvolveram choque (14%; N = 48) eram mais velhos (idade superior a 65 anos - 67% *vs.* 33%; p = 0.02) e sem diferença quanto ao género (masculino - 54% *vs.* 46%; p = 0.09). Tinham mais frequentemente antecedentes de valvulopatia nativa severa (36% *vs.* 14%; p = 0.02), de disfunção ventricular esquerda severa (44% *vs.* 14%; p = 0.01) e doença renal crónica (30% *vs.* 11%; p < 0.01). Desenvolveram mais frequentemente lesão renal aguda durante o internamento (65% *vs.* 35%; p < 0.01) e necessidade de técnica dialítica (24% *vs.* 18%; p = 0.002). Houve uma maior prevalência de choque associado a *St. aureus* (OR = 1.38; IC: 0.69-2.77) e a *Enterococcus* (OR = 1.26; IC: 0.45-3.47), mas sem significado estatístico. Não se verificaram diferenças com significado estatístico face: ao modo de aquisição da EI (p = 0.49); estado de imunossupressão (p = 0.27); presença de prótese valvular (p = 0.44); presença de vegetações de dimensões > 15 mm (p = 0.91); insuficiência valvular severa de novo (p = 0.68) e complicações perianulares (p = 0.91). A mortalidade intrahospitalar dos doentes que desenvolveram choque foi de 73% (OR = 15.45; IC: 7.55-31.61; p < 0.01). Os preditores independentes de desenvolvimento de choque foram a presença de valvulopatia prévia severa (OR = 3.93; IC: 1.14-13.55; p = 0.03), disfunção ventricular esquerda severa (OR = 4.30, IC: 1.02-18.04; p = 0.046) e o desenvolvimento de lesão renal aguda (OR = 3.41; IC: 1.73-6.71; p < 0.01).
Conclusões: A EI complicada de choque associa-se a um aumento significativo da mortalidade intrahospitalar, pelo que a sua prevenção e identificação precoce são primordiais. Os preditores independentes de choque nesta amostra foram a presença de valvulopatia prévia severa, a disfunção ventricular esquerda severa e o desenvolvimento de lesão renal aguda durante o internamento, podendo traduzir uma maior fragilidade e menor reserva do «hospedeiro» face a um quadro infecioso tão grave.

PO 80. LONG-TERM TEMPORAL AND SEASONAL TRENDS OF INFECTIVE ENDOCARDITIS

Carolina Pereira Mateus, Inês Fialho, Mariana Passos, Filipa Gerardo, Inês Miranda, Joana Lopes, Marco Beringuilho, Carlos Morais, João Bicho Augusto

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

Introduction: Over the past two decades, the epidemiology of infective endocarditis (IE) has changed significantly with the increase of life expectancy, use of cardiac implantable devices, and more invasive procedures. There is an ongoing shift in the incidence of IE, but a temporal/seasonal association with specific pathogens is yet to be investigated.
Objectives: In this study, we aimed to assess (1) whether there is a temporal trend/increase in IE incidence in recent years, and (2) if there is a seasonality among specific IE-related pathogens.
Methods: We conducted a single center retrospective study of all consecutive patients in a 6-year period between 2017 and 2022, with a diagnosis of definite infective endocarditis as assessed by the modified Duke criteria. All electronic medical records were reviewed for demographics, blood cultures dates and results, and echocardiographic results were analyzed. The blood cultures collection date was used to define the time of the year for IE. Seasons were defined according to the northern hemisphere as Winter (January to March), Spring (April to June), Summer (July to September) and Autumn (October do December). If blood cultures were negative, the date of the first echocardiography with signs of infective endocarditis was noted.
Results: A total of 103 cases of IE were identified over a 6-year period. Mean age of IE patients was 70 ± 13 years, 31.1% were female (n = 32). No significant difference was found over the years. Overall, 76.7% had one isolated pathogen (n = 79), 3.9% had 2 different pathogens (n = 4), and 19.4% had persistent negative blood cultures (n = 20). The most predominant infective agent was *Streptococcus* species (30.1% of cases, n = 31), followed by *Staphylococcus* species (29.1%, n = 30) and *Enterococcus* species (18.4%, n = 19). The most affected valve was native aortic valve (35.9%, n = 37), followed by native mitral valve (30.1%, n = 31) and biological prosthetic aortic valve (17.5%, n = 18). Summer had the fewer cases of IEs (18.4%), while Spring is the season with more IEs (32.0%). Negative blood cultures were more frequent in the Spring (24.2%). In Autumn, the proportion of *Staphylococcus* IE increases to 36% of all infections in this season. The most frequent pathogen in Winter and Spring is *Streptococcus*, representing 34.6% and 36.4% of IEs in these seasons.



Conclusions: In our population, there was no significant increase in the incidence of IEs over the years. However, there was a seasonal trend both in frequency and in specific pathogens: Summer had fewer IEs and Spring was the season with the highest frequency; *Streptococcus* is the most frequent pathogen in both Winter and Spring. These results may not represent the reality nationwide, and further epidemiological studies would be necessary to establish a trend.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 1) - Resincronização cardíaca

PO 81. PROGNOSTIC IMPLICATIONS OF CRT RESPONSE CATEGORIZATION

Daniel Inácio Cazeiro, Joana Brito, Pedro Silvério António, Sara Couto Pereira, Pedro Alves da Silva, Beatriz Valente Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Inês Aguiar Ricardo, Ana Bernardes, Andreia Magalhães, Fausto J. Pinto, João de Sousa, Pedro Marques

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

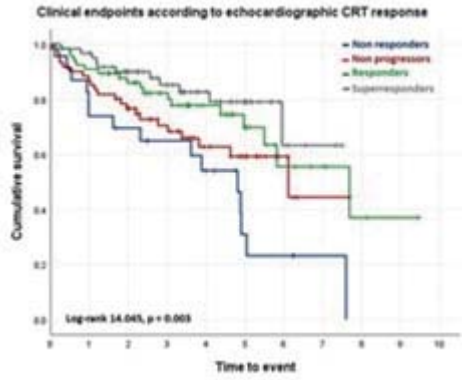
Introduction: CRT therapy is a mainstay treatment in patients (pts) with symptomatic heart failure (HF) despite optimal medical therapy with

intraventricular conduction delay, specially left bundle branch block. However individual response to resynchronization is not homogeneous, with different observed rates of reverse remodeling, which may be associated with adverse clinical events.

Objectives: To characterize the impact of CRT response on LV remodeling and clinical outcomes.

Methods: Single center, retrospective study including consecutive patients submitted to CRT implantation from 2015 to 2020, with echocardiogram data before and after the procedure. Study population was classified according to the CRT remodeling response: non responders - LVEF worsening above 5%; non-progressors - with a LVEF variation of < 5%; responders - LVEF increasing > 5%; and super-response define by LVEF increasing above the 4th quartile (20%). Impact of different classes of response on clinical events defined as hospitalizations due to HF and all-cause mortality, was evaluated with survival analysis.

Results: Considering a total population of 653 pts, the effect of CRT remodeling was evaluated in 344 pts (mean age 69 ± 10 years old, 57.4% female sex). Population distribution was the following: 42 (12.2%) non responder, 113 (29.4%) non progressors, 123 (32%) responders and 101 (26.3%) superresponders. Clinical outcomes varied significantly between groups (p = 0.003), with a 2-year freedom from event rate of 70%, 75%, 86%, 90% respectively (Figure). Additionally, NTproBNP at follow-up was also significantly higher with lower CRT response rates (p < 0.001). A tendency to lower adverse clinical events was observed comparing non-progressors to non-responders (p = 0.054). The presence of typical LBBB was significantly more frequent in responders (p = 0.018), which was associated with both a better echocardiographic response (p = 0.018) and improved clinical outcomes (p < 0.001). Baseline lower LVEF were associated with an increased CRT response (p < 0.001).



Conclusions: Good prognosis was observed after CRT implantation in all groups, which improved in accordance to CRT response. Interestingly CRT non-progressors present a better prognosis compared to non-responder, suggesting a stabilization of HF progression. These results enhance the limitation of a purely division in non-responder and responder. Echocardiographic stabilization is related to a better prognosis than the natural disease.

PO 82. PREDICTIVE FACTORS OF MORTALITY OR CLINICAL DETERIORATION IN ATRIAL FIBRILLATION PATIENTS RECEIVING CARDIAC RESYNCHRONIZATION THERAPY

João Grade Santos, Bárbara Ferreira, Mariana Martinho, Diogo Cunha, João da Luz, Nazar Ilchyshyn, Oliveira Baltasar, Daniel Sebaiti, Khrystyna Budzak, João Simões, Rita Miranda, Sofia Almeida, Luís Brandão, Hélder Pereira

Hospital Garcia de Orta, EPE.

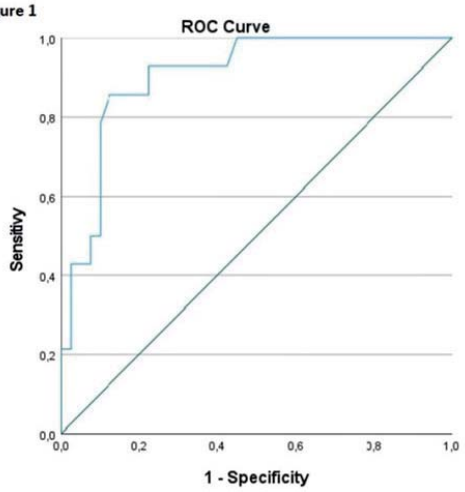
Introduction: Cardiac resynchronization therapy (CRT) in heart failure patients with reduced ejection fraction (HFrEF) and wide QRS complexes has been shown to improve both functional capacity and quality of life, and to decrease hospital admissions and mortality. However, data on the benefit in patients with Atrial Fibrillation (AF) is scarce and recommendations by the ESC guidelines are only class IIA, limited to very symptomatic patients (New York Heart Association (NYHA) Class above III).

Objectives: Our aim was to assess predictors of a composite outcome of admissions for heart failure or cardiovascular death at 5 years in patients with AF submitted to CRT implantation.

Methods: We performed a retrospective analysis between February 2010 and October 2022 of all patients with AF admitted for CRT implantation due to HFrEF with EF < 35% and QRS > 130 ms in a single expert centre. Medical records were analysed for demographics, clinical data and outcomes.

Results: Of the 209 patients assessed, 72 patients fulfilled all inclusion criteria. The mean age at implantation was 72.8 ± 10 years with a male preponderance (75%). Regarding the AF status, 58.3% were in paroxysmal AF and 41.7% in permanent AF. After implantation, 79% were considered as having adequate biventricular (BIV) pacing (above 90%) and 66% of patients were considered responders (NYHA improvement of at least 1 class and/or increase in 10% in EF). Adequate BIV pacing was significantly associated with response status (p < 0.05). A primary composite end-point occurred in 17 (25.4%) of patients. The patient characteristics associated with an event were a prior of chronic kidney disease (OR 3.8; 95%CI 1.2-12.5, p < 0.05), an ischemic etiology (OR 3.3; 95%CI 1.1-11.1, p < 0.05) a non-responder status (OR 0.3; 95%CI 0.1-0.9 p < 0.05), an inadequate BIV pacing (OR 0.2; 95%CI 0.1-0.8, p < 0.05), elevated post implantation NT-proBNP level (OR 1.0; 95%CI 1.0-1.1, p < 0.05), higher post implantation NYHA status level (OR 3.2; 95%CI 1.3-7.9, p < 0.05), lower post implantation EF (OR 0.9; 95%CI 0.8-0.9, p < 0.05) and the lower magnitude of EF improval (OR 0.9; 95%CI 0.8-0.9, p < 0.05). The age, sex, pre implant NYHA class, type of AF, and type of CRT (with or without defibrillator capacity) were non-significant. Through a method of logistic regression, the best predictive model was composed of ischemic etiology, the post implantation NYHA status and magnitude of EF improval with a high predictive power for the occurrence of an event (OR 314.7; 95%CI 15.3-6,452; p < 0.05; r2 0.49) and a high discriminative capacity, with the ROC curve analysis (Figure) demonstrating an AUC of 0.90.

Figure 1



Conclusions: In this patient population, several independent predictors were identified, such as inadequate biventricular pacing and non-responder status, but a model composed of etiology, post implant NYHA status and magnitude of EF improval wielded the best predictive model.

PO 83. IMPACT OF NON-TYPICAL LBBB ON CRT RESPONSE

Miguel Azaredo Raposo, Joana Brito, Ana Abrantes, Beatriz Garcia, Beatriz Silva, Margarida Martins, Catarina Gregório, Diogo Ferreira, Pedro Silvério António, Sara Couto Pereira, Inês Ricardo, Fausto J. Pinto, João de Sousa, Pedro Marques

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

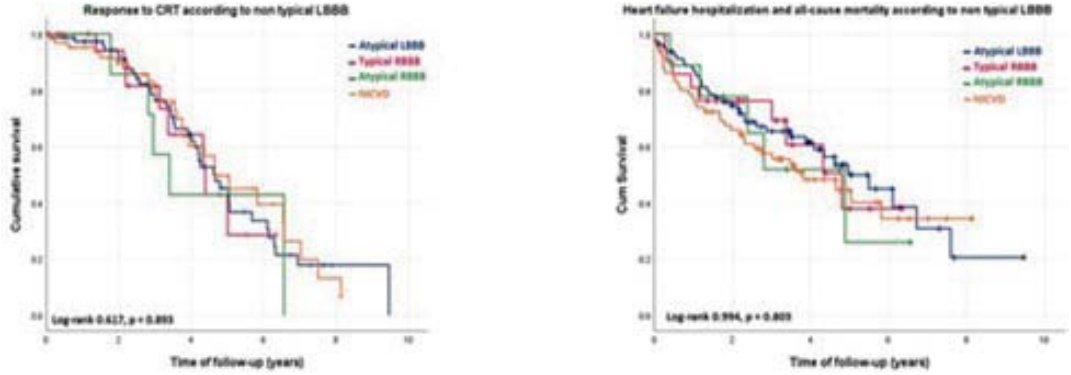


Figure PO 83

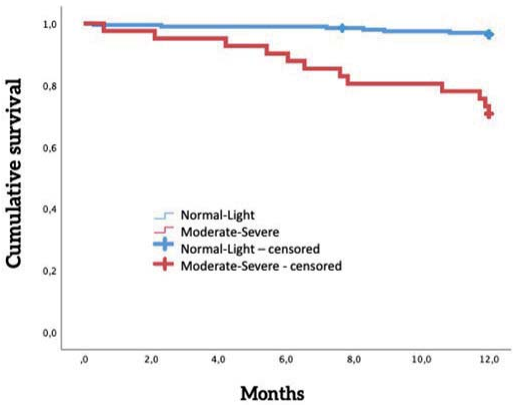
Introduction: Cardiac resynchronization therapy (CRT) benefits have been established in patients with heart failure and reduced left ventricular ejection fraction (HFrEF) who have a broad QRS and remain symptomatic despite optimized medical therapy. Responders typically are female, with LBBB and broader QRS. It remains uncertain to what extent do patients with non-LBBB QRS complex morphology respond to CRT and also if there are differences among various types of intraventricular conduction delays.
Objectives: To evaluate the impact of non-typical left bundle branch block (LBBB) on reverser remodeling and clinical events.
Methods: Single center, observational, retrospective study including patients (pts) who implanted CRT in the context of HFrEF, from 2015 to 2020. Evaluation of QRS morphology analysis was conducted. CRT response was defined by a reduction of LVESV ≥ 15% or an increase in LVEF ≥ 10%. Predictors of CRT response were evaluated with Chi-square and Mann-Whitney analysis. Impact on reverse remodeling and clinical outcomes was performed with Kaplan-Meyer analysis.
Results: A total of 361 pts were included for analysis, of which 184 had non-typical LBBB. Pts had a mean age of 71 ± 9 years old, the majority of pts were female (61%), and almost half were ischemic (47.8%). EGC evaluation prior to CRT implantation, revealed an atypical LBBB in 83 (45.1%) pts, typical RBBB in 23 (12.5%) pts, atypical RBBB 9 (4.9%) pts and nonspecific intraventricular conduction delay in 69 (37.5%) pts. During a mean time of follow-up of 2.9 ± 2.4years, 33 pts (18%) had hospitalizations due to HF and 68 (37%) died. In this cohort, 78 pts (42.4%) were deemed as responders, who presented a better clinical outcome when compared to non-responders (p < 0.001, HR 2.629 [95%CI 1.635-4.225]. There was no difference among the four types of intraventricular conduction analyzed in respect to degree of CRT response - figure 1. Regarding clinical events during follow-up, there was once again no significant difference among the different patterns of non-typical LBBB- figure 2. In this subset population we found no independent predictors of CRT response, although non-responders were significantly older than responders (72 ± 8 *vs.* 69 ± 10 years-old (p = 0.016).
Conclusions: Although pts with non-typical LBBB morphology display a lower therapy response to CRT than reported for LBBB pts, the rate of response is not negligible and represents a protective factor for clinical outcomes. Different types of intraventricular conduction delay present no difference regarding long-term prognosis or reverse remodeling.

PO 84. PROGNOSTIC VALUE OF NUTRITIONAL STATUS IN POST-IMPLANT CRT OUTCOMES IN PATIENTS WITH CHRONIC HEART FAILURE

Liliana Brochado[1], Elisabeth Santos[2], Filipa Rosas[2], Mariana Brandão[2], Ana Mosalina Manuel[2], João Gonçalves Almeida[2], Helena Gonçalves[2], Marco Oliveira[2], João Primo[2], Paulo Fonseca[2], Ricardo Fontes-Carvalho[2], Adelino Leite-Moreira[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: There's a close relationship between chronic heart failure (CHF) and malnutrition, and their main pathophysiological modifications are well known. Cardiac resynchronization therapy (CRT) has proven to be a promising therapy in symptomatic heart failure (HF) patients with broad QRS complexes and impaired systolic function with optimized medical therapy. However, there is still a considerable amount of non-responder patients. The role of nutritional status in CRT therapy response has yet still not been well assessed.
Objectives: Assess the prognostic value of nutritional status in post-op outcomes in patients with Chronic Heart Failure and CRT.
Methods: Single-center retrospective study of patients submitted to CRT implantation between January 2007 and March 2021. Inclusion criteria were patients meeting criteria for CRT implantation, QRS duration ≥ 120 ms, FEVE ≤ 35%, NYHA class II-IV and no adverse events during the follow up. Primary outcomes measured were all-cause mortality, cardiovascular mortality, and hospitalizations due to HF in a 1-year follow-up. To evaluate patient's nutritional status the CONUT score was used with patients being categorized in 2 groups: Low CONUT (Score 0-4: normal/low malnutrition) and Hight CONUT (Score 5-12: moderate/severe malnutrition).
Results: 198 patients (83%) exhibited Low CONUT status, and 41 patients (17%) exhibited High CONUT status. Patients with Hight CONUT were older (72.9 yrs *vs.* 65.9 yrs, p < 0.001), and exhibited higher percentage of chronic obstructive pulmonary disease (43.9% *vs.* 27.3%, p = 0.004), atrial fibrillation (72.9%, *vs.* 25.3%, p < 0.001), hypertension (78.1% *vs.* 60.6%, p = 0.038), chronic kidney disease (39.1% *vs.* 21.2%, p = 0.016) and NYHA IV (19.5% *vs.* 5.1%, p < 0.001). Cardiovascular mortality was 3.7% in the low CONUT group *vs.* 29.3% in the Hight CONUT group (p < 0.001; HR, 0.12; 95%CI, 0.05-0.29) and total HF hospitalizations were 16 and 43, respectively (p = 0.013; HR, 0.482, 95%CI, 0.27 to 0.86). The nutritional status prior to CRT assessed by the CONUT score showed to be an independent predictor of cardiovascular mortality (p = 0.007; HR, 0.16 95%CI, 0.04-0.60).



P<0,001 HR=0,12; IC-95% 0,05-0,29

Conclusions: Malnutrition was a common condition in our CRT patients showing that deficient nutrition status remains highly underdiagnosed. Patients with worse nutritional status before CRT device implantation presented higher morbidity and were more prone to worst outcomes such as cardiovascular mortality and mortality by all causes as well as higher incidence of hospitalizations secondary to HF decompensation.

Assessment of nutritional status using screening tools may provide additional prognostic information in patients with HF and help early identification of those who may benefit from further assessment and nutritional intervention.

PO 85. HEART FAILURE CLINICAL OUTCOMES AFTER CARDIAC RESYNCHRONIZATION WITH QUADRIPOLAR *VERSUS* BIPOLAR LEFT VENTRICULAR LEADS

Mariana Martinho, João Grade Santos, Bárbara Marques Ferreira, Diogo Santos Cunha, João Mirinha Luz, Nazar Ilchyshyn, Oliveira Baltazar, Khrystyna Budzak, João Simões, Alexandra Briosa, Daniel Sebaiti, Rita Miranda, Sofia Almeida, Luís Brandão, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Quadripolar (QP) left ventricular leads are currently standard practice in cardiac resynchronization therapy (CRT) due to better implant and post operative lead performance when compared to bipolar (BP) electrodes. Although some evidence suggests that QP leads may increase response to therapy, data regarding clinical benefit is still missing.
Objectives: To compare QP and BP leads impact in clinical hard endpoints in pts with heart failure with reduced ejection fraction (HFrEF).
Methods: Retrospective observational single-center study that included 209 consecutive pts with EF£35% submitted to transvenous CRT implantation between 2012 and 2022. Logistic regression analysis was performed after proportional risk for outcomes was verified. Primary outcome was defined as total mortality and secondary outcome a composite endpoint (MACE) of total mortality, heart failure-related mortality and hospital admission due to heart failure. A propensity score matching was performed to obtain a well-balanced subset of individuals with the same clinical characteristics (age, sex, hypertension, diabetes, hypercholesterolemia, coronary artery disease, valvular disease, chronic kidney disease, HF etiology, pre-implantation EF, NT-proBNP and QRS duration), resulting in 175 pts.
Results: Among the study participants, mean age was 71 ± 10y and 71.0% were males. QP leads were implanted in 67.3% (n = 123) and there was no association with increased rates of implantation success (92.7% *vs.* 90.6%, p = 0.713). After a mean FUP of 53 ± 26 months, QP leads were not associated with total mortality (30.9% *vs.* 36.7%, p = 0.503) or MACE (33.9% *vs.* 48.1%, p = 0.091). A sub-analysis of MACE parameters showed a relative risk reduction of 54% in HF hospitalizations for QP leads (16.4% *vs.* 30.0%, OR 0.46 [0.22-0.95], p = 0.036). HF-related death was similar in both groups. After a subgroup analysis comparing HF etiology, the benefit of QP electrodes in hospital admissions was only seen in non-ischemic HF pts (12.6% *vs.* 34.2%, OR 0.28 [0.11-0.790], p = 0.007). For ischemic pts, lead choice did not influence hospitalization (29.0% *vs.* 23.8%, p = 0.758), but QP electrodes showed a tendency to increase mean time until hospitalization (18 ± 16 months *vs.* 42 ± 22 months, p = 0.094). These results were consistent after a propensity score matching (Figure).
Conclusions: Although QP leads did not impact overall or HF-related mortality, it showed a significant impact in the reduction of HF hospitalizations, particularly in non-ischemic pts. This may not only lead to disease burden reduction and quality of life improvement in a relatively young population but also have an important economic impact related to HF.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 2) - Enfarte agudo do miocárdio 2

PO 86. PERCEIVED STRESS IN MYOCARDIAL INFARCTION WITH NON-OBSTRUCTIVE CORONARY ARTERIES?

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Centro Hospitalar Barreiro/Montijo, EPE/Hospital Nossa Senhora do Rosário.

Introduction: The acronym MINOCA (myocardial infarction with non-obstructive coronary arteries) defines a condition of acute coronary syndrome (ACS) with no angiographic obstructive coronary artery disease (CAD). A relationship between MINOCA and stress has already been described, since intense emotions can trigger this condition. The 10-item Perceived Stress Scale (PSS-10) is a validated instrument to estimate stress levels in clinical practice.
Objectives: To evaluate if stress was a predictor of MINOCA in patients hospitalized for ACS.
Methods: We carried out a single-center prospective study involving patients hospitalized for ACS between March 20, 2019 and March 3, 2020. The PSS-10 was completed during the hospitalization period. Patients were divided into two groups, according to CAD: group A with CAD and group B with MINOCA. Follow-up of these patients was carried out until December 11, 2022, regarding death, readmissions for cardiac causes and readmissions for other causes. Logistic regression was performed to assess if stress was a predictor of MINOCA.
Results: A total of 166 patients with ACS were included, of whom 107 in group A and 35 in group B. In group A, mean age was 63.4 ± 13.2 years and 32.1% were women, while in group B mean age was 66.4 ± 11.4 years, and 45.7% were female. There were no statistically significant differences between the two groups regarding cardiovascular risk factors. Group A presented more with chest pain (86.9% *vs.* 62.9%, p = 0.002); there were no other statistically significant variables at presentation or regarding intrahospital complications between the two groups. In group A, PSS-10 score was 18.8 ± 7.46, while group B scored 21.6 ± 6.08 (p = 0.045). The follow-up of these two groups did not show significant differences in terms of death (15.0% in group A *vs.* 14.3% in group B, p = 0.923), readmissions for cardiac causes (group A - 17.8% *vs.* group B - 17.1%, p = 0.934) or readmissions for other causes (29.0% in group A *vs.* 20.0% in group B, p = 0.298). Logistic regression revealed that stress was a predictor of MINOCA (odds ratio (OR) 1.006, p = 0.048, confidence interval (CI) 1.000-1.011).
Conclusions: Perceived stress is a predictor of MINOCA, while MINOCA does not predict mortality, neither readmission for cardiac or other causes. To our knowledge, this is the first Portuguese prospective study to assess the relationship between stress and MINOCA.

OUTCOMES	ISCHEMIC				NON-ISCHEMIC			
	BP lead (n=9,20.9%)	QP lead (n=34, 79.1%)	OR	p-value	BP lead (n=23,18.0%)	QP lead (n=105,82.0%)	OR	p-value
Total mortality	3 (33.3%)	12 (35.3%)	1.09 [0.23-5.16]	0.913	8 (34.8%)	26 (24.8%)	0.62 [0.24-1.62]	0.327
MACE	3 (42.9%)	13 (43.3%)	1.02 [0.19-5.37]	0.982	12 (52.2%)	28 (28.3%)	0.36 [0.14-0.92]	0.032
HF hospitalization	9 (26.5%)	3 (33.3%)	0.72 [0.15-3.50]	0.684	8 (34.8%)	15 (14.4%)	0.32 [0.11-0.87]	0.027
Months until hospitalization (mean±SD)	48.7 ± 24.6	17.9 ± 16.4	-	0.046	30.4 ± 29.3	21.0 ± 26.8	-	0.515

Figure PO 85

PO 87. SPONTANEOUS CORONARY ARTERY DISSECTION: A 5-YEAR REVIEW FROM A TERTIARY CARE CENTER

Luís Santos, Ana Pinho, Cátia Oliveira, Catarina Marques, André Cabrita, Catarina Costa, Ana Amador, João Calvão, Tânia Proença, Ricardo Pinto, Miguel Carvalho, Elisabete Martins, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Spontaneous coronary artery dissection (SCAD) is a rare cause of acute coronary syndrome (ACS) overall (1-4%), however it may account for 25-33% of ACS in women under 50 years old. It is characterized by the formation of an intramural hematoma with occlusion of the artery lumen by the hematoma itself or a dissection flap. Potential predisposing factors include fibromuscular dysplasia (FMD), postpartum status, multiparity (≥ 4 births), connective tissue disorders, systemic inflammatory conditions, and hormonal therapy. Diagnosis is established based on coronary angiography and management is usually conservative. Despite advances in the angiography field, it is still a poorly studied condition with a severe lack of prospective studies. In this study we describe the cases of SCAD in a tertiary care center over the last 5 years.
Methods: We retrospectively analyzed all patients diagnosed with SCAD at a tertiary center from January 2018 to December 2022. Clinical, angiographic, and imagiological data were collected at admission, and at an average follow-up of 20 months.
Results: There was a total of 24 patients included, 23 of which were female (96%) with only one male; average age was 54 years. The most common cardiovascular risk factor was Hypertension (54%), followed by Dyslipidemia (42%) and Smoking (17%). Type 2 dissection was the most common (59%) and the most commonly affected vessel was the anterior descending artery. Only one patient had multivessel involvement (left common + anterior descending + circunflex). Most patients presented as NSTEMI (70%) or STEMI (25%) with one patient presenting as Unstable Angina; average peak Troponin level was 46,000 ng/L. Most patients remained in Killip I (87%), with 75% having a preserved ejection fraction on echocardiogram. One patient however developed an interventricular septum defect, underwent cardiac surgery and died in the post-op period. 8 patients (33%) performed a cardiac stress test during hospitalization or the follow up period, with only 1 of them showing residual ischemia. 88% of the patients remained symptom free during the follow-up period. One patient had a STEMI roughly 3 years after SCAD. One patient had a previous diagnosis of Fybromuscular Dysplasia and another was diagnosed with this condition after finding a cerebral aneurysm on head-CT.
Conclusions: Findings in our study were similar to those found in literature. SCAD still remains a diagnostic and therapeutic challenge for cardiologists nowadays.

PO 88. CAN WE PREDICT WHICH MYOCARDIAL INFARCTION WITH NO OBSTRUCTIVE CORONARY ATHEROSCLEROSIS PATIENTS WILL REMAIN WITH UNEXPLAINED CAUSE?

André Cabrita, Catarina Marques, Miguel Carvalho, Mariana Vasconcelos, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Myocardial Infarction with No Obstructive Coronary Atherosclerosis (MINOCA) is a syndrome that requires evidence of myocardial infarction (MI) with normal or near normal coronary arteries on angiography. MINOCA is typical of younger patients, mostly women, with less cardiovascular risk factors (CVRF).
Objectives: To determine if patients with a diagnosis of MINOCA have specific characteristics in epidemiology, comorbidities and abnormalities on cardiac examinations that can predict if they will remain with unexplained cause.
Methods: We developed a prospective 6-year study, consisting of consultation of medical records of all patients admitted in the Cardiology Department of our institution due to a diagnosis of MINOCA. These patients were later submitted to a cardiac magnetic resonance (CMR) to establish the cause of MINOCA. We divided the patients in 2 groups for comparison: MINOCA with established cause (MEC) *vs.* idiopathic MINOCA (IM).
Results: Our cohort consisted of 76 patients admitted with a diagnosis of MINOCA, but only 58 (76.3%) established its cause after a CMR. The most prevalent causes identified were myocarditis (38.2%), Takotsubo syndrome (13.2%) and coronary artery spasm (6.6%). 18 (23.7%) MINOCA patients remained with unexplained cause (IM). IM patients were older (63 ± 6 *vs.* 47 ± 6 years-old), most commonly male (65.8%) and demonstrated a significantly higher prevalence of CVRF, such as type 2-diabetes *mellitus* ($p = 0.03$), dyslipidemia ($p < 0.001$) and obesity ($p = 0.02$). IM patients revealed lower cardiac analytic levels, such as high-sensitivity troponin I (3,280 ± 2,503 *vs.* 9,369 ± 7,523 ng/L) and B-type natriuretic peptide (BNP) (173 ± 148 *vs.* 280 ± 149 pg/mL). IM was linked to higher prevalence of ventricle repolarization abnormalities on ECG (50% *vs.* 39.7%) and segmental wall-motion abnormalities (61.1 *vs.* 37.9%) on echocardiogram. IM patients were associated with absence of late gadolinium enhancement (LGE) ($p < 0.001$) and myocardial edema ($p = 0.016$) on CMR and the majority revealed no abnormalities on CMR (58.8%, $p < 0.001$).
Conclusions: In our cohort, IM patients were older, mostly male and had a higher prevalence of CVRF. They revealed lower cardiac enzymes and fewer abnormalities on CMR. This study stated that IM patients had a different phenotype of typical MINOCA patients.

PO 89. PREMATURE MYOCARDIAL INFARCTION WITH ST ELEVATION- 10 YEARS OF EXPERIENCE

Marta Catarina Bernardo, Isabel Martins Moreira, Catarina Ribeiro Carvalho, Pedro Rocha Carvalho, Sara Borges, Pedro Mateus, Sofia Silva Carvalho, Ilídio Moreira

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

Introduction: Myocardial infarction (MI) at young ages has increased in recent years and is a leading cause of premature death worldwide. The clinical course, risk factors, and coronary anatomy of MIs that develop at an early age differ from those at older ages. The paucity of studies and lack of guidelines for assessing and managing young MI patients (pts) make the clinical approach of these patients more challenging.
Objectives: To characterize the population of pts with premature MI with ST elevation admitted to our centre between 2011 and 2021.
Methods: We performed a retrospective analysis of pts admitted to our centre between 2011 and 2021 with the diagnosis of ST elevation MI in premature ages (≤ 55 years for women and ≤ 50 years for men).
Results: We included 169 pts, 130 males (76.5%), mean age of 44.3 (± 5.2) years. Concerning cardiovascular risk factors, 65.3% were current smokers, 11.8% former smokers, 54.1% had dyslipidemia, 28.4% obesity, 27.6% hypertension, 15.9% had a family history of cardiovascular disease, 10.6% diabetes, and 1.8% were intravenous drug users. Regarding history of coronary artery disease, 4.1% of the pts had a past myocardial infarction. The most common clinical presentation was typical chest pain in 91.7% of patients. As associated symptoms, 4.1% presented with dyspnoea, 34.9% with vagal symptoms, 1.8% with syncope and 10.1% with cardiac arrest. The troponin peak median was 4.6 ng/ml (IQR 2.3-8.9). The electrocardiogram showed inferior ST elevation at 49.1%, anterior at 44.4% and lateral at 5.3% of the pts. The median "symptom to wire crossing time" was 5 hours (IQR 3.0-9.0). Regarding angiographic characteristics, the left anterior descending artery was the "culprit" in 50.3%, followed by the right coronary artery in 36.7% pts. 50.3% of the pts had multivessel disease and 42.9% had complete revascularization during the hospitalization. The mean ejection fraction pre-discharge was 50.1% (± 9.4) and 18.3% of pts had LVEF < 35%. The mean length of stay was 5.7 ± 3.5 days. During hospitalization, the majority of pts (85.6%) presented in Killip class I, 4 pts developed paroxysmal atrial fibrillation, 2.4% transitory ventricular arrhythmias and 3% acute kidney injury. During a mean follow-up of 52.1 (± 34.5) months, 7.1% of the pts had a recurrence of myocardial infarction, 7.1% developed heart failure, with need for hospitalization in 2.4% and 3.0% died of non-cardiovascular causes.
Conclusions: In our population, premature myocardial infarction was more prevalent in males. In most pts, the clinical presentation was typical, with

a high proportion of pts presenting with cardiac arrest. Despite this, the overall clinical evolution was favorable. The frequency of modifiable risk factors, such as tobacco use, and dyslipidemia highlights the importance of primary prevention strategies.

PO 90. PROGNOSTIC VALUE OF REMNANT CHOLESTEROL LEVELS AFTER ACUTE PHASE OF MYOCARDIAL INFARCTION

Miguel Sobral Domingues, João Presume, Daniel A. Gomes, Rita A. Carvalho, Joana C. Pereira, Jorge Ferreira, Catarina Brízido, Christopher Strong, António Tralhão, Marisa Trabulo, Miguel Mendes

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

Introduction: Remnant cholesterol (RM-C) is associated with development of atherosclerotic cardiovascular disease. However, its prognostic impact after acute myocardial infarction (AMI) is not well established.
Objectives: To assess the prognostic value of RM-C levels and other lipid parameters after acute phase of myocardial infarction (MI).
Methods: Single-center retrospective analysis of consecutive patients admitted with MI from 2016 to 2018. Lipid parameters were measured in the first 24 hours after admission. We conducted a landmark analysis of 4-point cardiovascular events (4P-MACE) composed by all-cause death, non-fatal MI, non-fatal stroke or coronary revascularization occurring after 12 weeks post-admission for MI. The association between lipid parameters and 4P-MACE was assessed using uni- and multivariable Cox regression analysis.
Results: A total of 439 patients were included, aged 64 ± 14 years, 71% male, 74% with ST-segment elevation MI. 37% were under statins at admission. Prevalence of hypertension was 71%, 30% had diabetes, 17% current smokers and 24% were obese. Median lipid values were 171 mg/dL [142-200] for total cholesterol (TC), 98 mg/dL [75-126] for low-density lipoprotein cholesterol (LDL-C), 40 mg/dL [35-50] for high-density lipoprotein cholesterol (HDL-C), 131 mg/dL [94-175] for triglycerides (TG), 127 mg/dL [101-154] for non-C-HDL and 26 mg/dL [19-35] for RM-C. The incidence of 4P-MACE at 2.4 ± 1.1 years was 20%. RM-C was the only lipid parameter associated with 4P-MACE and the association remained statistically significant after adjustment for age, sex and risk factors for ASCVD (Table).
Conclusions: In this landmark analysis of a cohort with acute MI, RM-C was the only routine lipid parameter independently associated with the risk of 4P-MACE occurring after 12 weeks post-MI.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 3) - Fatores de risco cardiovascular

PO 91. PREDICTIVE CAPACITY OF ESSENTIAL HYPERTENSION - FAMILY HISTORY AND GENETIC RISK SCORE

Ana Célia Sousa[1], Maria Isabel Mendonça[1], Mauro Fernandes[1], Duarte Ferreira[1], Ana Carolina Henriques[1], Carolina Carvalhinha[1], Eva Henriques[1], Sónia Freitas[1], Mariana Rodrigues[1], Sofia Borges[1], Maria João Oliveira[1], Graça Guerra[1], Ana Isabel Freitas[1], Ilídio Ornelas[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 risk factor for cardiovascular disease in the Portuguese population. It is a multifactorial pathology resulting from behavioral and genetic factors. Several studies have shown that the existence of a family history (FH) of EH increases the probability of developing this disease. However, the ability to discriminate hypertensive risk remains to be elucidated.
Objectives: To assess whether the predictive capacity of Essential Hypertension improves when a genetic risk score is associated to Family History of hypertension.
Methods: A case-control study was performed with 1,712 individuals: 860 with EH and 852 controls without EH. FH of hypertension was registered for all participants. 14 genetic variants from several pathophysiological axes were selected: AGT rs4762; AGT rs699; ACE rs4340; ACE rs4343; AGT1R rs5186; CYP11B2 rs1799998; CYP17A1 rs11191548; SCNN1G rs5718; SLC4A2 rs2303934; ADD1 rs4961; ATP2B1 rs2681472; ADRβ1 rs1801253; ADRβ2 rs1042713 and GNβ3 rs5443. Odds ratio (OR) was calculated for each variant in relation to hypertension and, subsequently, a multiplicative genetic risk score (mGRS) of the risk alleles accumulated in these variants was created. Finally, we constructed two ROC curves for FH of EH (without and with mGRS) and calculated their respective AUCs. We compared the increase in AUCs by the Delong test.

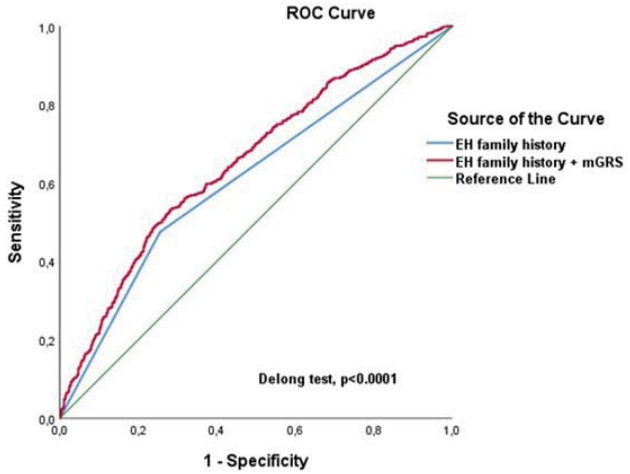
Table 1– Univariate and multivariate Cox regression analysis for the association between lipid parameters and 4P-MACE

	Univariable – HR (95% CI)	p-value	Multivariable* – HR (95% CI)	p-value
TC	0.995 (0.990; 1.000)	0.052	0,998 (0.992; 1.004)	0.548
LDL-C	0.995 (0.989; 1.001)	0.076	0.998 (0.991; 1.005)	0.546
HDL-C	0.988 (0.969; 1.007)	0.212	0.991 (0.971; 1.011)	0.361
TG	1.001 (0.998; 1.003)	0.607	1.001 (0.998; 1.003)	0.555
Non-HDL	0.995 (0.990;1.001)	0.100	0.999 (0.993; 1.005)	0.733
RM-C	**1.013 (1.001; 1.024)**	**0.030**	**1.013 (1.001; 1.025)**	**0.044**

**Adjusted for age, sex, hypertension, diabetes, body mass index and smoking*

Figure PO 90

Results: In total, 627 individuals had FH of hypertension: 409 in the EH group and 218 in the control group. The mean of mGRS in hypertensive group was 0.76 ± 0.57 and in controls was 0.63 ± 0.39 (p < 0.0001). The mGRS showed an increased risk of hypertension of OR = 1.871 (95%CI 1.484-2.359; p < 0.0001). The AUC of the FH model was 0.610 (95%CI 0.586-0.633) which increased to 0.654 (95%CI 0.631-0.676) when the mGRS was included. Comparing the AUC's by the Delong test, there was a statistical significance (p < 0.0001), indicating a better discriminative power in the joint model.



Conclusions: This study showed an improvement in the predictive power of hypertension when mGRS was included to family history. This work emphasizes the importance of an mGRS, built with genes from several pathophysiological systems involved in AHT, to determine the predictive power of arterial hypertension. The mGRS may be object of translational research and have applicability in clinical practice in the near future.

PO 92. BEHAVIORAL AND GENETIC RISK FACTORS ASSOCIATED WITH INCREASED ARTERIAL STIFFNESS

Ana Célia Sousa[1], Maria Isabel Mendonça[1], Mauro Fernandes[1], Duarte Ferreira[1], Rui Fernandes[1], Francisco Barreto[1], Eva Henriques[1], Sónia Freitas[1], Mariana Rodrigues[1], Sofia Borges[1], Maria João Oliveira[1], Graça Guerra[1], Ana Isabel Freitas[1], Ilídio Ornelas[1], Roberto Palma dos Reis[2]

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

Introduction: Increased arterial stiffness occurs as a result of biological aging and atherosclerosis. Several behavioral and genetic factors, with complex interactions, are at the genesis of this increase.

Objectives: Study the behavioral and genetic factors associated with increased arterial stiffness.

Methods: In 1,712 individuals, the arterial stiffness was determined through Carotid-femoral Pulse Wave Velocity (CfPWV) by the Complior method. Two groups were considered, depending on the PWV values: 171 cases with PWV ≥ 10 m/s (mean age 56.70 ± 8.43; 60.8% male) and 1541 controls with PWV < 10 m/s (mean age 50.39 ± 7.53; 49.9% male). In both groups, the risk factors associated with increased arterial stiffness were studied, such as age, essential hypertension (EH), diabetes, dyslipidemia, smoking, alcohol habits and physical inactivity. A multiplicative genetic risk score (mGRS) was created with 14 genetic variants: AGT rs4762; AGT rs699; ACE rs4340; ACE rs4343; AGT1R rs5186; CYP11B2 rs1799998; CYP17A1 rs11191548; SCNN1G rs5718; SLC4A2 rs2303934; ADD1 rs4961; ATP2B1 rs2681472; ADRβ1 rs1801253; ADRβ2 rs1042713 and GNβ3 rs5443. A logistic regression model estimated which variables were significantly and independently associated with increased arterial stiffness.

Results: After the multivariate analysis, the variables that remained in the equation as significantly and independently associated with arterial stiffness increase were: EH (OR = 3.273; p < 0.0001), alcohol consumption (OR = 1.635; p = 0.005), diabetes (OR = 1.556; p = 0.038), age (OR = 1.117; p < 0.0001), and the multiplicative genetic score (OR = 1.419; p < 0.0001).

Conclusions: In addition to behavioral risk factors, the genetic variants combined into a genetic risk score significantly contributed to the increase of arterial stiffness. Studying these mechanisms is important to better understand arterial stiffness pathophysiology to control vascular dysfunction.

PO 93. PERIPHERAL PULSE WAVE VELOCITY AND HYPERTENSIVE RESPONSE TO EXERCISE IN PREDICTING DEVELOPMENT OF RESISTANT HYPERTENSION

Bruno Bragança, Isabel Cruz, Rafaela G. Lopes, Inês Oliveira, Inês G. Campos, Joel P. Monteiro, Conceição Queirós, Paula Pinto, Aurora Andrade

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Resistant hypertension (RH) is strongly associated with the occurrence of major cardiovascular events and death. Hypertensive response to exercise (HRE) and arterial stiffness estimated by pulse wave velocity (PWV) are surrogate markers of incident hypertension. However, the predictive value and accuracy of these markers in RH development remains uncertain.

Methods: Comparison of HRE and PWV in predicting the development of RH was performed in retrospective study with a cohort of 207 patients with known coronary artery disease (CAD). The patients performed at least two Bruce protocol stress tests (STs) between 01/2009 and 12/2022. The first ST was used to assess HRE and estimated PWV (ePWV) in predicting occurrence of apparent treatment-resistant hypertension (aTRH). ePWV was calculated by previously published equations using age and blood pressure[1]. HRE

Independent risk factors for arterial stiffness

Variables	OR (95% CI)	p-value
EH	3.273 (2.209-4.848)	<0.0001
Alcohol consumption	1.635 (1.162-2.299)	0.005
Diabetes	1.556 (1.024-2.364)	0.038
Age	1.117 (1.091-1.144)	<0.0001
mGRS	1.419 (1.207-1.667)	<0.0001

Dyslipidemia, sedentary lifestyle, smoking and gender did not remain in the equation; EH – Essential Hypertension; mGRS – multiplicative Genetic Risk Score; OR – Odds ratio; CI – Confidence interval. Statistically significant for p<0.05.

Figure PO 92

response was defined either as systolic BP (SBP) > 210 mmHg or difference between peak and baseline > 60 mmHg for men (> 190 mmHg or 50 mmHg in women). aTRH was identified as resting SBP above 140 mmHg in the last ST despite simultaneous use of 3 or more different antihypertensive agents. The follow-up period between STs was 4.2 ± 2.8 years. Predictors of RH were analyzed with multiple linear and logistic regression models. Data presented as: mean ± standard deviation; 95% confidence interval (CI) for odds ratios (OR); significance between groups $p < 0.05$.

Results: The incidence of aTRH between STs was 15% (n = 30), with 48% of them (n = 14) receiving 4 or more anti-hypertensive drugs. aTRH *vs.* non-aTRH patients were similar at baseline for sex (89% male, p = 0.67), hypertension (HT, 62%,p = 0.08), dyslipidemia (79%, p = 0.86), smoke (46%, p = 0.50), chronic kidney disease (13%, p = 0.39), myocardial infarction (75%, p = 0.39), heart failure (HF) (4.5%, p = 0.40), but not for body mass index (30 ± 3 *vs.* 28 ± 3 kg/m^2, p = 0.012) and diabetes (60.0 *vs.* 28.6%, p = 0.003) that were higher in the aTRH group. The average ePWV was 9.3 ± 1.6 m/s (9.14 ± 1.5 *vs.* 10.2 ± 1.7 m/s, non-aTRH *vs.* aTRH p = 0.001); 22.6% patients had HRE (36.0% *vs.* 20.4%, aTRH *vs.* non-TRH, p = 0.084). Baseline ePWV positively correlated with resting SBP (Pearson's r = 0.365, $p < 0.0001$) at the last ST. In contrast to HRE (adjusted OR = 1.34, CI 0.42-4.30, p = 0.624), ePWV was significantly associated with aTRH (adjusted OR = 2.0, CI 1.09-4.1, p = 0.024) after correcting for age, comorbidities and anti-HT drugs, with an area under the ROC curve of 0.67 (CI 0.56-0.78).

Conclusions: Data show ePWV as a simple and robust marker that outperforms HRE in predicting aTRH in CAD patients. Higher ePWV values are independently associated with aTRH. This study also highlights the importance of developing new strategies to control arterial stiffness in the prevention and treatment of RH.

PO 94. CARDIOVASCULAR OUTCOMES IN PATIENTS WITH TYPE 2 DIABETES AT VERY HIGH RISK

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Introduction: Patients with Type 2 diabetes (T2D) and target-organ damage (TOD) are considered as very high risk for cardiovascular (CV) events, thus equivalent to patients with established atherosclerotic CV disease (ASCVD). However, event rates of CV outcomes in these distinct populations are not described in the Portuguese population.

Objectives: Our aim was to determine the 1-year event rate of the composite of CV death, hospitalization for MI or hospitalization for ischemic stroke (MACE) in 2 cohorts: T2D patients in primary prevention with TOD and T2D with ASCVD. Secondary outcomes were of all-cause death, the individual components of the composite and hospitalization for amputation or limb revascularization. One year event rates are presented as events/100 patient-years.

Methods: We analyzed a local database integrating primary and secondary care, screening all electronic health records of individuals with at least 1 primary care visit in the 3 years prior to the index date, 31/12/2021. A total of 27,540 adult patients with T2D were identified. Criteria for primary prevention (PP) with TOD was any one of: albumin/creatinine ratio (ACR) ≥ 30 mg/g; eGFR < 60 ml/min/1.73 m^2; left ventricular hypertrophy; retinopathy. All patients with established ASCVD were considered as secondary prevention.

Results: The cohort of interest had 15,337 patients (55.7% of the T2D population) either PP with TOD or ASCVD. Overall, 41.9% had CKD stage 3-4, 53.3% aged > 75 years, and 25% were on aspirin. Those in PP with TOD accounted for 44.3% of the total cohort. Event rate for MACE in the eligible population meeting criteria of PP with TOD was 4.2% patient/years (PY) and 21.8% PY in those in secondary prevention. All-cause death was 2.8% PY for TOD and 7.1% for ASCVD. Hospitalization for amputation or limb revascularization was 0.5% PY for PP with TOD and 1.9% PY for secondary prevention.

Conclusions: In the very-high risk diabetic population, those with established ASCVD had a very high 1-year MACE event rate, that was 5-fold that of patients with TOD without evidence of ASCVD. These results suggest that an extreme risk category might be useful to identify those with T2D and ASCVD who may benefit from more intensive preventive measures and follow-up.

PO 95. ESTIMATION OF 10-YEAR RISK OF FATAL AND NON-FATAL CARDIOVASCULAR DISEASE IN A PORTUGUESE POPULATION

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Introduction: Cardiovascular disease (CVD) is the most common noncommunicable disease and actually the leading cause of death globally. Hence, it is important to identify individuals who may benefit from CVD preventive strategies. The European Society of Cardiology (ESC) has recently updated the European Systematic Coronary Risk Evaluation (SCORE) to SCORE2 and SCORE2-OP risk prediction algorithms. Those tools were recalibrated to four groups of countries (low, moderate, high and very high CVD risk) based on national CVD mortality rates published by the WHO, with Portugal being now considered a moderate risk country.

Objectives: To evaluate the application of SCORE2 and SCORE2-OP in a Portuguese population sample.

	Patients (n)	Events (Ev)	PY	Ev/100PY
All-cause death				
ASCVD	11 085	617	8 649	7.13
PP with TOD	14 174	346	12 195	2.83
CV death				
ASCVD	11 256	514	8 652	5.94
PP with TOD	14 390	225	12 197	1.84
MI hospitalization				
ASCVD	11 256	420	8 461	4.96
PP with TOD	14 390	117	12 160	0.96
Ischemic Stroke hospitalization				
ASCVD	11 256	1 187	8 097	14.65
PP with TOD	14 390	329	12 072	2.73

Figure PO 94

Table 1. Baseline characteristics of individuals stratified by SCORE2 risk category

Variables	Risk category			p value
	Low-moderate n= 92 (26.1)	High n = 162 (46.0)	Very high n= 98 (27.8)	
Demographic data and CVRF				
Age, median (Q1-Q3), years	61 (58-68)	71 (69-72)	78 (76-79)	<0.001
Sex Male (%) Female (%)	 12 (3.4) 80 (22.7)	 51 (14.5) 111 (31.5)	 51 (14.5) 162 (13.4)	<0.001
Hypertension, n (%)	31 (8.9)	83 (23.9)	51 (14.7)	0.009
Dyslipidemia, n (%)	27 (7.8)	68 (19.5)	36 (10.3)	0.014
Active smoking, n (%)	5 (1.4)	7 (2.0)	10 (2.9)	0.160
Obesity, n (%)	21 (6.0)	47 (13.4)	21 (6.0)	0.313
Medication				
Antihypertensive drugs, n (%)	30 (8.9)	80 (23.9)	48 (14.7)	0.015
Antidyslipidemics, n (%)	22 (6.5)	61 (18.1)	32 (9.5)	0.010
Comorbidities				
Atrial fibrillation/flutter, n (%)	2 (0.6)	5 (1.5)	4 (1.2)	0.072
Obstructive sleep apnea, n (%)	1 (0.3)	1 (0.3)	0 (0)	0.026
Hemodynamic data				
Systolic blood pressure, median (Q1-Q3), mmHg	121 (117-124)	134.5 (131-137)	140 (136.5-145)	<0.001
Diastolic blood pressure, median (Q1-Q3), mmHg	74 (72.5-76.0)	79 (77-80.0)	77 (75-80.5)	0.005
Biochemical data				
Glycemia, median (Q1-Q3), mg/dL	103 (99-110)	109 (106-112)	108 (105-115)	0.009
Total cholesterol, median (Q1-Q3), mg/dL	184 (175-190)	182 (174-191.5)	179 (173-194)	0.97
HDL-c, median (Q1-Q3), mg/dL	58 (55-60)	54 (51-56)	51 (48-53.5)	0.017
Non-HDL-c, median (Q1-Q3), mg/dL	58 (56-59.9)	54 (51-56)	51 (48-54)	0.26
LDL-c, median (Q1-Q3), mg/dL	84 (71-91)	95 (80-100)	91 (76.2-105.5)	0.22
Triglycerides, median (Q1-Q3), mg/dL	199 (189-242)	196 (178-242)	190 (172-228)	0.08
Scores				
SCORE2, median (Q1-Q3), %	3.3 (2.6-4.0)	6.50 (6.2-7.5)	11 (10.0-12.9)	<0.001
SCORE2-OP, median (Q1-Q3), %	6.3 (5.9-6.8)	10.7 (10.0-11.1)	19.1 (17.7-21.8)	<0.001

* c – Cholesterol; CRVF – Cardiovascular risk factors

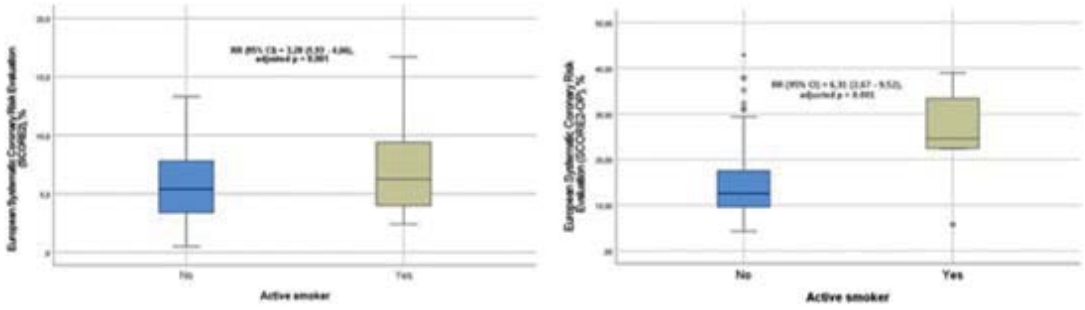

Figure 1. Impact of baseline predictors in CVD risk prediction according to SCORE2 vs SCORE2-OP models.

Figure PO 95

Methods: We conducted a cross-sectional study, including individuals aged 40-90 years, without known established Atherosclerotic Cardiovascular Disease, Diabetes *mellitus*, Chronic Kidney Disease or Familial Hypercholesterolemia. The sample was recruited at a local cardiovascular screening event in Portugal that took place in May 2022. The 10-year fatal and non-fatal CVD risk was calculated using SCORE2 (for individuals aged < 70 years) and SCORE2-OP (for individuals aged ≥ 70 years) tools. Based on CVD risk category, patients were stratified into 3 categories: low to moderate, high and very high risk according to new SCORE algorithms. Primary outcome was the assessment of 10-year risk of fatal and non-fatal CVD with SCORE2 e SCORE2-OP in a local Portuguese population. According to the data distribution, appropriate statistical tests were conducted to compare independent samples. Multivariable linear regression was used to analyze 10-year CVD risk.

Results: This cohort included 431 individuals. Median age was 71 years (Q1-Q3: 65-75) and 66.8% of individuals were women. Regarding baseline characteristics of the included individuals, 48.1% had hypertension, 38.3% had dyslipidemia, 25.5% were obese and 6.6% were smokers. Based on the SCORE2 model 92 (26.1%) individuals were classified into low to moderate risk, 162 (46.0%) into high risk and 98 (27.8%) into very high-risk category. SCORE2 median was 3.43% (Q1-Q3: 5.5-8.0 p < 0.01) and SCORE2-OP median was 12.70% (Q1-Q3: 9.7-12.7). Active smoking was the only independent predictor of 10-years CVD risk both in SCORE2 (RR 3.28, 95%CI: 1.93-4.66, p = 0.001) and SCORE2-OP (RR 6.31, 95%CI: 2.67-9.52, p < 0.001).

Conclusions: Most individuals in this sample were stratified into high or very high risk of developing 10-year fatal and non-fatal cardiovascular events. This data is in accordance with the updated risk category of Portugal based on World Health Organization cardiovascular mortality rates. These results not only validate the application of SCORE to the Portuguese setting, but also reinforce how this easily applicable tool can help to identify patients who will benefit from CVD preventive strategies.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 4) - Morte súbita cardíaca

PO 96. OPTIMIZING ICD ROLE IN PRIMARY PREVENTION OF SUDDEN CARDIAC DEATH - DOES MADIT-ICD BENEFIT SCORE HELPS IN A REAL-WORLD SETTING?

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Introduction: Decision-making in primary prevention can be challenging and many clinical scenarios are not reflected in current guidelines. To help evaluate a patient's individual risk, a new score to predict the benefit of an implantable defibrillator (ICD) for primary prevention, the MADIT-ICD benefit score, has recently been proposed.
Objectives: To evaluate MADIT-ICD benefit score accuracy in real-world patients with both non-ischemic and ischemic cardiomyopathy (ICM) and to compare this with selection based on multidisciplinary expert center approach.
Methods: Patients with a primary preventive indication for ICD implantation from our center were included in the analysis and grouped according with the MADIT-ICD benefit score. Endpoints were (i) sustained ventricular tachycardia (VT) or ventricular fibrillation (VF) and (ii) non-arrhythmic mortality.
Results: Of the 100 ICD patients included (mean age 60.5 ± 10.8 years, males 83%), subcutaneous ICD were implanted in 20%. Patients were stratified as low (13%), intermediate (43%) and high risk (44%) groups, according to the MADIT-ICD score. Ischemic cardiomyopathy (ICM) was more prevalent in the highest group (70.5% *vs.* 50% *vs.* 9.1%, p = 0.001). No other differences in baseline characteristics were observed. During a mean follow-up of 3.7 ± 3.4 years, 14 patients developed sustained ventricular arrhythmias (7.1% in both high and intermediate risk groups, no one in the low-risk group, p = 0.356), while 10 patients died for non-arrhythmic reasons (3.1% in the highest group, 6.1% in the intermediate group and 1% in the lowest group, p = 0.542). The occurrence of ventricular arrhythmias could not sufficiently be predicted by the MADIT-ICD score in ICM patients. Of the risk factors included in the risk score calculation, only lower baseline left ventricular ejection fraction was significantly associated with sustained ventricular arrhythmias (p = 0.028; AUC 0.701, 95%CI 0.56-0.85). Age was a key predictor of non-arrhythmic death (p < 0.001; OR 0.27, 95%CI 0.05-1.46). MADIT-ICD score had low predictive power for both arrhythmic events (r2 = 0.1) and non-arrhythmic mortality (r2 = 0.05). Though, on subgroup analysis this score effectively predicted non-arrhythmic mortality (p < 0.001, r = 0.3) in ICM patients.
Conclusions: On our patient's cohort with primary-prevention implanted ICD, the value of MADIT-ICD score was limited to ICM patients. It might be worth to evaluate its accuracy for clinical decision-making in other subgroups as well.

PO 97. EXERCISE STRESS TEST IN BRUGADA SYNDROME - SHOULD WE RESTRICT PHYSICAL ACTIVITY?

Margarida de Castro, Filipa Cardoso, Tâmara Pereira, Mariana Tinoco, Luísa Pinheiro, Margarida Oliveira, Bebiana Faria, Lucy Calvo, João Português, Sílvia Ribeiro, Victor Sanfins, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães

Introduction: Brugada syndrome (BrS) increases the risk for ventricular arrhythmias (VA) and sudden cardiac death (SCD). Some triggers can result in the expression of higher-risk BrS type 1 pattern. They include fever, enhanced vagal tone and sodium channel blocking agents. There is scarce data on the risk of exercise training and the role of exercise stress test in these patients (pts).
Objectives: We aim to describe the role of exercise stress testing in a BrS population.
Methods: Retrospective single-center study of pts with BrS diagnosed between January 2004 and September 2022 that underwent exercise stress test.
Results: We identified a total of 153 pts. The average age at diagnosis was 44 ± 13 years old (range 17-70) and 57.5% (n = 88) were male. History of syncope was present in 34% (N = 52) and agonic nocturnal breathing in 1.3% (N = 2) of pts. Family history of BrS and/or SCD was present in 69.9% (N = 107) of all cases. The diagnosis was made by provocative test with sodium channel blocking agents in 62.7% (N = 96) and 24.8% (N = 38) had spontaneous type 1 pattern. Regarding basal ECG, 26.8% (N = 41) had a type 2 and 5.9% (N = 9) type 3 pattern. SCN5A mutation was identified in 31.4% (N = 48). The most frequent ECG change with exercise stress test was elevation of the J point observed in 53.6% (N = 82), occurring more commonly during the early recovery phase. Exercise stress test unmasked a typical coved-type 1 ECG pattern in 19.6% (N = 30). No VA were registered during stress testing. During a mean follow-up (FU) of 31 ± 18 months, 29.4% (N = 45) underwent electrophysiological study (EPS) and an implantable cardioverter-defibrillator was implanted in 16.3% (N = 25) of which 2.6% (N = 4) had appropriate shock for VA. One patient (male, 35 years old, *index* case, without type 1 pattern on basal ECG), that recovered from cardiac arrest in the context of physical exercise, developed a typical coved-type 1 pattern during the peak effort of the exercise test, which maintained in the recovery phase. We are awaiting genetic test results.
Conclusions: Despite the fact that exercise can worsen ST changes in BrS and enhance parasympathetic tone, increasing the theoretical risk of VA, our findings show that it is a safe and valuable tool for the evaluation of BrS. The unmasking of a typical pattern in exercise testing raises questions about the impact of physical exercise in this patient population. Its role to predict the risk for cardiac death requires larger studies and longer FU.

PO 98. FAMILY SCREENING FOR BRUGADA SYNDROME - ECG PARAMETERS AS A USEFUL SCREENING TOOL

Margarida de Castro, Filipa Cardoso, Tâmara Pereira, Mariana Tinoco, Luísa Pinheiro, Bebiana Faria, Margarida Oliveira, Lucy Calvo, João Português, Sílvia Ribeiro, Victor Sanfins, António Lourenço

Hospital da Senhora da Oliveira, EPE-Guimarães.

Introduction: Brugada Syndrome (BrS) is a primary electrical disorder with autosomal dominant transmission. Family screening for BrS can be challenging specially in asymptomatic individuals with normal basal electrocardiogram.
Objectives: The aim of this study was to define whether there are clinical and electrocardiographic criteria that can predict the diagnosis of BrS.
Methods: Retrospective single-center analysis of 215 patients (pts) with family history of BrS referenced for screening between September of 2012 and January of 2022. Nine patients with spontaneous type 1 Brugada pattern in basal ECG were excluded. All patients underwent a clinical consultation and electrocardiogram evaluation. Healthy individuals were compared with those in whom screening revealed a definitive BrS diagnosis, by univariate and binary logistic regression analysis.
Results: From our 206 pts remaining, 45.6% were male with a mean age of 48 ± 16 years old. Definitive diagnosis of BrS was made in 61.7%, of which 97 were diagnosed by provocative test with sodium channel blocking drugs while 30 had an identified pathogenic mutation; syncope occurred in 39.4% and 20.5% had family history of sudden cardiac death (SCD). By univariate analysis, previous symptoms as syncope and nocturnal agonic breathing, type 2 or 3 ECG pattern, positive R-wave sign in aVR and fragmented QRS (p = 0.002; p < 0.001; p = 0.011; p = 0.004) were all associated with BrS diagnosis. Affected individuals had larger QRS (106 ± 20 ms *vs.* 101 ± 19 ms, p = 0.001) and higher R-wave in lead aVR (0.10 ± 0.15 mV *vs.* 0.00 ± 0.05 mV, p = 0.000) when compared with healthy ones. By multivariate analysis, the presence of previous symptoms (OR = 2.5; p = 0.014, CI = 1.204-5.052) and a type 2 or 3 pattern on the ECG (OR = 3.9; p = 0.022, CI = 1.218-13.126) were independent predictors of a definitive diagnosis.
Conclusions: When screening asymptomatic BrS family members, certain clinical and electrocardiographic criteria such as the presence of symptoms, larger QRS intervals, a positive R-wave sign and a type 2 or 3 ECG pattern on

basal ECG were associated with definitive diagnosis. These results may point to a more cost-effective selection of family members to screen.

PO 99. AJMALINE PROVOCATIVE TEST IN THE DIAGNOSIS OF BRUGADA SYNDROME - WHAT TO EXPECT?

Margarida de Castro, Filipa Cardoso, Tâmara Pereira, Mariana Tinoco, Luísa Pinheiro, Margarida Oliveira, Bebiana Faria, Lucy Calvo, João Português, Sílvia Ribeiro, Victor Sanfins, António Lourenço

Hospital da Senhora da Oliveira, EPE-Guimarães.

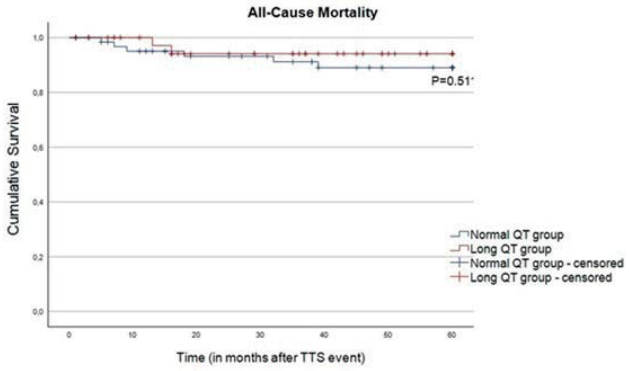
Introduction: The diagnostic type 1 ECG pattern in Brugada syndrome (BrS) is often concealed and may occur either spontaneously or induced by sodium channel blocking drugs or fever.
Objectives: The aim of this study was to describe and identify predictors of a positive ajmaline test.
Methods: Retrospective single-center study of 192 individuals with suspected BrS that underwent ajmaline test between June 2017 and May 2022. Differences in positive and negative groups regarding clinical and electrocardiographic variables were analysed. Binary logistic regression was conducted to identify predictors of a positive response.
Results: From our 192 patients (pts), 87% (N = 167) underwent testing in the context of familial screening for BrS and 13% (N = 25) for initial assessment of a suspicious pattern. Mean follow-up (FU) was 21 ± 15 months. Ajmaline test was positive in 58.3% of all cases and in 52.7% of the pts with family history. Of the 25 *index* cases who underwent ajmaline test, 12 were asymptomatic and all of them had a positive ajmaline test. Pts with a positive ajmaline test were 45.5% male with a mean age of 45 ± 15 years old; 33.9% had previous symptoms. On basal ECG, 34.8% had a type 2 or 3 ECG pattern, 2.7% complete and 20.5% incomplete right bundle branch block. Genetic test was positive in 17%. Because they had suspicious symptoms or had developed spontaneous type 1 pattern during FU, 11 pts underwent electrophysiological study of which 2 had ventricular arrhythmias (VA). An implantable cardiac defibrillator was implanted in 5 pts of which 3 had VA during FU. In univariate analysis, a positive test was associated with the presence of previous symptoms (p = 0.038). No differences in other clinical variables were found. Regarding electrocardiogram, positive ajmaline test was related to non-type 1 ECG pattern (p < 0.001), positive R-wave sign in aVR (p = 0.011) and QRS fragmentation (p = 0.001). Positive R-wave sign (OR = 9.14; p = 0.001) and previous symptoms including syncope, nocturnal agonic breathing and/or palpitations (OR = 2.22; p = 0.20) were identified as predictors for a positive ajmaline test.
Conclusions: Although the ajmaline test is no longer recommended in asymptomatic pts with no family history of BrS, the number of positive tests in this population was high. The meaning of its prognostic impact requires longer FU. In addition, there are electrocardiographic criteria that can guide the selection of pts for this exam.

PO 100. DOES QT INTERVAL PROLONGATION HAVE PROGNOSTIC IMPLICATIONS IN TAKOTSUBO SYNDROME?

Ana Isabel Pinho, Luís Daniel Santos, Cátia Oliveira, Catarina Amaral Marques, André Cabrita, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Paula Dias, Gonçalo Pestana, Carla Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Takotsubo Syndrome (TTS) has been linked with repolarization abnormalities including QT interval prolongation and acquired long QT syndrome. However, the association between QT prolongation and clinical outcomes in patients (pts) with TTS remains not fully understood.
Objectives: Our objective was to investigate the association between prolonged corrected QT (QTc) interval during TTS events and in-hospital complications plus long-term prognosis.
Methods: 111 TTS pts from a retrospective cohort admitted to our hospital were enrolled. The pts were assigned into a long QTc group or a normal QTc group according to the QT evolution on ECG during hospitalization. Long-term mortality and MACCE (composite of recurrence, acute coronary syndrome, heart failure, arrhythmias, stroke and death) were reported using Kaplan-Meier plots.
Results: QTc prolongation was found in 43 pts (39%). Main demographic characteristics were similar between the two groups, as no age (66.7 ± 12.9 years *vs.* 68.1 ± 10.9 years, p = 0.532) or gender (93% *vs.* 96% women, p = 0.672) differences were observed between TTS pts with and without QTc prolongation. Prevalence of cardiovascular risk factors and other comorbidities was comparable; the exception was history of atrial fibrillation, which was more common in the prolonged QTc group (12% *vs.* 1%, p = 0.029). No differences were observed regarding the median duration of hospitalization (p = 0.418), precipitating trigger (p = 0.560), brain natriuretic peptide and troponin I peak levels (p = 0.740 and p = 0.645, respectively) and left ventricular systolic dysfunction (p = 0.338). Syncope was more prevalent in the prolonged QTc group, and typical chest pain was more frequent in the normal QTc group (p = 0.004). In-hospital complications were comparable between TTS pts with and without prolonged QTc (49% *vs.* 44%, p = 0.637), including death (p = 0.381) and arrhythmic complications like ventricular arrhythmias (p = 0.556), atrial fibrillation (p = 0.708) and complete atrioventricular block (p = 0.556). Mean follow-up time of the cohort was 4.8 ± 3.8 years. During long-term follow-up, the composite rate of MACCE was similar between the group with prolonged QTc during TTS event and the group with normal QTc. 5-year survival analysis showed no differences in all-cause mortality between the groups (p = 0.51, Figure).



Conclusions: Long QT interval is usually a frightening feature on ECG because of the increased risk of life-threatening cardiac arrhythmias. In our study, QT interval prolongation in TTS events had no prognostic implications during hospitalization and follow-up. More studies are needed to fully clarify if a prolonged QT interval during TTS is a transitory alteration with no prognostic role or a marker of acute and future complications.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 5) - Insuficiência cardíaca - Clínica

PO 101. HEART FAILURE EARLY POST DISCHARGE APPOINTMENT - A SINGLE CENTER EXPERIENCE

Inês Fialho, Mariana Passos, Filipa Gerardo, Carolina Mateus, Joana Lima Lopes, Inês Miranda, Marco Beringuilho, Ana Oliveira Soares, David Roque

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

Introduction: Heart Failure (HF) guidelines suggest performing a follow-up visit within 1-2 weeks after discharge to monitoring signs and symptoms

	Beta blockers	SGLT2 inhibitors	Sacubitril-valsartan	ACE inhibitors	ARA	MRA
Discharge						
Patients, n (%)	136 (88.8)	115 (75.2)	73 (47.7)	45 (29.4)	7 (4.6)	112 (73.2)
Patients at maximal dose, n (%)	8 (5.9)	115 (75.2)	5 (3.3)	7 (4.6)	0 (0)	10 (7.2)
Withdrawal, n (%)	17 (11.1)	38 (24.8)	80 (52.3)	36 (23.5)	36 (23.5)	42 (27.4)
bradycardia	5 (29.4)	-	-	-	-	-
hypotension	3 (17.6)	-	23 (16.3)	11 (7.2)	8 (5.2)	1 (0.7)
hypercalemia	-	-	1 (0.7)	1 (0.7)	1 (0.7)	6 (3.9)
kidney disfunction	-	10 (15.3)	3 (2.0)	1 (0.7)	1 (0.7)	12 (7.8)
bilateral renal artery stenosis	-	-	1 (0.7)	1 (0.7)	1 (0.7)	-
economic insufficiency	-	-	13 (8.5)	-	-	-
unknown	9 (52.9)	28 (18.3)	39 (25.5)	22 (14.4)	25 (16.3)	23 (15.0)
Early post discharge appointment						
Patients, n (%)	127 (83.0)	122 (79.7)	71 (46.4)	54 (35.3)	7 (4.6)	112 (73.2)
Patients at maximal dose, n (%)	7 (4.6)	122 (79.7)	11 (7.2)	7 (4.6)	0 (0)	11 (7.3)
Dose increase, n (%)	26 (17.0)	14 (9.5)	24 (15.7)	21 (13.7)	2 (1.3)	27 (6.7)

Figure PO 101 *Guideline medical directed treatment (GMDT) patterns of prescription at discharge and at early post discharge appointment. ACE, angiotensin converting enzyme; ARA, aldosterone receptor antagonist, MRA, mineralocorticoid receptor antagonist.*

of HF and to evaluate treatment side effects. This approach has been associated with a 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 to evaluate prognostic factors after HF hospitalization.

Methods: Prospective registry of consecutive patients evaluated in the HF EPDA of a single center between March 2021 and September 2022. Demographics, blood tests results, treatment decision, and HF events at 90 days were recorded.

Results: A total of 153 patients were included, 63.4% males (n = 97), mean age of 65.7 ± 13.0 years. The mean time between hospital discharge and EPDA was 13.4 ± 5.7 days. Left ventricle ejection fraction was reduced in 83.6% (n = 127) of patients. Guideline medical directed treatment (GMDT) prescribed at discharge, increase in HF drugs doses at EPDA, and maximal drug doses are presented in Table 1. At EPDA, 34.3% (n = 35) of patients presented drug adverse effects: 17.5% had hyperkalemia (n = 22), 3.9% had hypotension (n = 6) and 9.9% acute kidney injury (n = 12). After EDPA, 11.2% (n = 17) of patients were rescheduled to another EDPA in one week, 90.1% (n = 137) were followed-up in standard HF ambulatory program, 1.3% (n = 2) were referred to the emergency department (ED), and 1.3% (n = 2) were hospitalized. Serum creatinine level (1.10 [0.87-1.36] mg/dL *vs.* 1.40 [1.09-1.95] mg/dL, p < 0.001), serum C cystatin level (1.50 [1.25-1.98] mg/dL *vs.* 1.97 [1.54-2.46] mg/dL, p = 0.007) and NTproBNP level at EPDA (1,859 [977-4,877] mg/dL *vs.* 5,928 [2,817-11,957] mg/dL, p = 0.013) were associated with 90-days HF events (ED visit or HF hospitalization). A NTproBNP level at EDPA above 2,400 pg/mL adjusted to a C cystatin was a strong predictor of 90-days HF events (OR 9.855, 95%CI 2.657-36.550, p = 0.001). This model yielded a good prognostic performance (AUC 0.790, 95%CI 0.689-0.890, p < 0.001).

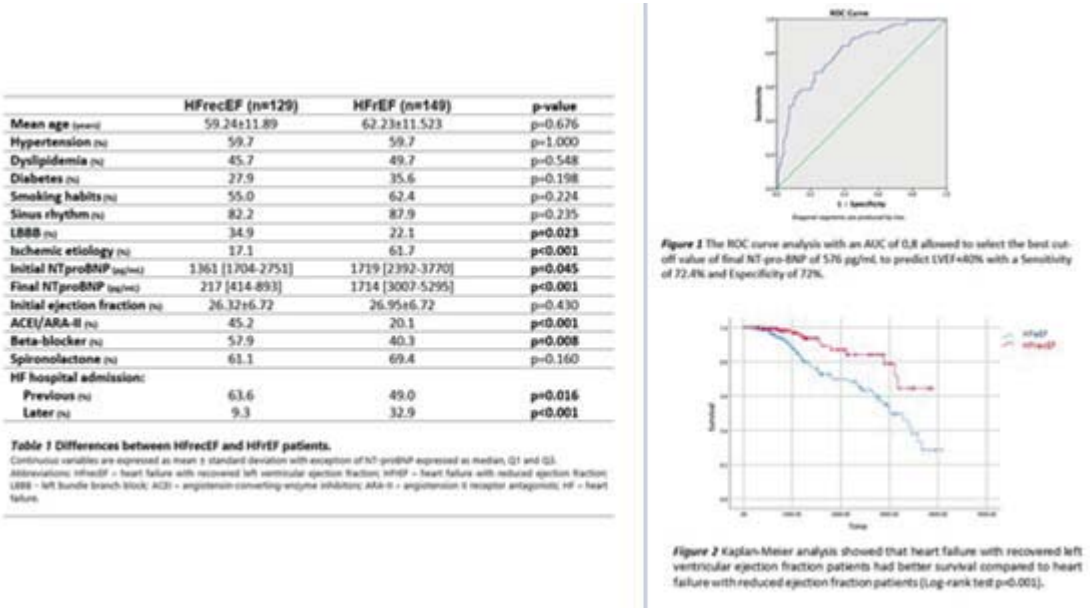
Conclusions: Early evaluation of HF patients after discharge allows GMDT titration and early detection of drug adverse effects. NTproBNP and kidney function early after discharge are strong predictors of 90-days HF events, pointing out to which patients will benefit most of an early follow-up appointment.

PO 102. HEART FAILURE WITH RECOVERED LEFT VENTRICLE EJECTION FRACTION: CAN WE PREDICT IT?

Bárbara Marques Ferreira, Otília Simões, Paula Fazendas, Ana Rita Almeida, Sofia Alegria, Ana Rita Pereira, Alexandra Briosa, João Grade Santos, Mariana Martinho, Diogo Cunha, João Luz, Nazar Ilchysnyn, Oliveira Baltazar, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Heart failure (HF) patients (pts) with recovered left ventricular ejection fraction (HFrecEF) are a distinct population of HF pts with different underlying etiologies, comorbidities and outcomes. Improvement in left ventricular ejection fraction (LVEF) leads to better quality of life, lower rehospitalization rates and mortality. However, little real-life data is available regarding the pts with improvement on LVEF.



	HFrecEF (n=129)	HFrEF (n=149)	p-value
Mean age (years)	59.24±11.89	62.23±11.523	p=0.676
Hypertension (%)	59.7	59.7	p=1.000
Dyslipidemia (%)	45.7	49.7	p=0.548
Diabetes (%)	27.9	35.6	p=0.198
Smoking habits (%)	55.0	62.4	p=0.224
Sinus rhythm (%)	82.2	87.9	p=0.235
LBBB (%)	34.9	22.1	**p=0.023**
Ischemic etiology (%)	17.1	61.7	**p<0.001**
Initial NTproBNP (pg/mL)	1361 [1704-2751]	1719 [2392-3770]	**p=0.045**
Final NTproBNP (pg/mL)	217 [414-893]	1714 [3007-5295]	**p<0.001**
Initial ejection fraction (%)	26.32±6.72	26.95±6.72	p=0.430
ACEI/ARA-II (%)	45.2	20.1	**p<0.001**
Beta-blocker (%)	57.9	40.3	**p=0.008**
Spironolactone (%)	61.1	69.4	p=0.160
HF hospital admission:			
Previous (%)	63.6	49.0	**p=0.016**
Later (%)	9.3	32.9	**p<0.001**

***Table 1* Differences between HFrecEF and HFrEF patients.**

Continuous variables are expressed as mean ± standard deviation with exception of NT-proBNP expressed as median, Q1 and Q3. Abbreviations: HFrecEF – heart failure with recovered left ventricular ejection fraction; HFrEF – heart failure with reduced ejection fraction; LBBB – left bundle branch block; ACEI – angiotensin-converting-enzyme inhibitors; ARA-II – angiotensin II receptor antagonists; HF – heart failure.

Figure 1 The ROC curve analysis with an AUC of 0,8 allowed to select the best cut-off value of final NT-pro-BNP of 576 pg/mL to predict LVEF>40% with a Sensitivity of 72.4% and Especificity of 72%.

Figure 2 Kaplan-Meier analysis showed that heart failure with recovered left ventricular ejection fraction patients had better survival compared to heart failure with reduced ejection fraction patients (Log-rank test p<0.001).

Figure PO 102

Objectives: To analyse the clinical characteristics of pts with HFrecEF and identify predictor variables of LVEF recovery.
Methods: Single center retrospective case control study that included all pts with HF with reduced ejection fraction (HFrEF) referred to heart failure outpatient visits from July, 2011 to January, 2022. Pts were divided into two different groups: Group 1 - HFrecEF pts, defined as LVEF ≥ 40%; and Group 2 - HFrEF pts, defined as LVEF < 40%. Clinical and imaging data were collected, as well as data concerning treatment options.
Results: The cohort included 278 pts (76% male, mean age 60.9 ± 11.8 years). Baseline characteristics: 59.7% had hypertension, 59.3% smoking habits, 47.8% dyslipidemia, 32% diabetes, 29% clearance creatinine ≥ 60 mL/min, 85.3% were in sinus rhythm and 28% had left bundle branch block (LBBB). Concerning the etiology 41% had ischemic dilated cardiomyopathy. The initial mean LVEF was 26.7 ± 6.7%, 29.8% had at least moderate mitral regurgitation and 31.3% had also right ventricle dysfunction. Initial NT-proBNP median was 1513 (IQR 2,401) pg/mL. The ejection fraction recovery rate was 46.4%. In the univariate analysis, the pts that recovered LVEF had less ischemic etiology ($p < 0.001$), lower initial ($p < 0.05$) and final NT-proBNP ($p < 0.001$), more presence of LBBB ($p < 0.05$), were on maximum dose of ACEI/ARAII ($p < 0.001$) and beta-blockers ($p < 0.01$), and had more previous ($p < 0.05$) and less late HF hospital admission ($p < 0.001$). Further variables were analyzed but no differences were found between the groups (Table). The logistic regression identified two significant predictor variables of LVEF > 40%: lower final NT-pro-BNP OR 0.10 (95%CI: 0.03-0.35) and target dose of ACEI/ARAII OR 2.7 (95%CI: 1.4-5.1). On the other hand, ischemic etiology was a negative predictor OR 0.16 (95%CI: 0.09-0.30). The Logit model employing the selected variables was able to predict 76% of the cases for a cut value of 0.5. The ROC curve analysis with an AUC of 0.8 allowed to select the best cut-off value of final NT-pro-BNP of 576 pg/mL to predict LVEF < 40% (S 72.4%, E 72%) (Figure 1). Kaplan-Meier analysis showed that HFrecEF pts had better survival compared to HFrEF pts (Log-rank test p = 0.001) (Figure 2).
Conclusions: The probability of recovery of LVEF is higher in patients without ischemic etiology, who tolerate target doses of ACEI/ARAII and with lower follow-up levels of NT-pro-BNP. The improvement of LVEF to at least 40% translates to better survival (65% *vs.* 25% at 11 years).

PO 103. ASSESSING THE FINAL YEAR OF HF PATIENTS BEFORE DEATH: WHY WE MUST STRIVE FOR BETTER END-OF-LIFE CARE

Sérgio Maltês, Maria Rita Lima, Mariana Sousa Paiva, Bruno M. L. Rocha, Gonçalo J. L. Cunha, Catarina Brízido, Christopher Strong, António Tralhão, António Ventosa, Carlos Aguiar, Miguel Mendes

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Introduction: Despite significant improvements in heart failure (HF) treatment, mid-to-long term prognosis remains grim for many. Optimal HF care must rely not only on disease-modifying strategies that strive to improve outcomes but also on palliative care for those at their end-of-life period. Indeed, the last-months of life HF patients´ may be burdened with recurrent hospitalizations and invasive interventions, potentially leading to further patient suffering.
Objectives: To characterize the final year of life of HF patients.
Methods: Single-center retrospective cohort of HF patients previously followed in an outpatient setting and died between 2018-2021. Those with sudden cardiac death were excluded, as were those who died in another hospital. Terminal HF was defined as advanced HF (as per 2018 HFA-ESC updated criteria) with contraindications for heart transplantation or long-term left ventricle assistance device referral.
Results: 81 patients were included (mean age at time of death 68 ± 14 years, mean LVEF 31 ± 14%, median NT-proBNP 3,346 (1,277-6,983) pg/mL; 42% with an HF-related cause of death), most with a significantly reduced functional capacity (56% in NYHA class III or IV; median pVO_2 [available in 59 patients] of 12.5 [10.2-14.5] mL/kg/min). Twenty-seven patients (33%) met criteria for terminal HF. Overall, a high burden of hospitalizations (53% with two or more hospitalizations) were observed and associated with prolonged durations of stay (15 [3-45] days; 31% with ≥ 30 days hospitalized). A significant number of patients underwent invasive interventions during their final year (49% performed coronary or structural cardiac intervention, 44% had a electric device implanted). Only a minority of patients were followed in an outpatient HF clinic (12 patients, 15%) or were referred for structured palliative care (5 patients, 6%). Among those with terminal HF, a clear DNR order was registered in only 34% of medical records. Implantable cardioverter-defibrillator therapies were discontinued in only half of these patients.
Conclusions: HF remains a complex syndrome that leads to an unrelenting functional decline and a high burden for health-care systems, especially among those reaching their end-of-life period. Yet, a high proportion of HF patients still undergoes invasive interventions during their final year, likely reflecting clinicians' difficulty in appropriately predicting patient outcomes and life expectancy. New tools to better stratify patient prognosis, as well as understanding and implementing appropriate end-of-life care is of utmost importance and must be recognized by all that treat HF patients.

PO 104. HEART FAILURE WITH MILDLY REDUCED EJECTION FRACTION IS NOT ALL ALIKE: THE IMPORTANCE OF DISEASE TRAJECTORY

Joana Silva Ferreira, Rui Antunes Coelho, Jéni Quintal, Ana Fátima Esteves, Sara Gonçalves, Tatiana Duarte, Cátia Costa, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Heart failure with mildly reduced ejection fraction (HFmrEF) is a relatively recent category whose prognosis is described in the literature as intermediate between preserved and reduced ejection fraction (EF).

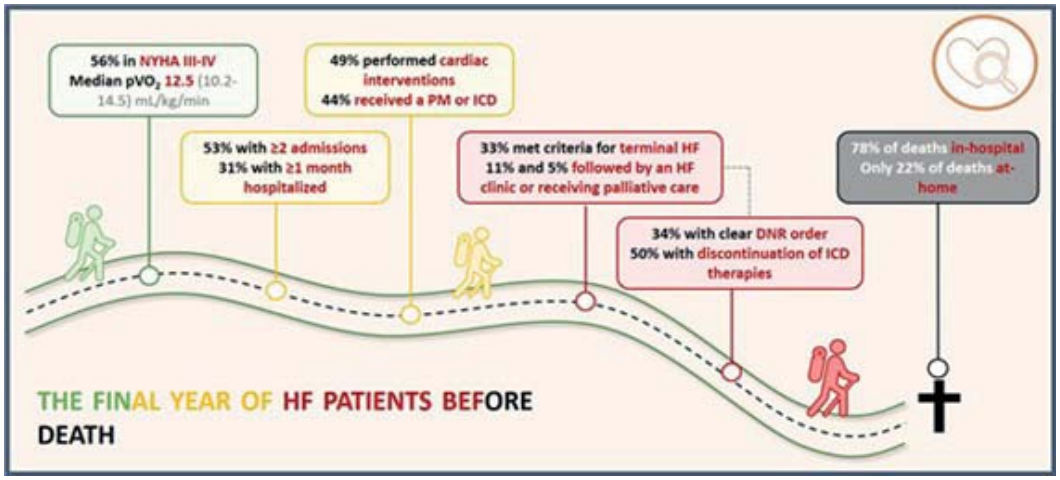


Figure PO 103

	HFmrEF (n=52)	imp-HFmrEF (n=50)	P
Baseline characteristics			
Age, median [IQR]	69 [54-80]	67 [56-73]	0.255
Male, n (%)	32 (62%)	32 (64%)	0.797
Previous myocardial infarction, n (%)	23 (45%)	12 (24%)	**0.026**
Diabetes mellitus, n (%)	21 (40%)	20 (40%)	0.968
Body mass index, mean ± SD	29.7 ± 6.1	27.8 ± 4.4	0.078
NYHA class III-IV, n (%)	7 (14%)	5 (10%)	0.588
HF etiology			
Ischemic, n (%)	29 (56%)	18 (37%)	0.055
Cardiomyopathies, n (%)	8 (15%)	10 (20%)	0.541
Toxic, n (%)	1 (2%)	8 (16%)	**0.015**
EF, mean ± SD	44.3 ± 26.0	44.6 ±14.8	0.499
LV end-diastolic volume/m², median [IQR]	68 [53-85]	69 [63-85]	0.441
Left bundle branch block, n (%)	6 (12%)	8 (16%)	0.513
NT-proBNP (pg/mL), median [IQR]	1179 [253-3248]	553 [267-1749]	0.210
Creatinine (mg/dL), median [IQR]	0.95 [0.81-1.32]	1.06 [0.88-1.49]	0.295
HF neurohormonal drugs, n (%)			
ACEi / ARB / ARNI	49 (94%)	50 (100%)	0.243
Beta-blocker	42 (81%)	49 (98%)	**0.005**
MRA	17 (33%)	33 (66%)	**0.001**
SGLT2i	6 (12%)	6 (12%)	0.942
3 or 4 drugs	18 (35%)	34 (68%)	**0.001**
Outcomes (mean follow-up time: 28 months)			
Death or hospitalization for HF or ventricular arrhythmias, n (%)	16 (31%)	7 (14%)	**0.043**
Death, n (%)	12 (23%)	5 (10%)	0.076
Hospitalization for HF or ventricular arrhythmias, n (%)	8 (15%)	4 (8%)	0.247
Worsening EF (< 40%), n (%)	7 (16%)	3 (6%)	0.130

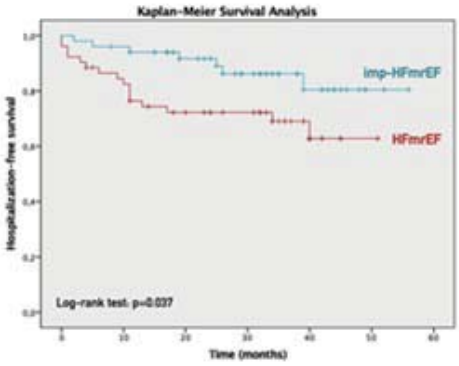


Figure PO 104

However, this group of patients can be quite heterogeneous, particularly in what concerns their place in HF disease trajectory, since it includes both patients with newly-diagnosed HFmrEF and those who improve from reduced EF to mildly reduced EF.

Objectives: To compare the phenotype and prognosis of patients with mildly reduced EF at diagnosis with those who initially had reduced EF, which later improved to mildly reduced.

Methods: We conducted a retrospective study including all consecutive patients assessed in our HF clinic between 2018 and 2020 who had mildly reduced EF [41-49%]. Participants were divided into two groups: HFmrEF if EF was consistently between 41-49% and imp-HFmrEF if EF had previously been < 40%. We compared HF etiology, comorbidities, ECG patterns, blood markers and echocardiogram results between the two groups. The primary endpoint was a composite of death and hospitalizations for HF or ventricular arrhythmias.

Results: We included 102 patients with a median age of 68 years observed in our HF clinic between 2018 and 2020. The sample was well balanced between HFmrEF (51%) and imp-HFmrEF (49%). Baseline characteristics and comorbidities were similar between the groups, except for a more frequent history of myocardial infarction among HFmrEF patients (45% *vs.* 24%, p = 0.026). For both groups, the most common HF etiology was ischemic heart disease, although tendentially more dominant for HFmrEF patients compared with imp-HFmrEF (56% *vs.* 37%, p = 0.055). On the contrary, a toxic etiology was more frequent among imp-HFmrEF patients (16% *vs.* 2%, p = 0.015). Left ventricular volumes did not differ between the groups, nor did NT-proBNP values. However, as expected, patients with imp-HFmrEF were under more neurohormonal medication compared with HFmrEF. At a median follow-up of 2.3 years, imp-HFmrEF was associated with lower rates of death or hospitalization for HF or ventricular arrhythmias (14% *vs.* 31%; log-rank test: p = 0.037), with a hazard ratio of 0.403 (95%CI 0.166-0.980). Additionally, there was also a tendency towards higher rates of worsening EF to < 40% among HFmrEF patients (16% *vs.* 6%, not reaching statistical significance).

Conclusions: This study confirms that among HF patients with mildly reduced EF, different phenotypes with differing disease trajectories coexist. It also suggests that clinical prognosis (and, probably, the risk of EF deterioration) of patients diagnosed with HFmrEF is worse, compared with those who improve from reduced EF to mildly reduced EF. Further research with larger samples is required to identify predictors of EF deterioration and assess the potential role of intensification of neurohormonal modulation in preventing it.

PO 105. HYPOALBUMINEMIA INCREASES THE TIME TO EUVOLEMIA IN HEART FAILURE PATIENTS

Inês Fialho, Mariana Passos, Filipa Gerardo, Joana Lima Lopes, Carolina Mateus, Inês Miranda, Marco Beringuilho, Ana Oliveira Soares, David Roque

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

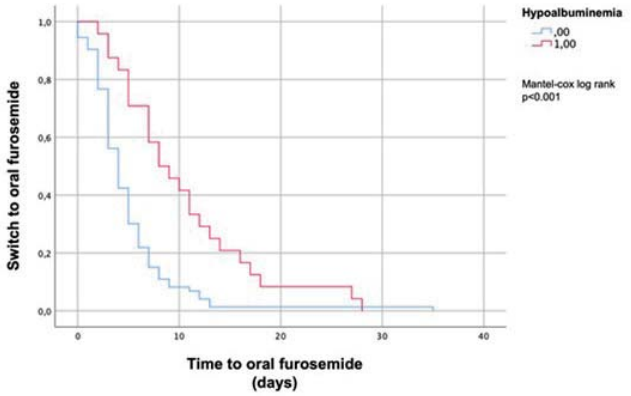
Introduction: Loop diuretics are the cornerstone of decongestive therapy in heart failure (HF) patients. Loop diuretics are delivered to the kidney with > 95% albumin bound, then serum albumin levels could influence loop diuretics pharmacokinetics and efficiency.

Objectives: To evaluate the effect of serum albumin levels on time to euvolemia in HF patients.

Methods: Retrospective cohort registry of patients hospitalized due to acute HF in a single center between January 2021 and September 2022. The time to euvolemic state was inferred by the time needed to switch from intravenous to oral furosemide. Hypoalbuminemia was defined as serum albumin level less than 3.4 mg/dL. Demographics, serum creatinine levels at admission and throughout hospitalization, serum albumin levels, NTproBNP at admission and time to switch to oral furosemide were recorded.

Results: One hundred and fifty-three patients were included, 63.4% males (n = 97), mean age of 65.7 ± 13.0 years. The median (IQR) time to switch to oral furosemide was 5 (3-8) days and the mean serum albumin level was 3.84 ± 0.60 mg/dL. The median (IQR) serum creatinine at admission was 1.24 (0.93-1.69) mg/dL and the median maximum serum creatinine throughout hospitalization was 1.50 (1.08-2.20) mg/dL. Patients with hypoalbuminemia presented longer time to switch to oral furosemide (8 [5-14] *vs.* 4 [3-6] days, p < 0.001), taking more time to achieve euvolemia (Mantel-Cox log rank p < 0.001, Figure). Serum creatinine level (1.48 [1.05-2.20] mg/dL *vs.* 1.78 [1.29-3.03] mg/dL, p = 0.105) and NTproBNP level (6,482 [2,871-14,874] pg/mL *vs.* 9,804 [4,083-23,105] pg/mL, p = 0.145) were not significantly different between the two groups (patients with normal albumin levels and patients with hypoalbuminemia, respectively).

Conclusions: Hypoalbuminemia is associated with a longer time to switch to oral furosemide, independent of kidney function or severity of congestion. Prospective studies are needed to assess if albumin replacement therapy leads to a more effective decongestion in HF patients.



Time to switch to oral furosemide (days) in patients with normal (blue) and low serum albumin (red) (Cox-Mantel log rank p < *0.001).*

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 6) - Hipertensão pulmonar

PO 106. INCIDENCE, PREVALENCE AND CLINICAL IMPACT OF SUPRAVENTRICULAR TACHYCARDIA IN GROUP I PULMONARY HYPERTENSION

Oliveira Baltazar, Sofia Alegria, Ana Rita Pereira, Paula Fazendas, Filipa Ferreira, Debora Repolho, Alexandra Briosa, João Grade, Bárbara Ferreira, Mariana Martinho, João Luz, Nazar, Helder Pereira

Hospital Garcia de Orta, EPE.

Introduction and objectives: Tachyarrhythmias, especially supraventricular tachycardia (SVT), have a negative impact on the clinical course of pulmonary hypertension (PH). In most cases, the episodes may be associated with significant clinical deterioration, including worsening of symptoms, functional capacity, often being associated with increased hospitalizations and consequently poor prognosis. The objective of this work was to characterize the population of patients with group 1 PH and SVT and what is its prognostic impact.

Methods: Retrospective study carried out in a reference center between 2014 and 2022 including patients with group 1 PH and SVT.

Results: We identified 43 patients with group 1 PH with a mean age of 53.63 ± 2.12 years, 81.4% were and female and, 37.2% associated congenital heart disease in basal evaluation, 53.5% were in functional class (FC) 3, average of the 6-minute walk test (6MWT) was 405.3 ± 18.8 meters, During a mean follow-up (FUP) time of 5 ± 2.47 years. The incidence of SVT was 27.9% and paroxysmal atrial fibrillation was the most prevalent arrhythmia, most of which converted to sinus rhythm. Durin the FUP there was a significant difference in 6MWT (without SVT 415 *vs.* SVT 305 p < 0.05) and final NTproBNP (without SVT 231 pg/mL *vs.* SVT 1,410 pg/mL p 0.001) which reflects clinical worsening in the SVT group. The presence of SVT was associated with higher mortality (without SVT 0 *vs.* SVT 3 patients p 0.004). We found no statistically significant difference in the number of admissions in the two groups due to the reduced number of cases. We did not find statistically significant differences in relation to initial hemodynamic parameters, well as functional class.

Conclusions: In this population, the presence of SVT was associated with worsening performance in the 6MWT, NTproBNP and mortality. In patients with PH, tachyarrhythmias, in addition to being a marker of advanced disease, also seems to be associated with a worse prognosis, and the early detection and management is fundamental in the treatment of these patients.

PO 107. STROKE VOLUME INDEX IN PULMONARY ARTERIAL HYPERTENSION: THE NEW KID ON THE BLOCK

João Mirinha Luz, Filipa Ferreira, Sofia Alegria, Ana Cláudia Vieira, Débora Repolho, Rita Calé Theotónio, Sílvia Vitorino, Alexandra Briosa, João Grade Santos, Bárbara Marques Ferreira, Mariana Martinho, Diogo Santos da Cunha, Nazar Ilchyshyn, Oliveira Baltazar, Ernesto Pereira, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction and objective: Right heart catheterization (RHC) is the gold standard for diagnostic, therapeutic and prognostic stratification for

PH population	N 43
Age (mean±standard deviation)	53,63±13,9
Female gender - n (%)	35 (81,4%)
PAH - Associated diseases	
Idiopathic - n (%)	14 (32,6)
Congenital heart disease - n (%)	16 (37,2)
Connective tissue disease - n (%)	12 (27,9)
HIV - n (%))	1 (2,3)
Supraventricular tachycardia - n (%)	12 (27,9%)
Paroxysmal atrial fibrillation - n (%)	6 (14)
Paroxysmal flutter - n (%)	3 (7)
Permanent atrial fibrillation - n (%)	1 (2,3
supraventricular tachycardia - n (%)	1 (2,3)
Initial hemodynamic parameters	
mPAP - (Q25 - Q75)	48,3 (36,5- 54,5)
Median PVR (Q25 - Q75)	9,4 (5,3 - 13,3)
Median CI (Q25 - Q75)	2,1 (1,6 -2,71
Median LAP (Q25 - Q75)	5,5 (3,0 - 9,0)
Echocardiographic parameters	
TAPSE - mean ± standard deviation	18,7±10,7
S - mean ± standard deviation	10,6±0,7
FAC - mean ± standard deviation	29,4±2,2
PSAP -Vmean±standard deviation	79±4
Clinical	
Functional Class	
I - n (%)	5 (11,6)
II - n (%)	13 (30,2)
III - n (%)	23 (53,5)
IV - n (%)	1 (2,3)
PM6M - mean ± standard deviation	405,3±18,8
ProBNP (Q25 - Q75)	502 (261,2 - 1580,2

Parameters	Without SVT	SVT	p
Age	52,9	57,9	0,5
6MWT initial	423,9	362,6	0,1
6MWT final	415	305	0,03
NTproBNP final	231	1410	0,001
Hospital admision	22	7	0,4
Death	0	3	0,04

Figure PO 106

patients with pulmonary arterial hypertension (PAH). The ESC/ERS 2022 Pulmonary Hypertension (PH) Guidelines brought a new parameter to consider in RHC - the stroke volume index (SVI), along with cardiac index (CI), right atrial pressure and mixed venous oxygen saturation (SvO2), for prognostic stratification. We aimed to see if and how SVI can be a prognostic factor in these group of patients.

Methods: We performed a retrospective analysis of seventy-eight (78) baseline RHC executed in our center in PAH confirmed patients. Median SVI was compared in multiple outcomes: death, hospital admissions and need for parenteral prostanoids. Mann-Whitney U test was used for statistical purposes. We also analysed the relative risk (RR) and odds ratio (OR) for these outcomes, using the SVI cutoff of 31 mL/m^2, used for prognostic assessment in ERS/ECS 2022 PH Guidelines.

Table 1. Outcome analysis for SVI (Mann-Whitney U)

Outcome		Mean rank	p-value
TD			
Death			0,343
	Yes	31,36	
	No	27,16	
Hospital admissions			0,415
	Yes	26,9	
	No	30,48	
Need for parenteral prostanoids			0,004
	Yes	22,6	
	No	35,31	
Fick			
Death			0,085
	Yes	43,19	
	No	34,23	
Hospital admissions			0,488
	Yes	37,99	
	No	34,53	
Need for parenteral prostanoids			0,015
	Yes	30,86	
	No	42,97	

Results: Mean age at the time of RHC was 51.15 years-old [standard deviation (SD) 14.50]. 71.8% were female, and 66.7% were naïve of vasodilatators. Almost a quarter (23.7%) of patients had idiopathic PAH, and other quarter (23.7%) had PAH associated with congenital heart disease. Median SVI using thermodilution method (TD) was 32.32 ml/m^2, and with Fick method (Fick) was 29.14 mL/m^2. Our results showed significant difference for median SVI need for parenteral prostanoids using both methods (TD p = 0.004, Fick p = 0.015). No statistical significance was seen regarding death or hospital admissions (Table). Regarding need for prostanoids, relative risk (RR) for SVI < 31 using TD was 2.33 [95% confidence interval (95%CI) 1.31-4.16]. Regarding death, SVI < 31 by Fick was 0.49 (95%CI 0.26-0.91), and for survival was 1.55 (95%CI 1.04-2.30). No statistical significance was seen regarding hospital admissions.

Conclusions: Lower SVI is associated with higher need for parenteral prostanoids, but surprisingly was not associated with higher incidence of death in PAH patients, being a somewhat "protective" factor in these patients. We hypothesized that the lower SVI, especially in diagnostic RHC, is a factor for premature use of prostanoids, and therefore could prolong overall survival in these group of patients. More studies are needed to confirm this hypothesis.

PO 108. NEW 2022 ESC/ERS DEFINITION OF PULMONARY HYPERTENSION. CAN WE RELY ON THE SAME NON-INVASIVE ECHOCARDIOGRAPHIC PARAMETERS?

Bárbara Lacerda Teixeira, Francisco Barbas de Albuquerque, André Grazina, Luís Almeida Morais, João Reis, Ana Galrinho, Miguel Antunes, Ricardo Carvalheiro, Inês Ferreira Neves, Duarte Cacela, Ruben Ramos, António Fiarresga, Rui Cruz Ferreira

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

Introduction: The hemodynamic definition of pulmonary hypertension (PH) has been updated, with lowering of the mean pulmonary arterial pressure (mPAP) threshold from 25 to 20 mmHg according to the new 2022 ESC/ERS Guidelines. Although there is no single echocardiographic parameter that reliably informs about PH status, some of the echocardiographic parameters cut-offs remained the same, including a peak tricuspid regurgitation velocity (PTRV) > 2.8 m/s. The potential underdiagnosis of PH has not been evaluated.

Objectives: To evaluate the screening power of the standard echocardiographic parameters to detect PH according to the new guidelines and to establish new predictors.

Methods: A prospective registry of consecutive intermediate-high- and high-risk PE pts submitted to CDT in a single tertiary center was used. 3 months after the procedure, the patients were submitted to a right heart

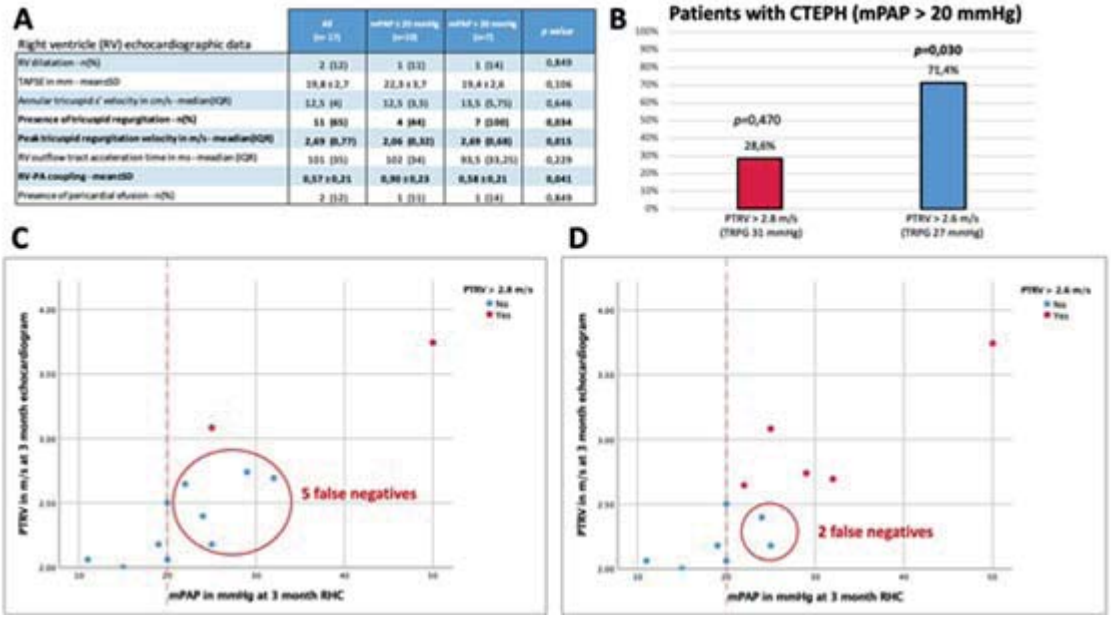


Figure PO 108

catheterization and echocardiogram to screen chronic thromboembolic pulmonary hypertension (CTEPH). According to new PH criteria, patients were divided in two groups, and echocardiographic parameters were analyzed regarding its predictive power. A ROC curve analysis was performed to evaluate optimal cut-offs of PTRV in predicting PH according the new guidelines.

Results: 17 pts (60% women, mean age 59 ± 16 years) were included. Among these, 7 pts (41.2%) were diagnosed with pre-capillary PH (mPAP > 20 mmHg, PVR > 2 WU, PAWp < 15 mmHg) by RHC at 3 months of follow-up. Among echocardiographic parameters, PTRV (p 0.015), presence of tricuspid regurgitation (0.034) and right ventricle-pulmonary artery (RV-PA) coupling (p 0.041) were significantly different between groups (Figure 1A). Other parameters, such as right ventricle dilation (p 0.849), TAPSE (p 0.100), annular tricuspid s' velocity (p 0.646), right ventricle outflow tract acceleration time (p 0.229) and the presence of pericardial effusion (p 0.849) did not show significant differences. Regarding the PTRV, a ROC curve analysis revealed an PTRV optimal cut-off of 2.6 m/s (pressure gradient 27 mmHg) in our population (AUC 0.911, p 0.030, Sn 71.4%, Sp 100%). Compared to the conventional cut-off of 2.8 m/s (pressure gradient 31 mmHg) (p 0.470, Sn 28.6%, Sp 100%), the use of PTRV > 2.6 m/s allows to reduce false negatives without losing specificity (Figure 1B, C and D).

Conclusions: With the recent update in PH criteria, the use of the conventional PTRV cut-off leads to a significant underdiagnosis in our population. Lowering the PTRV threshold seems to increase sensitivity, without losing specificity. Other standard echocardiographic parameters did not seem to predict accurately the presence of PH.

PO 109. LONG-TERM SURVIVAL OUTCOMES AND BASELINE HEMODYNAMICS IN PATIENTS WITH PAH *VERSUS* CTEPH

Joana Guimarães, Diogo Fernandes, Gonçalo Costa, Eric Monteiro, Gustavo Campos, João Rosa, Ana Rita Gomes, Rafaela Fernandes, Vanessa Lopes, Cátia Ferreira, Graça Castro, Lino Gonçalves

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

Introduction: Pulmonary arterial hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH) are two of the pulmonary hypertension key subgroups and in fact correlated with an adverse prognosis.

Objectives: The aim of our study is to compare the effect of baseline hemodynamics on long term survival in incident PAH patients and CTEPH patients.

Methods: Between January of 2009 and January of 2020, all incident PH cases were consecutively enrolled in a prospective cohort study. Patients were divided in 2 groups: PAH patients *versus* CTEPH patients. Clinical data and hemodynamic parameters were collected at baseline and during follow-up. Multivariate logistic regression test and Kaplan-Meier survival analysis were used.

Results: A total of 177 patients were followed up for a median of 5.0 [IQR 2.3-8.7] years. The PAH group were younger (mean age 43.9 ± 19.8 *vs.* 61.8 ± 14.5, p < 0.001) and had more female patients (72% *vs.* 53.8%, p = 0.02). There was no difference in NYHA functional class and 6MWD between groups. Overall, five-year survival was 82.5% and was similar in PAH and CTEPH patients (81.6% *vs.* 84.6%, p = 0.83). CTEPH patients had lower mean pulmonary artery pressure (mPAP) (49 ± 13 *vs.* 56 ± 20 mmHg, p = 0.02) but higher right atria pressure (RAP) (9 ± 5 *vs.* 7 ± 4 mmHg, p = 0.006), higher pulmonary capillary wedge pressure (PCWP) (13 ± 6 *vs.* 10 ± 5 mmHg, p = 0.004) and lower cardiac index (CI) (2.15 ± 0.79 *vs.* 2.76 ± 1.42, p = 0.009). However, none of these hemodynamic parameters had an impact on mortality at 5 years.

Conclusions: In this cohort of incident PH patients, the overall 5-year survival rate was 82.5%. Despite having worse hemodynamic parameters at baseline, CTEPH patients had similar five-year survival to PAH patients.

PO 110. CHRONIC THROMBOEMBOLIC PULMONARY DISEASE FROM PROXIMAL TO DISTAL: WHAT ARE THE DIFFERENCES

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Introduction: Chronic thromboembolic pulmonary disease (CTEPD) is a rare, progressive pulmonary vascular disease. Most often results from obstruction of large and/or middle-sized pulmonary arteries by nonresolving thromboemboli. On the other hand, it is known that small-vessel abnormalities also have a substantial impact on the severity of CTEPD and postsurgical outcomes.

Objectives: To analyze clinical, hemodynamical and prognostic differences between proximal and distal CTEPD.

Methods: We performed a longitudinal retrospective study of all patients (pts) with the diagnose of CTEPD being followed in a referral center for pulmonary hypertension (PH). Angio-Computed Tomography of pulmonary arteries have been analyzed and pts were divided into two different groups: Group 1 with predominance of proximal disease (main, lobar and proximal segmental pulmonary artery branches [level I-III]); and Group 2 with predominance of distal disease (distal segmental or subsegmental disease). Clinical data including previous pulmonary embolism, risk factors for CTEPD, WHO functional class, plasma biomarkers, transthoracic echocardiogram, 6 minutes walking test (6MWT), right heart catheterization and death were collected.

Results: We included a total of 71 pts with CTEPD (66% female, mean age 57.56 ± 15.32 years), pulmonary hypertension at rest was present in 90.5% of pts (CTEPH) while the remaining presented symptomatic exercise PH (CTED). 78.8% presented proximal disease and 21.1% presented distal disease. 39% of the pts had at least one risk factor for CTEPD with no differences between the groups. Proximal disease presented more often with previous

	Proximal (n=56)	Distal (n=15)	p-value
Female (%)	62.50	80.00	p=0.276
Mean age (years)	57.34±15.94	58.40±13.21	p=0.195
Previous PE (%)	78.60	40.00	**p=0.007**
Risk factors (%)	39.30	33.00	p=0.673
NT pro-BNP (pg/mL)	512 (109-2072)	1445 (460-3500)	p=0.121
6MWD (m)	347.00±145.33	341.18±78.76	**p=0.020**
DLCO (%)	67.17±17.72	63.70±15.10	p=0.302
PASP (mmHg)	81.00±30.78	91.07±27.43	p=0.306
TAPSE (mm)	19.13±5.39	16.73±3.24	**p=0.057**
CI (L/min/m2)	2.32±0.76	2.28±0.81	p=0.561
mPAP (mmHg)	43.21±13.70	48.53±7.34	**p= 0.009**
RAP (mmHg)	9.04±5.80	7.86±5.08	p=0.928
SvO2 (%)	64.11±9.06	61.27±8.88	p=0.885
HR (bpm)	75.13±14.32	78.92±10.59	p=0.314
PVR (WU)	9.33±5.67	11.37±4.41	p=0.201

Table 1 **Baseline characteristics of patients with proximal versus distal disease.**

Continuous variables are expressed as mean ± standard deviation with exception of NT-proBNP expressed as median, Q1 and Q3.
Abbreviations: PE – pulmonary embolism; 6MWT – 6-minute walking test; DLCO – diffusing capacity of the lung for carbon monoxide; PASP – pulmonary artery systolic pressure; TAPSE – tricuspid annular plane systolic excursion; CI – cardiac index; mPAP – mean pulmonary arterial pressure; RAP – right atrial pressure; SvO2 – mixed venous oxygen saturation; HR – heart rate; PVR – pulmonary vascular resistance

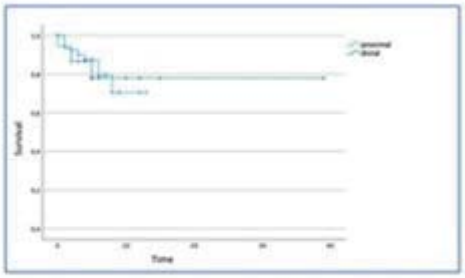

Figure 1 Kaplan Meier analysis showed that survival was not different between patients with predominance of proximal disease (Group 1) and patients with predominance of distal disease (Group 2).

Figure PO 110

pulmonary embolism (PE) (78.5% *vs.* 40.0%, p = 0.007), and with less severe clinical parameters like greater distance in 6MWD (p = 0.020), better right ventricular function (p = 0.057) and lower mean pulmonary artery pressure in right heart catheterization (p = 0.009). Further variables were analyzed but no differences were found between the groups (Table). Overall, 35 patients had pulmonary endarterectomy (49.3%). As expected, pts with proximal disease were submitted to pulmonary endarterectomy more often (61.0% *vs.* 27.0%), but residual PH were similar after surgery in both groups (23.3% *vs.* 25.0%, p = 0.941). With a median follow-up of 5.10 years (IQ25-75: 2.0-7.0), there was 12 deaths (survival 82.6%). Kapplan Meier analysis showed that survival was not different between the groups (Figure).
Conclusions: Pts with CTEPD that present proximal disease are more likely to have previous PE and present with less severe PH. Nonetheless, residual hypertension was similar between groups and prognostic was similar.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 7) - Intervenção em cardiopatias congénitas

PO 111. PREDICTORS OF LEFT VENTRICULAR HYPERTROPHY AT LONG-TERM FOLLOW-UP AFTER EFFECTIVE STENT IMPLANTATION FOR AORTIC COARCTATION

Isabel Sampaio Graça, João Rato, Maria Ana Estevens, Miguel Mata, Susana Cordeiro, Mafalda Sequeira, Rui Anjos

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

Introduction and objectives: Left ventricular hypertrophy (LVH), defined echocardiographically as an increased LV mass index (LVMI), is a well-established risk factor for cardiovascular mortality and morbidity, as well as a marker for arterial hypertension-mediated organ damage. We evaluated LV mass at long-term follow up of effectively stented aortic coarctation patients, assessing possible targets to decrease this risk factor.
Methods: Study population included 86 patients with aortic coarctation and no significant aortic valve disease, who had undergone stent implantation, with a follow up of 2 to 24 years (mean 11.5 years). Evaluation included clinical data, transthoracic echocardiogram, office blood pressure (BP), 24-hour BP monitoring. LV mass was measured echocardiographically as per published guidelines and indexed to body surface area. Simple linear regression was used to assess correlations for LV mass. Significant variables were used to build a multivariable model.
Results: At the time of stenting, 59 patients (69%) had native coarctation; mean age was 29 years (SD 15.5); 42% had bicuspid aortic valve. Invasive aortic gradient decreased from mean 42.3 mmHg (SD 21.2) to 4.7 mmHg (SD 6.5) immediately after stenting. There were no major complications. At last follow-up: mean age was 40.5 (SD 15.5) and 12% were over 60 years old; all patients had an echocardiographic isthmic gradient of less than 20 mmHg, mean 12.2 mmHg (SD 4.8). Fifty-two (60%) patients were on anti-hypertensive medication. Mean systolic office BP was 132 mmHg (SD 11.1); and at 24-hour monitoring was 125 mmHg (SD 17.9). Mean LVMI decreased from 129.7 g/m^2 (SD 53.6) at time of stenting, to 105.6 g/m^2 (SD 31.9) at last follow-up and 36% had criteria for LVH. The multivariable regression model predicted high LVMI using age at first stenting procedure (p < 0.001), mean systolic BP at 24-hour Ambulatory BP Monitoring (p = 0.005) and male gender (p = 0.007).
Conclusions: Despite an effective stenting procedure, patients with aortic coarctation may still have elevated LVMI at long-term follow up. Early identification and treatment of the disease is key to reduce this burden, while 24-hour BP monitoring is the single best exam to predict LVMI, and should be used to guide treatment.

PO 112. SUCCESSFUL PERCUTANEOUS RE-PERMEABILIZATION OF FONTAN CIRCUIT WITH STENT IMPLANTATION AFTER CONDUIT THROMBOSIS

Maria Ana Ribeiro Estevens, Isabel Sampaio Graça, Miguel Mata, Mariana Lemos, Duarte Martins, Rui Anjos

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

The Fontan circuit predisposition for thromboembolic complications is multifactorial and accounts for significant morbidity and mortality. Poor survival after thromboembolic complications has been reported, with mortality rates as high as 25% in pediatric series and 38% in adult series. We report two cases of Fontan conduit thrombosis treated by percutaneous stenting. Patient A, male, 43 years-old, with history of right isomerism with complete atrioventricular septal defect and hypoplastic left ventricle, underwent Fontan procedure with extracardiac conduit at age 15. He presented to ED with epigastric pain, nausea, syncope and hypoxemia. Echocardiography and angio-CT confirmed conduit thrombosis. Shortly thereafter he developed portosystemic encephalopathy and cardiogenic shock with need for mechanical ventilation and ICU admission. Conduit replacement surgery was deemed of too high-risk. Conduit re-permeabilization, with tandem implantation of 4 stents in the IVC-PA conduit, covering from distal to proximal ends, was performed. A 45 mm CP covered stent, two 39 mm CP covered stents and a 45 mm CP bare stent were implanted and dilated to 22 mm, with final absence of gradient in the Fontan system. The patient recovered and was discharged home after 17 days. At 9 months follow-up he is asymptomatic with patent conduit. Patient B, male, 15 years-old, with history of double inlet left ventricle and transposition of the great arteries submitted to Fontan procedure, with extracardiac conduit implanted at 6 years of age. At age 15, on routine follow-up echocardiogram, thrombosis of the conduit with a 50% stenosis was diagnosed. He was asymptomatic and under anticoagulation with warfarin. Extensive thrombosis of the conduit was confirmed by MRI. Surgical replacement of the conduit was considered, but due to subacute and organized nature of the thrombus percutaneous intervention was attempted. Conduit dilation with a Mullins 18/40 mm balloon was followed by implantation of two covered 45 mm CP stents. The procedure was successful, with no residual gradient in the conduit and the patient was discharged after 2 days. At 6 months follow up, he maintains a patent conduit with no residual thrombus. In conclusion, conduit thrombosis is amenable to percutaneous stenting, which is an effective and safe option for re-permeabilization.

PO 113. HOLD THE DOOR: EXPERIENCE OF A NON-TERTIARY CENTRE IN PATENT FORAMEN OVALE CLOSURE

João Mirinha Luz, Filipa Ferreira, Ana Cristina Martins, Rita Calé Theotónio, Alexandra Briosa, João Grade Santos, Bárbara Marques Ferreira, Mariana Martinho, Diogo Santos da Cunha, Nazar Ilchyshyn, Oliveira Baltazar, Liliana Pereira, Miguel Rodrigues, Ernesto Pereira, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction and objectives: Patent *foramen ovale* (PFO) is found in 25 to 30% of people. Although a very common finding, only sometimes has clinical significance, such as paradoxical embolism, more often presenting as a stroke. PFO closure is mandatory in these cases, and it can be achieved via percutaneous placement of a closure device, without need for a surgery. Here we present our 10-plus years' experience in a non-tertiary hospital.
Methods: This study assessed clinical data of consecutive patients submitted to PFO closure using an Amplatzer® device in a non-tertiary hospital. All patients treated were previously discussed in a multidisciplinary team between clinical and interventional cardiology and neurology and a definite etiology for stroke was excluded. The procedural characteristics, safety, and adverse events were retrospectively analyzed.
Results: Sixty-five (65) procedures were performed from 2009 to 2022. Mean age at time of the procedure was 53.5 years-old (SD 11.7), the oldest at 76

years-old. The large majority (93.8%) were referred after cerebrovascular events, with a mean RoPE score of 6 (SD 1.78). 84.6% of patients presented at least 1 high-risk characteristic: 67.7% with spontaneous shunt, 46.7% had a tunneled PFO, 32.3% had interatrial septal aneurysm. All procedures were performed under general anesthesia with transesophageal echocardiography (TEE) control. Mean dimension of the defect (balloon sizing) was 8.3 mm (SD 2.3). Successful closure was achieved in 95.4% of the patients, with a low rate of periprocedural complications (3.1%). Presence of residual shunt was evaluated 6 to 12 months by TEE and microembolic signals (MES) and was found in 17.6% *vs.* 52.8% (84.4% of these were small), respectively (table 1). Presence of residual shunt was not related with anatomical risk features or dimension of PFO (intraprocedural balloon-sizing). During the follow-up (median time 2.17 years, IQR 4.92) there was a very low rate of stroke recurrency (1.6%). None of the patients developed new-onset atrial fibrillation. There was no case of erosion caused by the device.

Table 1. Patient, PFO and procedure characteristics	
Age at time of intervention (mean, SD)	53,5 (11,7)
Index event - % (n)	
Stroke	84,6 (55)
Acute transient attack	13,8 (9)
Platypnea-orthodeoxia syndrome	3,1 (2)
Concomitant pulmonary thromboembolism - % (n)	45,8 (27, N=59)
Microembolic signals study - % (n)	(N=64)
No shunt	21,9 (14)
Mild	3,1 (2)
Moderate	10,9 (7)
Curtain/Shower	62,5 (40)
RoPE score – mean (SD)	6,0 (1,8)
PFO characteristics - % (n)	
Inter-atrial septum aneurysm	32,3 (21)
Tunnel	46,7 (28, N=60)
Spontaneous shunt	67,7 (44)
Eustachian valve/Chiari network	18,8 (12, N=64)
Fluoroscopy time - median (IQR)	7,0 (42,0)
Defect dimension (balloon sizing) – mean (SD)	8,3 (2,3)
Residual shunt, TEE - %, (n)	17,6 (6, N=34)
Residual shunt, MES - % (n)	52,8 (19, N=36)
Mild	44,4 (16)
Moderate	2,8 (1)
Curtain/Shower	2,8 (1)

Conclusions: Our center experience shows that a well implemented and throughout programme for PFO closure, with a multidisciplinary team, can be achieved in non-tertiary centres, with the procedure deemed as safe and effective. MES study was more sensitive than TEE to detect residual shunt, but longer follow-up is needed to show if this is associated with a higher probability of stroke recurrency in the future.

PO 114. VALIDATION OF ROPE AND PASCAL SCORES IN A REAL-WORLD COHORT OF ADULT PATIENTS UNDERGOING PATENT FORAMEN OVALE CLOSURE: A RETROSPECTIVE STUDY

Maria Rita Giestas Lima, Sérgio Maltês, Sérgio Madeira, Inês Carmo Mendes, Duarte Martins, Miguel Mendes, Rui Anjos

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

Introduction: Patent foramen ovale (PFO) is present in about 25% of the general population and in up to 40% of patients with unexplained stroke, suggesting a causal role - as recently confirmed by positive randomized trials regarding PFO closure. Yet, in real world clinical practice patient selection for PFO closure relies on a probabilistic estimate of causality, based on clinical and PFO anatomical features (Risk of Paradoxical Embolism [RoPE] score and PASCAL classification system [PCS]). Notwithstanding, these tools did not undergo extensive external validation and are not used for stroke recurrence prediction after PFO closure.
Objectives: The main aims are: 1) to assess the recurrence rate and predictors of systemic circulation thromboembolism (STE) in a population of patients that underwent PFO closure, 2) assess the performance of the RoPE and the PCS for recurrent stroke prediction.
Methods: We performed a single-centre retrospective study including consecutive adult patients undergoing PFO closure between 2007-2017. Patient's baseline demographics and arterial thromboembolism recurrence were assessed. Univariate and multivariate regression analysis were performed to identify recurrent STE after intervention.
Results: A total of 259 patients (57% female, mean age 50 ± 13 years old, 35% hypertensive, 42% with dyslipidaemia, 9% diabetic, 27% smokers, 0.4% and 4% with atrial fibrillation pre and post closure, respectively, with a mean CHA_2DS_2-VASc score of 1.09 ± 1.045, 5% with stable significant carotid stenosis ≥ 50%) were included (Figure 1A). Most patients had atrial septum aneurism (44%) and 19% had a large shunt (> 20 bubbles). The main indications for

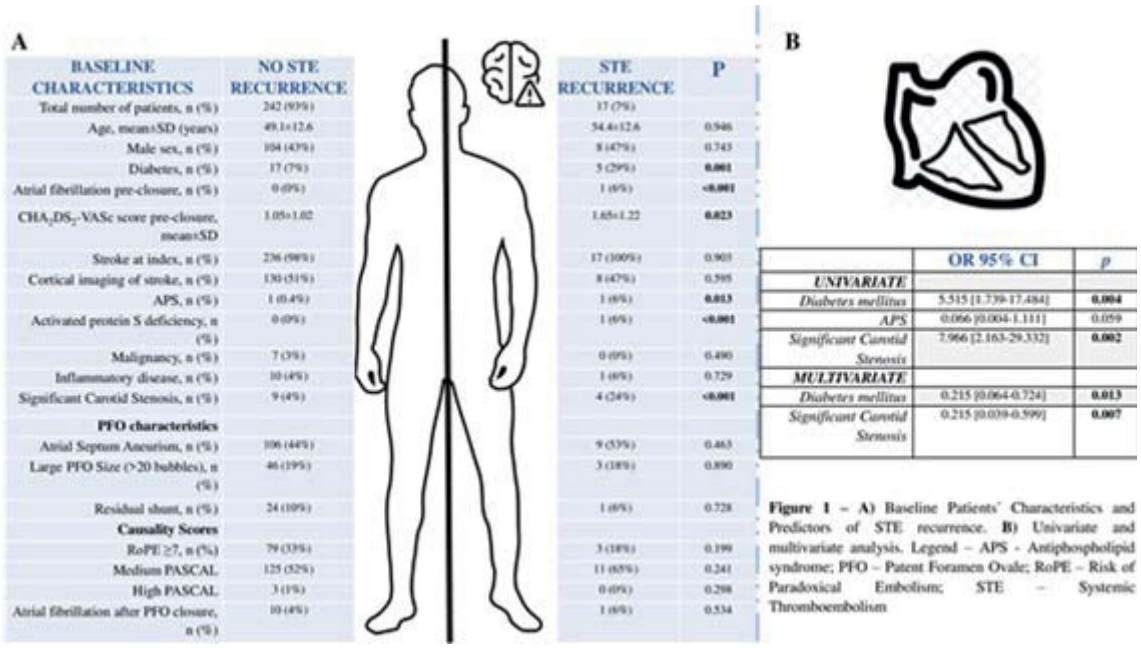

Figure 1 – A) Baseline Patients' Characteristics and Predictors of STE recurrence. **B)** Univariate and multivariate analysis. Legend – APS - Antiphospholipid syndrome; PFO – Patent Foramen Ovale; RoPE – Risk of Paradoxical Embolism; STE – Systemic Thromboembolism

Figure PO 114

PFO closure were prior ischaemic stroke (98%) or other systemic emboly (2%). 51% patients had imaging evidence of cortical stroke. The mean RoPE score was 5.4 ± 1.8 (32% with a RoPE score ≥ 7) and 54% of patients had a medium to high PCS. During a mean follow up of 10 ± 2 years, the cumulative STE recurrence rate was 6% or 7 events per 1,000 patient-years. When performing multivariate analysis, diabetes (OR 0.218, 95%CI 0.061-0.778; p = 0.048), carotid stenosis (OR 7.803, 95%CI 1.974-30.855]; p = 0.003) predicted STE recurrence (Figure 1B). Neither RoPE (p = 0.101) nor PCS (p = 0.618) predicted recurrent STE.
Conclusions: In a large single-centre cohort of adult patients undergoing PFO closure, recurrent STE rates were within range of previous series and mostly predicted by systemic comorbidities.

PO 115. PERCUTANEOUS OCCLUSION OF VASCULAR MALFORMATIONS WITH PENUMBRA COILS

Petra Loureiro, António Fiarresga, Lídia de Sousa, José Diogo Ferreira Martins

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

Introduction: Percutaneous vessel embolization is usually the preferred treatment method to close congenital or acquired vessel connections. Penumbra have three type of large volume coils (POD®, Ruby® and Packing), deliverable through low profile microcatheters, available in sizes as small as 1 mm in diameter and lengths up to 60 cm, with a controlled delivery system witch make it particularly interesting for the occlusion of VM.
Objectives: A case series on different vascular malformations (VM) treated with Penumbra Coils in children and adults is presented.
Methods: Retrospective analysis of all patients who underwent percutaneous occlusion of VM with Penumbra Coils in a single center. Clinical and angiographic data, procedural details, implanted devices, and complications were assessed. Procedural success was defined as effective device deployment with none or minimal residual flow.
Results: A total of 7 VM were intervened in 6 patients with median age of 22 years (0.5 - 62 years). The VM included 4 aortopulmonary collaterals, 1 pulmonary arteriovenous fistulae, 1 vertical vein and 1 coronary fistulae. The 11 devices used included 5 POD®,4 Packing coils and 2 Ruby® coils. Successful occlusion was achieved in 7 (100%) VM. Any clinically relevant complication occurred.
Conclusions: To our knowledge, this is the largest series on different VM occluded percutaneously with Penumbra Coils in children and adults. Percutaneous occlusion was effective and safe. The use of longer and larger volume coils potentially reduced the procedural time and the total number of devices required.

Sábado, 15 Abril de 2023 | 09:30-10:30

Jardim de Inverno | Posters (Sessão 3 - Écran 8) - Intervenção coronária

PO 116. STANLEY SCORE: A NEW PREDICTIVE MODEL OF 3-YEAR MAJOR ADVERSE CARDIAC EVENTS FOLLOWING "FULL METAL JACKET" USING NEW-GENERATION DRUG-ELUTING STENTS

José Miguel Viegas, André Grazina, Bárbara Teixeira, Luís Almeida Morais, Tiago Pereira-da-Silva, Ruben Ramos, António Fiarresga, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Percutaneous Coronary Intervention (PCI) using a "Full Metal Jacket" (FMJ) procedure (≥ 60 mm of continuous stent length) is often required to treat very long lesions, but its clinical efficacy and safety using contemporary drug-eluting stents (DES) remains to be determined.
Objectives: To identify predictors of major adverse cardiac events (MACE) associated with FMJ using new-generation DES. We sought to develop a simple model capable of accurately predict 3-year MACE following FMJ PCI.

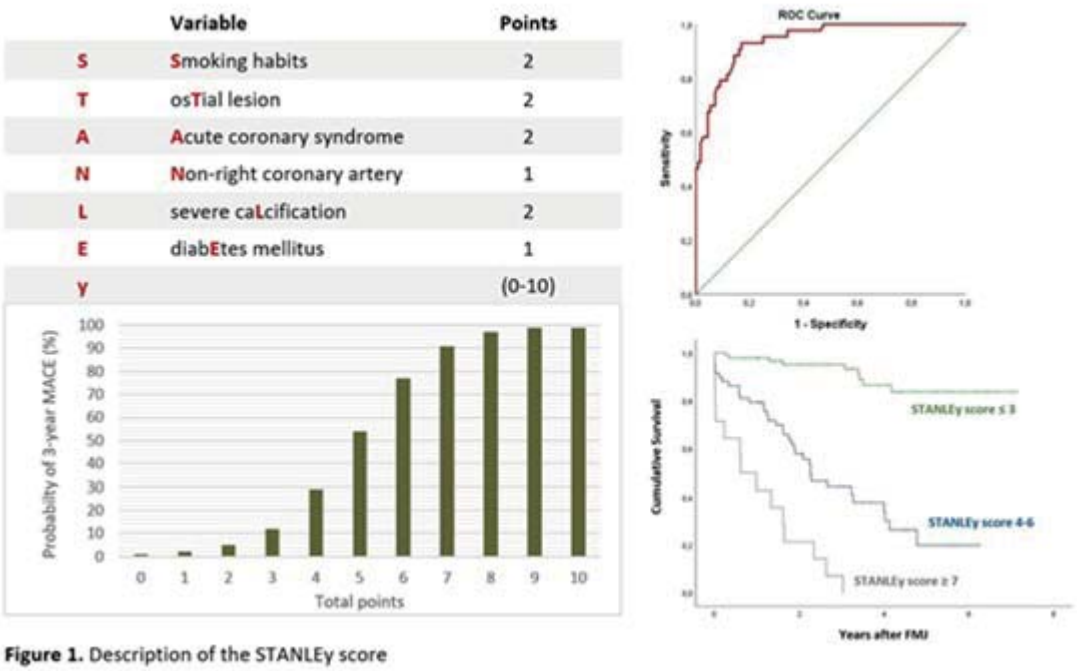

Figure 1. Description of the STANLEy score

Figure PO 116

Methods: A retrospective single-centre analysis of consecutive FMJ PCI performed between January 2015 and December 2018. Exclusion criteria were use of non-third generation DES, unsuccessful procedure and loss to follow-up. The primary endpoint was a composite of all-cause death, myocardial infarction, and target vessel revascularization. Demographic, clinical, angiographic, and procedural variables were evaluated. Logistic regression analysis was performed to determine independent predictors of outcome. Based on the results, a weighted scoring system was developed.
Results: The derivation cohort included 162 patients, mean age 65.9 ± 11.1 years, 83% male. The mean stent length was 73.8 ± 12.3 mm (range 60 to 116 mm), and the average number of stents was 2.74 ± 0.74 (range 2 to 5). 30-day, 1-year and 3-year MACE were 5.5%, 12.9% and 29.0%, respectively. Multivariate analysis identified diabetes *mellitus* (hazard ratio (HR) 5.92; 95% confidence interval (CI) 1.57-11.54; p = 0.011), Smoking habits (HR 8.37; 95%CI 3.05-15.55; p = 0.001), Acute coronary syndrome (HR 3.51; 95%CI 1.030-8.98; p = 0.045), Non-right coronary artery (HR 4.38; 95%CI 1.09-7.68; p = 0.038), ostial lesion (HR 10.01; 95%CI 2.91-19.14; p = 0.006) and severe calcification (HR 8.59; 95%CI 2.65-15.72; p = 0.001) as independent predictors of 3-year MACE. A composite score based on these 6 variables (STANLEy score) was created, ranging from 0 to 10 (Figure). High acuity was verified by ROC curve analysis (AUC 0.941, p < 0.001). A score ≤ 3 was associated with a reduced probability (< 15%) and a score ≥ 7 with high probability (> 90%) of 3-year MACE.
Conclusions: The STANLEy score is a good predictive model which relies on 6 simple clinical and angiographic characteristics. This score may assist physicians in selecting high-risk patients for closer monitoring or aggressive antithrombotic strategy.

PO 117. CLINICAL BENEFIT OF RIGHT CORONARY ARTERY CHRONIC TOTAL OCCLUSION PCI

Hugo Alex Costa, Miguel Espírito Santo, Raquel Fernandes, João Bispo, João Guedes, Daniela Carvalho, Hugo Vinhas, Jorge Mimoso, Ilídio Jesus

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

Introduction: Coronary chronic total occlusions (CTO) are relatively common findings in the context of coronary angiography. The indication for revascularization of this type of lesions remains controversial. Right coronary artery (RCA) is often affected in this context, and the clinical benefit of treatment through percutaneous coronary intervention (PCI) is not consensual.
Objectives: Characterize the population submitted to CTO PCI. Analyze if RCA CTO patients will benefit in terms of clinical outcomes (recurrence of angina and/or heart failure (HF) symptoms) and hard outcomes (myocardial infarction and/or death) when compared to left coronary artery (LCA) CTO patients.
Methods: Retrospective study between 2019/2020, with a mean follow-up of 2 years, composed of n = 177 patients undergoing CTO-PCI. Created two groups (RCA CTO group and LCA CTO group). Categorical variables are presented as frequencies and percentages, and continuous variables as means and standard deviations, or medians and interquartile ranges for variables with skewed distribution or a significant Shapiro-Wilk test. Multivariate analysis was performed using logistic regression. P value < 0.05 indicates statistical significance.
Results: A total of 177 patients were identified, with a mean age of 65 ± 11 years, 82.5% male. 75% showed hypertension, 40% with diabetes, 73% with dyslipidemia, 18% with obesity and HF in 15%. RCA CTO group were younger with a mean age of 63.6 ± 10.3 (p = 0.047), more use of contralateral access (p < 0.001), better creatinine clearance 80.8 ± 24.9 (p = 0.038) and a poor left ventricular function (LVEF) at baseline 45.4 ± 10.8, but without statistical significancy (p = 0.066). Both groups improved LVEF after intervention (p < 0.001). Symptoms recurrence occurred in 15% of patients after 2 years. Total symptoms recurrence was significant higher in RCA CTO group (24% *vs.* 9%, p = 0.018), mainly derived by HF symptoms (15% *vs.* 4%, p = 0.013), with RCA CTO vessel being an independent predictor for HF symptoms recurrence after PCI, when compared to LCA CTO vessel (p = 0.015, OR 4.92, 95%CI 1.37 to 17.7). Myocardial infarction and death were low after 2 years, without difference between groups.

Table 1 - Clinical characteristics of coronary chronic total occlusion patients treated by percutaneous coronary intervention of left coronary artery Vs right coronary artery

			CTO vessel treated			
			LCA (n=98, 55,4%)	RCA (n=79, 44,6%)	Total (n=177)	p value
Gender	Male	n (%)	80,0 (81,2)	66,0 (83,5)	146 (82,5)	
	Female	n (%)	18,0 (18,4)	13,0 (16,5)	31,0 (17,5)	
						0,739
Age	*Mean±SD - years*		66,9±11,6	63,6±10,3	64,5±11,4	**0,047**
Hypertention		n (%)	73,0 (74,5)	59,0(74,7)	132 (74,6)	
						0,977
Diabetes (type 2)		n (%)	38,0 (38,8)	32,0 (40,5)	70,0 (39,5)	
						0,815
Dyslipidemia		n (%)	73,0 (74,5)	56,0 (70,1)	129 (72,9)	
						0,592
Smoker		n (%)	23,0 (23,5)	26,0 (32,9)	49,0 (27,7)	
						0,287
Obesity		n (%)	19,0 (28,9)	13,0 (26,8)	32,0 (18,2)	
						0,592
Heart failure history		n (%)	14,0 (14,3)	13,0 (16,7)	27,0 (15,3)	
						0,690
Previous stroke		n (%)	4,00 (4,08)	4,00 (5,06)	8,00 (4,50)	
						0,755
Atrial fibrillation		n (%)	11,0 (11,2)	21,0 (26,6)	22,0 (12,4)	
						0,588
Chronic renal disease		n (%)	10,0 (10,2)	4,00 (5,06)	14,0 (7,90)	
						0,208
Ischemic heart disease		n (%)	52,0 (53,1)	46,0 (58,2)	98,0 (55,3)	
						0,397
Chronic lung disease		n (%)	3,00 (3,06)	7,00 (8,86)	10,0 (5,60)	
						0,097
Clinical indication	***ACS***	n (%)	45,0 (45,9)	47,0 (59,5)	92,0 (52,0)	
	CCS - HF	n (%)	53,0 (54,1)	32,0 (40,5)	85,0 (48,0)	
						0,072
CCS score	***CCS I e II***	n (%)	74,0 (75,5)	59,0 (74,7)	133 (75,1)	
	CCS III e IV	n (%)	24,0 (24,5)	20,0 (25,3)	44,0 (24,9)	
						0,899
Contralateral access		n (%)	27,0 (27,6)	49,0 (62,0)	76,0 (42,9)	
						<0,001
Approach	***Antegrade***	n (%)	91,0 (92,9)	66,0 (83,5)	157 (88,7)	
	Retrograde	n (%)	7,00 (7,14)	13,0 (16,5)	20,0 (11,3)	
						0,052
Symptoms recurrence	***Total***	n (%)	9,00 (9,18)	19,0 (24,1)	28,0 (15,8)	**0,018**
Follow-up in 2 years	***Angina***	n (%)	7,00 (7,14)	9,00 (11,4)	16,0 (9,50)	0,367
	Heart failure symptoms	n (%)	4,00 (4,08)	12,0 (15,2)	16,0 (9,50)	**0,013**
Acute coronary syndrome						
Follow-up in 2 years		n (%)	2,00 (2,04)	1,00 (1,27)	3,00 (1,80)	
						0,668
Mortality						
Follow-up in 2 years		n (%)	4,00 (4,08)	2,00 (2,53)	6,00 (3,60)	
						0,540
Radiation dose						
Air Kerma	Median (IQR) - mGy		1808 (1982)	2228 (1734)	2043 (1784)	0,561
Kerma area product	Median (IQR) - Gy.Cm2		109 (120)	130 (105)	120 (113)	0,363
LVEF at baseline	Mean±SD - %		48,2±9,08	45,4±10,8	47,1±10,5	
						0,066
LVEF after PCI	Mean±SD - %		51,3±8,91	51,1±10,4	51,2±9,73	
						0,928
			p<0,001	**p<0,001**		
Creatinine clearence	*Mean±SD - ml/min*		72,3±27,2	80,8±24,9	77,1±26,6	
						0,038
PCI time	*Mean±SD - min*		268±3	141±59,8	132±54,0	
						0,153
Contrast volume	*Mean±SD - ml*		269±90,9	241±86,3	254±94,3	
						0,520

ACS, Acute coronary syndrome; CCS, Canadian cardiovascular society; CTO, Chronic total occlusion; HF, Heart failure; Interquartile range; LCA, left coronary artery; LVEF, Left ventricular ejection fraction; PCI, Percutaneous coronary intervention; RCA, Right coronary artery; SD, Standard deviation

Conclusions: CTO patients treated by PCI showed clinical benefit after 2 years, with only one sixth of them with symptoms recurrence, and with significant improvement in LVEF in both groups. RCA CTO patients were more associated with symptoms recurrence, mainly HF symptoms, which may imply less clinical benefit in its treatment.

PO 118. USE OF CATHETER-BASED LEFT VENTRICULAR ASSISTANCE DEVICES IN HIGH-RISK PCI: ON THE EDGE OF A NEW FRONTIER

Diogo de Almeida Fernandes, Joana Guimarães, Gonçalo Costa, Eric Monteiro, João Rosa, Ana Vera Marinho, Luís Paiva, Joana Silva, José Luís Martins, Luís Leite, Manuel Oliveira-Santos, Elisabete Jorge, Natália António, Marco Costa, Lino Gonçalves

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

Introduction: Catheter-based left ventricular assistance devices (C-LVAD) are a novel solution increasingly used for circulatory support during high-risk percutaneous interventions (HR-PCI). Our purpose was to describe and assess the outcomes of patients who underwent HR-PCI while on Impella or Implantable Ventricular Assist Device (IVAD) support.
Methods: We analysed 18 consecutive patients who underwent HR-PCI on C-LVAD, from July 2017 to November 2022. Clinical, laboratory echocardiographic, angiographic and procedural data were collected. Coronary artery disease burden was graded using the British Cardiovascular Intervention Society Jeopardy Score (BCIS-JS). Follow-up information of Major Adverse Cardiovascular Events (MACE), admissions for heart failure, New York Heart Association (NYHA) functional class and survival was collected. We also analysed possible contributing to negative outcomes.

Results: Mean age was 67.72 ± 9.02 years. Most patients were male (16, 88.9%) with an average body mass index of 27.01 ± 3.26 Kg/m² and underwent Impella implantation (16 *vs.* 2). Patients presented more frequently with chronic coronary syndrome (11, 61.1%), followed by NSTEMI (6, 33.3%) and STEMI (1, 5.6%). Nineteen patients had multivessel disease (22.2%) and 4 had critical left main disease (22.2%). Most patients had severe left ventricular dysfunction (11; 61.1%). Mean left ventricular ejection fraction (LVEF) was 30.56 ± 8.51%. Mean BCIS-JS was 9.44 ± 2.04. Stroke occurred in 2 patients (11.1%) post-procedure, significant haemorrhage in 3 (16.7%) and pseudoaneurysm in 1 (5.6%). No cases of lower limb ischemia were reported. A patient presenting with STEMI was the only case of in-hospital mortality (5.6%). Post-procedure haemoglobin was significantly lower (-1.18 ± 0.87 g/dL, p < 0.001) and PCR significantly higher (+0.71 ± 1.12 mg/dL). There were no significant changes in troponin, creatinine, blood urea nitrogen and creatinine kinase. Lower haemoglobin prior to PCI was the only statistically significant association with complications (11.79 ± 1.72 g/dL *vs.* 13.61 ± 1.80 g/dL; p 0.035). Overall follow-up time was 20.98 ± 19.52 months. During this period, the composite endpoint of MACE, heart failure admission and death occurred in 4 patients (22.2%). Of note, only 1 patient died after discharge.
Conclusions: C-LVAD is a powerful asset when dealing with HR-PCI in the cath lab. Overall mortality and complication rates are low. Patients with anaemia should be approached with greater caution due to increased risk of complications.

PO 119. PENETRANCE OF PHYSIOLOGY USE IN INVASIVE CORONARY ANGIOGRAPHY: A LESION-LEVEL EVALUATION

Sérgio Bravo Baptista[1], Maria Teresa Barros[2], Miguel Santos[1], Pedro Magno[1], José Loureiro[1], Luís Brízida[1], Pedro Farto e Abreu[1], Carlos Morais[1]

[1]Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra. [2]Faculdade de Medicina da Universidade de Lisboa.

Introduction: The penetrance of pressure-wire invasive physiology (pPW) use has been traditionally evaluated by describing the number of physiology-guided procedures according to the total number of percutaneous coronary interventions (PCI) performed in each centre. This approach is very limited, since, on one hand, most PCIs (including culprit lesion's PCI in acute coronary syndromes) do not need to be guided by pressure-wires (PW) and, on the other hand, a significant number of PW evaluations results in deferral of revascularization. Our purpose was to evaluate physiology use at a lesion-level, namely what would be the maximal possible use of these procedures and the implications this would have in pPW reporting.
Methods: All consecutive patients (pts) who underwent coronary angiography in a single year were evaluated and all significant (> 50% lesions) were recorded. Treatment decisions were evaluated for each lesion according to the guideline-based indications (culprit lesions in ACS; lesions with proved ischemia non-invasive imaging tests; lesions > 90%; and, single lesions with a positive ischemia test). CTO's were excluded. The remaining intermediate lesions (50-90% non-culprit lesions without documented ischemia) were identified as the ones in which a physiology-guided decision could have been done.
Results: 545 pts were included, with a total of 1,525 lesions, of which 557 were treated by PCI (413 procedures, in 349 pts). Of the initial 1,525 lesions, 606 (39.7%) had a guideline-based indication for revascularization, 118 (7.7%) were CTOs, 90 (5.9%) were in small vessels or very distal and 56 (3.7%) were in vessels with a patent coronary bypass. The remaining 655 lesions (43.0% of all lesions, described in 306 pts), were considered the ones in which PW evaluation could have been performed. Accordingly, the maximal pPW would be 43.0% of all lesions (655/1,525), 56.1% of all pts (306/545) and 74.1% of all PCIs (306/413). Importantly, if pts with multivessel disease and/or left main disease, who were sent for immediate surgical revascularization or heart team discussion are also excluded (84 pts, 345 lesions), maximal pPW in the remaining 461 pts/1180 lesions would be even lower: respectively 40.7% (480/1180), 53.1% (245/461) and 59.3% (245/413). A total of 53 PW evaluations were performed, in 43 pts. Using the above methodology, the actual pPW in the included population was 8.1% of all lesions with an indication for PW (53/655), 14.1% of all pts with an indication for PW (43/306) and 10.4% of all PCI procedures performed (43/413), respectively. If surgical and heart team pts are excluded, pPW is, respectively, 11.0%, 17.6% and 10.4%.
Conclusions: pPW use is overestimated when it is reported as a function of the number of PCIs performed, or the number of pts evaluated. Using a lesion-based evaluation, the maximal pPW use would be 40 to 43% of all lesions.

PO 120. HAVING A CRUSH FOR DOUBLE KISSING: BIFURCATION TECHNIQUE PERFORMANCE AND OUTCOMES

Marta Miguez de Freitas Vilela[1], Pedro Alves da Silva[2], Joana Brito[2], Beatriz Valente Silva[2], Ana Beatriz Garcia[2], Ana Margarida Martins[2], Catarina Simões de Oliveira[2], Ana Abrantes[2], Catarina Gregório[2], Fernando Ribeiro[2], Tiago Rodrigues[2], Ana Rita Francisco[2], Pedro Carrilho Ferreira[2], Fausto J. Pinto[2], Pedro Cardoso[2]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa, Lisbon.

Introduction: Lesions involving bifurcations can be complex and technically challenging. Provisional stenting is the preferred and recommended stenting strategy for most coronary bifurcation lesions; however, two-stent techniques are often needed in lesions with a large, diseased side branch (SB) and, in this cases, double kissing (DK) balloon technique as gained popularity following publication of DK-CRUSH I-V trials.
Objectives: To analyze real-world performance of DK crush effectiveness and safety and to define predictors of adverse events during follow-up.
Methods: Single center, observational, retrospective study, including pts who underwent bifurcation lesion angioplasty with DK crush technique from 2014 up to 2020. Clinical and laboratorial data were collected as well as procedure characteristics, after proper selection by a hemodynamic fellow. Chi-square analysis and Cox regression was used to determine predictors of mortality.
Results: We gathered 100 pts who performed bifurcation angioplasty using DK crush technique. 80% of pts were male, mean age 66 ± 11 years-old. Regarding main comorbidities, 77% had hypertension, 55% had dyslipidemia (mean basal LDL-c level 108 ± 43 mg/dL), 39% diabetic, 34% were smoker

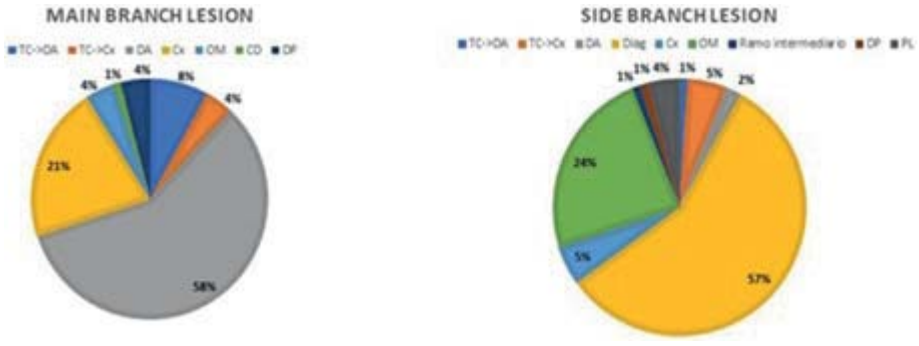

Figure PO 120

or former smoker. Previous coronary disease was known in 36% pts, most of which have had prior PCI (55%) or CABG (17%). Most cases were done in context of stable coronary disease (58%) and the remainder were performed in cases of NSTEMI (22%), STEMI (14%) and unstable angina (6%); median Killip Class was 1 and mean Syntax score was 22.17 ± 12.5. In respect to procedure aspects, anterior descending artery (ADA) branching for diagonal was the most common indication (Figure). Final procedure TIMI 3 was achieved in 99% pts. Complications occurred in 9 cases - 7 dissections, 1 perforation and 1 stent hyperexpansion. There were no deaths in the first 24h after procedure. During a mean follow-up of 5.34 ± 0.3 years, 35 pts repeated cath. New PCI was done in 11 patients, in 5 for lesions on previously treated vessels with DK. Of these, 4 had restenosis (3 in ADA- > Diag) and 1 had a very late stent thrombosis (ADA- > Diag). Event (defined as new PCI or cardiovascular death) rate during follow-up was 19%. Mean ejection fraction (p = 0.005) at time of DKC technique, SYNTAX score (p = 0.036) and complications during procedure (p = 0.047) correlated with events during follow-up. However, on multivariate Cox analysis only SYNTAX score was the only independent predictor of events (HR 1.046 [1.010-1.084], p = 0.013).

Conclusions: Double kissing balloon technique was preferentially used in bifurcations involving anterior descending artery and diagonal branch. Syntax score was the sole independent predictor of events suggesting that coronary artery disease complexity rather than procedure characteristics define long term prognosis.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 1) - Dispositivos em arritmologia

PO 121. LEAD EXTRACTION USING THE PISA TECHNIQUE: COMPARISON OF NON-INFECTED VS INFECTED LEADS

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

Introduction: It has been hypothesized that the lead extraction (LE) of non-infected leads can be more challenging than that of infected ones, due to the absence of the dissolving effect of adherences provided by the infection. Unlike other LE techniques that use a locking stylet, the PISA technique (PT) instead uses a classic long stylet that allows for the possibility of stopping a procedure when the risk exceeds de benefit in case of noninfectious indications. The specificity of the PT makes it an excellent choice for lead extraction of non-infected leads.

Objectives: To investigate the safety, success, and procedural complexity of LE of non-infected *vs.* infected leads using the PISA technique (PT).

Methods: A retrospective single-center study of consecutive patients undergoing LE due to lead dysfunction and/or venous occlusion (NI group) or CIED infection (I group), between February 2013 and October 2022. The PT was used in all patients. Patient-related variables, success, complications, and mortality data were assessed.

Results: A total of 76 non-infected CIED leads were extracted from 52 patients in the NI group, and a total of 379 infected CIED leads were extracted from 205 patients in the I group, during the study period. Patient mean age was 73.5 ± 17.0 years, 72.5% were male, mean ejection fraction was 48.7 ± 13.9%. The mean implant-to-extract duration was 67.6 ± 51.8 months in the NI group *vs.* 88.4 ± 73.1 months in the I group (p = 0.07). Regarding the complexity of the procedures, simple traction alone was done in 38.5% *vs.* 28.3% (p = 0.154) of the LEs, a single sheath was used in 34.6% *vs.* 38.5% (p = 0.602), and multiple sheaths were required in 26.9% *vs.* 33.2% (p = 0.388), in the NI group *vs.* I group respectively. There were no significant differences regarding the radiographic success rate 96.2% *vs.* 94.1% (p = 0.553), and the clinical procedural success rate 96.2% *vs.* 98.52% (p = 0.307) of the attempted lead extractions in both groups. There were 3 (1.5%) major complications in the I group (comprised of 3 cardiac tamponades requiring pericardiocentesis/sternotomy), and none in the NI group (p = 0.243). There were significantly fewer minor complications (comprised mostly of pocket hematomas) in the NI group 1.9% *vs.* 9.8% (p = 0.034) in the I group. No extraction-related mortality was observed. One patient (1.9%) died before hospital discharge in the NI group *vs.* 9 patients (4.4%, p = 0.384) in the I group.

Conclusions: Our center's experience of lead extraction with the PISA technique indicates a similar procedural success, complexity, and safety for the extraction of both non-infected and infected CIED leads. Non-infected leads can be extracted with excellent safety keeping similar success.

PO 122. QRS WIDTH VARIATION AS A MARKER OF PROGNOSIS AFTER CRT IMPLANTATION: GETTING SLIMMER IS GETTING BETTER!

Ana Margarida Martins, Joana Brito, Pedro Silvério António, Sara Coto Pereira, Inês Aguiar Ricardo, Pedro Alves da Silva, Beatriz Valente Silva, Catarina Oliveira, Beatriz Garcia, Ana Abrantes, Miguel Raposo, Catarina Gregório, João Fonseca, Ana Bernardes, João Tiago, Andreia Magalhães, Fausto J. Pinto, João de Sousa, Pedro Marques

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa, Lisbon

Introduction: Cardiac resynchronization therapy (CRT) is a major therapeutic tool in the management of patients with systolic heart failure. However, controversy remains regarding who will most benefit from this device. The aim of the present study was to evaluate the impact of QRS duration on echocardiographic response and clinical outcomes.

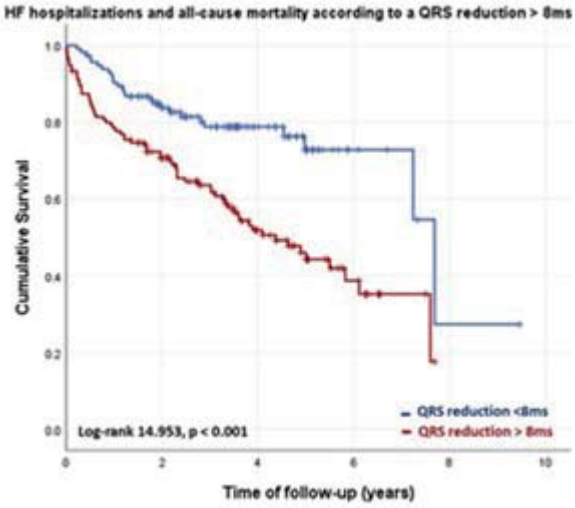
Methods: We conducted a retrospective, observational, single-center study of patients submitted to CRT implantation. Only patients with electro and echocardiographic data on baseline and follow-up were included. CRT response was defined as an improvement of LVEF > 10% or LVESV > 5%. CRT

	Non-infected leads	Infected leads	p-value
Radiographic success	96.2%	94.1%	p=0.553
Clinical success	96.2%	98.5%	p=0.307
Major complications	0%	1.5%	p=0.243
Minor complications	1.9%	9.8%	**p=0.034**
In-hospital mortality	1.9%	4.4%	p=0.384

Table 1 – Comparison of lead extraction using the PISA technique of non-infected vs infected leads

Figure PO 121

superresponse was defined as an improvement of LVEF above the population 4th quartile (18%). Impact of QRS variables on CRT response was evaluated with ROC curve analysis. Clinical outcomes were defined as hospitalizations due to heart failure and all-cause mortality. Impact of QRS on clinical endpoints, response and superresponse was evaluated with survival analysis. **Results:** From a total of 654 pts a total of 245 fulfilled the inclusion criteria. (57.3%% female, mean age). Most of the pts had a non-ischemic etiology (61.5%) and atrial fibrillation was present in 29.4%. The QRS characteristic were the following, baseline: 162+21 ms, follow-up 159+28 ms, mean QRS variation: 3+29 ms. CRT response occurred in 69% of the pts and superresponse in 26%. QRS variation is the best predictor of CRT response (AUC = 0.66, 95%CI 0.58-0.74, p < 0.001). Interestingly, a QRS reduction above 8ms presented the best accuracy (S:70%; E:57%) for response to CRT. On multivariate analysis, after adjustment for gender, atrial fibrillation and cardiopathy etiology, only a QRS reduction above 8 ms (p 0.028, HR 1.974 CI (1.075-3.623) and lower baseline LVEF (p = 0.02, 95%CI 0.943 (0.909-0.979) were significant independent predictors of CRT superresponse. Additionally, a QRS reduction higher than 8 ms was a protective factor for long-term clinical outcomes during follow-up (p < 0.001 HR (2.445) 1.553 a 3.849) (Figure).



Conclusions: In pts with implanted CRT a reduction in QRS width, as small as 8ms, its a marker of improved LV function and a better clinical prognosis.

PO 123. PEDIATRIC CARDIAC PACING: TWENTY YEARS OF A SINGLE-CENTRE EXPERIENCE

Diana Vale Carvalho[1], Helena Andrade[2], Isabel Santos[2], Raquel Ferreira[1], Mesquita Bastos[1], António Pires[2]

[1]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro. [2]Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Pediátrico de Coimbra.

Introduction: Permanent pacing at pediatric age is conditioned by some biological factors such as growth, limited vascular access and possibly complex congenital heart diseases. There are few studies on definitive pacemaker implantation in children, usually with a small number of patients.
Objectives: The objective of this study was to characterize the population of patients who was submitted to permanent pacemaker implantation in pediatric age. It also intends to assess which factors are associated with the occurrence of clinical outcomes in the follow-up.
Methods: Retrospective study including pediatric patients undergoing definitive pacemaker implantation.
Results: 34 patients were included (61.8% female). The mean age at diagnosis was 1.5 ± 2.8Y and the mean age at pacemaker implantation was 5.9 ± 6.1Y. Auriculoventricular node disease AV was the most frequent, with predominance of complete AV block (85%). There was a slight predominance of endocardial electrodes (53%). Pacing modes VVI/R and DDD/R were the most used (41% and 53%, respectively). In most patients, no underlying pathology was documented that justified the conduction disease, and these conduction disorders were classified as idiopathic (44%). Complete AV block after cardiac surgery due to structural disease justified 38% of the implantations. Implantation of epicardial electrodes occurred at younger ages, compared to endocardial (30.9 ± 42.2 *vs.* 128.9 ± 65.0 months, p < 0.001). Univariate analysis showed that patients with epicardial electrode presented higher ventricular thresholds at implantation (p = 0.038) and at the last follow-up visit (p = 0.004). However, there was no statistically significant difference between the number of generator replacements in both groups (p = 0.206). In the univariate analysis, there was no statistically significant association between the location of the electrode (epicardial/endocardial) and the occurrence of any complication [(early/late) (p = 0.833)]. The same occurred when considering only the displacement of electrodes (p = 0.25). Considering the event-free survival curves, there were no statistically significant differences between the location of the electrode (epicardial/endocardial).

		% (n)
Lead Location	Epicardial Endocardial	47,1 (16) 52,9 (18)
Electrode	Conventional Steroids	26,5 (9) 41,8 (14)
Initial pacing mode	AAI/R VVI/R VDD DDD/R	2,9 (1) 41,2 (14) 2,9 (1) 52,9 (18)
Sinus node disease		11,8 (4)
AV node disease	Second degree Third degree	2,9 (1) 85,3 (29)
Conduction disorder	Congenital Post Cardiac Surgery idiopathic	17,6 (6) 38,2 (13) 44,1 (15)
Underlying structural disease		50 (17)

Table 1 - Characterization of the population regarding conduction disease. AV - auriculoventricular

	U	p
Atrial threshold at implantation	11	0,222
Ventricular threshold at implantation	14	**0,038**
Atrial threshold at last assessment	43,5	0,643
Ventricular threshold at last assessment	55	**0,004**

Table 2 - Auricular and ventricular thresholds at implantation and follow-up

	Epicardial	Endocardial	p
Any Complication	8	4	0,717
Hemothorax	0	1	0,412
Pneumothorax	0	2	0,162
Diaphragmatic stimulation	1	1	1
Ventricular lead displacement	6	1	0,198
Displacement of any lead	7	2	0,250
Infection	1	1	1

Table 3 - Characterization of clinical outcomes

Conclusions: Permanent pacemaker implantation is relatively safe in pediatric age. However, there is a significant number of complications mainly related to the lead. Epicardial leads are associated with higher ventricular thresholds. There is no difference in event-free survival (epicardial/endocardial).

PO 124. USEFULNESS OF DEVICE-DETECTED RESPIRATORY DISTURBANCE INDEX TO ASSESS CPAP THERAPY EFFICACY IN PATIENTS WITH SLEEP APNEA SYNDROME

Mariana Tinoco, Filipa Cardoso, Tâmara Pereira, Margarida Castro, Claúdia Mendes, Assunção Alves, Bernardete Rodrigues, Rita Andrade, António Costa, Lucy Calvo, Sérgio Leite, Sílvia Ribeiro, Victor Sanfins, António Lourenço

Hospital da Senhora da Oliveira, EPE-Guimarães.

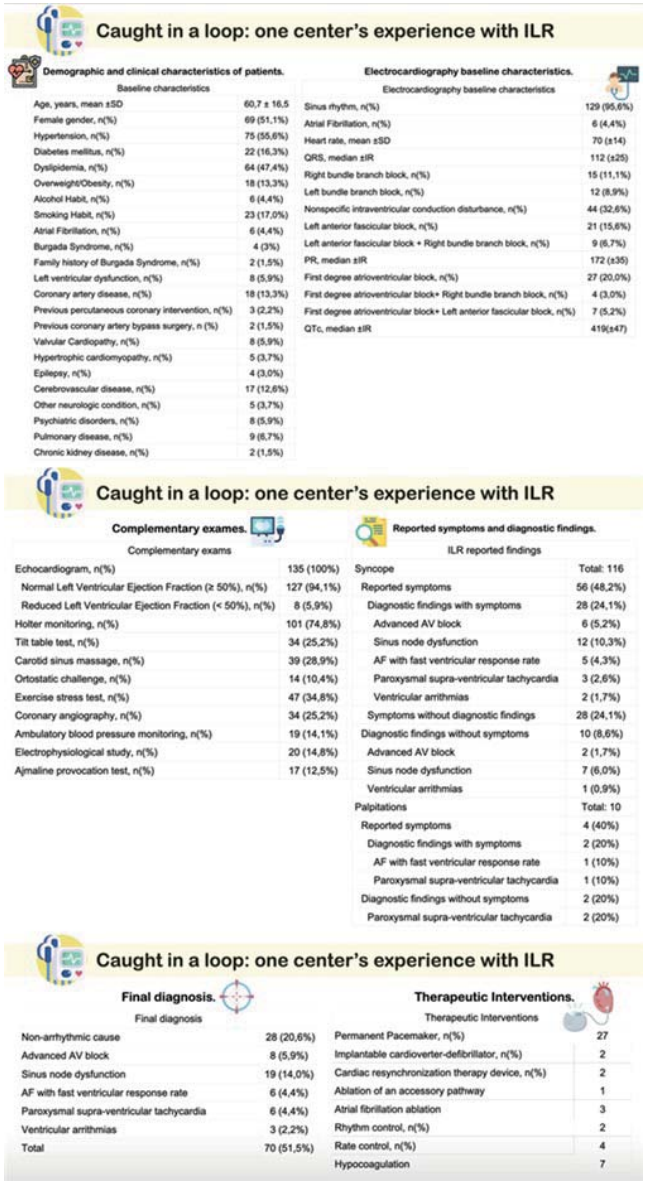
Introduction: Sleep apnea syndrome (SAS) is a common sleep-related breathing disorder where precise treatment assessment is of high importance. Some cardiac implantable electronic devices (CIED) are able to monitor intrathoracic impedance for automatic detection of sleep apnea events. We aimed to evaluate the usefulness of CIED-detected respiratory disturbance index (RDI) to assess continuous positive airway pressure (CPAP) therapy efficacy.
Methods: We performed a retrospective study that included patients with CIED with sleep apnea algorithm with a previous diagnosis of SAS. We analysed CPAP device data (information about daily use, pattern of use, respiratory events (residual AHI) and mask leaks) and CIED-detected RDI. A cut-off value of 20 and 30 (correlating with apnea hypopnea index (AHI) > 30) was used for Microport and Boston Scientific CIEDs, respectively. It was considered the mean RDI of the last week. CPAP therapy efficacy was defined as a reduction AHI episodes to a residual < 5 episodes/h.
Results: Of 45 SAS patients (mean age 72 years; 78% male), 31 (69%) reported using CPAP. The mean polysomnography-measured AHI was 28 ± 15 episodes/h. The average percentage of days using CPAP during follow up was 89 ± 15% and 7 ± 2 hours per night. The median residual AHI was 3 [IQR 1.05-4.75] episodes/h. The median mask leak was 2.5 [IQR 0-19.5] L/min. Considering CPAP users (31), CPAP was effective in 24 (77%) and non-effective in 7 (23% (7). In patients in whom CPAP was effective (n = 24), 8 (33%) had a mean RDI > 20-30/h and 3 (12.5%) had an RDI > 20-30/h in more than 90% of nights. In patients in whom CPAP was not effective (7), 5 (71%) had a mean RDI > 20-30/h and 3 (43%) had an RDI > 20-30/h in more than 90% of nights. Correlation of mean RDI > 20-30/h and CPAP efficacy, had a sensitivity of 79.2%, a specificity of 40%, a positive predictive value of 86.4% and a negative predictive value of 28.6%;
Conclusions: Our data suggests a trend to CIED-detected RDI to assess CPAP therapy efficacy. However, the limited number of patients did not allow confirmation that CIED-detected RDI is a good tool for the assessment of CPAP therapy efficacy. Some patients in whom CPAP was effective have high RDI. The reasons for this need to be investigated. We hope that by increasing the sample size, the results will reveal the value of CIED-detected RDI in assessing CPAP efficacy.

PO 125. CAUGHT IN A LOOP: ONE CENTER'S EXPERIENCE WITH ILR

Inês Macedo Conde, Carla Marques-Pires, Paulo Medeiros, Rui Flores, Fernando Mané, Rodrigo Silva, Mónica Dias, Ana Sofia Fernandes, Carina Arantes, Sónia Magalhães, Sérgia Rocha, Adília Rebelo, Nuno Antunes, Catarina Quina-Rodrigues

Hospital de Braga, EPE.

Introduction: Syncope/pre-syncope and palpitations are two of the most frequent causes for referral to Cardiology. Due to their unpredictable nature, with variable rate of recurrence, they present a diagnostic challenge. In this setting, implantable loop recorder (ILR) have emerged as an important diagnostic tool.
Objectives: Characterize the main indications for the implantation of an ILR and evaluate the diagnostic findings and subsequent therapeutic interventions.
Methods: Single-centre analytical, observational, retrospective study, including all the patients who underwent ILR implantation between January 2014 and December 2021. Data regarding patients characteristics, reason for implantation, previous complementary exams, information provided by the ILR and subsequently instituted therapies.



Results: A total of 135 patients were included, 51.1% females, mean age of 60.7 ± 16.5 years. All patients were previously studied with electrocardiogram and transthoracic echocardiogram. The implant indications were: syncope/presyncope (85.9%), palpitations (8.1%) and other reasons (6.7%). The majority of patients had been referred from the outpatient consultation (81.6%) and the median time from the beginning of the investigation to the implantation of the ILR was 6.4 months (IQR 1-7). Of the 116 patients submitted to ILR implantation due to syncope/pre-syncope, 56 (48.2%) reported symptoms, of which 28 (24.1%) had diagnostic rhythmic findings, and 10 (8.6%) had diagnostic findings without symptoms. The most frequent dysrhythmic disorder was sinus node dysfunction (16.4%), followed by advanced atrioventricular block (6.9%). Of the 10 patients submitted to ILR implantation due to palpitations, 4 reported symptoms, 2 of which had diagnostic findings, and 2 had had diagnostic findings without symptoms. Definitive diagnosis was possible in 4 patients: 3 with PSVT and 1 with AF. Overall, a rhythmic diagnosis was reached in 42 patients (30.9%), with a median time from device implantation to diagnosis of 6 months (IQR 2-12). Symptoms without diagnostic findings were reported in 30 patients (22.1%), suggesting a non-rhythmic cause for their complaints. The following interventions were made: 31 devices were implanted, 4

patients were submitted to ablation therapy. Additionally, 2 patients were treated medically with rhythm control strategy, 4 patients with rate control strategy and 7 started oral anticoagulation. The median follow up time was 14 months (IQR 9-22). No complications were reported and the mortality rate was 2.2%, resulting from non-cardiac causes.
Conclusions: In this sample, the use of an ILR allowed the diagnosis in 30.9% of patients and culminated in an intervention in 30.1% of cases. In our experience, it constitutes a useful and safe complementary diagnostic method, with additional value to other diagnostic tools.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 2) - Insuficiência cardíaca - Estratificação de risco

PO 126. A NEW PREDICTIVE SCORE TO EVALUATE THE IMPACT OF MALNUTRITION AND INFLAMMATION IN PATIENTS WITH HEART FAILURE - MAI-HF SCORE

Vanda Devesa Neto, Joana Correia, João Fiuza, Gonçalo Ferreira, Luís Ferreira Santos, Bruno Marmelo, Inês Pires, Davide Moreira, José Costa Cabral

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Malnutrition and inflammation in chronic heart failure, although frequent and with substantially impacting mortality, are often overlooked. Therefore, we aimed to evaluate if a new objective and simple index - Malnutrition And Inflammation in Heart Failure (MAI-HF) score - can predict outcomes in this population.
Objectives: Identify the association between MAI-HF score on 12-month (12MM) and 24-month (24MM) mortality in patients with chronic heart failure.
Methods: A retrospective analysis of 981 patients admitted to a Cardiology ward due to HF was performed. The variables - modified body mass index (albumin x body mass index), C-reactive protein levels, cholesterol levels, ferritin levels, and age - were selected for frailty and inflammation assessment. After attributing points for each variable, according to the odds ratio on univariate analysis, the MAI-HF was calculated (range 0-6), resulting from the sum of the points attributed to each variable. Kaplan-Meyer and Cox-regression analyses were performed to evaluate MAI-HF association with 12MM and 24MM.
Results: 49% of patients were men; mean age was 77 (± 11) years. Mean LVEF was 49% (± 16). LVEF < 40% was present in 29% of patients. 50% had atrial fibrillation, 14% had a history of acute myocardial infarction, and 64% had hypertension. 12MM and 24MM were, respectively, 13% and 15%. Patients were considered high risk if they had an MAI-HF ≥ 5. Kaplan-Meyer curve analysis revealed a significantly lower median time to 12MM in high-risk patients, as assessed by MAI-HF, compared to low-risk patients (256 days *vs.* 356 days, mortality rate: 29% *vs.* 3%, χ^2 = 17.731, p < 0.001). There was also a significantly lower median time to 24MM in high-risk patients (502 days *vs.* 706 days, mortality rate: 26% *vs.* 3%, χ^2 = 9.270, p = 0.002). ROC curve analysis revealed that the MAI-HF score had a good predictive performance for 12MM (AUC 0.748; CI 0.629-0.866; p = 0.01) and 24MM (AUC 0.741; CI 0.616-0.867; p = 0.02). Cox regression analysis demonstrated that MAI-HF independently predicts 24MM even after adjustment for other prognostic markers, such as the presence of atrial fibrillation, history of myocardial infarction, and diabetes.
Conclusions: MAI-HF is a simple and objective index to evaluate the impact of malnutrition and inflammation in patients with chronic heart failure. Its use may help identify patients with high mortality risk and needing specialized care.

PO 127. PERFORMANCE OF THE MAGGIC SCORE IN PREDICTING ALL-CAUSE DEATH AND CARDIOVASCULAR EVENTS IN CORONARY HEART DISEASE PATIENTS

Bruno Bragança, Rafaela G. Lopes, Inês G. Campos, Inês Oliveira, Isabel Cruz, Inês G. Campos, Joel P. Monteiro, Conceição Queirós, Paulo Pinto, Aurora Andrade

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa

Introduction: Risk stratification in Chronic Heart failure (CHF) has provided valuable refinement in identifying patients who will benefit most from high levels of care and advanced therapies. The MAGGIC score has been demonstrated to be superior to other validated scores in predicting survival in symptomatic CHF (ACC/AHA stage C and D). However, its value in earlier stages of CHF remains unknown; thus, we aim at exploring the prognostic impact of MAGGIC score in patients with coronary heart disease (CHD).
Methods: We included data prospectively collected from 568 patients with CHD. The MAGGIC score is a weighted scoring model that combines 13 different clinical variables, with a score range from low-risk 0 to high-risk 61 points. The MAGGIC score was calculated at the beginning of the study between 2009-2010. Patients were retrospectively followed up to 12/2022 for the occurrence of death and major adverse cardiovascular events (MACE): cardiovascular death, myocardial infarction, heart failure and stroke. Patients with reported symptomatic HF at baseline were excluded. Logistic and Cox regression models were used in time-to-event analysis. NYHA functional class was derived from the metabolic equivalent of tasks.
Results: At baseline, mean age 59 ± 10 years, 88% male, 74% dyslipidemia, 64% hypertension, 31% diabetes, BMI 29 ± 4 kg/m^2, 15% chronic kidney disease, 45% were active or former smokers, 4% stroke, 76% myocardial infarction and 98% had preserved or mildly reduced left ventricular ejection fraction. Regarding medication, more than 75% were treated with renin-angiotensin system inhibitors, beta-blockers, statins and anti-platelets. During follow-up (9.9 ± 2.8 years), 38.6% (n = 219 patients) met the composite endpoint of MACE, 21.8% had symptomatic CHF and 16.0% myocardial infarction. The mortality rate was 14.8% (n = 84), with 4.5% cardiovascular deaths (n = 25). The MAGGIC score follows a normal distribution with mean 13.7 ± 5.4 (2-33, min-max). MAGGIC positively correlated with brain natriuretic peptide levels (p < 0.007). For each 10-point increase in score, adjusted ORs increase 3.4-fold for death (CI 2.3-4.9, p < 0.0001), 1.5-fold for MACE (CI 1.13-2.01, p = 0.005), and 1.4-fold for the onset of symptomatic CHF (CI 1.01-1.88, p = 0.043). In survival analysis, Kaplan-Meier curves were significantly separated across MAGGIC score (p < 0.0001), with an area under the ROC curve of 0.69 for discrimination of patients at higher risk of death.
Conclusions: MAGGIC score is a powerful predictor of adverse events in CAD patients. MAGGIC score might be potentially helpful in identifying high-risk patients in earlier stages of CHF (ACC/AHA stage B) that benefit from intensification of clinical monitoring and aggressive control of cardiovascular risk factors.

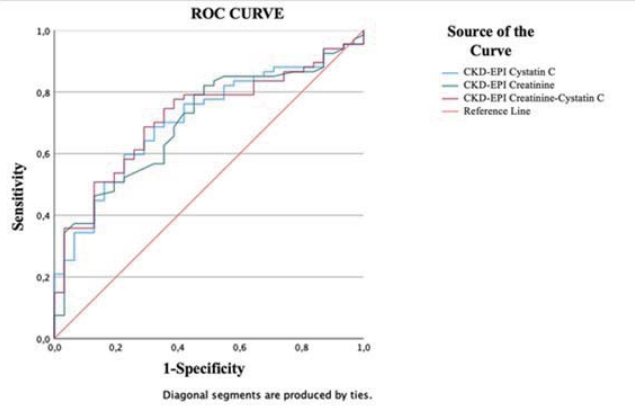
PO 128. CYSTATIN C IS BETTER THAN CREATINE FOR PROGNOSTIC EVALUATION IN HEART FAILURE PATIENTS

Filipa Gerardo, Inês Fialho, Mariana Passos, Carolina Mateus, Inês Miranda, Marco Beringuilho, Joana Lopes, Daniel Faria, David Roque

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

Introduction: Cardiac cachexia and sarcopenia are hallmarks of advanced heart failure. Using creatinine as a proxy for renal dysfunction in these patients has proven to underestimate renal dysfunction.
Objectives: To correlate kidney function biomarkers with clinical outcomes in heart failure patients.
Methods: We conducted a retrospective single center study during an 18-month time frame on hospitalized acute heart failure patients. Patients were included if they had an early post discharge appointment, within 2 weeks after discharge, and kidney function assessment (cystatin C, creatinine, and urea). Demographic, clinical, and laboratorial data was

reviewed for all cases at discharge and post-discharge consult. The primary endpoint was heart failure decompensation and cardiovascular mortality in a 6-month follow-up period.
Results: A total of 171 electronic medical charts were reviewed. Of these, 57.31% (n = 98) met the inclusion criteria. The primary endpoint was met by 32.61% (n = 32) patients. At the post discharge appointment, multivariable logistic regression analysis showed that Cystatin C (OR 4.00, 95%CI 1.132-14.138, p = 0.03) was the only biomarker independently associated with the primary outcome, whereas creatinine (OR 0.75, CI 0.26-2.16) and urea (OR 0.98, CI 0.97-1.01) showed no significant association. Receiving operator characteristics (ROC) curve analysis of Glomerular Filtration Rate (GFR) using both Cystatin C and Creatinine (AUC 0.717, CI 0.614-0.820) and GFR using cystatin C (AUC 0.710, CI 0.606-0.814) yielded a better prediction score than GFR using creatinine alone (AUC 0.701, CI 0.595-0.807).



Conclusions: Cystatin C appears to correlate better to clinical outcomes in heart failure patients than creatinine.

PO 129. DYNAMIC SCAI CLASSIFICATION DURING ADMISSION FOR CARDIOGENIC SHOCK - THE VALUE OF STAGING VARIATION IN THE FIRST 24 HOURS AND THE IMPACT OF RISK MODIFIERS

João Presume, Ana Rita Bello, Daniel Gomes, Catarina Brízido, Christopher Strong, Jorge Ferreira, António Tralhão

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

Introduction: The Society for Cardiovascular Angiography and Interventions (SCAI) shock stage classification has been proposed as a simple, easily applied framework to stratify mortality risk across the spectrum of cardiogenic shock (CS) severity. This categorization has been recently refined (2022) to incorporate the continuum dynamic trajectory of the disease, as well as other risk modifiers. The aims of this study were: 1) to validate the SCAI classification at admission in a cohort of patients admitted to the cardiac intensive care unit (CICU) due to CS; 2) evaluate the prognostic impact of SCAI stage variation during the first 24h of admission; 3) evaluate the prognostic impact of other risk modifiers.
Methods: We retrospectively analyzed patients consecutively admitted to the CICU with established CS (SCAI C and above) from all causes, from January 2017 to November 2022. SCAI staging was assessed at diagnosis and after 24 hours. The primary outcome was 30-day mortality.
Results: A total of 208 patients (66 ± 16 years, 67% male) were included. Overall, 53% had an acute myocardial infarction, 34% were admitted due to decompensation of chronic heart failure, and 29.1% had a cardiac arrest. The proportion of patients in SCAI stage C to E at the time of diagnosis was 69% (n = 143), 25% (n = 52), and 6% (n = 13), respectively. 30-day mortality increased across SCAI categories (p < 0.001 - Figure 1.1). After the first 24 hours, 34 (%) of patients improved SCAI category, 113 (%) remained in the same class, and 45 (%) worsened, with a 30-day mortality of 18%, 34%, and 62%, respectively (p < 0.001 - Figure 1.2). Risk modifiers also carried prognostic significance (Figure 1.3). 30-day mortality was significantly higher in patients with acute myocardial infarction *vs.* other etiologies (52% *vs.* 32%; p = 0.002), acute CS *vs.* acute-on-chronic CS (47% *vs.* 33%; p = 0.034), and cardiac arrest (56% *vs.* 37%; p = 0.005).

Figure 1.1 – Kaplan-Meier curves for 30-day mortality according to SCAI stage at the time of diagnosis

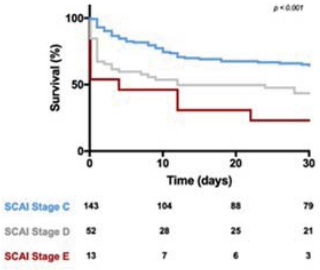


Figure 1.2 - Kaplan-Meier curves for 30-day mortality according to SCAI stage variation in the first 24 hours of cardiogenic shock

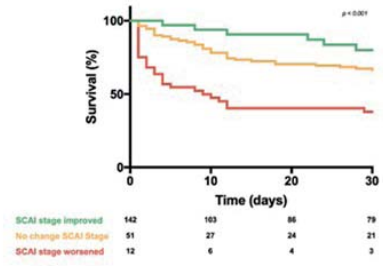
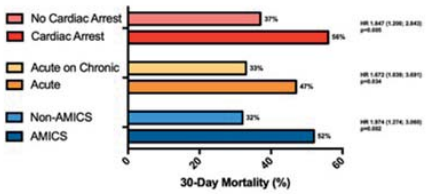


Figure 1.3 – Univariate Cox regression analysis for 30-day mortality for the evaluated cardiogenic shock risk modifiers



Conclusions: Early changes in SCAI classification reflect the dynamic nature of CS patients while retaining significant prognostic discrimination. 24h SCAI re-staging together with risk modifiers may be valuable in readjusting therapeutic strategies aiming at shock reversal.

PO 130. HEART FAILURE WITH PRESERVED EJECTION FRACTION AND CORONARY ARTERY DISEASE SUBPHENOTYPE: MORTALITY AND BIOMARKERS PROFILES ANALYSIS

Marta Catarina Almeida[1], André Lobo[1], Rafael Teixeira[1], Diogo Santos-Ferreira[1], Francisco Sampaio[1], José Ribeiro[1], Francisca Saraiva[2], Silvia Diaz[2], António Barros[2], Adelino F. Leite-Moreira[2], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Heart failure with preserved ejection fraction (HFpEF) is a highly prevalent and heterogeneous entity. Coronary artery disease (CAD) is a common comorbidity associated with HFpEF and a known worse prognosis. The importance of biomarkers' profile in HFpEF patients associated with CAD has not yet been explored. This study aims to identify differential biomarkers profiles in HFpEF patients with or without CAD and the association with clinical outcomes.
Methods: Metabolic Road to Diastolic Heart Failure (MEDIA-DHF) prospective international cohort of 392 patients with HFpEF submitted to clinical and phenotypic characterization was used. A total of 412 plasma biomarkers

were analyzed using Olink Proseek Multiplex panels. CAD *vs.* non-CAD groups were compared through Wilcoxon, Chi-square, t-tests and ANCOVA, as appropriate. Survival analysis was performed for the composite endpoint of cardiovascular (CV) death and/or hospitalization up to 1-year follow-up. Cox proportional hazard regression model was used to assess biomarkers impact adjusted for sex, diabetes, smoking history, LDL cholesterol, beta-blockers, antiplatelet agents, and statins.

Results: The 128 patients with CAD were more frequently man, had more diabetes, smoking habits, blood lipid disorders, peripheral artery disease and sleep apnea. CAD patients were more likely to be treated with beta-blockers, loop diuretics, non-dihydropyridine and antiplatelet agents, sulfonylureas, insulin, and statins. The outcome of CV death and/or hospitalization occurred in 28 of 128 patients with CAD (22%) *vs.* 32 in 252 patients without (13%) (Log Rank test p = 0.018). We observed 18 biomarkers different between groups after adjustment, mainly related to cellular metabolism, cell adhesion, immune response and complement activation. We identified 42 biomarkers associated with the outcome, distinct from the previous ones, and most of them were related to cell interactions and signaling cascade. The biomarkers with higher effect size were TNF-related apoptosis-inducing ligand receptor 2, C-C motif chemokine 20, NT-proBNP, FGF23, Protein FosB and Kidney Injury Molecule. Gastric intrinsic factor, Liver carboxylesterase 1 and Coagulation factor 7 were more expressed in patients without the outcome.

Conclusions: CAD was associated with a worse prognosis in patients with HFpEF. However, biomarkers associated with the outcome were not those associated with the presence of CAD. Understanding these mechanisms could help unravel specific unknown pathways and therapeutic strategies to improve the management of HFpEF.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 3) - Imagem multimodal 1

PO 131. FULLY AUTOMATED 3D ECHOCARDIOGRAPHIC ALGORITHMS: ACCURATE AND TIME SAVING - THE ANSWER FOR 3D IN ROUTINE CLINICAL PRACTICE?

Bruno Miranda Castilho[1], Gustavo Campos[2], José Almeida[2], Rita Veiga[1], Ana Filipa Damásio[1], Kevin Domingues[1], Rogério Teixeira[2], Lino Gonçalves[2]

[1]Hospital Distrital de Santarém, EPE. [2]Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral.

Introduction: 3D left ventricular ejection fraction (LVEF) quantification methods are more accurate and reproducible than 2D echocardiography,

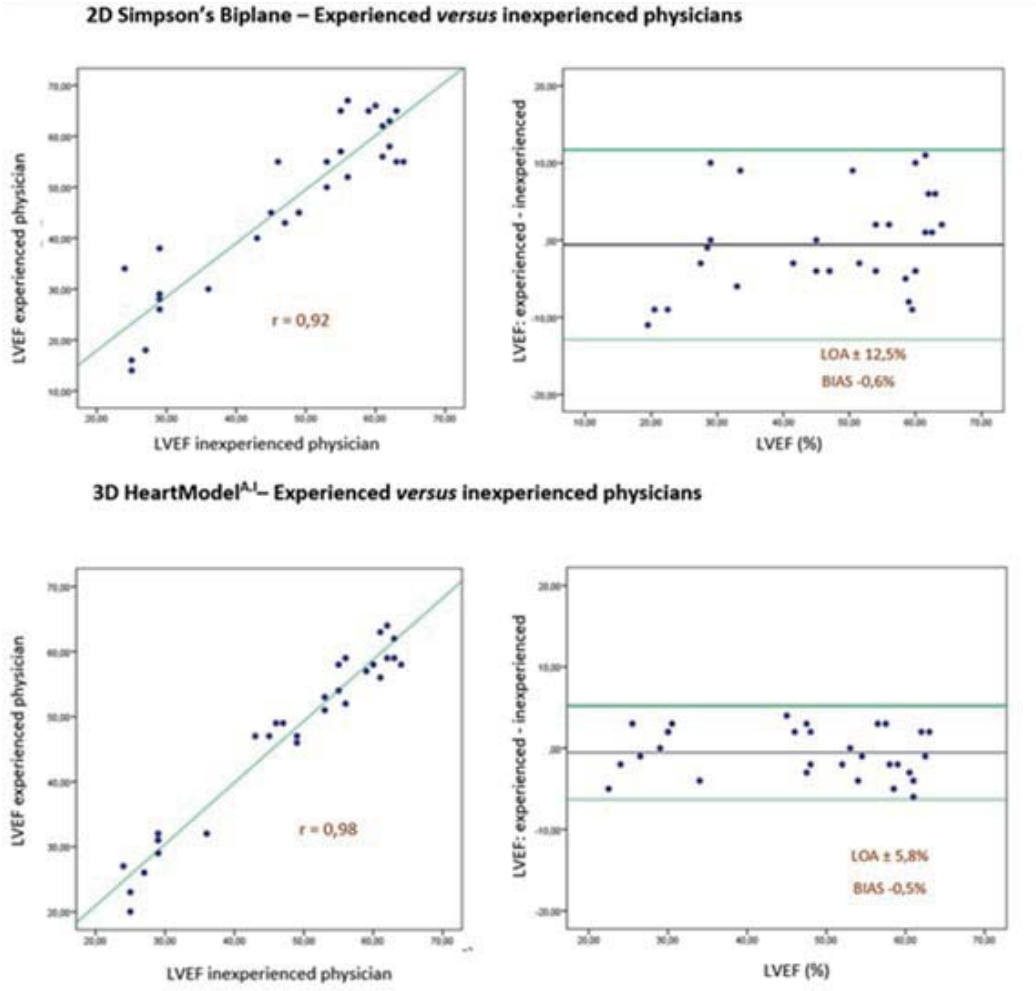


Figure 1: Results of correlation and Bland-Altman analysis of Simpson's biplane 2D measurements in experienced and inexperienced physicians and 3D HeartModel in experienced and inexperienced physicians

Figure PO 131

however, conventional 3D is time consuming and requires extensive user expertise, thus hindering its routine implementation in busy echocardiography laboratories and its use by inexperienced physicians. HeartModel[A.I.] (HM) is a simple, fast, recently validated 3D automated analysis software that detects LV endocardial surfaces and calculates LVEF. The aim of this work is to evaluate the performance of HM with experienced and inexperienced physicians, its time saving potential and to assess whether this software can be a better alternative to 2D measurements in routine echocardiography.

Methods: Prospective analysis of 30 nonconsecutive patients referred for transthoracic echocardiogram in a university hospital echocardiography lab, from 1st February 2021 to 31st March 2021. 2D biplane LVEF was measured by an experienced and inexperienced physician (less than 250 echocardiograms performed), then the same physicians used the automated analysis software (HM, Philips®) to assess LVEF (blinded for each other results). The time to make the measurements was registered. Comparisons of agreement between LVEF measurements (experienced *versus* inexperienced physicians) included linear regression with Pearson correlation coefficients and Bland-Altman analyses to assess the bias and limits of agreement (defined as 2 SD around the mean).

Results: A total of 30 patients were included, mean age of 68.6 ± 20.1 years and 60% male. HM showed significantly lower acquisition times in both inexperienced (72 ± 17s *versus* 173 ± 44s, $p < 0.01$) and experienced (56 ± 12s *versus* 126 ± 29s, $p < 0.01$) physicians. The difference in time of acquisition between 2D and HM was approximately 101s for inexperienced users and around 70s for experienced users. Regarding LVEF assessment, HM acquisitions compared to 2D measurements showed stronger correlation between experienced and inexperienced physicians ($r = 0.98$, $p < 0.01$ *versus* $r = 0.92$, $p < 0.01$) with minimal *bias* (-0.5 *versus* -0.6) and stronger agreement (HM limits of agreement: ± 5.8% *versus* 2D limits of agreement: ± 12.5%).

Conclusions: 3D LVEF assessment by HM significantly reduced acquisition times and exhibited higher interobserver agreement than 2D Simpson's biplane method. These results suggest that automated 3D algorithms, such as HM, may play a key role in implementing 3D measurements in routine practice in busy echocardiography laboratories and allow the use of 3D echocardiography at early stages of physicians training.

PO 132. AUTOMATIC QUALITY ASSESSMENT OF FOCUSED CARDIAC ULTRASOUND EXAMS

Catarina Rodrigues[1], Bárbara Malainho[1], Ana Cláudia Tonelli[2], Cátia Costa Oliveira[1], André Santanchè[3], Marco A. Carvalho-Filho[4], Jaime C. Fonseca[1], Vítor Hugo Pereira[1], Sandro Queirós[1]

[1]Universidade do Minho. [2]Hospital Clínicas de Porto Alegre. [3]University of Campinas. [4]University of Groningen.

Introduction: Focused cardiac ultrasound (FoCUS) is being increasingly used at the bedside to enable faster and more accurate decision making. This brings to the frontline the need to provide appropriate training in this technique. However, the lack of people with expertise hampers the massive training of physicians in FoCUS.

Objectives: To overcome this limitation, this work aimed at developing an AI-based automatic tool to assess the quality of a FoCUS acquisition.

Methods and results: We used a database which consists of saved clips from examinations performed by residents in FoCUS training. The first stage of the development was the classification of each recorded loop into one of seven FoCUS views, where a total of 4029 videos from 713 exams were used. To do so, a 3D neural network architecture based on the ResNet-18 was proposed, along with a training strategy that leverages of domain knowledge into the augmentation scheme and a multi-clip inference routine. This pipeline and the blocks it entails were evaluated in an extensive set of experiments, showing its accuracy and robustness. In a held-out test set (615 videos from 119 exams), the proposal achieved a Matthew's correlation coefficient (MCC) of 0.9569 and an accuracy of 95.01% (macro-averaged F1-score). Upon being separated by views, each video is then passed through view-specific models that assess a variety of quality attributes and provide an overall acquisition quality score. The quality feedback focuses on features such as image gain, acquisition depth, and the presence of the necessary anatomical references in each cardiac window. At this stage, the current quality assessment work focused in the subxiphoid, apical four-chamber and inferior vena cava views. For this, 819, 1,168 and 1,073 videos of each view, respectively, were used and annotated regarding a total of 24 attributes across the three views. Despite affected by class imbalance and noisy labels, the proposed models achieved an average MCC of 0.6024 and an average F1-score of 0.7243 on the held-out test set.

Conclusions: This automatic pipeline proved its feasibility. In the future, one believes it may be used to support medical professionals performing FoCUS in clinical practice, accelerating their training even in workplaces where this expertise is not available.

PO 133. AUTOMATIC INTERPRETATION OF POINT-OF-CARE LUNG ULTRASOUND

Bárbara Malainho[1], Catarina Rodrigues[1], Ana Cláudia Tonelli[2], André Santanchè[3], Marco A. Carvalho-Filho[4], Nuno Sousa[1], Jaime C. Fonseca[1], Vítor Hugo Pereira[1], Sandro Queirós[1]

[1]Universidade do Minho. [2]Hospital Clínicas de Porto Alegre. [3]University of Campinas. [4]University of Groningen.

Introduction: Point-of-care ultrasound (POCUS) is a safe, portable, and low-cost imaging technique useful for a fast bedside patient examination. Currently, with the COVID-19 pandemic, the necessity for an expeditious

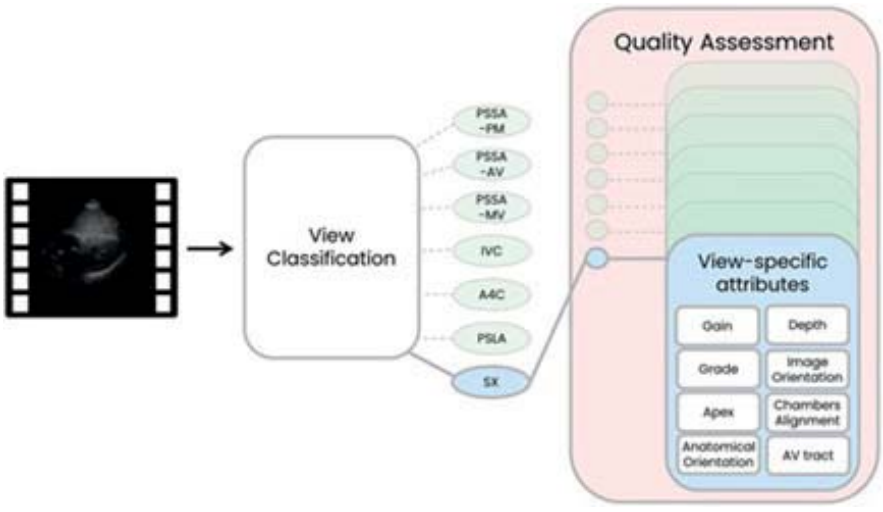


Figure PO 132

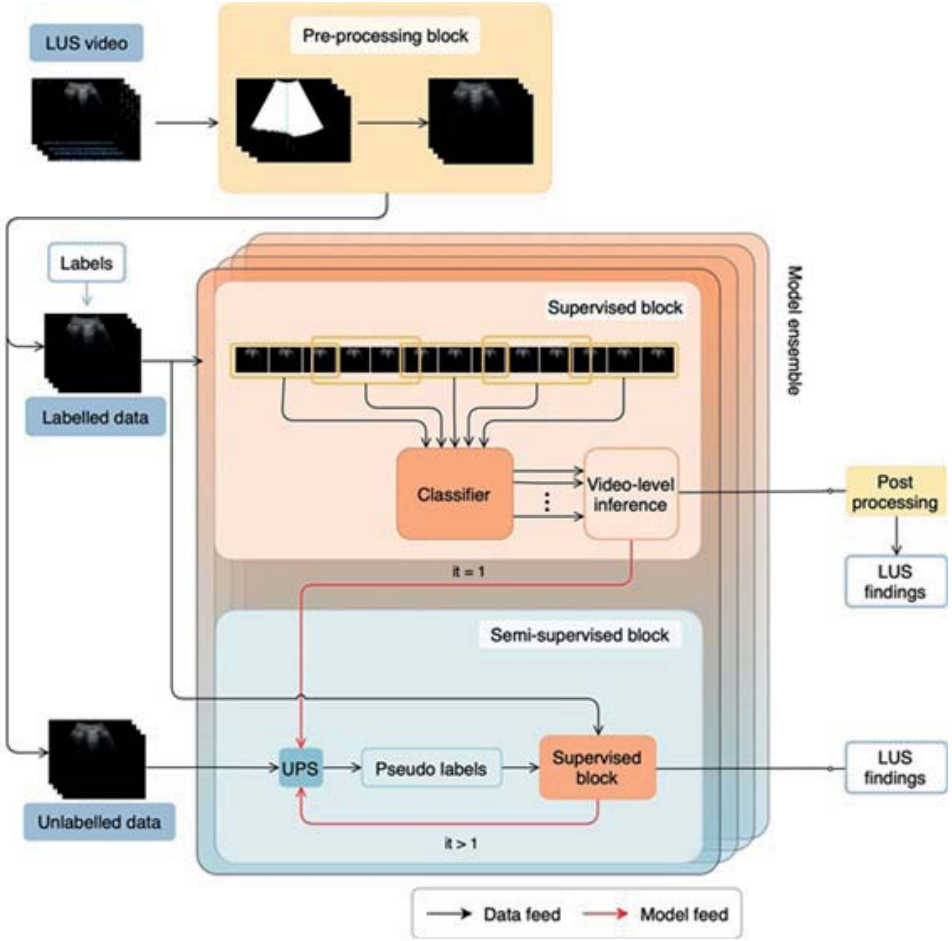


Figure PO 133

image interpretation and associated diagnosis has become clearer than ever. Coincidentally, deep learning-based solutions have increased their presence in the medical imaging field. Notwithstanding their potential, the usage of these techniques in lung POCUS remains underexplored.
Objectives: To develop a flexible deep learning (DL) framework for the interpretation of lung ultrasound (LUS) and identification of the most common findings in clinical practice: scattering, A-lines, up to 3 B-lines, positive B-lines pattern and other pathologies (including pleural effusion and consolidations). These labels can also be aggregated into two super-classes: normal findings and findings indicative of pathology.
Methods: The dataset is composed by 3,649 annotated lung ultrasound videos, with nearly equal proportions between normal and indicative findings, and 4,511 videos without annotations. Since data is scarce but a core necessity to train a successful DL model, two learning strategies are investigated: supervised and semi-supervised scenarios. The work culminates with the proposal of a novel model ensembling strategy, which aggregates the outputs of models trained to predict distinct label sets, and an optional dataset-specific post-processing routine, both aimed at leveraging of the hierarchy inherent to LUS interpretation. The proposed framework and its building blocks were evaluated in an extensive set of experiments, considering both multi-class and multi-label models, for both supervised and semi-supervised settings.
Results: Our experiments show the framework's versatility, allowing for a custom combination of the multiple proposed blocks according to the task in question. In a held-out test set, the categorical proposal, which is useful for an expedite triage, achieved an average F1-score of 92.61%, while the multi-label proposal, helpful for patient management and referral, achieved an average F1-score of 70.45% when considering five relevant LUS findings.
Conclusions: Overall, the proposal shows promise in an underexplored field, paving the way for an accurate computer-assisted lung ultrasound interpretation in clinical practice.

PO 134. MYOCARDIAL WORK BY SPECKLE-TRACKING ECHOCARDIOGRAPHY IN PACEMAKER PATIENTS ACCORDING TO PACING SITE: A PROSPECTIVE STUDY

Andreia Campinas, Sofia Cabral, André Dias de Frias, André Alexandre, David Sá Couto, Ernesto Aranda, Vânia Silva, Catarina Gomes, Maria João Sousa, Carla Roque, Pinheiro Vieira, Hipólito Reis, Severo Torres

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

Introduction: The optimal lead position for right ventricle (RV) pacing is still a matter of debate. Several studies compared 2D-echocardiography left ventricle ejection fraction (LVEF) and LV global longitudinal strain (LVGLS) by speckle-tracking imaging (STI). However, these parameters present limitations, such as load dependency. Recently, myocardial work (MW) has emerged as an alternative tool for myocardial systolic function assessment.
Objectives: To compare LV MW and LVGLS between patients with RV outflow tract/septum pacing (Group1) and RV apical pacing (Group2).
Methods: Prospective single-center study of patients with permanent pacemaker (PMK) followed at our cardiac device's outpatient clinic between july and november of 2022. Patients were divided into two groups according to RV pacing site. Moderate/severe valvular disease, LVEF < 50%, segmental wall-motion abnormalities, pulmonary hypertension, cardiomyopathies, or RV dysfunction were exclusion criteria. STI-based LVGLS analysis and MW parameters were obtained (GWI:Global Work Index; GCW:Global Constructive Work; GWW:Global Wasted Work; GWE:Global Work Efficiency). RV pacing was required at the moment of imaging. A 12-lead ECG was also performed. Blood pressure (BP) was simultaneously measured.
Results: Our cohort comprised 30 patients in group 1 and 25 patients in group 2. The 2 groups were well-matched, except for the median time since

PMK implantation, which was significantly higher in Group2 (5.3 *vs.* 0.9 years, p < 0.001). The QRS was significantly narrower in Group1 (Group1: 129 ms ± 9 *vs.* Group2: 165 ms ± 15, p < 0.001). LVEF was similar in both groups (Group1: 58% ± 7.5 *vs.* Group2: 60% ± 7.5, p = NS). Likewise, both systolic and diastolic BP were comparable (p = NS), but LVGLS was significantly higher in Group1 (15 ± 3.3 *vs.* 13 ± 3.7, p = 0.043). Except for GWI which was also significantly higher in Group1 (1,553 mmHg% ± 581 *vs.* 1,238 mmHg% ± 516, p = 0.040), no significant differences were found in the other parameters of MW among the groups (all p = NS).

Table 1: Characteristics of the study population according to pacing position.

Baseline Characteristics	Group 1 (n=30)	Group 2 (n=25)	P value
Male Sex, n (%)	15 (50)	12 (48)	1
Age, mean (±SD) (years)	76 (13)	81(12)	0.176
Coronary artery disease, n (%)	4 (13)	3 (12)	0.882
Hypertension, n (%)	25 (83)	16 (64)	0.128
Dyslipidemia, n (%)	25 (83)	16 (67)	0.206
DM, n (%)	13 (43)	10 (42)	1
CKD, n (%)	4 (13)	2 (8)	0.682
Smoker, n (%)	4 (13)	1 (4)	0.367
CVD, n (%)	3 (10)	3 (13)	1
AF, n (%)	11 (37)	7 (29)	0.772
QRS duration in RV pacing, mean (±SD) (ms)	129 (9)	165 (15)	<0.001
SBP, mean (±SD) (mmHg)	148 (23)	145(27)	0.668
DBP, mean (±SD) (mmHg)	72 (12)	70 (15)	0.659
Time since pacemaker implantation, median (IQ)	0.9 (0.7-2.7)	5.3 (1.8-10)	<0.001
Indications for permanent pacemaker			
SND, n (%)	6 (20)	10 (40)	0.140
AVND, n (%)	24 (80)	15 (60)	0.140
Echocardiographic parameters			
LVGLS, mean (±SD)	15 (3.3)	13 (3.7)	0.043
GWE, mean (±SD)	85 (11)	82 (10)	0.221
GWI, mean (±SD)	1553 (581)	1238 (516)	0.040
GCW, mean (±SD)	2069 (593)	1808 (593)	0.107
GWW, mean (±SD)	297 (207)	401(341)	0.171
LVEF, mean (±SD)	58 (7.5)	60 (7.5)	0.291

Abbreviations: AF: atrial fibrillation; AVND: AV node disease; CKD: chronic kidney disease; CVD: cerebral vascular disease; DBP: diastolic blood pressure; DM: diabetes mellitus; GCW: Global Constructive Work; GWE: Global Work Efficiency; GWI: Global Work Index; GWW: Global Wasted Work; LVEF: left ventricular ejection fraction; LVGLS: left ventricle global longitudinal strain; SND: sinus node disease.

Conclusions: Our results point to LVGLS being significantly lower in the group of RV apical pacing. Despite most parameters of MW didn't differ between groups, GWI also showed significant impairment. These findings should be regarded as preliminary and further larger studies are needed to ascertain the value of this new tool in understanding the impact of pacing depolarization site on LV mechanics.

PO 135. EXTRACARDIAC COMPLICATIONS IN INFECTIVE ENDOCARDITIS: THE ROLE OF 18-FDG-PET/CT

Gonçalo Ferraz Costa, Gonçalo Terleira Batista, Joana Guimarães, Eric Monteiro, Diogo Fernandes, Tatiana Santos, Mariana Simões, Ana Luísa Silva, Ana Vera Marinho, Gracinda Costa, Lino Gonçalves, Maria João Ferreira

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

Introduction: The prevalence of extracardiac complications (ECC) of infective endocarditis (IE) is limited by the guideline-recommended diagnostic workup. Identification of ECC is one of the main contributions of 18-FDG-PET/CT.
Objectives: Determine ECC prevalence and assess the role of 18-FDG-PET/CT.
Methods: A retrospective analysis was performed at a tertiary center with 18F-FDG PET/CT and included all referred patients for this exam for suspected IE between May 2016 and January 2022. The choice to perform 18F-FDG PET/CT and the IE suspicion was based on the attending endocarditis team and did not follow a standardized protocol. Baseline demographic characteristics of patients, including all relevant clinical data, were collected from hospital records at hospital admission. The final diagnosis of IE (gold standard) was established by consulting the final diagnosis attributed to the patient by the Endocarditis team at the time of hospital discharge or death, after possession of clinical, microbiological, and imaging information as well as clinical response. ECC prevalence was analysed.
Results: In total, 87 patients were included (median age of 62 ± 19 years, 62% of the male gender), of which 33 had a definitive diagnosis of IE. In this subgroup, approximately 67% were male, with a median age of 65 (IQR 53-74) years. Diabetes incidence was 21%, 58% had dyslipidemia and 58% were hypertensive. Fever was present in 85% of patients and 55% had signs of heart failure. Laboratory results showed a mean C-reactive protein of 12.4 mg/dL and a mean leucocyte count of 11.2 G/L. Only 61% had a positive blood culture. Echocardiographic findings suggesting IE were found in 58% and 36% presented moderate-severe valve regurgitation. We had an ECC prevalence of 15.2% (4 cases). The first and second patients had pacemaker electrode and pocket infection respectively, both leading to device removal. The third had purulent pericarditis, which resolved with conservative therapy. The last patient had splenic septic embolization, with a good response to antibiotic therapy.
Conclusions: 18-FDG-PET/CT presents a valuable tool in assessing systemic involvement of patients with endocarditis.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 4) - Taquicardia ventricular e morte súbita cardíaca

PO 136. IMPACT OF A MULTIDISCIPLINARY APPROACH IN VENTRICULAR TACHYCARDIA ABLATION COMPLICATION RATE: TEAM WORK TO IMPROVE OUTCOMES

Joana Brito, Afonso Nunes Ferreira, Pedro Alves da Silva, Beatriz Garcia, Beatriz Valente Silva, Catarina Oliveira, Sara Neto, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa, Lisbon, Portugal.

Introduction: Radiofrequency ablation of structural ventricular tachycardia (VT) are complex procedures performed in a high-risk group of patients (pts); this unfortunately leads to a considerable risk of procedural complications.
Objectives: To evaluate the impact of the implementation of a multidisciplinary approach, with intensive management by a cardiac anesthesiologist and including the use of general anesthesia, in the safety of VT ablation.
Methods: Single-center study of pts with structural heart disease submitted to VT ablation from 2019 to 2022. After April.2021, all procedures were performed with the participation of a cardiac anesthesiologist in the medical team. Before, procedures were conducted under conscious sedation, with invasive blood pressure monitoring and hemodynamic management by the electrophysiologist team. Procedural complications, either minor or severe, were prospectively assessed. Severe complications were defined as the occurrence of death, systemic embolism, stroke, cardiogenic shock, or cardiac tamponade. The impact of adopting a multidisciplinary approach in the risk of procedural complications was determined using univariate regression analysis.
Results: A total of 68 patients were submitted to VT ablation, 34 with and 34 without a multidisciplinary management approach. About 96% were males,

mean age was 66 ± 11yo, 66% had ischemic heart disease and mean LVEF was 34 ± 11%. The two groups were indistinct regarding the demographic and clinical characteristics. Procedural complications occurred in 10 pts (14.7%), being severe in 4 (5.9%). The adoption of a multidisciplinary management approach was associated with an 8-fold reduction in the risk of procedural complications (odds ratio: 8.5; 95%CI 1.02-70.7; p = 0.048). Noticeably, no severe complications occurred in the group treated with anesthetic support and it was possible to suspend the hemodynamic and invasive respiratory assistance in all pts at the end of the ablation procedure.

Complication	Multidisciplinary management N = 34	Conventional management N = 34
Death, n (%)	0	2 (2.9%)
Cardiogenic shock, n (%)	0	1 (1.5%)
Cardiac tamponade, n (%)	0	1 (1.5%)
AV node block, n (%)	0	1 (1.5%)
Acute pericarditis, n (%)	0	2 (2.9%)
Vascular access, n (%)	1 (1.5%)	2 (2.9%)
Severe procedural-related complications	0	4 (11.8%)
Any procedural-related complication	1 (1.5%)	9 (26.5%)

Conclusions: The adoption of a multidisciplinary approach, with intensive management by a cardiac anesthesiologist and including the use of general anesthesia, is highly beneficial, reducing the risk of procedural complications.

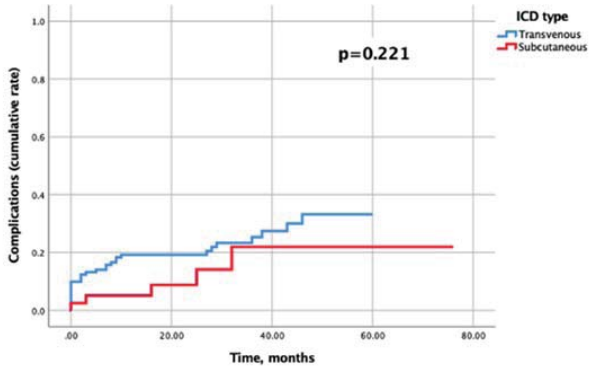
PO 137. SUBCUTANEOUS *VERSUS* TRANSVENOUS CARDIOVERTER DEFIBRILLATOR: IMPROVED OUTCOMES IN MID-TERM FOLLOW-UP

Joana Guimarães, Diogo Fernandes, Gonçalo Costa, Eric Monteiro, Gustavo Campos, João Rosa, Ana Rita Gomes, Rafaela Fernandes, Vanessa Lopes, James Milner, Pedro Sousa, Graça Castro, Lino Gonçalves

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

Introduction: Despite the importance of transvenous implantable cardioverter defibrillator (ICD) in sudden cardiac death prevention, they present a significant complication rate.
Objectives: To compare mid-term outcomes following subcutaneous ICD (S-ICD) and transvenous ICD (TV-ICD) implantation.
Methods: Observational, retrospective study of 164 patients submitted to ICD implantation in a single tertiary centre (41 S-ICD and 123 TV-ICD recipients). Primary endpoint was the composite of infection, procedural complications, lead-related complications and inappropriate shocks.

Figure 1. Kaplan-Meier survival analysis



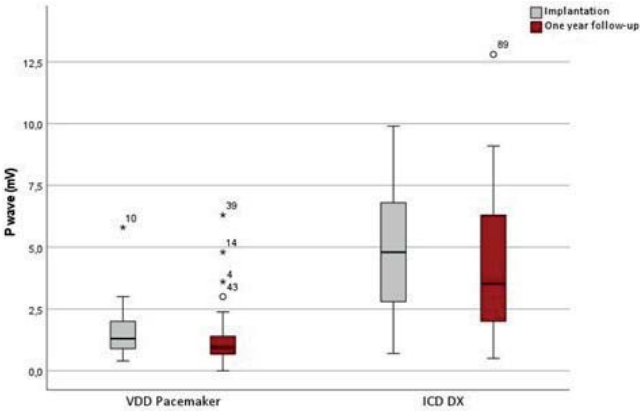
Results: S-ICD recipients were significantly younger (45 (IQR 23) *vs.* 63 (IQR 17), p < 0.001), with higher left ventricular ejection fraction (55 (IQR 32) *vs.* 34.5 (IQR 17), p = 0.001) and lower NYHA functional classes (p <.001). During a median follow-up of 30 months, patients in the S-ICD group presented fewer device-related complications or inappropriate shocks than their TV-ICD counterparts (12.2% *vs.* 24.8%, p =.048). This was driven by a reduction in lead-related complications (0% *vs.* 7.3%, p =.08). There was no difference between both groups concerning the infection rate (2.4% *vs.* 3.3%, p = 0.26), procedural complications (0% *vs.* 1.6%, p = 0.41) and inappropriate shocks (10.3% *vs.* 13.2%, p = 0.63). S-ICD required less re-interventions compared to TV-ICD (2.4% *vs.* 9.2%, p = 0.05) and there was no difference regarding the rate of appropriate shocks (15.4% *vs.* 9.9%, p = 0.35). In multivariate analysis, S-ICD remained as the only independent predictor of lower complication rates (OR 0.22, 95%CI 0.053-0.922, p = 0.04).
Conclusions: Even after adjustment for potential confounders, S-ICD recipients presented a lower device complication rate and inappropriate shocks during mid-term follow-up and showed a trend towards less need for re-intervention.

PO 138. LONG-TERM STABILITY OF ATRIAL SENSING IN IMPLANTABLE CARDIOVERTER-DEFIBRILLATORS WITH FLOATING ATRIAL DIPOLE LEADS

Inês Ferreira Neves, Bárbara Lacerda Teixeira, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Paulo Osório, Hélder Santos, André Monteiro, Susana Covas, Rita Contins, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction: To maintain the advantages of having atrial sensing without the need to implant an additional lead, a single-lead ICD system with a floating atrial dipole (VDD DX ICD, Biotronik) with active fixation to the right ventricle has been developed. In this generation of ICDs, specially filtered atrial signs may be high enough to allow early detection of atrial arrhythmias and improve discrimination between atrial and ventricular tachycardias. However, maintaining reliable and stable atrial sensing via the floating dipole could be a concern regarding this technology. We aimed to determine the long-term stability of atrial sensing in patients (P) with this type of device.



Atrial sensing for ICD DX and VDD Pacemaker at implantation and after a year

Methods: All P implanted with ICDs with an active fixation DX lead at our centre between 2013 and 2021 were included. Atrial sensing and ventricular or supraventricular arrhythmic events were recorded during follow-up. We retrospectively analysed the atrial sensing evolution and compared it with a control group that had been implanted with a VDD pacemaker (PM).
Results: Seventy DX ICD P (82.9% males, age 69 ± 14 years [between 19 and 86], 81.4% implanted as primary prevention) with > 1-year follow-up were included. The control group included 52P (age 82 ± 6.3 years) who underwent PM implantation due to an advanced atrioventricular block. The mean P-wave amplitude at implantation was 4.85 ± 2.44 mV in the DX ICD group and 1.54 ± 0.89 mV in the VDD PM group. At one year after implantation, P-wave amplitude was 4.26 ± 2.68 mV in the DX ICD group and 1.20 ± 1.16 mV in the control group. From the control group, 7P (15.6%) lost atrial sensing after one

year of follow-up, having their PM programmed as VVI after that. None of the P in the ICD group had lost atrial sensing in the same time period. After one year of follow-up, the P-wave amplitude had a mean reduction of 41.3% in the DX ICD group and of 65% in the control group (p = 0.05).
Conclusions: Atrial signals can be reliably sensed by the floating dipole rings of a DX ICD in a long-term follow-up. This technology resulted in a higher stability of atrial sensing when compared with that obtained in P with a VDD PM. Additionally, a noteworthy number of P with a VDD PM lost atrial sensing, which did not happen in the group with the DX ICD.

PO 139. EFFECTIVENESS OF CATHETER ABLATION FOR TREATMENT OF SYMPTOMATIC FREQUENT PREMATURE VENTRICULAR COMPLEXES

Ricardo Carvalheiro[1], Paulo Medeiros[2], Bárbara Teixeira[1], Miguel Antunes[1], Ana Lousinha[1], Pedro Silva Cunha[1], Bruno Valente[1], Guilherme Portugal[1], Madalena Cruz[1], Cátia Guerra[1], Ana S. Delgado[1], Rui Cruz Ferreira[1], Mário Oliveira[1]

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

Introduction: The most recent ESC guidelines recommend catheter ablation (CA) as the first-line treatment for symptomatic premature ventricular complexes (PVC) originating from the right ventricle outflow tract (RVOT) or the left fascicles, and state that CA may be considered for the treatment of PVC of any other origin.
Objectives: To study the impact of PVC ablation on the total PVC number, PVC burden and left ventricle ejection fraction (LVEF), comparing outcomes in groups with and without structural heart disease (SHD).
Methods: Single-center retrospective cohort of adults subjected to PVC ablation between January 2020 and March 2022.
Results: 51 patients (P) (62.7% male, mean age 51 ± 16 years) underwent CA. There was SHD in 19P (37.3%): tachycardia-induced cardiomyopathy - 9P, non-ischemic dilated cardiomyopathy - 9P, congenital heart disease - 1P. The mean LVEF before CA was 59% (IQR 49-60), and the median number of PVCs was 15707 (IQR 11,846-22,465), with a mean PVC burden of 18.9 ± 11.6%. Of those that undertook cardiac magnetic resonance imaging (31P, 60.8%), 16.1% had late enhancement. Electroanatomical activation maps were obtained using CARTO (51%) and the ENSITE systems (49%). In 20% of the cases, pacemapping was also used. The main PVC origin location was the RVOT (23P, 45.1%). The mean procedure duration was 122 ± 51 min, with an acute success of 81%. Complications occurred in 4P (7.8%) - the main one being vascular access injury (2P, 3.9%). After a median follow-up 379 days (IQR 157-525), beta-blockers were used in 33.4% of P, class IC antiarrhythmics in 6.3% and class III antiarrythmics in 6.3%. The median PVC number at follow-up was 513 (IQR 27-15,000), PVC burden 0.5% (IQR 0.03-10) and EF 60% (IQR 55-60); a Wilcoxon signed-rank test showed PVC ablation elicited a statistically significant decrease in PVC number ($Z = -4.445$, $p < 0.001$), in PVC burden ($Z = -4.474$, $p < 0.001$), and an increase in EF ($Z = -2.038$, $p = 0.042$). Analysis of subgroups showed a significant difference in PVC number at follow-up in the group without SHD ($Z = -4.457$, $p < 0.001$), but not in the group with SHD ($Z = -1.647$, $p = 0.099$).
Conclusions: After catheter ablation, there was a statistically significant reduction in PVC number and burden, and an increase in EF. The presence of SHD was associated with worst outcomes in this population.

PO 140. SEVERITY OF OBSTRUCTIVE SLEEP APNEA IS ASSOCIATED WITH THE PRESENCE OF FREQUENT PREMATURE VENTRICULAR CONTRACTIONS

Jéni Quintal, Leonor Parreira, Ana Fátima Esteves, António Pinheiro Candjondjo, Joana Silva Ferreira, Rui Antunes Coelho, Susana Sousa, Catarina Rijo, Pedro Amador, Dinis Mesquita, Rita Marinheiro, José Maria Farinha, Tatiana Duarte, Paula Duarte, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Obstructive Sleep Apnea (OSA) is a highly prevalent disorder in developed countries. It is well known that OSA is strongly associated with Atrial Fibrillation (AFib) and sinus pauses, but its impact on ventricular arrhythmias is less clear.

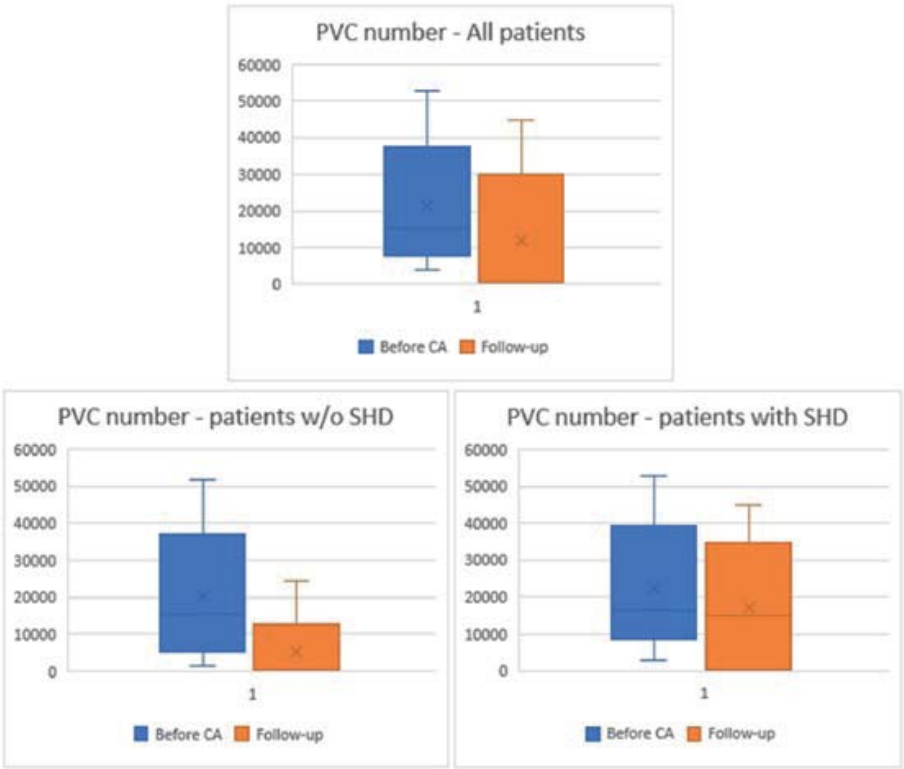


Figure PO 139

Table 1. Characteristics of study population according to Obstructive Sleep Apnea (OSA) severity

Variables	Overall sample n= 233	OSA severity Mild n= 89 (38.2)	Moderate n = 74 (31.8)	Severe n= 70 (30.0)	p value
Demographic data and cardiovascular risk factors					
Age, median (Q1-Q3), years	67 (57-73)	65 (56-72)	67 (57-74)	68 (59-75)	0.483
Male gender, n (%)	159 (68.2)	50 (56.2)	56 (75.7)	53 (75.7)	**0.008**
BMI, median (Q1-Q3), kg/m²	31 (28-35)	31 (27-35)	31 (27-33)	34 (28-36)	**0.049**
Hypertension, n (%)	166 (71.2)	63 (70.7)	53 (71.6)	50 (71.4)	0.948
Diabetes mellitus, n (%)	64 (27.5)	20 (22.5)	22 (29.7)	22 (31.4)	0.353
Dyslipidemia, n (%)	104 (44.6)	41 (46.1)	31 (41.9)	32 (45.7)	0.869
Smoking history, n (%)	72 (31.0)	26 (29.2)	23 (31.1)	23 (32.9)	0.847
Heart rate or rhythm medication					
Beta-blockers, n (%)	46 (19.7)	14 (15.7)	17 (23.0)	15 (21.4)	0.718
Amiodarone, n (%)	9 (3.9)	2 (2.2)	4 (5.4)	3 (4.3)	0.855
Flecainide, n (%)	2 (0.8)	1 (1.1)	1 (1.4)	0 (0.0)	0.623
Propafenone, n (%)	1 (0.4)	1 (1.1)	0 (0.0)	0 (0.0)	0.308

Table 2. Arrhythmic profile of patients according to Obstructive Sleep Apnea (OSA) severity

Variables	OSA severity Mild n= 89	Moderate n = 74	Severe n= 70	p value
Rythm, n (%)				
Sinus rhythm	83 (93.3)	64 (86.5)	56 (80.0)	**0.041**
Atrial fibrillation	6 (6.7)	10 (13.5)	14 (20.0)	
Supraventricular arrythmias				
Presence of PACs, n (%)	77 (86.5)	62 (83.8)	54 (77.1)	0.296
Median of PACs in 24h (Q1-Q3)	47 (8-201)	25 (5-255)	45 (3-169)	0.684
Presence of runs of PACs, n (%)	27 (30.3)	32 (43.2)	26 (37.1)	0.236
Presence of >30 PACs/h, n (%)	14 (43.8)	11 (34.4)	7 (21.9)	0.569
Ventricular Arrythmias				
Presence of PVCs, n (%)	75 (84.3)	64 (86.5)	66 (94.3)	0.137
Median of PVCs in 24h (Q1-Q3)	13 (2-109)	16 (3-346)	43 (3-407)	0.085
Presence of NSVT, n (%)	3 (3.4)	5 (6.8)	8 (11.4)	0.131
Presence of >30 PVCs/h, n (%)	7 (7.9)	15 (20.3)	15 (21.4)	**0.031**
Conduction disorders				
Presence of pauses > 2 s, n (%)	11 (12.4)	15 (20.3)	10 (14.3)	1.00
Atrioventricular block, n (%)	8 (9.0)	17 (22.9)	11 (15.7)	**0.048**
Intraventricular block, n (%)	6 (6.7)	18 (24.3)	10 (14.3)	**0.007**

PACs – Premature atrial contractions; PVCs – Premature ventricular contractions; NSVT – Non-Sustained Ventricular Tachycardia.

Figure PO 140

Objectives: The aim of this study was to evaluate the presence of rhythm disorders in 24h Holter in patients (pts) with OSA and their association with different grades of OSA severity.

Methods: We performed a retrospective single-center cohort study. The study included pts who underwent both a level 3 polysomnography and a 24h Holter test at our hospital center between 1 January 2015 and 31 December 2019 (n = 464). We excluded pts without OSA, patients with OSA under current treatment with CPAP/APAP and those who only had 24h Holter test after starting CPAP/APAP. Patients were divided into 3 groups according to the OSA severity in the sleep study test: mild, moderate and severe. The Holter was analyzed for the presence of AFib, number of premature atrial contractions (PACs), presence of runs of PACs, number of premature ventricular contractions (PVCs), presence of non-sustained ventricular tachycardia (NSVT) and the presence of conduction disorders. Premature contractions were considered frequent when greater than 30 per hour. These results were compared in the three groups.

Results: This cohort included 233 patients: 89 classified into mild, 74 into moderate and 70 into severe OSA form. The baseline characteristics of pts are depicted in Table 1. The overall median age was 67 (57-73) years and was similar between the groups. Male gender was more prevalent in the overall sample and statistically more prevalent in the severe OSA group (56.2% in mild *vs.* 75.7% in severe OSA, p = 0.08). Regarding cardiovascular risk factors, there was no difference between the groups except for obesity, with higher body mass indexes translating into more OSA severity (p = 0.049). Results are shown in Table 2. We observed that OSA severity and AFib are associated. AFib was more prevalent in the moderate and severe forms of OSA (13.5% in moderate and 18.6% in severe OSA *vs.* 6.7% in mild OSA; p = 0.041). The prevalence of atrioventricular block and the prevalence of intraventricular block were higher in the moderate group of OSA (p = 0.048; p = 0.007). There was no association between OSA severity and the burden and complexity of PACs. On the contrary, we found a higher percentage of frequent PVCs in more severe forms of OSA (20.3 and 21.4% in moderate and severe group, p = 0.031).

Conclusions: In the present study the severity of OSA was associated with a higher prevalence of AFIb and conductions disorders as expected. However, it was also associated with higher prevalence of frequent premature ventricular contractions but not with atrial premature contractions. Further studies are needed to confirm these findings and to study the benefit of level 3 polysomnography testing in pts with frequent PVCs.

Sábado, 15 Abril de 2023 | 15:00-16:00

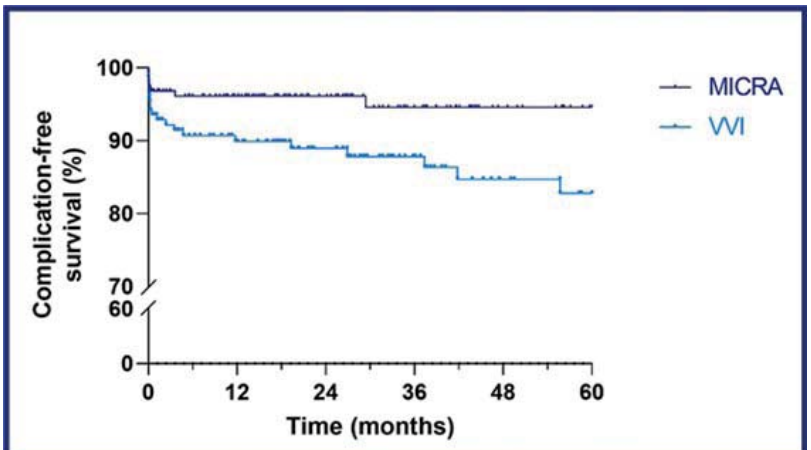
Jardim de Inverno | Posters (Sessão 4 - Écran 5) - *Pacing*

PO 141. LEADLESS VS. TRANSVENOUS SINGLE-CHAMBER PACING - PROPENSITY-MATCHED COMPARISON OF OUTCOMES

Rita Amador, João Presume, Pedro Carmo, Diogo Cavaco, João Carmo, Ana Rita Reis Santos, Pedro Lopes, Daniel Matos, Gustavo Rodrigues, Pedro Galvão Santos, Francisco Moscoso Costa, Maria Salomé Carvalho, Francisco Morgado, Prof. Pedro Adragão

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

Introduction: Clinical Trials have demonstrated the safety and efficacy of the Micra™ leadless pacemaker. However, real-world outcome comparisons



	Total (n = 312)	Micra™ (n = 156)	VVI (n = 156)	p-value
Patient characteristics				
Age (years), median [IQR]	80 [73 - 86]	79 [73 - 85]	81 [73 - 87]	0.140
Male, n (%)	197 (63%)	102 (65%)	95 (60%)	0.411
Previous device, n (%)	19 (6%)	15 (9%)	4 (2%)	0.009
Previous lead extraction, n (%)	14 (4%)	0 (0%)	14 (9%)	< 0.001
Previous device-related infection, n (%)	10 (3%)	0 (0%)	10 (6%)	0.001
Procedure				
Procedure duration (min), median [IQR]	37 [30 - 49]	36 [29 - 48]	39 [33 - 50]	0.026
Fluoroscopy duration (min), median [IQR]	2.8 [1.4 - 5.0]	3.1 [1.7 - 5.3]	2.3 [1.4 - 4.4]	0.030
Complications				
FUP duration (months), median [IQR]	26 [11 – 47]	24 [12 – 43]	27 [7 – 61]	0,324
Acute Complications, n (%)	16 (5%)	5 (3%)	11 (7%)	0.124
Pneumothorax	1 (0.3%)	0 (0%)	1 (1%)	
Pericardial effusion	4 (1%)	2 (1%)	2 (1%)	
Cardiac Tamponade	1 (0.3%)	1 (1%)	0 (0%)	
BARC > 3 bleeding	7 (4%)	2 (1%)	5 (3%)	
Long-term complications, n (%)	21 (7%)	3 (2%)	18 (12%)	< 0.001
Any Complication, n (%)	32 (10%)	7 (5%)	25 (16%)	< 0.001
Pocket Haematoma				
Device related-infection	4 (1%)	1 (1%)	3 (2%)	
Pocket infection	4 (1%)	0 (0%)	4 (2%)	
Femoral Access Abscess	1 (0.3%)	1 (1%)	0 (0%)	
Need for extraction, repositioning or implantation of another device	16 (5%)	15 (10%)	1 (1%)	< 0.001

Figure PO 141

between patients receiving conventional VVI and Micra™ are still scarce. The aim of this study was to evaluate short and long-term complications of patients receiving leadless Micra™ in comparison to a population of conventional VVI.

Methods: We conducted a single-centre retrospective study of patients receiving the Micra™ leadless or a conventional VVI between 2014 and 2022. Propensity score matching was performed on 725 patients (156 leadless and 569 conventional) and according to age, sex, coronary artery disease (CAD), chronic kidney disease (CKD), haemodialysis and atrial fibrilation (AF), with a 1:1 matching protocol without replacement (matching tolerance 5%). Complications that occurred up to one month after implantation were considered acute and included access site BARC ≥ 3 bleeding events, pacemaker pocket hematoma requiring medical intervention (either drainage or antibiotic therapy), femoral access infection, pneumothorax, pericardial effusion, cardiac tamponade, and dysfunction of the implanted device. Long-term complications were defined as those occurring at least one month after implantation and included device infection, need for reintervention, and device upgrades due to left ventricular dysfunction. The primary outcome was a composite of acute and long-term complications.

Results: A total of 312 patients (80 [73 - 86] years, 63% male, 79% with AF and 7% on dialysis) were included, 156 within each group. The main indication for PM implantation was AF with low ventricular rate (48%), followed by atrioventricular block (31%) and sick sinus syndrome (13%). In total, 19 patients (16%) had a previously implanted device, and 14 (4%) had previously been submitted to lead extraction, of which 10 (71%) were due to device-related infection. All of these were more frequent in patients receiving the leadless Micra™ pacemaker (p = 0.001). During a median follow-up of 26 [11-47] months, a total of 32 patients (10%) had a complication related to the implantation of the device - table 1. While intra-hospital complications showed only a tendency towards higher incidence in the VVI group (5% *vs.* 3%; p = 0.124), overall complications (16% *vs.* 5%) and long-term complications (12% *vs.* 2%) were higher in the VVI group (p < 0.001 for both). The Kaplan-Meier curves for the primary outcome showed a significantly lower event-rate for patients receiving Micra™ leadless pacemaker (Figure).

Conclusions: In this propensity-matched study, Micra™ leadless pacemaker implantation was associated with a lower incidence of complications during follow-up, in comparison to conventional VVI pacemaker.

PO 142. RECURRENCE AFTER RESOLUTION OF SYMPTOMATIC ATRIOVENTRICULAR BLOCK AND CORRECTION OF TRANSIENT CAUSES - SHOULD WE KEEP AN EYE ON EVERYONE?

João Grade Santos, Bárbara Ferreira, Mariana Martinho, Diogo Cunha, João da Luz, Nazar Ilchyshyn, Oliveira Baltasar, Alexandra Briosa, Daniel Sebaiti, Ana Rita Pereira, Rita Miranda, Sofia Almeida, Luís Brandão, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Atrioventricular block (AVB) can be associated with secondary causes, some of which are potentially reversible. Permanent Pacemaker

(PPM) implantation is not recommended in transient causes that can be corrected and prevented. However there is a high rate of recurrence which eventually warrant PPM implantation.
Objectives: Our aim was to characterize the population which had recurrence of symptomatic AVB after having recovered from an index event and having corrected secondary causes.
Methods: We performed a retrospective analysis between February 2011 and November 2022 of all patients admitted with symptomatic second degree AVB (including 2:1 and high-grade), third degree AVB and atrial fibrillation with AVB who had a reversible cause capable of being corrected and had a recovery of rhythm without PPM implantation, in a single expert centre. AVB secondary to Acute Coronary Syndromes and patients who required PPM to tolerate bradycardia inducing drugs were excluded from analysis. Medical records were analysed for demographics, clinical data and outcomes.
Results: Of the 135 patients analysed, 25 fulfilled all inclusion criteria and were analysed. The mean age at analysis was 77 ± 8 years with a male preponderance (52%). The rhythm of presentation had been complete AVB for most of the cohort (68%). A prior ECG was obtained for most patients (92%), with atrioventricular (AV) conduction abnormalities identified in 28% of patients and intraventricular (IV) conduction abnormalities identified in 56% of patients. At index admission, bradycardic drug therapy was the most identified reversible cause (92%) and significant hyperkalaemia (categorized as above 5.5 mmol/L) was identified in 40% of patients.
In 20 patients (80%) there was recurrence of symptomatic AVB during follow-up (median time to recurrence of 11.5 months, minimum less than a month and maximum 130 months) which warranted a PPM implantation. The independent predictors of recurrence were the presence of hyperkalaemia as a causal factor at index admission and of non-recurrence the dual therapy with bradycardic drugs at index admission (Qui square test for both $p < 0.05$). The age, sex, prior of chronic kidney disease (with or without dialysis) prior AV or IV conduction abnormality, high dose bradycardic drug therapy at index admission, association between hyperkalaemia and bradycardic drug therapy and presentation rhythm different from complete AVB were non-significant.
Conclusions: Patients with a transient cause for symptomatic AVB which recovers with its correction have a high rate of recurrence in follow-up, particularly if the transient cause was hyperkalaemia, and only the initial presence of dual bradycardic drug therapy which was suspended predicted sustained recovery.

PO 143. EFFECTIVENESS OF CARDIAC PACING IN THE PREVENTION OF NEUROCARDIOGENIC SYNCOPE IN PATIENTS WITH CARDIOINHIBITORY RESPONSE ON HEAD-UP TILT TEST

Ana Raquel Carvalho Santos, Sofia Jacinto, Ana Lousinha, Madalena Coutinho Cruz, Guilherme Portugal, Pedro Silva Cunha, Sérgio Laranjo, Margarida Paulo, Manuel Brás, Ana Sofia Delgado, Rita Contins, Catarina Oliveira, Helena Fonseca, Mário Martins Oliveira, Rui Cruz Ferreira

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

Introduction: The proper management of patients (P) with cardioinhibitory (CI) syncope has been the subject of much debate. Since the 2021 ESC guidelines on cardiac pacing, dual-chamber pacemaker therapy is a class IA in P with severe, unpredictable, recurrent syncope and an asystole either documented on implantable cardiac monitoring, induced by carotid sinus massage or head-up tilt test (HUTT). The pacing therapy will not completely eliminate recurrence of syncope in the long term and recent studies documented a recurrence rate of 20-22% at 3 years of P with pacemaker implantation regardless of the index diagnostic test. HUTT usefulness is still questioned, as pacing may affect the CI component of the vasovagal reflex without affecting the vasodepressor component, that can dominate. This uncertain benefit of pacing and HUTT for P' selection arises the need of further research on the subject.
Objectives: To evaluate the effectiveness of dual-chamber pacing in P with a CI response on HUTT.
Methods: This retrospective non-randomized study included P with a CI response in HUTT and pacemaker implantation between 2003 and September of 2022. To evaluate syncopal recurrence during follow-up, review of recent medical records and telephone P interview were made. Descriptive statistics are presented as absolute frequency (number) and relative frequency (percentage) for categorical variables and as median and interquartile range (IQR) for continuous variables.
Results: There were 40 P with a CI response on HUTT resulting in pacemaker implantation. The median follow-up time was 4.5 years (2.25-9.75). The majority were female, 57.5% (n = 23), with a median age of 60 years (44-69), 35% were on antihypertensive therapy, 10% were diabetic, 2.5% had medicated peripheral vertigo and 20% had a previous neurologic disorder (stroke 5%, epilepsy 7.5%, narcolepsy 2.5% and migraine 2.5%). Asymptomatic sinus bradycardia was documented in 15% of patients before HUTT. Median time until syncope on HUTT was 1,440 seconds (s) (432-1,694) with a median pause on HUTT 22 s (9-36). During follow up, 12.5% (n = 5) had a new syncopal event and 22.5% (n = 9) had recurrence of prodromal symptoms. Syncopal recurrence occurred exclusively among the female population.
Conclusions: When analysing patients' selection regardless of the index diagnostic test applied, in recent studies, there were higher rates of syncopal recurrence. Our series with HUTT selection of patients has a lower recurrence rate of syncope than previously described.

PO 144. IMPLANTE DE PACEMAKER DEFINITIVO EM AMBULATÓRIO- UMA REALIDADE SEGURA E CUSTO-EFETIVA

Rodrigo Pinto Silva, Fernando Mané, Rui Flores, Paulo Medeiros, Carla Rodrigues, Cátia Oliveira, Sónia Magalhães, Adília Rebelo, Sérgia Rocha, Jorge Marques, Carina Arantes

Hospital de Braga, EPE.

Introdução: O implante de *pacemaker* definitivo (PM) é um procedimento minimamente invasivo, mas com risco de complicações *major*, o que implica vigilância intra-hospitalar do doente no pós-operatório.
Objetivos: Avaliar a segurança e custo do procedimento de implante de PM em regime de ambulatório.
Métodos: Estudo retrospetivo unicêntrico com base em doentes (n = 154) submetidos a implante eletivo de PM. Foram comparados 2 grupos de acordo com a duração da vigilância pós-operatória intrahospitalar: Grupo 1 (n = 90) - procedimentos efetuados de janeiro a outubro de 2019 com internamento de 24 horas; Grupo (n = 64) - procedimentos efetuados em igual período do ano de 2020 com vigilância pós-operatória de 3-4 horas. Foram analisadas as características demográficas, clínicas e as complicações agudas e no seguimento aos 3 meses.
Resultados: A média das idades da população foi de 77,2 ± 9 anos, com predomínio do sexo masculino (64,9%). Os dois grupos não foram significativamente diferentes quanto à prevalência de HTA, DM tipo 2, DPOC e cardiopatia estrutural. O uso de terapêutica anticoagulante (56% *vs.* 44%, p = 0,64) ou de antiagregante (62% *vs.* 38%, p = 0,5) foi semelhante nos dois grupos. Em ambos os grupos, a doença do nó auriculoventricular foi o motivo de implante mais comum (57% *vs.* 55%, p = 0,605). Os geradores mais implantados foram de dupla câmara (84% *vs.* 83%, p = 0,787). O acesso vascular privilegiado para a colocação dos elétrodos foi a veia cefálica esquerda (54% *vs.* 54%, p = 0,642), seguindo-se a veia subclávia esquerda (30% *vs.* 27%, p = 0,642) e da colocação de um elétrodo em ambas (6,7% *vs.* 12,5%, p = 0,787). Não houve diferenças na incidência de complicações pós-operatórias imediatas (3,3% *vs.* 1,6%, p = 0,496), tardias (4,4% *vs.* 7,8%, p = 0,380), nem na mortalidade aos 30 dias (1,1% *vs.* 0%, p = 0,398) ou aos 3 meses (2,2% *vs.* 0%, p = 0,230). Três doentes do Grupo 1 apresentaram complicações agudas - deslocamento de elétrodo, pneumotórax iatrogénico e um hematoma da loca. Sete doentes G2 foram internados para vigilância, 6 por decisão do operador (por questões relacionadas com o procedimento e necessidade de vigilância mais prolongada) e um motivado por complicação aguda (pneumotórax iatrogénico). Um doente do Grupo 1 apresentou deslocamento tardio de elétrodo e dois apresentaram infeção da loca como complicação tardia. Do Grupo 2, 5 doentes apresentaram complicações tardias (2 hematomas da loca e 3 deslocamentos de elétrodo, sem necessidade de reintervenção). A realização do implante de PM em regime de hospital de dia médico resultou numa redução superior a 75% dos custos por doente, o que corresponde a uma poupança estimada superior a 25.000€ anuais.

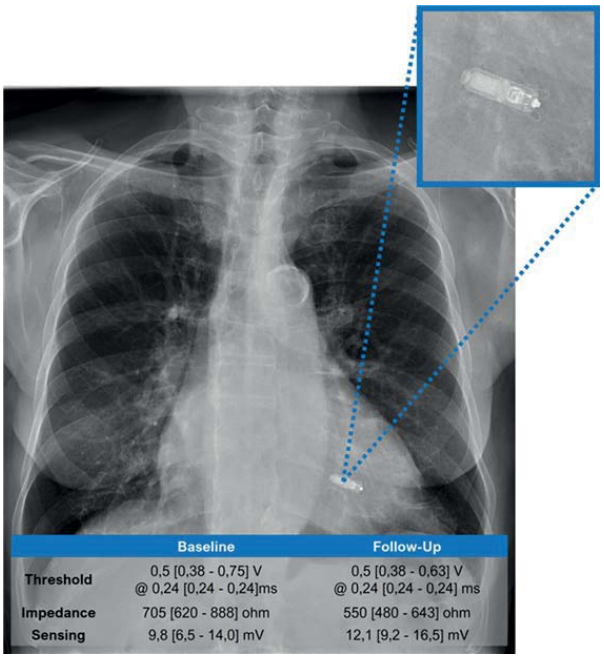
Conclusões: O envelhecimento da população está relacionado com um aumento da pressão colocada nos serviços de saúde e custos associados à saúde. A colocação de *pacemaker* definitivo, em doentes selecionados, em regime de ambulatório é uma alternativa segura e custo-efetivo.

PO 145. LEADLESS PACEMAKER: SINGLE CENTRE 5 YEAR EXPERIENCE

Rita Amador, Pedro Carmo, Diogo Cavaco, João Carmo, João Presume, Ana Rita Reis Santos, Pedro Lopes, Daniel Matos, Gustavo Rodrigues, Pedro Galvão Santos, Francisco Moscoso Costa, Maria Salomé Carvalho, Francisco Morgado, Pedro Adragão

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

Introduction: Leadless pacemakers were developed with the goal of reducing infectious pacemaker complications without compromising efficacy. The aim of this study was to evaluate the efficacy of pacing both at baseline and during follow-up in patients who had a leadless pacemaker (Micra VR™) implanted in a real-world setting.
Methods: We conducted a single-centre retrospective study of patients receiving the Micra VR™ leadless pacemaker between 2015 and 2022. Only patients with both implantation and follow-up in our centre were included. Pacing threshold voltage and duration of impulse, impedance and R wave amplitude were recorded at baseline and at the last follow-up available in medical records for each patient. Efficacy endpoint was defined as a pacing threshold inferior to 2V and 0.24 ms of duration together with an absence of increase larger than 1.5V during follow-up.



Results: A total of 94 patients were included, mean age 78 ± 10 years, 66% (n = 62) male. The main indication for PM implantation in this group of patients was atrial fibrillation with a low ventricular rate (48%), followed by atrioventricular block (32%). The median procedural duration was 33 [27-46] minutes, with fluoroscopy time of 3 [2-5] minutes. The Micra pacemaker was successfully implanted in all patients. At baseline, median threshold was 0.5 [0.38-0.75] V with impulse duration 0.24 [0.24-0.24] ms. Mean impedance was 705 [620-888] ohm, and R wave amplitude was 9.8 [6.5-14.0] mV. In this group, 4 patients had an R wave amplitude at baseline lower than 5 mV. The need to replace the system arose in only 1 patient, with loss of ventricular capture less than 24h after implantation. At the last follow-up appointment (median follow-up duration 29 [9-46] months), median threshold was 0.5 [0.38-0.63] V with impulse duration 0.24 [0.24-0.24] ms. Mean impedance was 550 [480-643] ohm, and R wave amplitude was 12.1 [9.2-16.5] mV. Furthermore, patients with a R wave amplitude under 5 mV at baseline showed an improvement and had at follow-up an amplitude greater than 5 mV. 34 patients (36%) showed a slight reduction in threshold, 45 (48%) showed increase and 15 (%) maintained threshold. All 94 patients met the efficacy endpoint.
Conclusions: In out cohort with still limited follow-up, the MICRA VR™ pacemaker showed good efficacy that was maintained during follow-up.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 6) - Intervenção valvular aórtica percutânea 1

PO 146. MANTA VASCULAR CLOSURE DEVICE AFTER TRANSFEMORAL TRANSCATHETER AORTIC VALVE IMPLANTATION: A UNIVERSAL CLOSURE FOR ALL PATIENTS

João Borges-Rosa, Sofia Martinho, Ana Rita M. Gomes, Gustavo M. Campos, Ana Vera Marinho, Elisabete Jorge, Joana Delgado Silva, Luís Leite, Marco Costa, Lino Gonçalves

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

Introduction: Transcatheter aortic valve implantation (TAVI) has revolutionized the treatment of symptomatic severe aortic stenosis and is usually performed via transfemoral access. However, the high rate of vascular complications (5-20%) at the large-bore access site might impair clinical outcomes. There are several options for access site closure, including MANTA vascular closure device (Teleflex, Morrisville, NC, USA) which showed promising results in trials. We aimed to evaluate the rate of device failure and vascular complications in transfemoral TAVI patients treated by the MANTA device in a real-world cohort.
Methods: We conducted a retrospective single-centre study with consecutive patients with symptomatic severe aortic stenosis who underwent transfemoral TAVI and in whom the MANTA device was used to close the arterial large-bore femoral access, between March 2020 to March 2022. The primary endpoint was the rate of device failure and vascular/bleeding complications at the large-bore access site according to the Valve Academic Research Consortium (VARC)-3 definitions. Secondary endpoints were cardiovascular and non-cardiovascular mortality during index hospitalization and at 30-days follow-up.
Results: A total of 250 patients were included, mean age of 81.44 ± 6.11 years, 53.6% females, with a median EuroSCORE II of 3.15% (IQR 2.07 - 4.75). Nearly two-thirds were under antithrombotic treatment (35.6% anticoagulants and 32.0% antiplatelet). Mean femoral artery minimal diameter was 7.51 ± 1.42, 27.7% had moderate to severe calcification, and 10.7% had moderate to severe tortuosity. The Evolut R/PRO was the most frequently implanted (51.36%). Successful closure of the large-bore access site was accomplished in 92.4% (n = 231) and only one patient with device failure required surgical closure. Vascular complications occurred in 9.20% (n = 23), most related to the plug-based device (92.3%, n = 21) and all minor: femoral artery stenosis (66.7%, n = 14), hematomas (23.8%, n = 5) and pseudoaneurysms (9.5%, n = 2) of the common femoral artery. Bleeding complications occurred in 2.9% (n = 7), all VARC type 1. Both smaller minimal femoral artery diameter (6.6 ± 1.1 mm *vs.* 7.6 ± 1.4 mm, p < 0.01) and bigger sheath to femoral artery diameter ratio (0.78 ± 0.16 *vs.* 0.69 ± 0.15, p = 0.02) predicted device failure. Device failure did not prolong the length of hospital stay (4.00, IQR 3.00-5.00 days *vs.* 4.00, IQR 3.00-5.00; p = 0.77). From patients discharged, thirty-day mortality was 0.4% (n = 1), from non-cardiovascular cause (urosepsis).
Conclusions: Our results suggest that in the real world, in very frail patients, the MANTA device is a safe and efficient option for closing large-caliber femoral arterial access after transfemoral TAVI.

PO 147. TRANSCATHETER AORTIC VALVE IMPLANTATION PERCUTANEOUS ALTERNATIVE ACCESS ROUTES OUTCOMES

André Grazina[1], Bárbara Lacerda Teixeira[1], Alexandra Castelo[1], André Ferreira[1], Tiago Mendonça[1], Inês Rodrigues[1], Luís Almeida Morais[1], Tiago Pereira-da-Silva[1], Ruben Ramos[1], António Fiarresga[1], Lino Patrício[2], Rui Cruz Ferreira[1], Duarte Cacela[1]

[1]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [2]Hospital do Espírito Santo, EPE, Évora.

Introduction: Transfemoral (TF) access is globally accepted as the preferential route for transcatheter aortic valve implantation (TAVI). Despite technique experience and miniaturization of the new-generation transcatheter heart valves (currently using 14-16 French sheaths), registries describe impossibility of the TF access in up to 15% of patients, mainly due to extensive calcified peripheric arterial disease or unfavorable anatomy. From the several alternative access routes, the fully percutaneous routes have been chosen preferentially, as the trans-subclavian (TS), transcarotid (TC) and transcaval (TCv) accesses. Currently, there are no randomized clinical trials comparing these different approaches.

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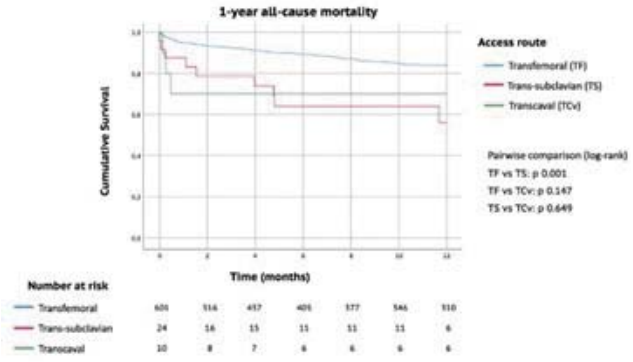

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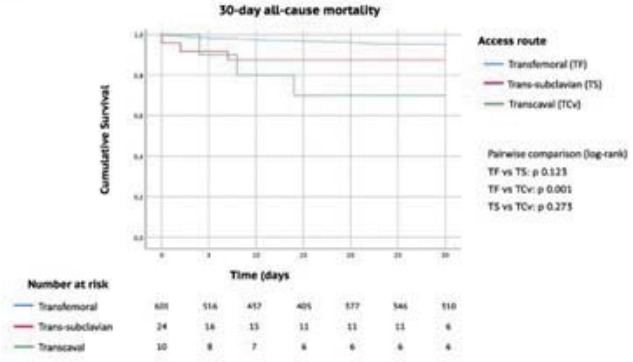

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Secondary endpoints	Overall TAVI population (635)	Transfemoral TAVI (601)	Trans subclavian TAVI (24)	Transcaval TAVI (10)
Technical success	93.5% (37)	93.5% (562) p 0.621	91.7% (22) p 0.663	100.0% (10) p 0.510
Residual moderate to severe peri-valvular leak	4.7% (30)	4.7% (28) p 0.671	4.2% (1) p 0.685	10.0% (1) p 0.386
Major vascular complication	5.8% (37)	5.7% (34) p 0.441	8.3% (2) p 0.645	10.0% (1) p 0.455
30-day stroke	3.9% (25)	3.5% (21) p 0.039	12.5% (3) p 0.064	10.0% (1) p 0.334
30-day major bleeding	10.6% (67)	10.0% (60) p 0.077	16.7% (4) p 0.308	30% (3) p 0.079
Acute Kidney Injury (AKIN 2 or 3)	8.8% (55)	8.1% (48) p 0.023	20.8% (5) p 0.051	20.0% (2) p 0.217

Objectives: This analysis aims to compare outcomes and complications of transfemoral, trans-subclavian and transcaval access routes for TAVI.
Methods: Retrospective analysis of patients submitted to TAVI using TF, TS and TCv accesses in a single tertiary center. The primary endpoints were 30-day and 1-year all-cause mortality and assessed using a Kaplan-Meier analysis. The secondary endpoints were technical success, residual moderate to severe perivalvular leak, major vascular complication, 30-day stroke, 30-day major bleeding (according to VARC-2 criteria) and 30-day acute Kidney Injury (AKIN criteria 2 or 3).
Results: 642 TAVI procedures were performed (601 transfemoral, 24 trans-subclavian and 10 transcaval) and 7 were excluded for using a transapical access. Regarding baseline characteristics, mean age, severity of aortic stenosis and valvular calcification were similar between the groups. The presence of left ventricular dysfunction and coronary artery disease was higher in the TS and TCv groups, the prevalence of atrial fibrillation and chronic kidney disease was higher in the TS group and the prevalence of previous stroke was higher in the TCv group. 1-year and 30-day all-cause mortality was similar between the TS and TCv groups (p 0.649 and p 0.273). TF access patients have lower mortality rates than TCv patients at 30 days (HR 6.26, p 0.001) and lower mortality rates than TS patients at 1 year (HR 3.15, p 0.001). 30-day stroke and acute kidney injury (AKIN 2 or 3) rates were significantly lower in the TF patients, but similar between TS and TCv patients. 30-day major bleeding rates showed a statistical tendency to lower rates in the TF group. Technical success, major vascular complication and residual moderate or severe perivalvular leak rates were similar between the three groups.
Conclusions: This analysis enhances the role of the transfemoral access as the preferential route for TAVI procedures. Regarding alternative access routes, both the trans-subclavian and transcaval have showed to be feasible with reasonable results, once the poorer outcomes when compared with the transfemoral patients can be partially explained by worst baseline characteristics.

PO 148. PACEMAKER IMPLANTATION AND DEPENDENCY AFTER TAVI - A TERTIARY CENTER EXPERIENCE

Joana Guimarães, Diogo Fernandes, Gonçalo Costa, Eric Monteiro, Gustavo Campos, João Rosa, Ana Rita Gomes, Rafaela Fernandes, Vanessa Lopes, João André Ferreira, Vera Marinho, Elisabete Jorge, Marco Costa, Graça Castro, Lino Gonçalves

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

Introduction: Conduction disturbances are one of the most frequent complications after transcatheter aortic valve implantation (TAVI), requiring permanent pacemaker implantation (PPI). However, studies about pacemaker dependency in these patients are scarce.
Objectives: The aim of this study is to analyze the incidence of PPI within 30 days after TAVI, short-term pacing dependency and its predictors.
Methods: We retrospectively analyzed consecutive patients who underwent TAVI at a Portuguese tertiary center from March 2020 to October 2022. Clinical, anatomical and ECG data were collected at presentation and during follow up, including systematic interrogation of implanted pacemaker at least twice after TAVI. Pacemaker dependency was defined as a ventricular pacing rate > 90%. Logistic regression test was used.
Results: From the total of 288 patients without previous pacemaker who underwent TAVI, 70 (24.3%) needed PPI after the procedure (57.1% were male and mean age was 82.4 ± 5.4 years old). PPI occurred at a median time of 3.7 days (range, 1-22 days). The main reason for PPI was complete atrioventricular block (AVB) (77.6%) followed by alternating bundle branch block (ABBB) (10.4%), LBBB plus 1st degree AVB (9%) and isolated left bundle branch block (LBBB) (3%). 2% of patients had a ventricular pacing rate of 0% during follow up and 47.2% were pacemaker dependent at 30 days. Patients with self-expandable prosthesis (OR 1.98, 95%CI 1.15-3.45, p = 0.03) and baseline right bundle branch block (OR 2.02, 95%CI 1.06-3.83, p = 0.04) revealed greater risk for PPI dependency at 1 month after TAVI. Within the group of patients with self-expandable prosthesis, no difference in pacing dependency was found between them. Left ventricular outflow tract

calcifications (OR 1.15, 95%CI 0.27-4.90, p = 0.85) and balloon post-dilation (OR 2.17, 95%CI 0.60-7.80, p = 0.24) were not associated with pacemaker dependency.
Conclusions: Less than half of the patients undergoing pacemaker implantation after TAVI are pacemaker-dependent at short-term follow-up, which may indicate that conduction disorders probably have a temporary nature. Also pre-procedure conduction abnormality and type of TAVI are associated with higher PPI dependency, thus influencing device selection.

PO 149. TRANSCATHETER AORTIC VALVE IMPLANTATION IN PATIENTS WITH LARGE AORTIC ANNULUS: A SINGLE CENTRE EXPERIENCE

Ana Rita M. Gomes[1], João Borges-Rosa[1], Gustavo Campos[1], Mariana Lima[2], Sofia Martinho[1], Ana Vera Marinho[1], Luís Leite[1], Elisabete Jorge[1], Joana Delgado Silva[1], Natália António[1], Marco Costa[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

Introduction: The growing number of patients eligible for transcatheter aortic valve implantation (TAVI) has created a need to make this procedure more widely accessible. As the criteria for TAVI continue to expand and more patients are selected for this minimally invasive procedure over surgical approach, the proportion of patients with large and extra-large annuli is increasing.
Objectives: This study aims to characterize the population with large annuli submitted to TAVI in our centre and its short and long-term follow-up.
Methods: Retrospective analysis of patients consecutively admitted for TAVI with Edwards Sapiens 29®, EvolutR34® or EvolutPro34® valves in a single Cardiology Department between March 2020 and May 2022. Baseline characteristics, echocardiographic and computed tomography angiography (CTA) parameters were collected. Short-term follow-up included screening for procedural vascular complications and significant paravalvular or central leaks. Long-term follow-up included death for all causes.
Results: A total of 44 patients were included with a median age of 82.0 (7.0) years old and 88.6% males. About half (56.8%) of the patients had a body-mass index > 25 kg/m^2, 79.5% had hypertension, 75.0% had dyslipidaemia and 40.9% had diabetes. Concerning established cardiovascular disease, 25.0% had a history of percutaneous coronary intervention (PCI), 4.5% of coronary artery bypass grafting and 20.5% had known peripheral artery disease. Basal echocardiographic parameters revealed a mean of the mean gradient of 46.7+-13.0 mmHg and a median left ventricular ejection function of 51.0 (24.0)%. The median aortic annulus measured by CTA was 30.0 (2.75) mm. After the procedure, 6.8% had minor vascular complications and there were no major vascular complications. At short-term follow-up, 11.4% had mild central regurgitation, 65.9% had mild paravalvular leaks and 15.9% had moderate paravalvular leaks. At 1-year follow-up, all-cause mortality rate was 18.2%.
Conclusions: This study analysed the characteristics and outcomes of patients with large annuli undergoing transcatheter aortic valve implantation (TAVI) in a single Cardiology centre. TAVI was associated with minor vascular complications in 6.8% of patients and no major complications. At short-term follow-up, only 15.9% had significant paravalvular leaks. The all-cause mortality rate at 1-year follow-up was 18.2%. These findings provide valuable insights into the outcomes of TAVI in patients with large annuli.

PO 150. UNPLANNED PERCUTANEOUS CORONARY INTERVENTION AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Mariana Lima[1], Elisabete Jorge[2], Ana Vera Marinho[2], João Rosa[2], Rita Gomes[2], Gustavo Campos[2], Luís Leite[2], Joana Silva[2], Marco Costa[2], Lino Gonçalves[2]

[1]Faculdade de Medicina da Universidade de Coimbra. [2]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra.

Introduction: Coronary artery disease (CAD) and aortic valve stenosis (AS) frequently coexist. This association is the result of similar pathogenesis and risk factors. Coronary access after transcatheter aortic valve replacement (TAVR) can make percutaneous coronary intervention (PCI) challenging. We aimed to evaluate the incidence and characteristics of unplanned PCI after TAVR.
Methods: In a single-center study, TAVR candidates were systematically screened for concomitant CAD using coronary angiography before TAVR. The decision for performing PCI was left to the Heart Team, considering the myocardium at risk, lesion complexity, and symptom status. We compiled a database of baseline characteristics, procedures, and follow-up data. Regular clinical FU was scheduled at 30 days and 1 year. We analyze the rate of unplanned PCI during the first year after TAVR.
Results: We studied 205 patients undergoing TAVR between 10 March 2020 and 10 December 2021. 55.6% were women with a mean age of 81.4 years (± 6.3). Regarding the classic risk factors, 30.3% were diabetic, 71.6% had dyslipidemia, 78.6% had hypertension and 10% were active smokers. When it comes to prior history of CAD, 32.5% of patients had a history of PCI, 5% of CABG, and 11.5% of acute coronary syndrome (ACS). Atrial fibrillation was present in 35.7% of patients and peripheral arterial disease in 23.5%. The mean left ventricular ejection fraction was 52% (± 11.4), the mean transaortic gradient was 48.5 mmHg (± 14.5%) and the mean NT-proBNP was 5,456.9 pg/mL (± 10,895.8). In terms of the type of transcatheter aortic valve, we implanted 25 balloon-expandable and 175 self-expandable aortic valves. During the FU, only 2 patients underwent unplanned PCI after TAVR (0.98%). The indication for unplanned PCI was ACS. Both patients had a prior history of CAD. One patient was admitted due to non-ST elevation ACS Killip Kimball score 2, 15 days after TAVR, caused by severe in-stent restenosis in the right coronary artery (PCI in March 2020) and severe stenosis in the left anterior descending artery. Successful PCI was performed in both lesions using the left radial artery. The second patient had a lateral ST elevation ACS 13 months after TAVR and was submitted to successful PCI of the first diagonal by right radial access.
Conclusions: Unplanned PCI after TAVR was infrequent and the most common indication for PCI was ACS.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 7) - Miocardiopatias hereditárias

PO 151. A PILOT CHARACTERIZATION OF PATIENTS WITH LEFT VENTRICULAR ARRHYTHMOGENIC AND DILATED CARDIOMYOPATHY

Miguel Marques Antunes, André Ferreira, Diana Antunes, Isabel Cardoso, José Viegas, Pedro Brás, Sílvia Aguiar Rosa, Rui Cruz Ferreira

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

Introduction: While right ventricular (RV) arrhythmogenic cardiomyopathy (ACM) has been a recognized clinical syndrome for several years, left ventricle (LV) or bi-ventricular (BiV) ACM has only recently been identified as an independent clinical syndrome. Prior to the advent of genetic medicine, these patients (P) were mislabeled as having dilated cardiomyopathy (DCM). There is mounting evidence that patient outcomes and disease presentation differ among these entities, and hence a need to clinically and genetically characterize these distinct patient populations.
Objectives: To evaluate multimodality imaging and clinical characterization differences between patients with genetically confirmed LV/BiV ACM and DCM.
Methods: We conducted a retrospective analysis of all P with a clinical diagnosis of DCM and LV or Bi-V ACM followed in a cardiomyopathy clinic. These patients had to have a positive genetic test compatible with either

Co-variates	MCD (n=17)	ACM (n=10)	p-value
Age (y)	43	49	0,31
Male	59%	50%	0,65
Caucasian	80%	78%	0,89
NYHA class (1-4)	1,6	1,4	0,81
Hipertension	18%	20%	0,87
Dislipidaemia	29%	40%	0,18
Diabetes	0%	10%	0,57
Atrial Fibrilation	12%	50%	0,029
Tobacco	35%	20%	0,4
Alcool	35%	10%	0,148
Drugs			
Class III Antyarrithmic	12%	50%	0,029
Amiodarone	12%	30%	0,23
Sotalol	0%	20%	0,055
Beta-Blocker	100%	70%	0,017
Aspirin	6%	10%	0,69
DOAC	12%	40%	0,03
ARNI	40%	20%	0,26
ACEi	60%	60%	0,8
Statin	24%	50%	0,16
SGLTi	35%	40%	0,8
ARM	65%	30%	0,08
Furosemide	47%	40%	0,77
Echocardiography			
LVd	55±6	53±10	0,8
E/e'	10,3±3	10,1±5	0,89
TAPSE	22±3	21±5	0,91
PSAP	29±9	28±7	0,92
LVEF	49±12%	54±11%	0,38
GLS	15,4±4%	14,1±4%	0,5
Holter			
Average heart rate	75±7	70,5±8	0,24
Total ventricular ectopy	1067	1785	0,44
Holter NSVT	27%	33%	0,79

CMR	n=17	n=10	p-value
LVDV	165±101	148±22	0,78
LVDVi	100±39	89±7	0,72
LVSV	122±97	73±13	0,42
LVSVi	61±42	49±13	0,71
LVEF	41±19	49±16	0,49
LV Stroke vol	121±97	73±13	0,42
RVDV	174±91	103±32	0,34
RVDVi	97±32	67±19	0,27
RVSV	115±100	46±5	0,39
RVSVi	58±37	30±2.8	0,36
RVEF	44±16	54±9	0,48
LGE	63±50%	63±50%	0,90

CPET	MCD	MCA	p-value
Duration (min)	14±3,9	11,6±4,0	0,19
Baseline HR	86±16,9	91,5±22,2	0,6
Double product var	12476,4±5147,2	12067,5±4840,2	0,86
pVO2	25,5±7,0	19,2±7,2	0,18
pVO2%	75,9±21,7	67,7±22,7	0,56
pVO2 slope	26,0±4,0	29,7±7,6	0,24
PQR	1,1±0,3	1,1±0,0	0,77
LANA (min)	8,5±3,4	7,0±3,0	0,49
LANA VO2	15,4±6,9	12,7±3,6	0,52
LANA HR	106,3±20,7	103,3±9,3	0,82
LANA slope	31,7±7,7	29,7±2,5	0,75
Vent. Ectopy (E)	14%	40%	0,04

Figure PO 151

disease phenotype and an identified pathologic or likely pathologic variant. All patients without a genetic test or with a variant of unknown significance were excluded. ACM was diagnosed according to the 2020 Padua Criteria. Patient characteristics, cardiac magnetic resonance (CMR) imaging, echocardiographic data, and cardiopulmonary exercise stress test data were extracted. Linear regression models Chi-squared and Wilcoxon signed rank tests were used to determine inter-group differences.

Results: 27P were included, 17 with DCM and 10 with ACM diagnosis, 7 of which had isolated LV ACM. In the ACM group there were 5 LMNA, 2 PKP2, 1 DSP, 1 FLNC and 1 MYBPC3 P. In the MCD group there were 12 TTN, 3 MYBPC3 and 2 MYH7 P. Median age was 45 IQR (30-52), with 16 (58%) of patients being male and 22 (80%) Caucasian. Patients with ACM had more baseline atrial fibrillation (50% *vs.* 11%, p = 0.029). They were more likely to be on class III antiarrhythmics (50% *vs.* 12%, p = 0.029), and less likely to receive beta-blocker therapy (70% *vs.* 100%, p = 0.017). There were no statistical differences found in any of the echographic or CMR parameters, namely in LV and RV ejection fractions among both groups. Regarding CPET, inter-group differences did not differ with the exception of the presence of increased ventricular ectopy during exercise in the MCA group (40% *vs.* 14%, p = 0.042). General full P characteristics and pharmacotherapy are depicted in the Table.

Conclusions: In cohort of clinically and genetically confirmed DCM and LV/BiV ACM patients, individuals with LV/BiV ACM there were no major differences in morphological features, although arrhythmic events and pharmacological regiments varied between patients. We intend to further this multimodality imaging and exercise evaluation in the future in order to find better disease discriminators.

PO 152. THE RISK OF CARDIAC HOSPITALIZATION AND ARRYTHMIAS IN PATIENTS WITH ARRHYTHMOGENIC AND DILATED CARDIOMYOPATHIES

Miguel Marques Antunes, Isabel Cardoso, Diana Antunes, André Ferreira, José Viegas, Pedro Brás, Sílvia Aguiar Rosa, Rui Cruz Ferreira

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Introduction: Patients (P) with left ventricle (LV) or bi-ventricular (BiV) arrhythmogenic cardiomyopathy (ACM) have been previously misclassified as having dilated cardiomyopathy (DCM), prior to the recognition of LV/BiV ACM as an independent clinical entity. This differentiation has been made possible with the advent of genetics, and while these CMs share a common pathway of LV disfunction, there is a growing notion that clinical outcomes differ among them, given the pathophysiological subtract behind each condition.

Objectives: To evaluate the difference in clinical outcomes between patients with genetically confirmed LV/BiV ACM and DCM.

Methods: We conducted a retrospective analysis of all P with a clinical diagnosis of DCM and LV or Bi-V ACM followed in a cardiomyopathy clinic. These patients had to have a positive genetic test compatible with either disease phenotype and an identified pathologic or likely pathologic mutation. All patients without a genetic test or with a VUS were excluded. ACM was diagnosed according to the 2020 Padua Criteria. P characteristics, echocardiographic data, holter monitoring and clinical history were extracted. Outcomes consisted non-elective cardiovascular hospitalization, a composite of ventricular arrhythmic events (NSVT, VT and FV), transplantation and death. Chi-squared and Wilcoxon signed rank tests were used to determine inter-group differences. Logistical regression was used for binomial outcome assessment with derivation of the Odds-Ratios (OR) with 95%CI.

Results: 27P were included, 17 with DCM and 10 with ACM diagnosis, 7 of which had isolated LV ACM. Median P age was 45 IQR (30-52), with 58% of patients being male. Patients with ACM had more baseline atrial fibrillation (50 *vs.* 11%, p = 0.029). Average LVEF assessed by echocardiography was 50% ± 11, being 4.5% higher (p = NS) and average heart rate assessed by Holter monitoring was 4.5% lower (p = NS) in the ACM arm. General inter-group characteristics and pharmacotherapy are depicted in the Table. In the ACM group there were 5 LMNA, 2 PKP2, 1 DSP, 1 FLNC and 1 MYBPC3 P. In the MCD group there were 12 TTN, 3 MYBPC3 and 2 MYH7 P. 8 patients (80%) in the MCA group and 6 (35%) in the DCM group had an ICD. There were 5 appropriate ICD therapies in the MCA group and 2 in the DCM group, with 1 additional inappropriate therapy. There were no deaths in this cohort, and 1 patient with ACM was transplanted. Cardiac hospitalization was significantly

increased in P with ACM (OR 6.3, 95%CI 1-38) as well as incident ventricular arrythmias (OR 7, 95% 1.8-50) when compared to DCM P.

Co-variates	MCD (n=17)	ACM (n=10)	p-value
Age (y)	43	49	0,31
Male	59%	50%	0,65
Caucasian	80%	78%	0,89
NYHA class (1-4)	1,6	1,4	0,81
Hipertension	18%	20%	0,87
Dislipidaemia	29%	40%	0,18
Diabetes	0%	10%	0,57
Atrial Fibrilation	12%	50%	0,029
Tobacco	35%	20%	0,4
Alcool	35%	10%	0,148
Drugs			
Class III Antyarrithmic	12%	50%	0,029
Amiodarone	12%	30%	0,23
Sotalol	0%	20%	0,055
Beta-Blocker	100%	70%	0,017
Aspirin	6%	10%	0,69
DOAC	12%	40%	0,03
ARNI	40%	20%	0,26
ACEi	60%	60%	0,8
Statin	24%	50%	0,16
SGLTi	35%	40%	0,8
ARM	65%	30%	0,08
Furosemide	47%	40%	0,77
Echocardiography			
LVd	55±6	53±10	0,8
E/e'	10,3±3	10,1±5	0,89
TAPSE	22±3	21±5	0,91
PSAP	29±9	28±7	0,92
LVEF	49±12%	54±11%	0,38
GLS	15,4±4%	14,1±4%	0,5
Holter			
Average heart rate	75±7	70,5±8	0,24
Total ventricular ectopy	1067	1785	0,44
Holter NSVT	27%	33%	0,79

Conclusions: In cohort of clinically and genetically confirmed DCM and LV/BiV ACM P, individuals with LV/BiV ACM had a significantly higher arrhythmic clinical burden and had a greater risk for hospitalization for cardiac cause in spite of similar ventricular function. This underscores the need for early genetic testing to identify these at-risk individuals.

PO 153. PREDICTORS OF LEFT VENTRICULAR DYSFUNCTION IN HYPERTROPHIC CARDIOMYOPATHY: RESULTS FROM A NATIONWIDE REGISTRY

Mariana S. Brandão[1], João Gonçalves Almeida[1], Paulo Fonseca[1], Rita Faria[1], Olga Sousa[1], Conceição Fonseca[1], Ricardo Fontes-Carvalho[1], on behalf of the Portuguese Registry of Hypertrophic Cardiomyopathy (Pro-HCM) Investigators[2]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Sociedade Portuguesa de Cardiologia.

Introduction: Progression of hypertrophic cardiomyopathy (HCM) with left ventricular (LV) dysfunction (HCM-LVSD) is associated with poor prognosis, with prevalence ranging from 5-10%. Identification of predictors of LVSD may improve risk stratification and prognostication in HCM.
Objectives: To identify predictors of HCM-LVSD.
Methods: Retrospective study including all HCM pts enrolled in a nationwide registry. HCM-LVSD group included pts with LV ejection fraction (LVEF) ≤ 50% at baseline and pts who developed LV dysfunction/dilated phenotype during follow-up. Multivariate logistic regression was performed to identify predictors of HCM-LVSD.
Results: 1042 HCM patients (57.8% male, mean age at diagnosis 52 years) were included; 81 (8%) belonged to the HCM-LVSD group. HCM-LVSD pts were mostly male (60.5%) and tended to be older at the time of diagnosis than those without LVSD (55 *vs.* 52 years, p = 0.054). HCM-LVSD pts were more often symptomatic (84.1% *vs.* 65.2%, p < 0.001), with more functional impairment (New York Heart Association class III-IV: 18.5% *vs.* 9.2%, p = 0.021). Atrial fibrillation (21.3% *vs.* 8.6%, p < 0.001) and intraventricular conduction disturbances (28.6% *vs.* 14.4%, p = 0.002) were more prevalent in HCM-LVSD pts. HCM-LVSD pts had higher baseline left atrium (LA) volumes (52 *vs.* 39 ml, p = 0.001), lower LVEF (50 *vs.* 67%, p < 0.001) and higher rates of mitral regurgitation (79.0% *vs.* 65.1%, p = 0.011). Prevalence of obstructive HCM was lower in the HCM-LSVD group (25.3% *vs.* 40.9%, p = 0.007). Presence of late gadolinium enhancement (92.6% *vs.* 74.6%, p = 0.035) was more common in pts with LVSD. Baseline N-terminal pro-B-type natriuretic peptide was higher in HCM-LVSD (3,839 *vs.* 1,281 pg/ml, p = 0.027). In HCM-LVSD pts, implantation of cardioverter-defibrillators for secondary prevention was more frequent (28.6% *vs.* 6.4%, p = 0.002), as was the use of pacemaker (16.7% *vs.* 7.0%, p = 0.002). During a mean follow-up of 5.3 ± 6.1 years, hospitalization for HF (50.0% *vs.* 11.3%) and all-cause mortality (12.3% *vs.* 2.9%, p < 0.001) were more frequent in HCM-LVSD group. After multivariate analysis, higher LA volume (odds ratio [OR] 1.03, 95% confidence interval [CI] 1.01-1.05, p = 0.003) and nonobstructive HCM (OR 2.74, 95%CI 1.03-7.27, p = 0.043) were independent predictors of HCM-LVSD.
Conclusions: In this large nationwide cohort of HCM pts, prevalence of LVSD was 8%, in line with existing literature. In this cohort, larger LA volumes and nonobstructive HCM predicted progression to HCM-LVSD.

PO 154. FAMILIAL AMYLOID POLYNEUROPATHY: CARDIAC INVOLVEMENT IN LIVER TRANSPLANTED PATIENTS

Ana Beatriz Garcia[1], João R. Agostinho[1], Pedro Alves da Silva[1], Daniel Cazeiro[1], Marta Varela[1], Diogo Ferreira[1], João Cravo[1], Ana Abrantes[1], Miguel Raposo[1], Catarina Gregório[1], João Fonseca[1], Catarina Simões de Oliveira[1], Ana Margarida Martins[1], Joana Brito[1], Beatriz Silva[1], Conceição Coutinho[1], Élia Mateus[2], Isabel Conceição[1], Fausto Pinto[1]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Curry Cabral.

Introduction: Familial amyloid polyneuropathy (FAP) is a rare disease caused by transthyretin variant. Progressive neuropathy is a disease hallmark, however cardiac involvement is often underdiagnosed. Liver transplantation (LT) was frequently used in FAP patients. The course of amyloid cardiomyopathy (AC) in this population is poorly studied.
Objectives: To evaluate cardiac involvement (CI) in liver transplanted FAP patients.
Methods: Medical records of FAP patients with V30M mutation were reviewed. Demographic, clinical, laboratory, echocardiographic, Holter recording and ambulatory blood pressure before LT and at follow-up (FUP) were collected. Descriptive and inferential statistics were performed to identify AC characterized by left ventricular hypertrophy (LVH) in the absence of abnormal loading conditions such as arterial hypertension or significant valvular heart disease. LVH was defined by either 1) interventricular septum or posterior wall dimension ≥ 12 mm or 2) index left ventricular mass ≥ 95 g/m^2 in females and ≥ 115 g/m^2 in males.
Results: We enrolled 112 pts (median age 36 ± 9 yrs at the time of LT; 55% men) followed during a mean time of 12 years after LT. At initial evaluation, a minority of patients were on cardiovascular therapy (CVT) (2% on diuretic, 2% on ACEi/ARB and 1% on beta-blocker) and the mean NTproBNP was 418 pg/mL. CI by criteria 1) was present in 21% and by criteria 2) in 15% of the population, raising the hypothesis that CI may start before LT. The mean age at the time of LT in patients with LVH criteria was 41 years (*vs.* 36 years in the others). In patients that did not fulfil LVH criteria before LT, none developed it by criteria 1) (despite significant increase in posterior wall dimension - p = 0.01), but a significant number of patients (21%) developed cardiac involvement by criteria 2) (p < 0.001). This progression was associated with the presence of chronotropic incompetence in stress test

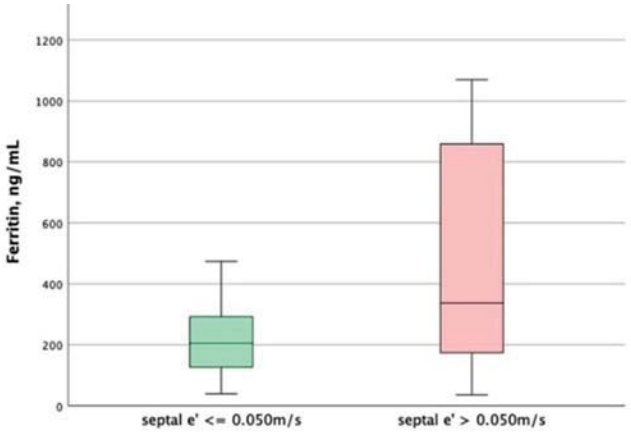
before LT (p = 0.01). At FUP, more patients were on CVT (15% on diuretic, 6% on ACEi/ARB and 11% on beta-blocker). The mean NTproBNP was 595 pg/mL and no hospital admissions by heart failure occured.
Conclusions: Our results showed that cardiac involvement is a reality in FAP and that it can be present prematurely in patients with early onset phenotype even before liver transplant. The low rate of left ventricle hypertrophy development or progression after LT may suggest that it may halt cardiac involvement.

PO 155. UNDERSTANDING THE COMPLEX PHENOTYPE OF HYPERTROPHIC CARDIOMYOPATHY: THE ROLE OF SYSTEMIC INFLAMMATION

Inês Pereira de Miranda, Filipa Gerardo, Mariana Passos, Inês Fialho, Carolina Mateus, Joana Lima Lopes, Marco Beringuilho, David Roque, Carlos Morais, João Bicho Augusto

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

Introduction: The pathophysiology of hypertrophic cardiomyopathy (HCM) involves a number of mechanisms that include endothelial dysfunction and myocardial fibrosis. Myocyte death can lead to local and systemic inflammation and perpetuate a positive feedback loop of necrosis/apoptosis and inflammation.
Objectives: We sought associations between (1) local myocardial lesion (troponin) and systemic inflammation in HCM, and (2) the effects of a systemic and local inflammation model to explain the phenotypic imaging complexity of HCM.
Methods: We included all consecutive HCM patients seen at our institution in a 10-year period. We collected data regarding demographic and clinical aspects, as well as systemic inflammation markers such as erythrocyte sedimentation rate (ESR), C-related protein, ferritin and albumin (the latter an inverse/negative marker of inflammation). High-sensitivity troponin levels were also measured, reflecting local inflammation/myocyte death. Finally, we analyzed the structural phenotype of HCM using echocardiography and cardiac MRI imaging. Multivariable regression models to predict the imaging phenotype were built using a backwards conditional input method.



Results: A total of 106 HCM patients were included, 52 male (49%), with a mean age of 70 ± 16 years. No associations between inflammatory markers and left ventricular (LV) maximum wall thickness or LV mass were found. Among all systemic inflammation markers, only ESR showed a correlation trend with troponin (R = 0.30, p = 0.063). Multivariable regression models were consistent with a role of ferritin (systemic marker, beta coefficient 0.09 [0.03-0.15]], p = 0.006) and troponin (local marker, beta coefficient 0.72 [0.19-1.24], p = 0.014) on LV end-diastolic volume, with higher values of ferritin and troponin reflecting LV dilatation. Coincidentally, the same variables also generated the best prediction model for increased peak tricuspid regurgitation velocity (ferritin, beta 0.09 [95%CI 0.03-0.15], p = 0.006, and troponin, beta 0.09 [95%CI 0.03-0.15], p = 0.006). Ferritin was also consistent across all models to predict known markers of diastolic dysfunction: high septal e' velocity (p = 0.040), increased left atrial size (AP diameter, p = 0.005) and peak tricuspid regurgitation velocity (p = 0.006). No specific markers of myocardial fibrosis on cardiac MRI were found.
Conclusions: Systemic inflammation, as measured by ferritin, is a marker of left ventricular relaxation impairment and LV dilatation in HCM patients, but not necessarily reflecting myocardial fibrosis. Inflammation is likely an early marker of disease and a potential target for treatment in HCM.

Sábado, 15 Abril de 2023 | 15:00-16:00

Jardim de Inverno | Posters (Sessão 4 - Écran 8) - Síndromes coronárias agudas em populações especiais

PO 156. OUTCOMES OF DIABETIC PATIENTS WITH ACUTE CORONARY SYNDROMES TREATED WITH ASPIRIN IN PRIMARY PREVENTION

Hugo Alex Costa[1], Miguel Espírito Santo[1], Raquel Fernandes[1], Daniela Carvalho[1], João Bispo[1], João Guedes[1], Pedro Azevedo[1], Rui Candeias[1], Hugo Vinhas[1], Jorge Mimoso[1], Ilídio Jesus[1], em nome dos investigadores do Registo Nacional de Síndromes Coronárias Agudas[2]

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Introduction: The use of aspirin in primary prevention (PP) remains a matter of international debate. In type 2 diabetes *mellitus* (DM2) patients with high/very high cardiovascular (CV) risk, low dose aspirin may be considered for PP (class IIb, evidence level A) in European guidelines in the absence of hemorrhagic contraindication.
Objectives: Our aim was to analyze in-hospital and one year follow-up (FU) outcomes of acute coronary syndrome (ACS) DM2 patients without previous atherosclerotic CV disease (ASCVD) treated with *vs.* without aspirin in primary prevention.
Methods: A retrospective analysis was carried out of DM2 patients without established ASCVD admitted with ACS included in the Portuguese Registry of ACS between 2010-2021. Patients were divided in two groups regarding the use of aspirin in primary prevention (with-AG and without-NAG). Composite primary outcome (re-infarction, heart failure, shock, death - in-hospital) and secondary outcomes (one-year all-cause mortality and mortality/rehospitalization) were compared in both groups. Independent predictors of primary outcome were assessed by multivariate logistic regression. Survival analysis and cox regression were used to compare and identify predictors of secondary outcomes. P value < 0.05 indicates statistical significance.
Results: A total of 4,517 patients were analyzed, mean age 68 ± 12 years, 64.8% male. AG showed higher rates of hypertension (89.9%, p < 0.001), dyslipidemia (74.1%, p < 0.001), history of heart failure (9.2%, p < 0.001), valvular disease (3.9%, p = 0.002) and chronic renal disease (12.3%, p < 0.001). STEMI presentation was more frequent in NAG (48%, p < 0.001). Multivessel disease (mainly three vessels disease) was more frequent in AG (32.7%, p < 0.001), but anterior descendent (AD) as culprit artery was more common in NAG (40.3%, p = 0.013). Both groups had no difference in major hemorrhage occurrence. Primary outcome was more frequent in AG (18.6%, p = 0.034). One-year all-cause mortality and mortality/rehospitalization were higher in AG (9.90%, p = 0.004 and 32.9%, p = 0.017, survival analysis). Independent predictors of primary outcome were aspirin in primary prevention (OR 1.38, p = 0.026), age (OR 1.59, p < 0.001), valvular disease (OR 4.46, p < 0.001), STEMI at presentation (OR 2.20, p < 0.001), LVEF < 40% (OR 4.40, p < 0.001) and Killip-Kimball class > I (OR 12.9, p < 0.001). Aspirin in primary prevention (HR 1.84, p = 0.004), chronic lung disease (HR 5.68, p < 0.001), and Killip-Kimball class > I (HR 3.27, p < 0.001) were predictors of one-year all-cause mortality.
Conclusions: DM2 patients with ACS treated with aspirin in primary prevention had worst in-hospital and one-year FU outcomes. Although with higher rates of three vessels disease, PP with aspirin showed less AD disease and STEMI presentation, with similar major clinical hemorrhage.

Table 1 - Clinical characteristics and outcomes of diabetic patients with Vs without aspirin in primary prevention

			Aspirin in primary prevention			
			No (n=3495, 77,4%)	Yes (n=1022, 22,6%)	Total (n=4517)	p value
Gender	***Male***	n (%)	2283 (65,3)	643 (62,9)	2926 (64,8)	
	Female	n (%)	1212 (34,7)	379 (37,1)	1591 (35,2)	0,157
Age	***Mean±SD - years***		66,7±11,7	70,6±10,4	67,6±11,6	**<0,001**
BMI	***Mean±SD - years***		28,6±4,60	28,6±4,50	28,6±4,60	0,862
Hypertention		n (%)	2718 (78,3)	917 (89,9)	3635 (80,9)	**<0,001**
Dyslipidemia		n (%)	2121 (63,0)	732 (74,1)	2853 (65,5)	**<0,001**
Smoker		n (%)	733 (21,0)	121 (11,8)	854 (18,9)	**<0,001**
Heart failure history		n (%)	101 (2,90)	94,0 (9,20)	195 (4,30)	**<0,001**
Valvular disease		n (%)	75,0 (2,20)	40,0 (3,90)	115 (2,60)	**0,002**
Pacemaker		n (%)	51,0 (1,50)	19,0 (1,90)	70,0 (1,60)	0,355
Chronic renal disease		n (%)	195 (5,90)	118 (12,3)	313 (7,30)	**<0,001**
Chronic lung disease		n (%)	151 (4,40)	51,0 (5,10)	202 (4,50)	0,342
Clinical indication	***STEMI***	n (%)	1677 (48,0)	343 (33,6)	2020 (44,7)	**<0,001**
	NSTEMI	n (%)	1524 (43,6)	530 (51,9)	2054 (45,5)	**<0,001**
	Unstable angina	n (%)	184 (5,30)	108 (10,6)	292 (6,50)	**<0,001**
	ACS indeterminated	n (%)	110 (3,10)	41,0 (4,00)	151 (3,30)	0,176
Location of MI	***Anterior***	n (%)	779 (48,8)	141 (47,0)	920 (48,5)	0,572
	Inferior	n (%)	801 (50,2)	149 (49,7)	950 (50,1)	0,876
	LBBB	n (%)	17,0 (1,10)	10,0 (3,30)	27,0 (1,40)	**<0,001**
Class KK (admission)	***I***	n (%)	2849 (83,6)	742 (77,3)	3591 (82,2)	**<0,001**
	>I (II, III, IV)	n (%)	560 (16,4)	218 (22,7)	778 (17,8)	**<0,001**
LVEF at baseline	***Mean±SD - %***		52,0±12,0	50,0±13,0	51,0±12,0	**0,018**
Hemoglobin*	***Mean±SD - g/dl***		12,3±2,00	11,7±2,00	12,2±2,00	**<0,001**
Creatinine**	***Mean±SD - mg/dl***		1,30±1,20	1,60±1,50	1,40±1,30	**<0,001**
Nº of vessel with disease	***1 vessel***	n (%)	903 (34,4)	169 (23,3)	1072 (32,0)	**<0,001**
	2 vessels	n (%)	674 (25,7)	237 (32,7)	911 (27,2)	**<0,001**
	Multivessel disease (>1)	n (%)	1541 (55,7)	450 (59,2)	1991 (56,4)	0,080
Culprit artery	***LMCA***	n (%)	35,0 (1,50)	15,0 (2,60)	50,0 (1,70)	0,073
	Anterior Descendent	n (%)	929 (40,3)	199 (34,6)	1128 (39,1)	**0,013**
Major hemorrhage		n(%)	18,0 (0,50)	9,00 (1,00)	27,0 (0,60)	0,151
Primary outcome (composite):		n (%)	552 (15,8)	190 (18,6)	742 (16,4)	
-> Re-MI, HF, Shock, Death	***In-hospital***					**0,084**
Components of primary outcome						
	-> Re-MI	n (%)	7,00 (7,14)	9,00 (11,4)	30,0 (0,70)	0,526
	-> HF	n (%)	439 (14,6)	174 (18,4)	667 (15,4)	**0,005**
	-> Shock	n (%)	120 (24,0)	30 (16,9)	150 (22,1)	0,054
	-> Death	n (%)	107 (3,10)	29,0 (3,00)	136 (3,10)	0,814
Secondary outcome						
-> All cause mortality	***FU 1 year***	n (%)	83,0 (5,80)	32,0 (9,90)	115 (6,60)	**0,008**
-> All cause mortality and rehospitalization	***FU 1 year***	n (%)	338 (25,2)	100 (32,9)	438 (26,6)	**0,006**

ACS, Acute coronary syndrome; BMI, Body mass index; FU, Follow-up; HF, Heart failure; KK, Killip and Kimball class; LBBB, Left bundle brunch block; LMCA, Left main coronary artery; LVEF, Left ventricular ejection fraction; MI, Myocardial infarction; NSTEMI, Non-ST elevation myocardial infarction; SD, Standard deviation; STEMI, ST elevation myocardial infarction, * minimum, ** maximum

Figure PO 156

PO 157. IDENTIFICATION OF FAMILIAL HYPERCHOLESTEROLEMIA IN ACUTE CORONARY SYNDROME PATIENTS: ARE WE MISSING THE MARK?

Pedro Garcia Brás, Guilherme Portugal, Ana Teresa Timóteo, Bárbara Teixeira, Rita Teixeira, Sofia Jacinto, Alexandra Castelo, Vera Ferreira, Ana Raquel Santos, Francisco Albuquerque, André Ferreira, Isabel Cardoso, José Viegas, André Grazina, Rui Cruz Ferreira

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Introduction: Patients (P) with familial hypercholesterolemia (FH) have considerable elevation in levels of low-density lipoprotein (LDL) cholesterol and a higher risk of premature coronary artery disease and acute coronary syndromes (ACS). However, even in a hospital setting with a high volume of ACS P, the diagnosis of FH frequently goes undetected. The aim of this study was to evaluate the application of the Dutch Lipid Clinic Network (DLCN) Criteria in P admitted for ACS and to analyse ACS recurrence, hospitalization and mortality in a 30-day follow-up.

Methods: Retrospective evaluation of consecutive patients with ACS enrolled in a single-center prospective ACS registry from 2005 to 2019. Data from the digital files including family history and laboratory tests was analysed and P were followed up for 30 days for hospitalization, recurrent ACS, all-cause mortality and cardiovascular (CV) death.

Results: A total of 3,811 P were evaluated, mean age 63 ± 13 years, 28% female gender, 1,497 P (39%) with active smoking habits, 847 P (22%) with diabetes *mellitus*, 419 P (11%) with family history of coronary disease, 1,340 P (35%) with premature coronary artery disease, 53 P (1.4%) with premature cerebral or peripheral vascular disease and 522 (14%) with previous ACS. The mean LDL cholesterol was 125 ± 43 mg/dL, the mean high-density lipoprotein (HDL) cholesterol was 40 ± 16 mg/dL and the mean triglycerides was 132 ±

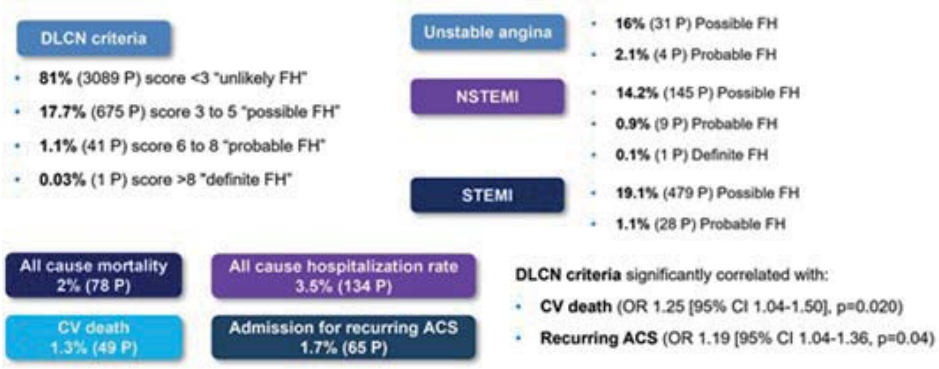

Figure PO 157

89 mg/dL. The diagnosis at hospital admission was unstable angina (UA) in 189 P (5%), non-ST-segment elevation myocardial infarction (NSTEMI) in 1,024 P (27%) and ST-segment elevation MI (STEMI) in 2,598 P (68%). The hospital mortality rate was 4.3% (163 P). Applying the DLCN criteria, 3,089 P (81%) had a score of < 3 ("unlikely FH"), 675 P (17.7%) a score of 3 to 5 ("possible FH"), 41 P (1.1%) a score of 6 to 8 ("probable FH") and 1 P (0.03%) a score of > 8 ("definite FH"). Stratifying according to ACS type: among UA P, 31 (16%) had "possible FH" and 4 (2.1%) had "probable FH". Among NSTEMI P, 145 (14.2%) had "possible FH", 9 P (0.9%) "probable FH" and 1 P (0.03%) had "definite FH". Finally, in STEMI P, 497 (19.1%) had "possible FH" and 28 P (1.1%) had "probable FH". In a 30-day follow-up, there was an all-cause mortality rate of 2% (78 P) and a CV death of 1.3% (49P), while the all-cause hospitalization rate was 3.5% (134P) and the recurrent admission for ACS was 1.7% (65P). The DLCN criteria score was significantly correlated with CV death (OR 1.25, 95%CI 1.04-1.50, p = 0.020) and admission for recurrent ACS (OR 1.19, 95%CI 1.04-1.36, p = 0.04).
Conclusions: Application of the Dutch Lipid Clinic Network criteria in P admitted for ACS revealed 675 P (17.7%) with "possible FH" and 41 P (1.1%) with "probable HF" as well as show significant correlation with CV death and recurrent ACS. Routine assessment of these criteria can be an accessible tool to stratify likelihood of FH and proceed accordingly to genetic testing.

PO 158. CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN PATIENTS ADMITTED WITH MYOCARDIAL INFARCTION: IMPACT ON THERAPY AND PROGNOSIS

Miguel Carias de Sousa, Marta Paralta, António Almeida, Francisco Cláudio, Rita Rocha, Bruno Piçarra, Ângela Bento, Manuel Trinca

Hospital do Espírito Santo, EPE, Évora.

Introduction: Chronic obstructive pulmonary disease (CPOD) is a common comorbidity in patients admitted with myocardial infarction (MI) and needs to be considered since it can condition therapeutic approach and potentially negatively impact their prognosis.
Objectives: We aim to evaluate the impact of CPOD in therapeutic approach, clinical course and in-hospital mortality in patients admitted with MI.
Methods: We retrospectively analysed a population of 2797 patients admitted with MI (C). We divided them into two distinct groups: those with an established diagnosis of CPOD (C1) and those without it (C2). Age, sex, personal history, in-hospital therapeutic, left ventricular ejection fraction (LVEF), electrocardiographical presentation and angioplasty were documented. We defined the following as complications: heart failure (HF), need for invasive and non-invasive mechanical ventilation, reinfarction, newly onset atrial fibrillation, high-grade atrioventricular block and need for temporary cardiac pacing. Mortality, incidence of complications and a combined outcome of both mortality and any of the previous complications were compared between groups. We applied a multivariate analysis to adjust the effect of CPOD to the presence of other potential predictors.
Results: C1 consisted of 6.3% of the population (N = 173). These patients were older (69.8 ± 10.6 *vs.* 65.5 ± 13.5 years; p < 0.001), had a higher prevalence of hypertension (76.3% *vs.* 68.7%; p = 0.036) and chronic kidney disease (13.7% *vs.* 5.6%; p < 0.001). They presented less frequently with ST-segment elevation MI (38.3% *vs.* 47.4%; p = 0.019), but more often with depressed LVEF (57.9% *vs.* 47.2%, p = 0.008). They received less beta-blockers (63.4% *vs.* 80.2%; p < 0.001) and had fewer rates of drug-eluting stents application (63.4% *vs.* 80.2%; p < 0.001); on the other hand, they were more frequently medicated with calcium-channel blockers (16.7% *vs.* 8.1%; p < 0.001) and diuretics (50.0% *vs.* 31.6%; p < 0.001) and more bare-metal stents were utilised (52.8% *vs.* 37.4%; p = 0.002). The diagnosis of CPOD was not associated with higher mortality in patients with MI, however C1 presented with an increased incidence of complications (33.1% *vs.* 26.0%; OR = 1.413 [1.019-1.959]; p = 0.037) and of the combined outcome (34.3% *vs.* 26.5%; OR = 1.447 [1.046-2.000]; p = 0.02). Though multivariate analysis, CPOD tends to be an independent predictor of mortality and/or development of complications, although it narrowly misses to achieve statistical significance (p = 0.056); only age, medication with beta-blockers and depressed LVEF were statistically independent predictors.
Conclusions: The comorbid diagnosis of CPOD conditions and the choice of medication in patients with MI tends to be an independent predictor of mortality and/or development of in-hospital complications.

PO 159. PROGNOSTIC IMPACT OF CHRONIC KIDNEY DISEASE IN ACUTE CORONARY SYNDROMES

Catarina Ribeiro Carvalho[1], Pedro Rocha Carvalho[1], Marta Catarina Bernardo[1], Isabel Martins Moreira[1], Fernando Fonseca Gonçalves[1], Pedro Mateus[1], Ana Baptista[1], Ilídio Moreira[1] em nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[2]

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Introduction: Coronary artery disease is a prevalent comorbidity in patients with chronic kidney disease (CKD). Considering the higher risk of contrast-induced nephropathy, acute coronary syndrome (ACS) patients with CKD may be less likely to have an invasive diagnostic and therapeutic strategy, which may further aggravate their prognosis.
Objectives: To evaluate the prognostic impact of CKD in the Portuguese population with ACS.
Methods: Patients hospitalized for non-ST elevation acute myocardial infarction (NSTEMI) included in a national multicentre retrospective study between 2010 and 2022 were divided according to eGFR. The impact of eGFR on the probability of invasive angiography and revascularization, complications, in-hospital and one year mortality rates was evaluated.
Results: A total of 12,348 patients was included: 73.8% had eGFR > 60, 19.1% between 30 and 60, 4.3% between 15 and 30 and 2.8% had eGFR < 15 ml/min/1.73 m^2. Compared with patients with eGFR > 60, those who had lower eGFR were less likely to receive an invasive diagnostic and therapeutic strategy, with only 66.9% of patients with eGFR < 15 ml/min/1.73 m^2 being submitted to coronary angiography (vs. 87.6%, p < 0.001) and 43.4% receiving

percutaneous coronary intervention (vs. 56.6%, p < 0.001). Despite having more frequent multivessel disease (63.1% *vs.* 51.6%, p < 0.001), orientation for coronary artery bypass was also less frequent in lower eGFR patients (5.6% *vs.* 10.4%, p < 0.001). Patients with lower eGFR had worse systolic function (mean left ventricle ejection fraction of 48 ± 13% *vs.* 54 ± 12%, p < 0.001) and more in-hospital complications - the group with eGFR 15-30 ml/min/1.73 m^2 presented the higher rates of acute heart failure (33.6% *vs.* 8.5% in the eGFR > 60, p < 0.001), shock (21.4% *vs.* 10.5%, p < 0.001), atrial fibrillation: 7.1% *vs.* 2.5%, p < 0.001 and atrioventricular block: 2.4% *vs.* 1.0%, p = 0.002). Also, this group presented the highest in-hospital mortality rate (10.1% *vs.* 1.1%, p < 0.001). CKD was also associated with an increased one year mortality rate, with the worst outcome in the 15-30 ml/min/1.73 m^2 group (30.6%). Mortality rate of the patients with eGFR < 15 was not significantly different of those with 30-60 ml/min/1.73 m^2 (17 *vs.* 15%, p = 0.71).

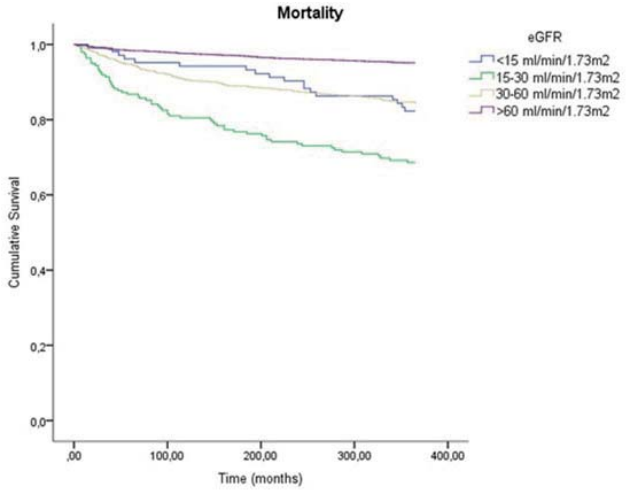

Fig. 1 - CKD was associated with an increased one-year mortality rate, with the worst outcome in the 15-30 ml/min/1.73m^2 group. Mortality rate of the patients with eGFR <15 was not significantly different of those with 30-60 ml/min/1.73m^2.

Conclusions: CKD was associated with worse prognosis in NSTEMI. In line with the described in literature, patients with lower eGFR were less likely to receive an invasive diagnosis and treatment strategy and presented worse left ventricular systolic function. However, patients with eGFR between 15 and 30 ml/min/1.73 m^2 had the worst outcomes, with the highest rate of in-hospital complications, as well as in-hospital and one year mortality rates.

PO 160. ACUTE ST SEGMENT ELEVATION MYOCARDIAL INFARCTION LEAVES NO-ONE BEHIND: A YOUNG POPULATION ANALYSIS

João Santos Fonseca, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Daniel Inácio Cazeiro, Marta Vilela, Diogo Rosa Ferreira, Pedro Pinto Cardoso, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Acute ST segment elevation myocardial infarction (STEMI) remains a leading cause of premature mortality and morbidity, even in younger patients (pts), with an important loss of quality adjusted life years. Recent studies have tried to identify specific characteristics of young pts with STEMI to help stratify risk factors and optimize prevention measures.
Objectives: To characterize and evaluate outcomes in a population of young pts with STEMI.
Methods: Retrospective, single-center study of consecutive pts, with age below 50 years, who were admitted with STEMI and underwent percutaneous coronary intervention (PCI), between 2017 and 2021. Demographics, clinical characteristics, and clinical outcomes, including major cardiovascular events (MACE) and mortality, were analyzed. Multivariable cox proportional hazard model was performed to identify predictors of long-term prognosis.
Results: We included 257 pts, 82.5% were men, with a mean age of 44.4 ± 4.9 years. Smoking was identified in 73% of pts, which represents a 7 fold increase when compared with general Portuguese population´s smoking habits, followed by dyslipidemia, present in 63% of pts, with a mean cLDL of 120 ± 41 mg/dL, excess of weight, with 39.6% of pts having a BMI ≥ 25, hypertension (35% of pts) and diabetes (15% of pts). Most pts presented with a Killip class 1, with only 4 presenting with Killip 4. The majority of pts had one vessel disease and were submitted to angioplasty with stent implantation, being anterior descendent coronary artery (CA) and right CA identified as culprit lesions in 58% and 28% of pts, respectively. During a mean follow-up (FUP) of 2.9 ± 1.4 years, 16 pts died, 12 of which within the first 30 days, 27 developed heart failure, 18 suffered a reinfarction and 7 were admitted with stroke. In our analysis, ejection fraction (EF) at presentation (mean 48.9 ± 11%) was the only variable associated with MACE and mortality during FUP (p < 0.001).
Conclusions: Despite having an apparent less severe presentation, STEMI in young pts is associated with high risk mortality and MACE. Close follow-up and risk factor management have a major role, particularly in this population.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 1) - Fibrilhação auricular - Clínica

PO 161. DIRECT ORAL ANTICOAGULANTS *VERSUS* VITAMIN K ANTAGONISTS AND NO ANTICOAGULATION IN PATIENTS WITH NONVALVULAR ATRIAL FIBRILLATION AND END-STAGE RENAL DISEASE OR HEMODIALYSIS

Mariana Rodrigues Simões[1], Erivaldo Figueiredo Pires Andrade[2], Luís Paiva[1], Bárbara Cecília Bessa dos Santos Oliveiros Paiva[2], Lino Gonçalves[1]

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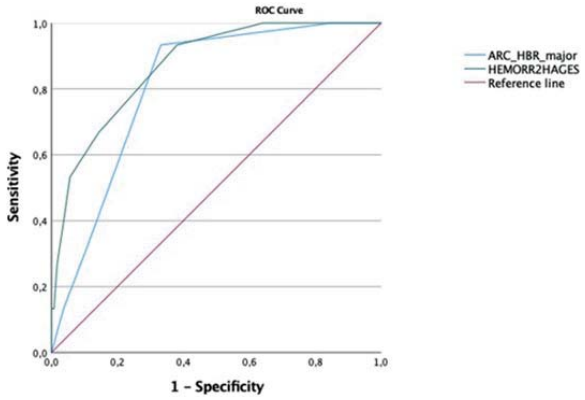
Objectives: To compare the composite outcome of stroke and major bleeding, stroke, major bleeding and all-cause mortality rates between direct oral anticoagulants (DOAC) and vitamin K antagonist (VKA) and no anticoagulation in end-stage renal disease (ESRD) and dialysis patients with nonvalvular atrial fibrillation (AF).
Methods and results: We systematically searched MEDLINE, Embase and Cochrane Controlled Register of Trials, in November 2022, for studies comparing VKA and DOAC and no anticoagulation in patients with AF and ESRD. Fifteen eligible studies were included: twelve studies compared DOAC *versus* VKA and two studies examined DOAC *versus* no anticoagulation treatment. Random effects meta-analysis was performed. Compared with VKA, DOAC was associated with lower rates of the composite outcome overall (pooled OR 0.61 [0.46, 0.80], p = 0.0005), lower stroke rate (pooled OR 0.65 [0.53, 0.79], p < 0.0001) and lower bleeding complications (OR 0.64, [0.49, 0.84], p = 0.0001). The DOAC use was also associated with decreased all-cause mortality compared to VKA (OR 0.54, [0.45, 0.64], p < 0.00001). Compared with no anticoagulation, DOAC showed a significant lower incidence of stroke (OR 0.36, [0.19, 0.68], p = 0.002) with no difference in major bleeding events. (OR 0.85, [0.48, 1.52], p = 0.59).
Conclusions: In ESRD patients with nonvalvular AF, DOAC reduced stroke, major bleeding and all-cause mortality as compared to VKA. Compared with no anticoagulation, the DOAC reduced stroke rate without significantly increasing major bleeding.

PO 162. ARC-HBR SCORE PREDICTS BETTER THAN HEMORR2HAGES THE RISK OF MAJOR BLEEDING IN PATIENTS WITH ATRIAL FIBRILLATION

Filipa Gerardo, Aurora Monteiro, Inês Miranda, Inês Fialho, Mariana Passos, Carolina Mateus, Marco Beringuilho, Joana Lima Lopes, Daniel Faria, João Augusto

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

Introduction: The Academic Research Consortium for High Bleeding Risk (ARC-HBR) initiative aims to define HBR in patients undergoing percutaneous coronary intervention (PCI). Twenty clinical criteria are identified as major or minor by consensus and patients are considered to be at HBR if at least 1 major or 2 minor criteria are met. HEMORR2HAGES is used to predict HBR in patients with atrial fibrillation (AF), as the benefits of anticoagulation come at the cost of an increased risk of bleeding.
Objectives: This study aims to validate the ARC-HBR predicting scheme in patients with AF and compare them with the HEMORR2HAGES predicting scheme in assessing bleeding risk.
Methods: In this single-centre retrospective study, 2181 consecutive patients with AF who were evaluated in our emergency department (ED) between June 2014 and December 2015 were analyzed. Among them, 423 patients were admitted for in-hospital management. Clinical characteristics, interventions, blood markers and bleeding outcomes were recorded. The primary outcome was clinically relevant bleeding, defined as Bleeding Academic Research Consortium (BARC) 2, 3 or 5 bleeding, during a follow-up period of 12 months. HEMORR2HAGES predicting scheme was compared to ARC-HBR major criteria only predicting scheme (a multivariable risk score with the following criteria: anticipated long-term anticoagulation after PCI; severe or end-stage chronic kidney disease; anemia; spontaneous bleeding requiring hospitalization or transfusion in the previous 6 months; moderate or severe thrombocytopenia; chronic bleeding diathesis; cirrhosis with portal hypertension; active malignancy in the previous 12 months; presence of brain arteriovenous malformation, previous spontaneous intracranial hemorrhage (ICH) at any time, previous traumatic ICH in the previous 12 months, moderate or severe ischemic stroke in the previous 6 months; nondeferrable major surgery on dual antiplatelet therapy or major surgery or major trauma in the 30 days before PCI).
Results: A total of 384 patients (90.5%) were discharged (the remainder being in-hospital deaths); mean age was 72.8 ± 12.4 years, 41.1% were males. Follow-up was possible in 98.5%. Bleeding occurred in 3.6% of cases, of which 60% required a blood transfusion. The discriminative ability of the ARC-HBR major criteria was good. The area under the curve (AUC) for the receiver-operator characteristics curve for HEMORR2HAGES was 0.871 ($p < 0.001$; 95% confidence interval [CI] 0.793-0.950) and for ARC-HBR major criteria was 0.810 ($p < 0.001$, 95%CI 0.730-0.890). An ARC-HBR major only criteria score > 1.5 has a sensitivity of 93.3% and a specificity of 68.1%.



Conclusions: In this single-centre study with patients hospitalized with atrial fibrillation, the ARC-HBR major criteria score performs similarly to HEMORR2HAGES in predicting bleeding risk.

PO 163. A GLIMPSE AT THE MANAGEMENT OF ATRIAL FIBRILLATION - AN ASSESSMENT OF STANDARD OF CARE

Joana Silva Ferreira, Leonor Parreira, Ana Fátima Esteves, Rui Antunes Coelho, Jéni Quintal, José Maria Farinha, Dinis Mesquita, Pedro Amador, Rita Marinheiro, Cátia Costa, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Atrial fibrillation (AF) is the most common arrhythmia. However, its treatment is still heterogeneous since clinical guidelines are not always strictly followed.
Objectives: to describe the management and long-term outcomes of 'real-life' patients with AF in our center.
Methods: We retrospectively analyzed admissions to the Emergency Department (ED) in 2016 with the International Classification of Diseases codes correspondent to AF. Patients older than 75 years and those whose electronic medical file was not accessible were excluded. We divided our sample into 3 groups according to patient status at index admission: A) patients presenting with first-diagnosed AF; B) patients presenting with previously-diagnosed AF under rhythm control strategy; and C) those with previously-diagnosed AF under rate control strategy. We assessed patient characteristics, treatment strategies as well as readmissions to the ED, stroke and all-cause mortality.
Results: Of the 346 patients initially screened, 252 were excluded, resulting in a sample of 94 patients with a median age of 65 years and median CHA2DS2-VASc of 2. The majority (68%) presented with first-diagnosed AF (group A),

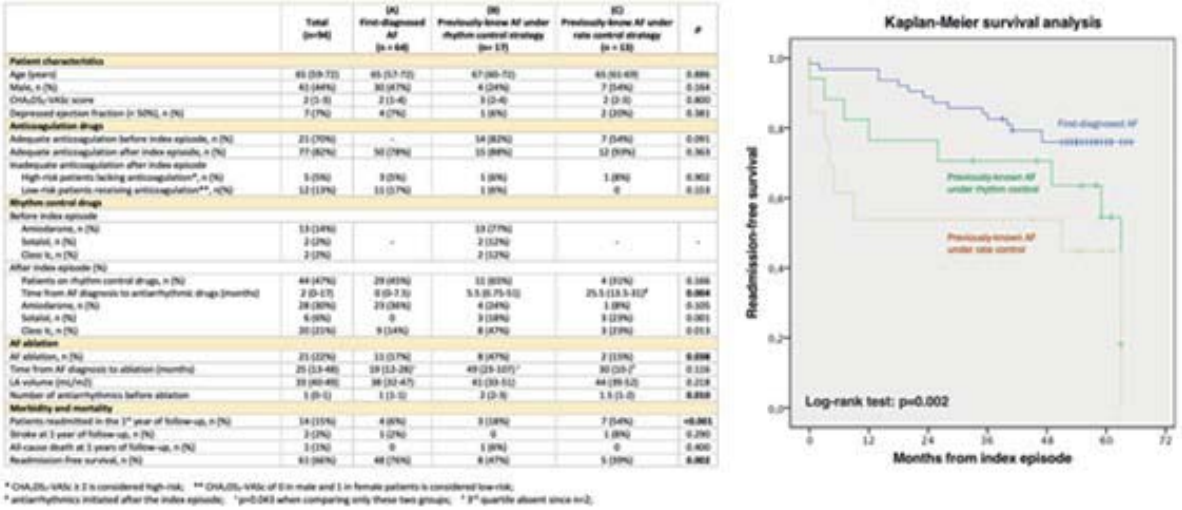


Figure PO 163

while 18% were already under rhythm control medication (group B) and the remaining 14% under rate control therapy (group C). At discharge, the majority was adequately anticoagulated and unnecessary anticoagulation of low stroke-risk patients was the most common mistake in anticoagulation. After a median of 2 months from diagnosis, half the patients with first-diagnosed AF were started on antiarrhythmic drugs, significantly earlier than those who already had previously-known AF. Nearly half the patients in group B underwent catheter ablation, after failure of 2 antiarrhythmic drugs, while those with first-diagnosed AF (group A) were submitted to the procedure significantly earlier (after failure of 1 antiarrhythmic drug). At 1-year follow-up, all-cause mortality and stroke rates were low. At a median follow-up of 5 years, readmissions for AF were common but readmission-free survival was significantly superior among the patients in group A (Kaplan-Meier with log-rank test: p = 0.02).

Conclusions: This study suggests that the management of AF in our center is mostly in accordance with European AF guidelines. The timing of referral for catheter ablation was slightly delayed (after failure of the second antiarrhythmic drug) compared with the 2020 recommendations but in line with those from 2016. Mortality and stroke rates were low and readmission rates for AF were similar to those reported in other registries. The lower readmission rate in first-diagnosed AF suggests symptom control may be improving, perhaps due to earlier adoption of a rhythm control strategy.

PO 164. ANTIARRHYTHMIC PRE-TREATMENT AS A PREDICTOR OF SUCCESSFUL ELECTIVE ELECTRICAL CARDIOVERSION OF ATRIAL FIBRILLATION

Hugo Alex Costa, Miguel Espírito Santo, Raquel Fernandes, Daniela Carvalho, Pedro Azevedo, Rui Candeias, Jorge Mimoso, Ilídio Jesus

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Introduction: Electrical cardioversion (ECV) remains the most cost-effective and safest method for acute restoration of sinus rhythm (SR) in patients with atrial fibrillation (AF), although at least 25% of ECV are unsuccessful. Antiarrhythmic pretreatment may increase ECV success rate (recommendation IIa/B in European guidelines) but use in clinical practice is not entirely consensual.

Table 1 - Clinical characteristics of atrial fibrillation patients with an unsuccessful versus successful elective electrical cardioversion at first shock

			Electrical cardioversion at first shock			
			Unsucessful (n=121, 34,7%)	Sucessful (n=228, 65,3%)	Total (n=349)	p value
Gender	Male	n (%)	86,0 (71,2)	149 (65,4)	235 (67,3)	
	Female	n (%)	35,0 (28,9)	79,0 (34,6)	114 (32,7)	
						0,278
Age	*Mean±SD - years*		63,3±11,6	66,1±10,6	65,0±11,0	**0,013**
Weight	*Mean±SD - Kg*		83,6±16,2	78,9±15,7	80±15,1	**0,047**
Hight	*Mean±SD - cm*		168±9,42	166±9,52	167±9,43	0,095
Body mass index	*Median (IQR) - Kg/m2*		28,0 (4,00)	28,0 (5,00)	28,0 (7,00)	0,746
AF classification	First diagnosed	n (%)	0,00 (0,00)	1,00 (0,44)	1,00 (0,30)	
	Paroxysmal	n (%)	1,00 (0,83)	0,00 (0,00)	1,00 (0,30)	
	Persistent	n (%)	117 (96,7)	224 (98,2)	341 (97,7)	
	Long-standing persistent	n (%)	3,00 (2,48)	3,00 (1,32)	6,00 (1,70)	
						0,383
Hypertention		n (%)	53,0 (59,8)	122 (53,2)	185 (59,9)	
						0,550
Diabetes (type 2)		n (%)	24,0 (19,8)	43,0 (18,9)	67 (21,8)	
						0,951
Obesity		n (%)	35,0 (28,9)	61,0 (26,8)	96,0 (39,7)	
						0,724
Heart failure history		n (%)	22,0 (18,2)	35,0 (15,4)	57,0 (18,9)	
						0,865
Previous stroke		n (%)	10,0 (8,26)	16,0 (7,02)	26,0 (8,60)	
						0,735
Alcohol intake		n (%)	15,0 (14,9)	29,0 (16,0)	44,0 (41,5)	
						0,751
Mitral regurgitation		n (%)	0,00 (0,00)	6,00 (2,63)	6,00 (2,00)	
						0,068
Ischemic heart disease		n (%)	18,0 (14,9)	28,0 (12,3)	46,0 (15,2)	
						0,569
Mechanical valve prosthesis		n (%)	0,00 (0,00)	4,00 (1,75)	4,00 (1,30)	
						0,137
Previous pacemaker		n (%)	6,00 (4,96)	7,00 (3,07)	13,0 (4,30)	
						0,403
Previous ablation		n (%)	5,00 (4,13)	8,00 (3,51)	13,00 (4,30)	
						0,836
Anticoagulation		n (%)	114 (94,2)	209 (91,7)	323 (96,1)	
						0,878
Beta blockers		n (%)	60,0 (49,6)	92,0 (40,2)	152 (53,7)	
						0,047
Antiarrhythmic pre-treatment		n (%)	55,0 (45,5)	110 (48,2)	165 (58,1)	
						0,435
Antiarrhythmic pos-treatment	Amiodarone	n (%)	52,0 (42,9)	105 (46,1)	157 (55,1)	
Type of drug	Propafenone	n (%)	3,00 (2,48)	3,00 (1,32)	6,00 (2,10)	
	Sotalol	n (%)	0,00 (0,00)	2,00 (0,88)	2,00 (0,70)	
						0,482
LVEF	Reduced	n (%)	14,0 (11,6)	28,0 (12,3)	42,0 (19,7)	
	Midly reduced	n (%)	9,00 (7,44)	17,0 (7,46)	26,0 (12,2)	
	Preserved	n (%)	53,0 (43,8)	92,0 (40,4)	145 (68,1)	
						0,922
Left atrial diameter	*Mean±SD - mm*		44,2±6,19	44,7±6,15	45,8±5,65	0,584
AF burden	*Median (IQR) - months*		5,00 (25,0)	3,00 (4,00)	4,00 (25,0)	
	Mean±SD - months		21,2±35,9	11,6±31,1	20,4±39,6	**0,020**
Effective shock energy	*Mean±SD - J*		174±27,0	128±31,9	143±36,9	**<0,001**

AF, Atrial fibrillation; IQR, Interquartile range; LVEF, Left ventricular ejection fraction; SD, Standard deviation

Figure PO 164

Objectives: Characterize a modern population of patients with AF submitted to ECV and identify factors associated with increased rate of acute success of ECV for AF. Additionally, we specifically aimed to evaluate the role of antiarrhythmic pretreatment, as well as the type of patients who benefit the most.
Methods: Retrospective study between 2011/2020, composed of n = 349 patients undergoing ECV of AF. Patients were divided in two groups (successful and unsuccessful). Acute success in ECV was defined as restoration of sinus rhythm after the first shock. Categorical variables are presented as frequencies and percentages, and continuous variables as means and standard deviations, or medians and interquartile ranges for variables with skewed distribution or a significant Shapiro-Wilk test. Comparison between groups were performed using the chi-square, student T-test or Mann Whitney, as appropriate. Multivariate analysis was performed using logistic regression. P value < 0.05 indicates statistical significance.
Results: A total of 349 patients were identified, with a mean age of 65 ± 11 years, 67% male. 97.7% showed persistent AF, a mean weight of 80 ± 15 Kg, 40% with obesity, 60% with hypertension, 22% with diabetes and 19% with heart failure. Antiarrhythmic pre-treatment and beta-blockers were administered in 58% and 54% of patients, respectively. Factors associated to successful group were age (p = 0.013), weight (p = 0.047), beta-blockers (p = 0.047), AF burden (p = 0.020) and effective shock energy (p < 0.001). Independent predictors of successful ECV were antiarrhythmic pre-treatment, increasing success in 2.5 times (p = 0.045, OR 2.46, 95%CI 1.02 to 5.93), and effective shock energy (p < 0.001). There were no differences between the antiarrhythmic drugs (p = 0.482), nor a reduction in shock energy in this group (p = 0.217). In a subgroup analysis, patients with AF burden > 12 months showed greater benefit with antiarrhythmic pre-treatment (p = 0.008) with amiodarone (p = 0.028).
Conclusions: Antiarrhythmic pre-treatment is an independent predictor of successful ECV at first shock, mainly in patients with a higher AF burden (> 12 months).

PO 165. PREDICTORS IN PREVENTION OF ATRIAL FIBRILLATION RECURRENCE AFTER ELECTIVE ELECTRICAL CARDIOVERSION

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Introduction: Electrical cardioversion (ECV) remains the most cost-effective and safest method in restoring sinus rhythm (SR) in patients with atrial fibrillation (AF). Besides that, recurrence rate is high, in up to 67% of patients within 4 weeks. Antiarrhythmics are used to prevent recurrence of AF after successful ECV, although efficacy in maintenance of SR is modest.
Objectives: Our aim is to identify clinical factors associated with early AF recurrence after successful ECV. More specifically, we aim to evaluate if treatment with beta-blockers and antiarrhythmics prevent AF recurrence.
Methods: Retrospective study between 2011-2020 of consecutive patients who underwent a successful ECV for AF in a Cardiology department. The outcome of interest was AF recurrence during follow-up, documented on a 12-lead ECG or

Table 1 - Clinical characteristics of atrial fibrillation patients without recurrence versus recurrence after successful elective electrical cardioversion

			Recurrence			
			Without (n=87, 35.7%)	With (n=151, 64.3%)	Total (n=235)	p value
Gender	Male	n (%)	60,0 (68,9)	107 (70,9)	167 (71,1)	
	Female	n (%)	24,0 (27,6)	44,0 (29,1)	68,0 (28,9)	
						0,927
Age	*Mean±SD - years*		65,4±9,22	62,5±10,8	63,5±10,4	0,263
Weight	*Mean±SD - Kg*		82,2±14,5	80,5±14,9	81,0±14,7	0,492
Hight	*Mean±SD - cm*		168±9,40	167±9,50	167±9,39	0,876
Body mass index	*Median (IQR) - Kg/m2*		29,8±4,65	29,1±4,73	29,3±4,69	0,805
AF classification	First diagnosed	n (%)	0,00 (0,00)	1,00 (0,66)	1,00 (0,40)	
	Paroxysmal	n (%)	0,00 (0,00)	0,00 (0,00)	0,00 (0,00)	
	Persistent	n (%)	84,0 (69,6)	148 (98,0)	232 (98,7)	
	Long-standing persistent	n (%)	0,00 (0,00)	2,00 (1,32)	2,00 (0,90)	
						0,429
Hypertention		n (%)	51,0 (58,6)	80,0 (52,9)	131 (58,2)	
						0,454
Diabetes (type 2)		n (%)	29,0 (33,3)	29,0 (19,2)	58 (25,8)	
						0,016
Obesity		n (%)	26,0 (29,9)	46,0 (30,5)	72,0 (38,1)	
						0,929
Heart failure history		n (%)	18,0 (20,7)	28,0 (18,5)	46,0 (20,6)	
						0,763
Previous stroke		n (%)	6,00 (6,90)	13,0 (8,61)	19,0 (8,50)	
						0,595
Alcohol intake		n (%)	12,0 (13,8)	24,0 (15,9)	36,0 (50,0)	
						0,465
Mitral regurgitation		n (%)	2,00 (2,30)	4,00 (2,65)	6,00 (2,70)	
						0,842
Ischemic heart disease		n (%)	17,0 (19,5)	18,0 (11,9)	35,0 (15,7)	
						0,13
Mechanical valve prosthesis		n (%)	0,00 (0,00)	2,00 (1,32)	2,00 (0,90)	
						0,274
Previous pacemaker		n (%)	3,00 (3,45)	5,00 (3,31)	8,00 (3,60)	
						0,987
Previous ablation		n (%)	3,00 (3,45)	6,00 (3,97)	9,00 (4,00)	
						0,814
Anticoagulation		n (%)	84 (96,6)	142 (94,3)	226 (96,6)	
						0,052
Beta blockers		n (%)	49,0 (56,3)	60,0 (39,7)	109 (52,9)	
						0,046
Antiarrhythmic pos-treatment		n (%)	73,0 (83,9)	119 (78,8)	192 (89,7)	
						0,879
Antiarrhythmic pre-treatment		n (%)	43,0 (49,4)	77,0 (50,9)	120 (58,0)	
						0,418
Antiarrhythmic pos-treatment	Amiodarone	n (%)	67,0 (77,0)	106 (70,2)	173 (80,8)	
Type of drug	Propafenone	n (%)	3,00 (3,45)	7,00 (4,64)	10,0 (4,70)	
	Sotalol	n (%)	2,00 (2,30)	4,00 (2,65)	6,00 (2,80)	
	Flecainida	n (%)	1,00 (1,15)	2,00 (1,32)	3,00 (1,40)	
						0,981
LVEF	Reduced	n (%)	15,0 (17,2)	22,0 (14,6)	37,0 (23,1)	
	Midly reduced	n (%)	9,00 (10,3)	11,0 (7,28)	20,0 (12,5)	
	Preserved	n (%)	36,0 (41,4)	67,0 (44,4)	103 (64,4)	
						0,634
Left atrial diameter	*Mean±SD - mm*		43,7±5,96	46,3±5,53	45,4±5,78	0,219
AF burden	*Median (IQR) - months*		2,00 (4,00)	4,00 (22,0)	3,00 (9,00)	
	Mean±SD - months		17,5±43,4	39,3±38,6	18,7±40,1	0,165
Effective shock energy	*Median (IQR) - J*		150 (50,0)	150 (38,0)	150 (50,0)	
	Mean±SD - J		131±32,9	142±35,3	139±34,8	**0,013**

AF, Atrial fibrillation; IQR, Interquartile range; LVEF, Left ventricular ejection fraction; SD, Standard deviation

Figure PO 165

Holter monitoring. The association between patient clinical characteristics and the outcome was assessed using the chi-square, student T-test or Wilcoxon rank sum test, as appropriate. Multivariate analysis was performed using logistic and cox regression. P value < 0.05 indicates statistical significance.
Results: A total of 235 patients were identified, with a mean age of 63.5 ± 10.4 years, 71% male. 98.7% showed persistent AF, a mean weight of 80 ± 15 Kg, 38% with obesity, 58% with hypertension, 26% with diabetes and 21% with heart failure. Antiarrhythmic pos-treatment and beta-blockers were administered in 90% and 53% of patients, respectively. Patients were followed for a mean of 49 ± 25 months. 64.3% of patients had an AF recurrence and the mean time until recurrence was 14 months. Factors associated with no recurrence were diabetes (p = 0.016), beta-blockers (p = 0.046) and effective shock energy (p < 0.013). Independent predictors in preventing recurrence were the use of beta-blockers (p = 0.042, OR 0.54, 95%CI 0.29 to 0.98), and effective shock energy (p < 0.003). Antiarrhythmic drugs (class I and III) were not associated with recurrence prevention (p = 0.968, OR 0.98, 95%CI 0.34 to 2.78). Despite this, neither beta-blockers (p = 0.899, HR 1.03, 95%CI 0.71 to 1.50) nor antiarrhythmics (p = 0.394, HR 0.77, 95%CI 0.39 to 1.44) reduce time-to-recurrence.
Conclusions: Beta-blockers pos-treatment is an independent predictor in prevention of AF recurrence after a successful ECV, but without influence in the time-to-recurrence events. Antiarrhythmic drugs (class I and III) were not associated with prevention of recurrence.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 2) - Insuficiência cardíaca - Tratamento farmacológico

PO 166. EFFECTS OF MAXIMUM DOSE SACUBITRIL/VALSARTAN IN HEART FAILURE WITH REDUCED EJECTION FRACTION ACCORDING TO ATRIAL FIBRILLATION STATUS

Eric Monteiro[1], José Barbosa[2], Joana Guimarães[1], Diogo Fernandes[1], Gonçalo Costa[1], Rita Gomes[1], João Rosa[1], Gustavo Campos[1], Sofia Martinho[1], Carolina Saleiro[1], José Almeida[1], Diana Campos[1], Susana Costa[1], Rui Baptista[1], Fátima Franco[1], Patrícia Alves[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]MEDCIDS, FMUP-Department of Community Medicine, Information and Decision in Health, University of Porto, Faculty of Medicine.

Introduction: In the PARADIGM-HF trial, sacubitril/valsartan (SV) was shown to be superior to enalapril in reducing hospitalizations for worsening heart failure (HF), cardiovascular mortality, and all-cause mortality in patients with heart failure with reduced ejection fraction (HFrEF). The 2021 ESC Guidelines recommends SV as a replacement for angiotensin-converting-enzyme inhibitors to reduce the risk of HF hospitalization and death. There is little information regarding the effects of SV according to atrial fibrillation (AF) status. The aim of this study was to compare the effects of maximum dose SV regarding symptomatic improvement, change in natriuretic peptides levels (NP) and left ventricular ejection fraction (LVEF) in patients with HFrEF with and without AF.
Methods: Retrospective analysis of 137 patients with HFrEF on maximum dose SV (97/103mg twice daily). Patients were divided into two groups according to AF status. Age, gender, relevant comorbidities, usual medication, baseline symptomatic status, NP levels and LVEF were assessed using the Mann-Whitney U or χ^2 test (according to variable type) to ensure comparability between groups. Variation in NYHA class, NP levels and LVEF between baseline and 6-month follow-up was evaluated and compared between groups.
Results: Comparison between groups is presented in the Table. In our studied population, ischemic aetiology was more common in the sinus rhythm group (49.5% *vs.* 30.4%; p 0.034). There were no significant differences between groups regarding age, gender, hypertension, diabetes, and beta-blocker and mineralocorticoid receptor antagonist usage. At baseline, the AF group had higher NT-proBNP levels [median 1421 mg/dL (IQR 743-3,087) *vs.* 467 mg/dL (IQR 140-797); p < 0.001]. There were no significant differences regarding baseline NYHA class or LVEF. After 6 months of follow-up, reductions in NYHA class [-1 (IQR -2, -1) for AF; -1 (IQR -1, 0) for SR; p = 0.437] and NT-proBNP levels [-358 mg/dL (IQR -2275, -47) for AF; -162 mg/dL (IQR -364, 27) for SR; p = 0.156], as well as LVEF improvement [11% (IQR 3-15) for AF; 12% (IQR 7-21) for SR; p = 0.201], displayed no statistically significant differences between the two groups.
Conclusions: Our study shows that the beneficial effects of SV on symptomatic status, NP levels and LVEF were not compromised by the presence of AF at baseline.

PO 167. HEMODYNAMIC EFFECTS OF OUTPATIENT LEVOSIMENDAN INFUSION ASSESSED DAILY USING THE INVASIVE REMOTE MONITORING CARDIOMEMS™ SYSTEM

Ana Rita Teixeira, Tiago Pereira-da-Silva, António Valentim Gonçalves, Rita Ilhão Moreira, Vera Ferreira, João Alves, Sofia Barquinha, Ana Teresa Timóteo, Rui Cruz Ferreira

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

Introduction: Levosimendan infusion with adjusted dosing has been used in the outpatient setting to improve patient status of patients with heart failure

	AF n=46	SR n=91	P value
Age – years	66.5 (IQR 52.5-73)	59 (IQR 54-65)	0.177
Males – %	87	84.6	0.714
Hypertension – %	37	40.7	0.675
Diabetes – %	39.1	29.7	0.266
Ischemic aetiology – %	30.4	49.5	0.034
Beta-blocker – %	100	97.8	1.0
MRA – %	97.7	91.1	0.270
Baseline NYHA class	3 (IQR 2-3)	2 (IQR 2-3)	0.609
Baseline NT-proBNP – mg/dL	1421 (IQR 743-3087)	467 (IQR 140-797)	<0.001
Baseline LVEF – %	29.5 (IQR 20-34)	29 (IQR 27-30)	0.802
NYHA class at 6 months	1 (IQR 1-2)	2 (IQR 1-2)	0.920
NT-proBNP at 6 months – mg/dL	834 (IQR 132-1892)	168 (IQR 3-401)	0.157
LVEF at 6 months – %	33 (IQR 28-49)	39 (IQR 32-50)	0.234
Δ NYHA class	-1 (IQR -2, -1)	-1 (IQR -1, 0)	0.437
Δ NT-proBNP – mg/dL	-358 (IQR -2275, -47)	-162 (IQR -364, 27)	0.156
Δ LVEF – %	11 (IQR 3-15)	12 (7-21)	0.201

Table 1: Comparison between groups.
AF = atrial fibrillation; SR = sinus rhythm; IQR = interquartile range; MRA = mineralocorticoid receptor antagonist; LVEF = left ventricular ejection fraction.

Figure PO 166

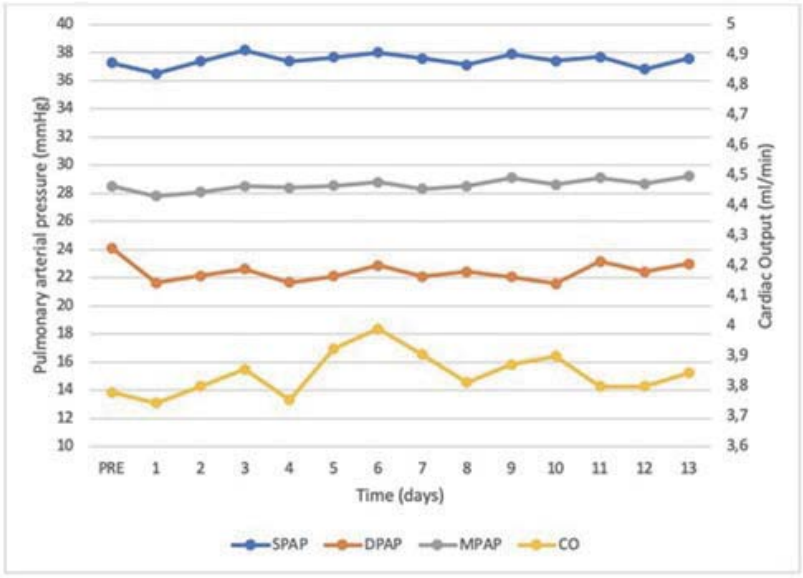


Figure 1: Hemodynamic data before and up to day 13 after levosimendan infusion (SPAP: systolic pulmonary artery pressure, DPAP: diastolic pulmonary artery pressure, MPAP: mean pulmonary artery pressure, CO: cardiac output)

Figure PO 167

(HF). However, the hemodynamic effects of levosimendan are not known in such clinical context. Remote invasive monitoring using the CardioMEMS™ system allows for daily assessment of pulmonary artery pressure (PAP) and cardiac output (CO). We aimed to assess the hemodynamic effects of levosimendan in the outpatient setting using the CardioMEMS™.

Methods: All patients admitted for outpatient 6-hour levosimendan infusion (which was performed every 14 days in each patient) and with active remote monitoring based on the CardioMEMS™ system were included in a prospective single-center registry. Clinical and laboratory data were recorded. The systolic, diastolic, and mean PAP, heart rate (HR) and CO were assessed using CardioMEMS™, from the day prior to each levosimendan infusion up to the day prior to the next. The hemodynamic data were compared.

Results: A total of 25 sessions were performed in 3 patients (mean age 60 ± 22 years, 100% male, 100% in INTERMACS 4, mean left ventricular ejection fraction 28 ± 7%, mean NTProBNP 10,803 pg/ml). There were no infusion-related adverse events, HF decompensations or significant changes in diuretic or neuro-hormonal modulatory therapy during the study period. There was a significant reduction in diastolic PAP in the day after levosimendan compared to the prior day (baseline) (24.1 ± 4.1 *vs.* 21.6 ± 2.9 mmHg, p = 0.006) (Figure). Thereafter, the diastolic PAP pressure stabilized, with significant differences in diastolic PAP values up to day 7 compared to baseline. There were no significant differences in systolic or mean PAP values before and after levosimendan at any timepoint analyzed. There were no differences in CO in the first days after levosimendan compared to baseline; however, there was a CO peak at day 6 after the infusion, consisting of a nonsignificant increased CO compared to baseline (4.0 *vs.* 3.8, p = 0.105), followed by a decline. There were no significant differences in HR.

Conclusions: Outpatient levosimendan infusion was associated with an early and sustained reduction in diastolic PAP (a surrogate of left filing pressures) in the first week and may be accompanied by a later increase of CO. The CardioMEMS™ system may allow for a better understanding of outpatient hemodynamics in advanced HF. To our knowledge, there are no published data on this subject.

PO 168. ELIGIBILITY FOR ACETAZOLAMIDE IN PATIENTS WITH DECOMPENSATED HEART FAILURE

Filipa Gerardo, Inês Fialho, Mariana Passos, Inês Miranda, Carolina Mateus, Marco Beringuilho, Joana Lima Lopes, Daniel Faria, David Roque

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

Introduction: The Acetazolamide in Decompensated heart failure with Volume OveRload (ADVOR) is a randomized controlled trial that brought new insights in achieving successful decongestion with acetazolamide. However,

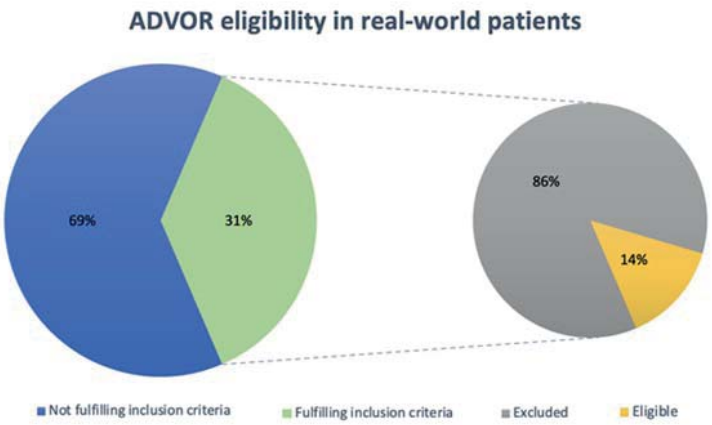


Figure PO 168

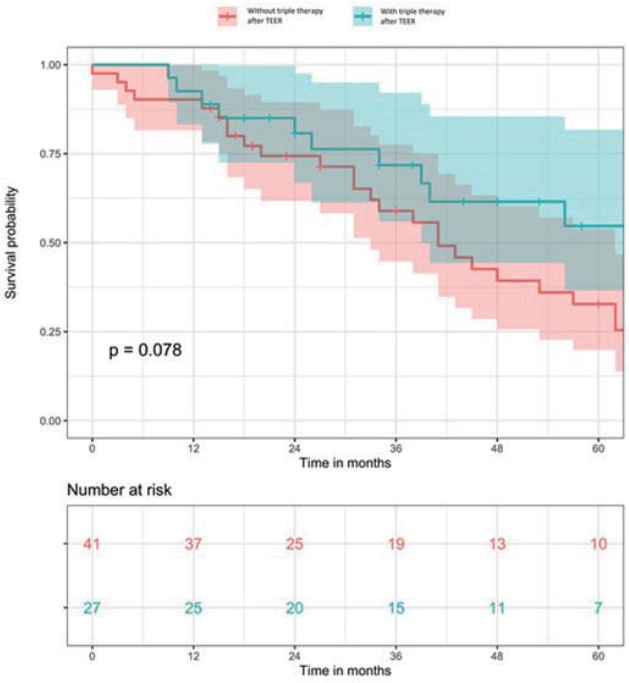
the numerous and strict enrollment criteria may limit reproducibility of the trial results in clinical practice.
Objectives: To estimate the eligibility for participation in ADVOR trial in real-world hospitalized patients with decompensated heart failure (HF).
Methods: We applied the enrollment criteria of ADVOR to decompensated HF patients who were admitted in a Cardiology unit of a single center between March 2021 and September 2022.
Results: A total of 137 electronic medical charts were reviewed. The inclusion criteria were fulfilled by 30.66% (n = 42) of patients. The two least achieved inclusion criteria were (1) a congestion score ≥ 2 (a multivariable score ranging from 0-10 created for the ADVOR trial, composed of oedema, ascites or pleural effusion confirmed by echography or chest X-ray) accomplished by only 67.15% of patients, and (2) a maintenance treatment with at least 40 mg of furosemide the previous month (55.47% of patients). The latter was further analysed, as many of decompensated heart failure patients were not previously diagnosed (43.07% in total) and were medication noncompliant. The most common reason for exclusion was concomitant treatment with sodium-glucose co-transporter-2 (SGLT2) inhibitor (30.95% of those fulfilling the inclusion criteria). After both inclusion and exclusion criteria, the proportion of patients eligible were 13.87% (n = 19).
Conclusions: Approximately 86.13% of real-world patients are not eligible for the decongestive treatment with acetazolamide applied in a highly controlled randomized trial. The almost universal use of SLGT2 inhibitors limits the reproducibility of the ADVOR study. The attempt to create a congestive score for decompensated HF patients seems to fail for adequate volume assessment in real-world patients.

PO 169. OPTIMIZING HEART FAILURE MEDICAL THERAPY IN SECONDARY MITRAL REGURGITATION PATIENTS UNDERGOING TRANSCATHETER EDGE-TO-EDGE REPAIR

Diogo Santos Ferreira[1], Silvia Diaz[2], Cláudio Guerreiro[1], Mariana Brandão[1], Rafael Teixeira[1], Fábio Nunes[1], Francisca Saraiva[2], Eulália Pereira[1], Francisco Sampaio[1], Lino Santos[1], Alberto Rodrigues[1], Pedro Braga[1], Gustavo Pires-Morais[1], Bruno Melica[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Severe secondary mitral regurgitation (SMR) aggravates prognosis in heart failure (HF) patients. Transcatheter edge-to-edge repair (TEER) should be considered in selected SMR patients, resulting in a reduction of mortality and HF hospitalization. Moreover, TEER in these patients may allow a hemodynamic improvement, with subsequent better tolerance to guideline-directed HF medical therapy and potential additional survival benefit.
Objectives: Characterize the use of prognosis-modifying drugs in HF patients before and after TEER for SMR and explore its associations with mortality after intervention.
Methods: A single-centre retrospective database of all TEER performed for SMR between 2014 and 2021 was consulted. Primary endpoint was defined as all-cause mortality over the 5-years follow-up. The use of renin-angiotensin-inhibitors (RASI), neprilysin inhibitors (ARNI), beta-blockers (BB), mineralocorticoid antagonists (MRA) and furosemide were compared between pre-intervention and over follow-up using McNemar test, as well as the use of triple therapy (RASI/ARNI+BB+MRA). Survival of patients with or without triple therapy after TEER was compared using Kaplan-Meier curves, log-rank test and Cox proportional hazard model adjusted for EuroSCORE II.
Results: Eighty-four patients underwent TEER for SMR over the period defined (mean age 73 years-old), with a predominance of male patients (64%), with a mean ejection fraction of 36.9 ± 10.5%. After TEER, there was a statistically significant increase in use of MRA (46% to 63%, p = 0.008) and, consequently, triple therapy (27% to 40%, p = 0.035), while use of RASI, BB, ARNI and furosemide was no different (72% to 69%, p = 0.79; 76% to 82%, p = 0.34; 8.8% to 5.9%, p = 0.75; 94% to 97%, p = 0.63; respectively), as well as dose of furosemide (82 to 81mg). Use of triple therapy after TEER tended to be associated with better survival, though not reaching statistical significance [hazard ratio (HR) 0.53 (0.26-1.08), p = 0.082]. In the multivariate analysis, neither triple therapy nor EuroSCORE II were associated with worse survival after TEER (p = 0.2 for both).



Conclusions: Use of optimal medical therapy in HF patients with SMR remains suboptimal. However, after-TEER status was associated with a more frequent use of some guideline-recommended drugs, namely MRA, allowing a higher percentage of patients to be under triple therapy. Although there was a trend towards better survival with the use of triple therapy after TEER, it did not reach statistical significance.

PO 170. PHARMACOLOGIC TRANSITION IN THE CARE OF PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION - A REAL LIFE ANALYSIS

Isabel Cruz, Inês Campos, Bruno Bragança, Rafaela Lopes, Inês Oliveira, Joel Monteiro, Rui Pontes dos Santos, Aurora Andrade

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Modulation of the renin-angiotensin-aldosterone and sympathetic nervous systems is crucial in the management of patients (pts) with heart failure with reduced ejection fraction (HFrEF). Additionally, the use of sodium-glucose co-transporter 2 inhibitors (SGLT2i) has become an additional weapon to reduce the risk of cardiovascular (CV) death and worsening HF in this group of pts.
Objectives: Evaluate pts with HFrEF concerning the use of neurohormonal antagonist (NHA) therapy and SGLT2i therapy, to identify the effects of these drugs on major CV endpoints in a real-life setting.
Methods: Unicentric, retrospective analysis of pts followed from 2011 to 2019 due to HFrEF (ejection fraction < 40%). Pts were evaluated regarding the prescription of angiotensin-converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARB), angiotensin receptor-neprilysin inhibitor (ARNi), mineralocorticoid receptor antagonists (MRA), beta-blockers (BB) and SGLT2i. The endpoints were: composite of all-cause mortality and HFhosp; all-cause mortality; CV mortality; HFhosp. Pearson´s Chi2 tests and binary logistic regressions were performed.
Results: A total of 400 pts were included (72.8% male, mean age 60.5 ± 13.0 years). 69.3% pts were prescribed with ACEi/ARB, 16.5% pts with ARNi, 90.3% with BB, 53.3% with MRA and 6.5% with SGLT2i. During follow-up there was a mortality rate of 24.0% (61.5% due to CV causes) and a rate of HFhosp of

20.0%. The prescription of ARNi was related with fewer composite events (3.5% *vs.* 30.8%, p = 0.015), CV mortality (0.3% *vs.* 14.5%, p < 0.001) and all-cause mortality (0.3% *vs.* 23.8%, p < 0.001). MRA (10.5% *vs.* 13.5%, p = 0.032) and SGLT2i (0.3% *vs.* 23.8%, p = 0.013) were associated with lower all-cause mortality. Binary logistic regression isolated use of ACEi/ARB and ARNi was the drugs associated with fewer outcomes. Specifically, ACEi/ARB and ARNi were associated with fewer composite events (p < 0.001, OR 0.261, 95%CI 0.138-0.496 and p < 0.001, OR 0.137, 95%CI 0.058-0.325, respectively); lower all-cause mortality (p < 0.001, OR 0.243, 95%CI 0.129-0.460 and p < 0.001, OR 0.013, 95%CI 0.002-0.104, respectively); CV mortality (p = 0.002, OR 0.331, 95%CI 0.165-0.662 and p = 0.001, OR 0.032, 95%CI 0.004-0.252, respectively); HFhops (p < 0.001, OR 0.250, 95%CI 0.127-0.492 and p = 0.007, OR 0.303, 95%CI 0.127-0.723, respectively).
Conclusions: This cohort illustrates the prognostic improvement of the transition into the most recent pharmacological classes of HF management. The prescription of ACEi/ARB and ARNi were associated with fewer CV events. Moreover, the logistic regression revealed that ARNi prescription presented a higher effect size than ACEi/ARB regarding CV mortality. This reinforces the great benefit of this drugs in reducing major CV events in pts with HFrEF.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 3) - Imagem multimodal 2

PO 171. SHOULD WE PERFORM CARDIAC SCINTIGRAPHY WITH BONE TRACERS IN PATIENTS WITH IDIOPATHIC CARPAL TUNNEL? PRELIMINARY RESULTS OF CARPOS STUDY

Sofia Pimenta, Ana Martins, Bárbara Pereira, Micaela Gonçalves, Miguel Martins de Carvalho, Elsa Fonseca, Isabel Pinto, Pedro Madureira, Luís Santos, Lúcia Costa, Teresa Faria, Jorge G. Pereira, Elisabete Martins

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Carpal Tunnel Syndrome (CTS) in patients with left ventricular hypertrophy is a recognized red flag for cardiac amyloidosis diagnosis, particularly of the transthyretin (ATTR) subtype. In this sense, in patients with the first manifestation of CTS, the risk of future cardiac amyloidosis should be considered. However, it is not yet established if cardiac evaluation should be performed in these patients, neither when or how to do it.
Methods: In this prospective study (NCT05409833), we include patients aged ≥ 60 years old with symptomatic CTS proposed for hand surgery. Exclusion criteria include diabetes *mellitus*, hypothyroidism, hemodialysis, rheumatoid arthritis, other inflammatory arthropathies, multiple myeloma, gout, chondrocalcinosis, Colles fracture, space-occupying lesions, and infectious synovitis. Basal ECG and cardiac scintigraphy with Technetium-99m-DPD were performed at the time of the preoperative study. Low voltage was defined as a QRS amplitude < 5mm in the limb leads or < 10 mm in the precordial leads. Synovial tissue for amyloid screening was also collected whenever possible for amyloid screening.
Results: Until now, 16 patients were included: 6 (38%) men, mean age of 72 (± 8) years old. In three (19%) patients, cardiac scintigraphy revealed a Perugini grade 2 in one patient and a Perugini 3 in two patients. In six patients, synovial tissue was collected during surgery and in three (50%) the staining with Congo red was positive for amyloidosis. One of these 3 patients had a Perugini grade of 3 in cardiac scintigraphy. Troponin was normal except for one patient (1/11). Of the patients with amyloid protein in the synovial tissues, two had low voltage in the ECG. Of the patients with positive cardiac scintigraphy, one had a pseudo-infarction pattern. No patient had conduction abnormalities.
Conclusions: Although these results are still preliminary, they support the need for amyloidosis screening in patients undergoing CTS surgery. In this screening, the role of synovial biopsy and/or cardiac imaging still needs more evidence before formal recommendations are implemented. Prospective studies are especially required in this subject.

PO 172. MYOCARDIAL DEFORMATION IN ATHLETES MEASURED WITH FEATURE TRACKING CARDIOVASCULAR MAGNETIC RESONANCE

Mariana Sousa Paiva[1], Cláudia Silva[1], Andrés Marcos-Carrión[2], M. Pilar García-Lopez[2], M. Pilar Lopez-Lereu[2], Jose V. Monmeneu[2], Laura Higueras[2], António M. Ferreira[1], Alicia M. Maceira[2]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Ascires Biomedical Group, Valencia.

Introduction: Morphological changes of the heart associated with exercise are well studied. However, changes in myocardial mechanics of athlete's heart are less understood. The aim of this study was to compare myocardial deformation parameters in athletes and controls, using feature tracking cardiac magnetic resonance (FT- CMR).
Methods: Single-center retrospective cohort including athletes and age-matched healthy controls that underwent CMR at 1.5T and 3 T. CMR-FT was used to measure longitudinal, circumferential and radial strain and strain rates of both ventricles. Left ventricle (LV) longitudinal, circumferential and radial dyssynchrony index (L-SDI, C-SDI and R-CDI, respectively) was calculated as the standard deviation of the calculated time to peak strain percentages of the cardiac cycle with segmental strain analysis.

Figure 1A. Box plots representing left ventricle global longitudinal strain (%) in the athlete group and the control group

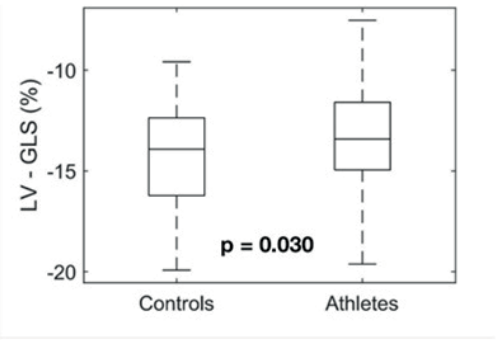
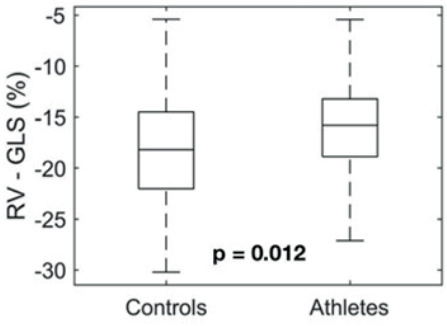


Figure 1B. Box plots representing right ventricle global longitudinal strain (%) in the athlete group and the control group



Results: Overall, 73 athletes (mean age 31 ± 12 years, 69% male, 5% with low intensity exercise training, 44% with medium intensity and 39% with high intensity training) were included. In comparison to the control subjects, athletes revealed lower left and right ventricle global longitudinal strain (-14.24% *vs.* -13.31%, p = 0.03, and -18.12% *vs.* -15.95% p = 0.01, respectively) and right ventricular (RV) global radial strain (19.28 *vs.* 15.74, p < 0.05)

(Figures). There were no significant differences in LV global radial and circumferential strain. LV longitudinal, radial and circumferential systolic strain rate were also lower in athletes compared to controls (-0.69 s^{-1} *vs.* -0.78 s^{-1}, p = 0.04; 1.35 s^{-1} *vs.* 1.50 s^{-1}, p = 0.03: -0.92 s^{-1} *vs.* -0.98 s^{-1}, p = 0.05, respectively). Regarding LV dyssynchrony index, we found no significant difference for L-SDI (10.76% *vs.* 10.72%, p = 0.956), but athletes group showed lower C-SDI and R-SDI values (5.99% *vs.* 4.84%, p = 0.006, and 5.53% *vs.* 4.47%, p = 0.002).
Conclusions: Our study revealed attenuation of biventricular strain values and lower circumferential and radial LV dyssynchrony indexes in athletes, compared with healthy controls. We hypothesize that these differences may be related with exercise physiologic cardiac adaptations.

PO 173. CARDIOVASCULAR MAGNETIC RESONANCE PREDICTORS FOR PULMONARY VALVE REPLACEMENT IN TETRALOGY OF FALLOT PATIENTS

Catarina Martins da Costa, João Calvão, Ana Filipa Amador, André Cabrita, Catarina Amaral Marques, João Rebelo, André Carvalho, António José Madureira, Cristina Cruz, Teresa Pinho, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Criteria for pulmonary vale replacement (PVR) in Tetralogy of Fallot (ToF) patients are based on clinical data and Cardiovascular magnetic resonance (CMR) parameters mainly. However optimal timing remains challenging. We studied our cohort of ToF patients to access CMR predictors for PVR.
Methods: We included adult patients (pts) with repaired ToF with active follow-up between 2000 and 2022 in a single tertiary care center. Last CMR previous to PVR or most recent CMR were considered as appropriate.
Results: One hundred sixty-two pts were eligible (female 82 (51%)) with a median follow up of 35 (interquartile range - IQR - 17) years. Moderate to severe pulmonary regurgitation (PR) evolved in 122 (75%) pts; among these mean regurgitation fraction and regurgitation volume was 42 ± 13% and 52 ± 26 ml, respectively, and fourteen (11%) patients presented in NYHA class II-III. Right ventricle outflow tract aneurism was associated with moderate to severe PR (28% *vs.* 10%; p = 0.019), while late gadolinium enhancement was not (98% *vs.* 95%; p = 0.455). Forty-seven (29%) pts were proposed to PVR. RVSV index/RVEDV index ratio showed good correlation with indication to surgery among patients with moderate to severe PR (0.39 ± 0.1 *vs.* 0.50 ± 021; p < 0.001) and as well as LVEDV index/RVEDV index (0.54 ± 0.1 *vs.* 0.62 ± 0.2; p = 0.008). LVSV index/RVSV index did not show any association (0.8 (0.4) *vs.* 0.7 (0.2); p = 0.198).
Conclusions: CMR is an essential technique to access pulmonary valve, right ventricle morphology and function in TOF pts. Factors as right ventricle outflow tract aneurism, RVSV index/RVEDV index ratio and LVEDV index/RVEDV index may be useful to establish optimal timing for pulmonary valve intervention. Larger studies with prognostic data are important to confirm this hypothesis.

PO 174. UTILIZATION OF 18-FDG-PET/CT IN THE DIAGNOSIS OF NATIVE VALVE ENDOCARDITIS

Gonçalo Terleira Batista, Gonçalo Ferraz Costa, Ana Luísa Silva, Mariana Simões, Tatiana Santos, Eric Monteiro, Joana Guimarães, Diogo Fernandes, Rafaela Fernandes, Ana Vera Marinho, Gracinda Costa, Rodolfo Silva, Lino Gonçalves, M.J. Ferreira

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

Introduction: The diagnosis of infective endocarditis (IE) remains a clinical challenge. Diagnostic accuracy of the modified Duke criteria is suboptimal for native valve endocarditis (NVE) and even worse in the presence of prosthetic material-related infection (PVE). We aim to evaluate the diagnostic performance of 18F-FDG PET in patients with suspected IE referred to perform PET/CT.
Objectives: We aim to understand the diagnostic value of 18F-FDG PET/CT in suspected NVE.
Methods: A retrospective study was performed at a tertiary center with 18F-FDG PET/CT and included all referred patients for this exam for suspected IE between May 2016 and January 2022. The choice to perform 18F-FDG PET/CT and the IE suspicion was based on the attending endocarditis team and did not follow a standardized protocol. Baseline demographic characteristics of patients, including all relevant clinical data, were collected from hospital records at hospital admission. The final diagnosis of IE (gold standard) was established by consulting the final diagnosis attributed to the patient by the Endocarditis team at the time of hospital discharge or death, after possession of clinical, microbiological, and imaging information as well as clinical response. Sensitivity, specificity, and positive and negative predictive values of 18F-FDG PET/CT in the evaluation of NVE were estimated.
Results: In total, 87 patients were included (mean age of 62 ± 19 years, 62% of the male gender), of which 32 had NVE suspicion. From this subgroup, approximately 56% were male, with a median age of 53.5 (IQR 41.5-71) years. Moreover, 22% were diabetic, 28% had dyslipidemia and 45% were hypertensive. Fever was present in 84% of patients and 16% had signs of heart failure. No patients had signs of vascular or immunological phenomena, nor signs of systemic septic embolization. Laboratory tests showed a mean CRP of 16.2 mg/dL and a mean leucocyte count of 10.9 G/L. Furthermore, 50% had at least one positive blood culture. 37.5% had echocardiographic findings suggesting IE with the presence of vegetations in all of them. According to the Duke Criteria, 50% were classified as "possible diagnosis", 16% with "definitive diagnosis"; and 34% as "rejected diagnosis". Of the 32 suspected NVE patients, 8 had a definitive diagnosis of IE, with compatible findings in 18F-FDG PET/CT observed in 5. Calculated sensibility was 62.5% and specificity was 100%.
Conclusions: Our study suggests that 18F-FDG PET/CT is an imaging tool of great specificity but poor sensibility for NVE.

PO 175. MYOCARDIAL DEFORMATION AND MORPHOLOGICAL ADAPTATION TO EXERCISE IN ATHLETES: INSIGHTS FROM FEATURE TRACKING CARDIOVASCULAR MAGNETIC RESONANCE

Rita Reis Santos[1], Cláudia Silva[1], Andrés Marcos-Carrión[2], M. Pilar García-Lopez[2], M. Pilar Lopez-Lereu[2], Jose V. Monmeneu[2], Laura Higueras[2], Alicia M. Maceira[2]

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Introduction: Long-term physical exercise induces several cardiac morphological and functional changes, commonly recognized as athlete´s heart. Cardiac magnetic resonance (CMR) plays an important role as a non-invasive method for determining LV mass and volume and CMR feature tracking (CMR-FT) allows for the analysis of myocardial deformation.
Objectives: To describe left and right ventricular cardiac morphological structure, and to assess the correlation between myocardial deformation and morphological changes in athletes (by CMR-FT).
Methods: Athletes who performed CMR at 1.5T and 3T at a single center were retrospectively included. Left (LV) and right ventricular (RV) volumes (end-diastolic and end-systolic) by CMR, as well as ejection fraction (EF) and LV mass (LVMi) were collected. CMR-FT LV and RV longitudinal, circumferential, and radial strain (GLS, GCS, GRS) were analyzed. Exercise intensity was classified according to current guidelines in low, medium, and high intensity training.
Results: Seventy-five athletes were included (31 ± 12 years, 69% male, 5.3% individuals practicing low intensity exercise, 44.0% medium intensity, and 38.7% with high intensity training). Regarding morphological characteristics, mean LVMi was 81.6 ± 21.8 g/m^2, and mean LV indexed end-diastolic (EDVi) and end-systolic (ESVi) volumes were 101.8 ± 19.0 ml/m^2 and 37.2 ± 9.9 ml/m^2, respectively. Mean RV EDVi and ESVi were 102 ± 19.1 and 39.7 ± 10.4 ml/m^2, respectively. LV GLS attenuation was directly correlated with LV ESVi (r = 0.366, p < 0.01), GCS was directly correlated with LV EDVi (r = 0.389, p = 0.001), LV ESVi (r = 0.646, p < 0.001) and LVMi (r = 0.292, p = 0.017). LV GRS correlated inversely with LV volumes and mass (Figure 1A). Reduced RV circumferential deformation was significantly correlated with higher RV

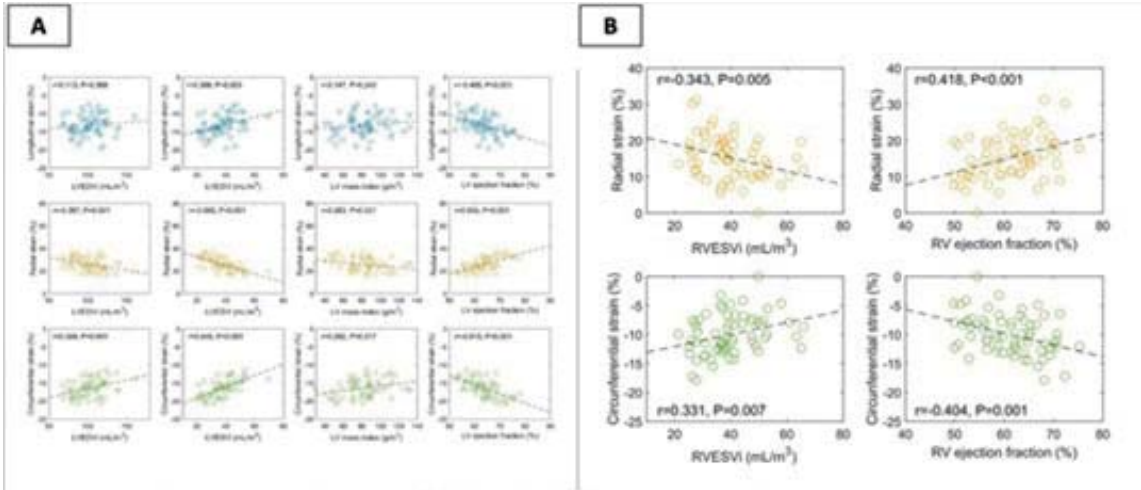


Fig.1 – Correlations between left (A) and right (B) ventricular morphological changes and strain.

Figure PO 175

ESVi (r = 0.331, p = 0.007) as with lower RV EF (r = 0.404; p = 0.001). RV GRS presented a direct correlation with RV EF (r = 0.418; p < 0.001) (Figure 1B). No significant correlations were found between RV GLS and volumes or EF.
Conclusions: In our cohort, attenuation of LV strain was correlated with hypertrophy, ventricular enlargement and EF%. RV deformation parameters were only correlated with ESVi and EF%, which could be related with the distinct anatomy and physiology of RV. Further studies are needed to investigate adaptive changes in myocardial deformation induced by athletic training.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 4) - Síndromes coronárias agudas - Tratamento farmacológico

PO 176. NSTE-ACS DUAL ANTIPLATELET PRE-TREATMENT: THE PORTUGUESE EXPERIENCE

António Maria Rocha de Almeida[1], Miguel Carias Sousa[1], Rita Rocha[1], Francisco Cláudio[1], Marta Paralta Figueiredo[1], Kisa Congo[1], Manuel Trinca[1], Em Nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[2]

[1]Hospital do Espírito Santo, EPE, Évora. [2]CNCDC.

Introduction: Decision of which antithrombotic therapy strategy scheme for non-persistent ST-segment elevation acute coronary syndromes (NSTE-ACS) remains controversial. European Cardiology Society guidelines ceased recommending pretreatment with P2Y12 receptor inhibitor in NSTE-ACS, based on *Accoast Trial*, which demonstrated absence of ischemic benefits and higher bleeding risk. However, sample studied didn't illustrate Portuguese reality.
Methods: Cohort of 2,194 NSTE-ACS patients from a multicenter national registry, treated according standard of care, between 2010-2019, was compared with *Accoast Trial* 1996 results of patients no pretreatment sample.
Results and conclusions: There was no statistically significant difference on age, sex distribution, aspirin or antithrombin therapy. 96.5% of Portuguese group were pretreated with dual antiplatelet therapy (DAPT). Trial's sample had median time to coronary angiography (CA) of 4.2 hours and femoral access in 57.0% and Portuguese group had a median time of 12h-36h till CA, and femoral access in 11.6%. Just 0.7% had urgent surgery in Portuguese sample. There was more cardiovascular caused deaths, myocardial infarction, stroke, urgent revascularization, or glycoprotein IIb/IIIa bailout (9.8%) on trial's sample, against only 5.0% on Portuguese group. Pretreatment group had slighter increase, with no statistical significance, of TIMI major bleeding (1.8% *vs.* 1.4%), with median timing 3.5 days after. Earlier CA may explain trial's absence of ischemic benefits. Later bleeding complications might be associated with DAPT strategy itself, and not with timing. Due to lack availability, surgery wasn't done before 5 days. Hence, DAPT pretreatment should not be for chose all NSTE-ACS, nevertheless, can be valid option, according to bleeding and ischemic risk, CA timing, access, or surgery availability.

PO 177. DUAL ANTIPLATELET THERAPY DURATION IN PATIENTS WITH ACUTE CORONARY SYNDROME TREATED WITH PERCUTANEOUS CORONARY INTERVENTION: HOW DO WE MAKE DECISIONS?

Joana Certo Pereira, João Presume, Catarina Brízido, Jorge Ferreira, Daniel A. Gomes, Rita Carvalho, Miguel Domingues, Marisa Trabulo, Miguel Mendes

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

Introduction: International guidelines recommend at least 12 months of dual antiplatelet therapy (DAPT) in patients with acute coronary syndromes (ACS), with the possibility of extension beyond 12 months in patients with low bleeding risk. However, the selection of patients who benefit the most from DAPT extension is often a topic of debate among clinicians. The use of clinical and technical aspects associated with increased thrombotic risk, as well as risk scores (e.g. DAPT score; Academic Research Consortium for High Bleeding Risk (ARC-HBR) criteria) may be considered for decisions. We aimed to assess how DAPT duration is managed in real-world clinical practice.
Methods: Single-center retrospective study including consecutive patients admitted for ACS at a tertiary center, from 2016 to 2018. All patients were evaluated at 1-year follow-up regarding the decision on extended treatment (ET) or standard treatment (ST). For those undergoing percutaneous coronary intervention (PCI), clinical and technical aspects associated with increased thrombotic risk, as well as 2 recommended risk scores (DAPT score and ARC-HBR score) were evaluated. Patients under anticoagulation were excluded.
Results: A total of 423 patients were included - mean age was 63 ± 14 years, 70% (n = 297) were male and clinical presentation was STEMI in 54% (n = 229). Overall, 5% (n = 22) underwent CABG, 91% (n = 384) underwent PCI, and

Table 1. Predictors of extended dual antiplatelet therapy

	Univariate			Multivariate		
Predictors of extended DAPT	OR	CI 95%	p	OR	CI 95%	p
Age	0.983	0.968; 0.998	**0.024**	0.991	0.973;1.010	0.366
Gender (male)	0.906	0.567;1.448	0.681			
Mody mass index	1.047	1.000;1.097	0.052	1.040	0.989;1.093	0.129
Diabetes mellitus requiring medication	1.212	0.751;1.957	0.430			
History of recurrent MI	1.867	1.090;3.192	**0,023**	1.586	0.827;3.041	0.165
Any multivessel CAD	2.109	1.166;3.812	**0.014**	1.784	0.935;3.404	0.079
Polyvascular disease (CAD plus PAD)	3.218	1.119;9.251	**0.030**	3.193	1.003;10.165	0.049
Premature (<45 years) or accelerated (new lesion within a 2-year time frame) CAD	1.275	0.583;2.789	0.542			
CKD with eGFR 1559 mL/min/1.73 m2	1.212	0.538;2.730	0.643			
Total stent length >60 mm	2.065	0.287;14.829	0.471			
Stent > 3mm	1.005	0.648;1.558	0.983			
At least 3 stents implanted	2.758	1.003;7.587	**0.049**	3.253	0.619;17.090	0.163
At least 3 lesions treated	3.175	0.880;11.461	0.078			
History of complex revascularization	1.371	0.226;8.311	0.731			
DAPT SCORE	1.470	1.185;1.823	**<0.001**	1.198	0.923;1.554	0.886
ARC-HBR Score	0.799	0.660;0.967	**0.021**	0.980	0.734;1.293	0.174
Smoking	0.701	0.456-1.077	0.105			
Ejection fraction<30%	8.426	0.932; 76.190	0.058	6.063	0.555;66.225	0.140
Active malignancy‡ (excluding nonmelanoma skin cancer) within the past 12 mo	0.505	0.105;2.409	0.391			
Hemoglobin <11 g/dL	0.430	0.243;0.759	0.004	0.378	0.166;0.861	0.021
Platelet count <100 x 109/L	0.667	0.133;3.351	0.623			

Figure PO 177

4% (n = 17) medical therapy, and from the whole population, 35% (n = 147) remained on ET. For PCI-treated patients, the mean DAPT score was 1.7 ± 1.0 and 43% (n = 166) patients had high-bleeding risk according to ARC-HBR criteria. Thirty-three percent of PCI patients (n = 126) were under ET. DAPT score, age, polyvascular disease, multivessel disease, presence of more than 3 stents, and previous myocardial infarction were individual predictors of ET - table 1. Moreover, all patients who had stent thrombosis remained on ET. On the other hand, high bleeding risk according to ARC-HBR, and anemia were predictors for ST. After multivariate logistic regression, only polyvascular disease remained significantly associated with ET (OR 3.193 [1.003; 10.165]; p = 0.049) and anemia with ST (OR 0.378 [0.166; 0.861]; p = 0.021).

Conclusions: In this real-world ACS population, 30% of patients continued DAPT for longer than 1 year. For those undergoing PCI, besides stent thrombosis, and after adjusting for multiple clinical and technical aspects associated with increased thrombotic risk, only polyvascular disease was a predictor of longer DAPT, while anemia was a predictor of standard therapy. The optimal duration of DAPT following PCI is still up for debate and a perfect tool is yet to come.

PO 178. MINERALOCORTICOID RECEPTOR ANTAGONISTS AFTER ACUTE MYOCARDIAL INFARCTION IN PATIENTS WITH MILDLY REDUCED LEFT VENTRICULAR EJECTION FRACTION

Catarina Ribeiro Carvalho[1], Pedro Rocha Carvalho[1], Marta Catarina Bernardo[1], Isabel Martins Moreira[1], Fernando Fonseca Gonçalves[1], Pedro Mateus[1], Ana Baptista[1], 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: Mineralocorticoid receptor antagonists (MRA) are recommended after acute myocardial infarction (AMI) in patients with left ventricular ejection fraction (LVEF) ≤ 40% and heart failure or diabetes, aiming to reduce morbidity and mortality. However, some studies showed MRA prognostic benefit also in patients with heart failure and mildly reduced LVEF, which has not been properly addressed after an acute coronary syndrome (ACS).

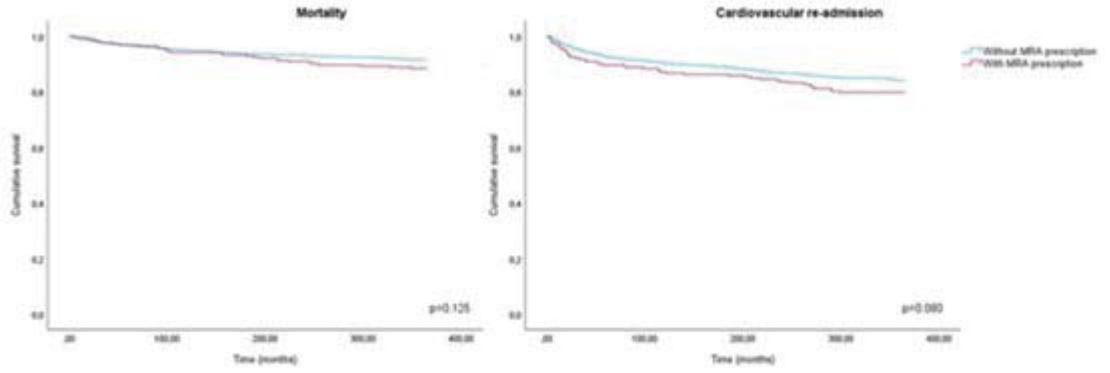


Fig. 1 – One year mortality rate was not significantly different in patients receiving MRA (left), but there was a trend to higher risk of cardiovascular re-admission after one year (right).

Figure PO 178

Objectives: To evaluate and compare the prognostic impact of MRA therapy after ACS in patients with mild LVEF dysfunction.
Methods: This was a national multicentre retrospective study that included patients with ACS and LVEF of 40 to 50%, between 2010 and 2021. Patients previously taking MRA and with previous history of heart failure or chronic kidney disease were excluded. The impact of MRA prescription on the outcomes of in-hospital mortality, one year mortality and cardiovascular re-admission was evaluated.
Results: A total of 5,291 patients were included, 13.6% with initiation of MRA during hospitalization and 15.1% after discharge. Patients with in-hospital MRA were more frequently female (32.4 *vs.* 26.5%, p < 0.001) with a mean age of 68 ± 13 years (vs. 67 ± 13 years, p = 0.014). Besides a higher prevalence of diabetes *mellitus* (40.9 *vs.* 31.7%, p < 0.001) and heart failure (7.6 *vs.* 5.2%, p = 0.009), there were no other significant differences regarding the basal characteristics of the two groups. The mean LVEF was 44 ± 3% for both groups. During hospitalization, patients receiving MRA presented frequent heart failure (40.6 *vs.* 15.2%, p < 0.001), shock (4.9 *vs.* 3.1%, p = 0.02), invasive or non-invasive mechanical ventilation (3.9 *vs.* 1.4% and 4.0 *vs.* 1.4%, p < 0.001), atrial fibrillation (8.7 *vs.* 4.6%, p < 0.001), ventricular tachycardia (2.6 *vs.* 1.3%, p = 0.006) and cardiac arrest (5.7 *vs.* 2.5%, p < 0.001). Despite the higher incidence of complications, in-hospital mortality rate didn't differ between groups (2.4 *vs.* 2.2%, p = 0.73).One year mortality rate was not significantly different in patients receiving MRA (HR = 1.39, 95%CI = 0.90-2.03, p = 0.13), but there was a trend to higher risk of cardiovascular re-admission after one year (HR = 1.32, 95%CI 0.96-1.80, p = 0.08).
Conclusions: Patients with mildly reduced LVEF receiving MRA had more in-hospital complications and a worse clinical profile, however, no significant differences were found in in-hospital and one year mortality rates. Randomized controlled trials are needed to further evaluate the impact of MRA in this population.

PO 179. EFFICACY AND SAFETY OF TICAGRELOR COMPARED TO CLOPIDOGREL IN ELDERLY PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION

David Sá Couto[1], André Alexandre[1], André Luz[1], João Faria[2], Andreia Campinas[1], André Frias[1], Raquel Santos[1], Bruno Brochado[1], João Silveira[1], Severo Torres[1]

[1]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António. [2]Instituto de Ciências Biomédicas Abel Salazar.

Introduction: Concerns have been raised about ticagrelor safety in elderly patients since this subpopulation is both under-represented in clinical trials and at a higher risk of bleeding. This study aims to compare the efficacy and

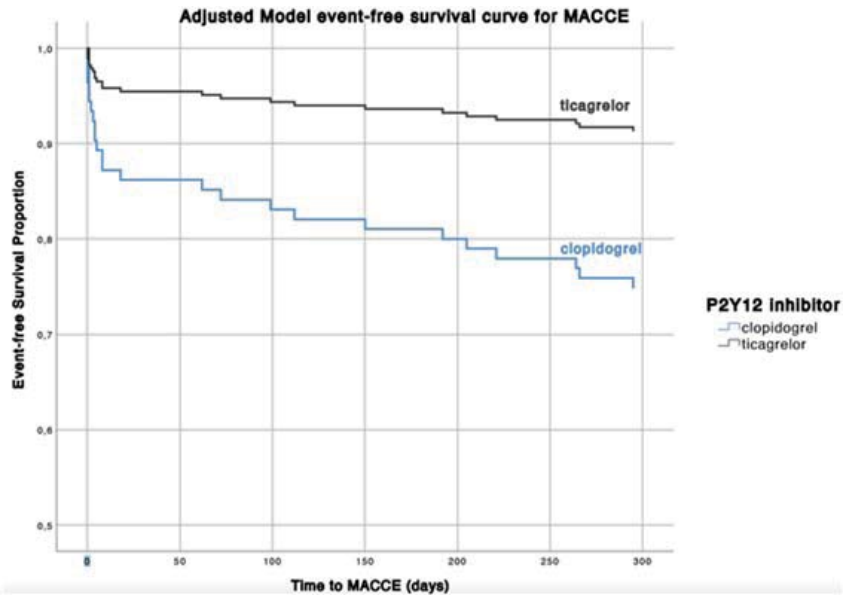


Figure PO 179

safety of ticagrelor and clopidogrel in the treatment of elderly ST-segment elevation myocardial infarction (STEMI) patients.
Methods: This is a retrospective study of STEMI patients admitted between 2008 and 2018. From a total of 1246 patients, 265 (21%) were ≥ 75 years old and were included in the analysis. Patients were grouped according to P2Y12 inhibitor used (ticagrelor *vs.* clopidogrel). Propensity score matching (PSM) (including covariates sex, hypertension, diabetes *mellitus*, smoking, symptom-to-balloon time, Killip class and anterior wall STEMI) was performed, obtaining 81 matched pairs. The primary endpoint was major adverse cardiovascular and cerebrovascular events (MACCE) at 1-year follow-up (composite of death, myocardial infarction, stroke and target lesion revascularization). Secondary endpoints included in-hospital death and hemorrhagic complications.
Results: After PSM, there were no significant differences in baseline characteristics between ticagrelor and clopidogrel groups. Mean age was 81 (± 4.24) years and 48% were male. Clopidogrel group patients were more likely to have multivessel disease (73% *vs.* 43%; p < 0.001) and anterior wall STEMI (53% *vs.* 37%; p = 0.040). Ticagrelor group patients were more commonly treated with drug-eluted stents (DES) (96% *vs.* 43%; p < 0.001), but less likely to receive thrombectomy (32% *vs.* 67%; p < 0.001) or GP IIb/IIIa inhibitors (10% *vs.* 21%; p = 0.046). The incidences of MACCE at 1-year follow-up (10% *vs.* 27%, p < 0.001), in-hospital death (5% *vs.* 15%, p = 0.035) and hemorrhagic complications (4% *vs.* 12%; p = 0.043) were significantly lower in ticagrelor group. In a multivariate analysis, after adjusting for possible confounding factors (age, multivessel disease, anterior STEMI, treatment with DES, thrombectomy and use of GP IIb/IIIa inhibitors), only the risk of MACCE at 1-year follow-up remained significantly higher in clopidogrel patients, when compared to ticagrelor pairs (adjusted OR 7.15; 95%CI [1.80 - 28.5]; p < 0.001). The risk of in-hospital death and hemorrhagic complications were similar between the groups.
Conclusions: In our real-world study, after PSM and relevant variable adjustment, ticagrelor appears to reduce 1-year MACCE, compared to clopidogrel, without increasing bleeding risk in elderly STEMI patients.

PO 180. ANTITHROMBOTIC THERAPY IN STEMI: EFFICACY AND SAFETY OF ADDING PARENTERAL ANTICOAGULATION IN STEMI UNDERGOING PCI

António Maria Rocha de Almeida[1], Miguel Carias Sousa[1], Rita Rocha[1], Francisco Cláudio[1], Kisa Congo[1], Diogo Brás[1], David Neves[1], Manuel Trinca[1], em nome dos investigadores do Registo Nacional de Síndromes Coronárias Agudas[2]

[1]Hospital do Espírito Santo, EPE, Évora. [2]CNCDC.

Introduction: Antithrombotic therapy is the cornerstone treatment for acute coronary syndromes. Often, parenteral anticoagulation (AC) is added to the dual antiplatelet treatment, till primary percutaneous coronary intervention (PCI). This strategy is recommended by international societies, due to large experience, however, there has been no placebo-controlled trial evaluating the efficacy and safety of anticoagulation in primary PCI.
Objectives: This study aims to evaluate the efficacy and safety of treatment with AC, either with unfractionated heparin (UFH) or with low molecular weight heparin (LMWH), in ST segment elevation myocardial infarction (STEMI), undergoing PCI.
Methods: Retrospective, multicenter, cohort of 1052 STEMI patients, admitted to primary PCI was divided in two groups: one undergoing AC and one with no AC. We did a sub analyze comparing the group treated with UFH and LMWH, against placebo. The primary efficacy endpoints were in-hospital and one year follow-up mortality, major adverse cardiovascular events (MACE) during hospitalization (re-infarction, mechanical complication, sudden cardiac death averted, ventricular arrhythmia, heart failure, stroke, and cardiogenic shock) and glycoprotein IIaIIIb inhibitor bailout strategy (GPIIaIIIb). The safety endpoints were TIMI major bleeding and decrease of hemoglobin (Hb) value greater than 3 g/dL
Results: Of the total of 1052 patients: 564 (54%) were treated with parenteral anticoagulation and 488 were not. In the anticoagulation sample, 207 patients were treated with UFH (37%), and 357 patients were treated with LMWH (63%). There were no statistically significant differences in both groups, in terms of age and sex distribution, with a 18-26% of women and mean age of 62.8-66.2 ± 0.9 years old. AC, and LMWH, had a statistically significant association with lower in-hospital mortality (p < 0.01), with odds ratio (OR) 0.3 and 0.28 respectively. UFH did not have a statistically significant association with lower mortality (p = 0.8). In terms of follow-up mortality, there was no statistically significant association in either group. In terms of MACE and GPIIaIIIb, AC, LMWH and UFH had a statistically significant association with lower MACE and GPIIaIIIB (p < 0.01), with a OR 0.9, OR 0.56 and OR 0.77 respectively, on MACE, and with OR 0.1, OR 0.3 and OR 0.2, on GPIIaIIIB. Regarding safety, neither AC, LMWH or UFH had a statistically significant association with TIMI major bleeding (p = 0.24, p = 0.2, and p = 0.8). LMWH had a statistically significant association with Hb value decrease greater than 3 g/dL (p = 0.03, RR 6%), that was not verified in AC or UFH samples (p = 0.1).
Conclusions: Adding AC, in STEMI patients admitted to primary PCI, to the antithrombotic therapy strategy is associated with lower in-hospital mortality, MACE and GPIIaIIIB bailout strategy, without increasing rates of TIMI major bleeding or Hb value decrease greater than 3 g/dL.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 5) - Intervenção valvular aórtica percutânea 2

PO 181. IMPACT OF TRANSCATHETER AORTIC VALVE IMPLANTATION ON KIDNEY FUNCTION IN CHRONIC KIDNEY DISEASE PATIENTS

Ana Débora Câmara de Sá, Francisco Sousa, Margarida Temtem, Ricardo Rodrigues, Graça Caires, Digo Rijo, João Adriano Sousa, Sónia Freitas, João Manuel Rodrigues, António Drumond Freitas, Bruno Silva

Hospital Dr. Nélio Mendonça.

Introduction: Transcatheter aortic valve implantation (TAVI) has been established as an alternative procedure for patients with symptomatic severe aortic stenosis. Procedural steps of TAVI, including contrast use may damage kidney function, especially in patients with established chronic kidney disease (CKD). However, there is a theorical increase in cardiac output after TAVI, that can eventually improve renal blood flow and kidney function. Data describing kidney function trends after TAVI in patients with CKD are lacking.
Objectives: Analyze the impact of TAVI on kidney function in CKD patients.
Methods: We performed a retrospective study of 143 consecutive patients who underwent TAVI in a single center between February 2018 and November 2022. Creatinine Clearance (CrCl) were calculated according to the Cockcroft-Gault equation and patient with CrCl < 60 ml/min were selected. Subanalysis of patient with moderate to severe and severe CKD (CrCl < 30 ml/min) was performed. Patients undergoing dialysis were excluded (5 patients). CrCl were analyzed at baseline (before TAVI) and at time of discharge. Paired sample T test were used for statistical analysis.
Results: A total of 103 patients (72%) had CKD (mean age is 82.6 ± 4.9 years, 30.1% males). Mean CrCl at baseline was 40.7 ± 12.5 ml/min, and at time of discharge 44.8 ± 17.7 ml/min (p < 0.001). Globally, CrCl went up in 73 patients, lowered in 28, and stayed equal in 2 patients (p < 0.001). The median hospitalization time was 3 days (IQR 3). Twenty patients had moderate to severe and severe CKD (mean age is 84.2 ± 5.3 years, 15% males). Mean CrCl was 22.5 ± 7.6 ml/min at baseline and 25.3 ± 12.7 ml/min at time of discharge (p < 0.001).
Conclusions: In a population with CKD submitted to TAVI the CrCl improved significantly at discharge, despite administration of iodine contrast. This benefit is still present in patient with more severe CKD. This outcome is probably due to post-TAVI hemodynamic changes with better kidney perfusion.

PO 182. MILDLY REDUCED AND REDUCED EJECTION FRACTION HEART FAILURE PATIENTS HAVE WORST OUTCOMES AFTER TRANSVALVULAR CATHETER AORTIC VALVE IMPLANTATION.

Francisco Sousa, Débora Sá, Marina Santos, Margarida Temtem, Ricardo Rodrigues, Bruno Silva, Graça Caires, Marco Serrão, João Adriano Sousa, Diogo Rijo, João Manuel Rodrigues, António Drumond Freitas

Hospital Dr. Nélio Mendonça.

Introduction: Left Ventricular Ejection Fraction (LVEF) < 50% is known to be associated with worse prognosis in patients with aortic stenosis. The aim of this study is to determine if Heart Failure with Mildly Reduced Ejection Fraction (HFmrEF) and Heart Failure with Reduced Ejection Fraction (HFrEF) is a worst prognostic marker after transvalvular catheter aortic valve implantation (TAVI).
Methods: A total of 73 patients were submitted to TAVI. Group A - HfrEF and HFmrEF (n = 20) and group B - HFpEF (n = 53). Follow-up was made by regular medical appointments and through medical records. Mean follow-up in group A was 2.1 ± 1.22 years *vs.* B = 2.4 ± 1.0 years). Recorded Major Adverse Cardiovascular Events (MACE) were the following: unstable angina; myocardial infarction; stroke; heart failure hospitalizations; cardiovascular death. Single or multiple hospitalizations for Heart failure were counted only as 1 MACE. Both groups were compared according to the number of MACE using Mann-Whitney test and Heart failure hospitalizations compared through Chi-square test.
Results: There were no significant differences between both groups regarding basal characteristics (mean age: A = 80.9 ± 6.7 years, B = 81 ± 4.9 years, A: 50% male, B = 51% male, p = ns). Group A registered 9 MACE (45%) and group B 11 MACE (21%), p = 0.039. One patient in each group had 2 different events. MACE proportion through groups was divided as: unstable angina (n = 1) (A = 5%; B = 0%); myocardial infarction n = 2 (A = 10%; B = 0%); stroke n = 4 (A = 0%; B = 8%); hospitalizations due to Heart Failure n = 15 (A = 40%; B = 13.2%, p < 0.001). No cardiovascular deaths were reported.
Conclusions: Worst outcomes were observed in patients with HFmrEF and HFrEF. A particular impact was observed on heart failure hospitalizations. Prolonged and severe aortic stenosis may be responsible for reduced Ejection Fraction. Larger populations studies maybe helpful to determine if an earlier intervention would prevent MACE.

PO 183. THE ROLE OF THE RIGHT HEART ON OUTCOMES AFTER TAVI: ANALYSIS FROM A LARGE SINGLE-CENTER COHORT

Mariana S. Brandão[1], Lígia Mendes[2], Sílvia O. Diaz[2], Diogo Santos-Ferreira[1], António S. Barros[2], Alberto Rodrigues[1], Pedro Braga[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: The impact of right ventricular (RV) function and RV to pulmonary artery (RV-PA) coupling on outcomes of patients with aortic stenosis undergoing transcatheter aortic valve implantation (TAVI), and the early effect of the intervention, remain partly unclear.
Objectives: To evaluate the impact of right heart echocardiographic (echo) parameters on the outcome of patients undergoing TAVI.
Methods: Retrospective analysis including consecutive patients submitted to TAVI at our center between 2007-2021. Pre and postprocedural (≤ 96h) echo parameters were analyzed: tricuspid annular plane systolic excursion (TAPSE), S-wave tissue Doppler velocity of the tricuspid annulus (S'), pulmonary arterial systolic pressure (PASP). TAPSE/PASP ratio was used as a surrogate of RV-PA coupling; TAPSE/PASP ratio < 0.31 defined RV uncoupling. Primary endpoint (PE) was defined as all-cause death within 1-year after TAVI. Echo parameters were compared between patients according to the PE. Pairwise comparison of pre- and post-TAVI indexes was also performed, for the overall cohort and according to the PE. Statistical significance was considered if p < 0.05.
Results: Of 1,040 TAVI patients, 615 with complete echo data were included: median age 81 years, 53% female, left ventricular ejection fraction 55 (45-60)%. Before TAVI, 60 patients (11%) presented RV dysfunction (TAPSE < 17 mm), and 30 (15%) RV-PA uncoupling. A significant reduction in PASP was observed after TAVI (40 *vs.* 36 mmHg, p < 0.01) [Figure]. TAPSE decreased post-TAVI (20.0 *vs.* 19.5 mm, p = 0.04); S' values did not differ between evaluations (11.20 *vs.* 11.50, p = 0.08). 1-year follow up data was available for 467 patients; the primary endpoint occurred in 37 (7.9%) patients. Patients meeting the PE had higher preprocedural PASP (42 *vs.* 39 mmHg, p = 0.036). PASP decreased after TAVI (39 *vs.* 36 mmHg, p < 0.001) in patients who survived the 1st year, but not in patients meeting the PE (p = 0.82). Postprocedural TAPSE/PASP ratio was lower in the deceased group (0.43 *vs.* 0.57, p = 0.031); persistence of RV-PA uncoupling post-TAVI was more frequent in patients who met the PE (25% *vs.* 8.1%, p = 0.047).
Conclusions: In this cohort, RV longitudinal function parameters did not improve after TAVI. Contrastingly, RV-PA coupling improved after the procedure. Persistence of RV-PA uncoupling after TAVI was more frequent in patients who died during the 1st year of follow-up.

PO 184. UNILATERAL FEMORAL ACCESS FOR TRANSCATHETER AORTIC VALVE IMPLANTATION

André Paulo Ferreira, Bárbara Teixeira, André Grazina, Francisco Albuquerque, Alexandra Castelo, Tiago Mendonça, Inês Rodrigues, António Fiarresga, Rúben Ramos, Rui Cruz Ferreira, Duarte Cacela

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

Introduction: In transcatheter aortic valve implantation (TAVI) procedures most operators place a second arterial sheath in the contralateral femoral artery to perform aortic root angiography and hemostasis confirmation.

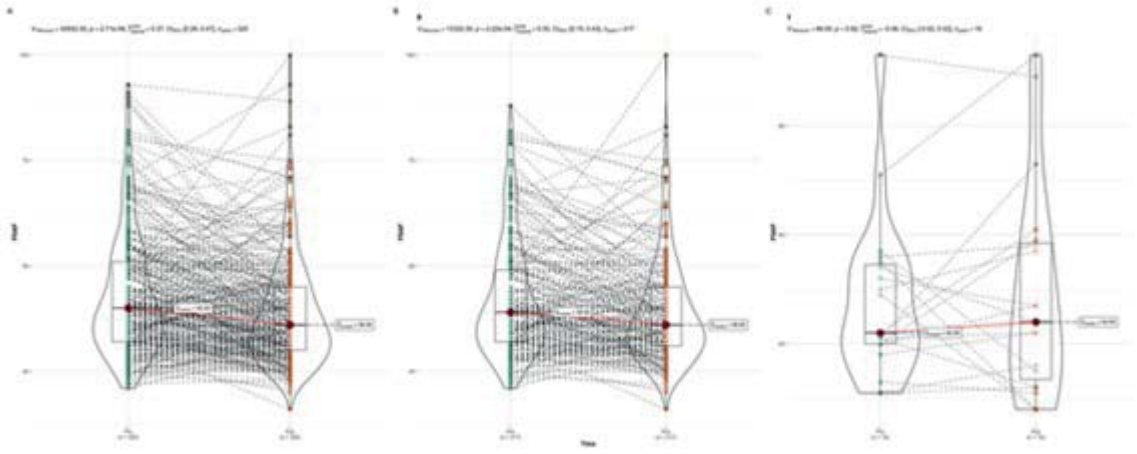


Figure PO 183

	Unilateral access	Bilateral access	p-value
Major vascular complications	5.9%	5.6%	p=0.877
Access related complications	7.4%	4.9%	p=0.755
Bleeding events	11.8%	7.5%	p=0.636
Myocardial infarction	0%	1.7%	p=0.552
Stroke	2.9%	3.4%	p=0.639
Device success	97.1%	98.4%	p=0.607
Early safety	90.6%	85.8%	p=0.202

Table 1 – Comparison of Bilateral access vs Unilateral access in TAVI procedures

Figure PO 184

Objectives: The aim of this study was to compare the safety and success of TAVI procedures when placing a second arterial sheath ipsilateral to the delivery sheath.
Methods: Retrospective analysis of patients submitted to transfemoral (TF) TAVI in a single tertiary center between January 2021 and October 2022 using unilateral (UL) and bilateral (BL) access approaches. Baseline characteristics, procedure data, and outcomes were noted according to the Valve Academic Research Consortium-2 (VARC-2).
Results: A total of 242 patients underwent TF-TAVI during the study period, including 68 patients (mean age 82.1 ± 6.13 years, 61.2% male) that underwent TF-TAVI using a UL femoral access. Regarding the latter baseline characteristics, it was noted a mean Euroscore II of 2.95 ± 1.91 and STS score of 4.18 ± 2.72, a basal NYHA class of 2.74 ± 0.60, obstructive coronary artery disease in 29.7% of patients (previous myocardial infarction in 8.1%, and previous CABG in 8.1%), peripheral artery disease in 13.5%, and previous stroke in 2.9%. There were no significant differences in major vascular complications (5.9% *vs.* 5.6%, p = 0.877) or access-related complications (7.4% *vs.* 4.9%, p = 0.755) between UL and BL access approaches. Unilateral access major vascular complications were comprised of an aortic rupture, a retroperitoneal hematoma, and two access hematomas leading to major bleeding. In-hospital mortality in the UL group was 2.94% (one patient died due to aortic rupture and another died of unrelated head trauma), which compares favorably with the 4.0% in-hospital mortality in the BL group. Bleeding events (11.8% *vs.* 7.5%, p = 0.636), stroke (2.9% *vs.* 3.4%, p = 0.639), acute myocardial infarction (0% *vs.* 1.7%, p = 0.552), and permanent pacemaker implantation rates (13.2% *vs.* 16.7%, p = 0.138) were also similar between both groups. VARC-2 composite endpoint of device success rate was 97.1% in the UL group *vs.* 98.4% in the BL group (p = 0.607), and the composite endpoint of early safety at 30 days was 90.6% in the UL group *vs.* 85.8% in the BL group (p = 0.202).
Conclusions: This analysis describes an early experience with unilateral femoral access for TF-TAVI regarding the technique complications, safety, and outcomes. Unilateral access procedures provided similar safety and efficacy when compared with bilateral access.

PO 185. PREDICTORS OF CLINICAL OUTCOMES FOLLOWING TRANSCATHETER AORTIC VALVE REPLACEMENT

Gustavo M. Campos[1], João Rosa[1], Rita Gomes[1], Bruno Castilho[2], Eric Monteiro[1], Joana Guimarães[1], Diogo Fernandes[1], Gonçalo Costa[1], Rafaela Fernandes[1], Gil Cunha[1], Vanessa Lopes[1], Tatiana Santos[1], Ana Luísa Silva[1], Mariana Simões[1], Gonçalo Batista[1], Luís Leite[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Hospital Distrital de Santarém, EPE.

Introduction: Aortic valve stenosis (AS) is one of the most common cardiovascular diseases and its prevalence is increasing associated with an ageing population. Transcatheter aortic valve replacement (TAVR) has become a mainstay therapy for high-risk patients with symptomatic severe aortic stenosis (AS). As a result of evidence from the randomized controlled trials, TAVR indications have expanded to include severe AS patients with

Table 1. Variables associated with the composite outcome consisting of all-cause mortality, heart failure hospitalization or stroke during follow-up

	Univariate HR (95% CI)	P value	Multivariate HR (95% CI)	P value
Age	0.98 (0.93 to 1.04)	0.550	1.00 (0.95 to 1.06)	0.882
Sex (male)	0.82 (0.41 to 1.62)	0.560		
BMI	0.43 (0.96 to 1.01)	0.431		
Diabetes mellitus	1.34 (0.67 to 2.70)	0.410		
Atrial fibrillation	2.31 (1.16 to 4.58)	**0.017**	2.27 (1.09 to 4.74)	**0.029**
Previous ACS	1.11 (0.39 to 3.17)	0.842		
Previous PCI	1.50 0.75 to 3.02)	0.255		
Creatinine, mg/dL	1.45 (1.18 to 1.78)	**<0.001**	1.42 (1.10-1.83)	**0.006**
Hemoglobin, g/dL	0.736 (0.59 to 0.91)	**0.005**	0.79 (0.62-0.99)	**0.046**
LVEF	0.97 (0.94 to 0.99)	**0.017**	0.99 (0.95 to 1.02)	0.514
Other valve disease	2.30 (1.15 to 4.61)	**0.019**	1.34 (0.60 to 2.98)	0.478
Self-expandable valve	2.55 (0.61 to 10.78)	0.200		
Post-TAVR AR	2.40 (1.13 to 5.01)	**0.022**	2.35 (1.06 to 5.24)	**0.037**
Need for pacemaker	0.67 (0.16 to 2.81)	0.586		
Vascular complication	1.56 (0.55 to 4.44)	0.404		
Length of stay	1.06 (1.03 to 1.08)	**<0.001**	1.04 (1.01 to 1.07)	**0.006**

Figure PO 185

low surgical risk. Thus, given the increasing number of patients who undergo TAVR, it is important to study possible long-term complications after the procedure. Common surgical risk scores are widely used to guide treatment options, but these models were created and validated in a standard surgical risk population. Therefore, these models do not reflect the particularities of the typical TAVR population and there is a paucity of information about predictors of both mortality and morbidity in these patients.
Objectives: The aim of this analysis was to identify predictors of adverse events in older adults undergoing TAVR.
Methods: Single center, retrospective, observational study including patients who underwent transfemoral-access TAVR for severe valve AS. Data was collected from the electronic medical records. The outcome was the composite of all-cause mortality, heart failure hospitalization or stroke. Univariate and multivariate Cox proportional hazard modeling was performed to identify predictors of the outcome.
Results: This cohort included 244 patients (median age 83 years, 45.9% male). The composite outcome was observed in 33 (13.5%) patients. In multivariate analyses, atrial fibrillation (HR 2.27; 95%CI 1.09-4.74), creatinine (HR 1.42; 95%CI 1.10-1.83) and hemoglobin (HR 0.79; 95%CI 0.62-0.99) levels, as well as the presence of significant (moderate to severe) post-TAVR aortic regurgitation (AR) (HR 2.35; 95%CI 1.06-5.24) were identified as independent predictors of adverse events. When adjusted to confounders, no association was found between left ventricular ejection fraction and the outcomes.
Conclusions: Significant post-TAVR AR, as well as the presence of atrial fibrillation, lower hemoglobin and higher creatinine levels were associated with postoperative adverse events in older patients undergoing TAVR.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 6) - Tromboembolismo pulmonar

PO 186. CT-EP SCORE: A PREDICTIVE MODEL OF THE PROGNOSTIC VALUE OF CT PULMONARY ANGIOGRAPHY IN PATIENTS WITH ACUTE PULMONARY EMBOLISM

Vanda Devesa Neto, João Fiuza, Joana Correia, Gonçalo Ferreira, Nuno Craveiro, Luis Ferreira Santos

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Pulmonary embolism (PE) is a common and life-threatening disorder associated with significant in-hospital mortality (IHM). Computer tomography pulmonary angiography (CTPA) is the gold standard diagnostic technique in patients with suspected acute PE in emergency departments The aim of the study was to evaluate if a simple and objective score based on CTPA parameters - CT-EP score - can predict prognosis in acute PE, comparing it to other previously validated scores.
Methods: A retrospective analysis of 134 patients admitted for acute PE was performed. Patients with hemodynamic instability at admission were excluded. PESI score was calculated for each patient, and the newly designed CT-EP score (variables: right ventricle/left ventricle ratio, presence of reflux of contrast into inferior vena cava, pulmonary artery/aorta ratio, and flattening of the interventricular septum) was calculated for each patient (range 0-11 points), after identifying the variables significantly associated with IHM (points attributed for each variable according to odds ratio). ROC curve analysis was performed to evaluate the predictive value of the different scores. Cox regression analysis and Kaplan-Meyer survival plots were used to assess 1-month mortality (1MM).
Results: Mean age was 62 ± 17y; 63% were female; 16% and 54% of patients, respectively, had an identifiable major or minor precipitating factor for PE. 33% had low-risk PE, 58% intermediate-low-risk PE, and 9% intermediate-high-risk PE, as defined by current guidelines. Mean PESI was 94 ± 38, and mean CT-EP score was 5.2 ± 3.2. 1MM was 9%. ROC curve analysis revealed that CT-EP score had the best predictive performance for 1MM compared to PESI score (AUC 0.852; p = 0.04 *vs.* AUC 0.661; p = 0.03, respectively). The optimal cut-off point for 1MM using CT-EP score was 8.5 (sensitivity 70%, specificity 85%). When stratified by risk categories (high risk if CT-EP score > 9 and low risk if CT-EP ≤ 8), we observed a significantly higher 1MM in high-risk patients compared with lower-risk patients (43% *vs.* 7%, respectively; p < 0.01; OR 9.8). Kaplan Meyer analysis by risk subgroup revealed significantly lower median time 1MM in patients with high-risk CT-EP score (14.7 ± 7 days *vs.* 2.5 ± 0.7 days, χ^2 = 4.923, p = 0.03) compared with low-risk patients. Cox-regression analysis demonstrated that CT-EP score remained a significant independent prognosis marker for 1MM after adjustment for other variables, such as renal function, pulmonary disease, and PESI score.
Conclusions: In conclusion, the CT-EP score is a simple and objective score based on CTPA parameters that can be used in daily practice to predict 1-month mortality in patients hospitalized due to acute PE. In addition, since CTPA is the gold-standard technique for diagnosing acute PE, this score can be quickly applied in the emergency department and be a tool for defining subgroups with higher mortality risk.

PO 187. STROKE VOLUME INDEX IN CHRONIC TROMBOEMBOLIC PULMONARY HYPERTENSION: MORE INFORMATION IS POWER?

João Mirinha Luz, Filipa Ferreira, Sofia Alegria, Ana Cláudia Vieira, Rita Calé Theotónio, Débora Repolho, Sílvia Vitorino, Alexandra Briosa, João Grade Santos, Bárbara Marques Ferreira, Mariana Martinho, Diogo Santos da Cunha, Nazar Ilchyshyn, Oliveira Baltazar, Ernesto Pereira, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction and objective: The 2022 Pulmonary Hypertension (PH) guidelines brought us a new parameter to evaluate in right heart catheterization (RHC) - the stroke volume index (SVI). In addition to pulmonary artery saturation (SvO2), cardiac index (CI), right atrial pressure

Table 1. Linear regression models for SVI

Thermodilution method	Equation	R	p-value
SVI/SvO2	-1,945x + 0.485	0,51	<0,001
SVI/PVR	41,980x - 1,296	0,795	<0,001
SVI/CI	3,271x + 12,058	0,764	<0,001
SVI/RAP	32,123x - 0,377	0,261	0,026
Fick method	**Equation**	**R**	**p-value**
SVI/SvO2	-19,243x + 0.781	0,661	<0,001
SVI/PVR	44,634x - 1,428	0,715	<0,001
SVI/CI	1,909x + 12,881	0,847	<0,001
SVI/RAP	33,508x - 0,326	0,184	0,10

SVI - stroke volume index; SvO2 - mixed venous oxygen saturation; PVR - pulmonary vascular resistance; CI - cardiac index; RAP - right atrial pressure

Figure PO 187

(RAP) and pulmonary vascular resistance (PVR), SVI is now a parameter to evaluate in PH patients regarding their risk stratification. We aimed to study the use of SVI in patients with chronic thromboembolic pulmonary hypertension (CTEPH) patients.
Methods: We have conducted a retrospective analysis of eighty-three (83) baseline RHC performed in our center in confirmed CTEPH patients from February 2010 until October 2022. To evaluate possible relationships between SVI and other RHC severity parameters, univariate linear regression methods were used. Parameters assessed by both thermodilution (TD) and Fick methods were analysed. We have also investigated if the use of SVI could change the prognostic evaluation of patients with CTEPH, by using the standard ESC/ERS 2022 guidelines cut-off values (< 31, 31-38, > 38) for risk stratification.
Results: Mean age at RHC was 62.6 years-old, and 68.7% of patients were female. 89.3% of the patients were naive of pulmonary vasodilatators. Mean SVI using TD was 28.71 ml/m^2 [standard deviation (SD) 8.65], whereas mean SVI using Fick was 30.70 ml/m2 (SD 10.59). Our analysis showed that SVI by TD has a positive proportional relationship with CI ($r = 0.764$, $p < 0.001$) and SvO2 ($r = 0.510$, $p < 0.001$), and negative relationship with RAP ($r = 0.261$, $p = 0.026$) and RVP ($r = 0.795$, $p < 0.001$). SVI by Fick method showed similar results (table 1). Regarding prognostic evaluation, SVI by TD was associated with worse prognosis assessment in 18.1% of patients and with better assessment in 9.6%, whereas SVI by Fick was associated with worse assessment in 22.9% and better in 10.8%. Even though we have seen a tendency for worsening prognosis assessment using SVI, the difference between the worse-better changing prognosis was not significant statistically.
Conclusions: Our study showed that SVI is well related with older and extensively studied parameters in RHC, and it can add prognostic value in patients with CTEPH. More studies are needed to see if and how SVI can be related with diverse outcomes in this group of patients.

PO 188. PROGNOSTIC RISK FACTORS IN CATHETER-DIRECTED THERAPIES IN INTERMEDIATE-HIGH RISK ACUTE PULMONARY EMBOLISM

João Mirinha Luz, Rita Calé Theotónio, Filipa Ferreira, Sofia Alegria, Cristina Martins, Gonçalo Morgado, Ana Rita Pereira, Mariana Martinho, Melanie Ferreira, Ana Gomes, Tiago Judas, Filipe Gonzalez, Corinna Lohmann, Débora Repolho, Pedro Santos, Ernesto Pereira, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Intermediate-high risk pulmonary embolism (IHRPE) is a major cause of morbidity and mortality, but in recent years, introduction of catheter-based therapies (CDT) brought hope and interesting results. Systemic fibrinolysis is still the first line in those patients (pts) when systemic anticoagulation fails, but CDT is emerging as a safe and effective alternative.
Methods: A retrospective single center analysis of IHRPE pts subjected to CDT since 2018 was conducted. CDT used were either catheter-directed thrombolysis with Cragg-McNamara 5Fr device (1 mg/h of alteplase), mechanical thrombectomy using the Indigo system (Penumbra 8Fr) or Teleflex' Pronto extraction system. Death by any cause, intra-hospital mortality and death within 30 days of index event were analysed. Pre-procedure clinical, imaging and laboratorial indicators were used.
Results: A total of 30 pts were subjected to CDT therapies, with more than half (56.7, n = 17) treated with Penumbra system. Mean age was 65.7 years-old [standard deviation (SD) 15.9], with a large majority of female pts (70%, n = 21). Mean PESI score was 111.9 (SD 40.8). Severe adverse events during CDT were observed in 13.3% (4 pts, 2 deaths during the procedure). Increased serum lactate [4.5 (IQR 5.4) *vs.* 1.9 (IQR 4.0), p = 0.017] and lower cardiac frequency (88.3 ± 22.9 *vs.* 113.1 ± 19.1, p = 0.048) were associated with higher intra-hospital mortality. Similar results were obtained regarding higher 30-day mortality. No clinical, imaging or laboratorial indicators showed statistical significance regarding death by any cause (Table).
Conclusions: Pre-procedure clinical and laboratorial indicators showed potential for prognostic evaluation when assessing patients for CDT and their response to these therapies. Due to a reduced sample, other factors cannot be adequately assessed for prognostic evaluation, emphasizing the need for larger studies.

PO 189. PERFORMING UNDER PRESSURE: CARDIOPULMONARY VENTILATORY EFFICIENCY IN PATIENTS WITH PULMONARY HYPERTENSION

Rita Amador, Sérgio Maltês, Gonçalo J. L. Cunha, Bruno M. L. Rocha, Catarina Brízido, Christopher Strong, António Tralhão, António Ventosa, Carlos M. Aguiar, Luís Moreno, Anaí Durazzo, Miguel Mendes

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

Introduction: Right Heart Catheterization (RHC) remains the gold standard for the diagnosis and classification of pulmonary hypertension (PH). Recently, cardiopulmonary exercise testing (CPET) ventilatory efficiency parameters during exercise have shown to be correlated with the degree of pulmonary hypertension in RHC, at rest. However, the correlation with CPET resting parameters is currently unknown.
Objectives: The aim of this study is to characterize the CPET findings in patients with pulmonary hypertension undergoing RHC, as well as the correlation between resting and exercise ventilatory efficiency parameters and RHC.
Methods: This was a single centre restrospective study enrolling patients who underwent both CPET and RHC within 6 months of each other from 2015-2022 and met the criteria for pulmonary hypertension, mean pulmonary artery pressure (mPAP) higher than 20 mmHg, as per the

Table 1. Clinical, imaging and laboratorial factors before procedure

30-day mortality	Yes	No	p-value
Systolic BP (mean, SD; mmHg)	120.3 +- 24.9	119.8 +- 16.9	0.961
Cardiac frequency (mean, SD; bpm)	88.3 +- 22.9	113.1 +- 19.1	0.048
TAPSE (mean, SD; mm)	12.0 +- 4.6	15.6 +- 1.4	0.288
Serum lactate (median, IQR; mmol/L)	4.5, 5.4	1.9, 4.0	0.017
Death by any cause	**Yes**	**No**	**p-value**
Systolic BP (mean, SD; mmHg)	122.2 +- 17.8	119.3 +- 17.6	0.744
Cardiac frequency (mean, SD; bpm)	98.2 +- 23.0	113.1 +- 19.6	0.148
TAPSE (mean, SD; mm)	13.0 +- 2.8	15.8 +- 4.7	0.271
Serum lactate (median, IQR; mmol/L)	3.3, 7.2	1.95, 4.0	0.181

Figure PO 188

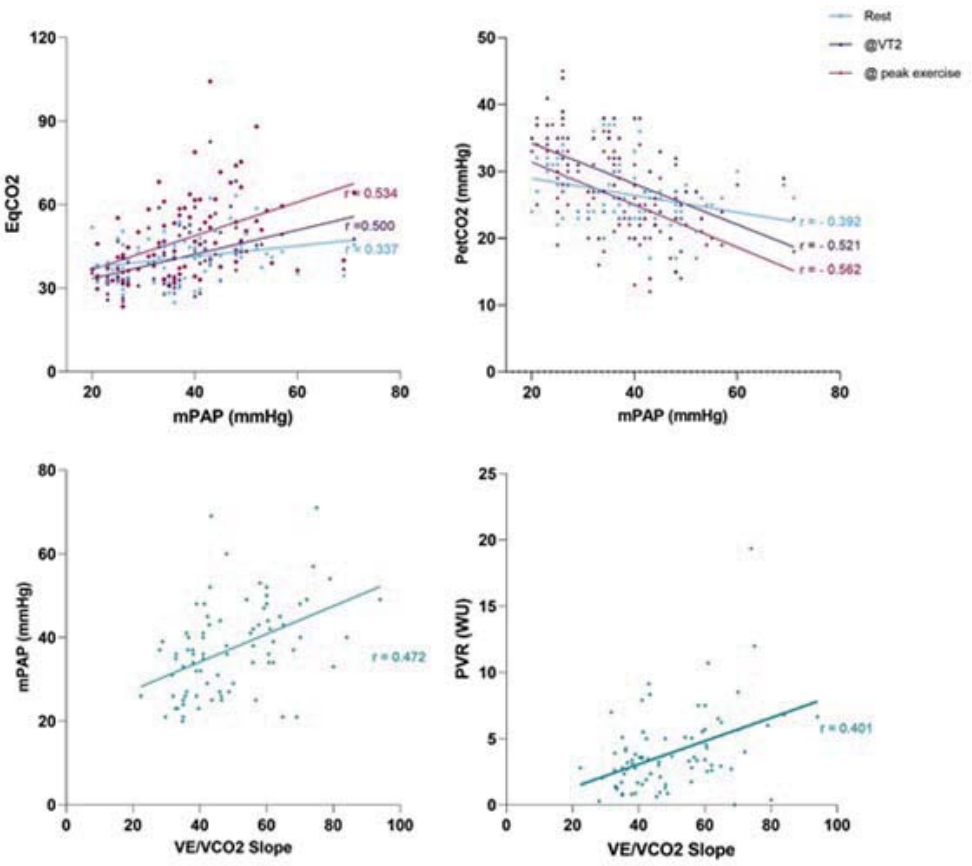


Figure 1 – Correlations between CPET parameters and mPAP and PVR (p < 0.001)

Figure PO 189

2022 ESC guidelines. RHC measures used were taken at rest and without administration of nitric oxide.

Results: A total of 84 patients were included (mean age 56 ± 11 years, 76% male, with a median LVEF of 27 [20-34]%, mostly HFrEF patients being evaluated for heart transplant). The main cause for HF in the cohort was ischemic heart disease (48%, n = 40), followed by idiopathic dilated cardiomyopathy (19%; n = 16). RHC showed mean mPAP of 38 ± 11 mmHg, and median pulmonary vascular resistance (PVR) was 3.4 [2.0-5.5] WU. Most patients had combined pre- and post-capilary PH (69% n = 83). Overall, 52 patients (62%) attained a maximal CPET (respiratory exchange ratio ≥ 1.10) and the second ventilatory threshold was identifiable in 66 (78%). Median peak-VO2 (pVO2) was 13.0 [10.3-15.1] mL/kg/min (corresponding to a median of 48% of predicted VO2 max) and median VE/VCO2 Slope was 46 [37-60]. There was a significant correlation between RHC parameters (PMAP and PVR) and CPET parameters (VE/VCO2 slope, PetCO2 and EqCO2) which was weak at rest and moderate during peak exercise (Figure).

Conclusions: In a population of patients with HFrEF with predominantly combined PH, CPET ventilatory efficiency parameters showed a significant correlation with RHC indices of pulmonary hypertension. CPET peak exercise parameters seem to correlate better with RHC than resting parameters, suggesting that factors other than PH influence resting ventilatory efficiency more heavily at rest *versus* exercise.

PO 190. HYPONATREMIA AS A PREDICTOR OF SHORT-TERM MORTALITY IN PATIENTS WITH ACUTE PULMONARY EMBOLISM

João Gouveia Fiuza, Vanda Devesa Neto, Joana Laranjeira Correia, Gonçalo R.M. Ferreira, Júlio Gil Pereira

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Pulmonary embolism (PE) is associated with important morbidity and mortality. Hyponatremia is associated with worse prognosis in many clinical conditions such as heart failure and cancer. Hyponatremia has recently been associated with short-term mortality in acute PE.

Objectives: Study the association between hyponatremia and in-hospital mortality (IHM) and 1-month mortality (1MM) in patients with acute PE.

Methods: This is a retrospective study of 178 patients admitted for acute PE in a Cardiology Department. Baseline characteristics, laboratory findings and disease severity were analyzed. Hyponatremia was defined as plasma sodium ≤ 135 mg/dL at admission. The population was divided in two groups: hyponatremia and normal-high natremia. Chi-square and Mann-Whitney U was used for comparison between groups. Survival analysis using Kaplan-Meyer survival plots and log-rank tests were used to assess 1MM.

Results: Mean age was 63 ± 18 years; 61.2% were women. Mean natremia was 139 ± 3 mg/dL. At admission, 11.2% of patients had hyponatremia. IHM and 1MM were 5.6% and 7.3%, respectively. Hyponatremia was associated with higher IHM (20% *vs.* 4%; χ^2 = 8, 789; p = 0.02) and 1MM (25% *vs.* 5%; χ^2 = 10.423; p < 0.01). There was no significant difference between groups in sex (p = 0.54), heart failure history (p = 0.324), complete right bundle branch block (p = 0.638) and BNP (p = 0.256). In logistic regression analysis, hyponatremia was an independent mortality predictor, after adjusting to other worse prognosis markers (age (p = 0.04), heart rate (p = 0.01) and blood pressure (p = 0.05) at admission). Kaplan Meier analysis revealed significantly earlier mortality in patients with hyponatremia (2.6 *vs.* 6.6 days; χ^2 = 5.889; p = 0.02).

Conclusions: Hyponatremia at admission is associated with increased IHM and 1MM in patients diagnosed with acute PE. Natremia is a readily accessible and inexpensive laboratory marker that can independently predict short term mortality. It can be used to identify patients at a higher risk of adverse outcomes.

Fig. 1 - Kaplan Meier survival analysis (p=0,02)

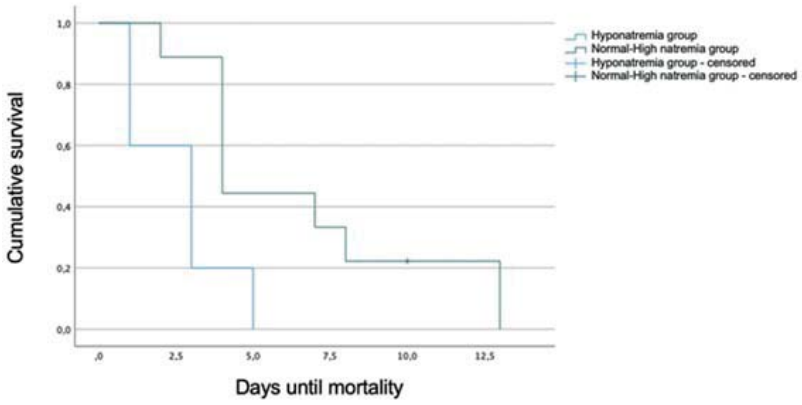


Figure PO 190

Domingo, 16 Abril de 2023 | 10:00-11:00

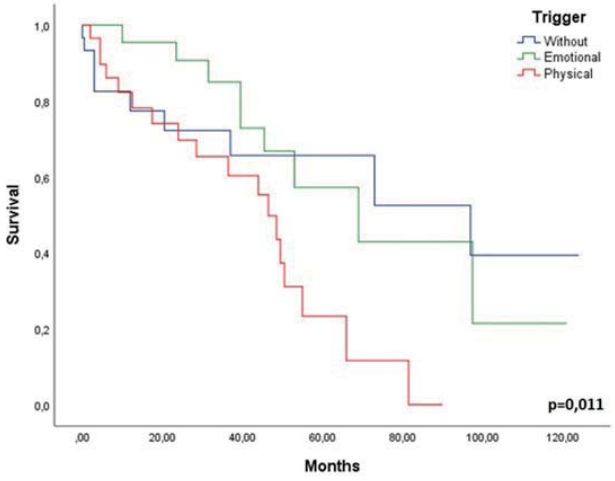
Jardim de Inverno | Posters (Sessão 5 - Écran 7) - Miocardiopatia de *stress*

PO 191. TAKOTSUBO SYNDROME - DOES TRIGGER MATTER?

Pedro Rocha Carvalho, Isabel Moreira, Marta Catarina Bernardo, Catarina Carvalho, Fernando Gonçalves, Pedro Magalhães, José Paulo Fontes, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de São Pedro.

Introduction: Takotsubo syndrome (TTS) is an acute cardiac entity usually triggered by physical or emotional stress associated with a catecholamine storm, overactivity of sympathetic nerves, or microvascular dysfunction in the setting of systemic inflammation. However, sometimes no trigger is identified.
Objectives: To investigate if TTS triggers are associated with worse long-term cardiovascular prognosis.
Methods: Retrospective study with patients discharged with the diagnosis of TTS in a single center from January/2013 to November/2022. Patients were divided into 3 groups: physical trigger, emotional trigger and no trigger identified. During follow-up, the primary outcome was a composite of heart failure hospitalization, death, stroke and TTS recurrence (MACCE).
Results: A total of 103 patients were included (85.7% females; mean age 71 ± 12 years old), 84.8% presenting with chest pain, and 41.2% presenting with ST-segment elevation on electrocardiogram. There was an identifiable trigger in 69 patients (34 had an emotional and 35 had a physical trigger). The 3 study groups (without trigger *vs.* emotional trigger *vs.* physical trigger) had similar baseline characteristics which included age (71 ± 12 *vs.* 68 ± 12 *vs.* 72 ± 13 years, p = 0.121), cardiovascular risk factors, and neurological or psychiatric illness. When compared with physical trigger, patients with emotional trigger were less likely to present ST-segment elevation (51.3% *vs.* 26.5% *vs.* 45.4%, p = 0.091) or with acute pulmonary oedema (8.6% *vs.* 0% *vs.* 11.4%, p = 0.1), but were more likely to present with chest pain (94.3% *vs.* 94.1% *vs.* 68.6%, p = 0.013). During hospitalization, patients with physical trigger had a higher incidence of heart failure (25.7% in patients without trigger *vs.* 36.1% emotional trigger *vs.* 47.1%, p = 0.101), cardiogenic shock (8.6% in patients without trigger *vs.* 2.9% emotional trigger *vs.* 14.7%, p = 0.211) and need of mechanical ventilation (14.3% in patients without trigger *vs.* 2.9% emotional trigger *vs.* 24.2%, p = 0.04). During a median follow-up of 41 months (IQR: 35;55), 37 patients (38.5%) experienced a MACCE event. In a multivariate regression analysis, after adjusting for possible confounders, the physical trigger group had a higher risk of MACCE (HR 2.675, 95%CI: 1.130-6.33, p = 0.025) than the other two groups. If we compare only the emotional and physical trigger groups, the latter had a 3 times higher risk of MACCE (HR 2.99, 95%CI: 1.20-7.49, p = 0.019). No statistically significant difference was noted in MACCE between patients with an emotional trigger and patients without an identifiable trigger.



Conclusions: Patients with TTS induced by physical triggers have a significantly worse prognosis. The physical trigger group had a 3 times higher risk of MACCE than the emotional trigger group, and because of this, higher vigilance of these patients is needed.

PO 192. CLINICAL CHARACTERIZATION AND LONG-TERM FOLLOW-UP OF PATIENTS WITH TAKOTSUBO SYNDROME: 18-YEAR EXPERIENCE OF A PORTUGUESE TERTIARY CARE CENTER

Ana Isabel Pinho, Cátia Oliveira, Luís Daniel Santos, André Cabrita, Catarina Amaral Marques, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Paula Dias, Gonçalo Pestana, Carla Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Takotsubo Syndrome (TTS) is characterized by transient acute systolic dysfunction, traditionally preceded by a trigger. Etiology and pathophysiology remain unclear, and TTS can manifest in a wide spectrum of severity with variable morbidity and mortality rates.

Objectives: To characterize the TTS population admitted in a tertiary center and evaluate long-term follow-up.
Methods: A retrospective cohort of TTS patients admitted to our hospital between June 2005 and November 2022 was collected. TTS was defined according to the revised Mayo Clinic diagnostic criteria. A composite of major adverse cardiac and cerebrovascular events (MACCE), including recurrence, acute coronary syndrome, heart failure, stroke, arrhythmias and death, was defined.
Results: 142 TTS patients were included; mean age was 67.2 ± 12.3 years; 8% were males. Hypertension was the most common comorbidity (68%), followed by dyslipidaemia (52%) and psychiatric disorders (45%). A precipitating factor was found in 78%. The most frequent symptom at admission was chest pain (70%). 40% of cases were admitted in Killip class ≥ II. The initial ECG commonly showed T-wave inversion (38%) or ST-segment elevation (31%); 30% had QT-interval prolongation. 30% had an InterTak score value ≥ 72 points (probability of TTS > 90%). The median of Troponin I peak levels was 1.73 (IQR 0.81-3.42) ng/mL, and of brain natriuretic peptide levels was 318 (IQR 133-819) ng/mL. Left ventricle systolic dysfunction was present in 85%. 85% had apical akinesis while 7% showed midventricular and 1.4% basal variants. Coronary angiography (performed in 92%) revealed normal vessels in 65%, mild coronary atherosclerosis in 20% and non-obstructive lesions in 7%. Although most patients with TTS recover, the risk of in-hospital complications was 44% (Table). In-hospital mortality was 2.1% and the risk of cardiovascular rehospitalization was 3.8% in the first 30 days. As for the long-term follow (mean 5.7 ± 4.4 years), the composite rate of MACCE was 6.1% per patient-year and the rate of death from any cause was 2.1% per patient-year. Ten patients had TTS recurrence; the risk was 1.3% per patient-year and the mean time of recurrence was 44 months (2-137 months).

In-hospital complications	Number of patients	Incidence during hospitalization (%)
Acute pulmonary oedema	21	14,8%
Cardiogenic shock	16	11,3%
Cardiopulmonary resuscitation	10	7,0%
VT/ VF	3	2,1%
Atrial Fibrillation	12	8,5%
Other SVTs	4	2,8%
Complete atrioventricular block	6	4,2%
LV thrombus	7	4,9%
Pericarditis	6	4,2%
Acute kidney failure	10	7,0%
Cardiac rupture	2	1,4%
Death	3	2,1%

Table 1. Description of in-hospital complications. 63 pts (44%) suffered one or more complications during hospitalization. The most common complications were acute pulmonary oedema, cardiogenic shock and atrial fibrillation. (Note: most patients had more than one complication). Abbreviations: LV – left ventricle, pts – patients, SVTs – supraventricular tachycardias, VT/VF – ventricular tachycardia/ ventricular fibrillation

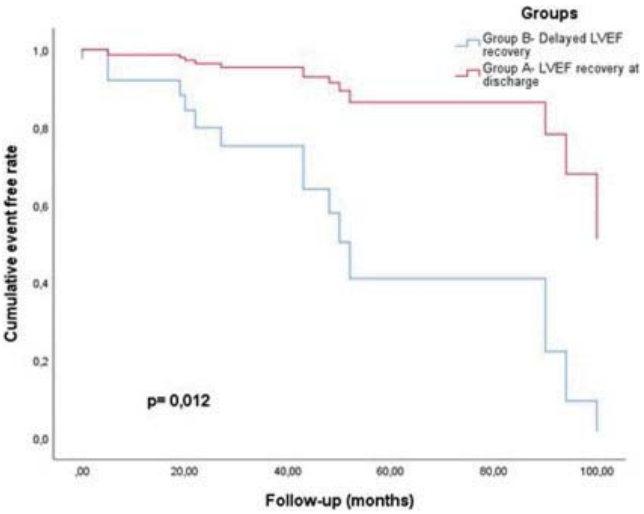
Conclusions: TTS is now considered a much more heterogeneous and less benign condition than previously thought. During long-term follow-up, we found substantial rates of recurrence, death from any cause and MACCE. Our data emphasizes the importance of more research on risk factors and treatment for this condition.

PO 193. DELAYED RECOVERY OF LEFT VENTRICULAR EJECTION FRACTION IN TAKOTSUBO SYNDROME AS A PREDICTOR OF MAJOR ADVERSE CARDIOVASCULAR EVENTS

Marta Catarina Bernardo, Isabel Martins Moreira,
Catarina Ribeiro Carvalho, Pedro Rocha Carvalho, Pedro Magalhães,
Fernando Gonçalves, Pedro Mateus, Sofia Silva Carvalho, Ilídio Moreira

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

Introduction: Takotsubo Syndrome (TTS) is a condition of transient left ventricular dysfunction that is typically triggered by emotional or physical stress. Left ventricular ejection fraction (LVEF) recovery in TTS occurs over a wide-range interval, varying from days to weeks.
Objectives: Our purpose was to access the prognostic impact of delayed recovery of LVEF in patients with TTS.
Methods: We performed a retrospective analysis of patients admitted in a single centre between 2008 and 2022 with the diagnosis of TTS, with a LVEF < 50% at admission. Patients were divided into two groups: Group A- patients with the recovery of ejection fraction during hospitalization (LVEF ≥ 50% at the pre-discharge echocardiogram) and Group B- patients that had a delay in recovery, with LVEF < 50% at the pre-discharge echocardiogram. Major adverse cardiovascular events (MACCE) included heart failure hospitalization, cardiovascular mortality, stroke and TTS recurrence.
Results: We included 63 pts, 88.9% females, mean age of 69.38 ± 12.5 years. Group A included 27 pts, with a median LVEF of 37% (IQR 33-41) and group B included 36 pts with a median LVEF of 36% (IQR 33-38.8), with no statistically significant difference between the two groups (p = 0.347). The median pre-discharge LVEF was 60.0% (IQR 56-65.6) in group A and 42.0% (IQR 37-47) in group B (p < 0.005). The hospitalization length (HL) was similar between the two groups (mean HL of 7.9 ± 7.8 in group A *versus* 8.1 ± 8.4 days in group B, p = 0.93). The two groups were similar in terms of basal characteristics, with more prevalence of psychiatric disease in group A (13.9% *vs.* 33.3%, p = 0.066). We found no statistical differences in clinical presentation and evolution during hospitalization (Killip class, cardiogenic shock, ventricular arrhythmias) and in the rates of concomitant coronary artery disease (14.8% group A *versus* 26.5% group B, p = 0.270). Also, the in-hospital medication and at discharge (Angiotensin-converting enzyme inhibitors, beta blockers, spironolactone and aspirin) were identical between the two groups. There was a tendency for more prescription of anticoagulants at discharge in group B (45.7% *versus* 22.2%, p = 0.055). During a median follow-up of 41.0 months (IQR 14.0-54.5), group B had a higher rate of MACCE (34.4% *versus* 20.0%, log rank p = 0.033). In a multivariate analysis, after adjusting for possible confounders, delayed recovery of LVEF was an independent predictor of MACCE with a HR 6.1 (95%CI: 1.50-24.9, p = 0.012) (Figure).



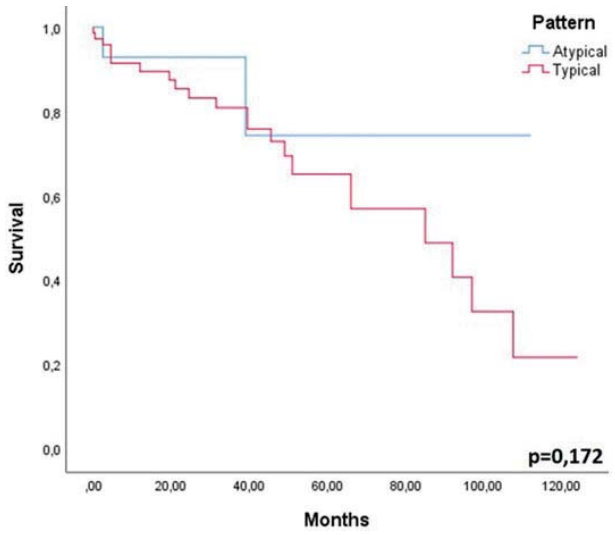
Conclusions: In this population, delayed recovery of LVEF in TTS was an independent predictor of major adverse cardiovascular events. These findings suggest that this population should be targeted in clinical trials to investigate possible interventions and these patients should have a closer follow-up.

PO 194. TAKOTSUBO SYNDROME - IS THE TYPICAL TYPE THE REAL VILLAIN?

Pedro Rocha Carvalho, Isabel Moreira, Marta Catarina Bernardo,
Catarina Carvalho, Catarina Ferreira, Fernando Gonçalves,
Pedro Magalhães, José Paulo Fontes, Ilídio Moreira

Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de São Pedro.

Introduction: Takotsubo syndrome (TTS) is an acute cardiac entity with clinical manifestations similar to myocardial infarction. Clinical differences in individuals presenting with either the typical (apical) or atypical (midventricular, basal, and focal) localization of left ventricular contraction abnormalities are not well understood.
Methods: Retrospective study with patients discharged from a single center with the diagnosis of TTS from January/2013 to November/2022. Two TTS groups were made based on typical or atypical left ventricular contraction patterns and were then compared regarding sex, clinical presentation, event trigger, and coronary artery disease. During follow-up, the primary outcome evaluated was a composite of cardiovascular mortality, heart failure hospitalizations, stroke and TTS recurrence (MACCE).



Results: A total of 103 patients were included, 86 (84%) with the typical pattern and 16 (16%) with an atypical pattern (8 with the midventricular type, 3 with the basal type, and 5 with focal type). There was no difference in sex distribution (female: typical 86.4% *vs.* atypical 75% p = 0.154). Both groups had similar age (71 ± 11 *vs.* 69 ± 13 years, p = 0.513), cardiovascular risk factors, ST-segment elevation on admission (40% *vs.* 43.8%, p = 0.779), and peak T troponin [0.44 (IQR [0.22;0.73]) *vs.* 0.54 IQR [0.30;0.73]), p = 0.10]. However, patients with typical pattern had higher NT-pro-BNP levels on admission [3613 [IQR 1,578;7,167 mg/dl] *vs.* 544 [IQR 544;3,333 mg/dl], p = 0.023] and lower left ventricular ejection fraction on admission (LVEF) (37% *vs.* 55%, p < 0.001) and on discharge (50% *vs.* 58%, p = 0.018). Trigger identification was similar (67% *vs.* atypical 57%; p = 0.659). Non-significant coronary artery stenosis > 50% was uncommon (typical TTS 21% *vs.* atypical TTS 20%; p = 0.934). Patients with a typical pattern had a higher incidence of acute heart failure (41.9% *vs.* 6.3%; p = 0.007), however, there was no statistical difference in the incidence of cardiogenic shock (9.3% *vs.* 6.3%; p = 0.693) or in-hospital mortality (4.7% *vs.* 0%; p = 0.379). During a median follow-up of 41 months [IQR 14;59], 23 patients (24.3%) experienced a MACCE event. The adjusted Cox regression analysis didn't show a significantly higher risk for MACCE in patients with typical TTS (adjusted HR: 2.07; 95%CI: 0.47 to 9.7, p = 0.333).
Conclusions: While an apical contraction anomaly is the most common type of presentation in TTS, atypical contraction patterns are found in 16% of the patients. Patients with typical pattern had a higher incidence of in-hospital complications, however both patterns had similar outcomes during follow-up.

PO 195. TAKOTSUBO SYNDROME IN PATIENTS WITH HISTORY0 OF MALIGNANCY: CLINICAL FEATURES AND FOLLOW-UP

Ana Isabel Pinho, Cátia Oliveira, Luís Daniel Santos, André Cabrita, Catarina Amaral Marques, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Paula Dias, Gonçalo Pestana, Carla Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: The numerous effects of malignancy and therapies on the heart are under increasing discussion with the advent of Cardio-oncology. Several studies have described the occurrence of Takotsubo Syndrome (TTS) in the setting of malignancy, however there is limited data on the impact of history of malignancy on clinical outcomes of patients (pts) with TTS.
Objectives: To investigate differences in clinical features, outcomes and long-term follow-up in TTS pts with and without history of malignancy.
Methods: We collected a retrospective cohort of 142 TTS pts admitted to our hospital, defined according to the revised Mayo Clinic diagnostic criteria. Pts were categorized into 2 groups based on the presence or absence of history of malignancy, active or in the past. Kaplan-Meier survival analysis was used to assess long-term mortality.
Results: History of malignancy was observed in 26 (18%) pts, the majority cured. The most frequent types of malignancy were thyroid (27%), gynecologic (23%), breast (15%) and bowel (12%) cancer. No differences were observed between TTS pts with and without malignancy regarding age (66.9 ± 14.3 years *vs.* 67.2 ± 11.9 years, p = 0.906) or gender (96.2% *vs.* 91.4% women, p = 0.689). Prevalence of cardiovascular risk factors was comparable

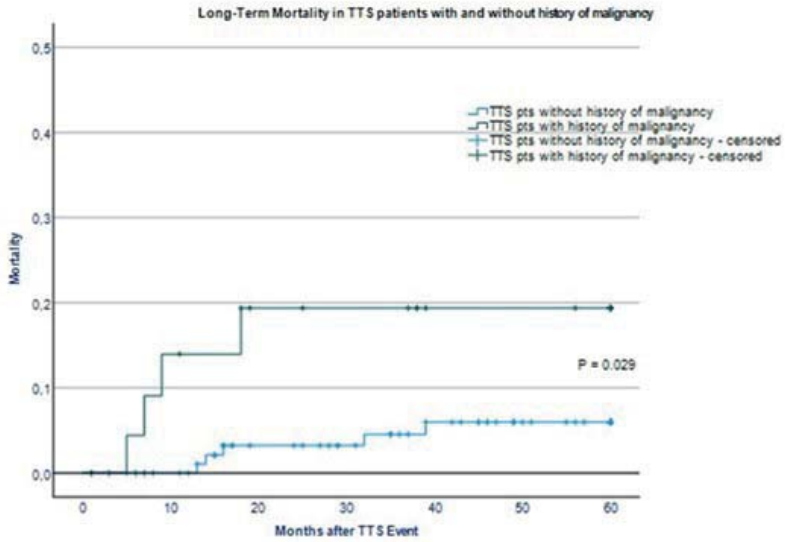


Figure PO 195

between the 2 groups (p = 0.858) as well as psychiatric, neurologic, renal and autoimmune comorbidities. TTS pts with history of malignancy had significant higher levels of brain natriuretic peptides (592 pg/mL, IQR 258-1,008 *vs.* 227 pg/mL, IQR 121-758, p = 0.038); troponin I peak levels during hospitalization were similar (p = 0.943). No differences were observed regarding the median duration of hospitalization, presence of triggers and systolic disfunction. In-hospital complications were comparable between TTS pts with and without history of malignancy (54% *vs.* 46%, p = 0.451). While in-hospital mortality did not differ between the 2 groups (3.8% *vs.* 1.7%, p = 0.457), 5-year survival analysis showed a higher mortality in patients with history of malignancy (p = 0.029, Figure), including cardiovascular death. History of malignancy conferred a higher risk of 5-year mortality (HR 3.88, 95%CI 1.04-14.48, p = 0.043).
Conclusions: The relationship between TTS and cancer is challenging and questions remain as to whether the worse prognosis is related to TTS episodes, malignancy or even effects of treatment. We found a substantial prevalence of history of malignancy in TTS pts and a higher long-term mortality in this subgroup, suggesting that factors associated with malignancy can impact TTS outcomes.

Domingo, 16 Abril de 2023 | 10:00-11:00

Jardim de Inverno | Posters (Sessão 5 - Écran 8) - Reabilitação cardíaca

PO 196. IMPACT OF A CARDIAC REHABILITATION PROGRAM ON ANXIETY AND DEPRESSIVE SYMPTOMS ON PATIENTS WITH HEART FAILURE AND CORONARY ARTERY DISEASE

Ana Raquel Carvalho Santos, Ricardo Carvalheiro, Inês Ferreira Neves, Pedro Rio, Joana Pinto, Carolina Marques, Marisa Macarrinha, Luciano Alves, Bruno Rodrigues, Inês Perez, Ana Sofia Silva, Jorge Dias

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

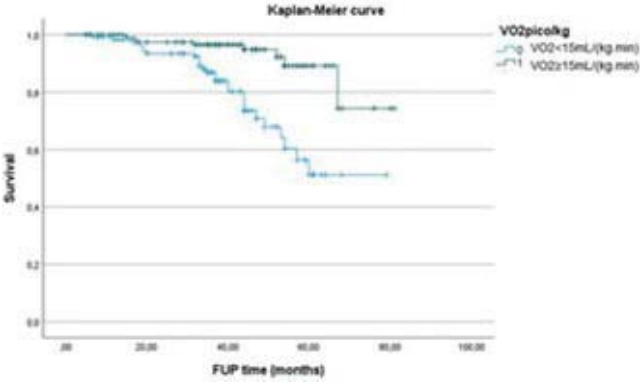
Introduction: Cardiac rehabilitation (CR) improves exercise capacity and quality of life (QoL). However, depression (D) and anxiety (A) are highly prevalent among cardiac patients and might impact rehabilitation outcomes. Nowadays, there are validated questionnaires for the screening of D and A, like Hospital Anxiety and Depression Scale (HADS) and EQ-5D with EQ visual analogue scale (VAS) element.
Objectives: Evaluate mental health symptoms and patients' characteristics during enrolment on a CR program.
Methods: This retrospective non-randomized study included patients (P) that underwent CR program between 2017 and 2022. The validated questionnaires HADS and EQ-5D were applied to P at the beginning and end of the CR program. When testing hypothesis, Chi-squared, Mann Whitney and Wilcoxon signed rank test were performed. A p value ≤ 0.05 was considered significant.
Results: The population of the study was composed by 228 P, 81.6% (n = 186) were male, median age 57 years (50-64) and median body mass index 26.0 (21.2-29.6). Most P enrolled in the CR program had coronary artery disease (CAD) 63.6% (n = 145) and the remaining P heart failure (HF). Analysing HADS, EQ-5D fifth question, related to A and D, and EQ-5D VAS at the beginning and end of CR programme there was a statistically significant improvement, with p < 0.001 for all parameters. At the beginning of the program, median HADS score was 10 (6-15) and EQ-5D VAS 60 (50-75), with 34.1% responding they were not anxious or depressed at EQ-5D fifth question. At the end of the program, HADS score was 7 (4-13) and EQ-5D VAS 70 (60-80), with 43.1% responding they were not anxious or depressed at EQ-5D fifth question. Evaluating only the P with a HADS score ≥ 12 (suggestive of A or D) there was a statistically significant difference for sex [47.6% female *vs.* 27% male (p = 0.009)], type of disease [HF 24.8% *vs.* CAD 43.5% (p = 0.028)] and distance on the 6-minute walking test (6MWT), with lower distance for this group of P's [498m (424-563) *vs.* 536m (469-601), p = 0.007]. There were no differences in the number of sessions of CR and HADS score at the end of the program.
Conclusions: Enrolment on a CR program improves not only exercise capacity and QoL but also A and D symptoms. HF P's have those symptoms more frequently when compared with CAD P's. Apparently, there is not an association with number of sessions. As expected, there is a higher percentage of P with these symptoms when physical activity is more compromised (lower distance in 6MWT).

PO 197. THE ROLE OF PEAK VO2 IN PROGNOSIS IN PATIENTS UNDERGOING A CARDIAC REHABILITATION PROGRAM

Pedro Alves da Silva, Inês Aguiar-Ricardo, Ana Margarida Martins, Joana Brito, Catarina Oliveira, Beatriz Garcia, Ana Abrantes, Miguel Raposo, Catarina Gregório, Sandra Miguel, Laura Santos, Nelson Cunha, Fausto J. Pinto

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Peak oxygen uptake (peak VO2) is a strong predictor of mortality and is commonly used in the evaluation of patients for cardiac transplantation. Although guidelines suggest a peak VO2 < 14 mL/(kg.min) as a cut-off for transplant and a peak VO2 < 12 mL/(kg.min) in patients under beta-blockade (BB), recent data emerged, questioning the suitability of such cut-offs.
Objectives: To correlate CPET and echo data with outcomes after CR programs and to determine the best cut off for peak VO2 in a population with a high percentage of BB therapeutics.
Methods: Single center prospective study which included consecutive pts who were participating in a centre-based CR program lasting 8-12 weeks from 2019 to 2021. The CR program included initial evaluation by cardiologist and rehabilitation specialist with collection of clinical characteristics, three times weekly supervised exercise sessions, appointment with rehabilitation nurse, nutritionist and psychologist and educational sessions. Lab tests, echocardiogram and CPET were done before and after completion of the program. Multivariate analysis with Cox regression was used to correlate with events and survival was analysed with Kaplan Meier curves.
Results: We analysed 349 patients who underwent CR (82% male, mean age 60 ± 11.4 years). The majority was referred for ischemic heart disease (83%) followed by valvular heart disease (7%). Mean follow-up was 36.7 ± 19.2 months. During FUP, 7.2% pts had CV related admissions (n = 25), 4 of which were myocardial infarction. Sixteen pts died (4.6%) of which 2.3% were from cardiovascular causes. On multivariate analysis peak VO2 (HR 0.827 95%CI 0.72-0.949, p = 0.07), ejection fraction (HR 0.962 95%CI 0.933-0.991, p = 0.01) and test duration (HR 0.756 95%CI 0.712-0.778, p = 0.01) correlated with hospital admissions. Regarding mortality only peak VO2 showed statistical significance (HR 0.8 95%CI 0.69-0.93, p = 0.04). On this matter we further analysed the best cut-off in predicting events: a peak VO2 > 14 mL/(kg.min) was a better predictor of event free-survival in these patients when comparing with a peak VO2 of 12 mL/(kg.min) (Figure).



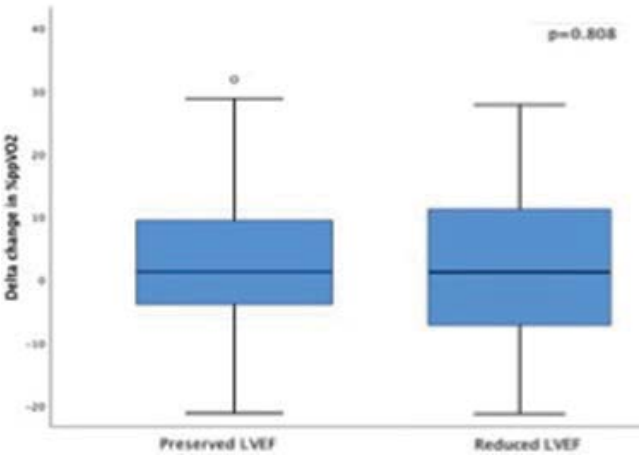
Conclusions: Cardiac rehabilitation has an established impact in prognosis. Echo and CPET data obtained at the beginning of the CR program can be used to identify patients who might benefit from a more closed surveillance in order to reduce risks of hospitalization. Moreover, in our population, a peak VO2 cut-off of 14 mL/(kg.min) seemed to better correlate with event-free survival.

PO 198. PREDICTORS OF FUNCTIONAL IMPROVEMENT AFTER A PHASE II CARDIAC REHABILITATION PROGRAM: IS LEFT VENTRICULAR EJECTION FRACTION AT BASELINE A LIMITING FACTOR?

Fabiana Silva Duarte[1], Inês Ricardo[2], Clarissa Faria[3], Pedro Silva[2], Nelson Cunha[2], Sandra Miguel[4], Paula Sousa[4], Edite Caldeira[4], Rita Pinto[3], Fausto Pinto[2], Ana Abreu[2]

[1]Hospital do Divino Espírito Santo, Ponta Delgada. [2]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [3]Faculdade de Medicina da Universidade de Lisboa. [4]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital Pulido Valente.

Introduction: Cardiac rehabilitation program (CRP) is a multidisciplinary intervention tailored to improve functional fitness in different cardiovascular conditions. Patients with reduced left ventricular ejection fraction (LVEF) are commonly unrepresented hence the impact of LVEF on functional fitness is uncertain.
Objectives: To evaluate changes on functional capacity in a cohort of patients referred to a CRP, according to baseline LVEF.
Methods: Tertiary-center retrospective analysis of patients referred to an exercise-based phase II CRP. To be enrolled patients had to complete a 12-weeks CRP and to perform a symptom-limiting cardiopulmonary exercise test (CPET), at the beginning and at the end of the program. Patients were stratified into a reduced (LVEF < 45%) or preserved (LVEF ≥ 45%) group. Four CPET parameters were evaluate: peak oxygen uptake (pVO2), predicted-pVO2 (ppVO2), O2 pulse and VE/VCO2 slope.



Results: 127 patients (mean age 57.8 ± 11.2 years; males 79.5%) were eligible for CRP, of which 86.6% were referred following an acute coronary event. Patients included in the reduced LVEF group (38.6%; mean LVEF 31% ± 8.1) had more dyslipidemia (48.8% *vs.* 22.8%, p = 0.013), atrial fibrillation (24.5% *vs.* 7.7%, p = 0.008) and implanted electronic devices with defibrillator (30.6% *vs.* 2.6%, p < 0.001). Regarding CPET parameters, reduced LVEF patients had a lower pVO2 (mean dif 2, p = 0.048), ppVO2 (mean dif 12.1%, p < 0.001) and O2 pulse value (mean dif 2, p = 0.049) *vs.* higher values of VE/VCO2 slope (mean dif 2.9, p = 0.036). The Weber and ARENA classifications analysis revealed similar distribution between groups: 24.4% of reduced *vs.* 27.5% of preserved patients entering CRP had a low Weber class (C or D). Higher ARENA class (III-IV) included 28.5% of patients with reduced and 14.1% with preserved LVEF. At the end of the rehabilitation program, changes on CPET parameters were similar between reduced and preserved groups: ppVO2 increased by 4% *vs.* 3.2% (p = 0.808), O2 pulse increased about 0.7 *vs.* 0.5 mL/beat (p = 0.509) and VE/VCO2 slope reduces 1.7 *vs.* 0.3 (p = 0.232). As a continuous variable, LVEF did not predict Weber´s (p = 0.546) or ARENA (p = 0.393) class changes. Yet, those with a reduced baseline LVEF derived a greater LVEF improvement after CRP (Δ 10.2 ± 9.8 *vs.* Δ 2.2 ± 7.9; p < 0.001).
Conclusions: All patients enrolled in CRP show improvement of exercise capacity irrespective of baseline LVEF. Thus, patients with reduced LVEF should not be denied for cardiac rehabilitation and a significant LVEF improvement is expected.

PO 199. CARDIAC REHABILITATION - TACKLING VENTRICULAR REMODELING AND IMPROVING FUNCTIONAL CAPACITY

João Mendes Cravo, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Miguel Azaredo Raposo, Ana Abrantes, Bruno Bento, Nelson Cunha, Inês Ricardo, Rita Pinto, Fausto J. Pinto, Ana Abreu

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Introduction: Exercise-based cardiac rehabilitation (CR) is part of the management of patients with established cardiovascular disease. Echocardiography and CPET are used to evaluate cardiac function and cardiorespiratory fitness improvement after such interventions.
Objectives: To analyze the cardiovascular impact of an exercise based CR program on ventricular remodeling and functional capacity.
Methods: Prospective cohort study which included consecutive pts who were participating in a center-based CR program lasting 8-12 weeks from 2019 to 2021. The CR program included initial evaluation by cardiologist and rehabilitation specialist with collection of clinical characteristics, three times weekly supervised exercise sessions, appointment with rehabilitation nurse, nutritionist and psychologist and educational sessions. Lab tests, echocardiogram and CPET were done before and after completion of the program.
Results: We analysed 349 patients (82% male, mean age 60 ± 11.4 years) most of which referred by ischemic heart disease (83%) followed by valvular heart disease (7%). After program completion there was a significant improvement in echo ejection fraction (48.4 ± 12.8% *vs.* 52.07 ± 12.8% Z = -5.036 p < 0.001), although other parameters didn't show the same trend namely left atrial volume and TAPSE. Regarding CPET data, there was a significant improvement in test duration (496.6 ± 158 seconds *vs.* 542.9 ± 147 seconds, p < 0.001), in workload (66.2 ± 41.6W *vs.* 123.6 ± 48W, p < 0.001), peak VO2 (15.8 ± 4.72 mL/(kg.min) *vs.* 16.75 ± 5.17 mL/(kg.min) p = 0.004) and O2 pulse (11.1 ± 2.8 *vs.* 11.8 ± 2.9; p < 0.001). Similar improvements were also seen when analysing pts with reduced ejection fraction regarding ejection fraction, duration of test and workload (p < 0.005) but not on peak VO2 (14.4 +- 4.3 mL/(kg.min) *vs.* 15.2 +- 4.7 mL/(kg.min), p = 0.11) or pulse O2.
Conclusions: Exercise based cardiac rehabilitation has a very favorable impact in terms of cardiorespiratory fitness evaluated by several CPET parameters and such impact is also present in high risk individuals with reduced ejection fraction. Advocating for increasing referral of these patients is key to better improve cardiorespiratory capacity.

PO 200. CARDIAC REHABILITATION PHASE 3 - WHO ARE THOSE WHO CONTINUE DOWN THE PATH?

Diogo Ferreira, Pedro Alves da Silva, Joana Brito, Beatriz Silva, Marta Vilela, Daniel Cazeiro, João Cravo, Beatriz Garcia, Catarina Oliveira, Paula Sousa, Nelson Cunha, Inês Ricardo, Rita Pinto, Fausto J. Pinto, Ana Abreu

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Cardiac Rehabilitation is recommended as secondary prevention in patients (pts) with cardiovascular disease. Efforts to increase referral of patients after hospitalisations have been made in order to

increase adherence to phase 2 CR programs. However, there are still few data regarding adherence after completion of phase 2 programs regarding progressing to phase 3 programs.
Objectives: To characterize a population of patients who enrolled in a phase 3 CR program.
Methods: Prospective cohort study which included consecutive pts who were participating in a center-based CR program lasting 8-12 weeks from 2019 to 2021. We analyzed the prevalence of risk factors, lab echocardiographic and CPET data at the beginning and 6 months after FUP. Possibility of attendance of a phase III CR program on a nearby gym was offered to everyone. Statistical analysis between both groups was performed with Chi-Square and Wilcoxon tests.
Results: We analyzed 336 patients who underwent CR (82% male, mean age 60 ± 11.4 years). The majority was referred for ischemic heart disease (83%) followed by valvular heart disease (7%). Mean follow-up was 36.7 ± 19.2 months. Phase 3 program in a nearby facility was offered to everyone. Of those, 217 pts (mean age 59 ± 11.4 years-old, 80% male) chose not to continue and 119 pts (mean age 61 ± 11.3 years old, 81% male) were enrolled in the program. There were some differences among the two groups: ischemic heart disease was more prevalent in those who didn't progress to Phase III (83% *vs.* 66%, p = 0.02) and, regarding risk factors, we noted a higher prevalence among those who enrolled in phase III, namely hypertension (77% *vs.* 88%, p = 0.04) and previous smoking habits (64.2% *vs.* 71.1%, p = 0.02). There were no significant differences regarding lab and echo data at the end of the program, especially ejection fraction, NTproBNP and LDL cholesterol. We failed to find differences between CPET data after 6 months follow up, although such findings might be limited by the scarcity of data in the group who transitioned to phase III.
Conclusions: Patients with a higher burden of risk factors showed higher interest in progressing to a phase III program. We did not find differences in cardiorespiratory fitness evaluated by CPET, although more robust data would be needed to back such observations.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 1) - Insuficiência cardíaca - Vários

PO 202. IMPACT OF ADVANCED CHRONIC KIDNEY DISEASE ON THERAPEUTIC MANAGEMENT OF HEART FAILURE WITH REDUCED EJECTION FRACTION

Jéni Quintal, Sara Gonçalves, Tatiana Duarte, Rui Coelho, Pedro Carreira, Margarida Madeira, Hugo Viegas, Ana Sousa, Crisálida Ferreira, Andreia Soares, Dina Ferreira, Ana Natário, José Assunção, Ermelinda Pedroso, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Heart failure (HF) is a life-threatening syndrome that affects more than 64 million people worldwide. Chronic kidney disease (CKD) is a common comorbidity. Nevertheless, HF treatment trials have excluded patients (pts) in advanced stages of CKD.
Objectives: The aim of this study was to evaluate the impact of advanced CKD in HF with reduced ejection fraction (HFrEF) pts and CKD in HF management and outcomes.
Methods: We performed a retrospective single-center cohort study. Consecutive pts with HFrEF referred to a multidisciplinary HF unit, between 1 January and 31 December 2019 (n = 85). We excluded pts without CKD (n = 22). Patients were divided in 2 groups (g) according to CKD stage: gA (mild - CKD KDIGO stages 2 and 3a) and gB (advanced - CKD KDIGO stages 3b, 4 and 5). Groups were compared in terms of therapy instituted, dosages, adverse events (drug intolerance, hospitalization due to HF decompensation and all-cause mortality) and HF improvement (NYHA class (c), NT-proBNP and left ventricle EF (LVEF) difference) at 12m and at last medical follow-up (FUP).
Results: This cohort included 63 pts: 40 in gA and 23 in gB). The overall mean age was 72 (± 9.25) years. Patients in gB were older than those in gA (75 ± 8.43 *vs.* 70 ± 9.27 years, p = 0.030). The median FUP was 41 m (Q1-Q3: 38-44). There were no differences regarding cardiovascular risk factors. The g were comparable in terms of NYHA c, LVEF and HF etiology. Median NT-proBNP at admission was higher in gB (3,538 *vs.* 1,487 pg/mL, p = 0.009). There were no differences between g in the percentage (%) of pts under Angiotensin Converting Enzyme Inhibitors (ACEi)/Angiotensin-II receptor antagonists (ARA-II)/Angiotensin receptor-neprilysin inhibitor (ARNI) or B-blockers (BB), but Mineralocorticoid Receptor Antagonists (MRA) were more frequently used in gA (75.7 *vs.* 33.3%, p = 0.004) and SGLT2i more frequently used in gB (86.7 *vs.* 45.9%, p = 0.007). The % of pts under target doses of BB (40.5 gA *vs.* 53.3% gB) and ACEi/ARA-II/ARNI (59.5 gA *vs.* gB 66.7%) were similar. Acute on CKD was more frequent in gB (30.4 *vs.* 5.0%, p = 0.009) but there were no differences between g regarding hypotension, bradycardia or hyperkalemia. Drug intolerance conditioning therapeutic changes were similar in both g. There was an improvement of NYHA c and in median levels of NT-proBNP in both g during FUP. Although LVEF variation was similar between the g, ICD implantation rate was higher in gB (21.7 *vs.* 2.5%, p = 0.020). There were no differences in hospitalization or mortality rates.
Conclusions: Advanced CKD in HFrEF pts was associated with a fewer use of MRA and a greater use of SLGT2i. Although acute deterioration of CKD was more frequent in advanced CKD pts, HF therapy was well tolerated with no increase in discontinuation rates. Despite the scarce evidence of these classes in pts with HF and advanced CKD, HF therapy was associated with a similar improvement in functional capacity and LV function.

PO 203. FLUID CHALLENGE IN RIGHT HEART CATHETERISATION - A PROMISING APPROACH TO UNVEIL OCCULT HFPEF

Carolina Pereira Mateus, Mariana Passos, Inês Fialho, Joana Lopes, Inês Miranda, Filipa Gerardo, Marco Beringuilho, David Roque, Carlos Morais

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

Introduction: Heart failure with preserved ejection fraction (HFpEF) is a frequent cause of dyspnea and is expected to increase in the future alongside with obesity, hypertension and diabetes *mellitus*. In the clinical practice, it is sometimes difficult to confirm this diagnosis, and new diagnostic procedures are necessary. Fluid challenge during right heart catheterisation is a recent diagnostic approach to detect latent diastolic dysfunction. We aim to assess whether fluid challenge during right heart catheterisation (RHC) is a useful tool to diagnose occult HFpEF.
Methods: Single center retrospective study of patients with suspected HFpEF admitted for RHC. Patients with a pulmonary artery wedge pressure (PAWP) ≤ 15 mmHg received a rapid infusion of 500 mL of intravenous fluids. Invasive haemodynamic parameters were then reassessed. Patients with an increase of PAWP to over > 15 mmHg were considered as having occult HFpEF.
Results: A total of 13 cases were analysed. The rapid fluid infusion had no complications. All patients were female and the median age was 75 years, 61.5% (n = 8) were obese, 46.1% (n = 6) had atrial fibrillation, and 30.8% (n = 4) had diabetes *mellitus*. All patients had a ventricular ejection fraction > 50%. The median H2FpEF score was 6. Of the 13 cases of RHC, 38.5% (n = 5) of patients were successful in identifying the group of pulmonary hypertension (3 had post-capillary pulmonary hypertension, 2 had pre-capillary pulmonary hypertension). The remaining 61.5% (n = 8) of patients had a resting RHC non-diagnostic and had indication to do a fluid challenge, but 50% (n = 4) of these exams ended before fluid challenge. In total, 53.8% (n = 7) of all patients repeated the RHC after fluid challenge. In this subgroup, 71.4% (n = 5) had an increase in PAWP to ≥ 15 mmHg, therefore meeting criteria for the diagnosis of HFpEF.
Conclusions: Fluid challenge during right heart catheterisation is a useful tool in patients with non-diagnostic haemodynamic invasive parameters.

From our perspective, this diagnostic approach is particularly useful in patients with an intermediate H2FpEF score, but further studies would be necessary to confirm our results.

PO 204. HEART FAILURE THERAPY COST AND ITS IMPACT ON MONTHLY INCOME IN THE PORTUGUESE POPULATION

Inês Fialho, Filipa Gerardo, Mariana Passos, Inês Miranda, Carolina Mateus, Joana Lima Lopes, Marco Beringuilho, Ana Oliveira Soares, David Roque

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

Introduction: Heart Failure (HF) therapy is based on a core of 4 therapeutic classes with a considerable benefit on mortality and HF hospitalizations. Some drug classes are expensive, and so the total cost of HF therapy could have a negative impact on patient's compliance.
Objectives: To evaluate the cost of HF therapy in Portugal and its impact on the monthly income of the Portuguese population.
Methods: Retrospective single center study of HF patients hospitalized between January 2021 and September 2022. Demographics, comorbidities, and drugs prescribed at discharge were recorded. The minimum, average, and maximum monthly costs of HF therapy at discharge were calculated through the sum of the minimum, average and maximum cost of each drug according to the Portuguese general reimbursement regime (information available on the Portuguese electronic medical prescription platform - PEM). The gross average monthly wage and minimum monthly wage in 2022 were also reviewed, according to data provided by the Portuguese National Statistics Institute.
Results: A total of 152 patients were included. The minimum, average, and maximum monthly costs for the most prescribed HF drugs are presented in Table 1. At discharge, the patient with the cheapest HF therapy (composed only by one drug class) has paid 1.79-7.52€/month and the patient with the most expensive therapy (composed by the four drug classes, including sacubitril-valsartan) has paid 102.81-125.29€/month. The median (IQR) monthly cost of the cheapest HF drug combination was 52.55 (48.30-94.63)€, the average cost was 60.25 (50.02 - 98.33)€, and the most expensive therapy was 77.23 (54.59-103.17)€. Comorbidities were present in 92.1% (n = 139) of HF patients, with hypertension (n = 115, 75.2%), dyslipidemia (n = 83, 54.2%), coronary artery disease (n = 69, 51.1%), atrial fibrillation (n = 66, 43.1%), and diabetes (n = 50, 32.7%) being the most frequent ones. In Portugal, the average net wage is 904.5€/month and the minimum net wage is 627.5€/month. The HF therapy cost represents 5.8-8.5% of the average gross monthly wage and 8.4-12.3% of the minimum monthly wage.
Conclusions: HF therapy has a high cost and represents an important expense in the monthly budget of HF patients. The health-related expense of HF patients is still increased by the need for other drugs related to their comorbidities, frequent consultations, and exams. Strategies are needed to prevent high cost from limiting patient's compliance with HF drugs.

PO 205. ALCOHOL INTAKE AND CARDIAC REMODELING IN PATIENTS WITH ALCOHOLIC CARDIOMYOPATHY

Marta Catarina Bernardo, Isabel Martins Moreira, Catarina Ribeiro Carvalho, Pedro Rocha Carvalho, Ana Batista, Rita Godinho, Pedro Mateus, Sofia Silva Carvalho, Ilídio Moreira

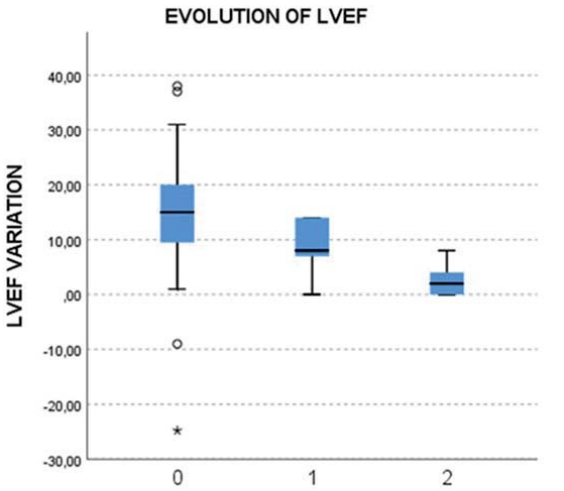
Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real.

Introduction: Alcoholic cardiomyopathy (AC) is a severe consequence of chronic alcohol abuse and causes gradual changes in the structure and function of the heart, being a form of dilated cardiomyopathy.
Objectives: To characterize the population of patients (pts) with AC in terms of baseline characteristics, echocardiographic parameters, alcohol consumption, medication and outcomes. We also intended to evaluate the impact of alcohol reduction/cessation.
Methods: We performed a retrospective study of the group of pts with the diagnosis of AC, established after the exclusion of other aetiologies, followed in the heart failure consultation between 2018 and 2022. We divided the population into patients who maintained (2), reduced (1) (to an average of 2 drinks in men and 1 in women) or discontinued consumption (0).
Results: A total of 39 pts, 89.7% males, with a mean age of 68.13 ± 11 years were included. In terms of cardiovascular risk factors, 64.1% had hypertension, 53.5% dyslipidemia, 33.3% had diabetes, 30.8% were smokers,10.3% ex-smokers and 10.3% had chronic hepatic disease. The prevalence of atrial fibrillation (AF) was 46.2%, with a median heart rate of 72.50 ± 20.99 bpm. At the beginning of follow-up, this population had a mean left ventricular ejection fraction (LVEF) of 30.46% ± 9.99, a mean indexed LA volume of 58.5 ml/m^2 ± 32.63 and a mean indexed LV volume 87.44% ± 27.73. Regarding the medication, at the end of follow-up 24.4% were medicated with sacubitril/valsartan, 51.1% with angiotensin-converting enzyme inhibitors, 71.1% with beta blockers, 51.1% with mineralocorticoid receptor antagonists and 35.6%

	Minimum monthly cost, € *(mean)*	Average monthly cost, € *(mean)*	Maximum monthly cost, € *(mean)*
Bisoprolol			
2,5 mg	2.41	3.23	3.88
5 mg	1.79	3.19	7.52
10 mg	3.02	3.67	5.36
Sacubitril-valsartan			
50 mg	46.82	46.82	46.82
100 mg	46.64	46.64	46.64
200 mg	46.80	46.80	46.80
Ramipril			
1,25 mg	2.24	3.23	17.85
2,5 mg	1.93	4.57	10.25
5 mg	2.41	4.22	12.64
10 mg	4.58	8.72	25.15
Losartan			
50 mg	2.20	5.92	16.65
100 mg	4.70	7.05	10.66
Spironolactone			
25 mg	2.15	3.88	5.46
SGLT2 inhibitors			
Empagliflozin 10 mg	46.10	48.78	51.45
Dapagliflozin 10 mg	45.84	46.43	47.01
Ivabradine			
5 mg	7.23	9.93	14.34
7,5 mg	6.74	8.88	13.13

Figure PO 204 *Mean minimum, average, and maximum cost of the most prescribed heart failure drugs at discharge.*

with SGLT2 inhibitors. Concerning alcohol consumption, during the follow-up, 43.6% of the patients stopped drinking alcohol, 10.3% reduced their habits and 20.5% maintained the consumption. These three groups had no statistically significant differences in medical history of hypertension (p = 0.37), diabetes (p = 0.22), dyslipidaemia (p = 0.17), AF (p = 0.70) and medication. In a mean follow-up of 26.62 ± 11.11 months, there was a significant improvement of the LVEF (mean of 9.59% ± 12.97, p < 0.001), with a mean LVEF of 40.59% ± 12.78 at the end of follow-up and LVEF > 50% in 17.8% of the pts. There was, also, a significant reduction in indexed LV volume (102.250 ± 43.46 ml/m^2, p = 0.018). Concerning alcohol consumption, pts who quit drinking had a mean improvement of LVEF of 13.73% ± 15.83 (p = 0.003), pts who reduced alcohol consumption 8.6% ± 5.81 (p = 0.03) and pts that kept the consumption 2.67% ± 3.01 (p = 0.82). The variation of LVEF was statistically significant between the groups (p = 0.03) (Figure).



	MEAN	SD	P
0	13.76%	15.83%	0.003
1	8.60%	5.81%	0.03
2	2.67%	3.01%	0.082

Conclusions: Pts with alcoholic cardiomyopathy had a high prevalence of atrial fibrillation and cardiovascular risk factors. Improvement and even recovery of cardiac function depend on reduction/extinction of alcohol consumption.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 2) - Intervenção não coronária

PO 206. SYNCHRONOUS *VERSUS* STAGED CAROTID ARTERY STENTING AND CARDIAC SURGERY - A UNICENTRIC STUDY

Ana L. Silva, João Gameiro, Gonçalo Terleira Batista, Mariana Rodrigues Simões, Tatiana Pereira dos Santos, José Luís Martins, Marco Costa, Lino Gonçalves

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

Introduction: Carotid stenosis is a known risk factor for stroke after cardiac surgery, with up to 22% in-hospital mortality. The best approach to treat concomitant carotid and cardiac disease remains controversial.

Methods: Single-center, retrospective study. Patients referred to cardiac surgery who underwent synchronous or staged carotid artery stenting (CAS) from 2000 to 2022 were included. Our aim was to assess and compare the prognosis between the synchronous *versus* staged strategy of CAS in patients undergoing cardiac surgery. The composite of myocardial infarction (MI), stroke and death at 30 days, and all-cause mortality at one year were evaluated. Statistical analysis was performed using SPSS 28.0.1.1 software.
Results: A total of 151 patients were included (67 and 84 patients did the synchronous and the staged approaches, respectively). The mean age (± SD) of the population was 72.2 (± 7.7) years old, 80% men. There was a significant prevalence of arterial hypertension (93.4%), dyslipidemia (80.1%), diabetes (37.7%), and smoking background (29.8%). Two statistically significant differences were found in the baseline clinical characteristics: a higher percentage of patients with dyslipidemia (91.0% *vs.* 71.4%; p = 0.003) and smoking background (38.8% *vs.* 22.6%; p = 0.031) in the synchronous group. During the 30-day follow-up, the combined endpoint of stroke, MI, or death (MACE) occurred in 7.5% of patients in the synchronous group and 6.0% in the staged group, with no statistically significant difference (p = 0.751). The perioperative mortality rate was lower in the synchronous group (1.5%) compared to the staged group (3.7%), though this difference did not reach statistical significance (p = 0.630). The incidence of stroke was similar in both groups (3.1% *vs.* 2.4% in the synchronous and staged groups, respectively; p = 1.000). Regarding MI, the incidence in the synchronous group was 3.1%, in contrast with no events detected in the staged group (statistical analysis not possible to compute). The 1-year mortality rate was also assessed. Synchronous and staged groups showed a mortality rate of 9.1% and 6.0%, respectively, with no statistically significant difference (p = 0.539).
Conclusions: The synchronous approach appears to be an appropriate option to manage carotid disease in patients who need heart surgery since the perioperative risk of death, stroke, and the 1-year mortality rate are comparable with the staged procedure. The higher prevalence of dyslipidemia and smoking background in the synchronous group denotes these patients' high-risk profile, who generally need prompt cardiac intervention.

PO 207. PARAVALVULAR LEAKS AFTER TAVI: RISK FACTORS AND PROGNOSTIC IMPACT - A HIGH VOLUME SINGLE CENTRE EXPERIENCE

Joana Guimarães, Diogo Fernandes, Gonçalo Costa, Eric Monteiro, Gustavo Campos, João Rosa, Ana Rita Gomes, Rafaela Fernandes, Vanessa Lopes, Vera Marinho, Joana Silva, Elisabete Jorge, Marco Costa, Graça Castro, Lino Gonçalves

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

Introduction: Transcatheter aortic valve implantation (TAVI) has emerged as a standard treatment for severe aortic valve stenosis in high surgical risk or inoperable patients. Paravalvular leak (PVL) not only is a common complication after TAVI but it also has been linked to worse outcomes.
Objectives: The aim of this study is to assess risk factors and prognostic impact of paravalvular leaks after transcatheter aortic valve implantation in a large single-center cohort.
Methods: We retrospectively analyzed consecutive patients who underwent TAVI at a Portuguese tertiary center from March 2020 to October 2022. Clinical, anatomical and procedural data were collected at presentation and during follow up. Evaluation of PVL was made using aortography immediately after the procedure. Univariate and multivariate logistic regression tests were used.
Results: A total of 336 patients were enrolled, 51.5% were male and mean age was 81.2 ± 6.2 years old. Mean follow-up time was 500 ± 150 days. The overall prevalence of mild-to-moderate PVL was 32.2% and only 0.8% of patients had moderate-to-severe PVL. No patient presented severe PVL. On multivariate logistic regression analysis, male sex (OR 1.80, 95%CI 1.12-2.89, p = 0.016), higher calcium score of the aortic valve (OR 1.01, 95%CI 1.01-1.02, p = 0.009) and self-expandable transcatheter heart valves (OR 2.3, 95%CI 1.02-5.18, p = 0.044) were found to be associated with mild-to-moderate

PVL. Age, aortic regurgitation at baseline and balloon post-dilation were not associated with PVL. Mild-to-moderate PVL did not have an impact in mortality during follow up (OR 1.95, 95%CI 0.88-4.31, p = 0.1).
Conclusions: In our cohort of patients, approximately one-third presented with mild-to-moderate PVL after TAVI. On multivariate analysis, male sex, higher calcium score of the aortic valve and self-expandable prosthesis were predictors of PVL. During follow-up, the presence of mild-to-moderate PVL was not correlated with a negative impact on survival.

PO 208. RISK OF PACEMAKER IMPLANTATION AFTER TAVI: NOT ALL SELF-EXPANDABLE VALVES ARE CREATED EQUAL

Diogo de Almeida Fernandes, Joana Guimarães, Eric Monteiro, Gonçalo Costa, Ana Rita Gomes, Gustavo Campos, João Rosa, Ana Vera Marinho, João André Ferreira, Luís Leite, Joana Silva, Elisabete Jorge, Natália António, Marco Costa, Lino Gonçalves

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

Introduction: Transcatheter aortic valve implantation (TAVI) has revolutionized the treatment of severe aortic stenosis. Nevertheless, the risk of significant conduction disturbances and need of definitive pacemaker implantation post-procedure is significant. Our aim was to compare the different self-expandable valves and the need of pacemaker implantation.
Methods: Patients who underwent TAVI with self-expandable valves from March 2020 to October 2022 were included. Those with pacemaker prior to the procedure were excluded. Clinical, laboratory echocardiographic, cardiac computerized tomography (CT_{card}) angiographic and procedural data were collected, with a special focus on known predictors of pacemaker implantation. Need of definitive pacemaker after implantation and pre-existing conduction disturbances were registered. Two groups were created according to need of pacemaker implantation post-TAVI. Multivariate analysis was performed to determine differences among valves.
Results: A total of 243 patients were included. Mean age was 80.83 ± 6.04 years and 115 (47.3%) were male. Fifty-seven patients (23.5%) required pacemaker implantation post procedure, mainly due to complete atrioventricular block (75.9%). 125 patients (51.4%) had prior conduction disturbance, being left anterior hemiblock the most frequent (64, 26.3%) followed by first degree AV block (61, 32.4% of patients in sinus rhythm). Complete right bundle block was present 25 (10.3%) patients. Regarding CT_{Card}, mean Agatston score was 3071 ± 1635 and left ventricular outflow tract (LVOT) calcium was present in 84 (34.6%) of patients. Mean prothesis/LVOT ratio was 1.20 ± 0.12. The most utilized type of valve was EvolutPro (117; 48.1%), followed by Accurate Neo2 (53; 21.8%), Navitor (38; 15.6%), Portico (18; 7.4%) and Evolut R (17; 7.0%). 85 patients (35.0%) underwent balloon post-dilation (PD). There were significant differences between groups regarding PD (p 0.025) and mean prothesis/LVOT ratio (p < 0.001). On multivariate analysis, the Navitor valve had an odd almost 3 times higher of need of definite pacemaker after TAVI (odds-ratio [OR] 2.73, 95%CI 1.183-6.32), even after adjusting for confounding variates.
Conclusions: Use of Navitor valves appears to significantly increase rates of pacemaker implantation, even after considering other known risk factors. Careful patient selection is needed to ensure severe conduction abnormalities are minimized.

PO 209. MANTA *VERSUS* PROGLIDE IN VASCULAR CLOSURE OF TRANSFEMORAL TAVI

André Grazina, Bárbara Lacerda Teixeira, Alexandra Castelo, André Ferreira, Francisco Barbas Albuquerque, Ana Raquel Santos, Tiago Mendonça, Inês Rodrigues, Ruben Ramos, António Fiarresga, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Transfemoral (TF) access is globally accepted as the preferential route for transcatheter aortic valve implantation (TAVI). The use of large bore introducer sheaths (14-16 Fr) is often associated with vascular complications, the main one difficult hemostasis. Several vascular closing devices (VCD) with different mechanisms have been developed with proven efficacy, but comparative analysis is lacking.
Objectives: This analysis aims to compare outcomes in patients that used pure plug-based technique (Manta®, Teleflex) *versus* primary suture-based technique (ProGlide®, Abbott Vascular) vascular closure devices.
Methods: Retrospective analysis of patients submitted to TAVI in a single tertiary center. Only TAVI procedures through transfemoral access route were included. Patients in which was used the suture-based technique Prostar® were excluded from this analysis. The assessed endpoints were 30-day all-cause mortality, 30-day major/life-threatening bleeding, 30-day vascular complication (criteria according to Valve Academic Research Consortium-2), post-procedural hemoglobin drop and post-procedural hospital length.
Results: 368 transfemoral TAVI procedures were included in this analysis (mean age 82.3 years-old, 58% female). 29.3% (n 108) of patients used a pure plug-based VCD Manta and 70.1% (n 260) used the primary-suture based VCD ProGlide. Baseline characteristics were similar between the two groups (Table). Regarding outcomes, there was no evidence of statistically significant differences in 30-day mortality (5.6% *vs.* 5.0%, p 0.826), 30-day major/life-threatening bleeding (8.3% *vs.* 8.1%, p 0.935), 30-day vascular complication (14.8% *vs.* 14.2%, p 0.884), 30-day major vascular complication (8.3% *vs.* 5.0%, p 0.219), median post-procedural hemoglobin drop (1.8 g/dL *vs.* 1.9 g/dL, p 0.837) and pos-procedural hospital length (6 days *vs.* 7 days, p 0.005).
Conclusions: In patients submitted to transfemoral TAVI, a pure plug-based VCD strategy using Manta system has similar results to a primary suture based VCD strategy using ProGlide system but is associated with a smaller post-procedural hospital length stay.

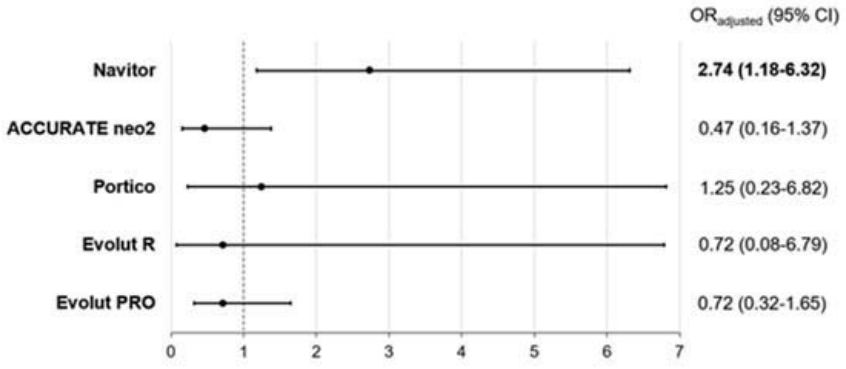
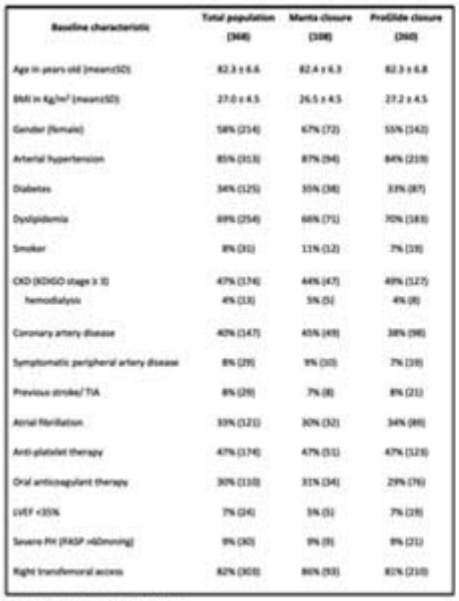


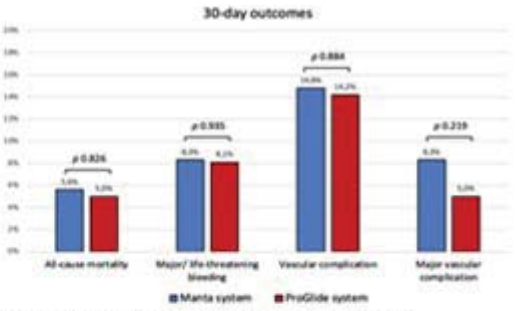
Figure 1 - Forest plot of risk of pacemaker implantation by type of self-expandable valve

Figure PO 208

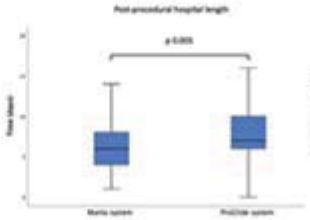


Baseline characteristic	Total population (368)	Manta closure (308)	ProGlide closure (260)
Age in years old (mean±SD)	82.3 ± 6.6	82.4 ± 6.3	82.3 ± 6.8
BMI in Kg/m² (mean±SD)	27.0 ± 4.5	26.5 ± 4.5	27.2 ± 4.5
Gender (female)	58% (214)	67% (72)	55% (142)
Arterial hypertension	85% (313)	87% (94)	84% (219)
Diabetes	34% (125)	35% (38)	33% (87)
Dyslipidemia	69% (254)	66% (71)	70% (183)
Smoker	8% (31)	11% (12)	7% (19)
CKD (KDIGO stage ≥ 3)	47% (174)	44% (47)	49% (127)
hemodialysis	4% (13)	5% (5)	4% (8)
Coronary artery disease	40% (147)	45% (49)	38% (98)
Symptomatic peripheral artery disease	8% (29)	9% (10)	7% (19)
Previous stroke/ TIA	8% (29)	7% (8)	8% (21)
Atrial fibrillation	33% (121)	30% (32)	34% (88)
Anti-platelet therapy	47% (174)	47% (51)	47% (123)
Oral anticoagulant therapy	30% (110)	31% (34)	29% (76)
LVEF <35%	7% (24)	5% (5)	7% (19)
Severe PH (RASP >60mmHg)	9% (30)	9% (9)	8% (21)
Right transfemoral access	82% (303)	86% (93)	81% (210)

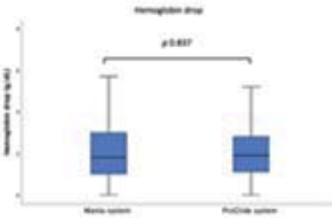
Figure 1. Baseline characteristics



Graphic 1. 30-day outcomes (mortality, bleeding and vascular complication)



Graphic 2. Median post-procedural hospital length



Graphic 3. Median post-procedural hemoglobin drop

Figure PO 209

PO 210. PERCUTANEOUS BALLOON MITRAL VALVULOPLASTY RESULTS THROUGHOUT THE DECADES: MORE COMPLICATIONS AND LESS SUCCESS - ARE WE DEALING WITH MORE SEVERE CASES?

Sofia Jacinto, Ana Raquel Santos, Luís Almeida Morais, Luís Bernardes, Duarte Cacela, Inês Rodrigues, Ana Galrinho, Luísa Moura Branco, Ana Teresa Timóteo, Pedro Rio, Cristina Soares, Cristina Fondinho, Rui Cruz Ferreira

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

Introduction: Percutaneous balloon mitral valvuloplasty (PBMV) revolutionized the treatment of mitral valve stenosis and set the stage for the development of structural heart intervention in general. However, with the decline in rheumatic heart disease in developed countries, PBMV seems to be performed less frequently.
Objectives: To assess the evolution of PBMV outcomes throughout the decades.
Methods: A retrospective analysis of PBMV performed at a tertiary center. Procedures were divided in 3 tertiles according to date (T1 - 1991 to 2001; T2 - 2002 to 2011; and T3 - 2012 to 2022). Adverse outcomes at 1 year included all-cause death or need for mitral reintervention.
Results: There was a decrease in the number of PBMV performed in the different tertiles, with n = 143 in T1, n = 60 in T2 and n = 35 in T3. Clinical data was similar with 89% female patients in T1, 85% in T2 and 94% in T3. Mean patient age was 50 ± 15 years in T1, 45 ± 15 years in T2, and 49 ± 16 years in T3. Regarding pre-procedural echocardiographic evaluation, the proportion of patients with a Wilkins' score > 8 was higher in T2 and T3, compared with T1 (15.9% in T1 *vs.* 28.9% in T2 and T3; p = 0.032). Procedural success was achieved in a lower proportion of patients in the last decade (89.1% in T1, 89.3% in T2 and 80.6% in T3, p = 0.281). Acute, non-fatal, complications showed a decreasing tendency in proportion between T1 and T2 (10.9% *vs.* 5.4%), but a slight increase between T2 and T3 (5.4% *vs.* 15.6%). Adverse outcomes at one year were less frequent between T1 and T2 (7.7% *vs.* 5%) but higher between T2 and T3 (5% *vs.* 14.3%), mostly due to reintervention. There was, however, a steady decrease in the number of deaths. Causes of death in T1 were unknown (n = 2) and pulmonary embolism (n = 1); in T2 there was 1 death of a non-cardiovascular cause (pneumonia).
Conclusions: In this study we find a steady decline in PBMV frequency throughout the years. There seems to be, during the 2000s, an improvement

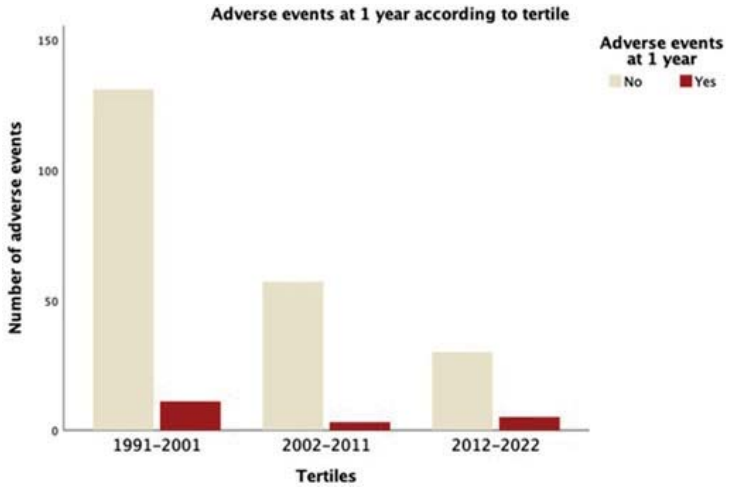


Figure PO 210

in the success of the procedure as well as fewer complications and adverse outcomes after 1 year. This could represent a "golden age" in PBMV, whereas the operators gathered enough experience and still regularly performed the procedure. However, in the last decade, the fewer number of procedures and less favorable mitral anatomy, may explain the higher proportion of acute complications. Despite this tendency, the relatively low frequency of adverse events and high procedural success still supports PBMV as a safe intervention for mitral stenosis.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 3) - MINOCA

PO 211. LONG TERM PROGNOSIS OF PHARMACOLOGICAL INTERVENTION IN MYOCARDIAL INFARCTION WITH NONOBSTRUCTIVE CORONARY ARTERIES (MINOCA)

Vanessa Lopes, Nádia Moreira, Rafaela Fernandes, Gil Cunha, João Ferreira, Gonçalo Costa, Eric Monteiro, Diogo Fernandes, Joana Guimarães, James Milner, Vera Marinho, Sílvia Monteiro, Pedro Monteiro, Francisco Gonçalves, Lino Gonçalves

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

Introduction: Despite optimal work-up, the cause of myocardial infarction with nonobstructive coronary arteries (MINOCA) remains undetermined in 8-25% of patients with acute myocardial infarction. European Society of Cardiology (ESC) guidelines recommend that patients with a final diagnosis of MINOCA of unknown cause may be treated according to secondary prevention guidelines for atherosclerotic disease (recommendation class IIb, level of evidence C). This study sought to determine the association between pharmacological therapies after hospital discharge and the long-term prognosis of MINOCA patients.

	MINOCA (N=430, 11.6%)	Obstructive CAD (N=3291, 88.4%)	P-value
Age, years	66 (IQR 19)	66 (19)	0.161
Male sex	222 (51.6%)	2505 (76.1%)	**<0.001**
Hypertension	310 (75.8%)	2250 (73.9%)	0.404
Hyperlipidemia	243 (74.1%)	1959 (77.2%)	0.201
Diabetes	152 (37.6%)	1478 (47.6%)	**<0.001**
Smoking	57 (13.3%)	731 (22.2%)	**<0.001**
ACS type			**<0.001**
STEMI	103 (24.0%)	1857 (56.4%)	
NSTEMI	327 (76.0%)	1434 (43.6%)	
Killip class >I at admission	40 (9.3%)	443 (13.5%)	**0.016**
LDL, mg/dL	124 (IQR 49.8)	125 (IQR 52)	0.546
LVEF, %	58 (IQR 10)	50 (IQR 17)	**<0.001**
GRACE score	121 (IQR 45)	135 (44)	**<0.001**
Medication at discharge			
Aspirin	376 (81.2%)	2983 (90.6%)	**<0.001**
Statin	376 (87.4%)	3122 (94.9%)	**<0.001**
Beta-blocker	338 (78.6%)	2898 (88.1%)	**<0.001**
ACEI	287 (66.7%)	2423 (73.6%)	**0.003**
DAPT	200 (46.5%)	2216 (67.3%)	**<0.001**
In-hospital mortality	6 (1.4%)	124 (3.8%)	**0.012**
1-year mortality	27 (6.5%)	374 (11.7%)	**0.002**
5-year mortality	56 (13.0%)	577 (17.5%)	**0.019**
Hospitalisation for HF	56 (13.0%)	716 (21.8%)	**<0.001**

Methods: We analyzed patients consecutively admitted to a single-center coronary care unit with MINOCA. Two groups were identified: (1) patients with MINOCA, and (2) patients with obstructive coronary artery disease (CAD). Multivariate analysis was performed to determine which drugs were implicated in the prognosis of these patients. The primary endpoint was all-cause mortality at 5 years.

Results: From a total of 3,721 myocardial infarction patients, MINOCA was identified in 11.6% (n = 430), of whom 56 (13.0%) experienced the primary endpoint. Median age was 66 years (IQR 19), and 51.6% (n = 222) of patients were male. At discharge, 81.2% of MINOCA patients were prescribed aspirin, 87.4% a statin, 78.6% beta-blockers, and 66.7% angiotensin-converting enzyme inhibitors (ACEI). MINOCA patients were less likely to be prescribed these medications compared to patients with obstructive coronary artery disease (all $p < 0.001$). 1.4% (n = 6) of MINOCA patients died in the hospital, and the 5-year mortality rate was 13.0% (n = 56). In multivariate Cox regression, treatment with ACEI at discharge was found to be independently associated with a 5-year mortality benefit (HR = 0.29, 95%CI 0.12-0.67, adjusted $p = 0.004$) in MINOCA patients.

Conclusions: In conclusion, compared with patients with obstructive CAD, patients with MINOCA are less likely to be treated with secondary prevention drugs and are at lower risk of all-cause mortality during long-term follow-up. Treatment with ACEI seems to provide an additional mortality benefit in MINOCA patients.

PO 212. DO CARDIOVASCULAR RISK FACTORS IMPACT THE MANAGEMENT OF MYOCARDIAL INFARCTION WITH NO OBSTRUCTIVE CORONARY ATHEROSCLEROSIS PATIENTS?

André Cabrita, Catarina Marques, Miguel Carvalho, Mariana Vasconcelos, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Myocardial Infarction with No Obstructive Coronary Atherosclerosis (MINOCA) is typical of younger patients, mostly women, with less cardiovascular risk factors (CVRF).

Objectives: To determine whether CVRF implies differences in the presentation, cardiac examinations or treatment of patients with MINOCA.

Methods: We developed a prospective 6-year study, consisting of consultation of medical records of all patients admitted in the Cardiology Department of our institution due to a diagnosis of MINOCA. Patients were divided in two groups for comparison: CVRF *vs.* healthy. We considered CVRF patients those with history of any of the following: hypertension, diabetes *mellitus*, dyslipidemia, obesity or smoking.

Results: In a cohort of 76 patients, almost half (48.7%) revealed at least one CVRF. CVRF patients were older (60 ± 5 *vs.* 41 ± 7 years-old) and mainly men (59.5%). The most prevalent CVRF was hypertension (36.8%), followed by active or past smoking history (29.6%), dyslipidemia (28.9%), obesity (22.4%) and type-2 diabetes *mellitus* (12.5%). Surprisingly, healthy patients denoted more often (25.6 *vs.* 13.5%) ST-segment elevation mimicking ST-elevation myocardial infarction (STEMI) on ECG, although CVRF were associated with segmental wall-motion abnormalities (64.9 *vs.* 23%, $p < 0.001$) on echocardiogram. Analyzing cardiac enzymes, healthy patients showed higher elevation of high-sensitivity troponin I (14,923 ± 11,741 *vs.* 1,695 ± 1,330 ng/L) but lower value of B-type natriuretic peptide (BNP) (131 ± 79 *vs.* 350 ± 195 pg/mL). Interestingly, healthy patients demonstrated fewer normal reports on CMR (32.4 *vs.* 15.4%). Healthy patients were associated with late gadolinium enhancement (LGE) (69.2 *vs.* 37.8%; $p = 0.01$) and myocardial edema (51.3 *vs.* 27%; $p = 0.045$) on CMR. We also found that CVRF patients were associated with a higher probability of establishing the cause of MINOCA by CMR (37.8 *vs.* 10.3%; $p = 0.005$).

Conclusions: In our cohort, the absence of CVRF was associated with LGE and myocardial edema on CMR, and also revealed a lower probability of establishing the cause of MINOCA. This study raises the question if CRVF represent a different phenotype on presentation, cardiac examinations and treatment of MINOCA patients.

PO 213. CAN GENDER PLAY A ROLE IN MYOCARDIAL INFARCTION WITH NO OBSTRUCTIVE CORONARY ATHEROSCLEROSIS?

André Cabrita, Catarina Marques, Miguel Carvalho, Mariana Vasconcelos, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Myocardial Infarction with No Obstructive Coronary Atherosclerosis (MINOCA) is typical of younger patients, mostly women, with less cardiovascular risk factors (CVRF).
Objectives: To determine whether gender implies differences in the presentation, cardiac examinations or treatment of patients with MINOCA.
Methods: We developed a prospective 6-year study, consisting of consultation of medical records of all patients admitted in the Cardiology Department of our institution due to a diagnosis of MINOCA. We divided the patients by gender for comparison: men *vs.* women.
Results: Our cohort consisted of 76 patients admitted with a diagnosis of MINOCA, mostly men (65.8%). Women were older (67 ± 5 *vs.* 48 ± 5 years-old) and revealed a higher burden of CVRF, such as hypertension (42.3 *vs.* 34%), type 2- diabetes *mellitus* (19.2 *vs.* 2%), dyslipidemia (38.5 *vs.* 24%) and obesity (34.6 *vs.* 16%). Women showed most often absence of ECG abnormalities (38.5 *vs.* 28%) and men had a higher prevalence (28 *vs.* 3.8%) of ST-segment elevation mimicking ST-elevation myocardial infarction (STEMI). Surprisingly, women denoted more segmental wall-motion segmental abnormalities (57.7 *vs.* 36%) on echocardiogram. Evaluating cardiac enzymes, men showed higher elevation of high-sensitivity troponin I (8,490 ± 6,691 *vs.* 4,187 ± 3,093 ng/L) and women a higher value of B-type natriuretic peptide (BNP) (653 ± 212 *vs.* 161 ± 59 pg/mL). Women had fewer abnormalities on CMR, so it was considered normal more often (34.6 *vs.* 18%) and denoted higher left-ventricle ejection fraction (59 ± 7 *vs.* 53 ± 5%). Men were associated with late gadolinium enhancement (LGE) (64 *vs.* 34.6%; p = 0.004) and myocardial edema (48 *vs.* 23.1%; p = 0.0017) on CMR. On CMR analysis, men presented more often with a global pattern of abnormalities (32 *vs.* 11.5%) and a non-ischemic pattern (38 *vs.* 23.1%). Accordingly, men were associated with a higher probability of establishing the cause of MINOCA by CMR (86% *vs.* 69.2%; p = 0.028).
Conclusions: In our cohort, although women were older, had a higher burden of CVRF, ECG and echocardiogram alterations, they revealed less abnormalities on CMR. Men were associated with LGE and myocardial edema on CMR, and revealed a higher probability of establishing the cause of MINOCA. This study raises the question on gender differences in MINOCA patients and the need for more studies on this subject.

PO 214. STUDY OF THE PREVALENCE, PROGNOSIS AND MORTALITY OF PATIENTS DIAGNOSED WITH MINOCA

Inês Macedo Conde, Carla Marques-Pires, Paulo Medeiros, Rui Flores, Fernando Mané, Rodrigo Silva, Mónica Dias, Ana Sofia Fernandes, Cátia Oliveira, Carlos Braga, Catarina Quina-Rodrigues, Jorge Marques

Hospital de Braga, EPE.

Introduction: It's increasingly recognized that there is a group of patients with acute myocardial infarction (AMI) without evident obstructive coronary artery disease (CAD) on coronary angiography (stenosis ≥ 50% in an epicardial artery), currently being designated as acute myocardial infarction without obstructive coronary disease (MINOCA).
Objectives: To characterize the group of patients diagnosed with MINOCA, with regard to its prevalence and clinical, laboratory, echocardiographic, imaging and prognostic variables. To study the diagnostic profitability of cardiac magnetic resonance (CMR). Lastly, to compare the mortality in the MINOCA group with that of a group of patients admitted for AMI without ST-segment elevation.
Methods: Retrospective, observational and analytical study that included 516 patients, admitted for AMI, without ST-segment elevation on the electrocardiogram and without significant CAD on coronary angiography between January 2016 and September 2021.
Results: After applying the inclusion criteria, 163 patients remained of the 516 admitted to the study, who were later divided into 4 groups based on the CMR results: MINOCA (n = 51; MRI showing myocardial edema or transmural or subendocardial late-gadolinium enhancement), Takotsubo syndrome (n = 37), myocarditis (n = 33) and without diagnosis (n = 42, normal MRI). Regarding the patients classified as MINOCA, the majority were female (52.9%), with a mean age of 61.06 ± 13.83 years. The most prevalent symptom on admission was chest pain in (49, 96.1%). Half of the patients had arterial hypertension and more than half (58.8%) had dyslipidemia. CMR established a diagnosis in 74.2% of patients admitted for suspected acute MI in which coronary angiography showed the absence of significant obstructions. The median time between hospital admission and CMR was significantly shorter in the groups that had a diagnostic findings on the CMR compared to the group with no diagnosis (p = 0.038), with a significant increase in diagnostic profitability if the CMR was performed up to 14 days after admission (p = 0.022). When comparing our group's mortality with that of a group of patients admitted for AMI without ST-segment elevation, in order to ensure an even distribution of confounders between groups and therefore increase between group comparability, propensity score matching was performed. In the MINOCA group there were no deaths of cardiovascular etiology reported during the hospitalization nor during the follow-up period (one year follow-up). In the matched AMI group, the mortality rate during hospitalization was 7.4% and during the follow-up period was 11.1%.
Conclusions: In this population, the diagnosis of MINOCA is associated with a good prognosis. CMR plays a key role in the diagnostic approach of these patients, as it establishes the diagnosis in 3 out of 4 patients and should be performed within the first 14 days after admission.

PO 215. MINOCA - NOT A DEFINITIVE DIAGNOSIS

Marta Miguez de Freitas Vilela[1], Joana Brito[2], Beatriz Valente Silva[2], Pedro Alves da Silva[2], Ana Beatriz Garcia[2], Ana Margarida Martins[2], Catarina Simões de Oliveira[2], Catarina Gregório[2], Miguel Azaredo Raposo[2], Ana Abrantes[2], João Santos Fonseca[2], Joana Rigueira[2], Rui Plácido[2], Fausto J. Pinto[2], Ana G. Almeida[2]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Myocardial infarction (MI) with non-obstructive coronary arteries (MINOCA) is a heterogeneous entity characterized by clinical evidence of MI in the absence of coronary artery stenosis ≥ 50% on angiography. There are multiple pathophysiological mechanisms, so it should be considered a working diagnosis until a thorough investigation about the underlying cause is completed. Despite the increased risk of major cardiovascular (CV) events in MINOCA patients (pts), many are discharged without a definitive diagnosis.
Objectives: To analyse the diagnostic workflow and treatment strategy of MINOCA pts.
Methods: We conducted a retrospective analysis of MINOCA pts admitted in a tertiary hospital and who have performed cardiac magnetic resonance imaging (CMR) in this context.
Results: We enrolled 36 pts (mean age 67-years ± 14; 64% female) in our casuistic. The predominant clinical presentation was chest pain (83%). Coronarography angiography showed mild coronary stenosis in 14% of pts. Intracoronary evaluation was done in only one patient. Echocardiography performed during the hospital admission period showed a median ejection fraction of 58% and wall motion abnormalities (WMA) were found in half of the pts. CMR was performed with a median time of 28 days from presentation - 58% had late gadolinium enhancement, 55% WMA and 24% myocardial oedema. It was able to differentiate myocardial injury related to ischaemic events (31%), myocarditis (11%) and Takotsubo syndrome (2%) in 58% of pts. In 12 pts CMR did not show any alteration and no definitive diagnosis was reached (3 had end-stage chronic kidney disease). Of note, none of these pts have done transoesophageal echocardiography and thrombophilia disorders were not assessed. At time of discharge, anti-thrombotic and anticoagulation (AC) therapy schemes were single antiplatelet therapy (31%), dual antiplatelet therapy (22%) and oral AC (19%). Most pts were on statin therapy (94%) and about one third medicated with calcium channel blockers (31%). Median follow-up (FUP) time was 14

months. During FUP 1 patient had a CV event (stroke) and 2 pts died from CV cause.
Conclusions: Our casuistic emphasizes the importance of MINOCA underlying aetiology investigation. CMR is central in this context, since it can provide MI diagnosis confirmation and identify other potential causes. However, some pts had a normal CMR and complementary study has to be done in order to improve treatment strategy and pts prognosis.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 4) - Provas de esforço e reabilitação

PO 216. VALIDATION OF AN AEROBIC FITNESS QUESTIONNAIRE IN A COHORT OF PORTUGUESE ADULT CARDIAC PATIENTS

Maria Rita Giestas Lima[1], João Presume[1], Gonçalo Cunha[1], Rita Amador[1], Luís Moreno[1], Anaí Durazzo[1], Claudio Gil Araújo[2], Miguel Mendes[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Clínica de Medicina do Exercício-CLINIMEX, Rio de Janeiro.

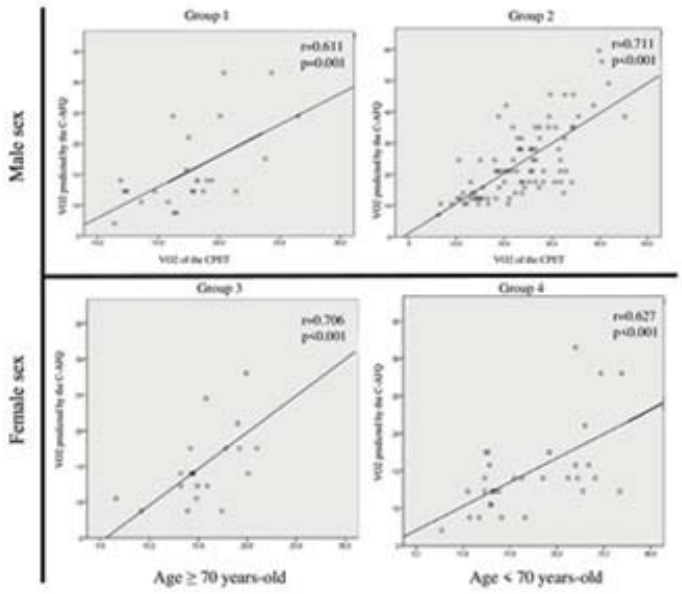
Introduction: Cardiopulmonary exercise testing (CPET) is the gold-standard to quantify functional capacity in patients with cardiac disease. However, it is costly and not widely available. CLINIMEX aerobic fitness questionnaire (C-AFQ), previously published in 2019, is a non-invasive tool validated for Brazilian adults that, based on patient responses for a list of activities with known energy requirements, predicts the aerobic fitness in metabolic equivalents, from which maximum oxygen consumption (VO2) may be derived. C-AFQ was designed to overcome the unavailability of CPET in many centres, yet its validity in Portuguese cardiac patients remains unknown.
Objectives: To evaluate the performance of the C-AFQ in predicting VO2 measured by a CPET in a Portuguese cohort of adult patients with cardiac disease.
Methods: We performed a single-centre prospective study enrolling consecutive patients who underwent CPET from April to November 2022. The main indications for CPET were assessment for cardiac rehabilitation admission or functional capacity for cardiovascular risk stratification. Pearson´s correlation coefficient was used to assess the correlation between VO2 predicted by the questionnaire and the VO2 measured by CPET
Results: A total of 171 patients were included with a mean age 63 ± 12 years, 68% male, 36% were included in the early phase post-myocardial infarction and 64% had chronic heart failure. Mean left ventricle ejection fraction [LVEF] was 47 ± 12%. A significant correlation was found between VO2 measured by CPET and the VO2 predicted by C-AFQ ($r = 0.741$, $p < 0.001$). A slightly better performance of the C-AFQ was observed in male patients younger than 70 years compared with female and older patients ($r = 0.711$, $p < 0.001$). We also found a moderate correlation in the subgroup of post-acute myocardial infarction ($r = 0.727$, $p < 0.001$), and a strong correlation in patients with heart failure ($r = 0.771$, $p < 0.001$), including those with LVEF ≤ 40% (N = 52, 30.4%) ($r = 0.723$, $p < 0.001$). The results were similar independently of respiratory exchange ratio.
Conclusions: C-AFQ significantly estimated the aerobic fitness in this cohort of patients, remaining significant across all subgroups. In summary, C-AFQ may be useful in the assessment of functional capacity of Portuguese cardiac patients when a CPET is not readily available.

PO 217. CHRONOTROPISM IN CPET - IS INCOMPETENCE LIMITING FUNCTIONAL CAPACITY?

Ana Margarida Martins, Inês Ricardo, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Beatriz Garcia, Catarina Oliveira, Ana Abrantes, Miguel Raposo, Catarina Gregório, João Fonseca, Daniel Cazeiro, Bruno Bento, Rita Pinto, Nelson Cunha, Fausto J. Pinto, Ana Abreu

Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Chronotropic incompetence (CI) is defined as the inability to reach 80% of the expected reserve frequency for age during exertion, and it is frequently observed in stress tests of patients undergoing cardiac rehabilitation programs due to a combination of factors, that include the use of betablockers. Despite the theoretical basis for suggesting that a lower peak heart rate is related to a lower tolerance to exertion, we lack data correlating the CI to the maximal functional capacity, measured



		VO2 CPET (mean±SD)	VO2 C-AFQ (mean±SD)	Correlation R (r)	p
Total Cohort		20.4±7.5	19.6±10.1	0.741	<0.001
Age (years)	<70	21.7±8.2	21.2±10.9	0.732	<0.001
	≥70	16.9±4.1	15.6±6.2	0.638	<0.001
Female sex		16.9±5.2	15.3±5.9	0.631	<0.001
Male sex		21.9±7.9	21.6±10.9	0.730	<0.001
LVEF ≤ 40%		17±6.7	17.9±9.4	0.723	<0.001
LVEF 41-49%		21.5±7.4	21.1±10.1	0.785	<0.001
LVEF ≥ 50%		21.9±7.5	20.2±10.4	0.747	<0.001
Heart Failure		18.3±7	18.3±9.1	0.771	<0.001
Coronary Artery Disease (post-ACS)		21.4±7.7	20.5±10.5	0.727	<0.001

Figure PO 216

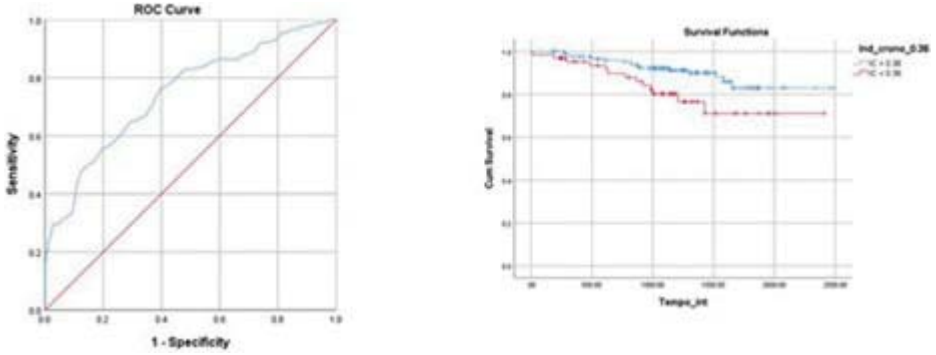


Figure PO 217

in cardiopulmonary tests as the maximal oxygen volume consumption (peak VO2).
Objectives: To correlate the impact of CI on functional capacity in patients (pts) undergoing a cardiac rehabilitation program and try to find the best value of chronotropic incompetence that could predict a worse prognosis.
Methods: Prospective cohort study which included consecutive pts who were submitted to cardiopulmonary exercise test (CPET) during 5 years in a tertiary hospital. Demographic data were analyzed and medication with beta blocker was registered. CI and chronotropic index were calculated using the equation (220-age) for estimating maximum HR. ROC curve method and Kaplan-Meier survival analysis were used to evaluate the cut-off efficacy.
Results: We analyzed 358 CPET and 74.1% patients (n = 206) were under beta blocker therapy (7.6% high dose). The majority of the patients had CI (83.5%); CI was more frequent in pts under BB therapy although it didn't reach statistical significance (p = 0.12). A low maximum predicted heart rate (mpHR) was associated with low peak VO2 (p = 0.02) and a mpHR < 61% was the best value to predict peak VO2 < 12 mL/(kg.min) (AUC = 0.746, S = 72; E = 65), despite not showing association with cardiovascular events. Regarding the chronotropism, 96.9% of the pts were categorized as having a low chronotropic index. A CI < 0.38 was the best cut-off to predict a peak VO2 < 12 mL/(kg.min) (AUC = 0.81, S = 72, E 76) and it was a predictor of all-cause hospitalizations (p = 0.015).
Conclusions: This study shows a high percentage of pts with CI. A low chronotropic index was associated with low peak VO2 and was a predictor of all-cause hospitalizations.

PO 218. A NEW RISK SCORE FROM THE RETROSPECTIVE ANALYSIS OF MAXIMAL WORKLOAD PREDICTORS OF SURVIVAL IN ISCHEMIC HEART DISEASE AT 10 YEARS: THE RAPID-10 SCORE

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Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: Cardiac stress testing (CST) is valuable in the management of ischemic heart disease (IHD). The FIT Treadmill Score from the largest study of physical fitness - the Henry Ford Exercise Testing Project- is among the most accurate model in predicting survival. Recent data from our group showed that workload-indexed blood pressure (WPBR) is a strong and independent predictor of survival in IHD, a variable not included in the FIT score. Therefore, our purpose was to create a new score that includes WBPR and other maximal exercise variables and compare with the FIT score.
Methods: The study comprised 713 patients with IHD that performed CST on treadmill between 2009-2010. The follow-up period was 10 ± 2 years. WBPR (systolic blood pressure/(metabolic equivalent of task(met)-1)) and the FIT score were calculated at baseline as previously described (Hedman K, *et al.* Eur J Prev Cardiol. 2020;27(9):978-87; Ahmed HM, *et al.* Mayo Clin Proc. 2015;90(3):346-55). Continuous variables were fitted using linear and nonlinear regressions. Time-to-event (death and major adverse cardiovascular events (MACE)) were correlated with baseline variables through logistic regression models. The new score was built using a backward stepwise regression of clinical and CST variables. Score accuracy was assessed with receiver operating characteristic (ROC) curves. Event-free survival analyses used Cox regression models. Data are: mean ± standard deviation; 95% confidence interval (CI) for hazard ratios (HR); significance level p < 0.05.
Results: Relevant baseline characteristics were: age 59 ± 10 years, 87% male, 74% dyslipidemia, 65% hypertension, BMI 29 ± 4 kg/m2, 31% diabetes, 16% chronic kidney disease, 45% smokers, 5% stroke, 76% myocardial infarction. During follow-up, 109 patients died (16%), 342 (49%) had MACE, 183 (26%) de novo heart failure (HF) and 100 (14%) myocardial infarction (MI). The final score (RAPID-10) combines four predictive variables of survival: binary WBPR (1 if ≥ 5.15 mmHg/met) and sex (1 if female); continuous maximal predicted heart rate (MPHR) and age-squared. The adjusted final model is: 4WPBR + 0.008 age^2 + 20MPHR + 6sex. The median score was 11 points, ranging from -13 to 40 points. After adjusting for comorbidities and medication, each 10-point increase in RAPID-10 was associated with mortality (HR 1.85, CI 1.42-2.42, p < 0.0001), MACE (HR 1.26, CI 1.42-2.42, p < 0.0001), and HF (HR 1.4, CI 1.19-1.56, p < 0.0001) but not MI (HR 0.91, CI 0.77-1.01, p = 0.239). Discriminative power of RAPID-10 was good in ROC curves (AUC = 0.75), and slightly higher than FIT score (AUC = 0.73).
Conclusions: RAPID-10 score is a robust tool, with good discriminative power to predict 10-year survival in IHD patients. Further studies are needed to validate the model in other populations.

PO 219. IMPACT OF CARDIAC REHABILITATION ON HEART FAILURE ACROSS EJECTION FRACTION SPECTRUM

Andreia Campinas, Cristine Schmidt, Maria Isilda Oliveira, Sandra Magalhães, Catarina Gomes, José Preza-Fernandes, Severo Torres, Mário Santos

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

Introduction: Cardiac rehabilitation (CR) is a class I recommendation to all Heart Failure (HF) patients, however most of its supporting data come from HF with reduced ejection fraction (HFrEF).
Objectives: We aimed to study the adherence and effectiveness of a CR program on HF across the ejection fraction spectrum.
Methods: We conducted a prospective single-center study of consecutive 93 patients with HF referred to the CR program at our hospital between September 2019 and July 2021. Our groups of interest were patients with HFrEF [Left ventricular ejection fraction (LVEF) < 50%] and HF with preserved EF (HEpEF) (LVEF > 50%). We defined adherence as the percentage of sessions patients attended. The effectiveness outcomes were differences in peak oxygen uptake (VO2peak) and quality of life (QoL) measurement differences before (baseline) and after the CR program (3-month). VO2peak was assessed by a maximal effort cardiopulmonary exercise testing on

a treadmill. QoL was assessed using Minnesota Living with Heart Failure Questionnaire® (MLHFQ).
Results: Among a cohort of 93 patients, 86% had HFrEF. HFpEF patients were significantly older (mean age 78 ± 2.9 *vs.* 61 ± 1.3; p = 0.002) and predominantly women (75% *vs.* 28%; p = 0.012). Their baseline characteristics differed regarding atrial fibrillation, which was significantly more prevalent in the HFpEF group (63% *vs.* 20%; p = 0.017). Regarding adherence, no significant difference was found between the groups (HFrEF *vs.* HFpEF: 85% *vs.* 75%; p = 0.608). The significant increase in VO2peak observed in the overall cohort (+1.3 ± 2.3 L/min/Kg; p < 0.001) did not statistically differ between HF phenotype, however HFpEF patients had a numerically reduced improvement (HFrEF *vs.* HFpEF: 1.3 ± 2.3 *vs.* 0.35 ± 1.2 L/min/Kg, p = 0.348). We also observed a significant reduction in total, physical and emotional MLHFQ scores in HFrEF patients (all p < 0.001). However, in the HFpEF group, it was only observed a significant reduction in the total and emotional dimension of MLHFQ scores (p = 0.011 and p = 0.012, respectively), not the physical one.
Conclusions: We observed similar adherence to our CR program and an overall improvement in maximal functional capacity and QoL in HF patients regardless of LVEF. However, the magnitude of improvement in the VO2peak and physical dimension of QoL was higher in HFrEF. Together, these data emphasize the importance to increase the referral of patients with HF across LVEF to CR programs.

PO 220. GENDER DISPARITIES IN CARDIAC REHABILITATION - ARE WE CONCEALING APPLES FROM EVE?

Ana Lobato de Faria Abrantes, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Ana Margarida Martins, Ana Beatriz Garcia, Catarina Simões de Oliveira, Catarina Gregório, Miguel Azaredo Raposo, João Santos Fonseca, Paula Sousa, Nelson Cunha, Inês Ricardo, Rita Pinto, Fausto J. Pinto, Ana Abreu

Santa Maria University Hospital CHULN, CAML, CCUL, Lisbon School of Medicine, Universidade de Lisboa.

Introduction: Cardiovascular disease is a leading cause of death in both men and women and cardiac rehabilitation (CR) is recommended as part of secondary prevention for these patients. Despite this, there are still important asymmetries when it comes to enrolment of women in CR programs.
Objectives: To determine differences between referral and outcomes of cardiac rehabilitation programs among women.
Methods: Prospective cohort study which included consecutive pts who were participating in a center-based CR program lasting 8 weeks from 2019 to 2021. We analyzed prevalence of risk factors, laboratory, echocardiographic and Cardiopulmonary Exercise Testing (CPET) data in women who were enrolled in the program. Statistical analysis was performed with Mann-Whitney and Wilcoxon tests.
Results: From a total of 349 patients, 60 women completed a CR program - 17.8% of pts - representing a far smaller percentage when accounting to acute coronary syndrome events in our center in those 2 years (31% women). Mean age of female participants was 60 ± 11.8 years; 74% had hypertension, 64% dyslipidemia, 19% diabetes and only 40% had never smoked. There were no significant differences when compared to male, except for thyroid disease which was more frequent among women (p < 0.01). Regarding laboratory data we noticed an improvement of LDL-c, total cholesterol, HDL-c, although only NTproBNP showed a statistically significant reduction (p = 0.001). There was also an improvement of LVEF, once again without statistical significance (in contrast to the male population). After completion of the program, there was an improvement regarding CPET duration and workload (p < 0.001 and p = 0.019). Interestingly there was no difference in terms of peak VO2/kg, a data that goes in line with some reports of less impact of exercise based CR in this parameter in women. Moreover, there were no differences between genders in terms of outcome, namely admissions or cardiovascular death.
Conclusions: Women still have a lower rate of enrolment in CR programs, despite results showing a similar benefit to men. CR effectiveness by CPET should include other parameters besides VO2 peak. Strategies should be developed to improve women participation in CR.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 5) - Risco cardiovascular

PO 221. CARDIOVASCULAR RISK RECLASSIFICATION: THE IMPACT OF THE NEW SCORE2/SCORE2-OP IN THE PORTUGUESE POPULATION

João Borges-Rosa, Manuel Oliveira-Santos, Ana Rita M. Gomes, Diogo de Almeida Fernandes, Eric Alberto Monteiro, Gil Cunha, Gonçalo Ferraz Costa, Gustavo M. Campos, Joana Guimarães, Rafaela Fernandes, Vanessa Lopes, Lino Gonçalves

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

Introduction: SCORE2 and SCORE2-OP are new risk prediction algorithms to estimate 10-year fatal and nonfatal cardiovascular (CV) risk in European individuals over 40 years without previous CVD or diabetes. The previous algorithm (SCORE) was developed from cohorts recruited before 1986 and was not 'recalibrated' to contemporary CV rates, only predicted fatal CV, and did not include individuals aged over 70 years. We aimed to evaluate the impact of the new risk prediction algorithms in a non-diabetic Portuguese population.
Methods: We retrospectively assessed 663 patients of a primary prevention cohort followed at the Lipidology Clinic of our hospital, with a median follow-up time of 15 (IQR 12-17) years. After excluding patients out of the appropriate age range (n = 161) and those with diabetes or chronic kidney disease (n = 89), we calculated SCORE (low-risk countries), SCORE2/SCORE2-OP (calibrated 10-year risk estimate according to moderate-risk region-specific scaling factors), and Atherosclerotic Cardiovascular Disease (ASCVD) risk algorithm. We collected data on major CV events (CV death, myocardial infarction, stroke) as a composite outcome.
Results: We included 413 patients with a mean age of 55.0 ± 9.9 years and 61.5% males. Regarding cardiovascular risk factors, 16.2% were smokers, mean systolic arterial pressure was 138.3 ± 20.2 mmHg (49.9% were under antihypertensive drugs), median body mass index was 27.68 Kg/m^2 [IQR 25.56-30.29]. Median total cholesterol was 265.0 mg/dL [IQR 222.0-307.0], median non-HDL cholesterol was 211.0 mg/dL [IQR 176.0-257.0], and a mean LDL cholesterol was 208.0 mg/dL [IQR 165.0-254.2]. The median SCORE was 1.93% [IQR 0.60-4.89] and the median ASCVD risk was 8.87 [IQR 3.98-16.32]. Median SCORE2/SCORE2-OP was 6.32% [IQR 0.88-43.65]. According to SCORE 77.7%, 12.8%, and 9.4% were considered low to moderate, high, or very high-risk patients. According to SCORE2/SCORE2-OP 46.2%, 14.2%, and 39.6% were considered low to moderate, high, or very high-risk patients. Almost half of the patients (47.3%) stepped up in the risk category, 43.2% remained the same, and 9.4% stepped down. The 10-year incidence rate of CV death was 1.9% in agreement with SCORE while the 10-year incidence of the composite outcome was 7.7%, similar to both SCORE2/SCORE2-OP and ASCVD risk algorithm.
Conclusions: In a Portuguese primary prevention cohort, both scores accurately predicted the 10-year cardiovascular events. However, we hypothesize that the new SCORE2/SCORE2-OP will promote more aggressive preventive measures, by reclassifying patients to higher risk categories, with a future reduction in the burden of CV events.

PO 222. LDLR ACTIVITY IN PATIENTS WITH HOMOZYGOUS FAMILIAL HYPERCHOLESTEROLAEMIA IN PORTUGAL

Ana Catarina Alves, Ana Margarida Medeiros, Rafael Graça, Mafalda Bourbon

Instituto Nacional de Saúde Dr. Ricardo Jorge.

Introduction: Homozygous Familial Hypercholesterolemia (HoFH) is a rare disorder, affecting 1/300,000 to 1/1,000,000 people in the general

population. In more than 90% of cases, FH is caused by mutations in both alleles of the LDLR gene. Other less frequent genes are *APOB* or *PCSK9*. Clinically HoFH is characterized by extremely high LDL-C levels, in general > 500 mg/dL or > 300 mg/dL under classical lipid lowering treatment, cutaneous xanthomas, abnormalities of aortic valve and supra-valvar region of aortic root and multi-vessel atherosclerotic cardiovascular disease (ASCVD). Recent evidence, however, suggests that HoFH phenotype is more heterogeneous than previously thought and this has been attributed to the severity of the molecular defects that cause the disease.
Methods: The Portuguese Familial Hypercholesterolemia Study (PFHS) was created in 1999 and since then 1005 index-cases with clinical diagnosis to FH have been received for genetic study. Since 2017, genetic diagnosis is performed with an NGS panel with 8 genes. To evaluate LDLR activity different LDLR mutants were generated by site-directed mutagenesis and expressed in CHO-IdlA7 cells lacking endogenous expression of LDLR. To determine the effects of the different variants on LDLR function, binding, uptake and expression of FITC-LDL was assessed by flow cytometry.
Results and discussion: A total of 12 HoFH and 2 double heterozygous (*LDLR/APOB*) were genetically confirmed. Among the homozygous individuals, 4 are true homozygous and 8 are compound heterozygous. In total 19 variants were found (16 in *LDLR,* 2 in *PCSK9* and 1 in *APOB*). All variants, except 2 in *LDLR*, have already been functionally characterized, 11 in our lab. The functional study of the remaining variants is ongoing. All true homozygous have a defective variant (LDLR activity 15-70%); 5/8 compound heterozygous have a null and defective variant (LDLR activity < 10%; LDLR activity 20-65%, respectively); 1 individual has two defective variants (LDLR activity 35%) and in 2 the activity is under study. In the group of null-defective, 3/5 already have CVD (60%) compared to 1/5 (20%) in defective-defective group.
Conclusions: It is important to functionally characterise FH variants for the elucidation of the mechanism of disease so a correct FH diagnosis is achieved. Moreover, LDLR activity determination can contribute to personalize treatment according to patient metabolism improving patient prognosis, especially in homozygous individuals.

PO 223. GENETIC RISK SCORE AND EPICARDIAL ADIPOSE TISSUE: NEW TOOLS WITH IMPACT ON CARDIOVASCULAR RISK ASSESSMENT

Margarida Temtem[1], Maria Isabel Mendonça[1], João Adriano Sousa[1], Marco Serrão[1], Marina Santos[1], Débora Sá[1], Francisco Sousa[1], Eva Henriques[1], Mariana Rodrigues[1], Sónia Freitas[1], Sofia Borges[1], Graça Guerra[1], Ilídio Ornelas[1], António Drumond[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: Cardiovascular disease (CVD) remains the leading cause of death worldwide. One of its main contributors is coronary artery disease (CAD), a complex multifactorial disease influenced by hereditary and environmental factors. A better cardiovascular risk assessment is a real challenge in our daily clinical practice. Evidence points to high Epicardial Adipose Tissue (EAT) volume as an essential player in the pathophysiology of CAD. On the other hand, genetic predisposition to CAD remains crucial to improve cardiovascular risk assessment and treatment. It is unknown whether the association between these two risk markers improved the ability to predict CV events.
Objectives: Evaluate whether a high EAT volume added to a Genetic Risk Score (GRS) improves the predictive ability to discriminate CV events in an asymptomatic population without known CVD.
Methods: A prospective cohort was performed with 1,024 participants (mean age 51.6 ± 8.2 years, 75.6% male) selected from controls of the GENEMACOR Study. The GRS was created from 33 genetic variants associated with CAD by GWAS, choosing those with a hazard ratio (HR) higher than 1. EAT volume was measured with a quantitative semi-automated procedure using a postprocessing workstation-TeraRecon Aquarius Workstation (version 4.4.7, TeraRecon, Inc., San Mateo, CA, USA). We evaluated the discriminative ability of the GRS model without (model 1) and with EAT volume (model 2) using the Harrel C statistics. Categorical free Net Reclassification Improvement (cfNRI) and Integrated Discrimination Index (IDI) reclassified patients.
Results: Cox regression analysis showed that GRS and EAT remained in the equation with an HR of 1.140 (p = 0.002) and HR of 1.221 (p = 0.002), respectively. C-statistic demonstrated that the predictive value for MACE was 0.588 (95%CI 0.445-0.731) for GRS and increased to 0.689 (95%CI 0.577-0.801) when EAT volume was added to GRS, showing a better discrimination capacity for MACE. The difference between the two C indexes was significant (p = 0.003). CfNRI reclassified 58.9% of the population (p = 0.001), and IDI improved the discrimination when EAT was included in the GRS model (IDI = 0.012; p = 0.015).

Evaluation of the incremental value of EAT to the GRS model

	Estimate	95% CI	P-value
C-statistic Model 1	0.588	0.445 – 0.731	-
C-statistic Model 2	0.689	0.577 – 0.801	-
ΔC-statistic	0.101		***0.003***
cfNRI, %	58.9	23.8 – 94.0	***0.001***
IDI	0.012	0.002 – 0.021	***0.015***

Conclusions: Our results displayed that the GRS associated with a high EAT volume increased the discriminative ability to predict MACE occurrence. Improving the identification of high-risk patients at a subclinical stage could avoid atherosclerosis progression and events occurrence through more rigorous and earlier preventive and even therapeutic measures.

PO 224. PREVALENCE AND PREDICTORS OF PERIPHERAL ARTERY DISEASE IN HYPERTENSIVE INDIVIDUALS: RESULTS FROM A LOCAL CARDIOVASCULAR SCREENING EVENT

Joana Silva Ferreira, Ana Fátima Esteves, Antonio Pinheiro Candjondjo, José Maria Farinha, Rui Antunes Coelho, Jéni Quintal, Sara Gonçalves, Cátia Costa, Quitéria Rato, Rui Caria

Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Peripheral artery disease (PAD) is associated with a higher risk of major adverse cardiovascular (CV) events and hypertension is one of its main risk factors. However, since it is often asymptomatic, PAD is underdiagnosed. The ankle-brachial index (ABI) is considered an accurate method for the diagnosis of PAD and is often also used for screening. Despite the availability of a simple screening tool, studies of prevalence of PAD in the Portuguese population are still lacking.
Objectives: To assess the prevalence of PAD in a Portuguese sample of high to very high-risk hypertensive patients and evaluate potential predictors of PAD in this population.
Methods: We conducted an observational study including hypertensive individuals considered at high or very high cardiovascular risk, according to their calculated SCORE of ≥ 5% and ≥ 10%, respectively. The sample was recruited at a local cardiovascular screening event, where 103 individuals at high/very high CV risk were screened for peripheral artery disease through the ABI. Of these individuals, 81 had hypertension and constituted our sample. Systolic blood pressures were measured in all limbs by trained examiners using the Doppler method. PAD was defined as an ABI ≤ 0.9.

Predictors of PAD in multivariate logistic regression

	Odds ratio	IC 95%	*p*-value
Age	1.028	0.947-1.115	0.512
Male gender	0.549	0.146-2.066	0.375
SBP (mmHg)	**1.035**	**1.002-1.069**	**0.035**
Diabetes	0.758	0.232-2.481	0.648
Dyslipidemia	0.811	0.205-3.208	0.765
Smoking	1.461	0.300-7.112	0.639
Previous CV events	**6.671**	**1.435-31.021**	**0.016**

Results: The sample consisted of 81 individuals, with a median age of 70 years. The majority of the sample (86%) had at least one risk factor other than hypertension. 78% had dyslipidemia, 44% had diabetes and 19% were smokers. The prevalence of PAD was 23%, with only 5% of cases being symptomatic, and none of the individuals had a previous diagnosis of PAD. The mean systolic blood pressure (measured in the screening) in the group with PAD was higher than in the group with a normal ABI (166.6 *vs.* 154.5; p = 0.023) and systolic blood pressure was independently associated with increased likelihood of PAD (OR 1.04; 95%CI 1.002-1.069; p = 0.035). A history of previous cardiovascular events was also independently associated with PAD (OR 6.67; 95%CI 1.435-31.021; p = 0.016).
Conclusions: Our results confirm that PAD is common among hypertensive individuals but is still underdiagnosed. The association between higher systolic blood pressure and PAD among hypertensive patients highlights the importance of an optimal control of this risk factor.

PO 225. DIFFERENCES IN 10-YEAR CARDIOVASCULAR RISK ESTIMATION USING SCORE AND SCORE2 RISK PREDICTION TOOLS: A MODERATE RISK COUNTRY POPULATION ANALYSIS

Jéni Quintal[1], António Pinheiro Candjonjo[1], Quitéria Rato[1], Elisa Melo Ferreira[2], Joana Sousa[3], Mariana José Silva[3], José Daniel Casas[4], Rui Antunes Coelho[1], José Maria Farinha[1], Ana Fátima Esteves[1], Joana Silva Ferreira[1], Tatiana Duarte[1], Sara Gonçalves[1], Filipe Seixo[1], Rui Caria[1]

[1]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo. [2]ACES Arrábida, USF Luísa Todi, Setúbal. [3]ACES Arrábida, USF Pinhal Saúde, Setúbal. [4]ACES Arrábida, USF Conde Saúde, Setúbal.

Introduction: Cardiovascular disease (CVD) risk assessment plays a central role in nowadays clinical practice given its burden in morbidity and mortality worldwide. In the 2021 European Society of Cardiology Guidelines on cardiovascular disease prevention a new CVD risk prediction algorithm was presented, the SCORE2. This tool overcomes some of old SCORE limitations by predicting 10-year fatal and non-fatal CVD risk in individuals without previous CVD or diabetes aged 40-65 years and by including contemporary data from epidemiological data of 13 European countries. Differences on 10-year cardiovascular risk category prediction between SCORE and SCORE2 is still scarce.
Objectives: We aimed to compare differences in 10-year cardiovascular disease risk prediction in a Portuguese population using SCORE and SCORE2.
Methods: We conducted a cross-sectional study in a Portuguese population sample. Individuals aged 40-65 years old without known Atherosclerotic Cardiovascular Disease, Diabetes, Chronic Kidney Disease or Familial Hypercholesterolemia were included. The 10-year CVD risk was calculated using SCORE and SCORE2. Based on CVD risk category, patients were stratified into 4 categories - low, moderate, high and very high risk - according to SCORE and in 3 categories - low to moderate, high and very high risk - according to SCORE2 model. Primary outcome was 10-year CVD risk prediction difference between above mentioned models. According to the data distribution, appropriate statistical tests were conducted.
Results: 117 individuals were included in the study cohort, 79 (67.5%) of which were women. In our study, the 10-year risk prediction of fatal and non-fatal cardiovascular events was significantly different between SCORE and SCORE2. When assessing 10-year risk of CVD through SCORE model, 97.1% (n = 100) of the individuals were classified into low and moderate risk categories. On the other hand, when evaluating CVD risk with SCORE2 only 66% (n = 62) of the participants were classified into those risk categories, meaning that 30.9% (n = 29) of patients were in high and very high-risk categories with SCORE2 (*vs.* 2.9% with SCORE). Correlation between SCORE and SCORE2 was verified (R = 0.572; p < 0.0001). Regarding cardiovascular risk factors, active smoking was the only independent predictor for 10-year CVD risk in SCORE2 (RR: 3.28, 95%CI: 1.93-4.66, p = 0.001). There were no independent predictors for CVD risk in SCORE.
Conclusions: Ten-year cardiovascular risk assessment may be underestimated by SCORE model. In the present study, through SCORE CVD risk classification most of patients were classified into lower risk categories than those obtained through updated SCORE2. SCORE2 is a more up-to-date and more calibrated CVD risk assessment tool than old SCORE, so SCORE2 may contribute to a better reclassification of patients and hereafter allow intensification of CVD protection measures.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 6) - Síndromes coronárias agudas e crónicas

PO 226. INVASIVE CORONARY FUNCTION TESTING IN PATIENTS WITH INOCA - A SINGLE CENTER EXPERIENCE

André Paulo Ferreira[1], Sofia Jacinto[1], Vera Ferreira[2], Tiago Mendonça[1], Tiago Pereira-Da-Silva[1], Hugo Rodrigues[1], Filipa Silva[1], Fernando Marques[1], Eunice Oliveira[1], Rui Cruz Ferreira[1], Rúben Ramos[1]

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Introduction: Coronary vasomotion disorders (CVDs) represent a frequent cause of angina in patients with ischemia with non-obstructed coronary

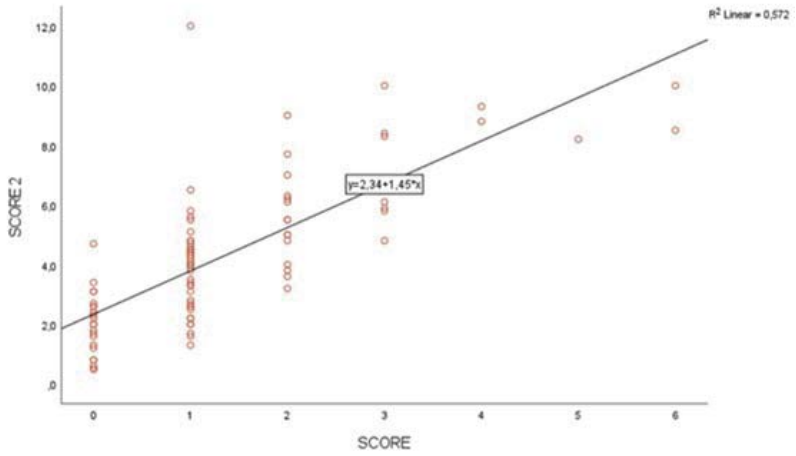

Figure 1. Correlation of SCORE and SCORE2 algorithms.

Figure PO 225

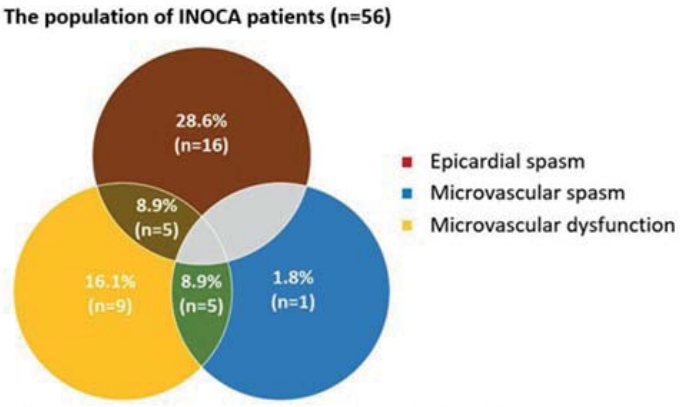

Figure 1 – Venn diagram showing coronary vasomotion disorders distribution

Figure PO 226

arteries (INOCA). Invasive coronary angiography (ICA) often fails to identify patients with vasospastic angina and/or microvascular dysfunction.

Objectives: Our aim was to describe and characterize CVDs in INOCA patients, using a multi-parametric, invasive, coronary function testing protocol.

Methods: Patients with INOCA that underwent our protocol for coronary function testing (CFT), between July 2021 and October 2022 were included in this single-center prospective study. The protocol consisted of an invasive assessment of coronary circulation vasorelaxation at rest and during hyperemia, as well as the propensity for coronary vasospasm using increasing doses of intra-coronary acetylcholine. Fractional flow reserve, coronary flow reserve (CFR), and index of microvascular resistance (IMR) were recorded. CVDs were diagnosed based on the criteria proposed by the Coronary Vasomotor Disorders International Study Group.

Results: A total of 56 patients were included, mean age was 64 ± 12 years and 57.1% were female. At baseline, all patients had either typical angina (82.1%, n = 46) or a positive ischemia test (67.9%, n = 38). Twenty patients (35.7%) had a history of a previous ICA or computed tomography due to anginal symptoms, while only 8.9% of patients had known structural ischemic heart disease and were subjected to percutaneous coronary intervention. Our CFT protocol was completed in all patients without any serious complications. Isolated epicardial vasospasm was found in 16 (28.6%) patients, isolated coronary microvascular dysfunction (CMD) in 9 (16.1%), and a combination of CMD and coronary vasospasm in 9 (16.1%). Only 1 patient (1.8%) had isolated microvascular spasm. We were able to further identify two distinct endotypes of CMD, using a combined assessment of CFR and IMR, termed structural and functional CMD: Functional CMD - 7 patients (12.5%) had CFR < 2.0 and IMR < 25; Structural CMD - 6 patients (10.7%) had CFR < 2.0 and IMR > 25.

Conclusions: Coronary vasomotion disorders are a common cause of INOCA. A CFT protocol is safe, can be used in clinical practice, and can provide a definite diagnosis for the underlying cause of angina.

PO 227. CORONARY ANGIOGRAPHY AFTER OUT-OF-HOSPITAL CARDIAC ARREST WITHOUT ST-SEGMENT ELEVATION: IS IT TIME TO COOL DOWN?

André Alexandre, Bruno Brochado, André Dias-Frias, Andreia Campinas, David Sá-Couto, Anaisa Pereira, Mariana Santos, Maria Trêpa, Raquel Santos, André Luz, João Silveira, Severo Torres

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

Introduction: Ischaemic heart disease is a major cause of out-of-hospital cardiac arrest (OHCA). In resuscitated OHCA patients without ST-segment elevation, the role of emergent coronary angiography (CA) remains uncertain. Recent guidelines recommend a non-emergent CA strategy in this subgroup of patients.

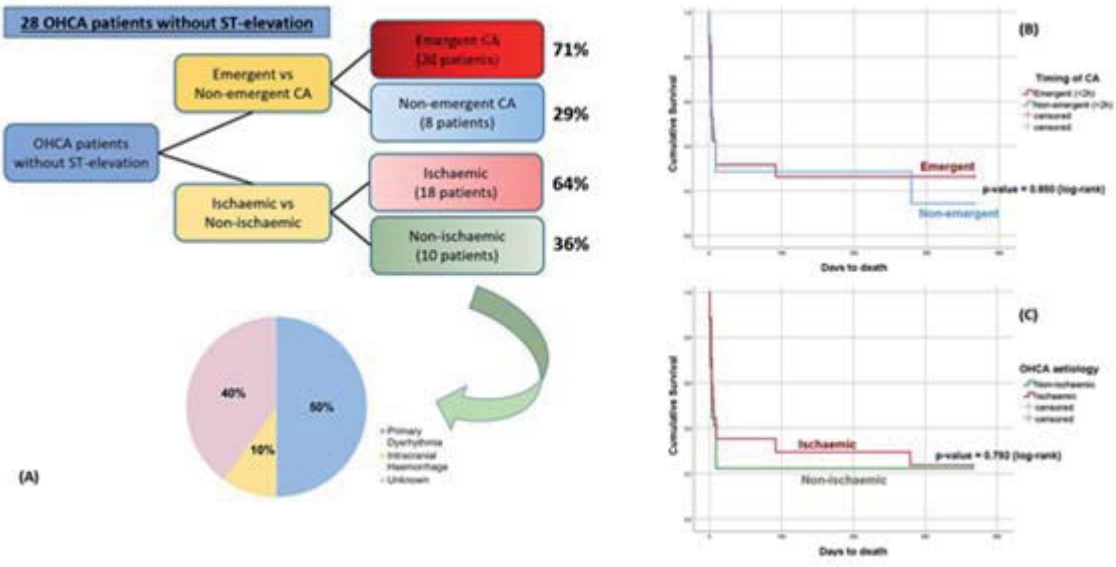

Figure 1: Flowchart of the studied population **(A)** and Kaplan-Meier curves for 12-month mortality according to timing of CA **(B)** and aetiology of OHCA **(C)**.

Figure PO 227

Objectives: To determine whether emergent CA has a positive impact on clinical outcomes in patients with OHCA, without ST-segment elevation, when compared to non-emergent CA.
Methods: This is a retrospective study of OHCA patients, without ST-elevation, undergoing coronary angiography in a PCI centre between Jan 2010 to Dec 2021. From a general cohort of > 9.000 patients admitted to cardiac catheterisation, we obtained a population of 28 patients who fulfilled the inclusion criteria. Emergent CA was defined as CA performed in less than 2 hours. The patients were also classified as "ischaemic" *versus* "non-ischaemic" according to the aetiology of OHCA. The primary endpoint was "24-hour mortality".
Results: 28 OHCA patients without ST-elevation were included. The mean age was 60.8 (± 15.1) years and 64% were male. 71% patients performed emergent CA and only 29% underwent a non-emergent strategy. There were no statistically significant differences regarding baseline characteristics and outcomes between emergent *vs.* non-emergent CA groups. On the other hand, only 64% of patients were classified as "ischaemic". In the remaining 36%, the aetiology was primary cardiac arrhythmia (50%), intracranial haemorrhage (10%), or unknown cause (40%). Regarding baseline characteristics, patients from the "ischaemic" group were older (65.2 *vs.* 52.9 years, p = 0.035) and more likely to have hypertension (72% *vs.* 30%, p = 0.046) or previous coronary artery disease (50% *vs.* 10%, p = 0.042). No statistically significant differences were found regarding outcomes between ischaemic *versus* non-ischaemic groups. Kaplan-Meier analyses showed no differences in 12-month mortality between "emergent CA" *versus* "non-emergent CA" and "ischaemic" *versus* "non-ischaemic" groups (p = 0.850 and p = 0.792, respectively).
Conclusions: Our real-world study suggests that, in accordance with contemporary randomised trials, emergent CA in resuscitated OHCA patients without ST-elevation has unclear benefits when compared with a non-emergent invasive strategy.

PO 228. THE ROLE OF CARDIAC REHABILITATION IN PATIENTS FOLLOWING ACUTE CORONARY SYNDROME IN PORTUGAL - ARE WE DOING ENOUGH?

Sofia B. Paula, Margarida Figueiredo, Mariana Santos, Mariana Coelho, Samuel Almeida, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

Introduction: The benefits of cardiac rehabilitation (CR) in patients (P) with acute coronary syndrome (ACS) are well established. In Portugal there are limited centres with CR and P, especially from peripheral hospitals, wait a long time to enter the programme and many of them don't even enter these programmes.
Objectives: characterize the P population that go to CR and evaluate short- and long-term outcomes.
Methods: Multicenter retrospective study, P with the diagnosis of ACS and data collected from 1/01/2015 to 31/12/2021. P were divided into 2 groups (G). G1 - P with CR programmed and/or planned; G2 - P not referenced for CR. We further analyse P according to MACE events, GA without MACE; GB with MACE.
Results: 11992 P were enrolled, only 3162 (26.4%) P were referenced for CR. G1 was younger 63.5 ± 12.4 (p < 0.001), had more males 76.7% (p < 0.001) and more smokers 38.0% *vs.* 25.3% (p < 0.001), but less P with arterial hypertension (AH) 65.1% *vs.* 70.9% (p < 0.001), diabetes *mellitus* (DM) 29.5% *vs.* 32.8% (p < 0.001), dyslipidemia 57.0% *vs.* 61.2% (p < 0.001), previous heart failure 4.8% *vs.* 7.9% (p < 0.001) and chronic kidney disease (CKD) 3.8% *vs.* 7.3% (p < 0.001). G1 had although more P with symptoms of angina 29.2% *vs.* 23.3% (p < 0.001) and previous MI 20.5% *vs.* 17.6% (p < 0.001). Regarding MACE events G1 had better outcomes 1.3% *vs.* 6.1% (p < 0.001). Considering MACE events, GB was older 74 ± 12 years (p < 0.001), male gender was predominant (62.5%) and had more P with AH 76.9% *vs.* 68.8% (p < 0.001), DM 45.1% *vs.* 31.1% (p < 0.001), CKD 14.6% *vs.* 5.6% (p < 0.001) and pacemaker (PM) or ICD devices 3.8% *vs.* 1.7% (p < 0.001). Independent predictors of MACE achieved through logistic regression analysis are gender p < 0.001, OR 0.325, CI (95%) 0.158-0.672; CKD p = 0.042, OR 4.027, CI 1.019-15.911; time from symptoms to 1st contact ≥ 120min p = 0.032, OR 2.088, CI 1.067-4.087; usage of inotropic medications p < 0.001, OR 6.383, CI 2.995-13.602; left ventricular ejection fraction < 30% *vs.* ≥ 30% p = 0.002, OR 4.172, CI 1.722-10.108; need of invasive mechanical ventilation p < 0.001, OR 6.593, CI 2.812-15.457 and need of temporary PM p < 0.001, OR 12.372, CI 4.025-38.031.
Conclusions: In these study population P with less cardiovascular (CV) risk factors and comorbidities were more often assigned to CR programmes. Not unpredictable P with more comorbidities suffered more from MACE events. Survival analysis also showed that CV mortality and re-admission at 1 year were higher in P not assigned for CR.

PO 229. CLINICAL TRENDS IN UNSTABLE ANGINA AFTER HIGH-SENSITIVE CARDIAC TROPONIN INTRODUCTION: A SINGLE CENTRE ANALYSIS

Carolina Miguel Gonçalves, Adriana Vazão, Mariana Carvalho, Margarida Cabral, Sara Fernandes, Luís Graça Santos, Tiago Teixeira, Jorge Guardado, Fátima Saraiva, João Morais

Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Unstable angina (UA) is defined as myocardial ischemia at minimal exertion or at rest without myocardial injury, an entity

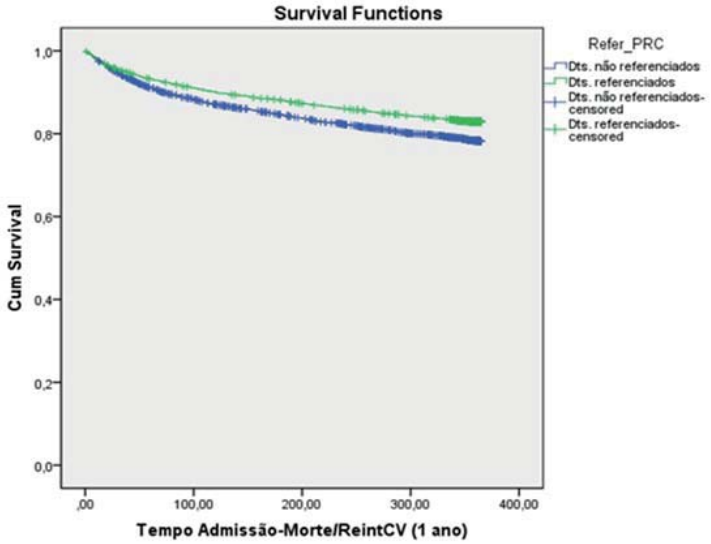

Figure PO 228

progressively less diagnosed after the introduction of high-sensitivity (hs) cardiac troponin (cTn) assays. Although elevated cTn levels carry worse prognosis among acute coronary syndrome (ACS) patients, little is known regarding the potential added value of hs assays in establishing the diagnosis of UA.
Objectives: To compare the clinical characteristics, coronary angiography findings and major cardiovascular events (MACE) of UA patients before and after the introduction of hs-cTn assays.
Methods: Retrospective single-centre analysis of 166 UA patients admitted for invasive stratification from 2015 to 2022. Two cohorts were defined according to the cTn assay used (hs-TnI *vs.* conventional TnI) and its baseline characteristics, coronary angiography findings and associated extended MACE (median follow-up of 4 years) compared. In addition, multivariate logistic regression was performed to assess predictors of MACE in our population.
Results: Overall, mean age was 64 ± 11 years, 72% were male, 35% had history of coronary artery disease (CAD), significant CAD was diagnosed in 50% and the incidence of MACE was 14%. Seventy-two UA cases (43%) were diagnosed using hs-cTn assay and ninety-four (57%) using non-hs cTn assays. Except for dyslipidemia, which was more frequent in the hs-cTn cohort (p = 0.029), no differences were observed regarding cardiovascular risk factors, significant CAD and MACE. On multivariate analysis, body mass index (OR = 0.850; 95%CI [0.735-0.983]; p = 0.028), history of CAD (OR = 2.839; [1.022-7.883]; p = 0.045), significant CAD (OR = 3.879; 95%CI [1.149-13.096]; p = 0.029), hospital stay (OR = 1.404; [1.018-1.937]; p = 0.039 were associated with MACE.
Conclusions: In our population of UA patients, clinical characteristics did not differ significantly regardless of the use of hs or non hs-cTn assays. Moreover, the introduction of hs cTn assays did not translate into better detection/exclusion of significant CAD or MACE improvement, which was relatively low in both groups. Accordingly, in the era of hs-cTn, UA patients remain a low-risk population of the ACS spectrum where other variables should be considered to better select those that may benefit from non-elective invasive stratification.

PO 230. CORONARY ASPIRATION THROMBECTOMY: NOT ALWAYS, NOT EVER

António Maria Rocha de Almeida, Miguel Carias, David Neves, Francisco Cláudio, Marta Paralta Figueiredo, Kisa Congo, Manuel Trinca, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

Introduction: Traditionally, routine thrombus aspiration during primary percutaneous coronary intervention (PCI) was performed to prevent distal embolization and protect microvascular perfusion. However, recent trials showed no clinical benefits (except if high thrombotic burden). Despite not being routinely recommended, thrombus aspiration should still be considered in highly thrombotic circumstances.
Methods: Prospective cohort of 50 patients admitted to primary PCI, with aspiration thrombectomy (AT), between 2019-2022, was analyzed. In evidence of high thrombotic burden, AT was performed, if technically possible. Success was evaluated angiographically and by TIMI flow improvement. Safety was assessed by neurologic evaluation, verified CT-scan, in 30 days follow-up.
Results and conclusions: 50 patients were analyzed, with mean age of 59.6 ± 1.8 years, being 22% women (n = 11). 88% (n = 44) presented ST-segment elevation myocardial infarction Killip 1, 2% (n = 1) Killip 3 and 10% (n = 5) Killip 4. There was angiographic evidence of thrombus aspiration in 76% (n = 38) and TIMI flow increase in 82% (n = 41) cases with median improvement of 2 [IR 1.3]. In 20% (n = 10) cases, stent wasn't implanted. There was significant statistical association between no stent PCI and angiographical thrombus reduction (p < 0.05, OR 3.86). There were no deaths, major adverse cardiovascular events (MACE), or neurologic complications in any patient (n = 0) within 30 days. Routine coronary AT shouldn't be performed. It is useful, however, in selected cases with evidence of angiographic thrombus aspiration and TIMI flow improvement. Successful AT was associated with no stent PCI. Regarding safety, there was no statistically significant increase of death of any cause, MACE, or stroke >/< 0.05, OR 3.86). There were no deaths, major adverse cardiovascular events (MACE), or neurologic complications in any patient (n = 0) within 30 days. Routine coronary AT shouldn't be performed. It is useful, however, in selected cases with evidence of angiographic thrombus aspiration and TIMI flow improvement. Successful AT was associated with no stent PCI. Regarding safety, there was no statistically significant increase of death of any cause, MACE, or stroke.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 7) - Enfarte miocárdio elevação ST

PO 231. THE KASH ONE TRIAL - EARLY DISCHARGE IN MYOCARDIAL INFARCTION: PRELIMINARY RESULTS

Rafaela G. Lopes, Débora Sá, Isabel Cruz, Bruno Bragança, Inês Gomes Campos, Mauro Moreira, Glória Abreu, António Drumond, Joel Ponte Monteiro

Centro Hospitalar do Tâmega e Sousa, EPE/Hospital Padre Américo, Vale do Sousa.

Introduction: The KAsH score is a simple clinical score for acute coronary syndromes used at first medical contact. It has excellent predictive power for in-hospital mortality, specifically isolating patients with very low mortality risk during admission. The aim of this study is to evaluate the mortality outcomes of patients admitted due to myocardial infarction (MI) that remain in KAsH score of 1 during the first 48 hours of hospitalization.
Methods: Multicentric study of consecutive patients admitted with myocardial infarction in two tertiary centers. Patients' demographic, clinical management and clinical outcome data were collected. KAsH was calculated using the formula: Killip-Kimball: x Age x Heart Rate/Systolic blood pressure, and categorized using the recommended cut-offs: < 40; 40-90; 90-190; > 190. Patients were divided in two groups: A) patients with KAsH score of 1 at admission, 24 and 48 hours (KAsH-1) *vs.* B) patients with higher scores of KAsH (Non KAsH-1). The primary endpoint was all-cause mortality during the index hospitalization. Secondary endpoint was mortality at 30 days of follow up.
Results: A total of 196 patients were included, with mean age of 66.8 ± 12.6 years, 74% were male and 43.4% had ST-elevation myocardial infarction. Regarding background comorbidities, 28.1% had diabetes, 70.4% hypertension, 64.8% dyslipidemia and 9.4% heart failure. KAsH-1 group corresponded to 27.7% (n = 54) of patients. There were no differences between Non KAsH1 and KasH1 groups regarding diagnosis of STEMI (41.1% *vs.* 48.1% p = 0.783), history of coronary artery disease (22.7% *vs.* 25.6%, p = 0.718), diabetes (35.7 *vs.* 25.9%, p = 0.199) or hypertension (71.3% *vs.* 61.1%, p = 0.071). The male gender was more frequent in the KAsH 1 group (68.1% *vs.* 90.7%, p = 0.01. KAsH displayed excellent predictive capacity to predict in-hospital mortality (AUC 0.905 at admission). During the index hospitalization 11 deaths occurred (mortality of 6.1%). No deaths occurred in the KAsH-1 group (mortality = 0%). At 30 days after discharge there were 12 deaths in the non KAsH-1 group (mortality of 8.5%). There were no registered deaths in the KAsH-1 group.
Conclusions: This multicentric work shows that a low sequential KAsH evaluation is highly effective at selecting patients without in-hospital and short-term mortality. This work is the basis for a prospective, randomized trial to test KAsH to identify patients for an early discharge.

PO 232. LONG-TERM FOLLOW-UP (12 YEARS) OF ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION SURVIVORS IN ACCORDANCE TO WEIGHT: IS THERE AND OBESITY PARADOX?

David Sá Couto, André Alexandre, André Luz, Andreia Campinas, André Frias, Raquel Santos, Bruno Brochado, João Silveira, Severo Torres

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

Introduction: Obesity is a known risk factor for coronary artery disease. Yet, previous studies have described an "obesity paradox" reporting a protective effect of obesity in patients with cardiovascular disease. This study aims to determine whether an obesity paradox is evident over long-term follow-up among ST-segment elevation myocardial infarction (STEMI) patients.
Methods: This is a retrospective study of STEMI patients admitted to primary PCI who survived until hospital discharge, between January 2008 and December 2013, followed for a 12 years period. Patients were classified according to their body mass index into normal weight (18.5-24.9 kg/m^2), overweight (25-29.9 kg/m^2) and obese (≥ 30 kg/m^2). The primary endpoint was defined as major adverse cardiovascular and cerebrovascular events (MACCE), which included a composite of cardiovascular death, stroke, acute coronary syndrome, any coronary revascularization, and heart failure hospitalization.
Results: Of 584 patients admitted, 535 (91.6%) were alive at hospital discharge. For 3 of them, weight was unknown and they were excluded. A total of 532 individuals were included in the analysis with a median follow-up of 8.01 (2.43-8.46) years. 74.2% were male and mean age was 62.2 (± 13.1) years. Regarding weight, 36.8% had normal weight, 47.2% were overweight, and 16.0% were obese. There were no significant differences between the groups regarding baseline clinical characteristics, except for hypertension and diabetes *mellitus* (more common in obese patients). Regarding procedural characteristics, there were no differences between groups, except for no-reflow (more common in obese patients: 9.4% *vs.* 3.4% p = 0.020) and TIMI score (a lower median TIMI score was found in obese patients; p = 0.040). Multivariate analysis with Cox regression revealed that overweight (adjusted hazard ratio (HR) 1.56, 95%CI 1.10-2.22, p = 0.013) and obesity (adjusted HR 2.33, 95%CI 1.50-3.61, p < 0.001) were independently associated with a higher risk of MACCE after relevant variable adjustment. Kaplan-Meier survival analysis corroborated the association (log rank p = 0.009).
Conclusions: Unlike previous published data on heart failure and coronary artery bypass patients, data from our real-world study did not confirm the existence of the "obesity paradox" during long-term follow-up of STEMI survivors. In this population, overweight and obese patients had 56% and 133% (respectively) higher risk of MACCE compared to normal weight individuals.

PO 233. HOSPITAL DISCHARGE AFTER UNCOMPLICATED ST ELEVATION ACUTE MYOCARDIAL INFARCTION: HOW EARLY IS SAFE?

Joana Certo Pereira, João Presume, Jorge Ferreira, Marisa Trabulo, António Tralhão, Manuel Almeida, Miguel Mendes

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

Introduction: International guidelines recommend that hospital discharge within 48-72h is appropriate in selected low-risk patients admitted for ST elevation acute myocardial infarction (STEMI).
Objectives: To assess the safety of hospital discharge after 24 hours of admission in patients with uncomplicated STEMI submitted to primary percutaneous coronary intervention (PPCI).
Methods: We conducted a single-centre retrospective study enrolling consecutive patients admitted for STEMI from 2016 to 2018 submitted to PPCI. We defined clinically uncomplicated STEMI (UMI) as the absence of cardiorespiratory arrest, mechanical complications, tachy- and bradyarrhythmias, heart failure (Killip class > 1 [HF]), reinfarction and types 2 or 3 Bleeding Academic Research Consortium. Additionally, we included the criterion of preserved left preserved ejection fraction (LVEF > 50%). Patients referred for coronary surgery (CABG) were excluded. Cumulative rates of death and clinical events defining UMI were reported at days 1, 2, 3, and 4. Death, clinical events defining UMI or repeat coronary revascularization at 1-year were reported after days 1, 2, 3, and 4.
Results: A total of 356 patients submitted to PPCI were included, with 64 ± 14 years, 73% male. Median in-hospital stay was 4 [3;7] days. Applying UMI criteria we identified 271 patients (76%) in day-1, 249 (70%) in day-2, 244 (69%) in day-3, and 240 (67%) patients in day 4. Using UMI criteria, discharge after day 1 would be associated with 2.0% of early clinical events, 1.6% after day-2, and 1% after day-3. Post-discharge 1-year incidence of death, clinical events defining UMI or repeat coronary revascularization was roughly similar after day-2 (Table). Adding LVEF > 50% to UMI, we identified 176 patients (49%) in day-1, 168 (47%) in day-2, 165 (46%) in day-3 and 164 (46%) in day-4. Discharge after day 1 would be associated with 1.8% of early clinical events, 0.6% after day-2 and 0.6% after day-3. Post-discharge 1-year incidence of death, clinical events defining UMI or repeat coronary revascularization was similar after day-2.

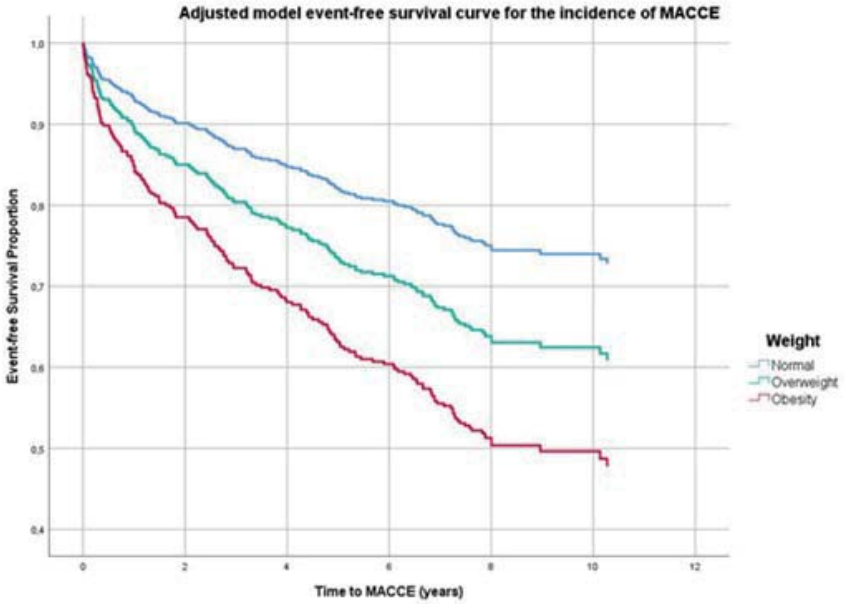

Figure PO 232

Table 1: In-hospital and post-discharge clinical events

	Day-1	Day-2	Day-3	Day-4
UMI				
In-hospital clinical events N (%)	22 (8.1)	5 (2.0)	4 (1.6)	1(0.4)
Post-discharge death, clinical events defining UMI or repeat coronary revascularization N (%)	-	25 (10.0)	21 (8.6)	20 (8.3)
UMI + LVEF>50%				
In-hospital clinical events N (%)	8 (4.5)	3 (1.8)	1 (0.6)	1 (0.6)
Post-discharge death, clinical events defining UMI or repeat coronary revascularization N (%)	-	15 (8.9)	14 (8.4)	13 (7.9)

Conclusions: In our cohort of patients with STEMI submitted to PPCI, clinically uncomplicated criteria identified 69% of patients eligible for safe discharge after day-3. The addition of preserved left ventricular ejection fraction criterion can anticipate a safe discharge after day-2 in almost 50% of patients.

PO 234. LADIES FIRST: AWARENESS FOR THE RISK OF ADVERSE OUTCOMES OF FEMALE PATIENTS AFTER ST-SEGMENT ELEVATION ACUTE CORONARY SYNDROME

Mariana Martinho, Rita Calé, Alexandra Briosa, Ernesto Pereira, Ana Rita Pereira, João Grade Santos, Bárbara Marques Ferreira, Diogo Santos Cunha, Pedro Santos, Sílvia Vitorino, Cátia Eusébio, Gonçalo Morgado, Cristina Martins, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Although male sex is considered a risk factor for cardiovascular (CV) disease, female patients are at higher risk of early mortality after ST-segment elevation acute coronary syndrome (STE-ACS). Evidence suggests that this is due to older age in women, higher rates of comorbidities and less primary revascularization (PCI). Data regarding long-term CV outcomes in women is conflicting and evidence for young patients (pts) is scarce.

Objectives: Comparison of short and long-term adverse outcomes according to gender after STE-ACS in a cohort of younger (£55y) and older (> 55y) pts.

Methods: Retrospective observational single-center study of consecutive pts with STE-ACS submitted to PCI within the first 48h of symptom onset, between 2010 and 2015. Pt delay, door-to-balloon (D2B) and reperfusion delay were evaluated. Adverse outcomes were defined as 30-day all-cause mortality, 5y all-cause mortality and 5yMACE (composite endpoint of death, reinfarction, heart failure hospital admission and ischemic stroke). Survival analysis was performed according to the Kaplan-Meier method and differences stratified by gender were assessed using the log-rank test. A propensity score matching for CV risk factors was performed to obtain a well-balanced subset of male and female individuals.

Results: A total of 884 pts were included: mean age 62 ± 13y; 26.9% females. Females were older (67 ± 14y *vs.* 60 ± 12y, p < 0.001), higher rates of hypertension, diabetes and history of stroke. Men had more smoking habits and more previous coronary artery disease. Clinical severity at presentation was higher for females (Killip-kimball, KK class ≥ 2: 16.4% *vs.* 10.3%, p = 0.032). Delay to PCI did not differ between groups in the overall population, although young females had significantly higher D2B time than young males (95.0 [66.0-210.0] min *vs.* 80.0 [59.0-108.5], p = 0.007). Success of PCI was similar between gender (95.7% *vs.* 97.5%, p = 0.261). At a mean FUP of 71 ± 36 months, women had higher risk of 30 day all-cause mortality (11.8% *vs.* 4.6%, HR 2.76 [1.60-4.75], p ≤ 0.001), 5y death (32.1% *vs.* 16.9%, HR 2.33 [1.65-3.28], p < 0.001) and 5yMACE (34.2% *vs.* 19.8%, HR 2.10 [1.51-2.92], p < 0.001). After propensity matching, female sex was no longer associated with higher KK class but continued to be an independent predictor of adverse outcomes. This was also verified for matched pts > 55y. For younger pts, female sex increased 5yMACE but not 30-day or long-term mortality. Survival curves are displayed in the Figure.

Conclusions: Although coronary artery disease is more prevalent in males, it seems that in a contemporary clinical practice females have higher risk of long-term CV events and death after STE-ACS submitted to PCI, even after multivariable correction for potential confounders. These findings highlight the need for raising awareness of CV disease in women and their need for stricter surveillance after a STE-ACS.

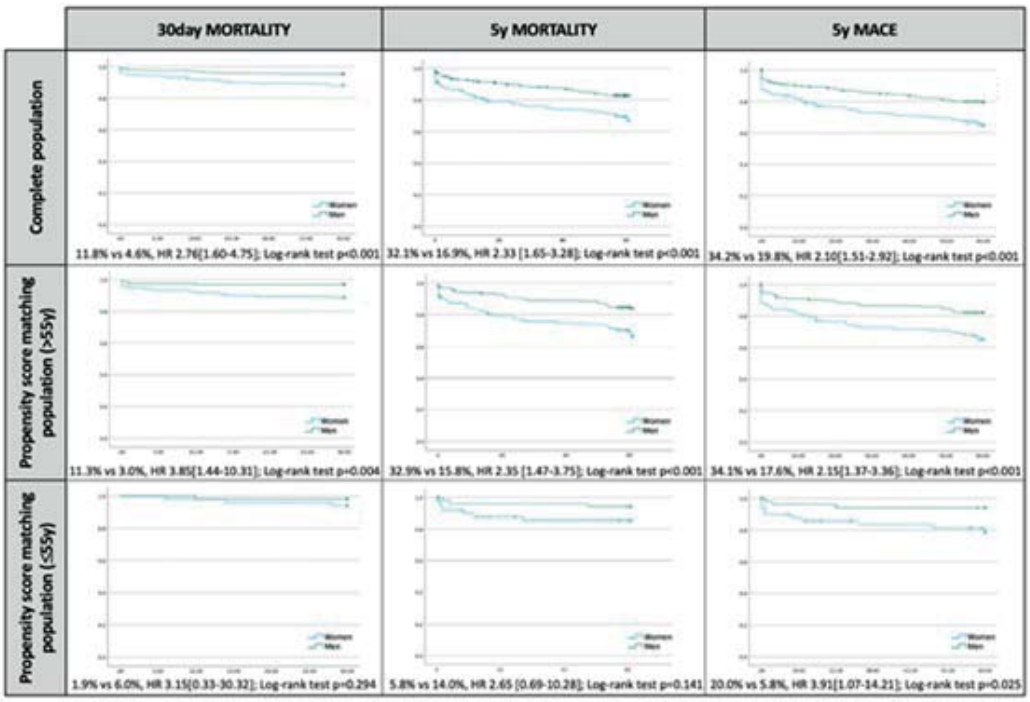

Figure PO 234

PO 235. CLINICAL AND LONG-TERM PROGNOSTIC TRENDS IN ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: A MULTICENTRE NATIONAL REGISTRY ANALYSIS

Carolina Miguel Gonçalves[1], Margarida Cabral[1], Mariana Carvalho[1], Sara Fernandes[1], Fátima Saraiva[1], João Morais[1], Em Nome dos Investigadores do Registo de Síndromes Coronárias Agudas da Sociedade Portuguesa de Cardiologia[2]

[1]Centro Hospitalar de Leiria/Hospital de Santo André. [2]CNCDC.

Introduction: Although significant advances in patient care, ST-segment elevation myocardial infarction (STEMI) remains a major health problem.
Objectives: To describe clinical and prognostic characteristics of Portuguese STEMI patients.
Methods: Retrospective multicentre analysis of STEMI patients included in the Portuguese Registry on Acute Coronary Syndromes (ProACS) between October 2010 and October 2022. Baseline characteristics, clinical findings, treatment and mortality were analyzed. Multivariate analysis was performed to assess predictors of mortality.
Results: The authors studied 14,470 patients with a mean age of 64 ± 14 years, of which 74% were male. A high frequency cardiovascular risk factors was observed, namely high blood pressure (63%), dyslipidemia (54%), smoking (35%) and diabetes (25%). Previous myocardial infarction was present in 11%. The most common symptom was chest pain (94%), Killip class 1 the most frequent presentation and left ventricular ejection fraction was preserved in 52%. Multivessel disease was found in 44% although left anterior descending artery was the most frequent culprit artery - in about 44% of cases. Around 64% of patients were submitted to reperfusion therapy, mostly coronary angioplasty (95%) and roughly 98% were successful. Regarding in-hospital complications: shock (36%), congestive heart failure (17%) and death (5%) were reported. Thirty-day and one-year mortality occurred in 6% and 8%, respectively. After multivariate analysis, older age (HR = 4.06; 95%CI [2.556-6.448]; p < 0.001), left ventricular ejection fraction under 30% (HR = 2.038; 95%CI [1.284-3.234]; p = 0.003) and Killip class over 1 (HR = 1.578; 95%CI [1.104-2.256]; p = 0.012) remained independent risk factors for one-year mortality.
Conclusions: Cardiovascular risk factors were highly prevalent in our population. Although multivessel disease was common, the most frequent culprit artery was the left anterior descending artery with successful treatment. Several clinical characteristics were independent risk factors for one-year mortality.

Domingo, 16 Abril de 2023 | 12:30-13:30

Jardim de Inverno | Posters (Sessão 6 - Écran 8) - Tomografia computorizada cardíaca

PO 236. ASSOCIATION BETWEEN LEFT VENTRICULAR WALL-THICKNESS BY CT AND ENDOCARDIAL VOLTAGE POTENTIALS IN PATIENTS WITH ISCHEMIC CARDIOMYOPATHY

Daniel A. Gomes, Gonçalo Cunha, Pedro Freitas, Sara Guerreiro, João Abecasis, Gustavo Rodrigues, Daniel Matos, João Carmo, Pedro Galvão Santos, Francisco Moscoso Costa, Pedro Carmo, Diogo Cavaco, Francisco Belo Morgado, António M. Ferreira, Pedro Adragão

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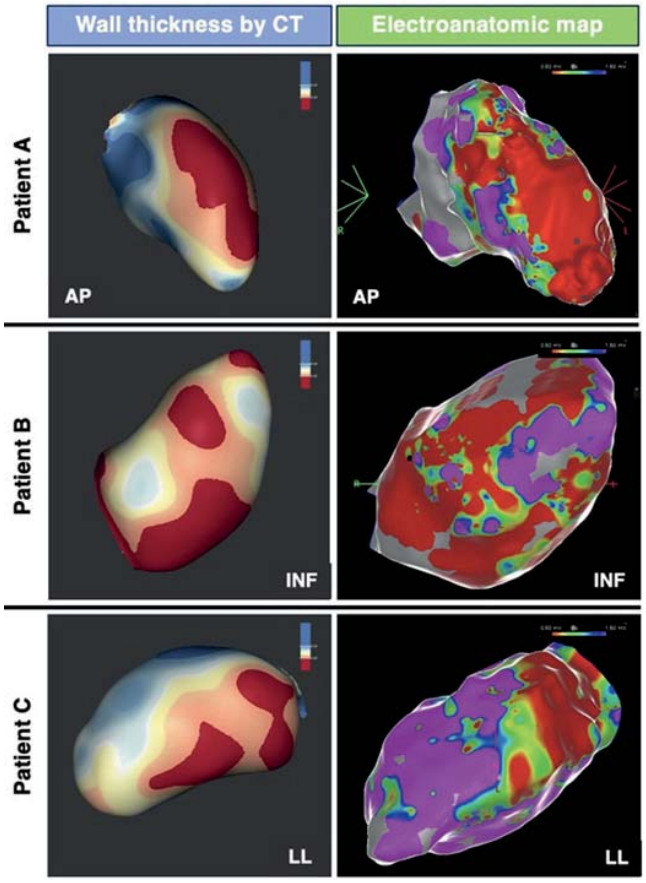
Introduction: Although cardiac magnetic resonance (CMR) is the gold standard for planning ventricular tachycardia (VT) ablation, its accuracy is hindered in patients with cardiac implantable electrical devices (CIEDs). Cardiac computed tomography (CT) has emerged as an alternative for procedure planning in these patients. This pilot study aimed to evaluate the relationship between wall thickness (WT) on CT and voltage of electrical potentials on endocardial electroanatomic mapping (EAM) in patients with ischemic cardiomyopathy.
Methods: Single centre retrospective study of consecutive patients with ischemic cardiomyopathy referred for endocardial VT ablation that underwent cardiac CT for procedure planning since 2021. CT images were analysed using ADAS 3D® software, automatically segmenting the left ventricle (LV) into the 17 American Heart Association segments and calculating end-diastolic WT for each one. Standardized views of the segmented LV on ADAS 3D® were used to aid in manual segmentation of the EAM (CARTO3®). For each patient, EAM was interpreted to create 2 different *bulls' eye*, according to the presence or absence of bipolar potentials < 0.5 mV (dense scar) or < 1.5 mV (low voltage). CT images were blindly assessed by an experienced electrophysiologist to identify possible conduction channels and then compared to activation and voltage maps.
Results: Overall, 8 patients were included (aged 67 ± 12 years, 88% male, median LV ejection fraction of 32% [IQR 25-49], and 7 [88%] with a CIED). A total of 136 segments were analysed, 8 of which did not have voltage information. Of the remaining 128, 51 (39.8%) had dense scar and 57 (41.9%) had low voltage. There was a good correlation between mean WT and the presence or absence of both dense scar (area under the curve [AUC] 0.80, p < 0.001) and low voltage (AUC 0.84, p < 0.001). Cardiac CT images analysis allowed a correct identification of 13 out of 22 conduction channels. In 2 other cases (9%), the location asserted by CT was not confirmed in activation and voltage maps, yielding a sensitivity of 59% (95%CI 36-79%) and positive predictive value of 87% (95%CI 82-90%).



Conclusions: In patients with ischemic cardiomyopathy undergoing VT ablation, WT measured by CT has a strong correlation with dense scar and low voltage on EAM. Using this information to assert possible conduction channels seems to have suboptimal sensitivity but good positive predictive value. This technique may be useful to plan interventions in patients in whom CMR is not feasible.

PO 237. THE ROLE OF LIPIDS IN THE CALCIFICATION OF DIFFERENT CARDIAC STRUCTURES: A CARDIAC CT STUDY

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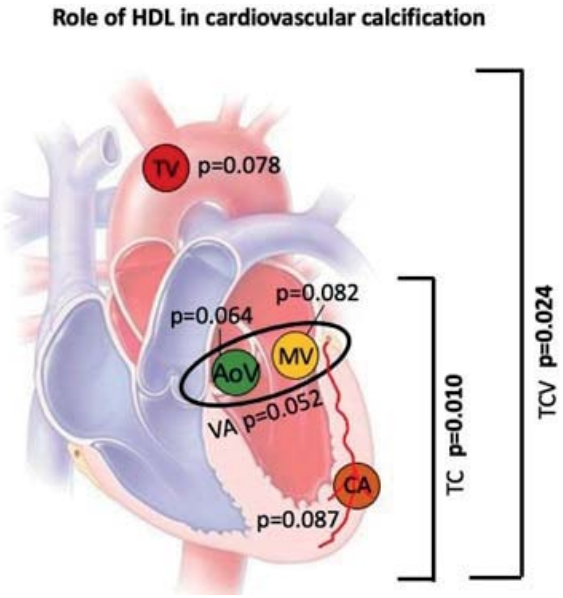
Introduction: The role of dyslipidemia is well established as a risk factor of atherosclerotic plaque in coronary artery disease. However, beyond coronary disease, the role of lipids in valve and aortic calcification is yet to be understood.
Objectives: To assess the role of lipids in the calcification of different cardiac structures as measured by cardiac CT.
Methods: We conducted a single-centre study on 316 consecutive patients who underwent cardiac CT scan between January 2018 and December 2019. We excluded patients with poor imaging quality, constrictive pericarditis, prosthetic valves and/or devices. The calcium score of coronary arteries (CA), mitral valve (MV), aortic valve (AoV), ascending aorta (AAo) and aortic arch (AAc) were calculated from non-contrast ECG-gated CT using the Agatston method and were combined to derive a valvular (VA = MV+AoV), total cardiac (TC = CA+VA), total vascular (TV = AAo+AAc) and total cardiovascular (TCV = TC+TV) calcium scores. We then collected data regarding lipid values (total cholesterol, LDL and HDL cholesterol and triglycerides).
Results: 275 CT scans were suitable for analysis, 142 were male (52%), with a mean age of 60 ± 12 years (range 26-93 years). A total of 183 (66.7%) patients presented calcification in at least one location. Patients with calcification on any of the prespecified locations had higher prevalence of hypertension, dyslipidemia and type 2 diabetes *mellitus* (DM) than those without any calcium ($p < 0.05$). The best regression models (using backwards conditional input method) showed that age was a significant predictor of calcification in all locations (and combinations of locations, $p < 0.05$ for all) and HDL cholesterol was a part of these models across all calcifications types, being significant for TC score ($p = 0.010$) and TCV score ($p = 0.024$, Figure). Patients above the fourth quartile (Q4) of TCV had significantly lower HDL cholesterol levels (47 ± 12 *vs.* 53 ± 16 mg/dL, $p = 0.007$). Of note, total cholesterol, LDL cholesterol and triglycerides were not significant predictors of calcification for any location.



Conclusions: Low HDL cholesterol levels are consistently associated with calcification across the cardiovascular system, extending beyond the classically described coronary disease. This calcification effect of HDL is more important than other lipids, but the specific role of HDL subtypes is yet to be understood.

PO 238. CALCIUM SCORE A PREDICTOR OF HEART FAILURE IMPROVEMENT AFTER TRANSCATHETER AORTIC VALVULAR IMPLANTATION

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Introduction: Aortic valve calcium score (AVCS) measures calcium deposition on the aortic valve. It is a complementary exam to access aortic stenosis, being echocardiography the gold standard. Severe aortic stenosis is considered when aortic calcium is > 2,000 AU. Greater levels of aortic valve calcification will make heart failure more likely.
Methods: Cardiac angio CT is performed routinely in all 52 patients before Transcatheter Aortic Valvular Implantation (TAVI). NTproBNP determination was measured before TAVI and three months after. The relative reduction of NTProBNP was calculated and used as the primary endpoint. AVCS values were divided into 2 groups: (A) AVCS ≤ 2,000 (n = 13; 25%), (B) AVCS > 2,000 (n = 39; 75%). Groups were tested regarding the degree of NTproBNP reduction using the Mann-Whitney test and later tested for reductions > 50% using chi-square test.
Results: Mean age in each group was (A = 82.9 ± 3.6; B = 80.2 ± 6.62) years. Mean AVCS was A = 4,287 (± 1,908) B = 3,257.9 (± 1,939) ($p = 0.03$). NTproBNP reduction was significantly higher among patients with higher AVCS (A = 26.9% ± 28; B = 50.0% ± 33.22, $p = 0.02$). Reductions above 50% were consistently higher in group B (A = 21.4%; B = 53.8%, $p = 0.01$).
Conclusions: Increased calcification of the aortic valve is associated with greater NT Pro BNP reduction. TAVI has a larger impact on Heart failure improvement in patients with a more severe and prolonged aortic stenosis. AVCS is a useful complementary tool to echocardiography in moderate to severe aortic stenosis, as lower AVCS are associated with more modest NTproBNP reductions after TAVI.

PO 239. INCIDENCE OF CORONARY ANOMALIES IN PATIENTS WITH D-TRANSPOSITION OF GREAT ARTERIES (D-TGA) AFTER ARTERIAL SWITCH OPERATION (ASO)

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Introduction and objectives: D-transposition of great arteries (D-TGA) is a congenital cardiac defect defined by atrioventricular concordance and ventriculo-arterial discordance. Arterial switch operation (ASO) is currently the surgical repair and implies reimplantation of the coronary arteries from the aorta into the neo-aortic root. As such, long-term coronary anomalies and complications are possible and potentially dangerous. Recently, coronary computed tomography angiography (CCTA) has gained a prominent role for characterization of the coronary anatomy in these patients (pts) and its relationship with adjacent structures. However, routine coronary evaluation among asymptomatic pts after ASO remains controverse, as the reported incidence of coronary-related complications is low. The purpose of this study is to perform a descriptive analysis of CCTA findings in pts with D-TGA after ASO.
Methods: We performed a retrospective single center study that included patients with D-TGA submitted to ASO who underwent CCTA. Demographic, clinical and imaging data were collected.
Results: We identified 57 pts with D-TGA submitted to ASO. Of these, 39 (68%) performed a CCTA. Mean age of pts was 20.4 (± 3.8) years; 54% were male; 32% had complex D-TGA. In 35 patients (90%), CCTA was performed as part of a routine screening. In 4 (10%) pts CCTA was done due to symptoms or an abnormal non-invasive test suggestive of myocardial

ischemia. Eighteen (46%) pts had coronary anomalies: 5 (13%) had an acute angulation at the coronary origin; 13 (33%) pts had anomalous origin of the coronary arteries, ranging from presence of a single coronary artery in 3 (8%) pts, common independent origin from a single sinus of Valsalva in 6 (15%) cases and anomalous origin of the circumflex artery from the right coronary artery (RCA) in 4 (10%) pts. An interarterial course was described in 2 (5%) pts and a retroaortic course was reported in 8 (21%) cases. One patient had anomalous course of the LAD into the right ventricle, a mild calcified ostial stenosis of the left main coronary artery and a chronic total occlusion of the RCA.

Conclusions: D-TGA patients submitted to ASO have a high incidence of coronary anomalies. Routine screening with CCTA may be justified to identify patients who may be at higher risk of coronary events.

PO 240. SCREENING OF THORACIC AORTIC CALCIFICATION BY COMPUTED TOMOGRAPHY FOR PREDICTING CLINICAL OUTCOMES IN PATIENTS UNDERGOING CARDIAC SURGERY

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Introduction: Thoracic aortic calcification (TAC) is a well-known marker of cardiovascular (CV) risk. Due to the risk of perioperative adverse events

CARDIOTHORACIC SURGERY TYPE	N (%)
CORONARY ARTERY BYPASS GRAFT (CABG)	7,4% (n=11)
AORTIC VALVE REPLACEMENT (AVR)	55,4 % (n= 82)
CABG + AVR	11,5 % (n= 17)
MITRAL VALVE SURGERY	3,4% (n=5)
OTHER SURGERY	22,3% (n=33)

Table 1 – Type of surgical procedure

	Mean (SD)
THORACIC AORTIC CALCIFICATION VOLUME	2,079 ± 2,390
ASCENDING AORTIC CALCIFICATION VOLUME	0,294 ± 0,413
AORTIC ARCH CALCIFICATION VOLUME	0,610 ± 0,722
DESCENDING AORTIC CALCIFICATION VOLUME	1,175 ± 1,787

Table 2-Thoracic aortic calcification volume.

		TACV	
RISK FACTORS/COMORBIDITIES	PREVALENCE	U	p
DYSLIPIDEMIA	75,0% (n=111)	2710	**0,004**
ARTERIAL HYPERTENSION	77,0 % (n= 114)	1525	0,06
DIABETES	39,9 % (n= 59)	3023,5	0,119
SMOKING HISTORY	27,0% (n=40)	2317,5	0,496
OBESITY	37,8 % (n=56)	1679,5	0,404
CHRONIC KIDNEY DISEASE (GFR<60 ML/MIN/1.73M^2)	29,1% (n=43)	2955	**<0,001**
HISTORY OF CORONARY ARTERY DISEASE	43,2% (n=64)	3467	**0,002**
HISTORY OF PERIPHERAL ARTERIAL DISEASE	8,1% (n=12)	1119,5	**0,033**
HISTORY OF CEREBROVASCULAR DISEASE	9,5% (n=14)	969	0,839

Table 3- Characterization of the population regarding risk factors/comorbidities.
Legend: TACV: thoracic aortic calcification volume.

	TACV		AACV		AaCV		DACV	
	U	p	U	p	U	p	U	p
ACUTE KIDNEY INJURY	1594,5	0,127	1727,5	0,355	1571,5	0,102	1665,5	0,230
STROKE	310	0,614	322	0,702	306,5	0,588	319	0,683
MAJOR HEMORRHAGE	59	0,734	22	0,221	46	0,519	41,5	0,454
ANEMIA (HEMOGLOBIN <8 G/DL)	1282,5	0,577	1164	0,225	1254	0,476	1303	0,654
INFECTION	510	0,075	492	0,058	676	0,57	512	0,078
CARDIAC TAMPONADE	171	0,166	214	0,378	240,5	0,574	157	0,121
ACUTE HEART FAILURE	159	0,426	172	0,530	190,5	0,713	127	0,218
ARRYTHMIAS	1820	**0,05**	1964	0,168	1787	0,055	1947,5	0,153
ANY COMPLICATION	3277	**0,036**	2967,5	0,355	3172,5	0,089	3285	**0,033**

Table 4 – In-hospital complications.
Legend: TACV: thoracic aortic calcification volume; AACV: ascending aortic calcification volume; AaCV: aortic arch calcification volume;

Figure PO 240

associated with aortic calcification, computed tomography (CT) prior to cardiac surgery (CS) is often performed. Few studies have quantified aortic calcification and correlated it with postoperative events.

Objectives: The aim of the study was to quantify the volume of calcium in the thoracic aorta and correlate it with perioperative clinical outcomes.

Methods: Retrospective study including patients submitted to cardiac surgery who underwent prior concontrast CT. TAC was quantified using a volume-rendering method. The volume of calcium in each segment of the thoracic aorta was also evaluated. Demographic data, comorbidities and clinical events were compared between groups.

Results: 148 patients were included (mean age = 70.5 ± 4.9 years; 60.8% men). The mean value of the thoracic aortic calcification volume (TACV) was 2.079 ± 2.390 cm^3. The mean value of Euroscore II was 3.2 ± 10.4. Most patients underwent aortic valve replacement surgery (66.9%). There was manipulation of the aorta in all surgeries. Dyslipidemia and arterial hypertension were the most prevalent risk factors (77% and 75%, respectively). Considering cardiovascular risk factors and comorbidities, in univariate analysis, dyslipidemia and chronic kidney disease (GFR < 60 ml/min/1.73 m^2) were significantly related to the TACV (p = 0.004 and p < 0.001, respectively). Patients with a history of coronary artery disease and peripheral artery disease also had a higher TACV (p = 0.002 and p = 0.033, respectively). Regarding clinical outcomes, it was found that TACV was correlated with the occurrence of any clinical outcome in the postoperative period (p = 0.036), as well as with the occurrence of atrial fibrillation [AF (p = 0.05)]. Calcification of the descending thoracic aorta was also correlated with the occurrence of any complication (p = 0.033), which was not significant in Cox multivariate analysis [HR 1.03 (IC 0.89-1.18; p = 0.72)]. Circumferential calcification was not associated with clinical outcomes in the postoperative period (p = 0.339).

Conclusions: Aortic calcification is a risk marker for clinical outcomes in postoperative cardiac surgery. In patients undergoing CS who performed CT, outcomes seems not to be related to aortic manipulation. Our cohorts suggests that aortic calcification is a determinant of patient's CV risk, predicting complications during hospitalization namely AF. The assessment of aortic calcium volume can be an important tool to define the in-hospital risk of patients undergoing CS.

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