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1. Pinney JH, Whelan CJ, Petrie A, *et al*. Senile systemic amyloidosis: clinical features at presentation and outcome. *J Am Heart Assoc*. 2013;2(2):e000098.
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Congresso Português de Cardiologia 2022 – Voltamos a estar juntos!

Bem-vindos ao CPC 2022!

Os dois últimos anos representaram um enorme desafio para todos nós, nas nossas vidas profissionais, nas nossas vidas pessoais e, também, nas nossas vidas científicas. A pandemia a SARS-CoV-2 mudou a forma como interagimos, alterou a forma como lidamos com os meios virtuais de comunicação e transformou as ferramentas de aprendizagem científica. Muitas destas alterações estavam já anunciadas, apenas se assistiu a uma aceleração da sua implementação, ditada pela necessidade. E vieram para ficar! Mas, volvidos dois anos, há uma certeza que sobra, mesmo para os mais aficionados da tecnologia: nós precisamos de estar juntos! Precisamos do contacto pessoal, da troca de experiências e ideias sem um écran a separar-nos, da conversa informal à volta de um café, do abraço do amigo que, muitas vezes, só encontramos no Congresso Português de Cardiologia, uma vez por ano.

E 2022 é o ano em que voltamos a estar juntos! Por isso escolhemos, para lema do nosso congresso ***Moving Forward Together!***

No entanto, também aprendemos com as extraordinárias realizações das duas Comissões que nos antecederam, em 2020 e 2021: o trabalho por elas efetuado mostrou-nos todas as virtudes que um congresso virtual pode ter. As ferramentas criadas para esses dois congressos funcionaram de forma exemplar e não poderíamos deixar de as aproveitar. Por isso mesmo, o CPC 2022 é um congresso híbrido, com transmissão ao vivo para a plataforma do congresso de todas as sessões, que ficarão também disponíveis para visualização posterior. Assim, temos o melhor que a tecnologia nos pode oferecer, mas também o melhor que o contacto humano presencial nos traz! O congresso virtual permitiu-nos, também, contar com palestrantes internacionais, em particular do outro lado do Atlântico, que mais dificilmente poderiam estar fisicamente no Congresso, mas que assim podem integrar o seu programa científico.

Como tem sido tradição, o programa do CPC 2022 foi construído com base nas propostas dos Grupos de Estudo e Associações (APIC e APAPE) da Sociedade Portuguesa de Cardiologia. Partindo dessas propostas, a Comissão Científica do CPC estruturou um programa diverso e amplo, que procura incluir os temas mais atuais das várias áreas da Medicina Cardiovascular em 2022. Da insuficiência cardíaca às arritmias, da doença valvular aos cuidados intensivos cardíacos, da cardiologia de intervenção e cirurgia cardíaca às miocardiopatias, da prevenção e reabilitação cardíaca à doença arterial pulmonar, das cardiopatias congénitas à imagem, todas as áreas têm sessões dedicadas no CPC 2022!

Sendo as questões ambientais uma das linhas programáticas da atual direção da Sociedade Portuguesa de Cardiologia, construímos também uma sessão sobre o impacto das mudanças climáticas nas doenças cardiovasculares. Por fim, retomamos este ano o Ciclo de Atualização em Cardiologia, pensado sobretudo para colegas de Medicina Interna, Medicina Geral e Familiar e Cardiologistas sem ligação a atividade hospitalar.

Mas um congresso como o CPC não se constrói apenas com o trabalho da Comissão Organizadora ou do Departamento de Congressos da SPC. Muitas centenas de colegas colaboraram com o CPC 2022, como revisores dos resumos livres, casos clínicos e de imagem, como membros dos júris dos prémios e bolsas científicas e, claro, integrando o próprio programa científico do congresso, como palestrantes, moderadores ou membros dos painéis de discussão. A todos eles devemos o nosso mais sentido agradecimento: são eles que fazem o nosso Congresso! Um agradecimento muito especial aos revisores de resumos livres. Este ano, decidimos alterar a forma de distribuição dos resumos, pedindo a cada revisor que indicasse a sua área de expertise. Conseguimos, deste modo, garantir que praticamente todos os resumos fossem avaliados por sete peritos independentes, permitindo uma verdadeira revisão por pares dos nossos trabalhos científicos. O resultado desse trabalho está expresso neste número da Revista Portuguesa de Cardiologia.

É também devido o agradecimento à Indústria Farmacêutica e de Dispositivos Médicos, sem a qual o nosso congresso não seria possível. Em tempos de incerteza, encontrámos toda a disponibilidade destes parceiros para apoiar o CPC 2022 e não temos dúvidas que as nossas relações saem reforçadas deste congresso.

E, por fim, gostaríamos também de agradecer a todos aqueles que participaram na nossa atividade *Everybeat-counts:* com o seu exercício físico diário, contribuíram para apoiar três ONGs na área da saúde, cumprindo um papel que também tem que ser nosso: o da solidariedade social.

A todos, desejo um Excelente Congresso Português de Cardiologia 2022. É um prazer voltarmos a estar juntos!

Sérgio Bravo Baptista
Presidente do Congresso Português de Cardiologia 2022

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Portuguese Congress of Cardiology 2022 – Back together again!

Welcome to the Portuguese Congress of Cardiology 2022!

The last two years have been extremely challenging for us all, affecting not only our professional life and private life, but also our scientific life. The SARS-CoV-2 pandemic has changed the way we interact and the way we use online communication platforms. It has also transformed scientific learning tools. Many of these changes were already on the way in, but necessity meant they were put into practice much earlier than anticipated. Now they are very much here to stay. Two years on, there is one certainty that remains, even among technology enthusiasts: we need to be together in person! We need human contact, the sharing of experiences and ideas without there being a screen between us, informal chats over a coffee, a hug from those friends we often only meet once a year at the Portuguese Congress of Cardiology (CPC2022).

2022 is the year we are back together! That is why we chose the slogan, "***Moving Forward Together!***".

However, we have also learnt from the two committees that came before us (2020 and 2021), and their extraordinary work that there is a positive side to an online event. The tools created for these two congresses worked in an exemplary manner and we will continue to take advantage of them. That is why CPC2022 is a hybrid event, with live transmission of all the sessions to the congress platform. The recordings will also be made available after the event. This will give us the best of both worlds. Being online meant we had international speakers, particularly those from the other side of the Atlantic, who may have found it more difficult to be here in person but were still able to be part of the scientific program.

Tradition has it that the CPC2022 program is built around proposals from the Study Groups and Associations (APIC and APAPE) of the Portuguese Society of Cardiology (SPC). The CPC2022 Scientific Committee took these proposal and created a diverse, comprehensive program. The aim was to incorporate cutting-edge topics from Cardiovascular Medicine in 2022. From heart failure to arrhythmias, valvular disease to cardiac intensive care, cardiology and cardiac surgery to cardiomyopathies, cardiac prevention and rehabilitation to pulmonary artery disease, congenital heart diseases to imaging... all these areas have dedicated sessions at CPC2022!

Environmental issues are at the heart of the current council's management of the SPC, so we have also incorporated a session on the impact of climate change on cardiovascular diseases. This year we will also take up the Cardiology Refresher Sessions once again. These are designed mainly for colleagues in Internal Medicine, General Practice and Family Medicine and cardiologists who are not involved in hospital activity.

A congress such as the CPC does not just involve the Organizing Committee or the SPC Congress Department but a whole host of colleagues: Those who reviewed abstracts, clinical cases and images, members of the scientific prizes and scholarship committees, and of course, not forgetting the speakers, moderators or discussion panelists.

We owe our deepest gratitude to all of them— you make the Congress what it is! A very special thanks goes out to the abstract reviewers. This year, we decided to change the way abstracts were distributed, asking each reviewer to indicate their area of expertise. We were able to ensure that virtually all abstracts were assessed by seven independent experts. This meant we had a true peer review process for our scientific papers. This work is the topic of an article in the current issue of the Portuguese Journal of Cardiology.

We are also indebted to the pharmaceutical and medical device industry, without which our Congress would not be possible. In these uncertain times, we found partners able and willing to support CPC 2022 and we have no doubt that our relationships come out of this Congress strengthened.

And finally, we would also like to thank all those who participated in our #Everybeatcounts activity. By recording their daily physical exercise, they supported three health non-governmental organizations, fulfilling a role that also has to be ours— that of social solidarity.

I wish you all an excellent Portuguese Congress of Cardiology 2022. It is a pleasure to be together again!

Sérgio Bravo Baptista
President of the Portuguese Congress of Cardiology 2022

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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;

4 - McDonagh TA *et al.* Eur Heart J (2021) 00, 1-28.doi:10.1093/eurheartj/ehab368.

*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 m^2). 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/1,73m^2). Como a experiência clínica em doentes com compromisso renal grave (TFGe <30 ml/min/1,73 m^2) 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 m^2). ♦ 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 m^2). ♦ 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 m^2) 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 m^2). 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. - Av. António Augusto de Aguiar, 128 - 1069-133 LISBOA – Telefone: 213122000 / Fax: 213122090 / e-mail: servier.portugal@servier.com. **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_v5 RCM aprovado em Maio de 2021. IECRCM 07.06.2021**

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Congresso Português de Cardiologia 2022 (CPC 2022)

22 a 24 de Abril de 2022

Sexta-feira, 22 Abril de 2022 | 08:30-09:30

Sala Aquarius | Comunicações Orais (Sessão 1) - Arritmias 1 - Taquicardia ventricular

CO 1. SINUS RHYTHM ENDOCARDIAL MAPPING FOR CHANNELS' IDENTIFICATION IN ISCHEMIC VENTRICULAR TACHYCARDIA USING A MODIFIED ELECTROPHYSIOLOGICAL TRIAD

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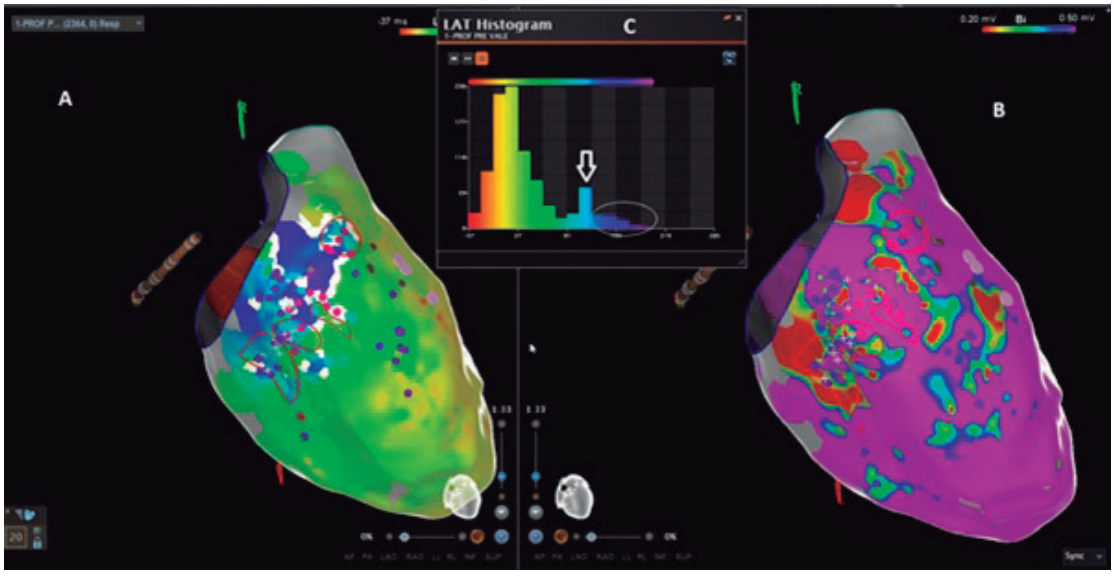
Introduction: In a previous study it was demonstrated that an electrophysiological triad was able to identify critical isthmus in atrial flutter (AFL) patients. This triad is based in the Carto® electroanatomical mapping (EAM) version 7, which displays a histogram of the local activation times (LAT) of the tachycardia cycle length (TCL), in addition to the activation and voltage maps.

Objectives: This study aimed to prospectively assess the ability of a modified electrophysiological triad to identify and localize the ventricular tachycardia's (VT) channels and entrance zones during sinus rhythm mapping.

Methods: Prospective analysis of a unicentric registry of individuals who underwent ischemic VT ablation with Carto® EAM, all in sinus rhythm. All patients with non-ischemic etiology, lack of high-density EAM or lack of mapping in any of the left ventricle walls or structures were excluded. Areas of late potentials and possible channels of re-entry were compared to a modified electrophysiological triad constituted by: areas of low-voltage (< 0.5 mV), a site of deep histogram valley (LAT-Valley) with less than 20% density points relative to the highest density zone and a prolonged LAT-Valley duration that included 10% or more of the total activation time mapped. We also assessed the relationship between the pre-valley bar (the LAT histogram bar immediately before the prolonged LAT-Valley) and the channel entrances.

Results: A total of 14 patients (14 men, median age 70 IQR 64-78 years) were included. All patients presented with ischemic VT and 86% had a previous inferior myocardial infarction. The median number of collected points were



CO 1 Figure

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1,733 (IQR 1,363-2,729). All sinus rhythm maps presented with at least 1 LAT-Valley in the analysed histograms. All arrhythmias were effectively treated after undergoing radiofrequency in the LAT-Valley location, either by blocking the channel entrances or scar homogenization ablation strategy. Also, the pre-valley bar in the histogram marked all the channel entrances in the scar borders. No patient had relapse after a clinical follow up of over 6 months.
Conclusions: In a prospective analysis, a modified electrophysiological triad was able to identify the scar channels in sinus rhythm in all patients. The pre-valley bar in the histogram disclosed the channel entrances. Further studies are needed to assess the usefulness of this algorithm to simplify catheter ablation and improve clinical outcomes.

CO 2. ASSESSMENT OF WAVEFRONT ACTIVATION DURATION ACROSS THE RIGHT VENTRICULAR OUTFLOW TRACT IN PATIENTS WITH IDIOPATHIC PREMATURE VENTRICULAR CONTRACTIONS USING NONINVASIVE ELECTROCARDIOGRAPHIC MAPPING: A VALIDATION STUDY

Leonor Parreira[1], Rita Marinheiro[2], Pedro Carmo[1], Dinis Mesquita[2], Lia Marques[2], Catalin Marinescu[1], Silvia Nunes[1], Duarte Chambel[2], Antonio Ferreira[1], Pedro Amador[2], Pedro Goncalves[1], Hugo Marques[1], Pedro Adragao[1]

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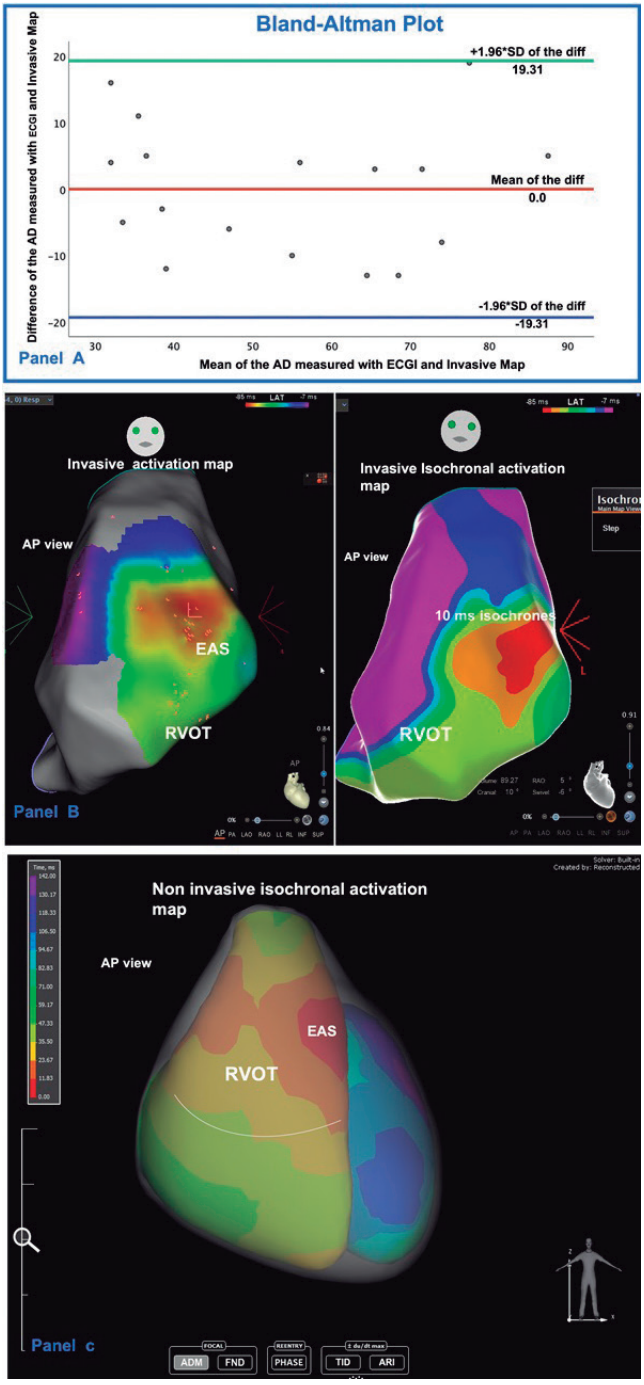
Introduction: Previous studies have reported that wavefront propagation speed across the right ventricular outflow tract (RVOT) can distinguish premature ventricular contractions (PVCs) with a RVOT origin from PVCs with a left ventricular outflow tract (LVOT) origin.
Objectives: Validate the non-invasive electrocardiographic mapping (ECGI) for assessment of RVOT activation duration (AD) during PVCs and assess its value as a predictor of the origin of the PVCs.
Methods: We studied 17 consecutive patients, 8 males, median age 56 (40-64) years that underwent ablation of frequent (> 10,000 per 24 h) idiopathic PVCs with inferior axis and had an ECGI performed before ablation. The ECGI was performed with the Amycard system, and the invasive mapping was performed with Carto or Ensite system. Isochronal activation maps of the PVCs were obtained with the activation direction method (ADM) of the ECGI, and with the Carto and Ensite systems. Total RVOT AD was measured as the time interval between the earliest and the latest activated region. Agreement between the two methods was performed using linear regression and a Bland-Altman plot. The cutoff value of AD to predict PVC origin was calculated with ROC curve.
Results: PVCs originated from the RVOT in 10 (50%) patients. The median (Q_1-Q_3) RVOT AD measured with ECGI was 50 (38-69) ms and with invasive map 54 (35-71) ms. The agreement between both methods was good with an R^2 of 0.750, $p < 0.0001$. Figure displays the Bland-Altman plot (panel A) and an example of the same patient assessed with invasive mapping (panel B) and ECGI (panel C). The AD was significantly higher in PVCs from the RVOT *vs.* LVOT, both with ECGI and invasive map, respectively 65 (56-76) *vs.* 37 (31-37) ms, $p < 0.0001$ and 69 (59-77) *vs.* 35 (30-40) ms, $p < 0.0001$. The cutoff value of 43 ms for AD measured with ECGI predicted the origin of the PVCs with a sensitivity and specificity of 100%.
Conclusions: We found good agreement between ECGI and invasive map. The AD obtained with ECGI was accurate to predict the origin of the PVCs.



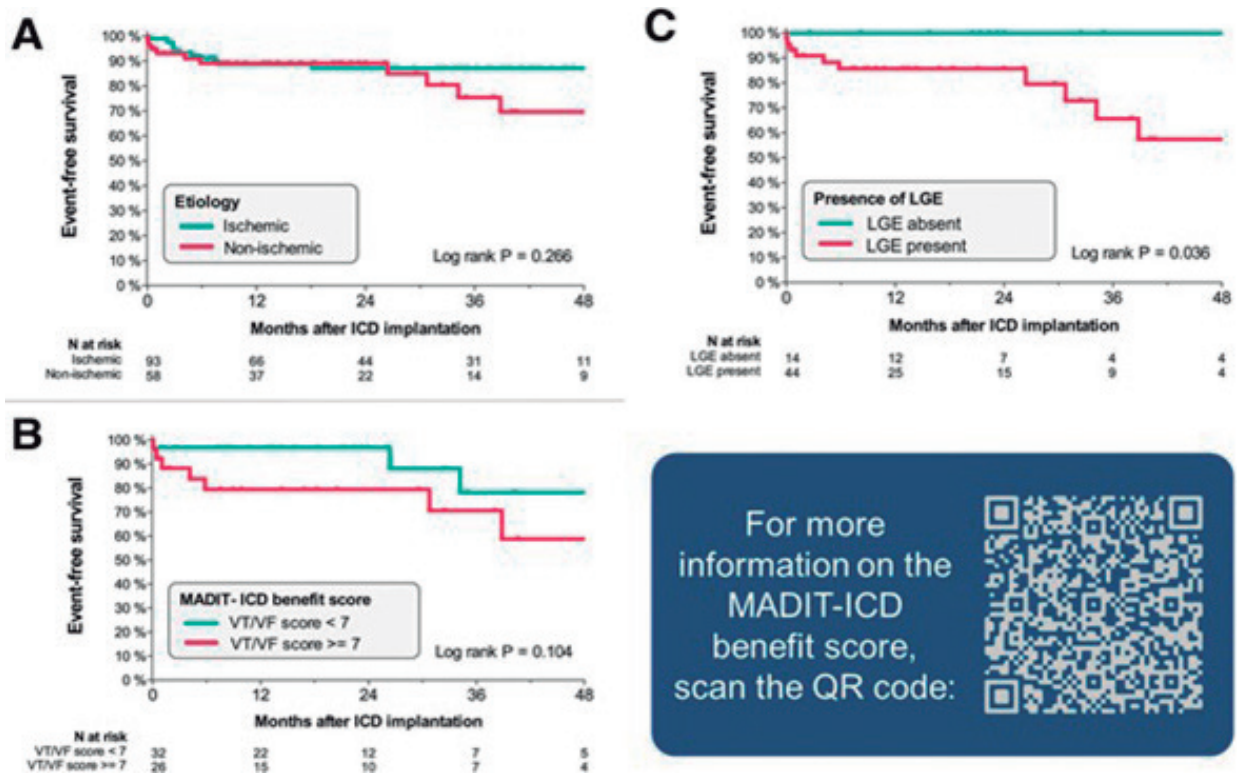
CO 2 Figure

CO 3. LATE GADOLINIUM ENHANCEMENT IS A STRONG PREDICTOR OF LIFE-THREATENING ARRHYTHMIAS IN PATIENTS WITH NON-ISCHEMIC DILATED CARDIOMYOPATHY UNDERGOING ICD IMPLANTATION FOR PRIMARY PREVENTION OF SUDDEN CARDIAC DEATH

Gonçalo Lopes da Cunha, Pedro Lopes, Pedro Freitas, Bruno Rocha, Daniel Gomes, Mariana Paiva, Rita Amador, João Abecasis, Sara Guerreiro, Daniel Matos, Gustavo Rodrigues, Maria Salomé Carvalho, Miguel Mendes, António Ferreira, Pedro Adragão

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

Introduction: The usefulness of implantable cardioverter defibrillators (ICD) for primary prevention of arrhythmic sudden cardiac death (SCD) in patients with non-ischemic dilated cardiomyopathy (DCM) has been questioned. Efforts to improve risk stratification have included scores such as the 'MADIT-ICD benefit score', and the use of late gadolinium enhancement (LGE) in cardiac magnetic resonance (CMR). The purpose of this study was to evaluate the potential usefulness of these two tools to assess the risk of life-threatening arrhythmias in patients with non-ischemic DCM undergoing ICD implantation for primary prevention of SCD.
Methods: We conducted a single-center retrospective study of consecutive patients who underwent contrast-enhanced CMR before ICD implantation for primary prevention of SCD. Patients with ischemic cardiomyopathy were used as reference. Patients with non-dilated cardiomyopathies were excluded. The arrhythmic component of the MADIT-ICD benefit score (VT/



CO 3 Figure

VF score) was calculated for each patient, and considered high if ≥ 7, as recommended. The primary endpoint was the occurrence of SCD or life-threatening arrhythmias (VF or VT > 200 bpm). Follow-up was performed by device interrogation in all patients except those who suffered SCD.
Results: A total of 151 patients (93 ischemic, mean age 62 ± 13 years, 75% male) with mean left ventricular ejection fraction (LVEF) of 27 ± 8% were included. Overall, 72% (n = 67) ischemic and 45% (n = 26) non-ischemic patients had scores ≥ 7 and were considered high-risk. LGE was present in all patients with ischemic cardiomyopathy, and in 76% (n = 44) of patients with non-ischemic DCM. During a median follow-up of 21 (8-38) months, 21 patients (13.9%, 11 ischemic and 10 non-ischemic) met the primary endpoint. Overall, the event-free survival of non-ischemic patients was similar to that of ischemic patients (log rank p = 0.269) (Fig. 1A). In patients with non-ischemic DCM, there were 7 arrhythmic events (26.9%) in those with MADIT-ICD VT/VF scores ≥ 7, and 3 events (9.4%) in those with scores < 7 (log rank p = 0.104) (Fig. 1B). In the same population, there were 10 arrhythmic events (23%) in patients with LGE, but no events in patients without LGE (log rank p = 0.036) (Fig. 1C). LVEF was similar in patients with and without arrhythmic events (26 ± 8 *vs.* 27 ± 7%, p = 0.717), and in those with and without LGE (26 ± 7 *vs.* 28 ± 9%, p = 0.342).
Conclusions: The presence of LGE is a strong predictor of life threatening arrhythmias in patients in non-ischemic DCM undergoing ICD implantation for primary prevention, seemingly outperforming the clinical MADIT-ICD benefit score.

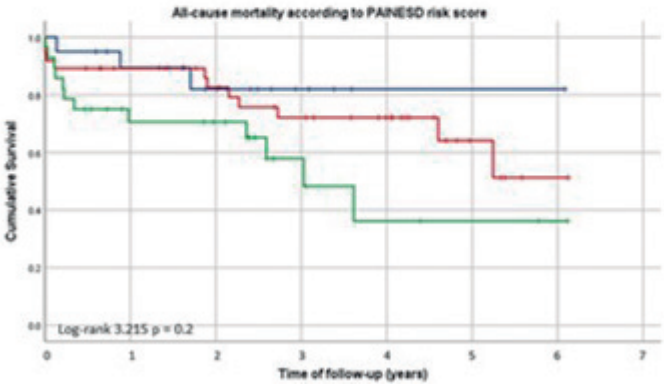
CO 4. IS IT POSSIBLE TO PREDICT MORTALITY AND RECURRENCE OF VT AFTER ABLATION? - PAINESD RISK SCORE APPLICABILITY VS NEW PREDICTORS

João Santos Fonseca, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Afonso Nunes Ferreira, Gustavo Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Catheter ablation (CA) prevents ventricular tachycardia (VT) recurrences in patients (pts) with structural heart disease (SHD), and might have a favorable outcome, but is associated with severe short-term complications. Identification of pts at high risk of periprocedural acute haemodynamic decompensation has important implications at procedural planning. The PAINESD risk score is a promising tool to predict VT ablation procedure-related mortality.
Objectives: To evaluate the accuracy of the PAINESD risk score to predict short-term mortality after structural VT ablation and to compare it with other conventional clinical predictors.
Methods: Prospective, observational, single-centre study of consecutive pts with SHD (ischemic or nonischemic), referred for VT-CA. High-density substrate maps were collected, through endocardial, epicardial or combined endo-epicardial approaches according to clinical data and operator preference. The primary endpoint was 30-day mortality or hemodynamic decompensation. Univariate Cox regression analysis was used to identify relevant clinical predictors and to compare them with the PAINESD risk score. Multivariable Cox proportional hazards regression models were used to estimate predictors of 30-day mortality.
Results: A total of 102 pts with SHD referred for VT ablation were evaluated (mean age: 67 ± 11 years, 94% male, 78.4% in NYHA class I-II; mean LVEF was 34 ± 11%). The baseline PAINESD risk score was 12.39 ± 5.8, 19.6% at low risk, 36.3% at intermediate risk and 27.5% at high risk of adverse events. Overall 30-day mortality was 4.9%. The PAINESD did not predict 30-days mortality or hemodynamic decompensation (p = 0.93). Indeed, a non-significant trend to higher short and long-term mortality was noticed in high-risk score pts (Fig.). On univariate analysis age > 65 years (p = 0.019), LVEF < 35% (p = 0.049), body mass index < 28 kg/m^2 (p = 0.019), CKD (p = 0.001) and previous VT ablation (p = 0.022) were prognostic predictors. On multivariate analysis, only LVEF< 35% (HR 2.225; 95%CI 1.004-4-774, p = 0.038) and CKD (HR 3.35; 95%CI: 1.31-8.51, p = 0.011) were independent predictors of short-term prognosis.
Conclusions: In our population, LVEF< 35% and CKD were the strongest predictors of short-term mortality. PAINESD risk score was not accurate in predicting adverse events. New score systems must be derived for prognostic stratification in this population, incorporating the reduction on the actual short-term event rates after VT ablation.

	Univariate HR (95% CI)	P value	Multivariate HR(95% CI)	P value
Age ≥ 65 yo	3.162 (1.205–8.301)	0.019	1.69 (0.55-5.15)	0.36
LVEF < 35%	2.9093 (1.002-4.373)	0.045	2.225 (1.004-4-774)	0.038
Previous VT ablation	2.425 (1.14-5.18)	0.022	2.130 (0.974-4.659)	0.058
IMC > 28	2.553 (1.165-5.597)	0.019	2.89 (0.99-8.47)	0.53
CKD*	4.06 (1.80-9.17)	0.001	3.344 (1.315-8.507)	0.011



CO 4 Figure

CO 5. EPICARDIAL MAPPING AS FIRST INTENTION APPROACH FOR STRUCTURAL VENTRICULAR TACHYCARDIA ABLATION

Catarina Gregório, Joana Brito, Pedro Silvério António, Sara Couto Pereira, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Patrícia Teixeira, Afonso Nunes Ferreira, Gustavo Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: In several structural arrhythmogenic diseases that comprise intricate endocardial, intramural and epicardial substrates, endocardial ablation of ventricular tachycardia (VT) is not sufficient and epicardial ablation has lately become a complementary and necessary tool.
Objectives: To evaluate the clinical characteristics of patients (pts) most suitable for first intention epicardial VT ablation.
Methods: Single-center prospective study of consecutive pts with structural heart disease undergoing first intention epicardial VT mapping between August 2015 and June 2021. Decision for epicardial approach was based on the etiology, VT electrocardiogram (ECG) and cardiac magnetic resonance (CMR) results. Under general anesthesia, subxiphoid access using a Tuhoy needle was done using fluoroscopic guidance and with high-density epicardial mapping was performed. Epicardial ablation was performed if relevant arrhythmogenic findings were locally confirmed.
Results: First intention epicardial VT ablation was attempted in 18 pts (mean age 59.8 ± 12 years, 94% male) of whom 16 had non-ischemic dilated cardiomyopathy (NICM,idiopathic:11; post-myocarditis:4; hereditary:1) and 2 had right ventricular arrhythmogenic cardiomyopathy. Mean LVEF was 33% and 79% had a previous ICD (53% in primary prevention). 69% were referred for ablation due to arrhythmic storm (1 pt in cardiogenic shock). Epicardial access was achieved in 17 pts (94%), without acute complications. In 35% pts with NICM the decision for epicardial approach was based on the detection of subepicardial CMR delayed-hyperenhancement and relevant epicardial arrhythmic substrate was confirmed by mapping in all cases. In 3 pts radiofrequency (RF) applications were not performed at epicardium, as no abnormal electrograms were locally detected, and an additional endocardial approach was prosecuted. The mean overall procedure and fluoroscopic time were 123 and 28 min, respectively, with a mean RF application time of 51 min. After the procedure, 1pt required pericardial drainage due to inflammatory pericardial effusion. No other acute complications occurred. During a mean follow-up of 2.8 ± 1.8 years, only 3 pts (17%) had VT recurrence; 5 pts (28%) died due to end-stage heart failure and 2 pts (11%) underwent heart transplantation.
Conclusions: In NICM a first intention epicardial VT ablation performed by experienced operators/centers is efficient, particularly if guided by CMR findings, and presents a favorable safety profile.

Sexta-feira, 22 Abril de 2022 | 08:30-09:30

Sala Vega | Comunicações Orais (Sessão 2) - DAC e Cuidados Intensivos 1: Síndromes Coronárias Agudas

CO 6. ACUTE MYOCARDIAL INFARCTION DURING COVID-19 ERA: PATIENT CHARACTERISTICS, PRESENTATION AND OUTCOMES

Catarina Amaral Marques, André Cabrita, Paulo Maia Araújo, Sofia Torres, Tânia Proença, Ricardo Pinto, Miguel Carvalho, Catarina Costa, Filipa Amador, João Calvão, Ana Pinho, Cátia Santos, Luís Santos, Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: COVID-19 pandemic has been associated with a negative impact on care of acute myocardial infarction (AMI) patients (pts). Despite that, impact on pts characteristics, presentation, treatment and in-hospital outcomes are not well established.
Methods: Prospective study of pts admitted in a tertiary hospital due to type-1 AMI. Pts were consecutively enrolled during a 6-month period in 2021 (n = 196) and during a similar period of time in 2019 (n = 122). Data was based on a pts well-structured interview within 48h after admission and review of medical records. Data collected in these 2 periods allowed us to compare AMI pts during pre-COVID-19 (PC) *vs.* late-COVID-19 (C) pandemic times.
Results: Age and gender distribution was similar between groups (C: 62 ± 13 years/78% males; PC: 64 ± 13 years/76% males), as well as ST/Non-ST-Elevation Myocardial Infarction (STEMI/NSTEMI) proportion (C: 51%/49%; PC: 55%/45%). C pts presented more cardiovascular (CV) comorbidities (43

Healthcare facility*1	PC	C
Public hospital emergency	65,7%	90,7%
Private healthcare services	18,6%	5,7%
Primary Health Care services	15,7%	3,6%
Mean of transport*2	**PC**	**C**
Particular vehicle	79,4%	44,8%
Public transports	12,7%	0,5%
Ambulance	6,3%	52,6%
Walking	1,6%	2,1%

Figure 1 – First healthcare facility contacted by AMI pts and mean of transport used to do so.
PC: pre-COVID-19 times; C: late-COVID-19 times
*1: p<0,001; *2: p<0,001 (Chi-square tests)

CO 6 Figure

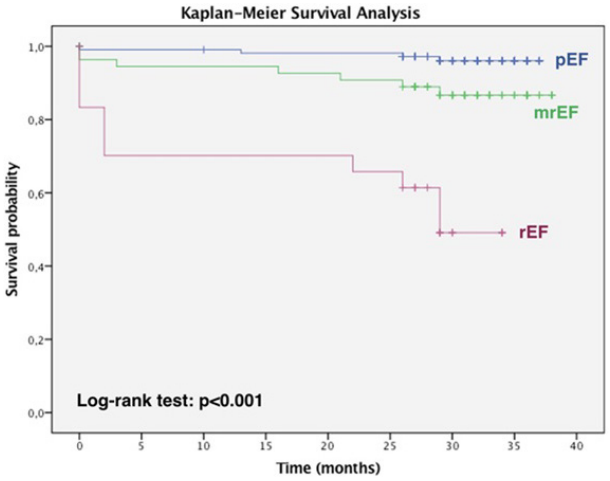
vs. 30%; p = 0.03). A typical chest pain was described more often by C pts (94 *vs.* 84%; p = 0.002) with a higher level of pain intensity (0-10 scale) reported (8 ± 2 *vs.* 7 ± 2; p = 0.02). Coronariography (C: 97%, PC: 96%) and revascularization (C: 80%, PC: 81%) were equally performed. C pts presented more AMI-complications (27 *vs.* 15%; p = 0.01) and a worse Killip (K) class (K ≥ 2: 22% C *vs.* 13% PC pts; p = 0.05). In-hospital mortality (C: 2%, PC: 1%; p = 0.7), cardiac arrest (C: 4%, PC: 1%; p = 0.3) and length of hospital stay (C: 5 ± 5 days (d); PC: 6 ± 5d) were not significantly different. Significant differences were found in the type of first healthcare facility contacted by pts (Fig.; p < 0.001), as well as means of transport used (Fig.; p < 0,001). Nevertheless, differences regarding activation of emergency medical services (C: 54%, PC: 50%; p = 0.5) or time to first medical contact (C: 116 ± 229 minutes (min); PC: 110 ± 311 min; p = 0.3) were not found.
Conclusions: COVID-19 pts presenting with AMI showed a significant worse in-hospital outcomes in our study. Also, these pts had a higher burden of CV disease and a more typical and intense symptom presentation. Therefore, it can be hypothesized that "sicker" pts continued to look for help when presenting AMI symptoms, while "healthier" pts and the ones with less typical and intense symptoms possibly avoided contact with health care services during COVID-19 pandemic. Finally, it is worth noting a more frequent recurrence to public emergency department rather than to private or primary health care services during pandemic times.

CO 7. STEMI WITH MID-RANGE EJECTION FRACTION - A GROUP OF INTERMEDIATE RISK NOT TO BE FORGOTTEN

Joana Silva Ferreira, Marta Fonseca, Sara Gonçalves, José Maria Farinha, Ana Fátima Esteves, António Pinheiro, Rui Coelho, Cátia Costa, Rui Caria

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

Introduction: Reduced left ventricular ejection fraction (LVEF) < 40% is an important negative prognostic factor in the setting of ST-elevation acute myocardial infarction (STEMI). On the other hand, data concerning mid-range ejection fraction (mrEF) post-STEMI are scarce and consequently, recommendations concerning reassessment of LVEF or administration of neurohormonal medication in this group of STEMI patients (pts) are still lacking.
Objectives: To assess the current treatment and prognosis of STEMI with mrEF.
Methods: We conducted a retrospective study including all consecutive pts hospitalized for STEMI and submitted to primary percutaneous coronary intervention in our centre in 2018. Pts were divided into 3 groups according to their LVEF assessed before hospital discharge: preserved EF (pEF: LVEF ≥ 50%), mid-range EF (mrEF: LVEF 40-49%) and reduced EF (rEF: LVEF < 40%). We analysed clinical characteristics, treatment, evolution of LVEF post-STEMI and clinical outcomes - death, myocardial infarction (MI) and hospitalization for heart failure (HF) – of the mrEF group and compared it with pEF.
Results: 188 pts with a mean age of 61 years were hospitalized for STEMI in our centre in 2018. The majority (58%, n = 109) had pEF; 29% (n = 55) had mrEF and 13% (n = 24) were in the rEF group. Pts in the mrEF group had similar baseline characteristics to the other groups. However, compared with pEF, culprit-lesion was more often located in left main or left anterior descending arteries (80 *vs.* 35%, p < 0.001) and NT-proBNP levels were higher in the mrEF pts (2,270 *vs.* 881 pg/mL, p < 0.001). At discharge, all mrEF patients were medicated with a renin-angiotensin-aldosterone blocker and 91% with a beta-blocker. After a median of 8 months, LVEF improved a mean of 4% (± 9%) in the mrEF group. However, in 12.5% of these pts, LVEF worsened to < 40% (*vs.* 0 in the pEF group, p = 0.006). At a median follow-up of 2.6 years, there was an increase in mortality according to the EF group (pEF 4 *vs.* mrEF 13 *vs.* rEF 48%, log-rank test: p < 0.001, Fig.) with a hazard ratio (adjusted for age) of 3.75 (95%CI 1.1-12.8, p = 0.035) for mrEF *vs.* pEF.



Conclusions: This study confirms previous reports of the worse prognosis of STEMI with mrEF and suggests the existence of a continuum of risk of adverse clinical outcomes according to LVEF. Therefore, this group of intermediate risk might also benefit from neurohormonal medication, which is only specifically recommended for rEF pts in current STEMI guidelines. It also highlights the importance of a closer follow-up (with reassessment of LVEF) of mrEF pts since a non negligeable proportion ultimately progress to rEF and may require additional medical treatment or even an implantable cardioverter defibrillator. Further research with larger groups is required to identify predictors of worsening LVEF and assess the impact of neurohormonal modulation in this population.

CO 8. PRECISE-DAPT SCORE FOR BLEEDING PREDICTION AFTER ACUTE CORONARY SYNDROME IN PATIENTS TREATED WITH PERCUTANEOUS CORONARY INTERVENTION FOR MULTIVESSEL DISEASE

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Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: PRECISE-DAPT (PD) is a recently validated score for long-term bleeding prediction after percutaneous coronary intervention (PCI) with

stenting in patients undergoing double antiplatelet therapy (DAPT). Our purpose was to evaluate if PD could predict bleeding events and mortality in patients hospitalized due to acute coronary syndrome (ACS) undergoing PCI for multivessel disease at index hospitalization.
Methods: Retrospective analysis of 804 patients admitted to a Cardiology ward due to ACS, planned to undergo PCI and treated with DAPT (aspirin + P2Y12 inhibitor) for a minimum of 12 months. Bleeding event was defined as any Thrombolysis in Myocardial Infarction criteria (TIMI) minor or major bleeding. Kaplan-Meier survival plots were used to evaluate the predictive power of PD score on 12-month bleeding events (12MB) and 12-month mortality (12MM). Cox-regression analysis was used to evaluate the independent prognostic value of the PD score on the mentioned outcomes.
Results: 191 patients were excluded either due to DAPT< 12 months, left main disease or Heart Team decision for conservative management/bypass graft surgery. Mean patient age was 65 (± 13); 75.8% were men. 38% had ST-elevation myocardial infarction. 78% were treated with potent P2Y12 inhibitors. 77%, 18.8% and 4.2% of patients, respectively, were submitted to PCI of 1, 2 and 3 or more vessels. 12MB event rate was 4.7%. 12MM was 8.2%. Kaplan-Meier analysis stratified by high *vs.* non-high bleeding risk using PD score (PD < or ≥ 25) revealed significantly lower median time to 12MB in high-risk subgroup (349.8 ± 2.8 *vs.* 362.2 ± 2.8 days, bleeding rate: 8.2 *vs.* 1.6%, χ^2: 24.606, p < 0.01). High-risk PD score predicted 12MB events in patients treated with PCI, irrespective of the number of vessels treated (bleeding events 8.1 *vs.* 1.4%, χ^2:12.688, p < 0.01 for 1 vessel PCI; 13.3 *vs.* 2.8%, χ^2:4.106, p = 0.04 for 2 vessel PCI; 0 *vs.* 33.3%, χ^2: 4.530, p = 0.03 for ≥ 3 vessels PCI). 12MM analysis revealed that high bleeding risk patients had significantly lower median time to death (305 ± 5.7 *vs.* 353 ± 2.6 days, mortality rate: 19.9 *vs.* 4.4%, χ^2: 63.35, p < 0.01). Only high-risk patients submitted to 1 vessel-PCI, however, had significantly lower median time to death (314 ± 10.1 *vs.* 361 ± 1.9, mortality rate: 17.6 *vs.* 2.0%, χ^2: 37.111, p < 0.01) after stratified analysis. Cox regression analysis revealed that PD score was an independent predictor of 12MB (HR: 1.183, p < 0.01), even when accounting for other bleeding risk factors, such as platelet count, alcoholism, hypertension and type of arterial access used for PCI.
Conclusions: Patients treated with PCI after ACS with a high bleeding risk, as assessed by PD score, have significantly higher risk of 12MB events, irrespective of the number of vessels treated at the index event. PD might be a useful tool for long-term bleeding prediction, and may support the decision of DAPT duration after ACS in multivessel disease.

CO 9. RESUSCITATED CARDIAC ARREST IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION IS ASSOCIATED WITH INCREASED INFARCT SIZE AND WORSE OUTCOMES

João Presume, Daniel Gomes, Francisco Albuquerque, Mariana Paiva, Christopher Strong, António Tralhão, Carlos Aguiar, Marisa Trabulo, Regina Ribeiras, Manuel Almeida, Jorge Ferreira, Miguel Mendes

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

Introduction: Resuscitated cardiac arrest (RCA) during the acute ischaemic phase is a relatively frequent but often undervalued complication of acute myocardial infarction (AMI). The aim of this study was to evaluate the clinical and prognostic impact of aborted cardiac arrest in AMI patients and investigate its correlation with infarct size.
Methods: We conducted a single-centre retrospective study enrolling consecutive patients admitted for AMI, from January 2016 to December 2018. RCA was defined as the need for advanced life support measures and defibrillation, either out-of-hospital or in-hospital, up until culprit vessel revascularisation. Infarct size was estimated using peak serum troponin T, impact on left ventricular ejection fraction (LVEF ≤ 50%) and echocardiographic wall motion index (WMI). Clinical outcomes included cardiogenic shock (SCAI C or more), need for mechanical circulatory support (MCS), major bleeding events (BARC ≥ 3) during in-hospital phase and all-cause mortality during follow-up.
Results: A total of 571 patients were included (65 ± 13 years old, 72% male). Overall, 237 had anterior STEMI, 39 patients (6.8%) suffered RCA (21 out of hospital), 60 progressed into cardiogenic shock throughout the hospitalisation, 7 needed MCS, and 52 had BARC ≥ 3 bleeding. During a mean follow-up of 32 months, 96 patients died. RCA was significantly associated with higher peak serum troponin T (4,802 [1,950;9,420] *vs.* 2,659 [555;6,708] ng/L – p = 0.004), higher proportion of patients with reduced or mildly reduced LVEF (60 *vs.* 36,5%, p = 0.018) and higher WMI (1.7 [1.4;2.3] *vs.* 1.5 [1.2;1.8], p = 0.016). Moreover, RCA was also associated with higher risk of cardiogenic shock occurrence (64.1 *vs.* 6.6% - p < 0.001 - OR 25.357 (12.115-53.073)), higher need for MCS (7.9 *vs.* 0.8% - p < 0.001 - OR 11.271 (2.427-52.343)) and higher incidence of BARC ≥ 3 bleeding events (28.2 *vs.* 8.4% - p < 0.001 - OR 4.705 (2.185-10.128)) (Table 1). On univariate Cox regression, RCA showed significant association with all cause death, which remained highly significant after multivariable adjustment (OR 2.431 (1.181;5.002); p = 0.016).

Table 1 – *In-hospital and follow-up outcomes in patients admitted for acute myocardial infarction with and without aborted cardiac arrest*

	Patients with aborted cardiac arrest (n=39)	Patients without aborted cardiac arrest (n=532)	Results
Peak serum troponin T (ng/dL)	4802 [1950;9420]	2659 [555; 6708]	p=0.004
Echo wall motion index score	1.71 [1.38;2.33]	1.5 [1.22;1.76]	p=0.016
Left ventricle ejection fraction			p=0.018
-Preserved (%)	40.0	63.5	
-Mildly reduced (%)	33.3	20.4	
-Reduced (%)	26.7	16.1	
Killip class IV (%)	64.1	6.6	p <0.001 OR 25.357 (12.115-53.073)
Need for mechanical circulatory support (%)	7.9	0.8	p <0.001 OR 11.271 (2.427-52.343)
In-hospital major bleeding events - BARC ≥3 (%)	28.2	8.4	p <0.001 OR 4.705 (2.185-10.128)
Death during follow-up (%)	48.7	14.5	Univariate - p<0.001: OR 5.603 (3.370;9.314);

CO 9 Figure

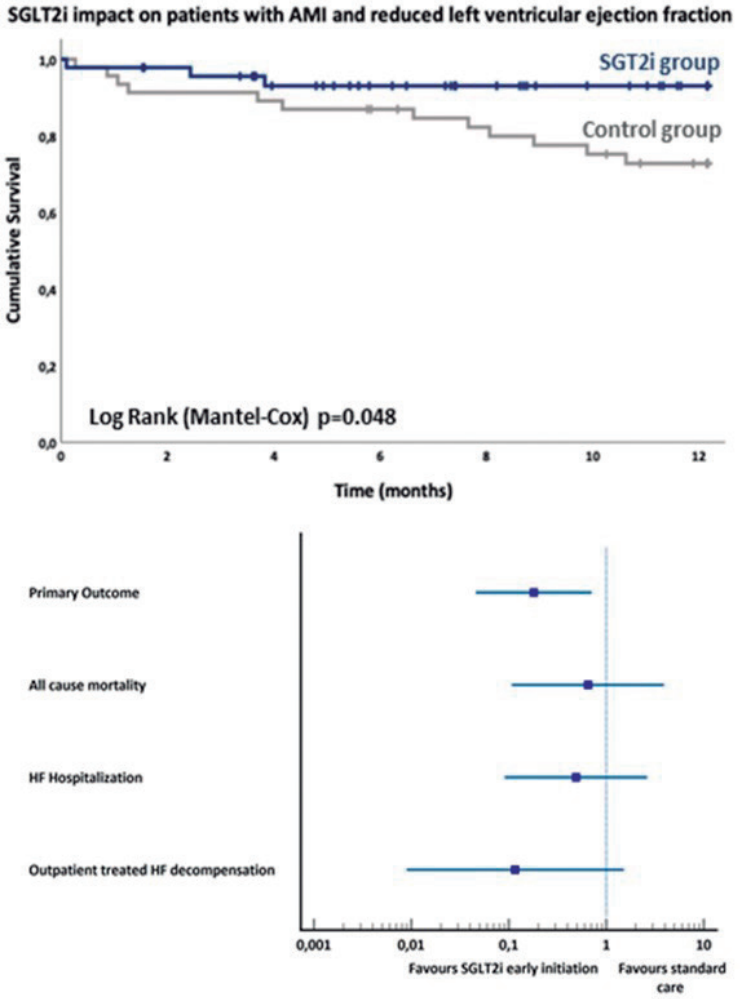
Conclusions: The occurrence of aborted cardiac arrest in patients with AMI was associated with increased morbidity and mortality. This may be driven by a larger area of arrhythmia prone ischemic myocardium.

CO 10. SGLT2 INHIBITION IN ACUTE MYOCARDIAL INFARCTION WITH LEFT VENTRICULAR SYSTOLIC DYSFUNCTION

Beatriz Valente Silva, Pedro Alves da Silva, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Rafael Santos, Joana Rigueira, Doroteia Silva, Nuno Lousada, João Agostinho, Fausto J. Pinto, Dulce Brito

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

Introduction: The EMPEROR-Reduced and the DAPA-HF trials showed positive effects of sodium-glucose cotransporter 2 inhibitors (SGLT2i) on heart failure (HF) admissions and cardiovascular mortality, establishing this class of drugs as part of the foundational therapy (FT) in patients (pts) with HF and reduced left ventricular ejection fraction (LVEF). However, their effect in the setting of acute myocardial infarction (AMI) is not documented.
Methods: Quasi-experimental study that included consecutive pts started on SGLT2i (empagliflozin or dapagliflozin) during an index hospitalization due to AMI complicated by reduced LVEF (< 50%). The control group consisted of pts admitted due to AMI not treated with SGLT2i, matched for AMI type, Killip-Kimball classification (KK), LVEF, at-discharge NYHA functional class, age, number of diseased coronary vessels and gender. The primary outcome was 1-year all-cause mortality, HF hospitalization or outpatient treated HF decompensation, whichever occurred first. For statistical analysis Chi-square, Mann-Whitney test, Cox regression and Kaplan-Meier survival analysis were used.



	SGLT2i group	Control group
Primary outcome	12 (26%)	3 (6,5%)
All cause mortality	2 (4,3%)	4 (8,7%)
HF hospitalizations	2 (4,3%)	7 (15,2%)
Outpatient treated HF descompensation	1 (2,2%)	6 (13%)

CO 10 Figure

Results: Both groups included 46 pts (mean age: 65 ± 12 years; female: 26%). There were no statistically significant differences between groups regarding co-morbidities, except diabetes (80.4% in the SGLT2i group *vs.* 30.4%, p < 0.001). Populations were homogeneous regarding LVEF (38 ± 8 *vs.* 36 ± 10%), AMI type (76.1% pts had STEMI in both groups), admission KK (KK 1: 65.2% in both groups), NYHA II (54.3 *vs.* 56.5%) and single vessel coronary artery disease (63.04% in both groups): anterior descending artery (62.2 *vs.* 69.5%) and right coronary artery (21.7 *vs.* 17.3%) disease. There were no differences regarding other FT classes at discharge nor regarding NTproBNP or creatinine. After a mean follow-up (FUP) of 286 ± 107 days, the primary outcome was significantly less frequent in the SGLT2i group (6.5 *vs.* 26%; HR 0.18; IQR 0.05-0.7; p = 0.014) (Fig.). At the end of FUP both groups were homogeneous in terms of ongoing FT, although a trend was observed toward higher prescription rates of mineralocorticoid receptor antagonists and sacubitril/valsartan in the SGLT2i group. NYHA functional class was significantly lower in the SGLT2i group (p = 0.022).

Conclusions: This quasi-experimental study suggests that early initiation of SGLT2i in pts with AMI and reduced LVEF may lead to lower HF related events, lower all-cause mortality and better functional class 1 year after initial coronary event.

Sexta-feira, 22 Abril de 2022 | 09:30-10:30

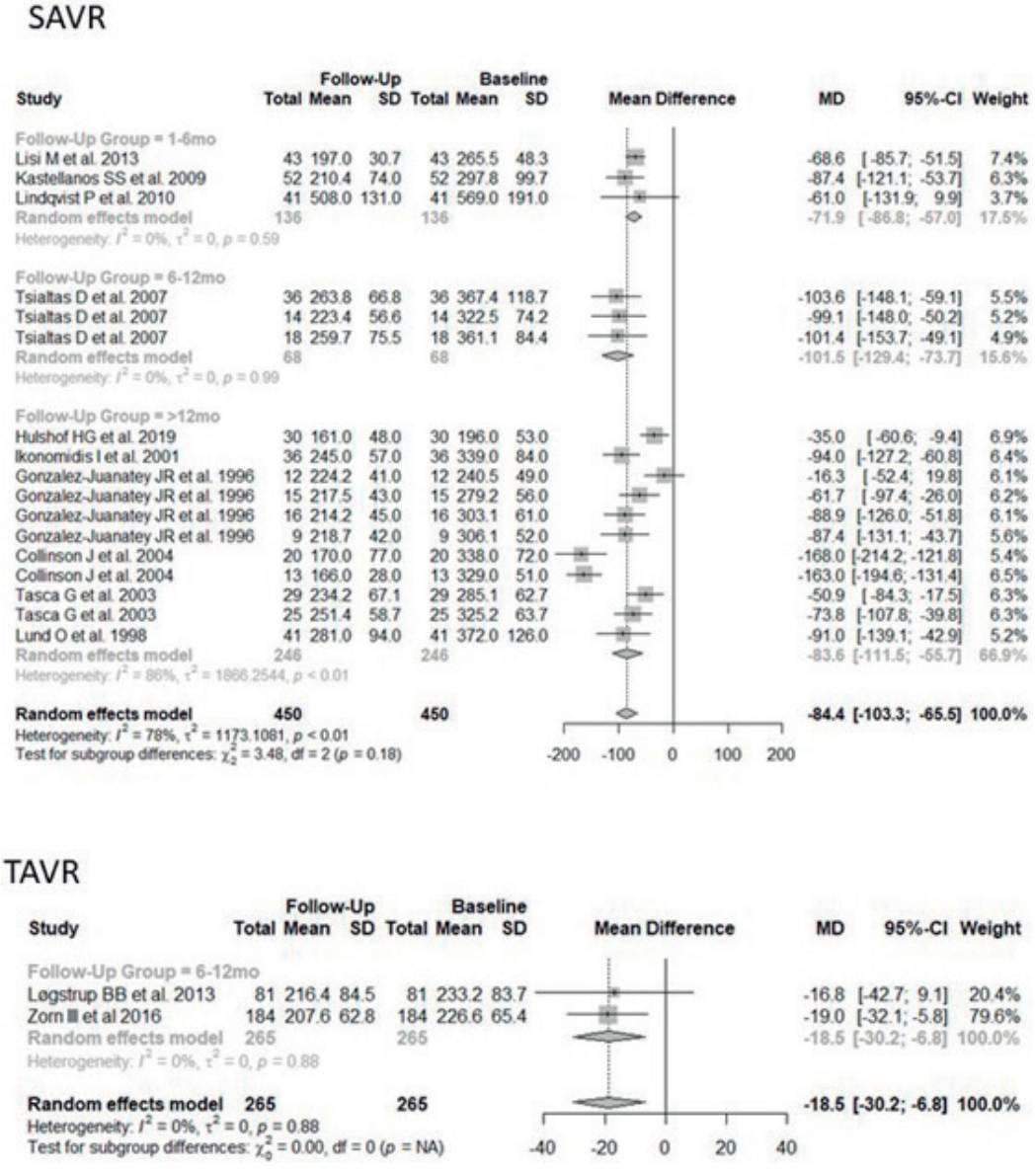
Sala Aquarius | Comunicações Orais (Sessão 3) - Doença valvular

CO 11. REVERSE LEFT VENTRICULAR REMODELING AFTER AORTIC VALVE REPLACEMENT FOR AORTIC STENOSIS: SYSTEMATIC REVIEW AND META-ANALYSIS

Fábio Sousa Nunes[1], Catarina Marques[2], André Beco[3], João Ricardo Silva[3], Miguel Carvalho[2], Bernardo Sousa Pinto[3], Francisca Saraiva[3], Adelino Leite Moreira[2], Carla Sousa[2], Filipe Macedo[2]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Centro Hospitalar Universitário de S. João, EPE. [3]Faculdade de Medicina da Universidade do Porto.

Introduction: Reverse Left Ventricle (LV) remodeling after Aortic Valve Replacement (AVR), in patients with aortic stenosis, is well documented



CO 11 Figure

as an important prognostic factor. With this systematic review and meta-analysis, we aimed to characterize the response of the unloaded LV after AVR.
Methods: We searched on MEDLINE/PubMed, Web of Science, and Embase for studies reporting echocardiographic findings before and at least 1 month after AVR for the treatment of aortic stenosis. 4493 abstracts were screened for inclusion. Main factors of interest were structural and dynamic measures of the LV after AVR. We performed a random-effects meta-analysis to compute standardized mean differences (SMD) between follow-up and baseline values for each outcome.
Results: 33 studies met the eligibility criteria, yielding 2368 patients. AVR resulted in reduced mean aortic gradient (SMD: -41.9 mmHg, 95%CI: -44.0 to -39.8, I2 = 95.8%), LV Mass (for surgical AVR, SMD: -84.4 g, 95%CI: -103.3 to -65.5, I2 = 73.8%; whereas for transcatheter AVR, SMD – 18.5 g, 95%CI -30.2 to – 6.8, I2 = 0%, see image), End-Diastolic LV Diameter (SMD: -1.95 mm, 95%CI: -3.0 to -0.9, I2 = 89.4%), End-Diastolic LV Volume (SMD: -13.0 mL, 95%CI: -18.6 to -7.4, I2 = 49.8%). LV Ejection Fraction increased after AVR, particularly for patients with baseline decreased LVEF (SMD: +9.5%, 95%CI 8-11.1%, I2 = 31.9%). Notably, there was no significant interaction of follow-up time in LV mass, End-Diastolic LV Diameter and End-Diastolic LV volume, suggesting that LV reverse remodeling occurs in the first months after AVR, with few changes thereafter.
Conclusions: This is the largest systematic review and meta-analysis on LV reverse remodeling after AVR for aortic stenosis. This review presents the expected changes in echocardiographic LV parameters for various timepoints, which may be helpful for the follow up of the typical AVR patient. Notably, this review suggests that LV reverse remodeling occurs in the first months after AVR, hit few changes thereafter.

CO 12. A PRELIMINARY ANALYSIS REGARDING FUNCTIONAL MITRAL REGURGITATION GRADING WITH ECHOCARDIOGRAPHY AND CMR: IN SEARCH OF SIMILARITIES AND RESOLVING DISCORDANCES

Sérgio Maltês, Maria Rita Lima, Rita Reis Santos, Pedro Freitas, Pedro M. D. Lopes, Liliana Marta, Sara Guerreiro, João Abecasis, António Ferreira, Regina Ribeiras, Maria João Andrade, Miguel Mendes

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

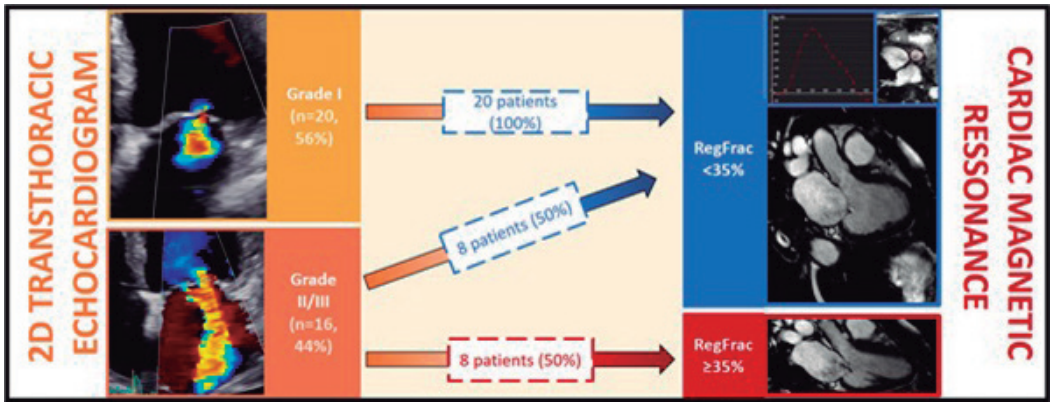
Introduction: Functional mitral regurgitation (fMR) severity grading by 2D transthoracic echocardiography (TTE) can be a complex task, especially in patients where PISA assumptions are not met (eg. non-circular orifice or multiple jets). Cardiac magnetic resonance (CMR) can provide further insight on the hemodynamic burden of fMR by accurately determining mitral regurgitant fraction (RegFrac). Our goal was to investigate the concordance and disagreement between the two modalities in assessing fMR.
Methods: Single-center prospective study of fMR patients performing same-day TTE and CMR from February to December 2021. MR severity was classified according to 2020 ACC consensus: grade I (mild; EROA < 0.20 cm^2), grade II (moderate; EROA 0.20-0.29 cm^2), grade III (moderate-to-severe; EROA 0.30-0.39 cm^2) and grade IV (severe; EROA ≥ 0.40 cm^2). MR assessment by CMR was determined through regurgitant volume (RVol) and RegFrac quantification. A RegFrac ≥ 35% (recently shown as the best cut-off for prognostication) was considered hemodynamically significant.
Results: A total of 36 patients were included (age 65 ± 14y; 74% male; mean left ventricle [LV] ejection fraction by TTE and CMR 35 ± 13% and 34 ± 11%, respectively). Mean RVol and EROA by TTE were 28 ± 11mL and 0.18 ± 0.8cm^2. Mean RVol and Regfrac by CMR were 20 ± 13mL and 25 ± 12%, respectively. A moderate correlation between RVol by TTE and CMR was found (Pearson's R 0.58, p = 0.001). According to TTE, there were 20 patients (56%) with grade I fMR, 12 patients (33%) with grade II fMR and 4 patients (11%) with grade III fMR. All patients considered to have mild (grade I) fMR by TTE had a RegFrac < 35% at CMR. However, amongst those with moderate and moderate-to-severe (grades II and III) fMR, there were 8 patients (50%) with hemodynamic significant fMR (RegFrac ≥ 35%) at CMR (Fig.). Those with RegFrac ≥ 35% by CMR had higher indexed LV diastolic (165 ± 24 *vs.* 139 ± 48 mL/m^2) and systolic (116 ± 31 *vs.* 95 ± 48 mL/m^2) volumes and higher pulmonary artery systolic pressures (48 ± 14 *vs.* 41 ± 16 mmHg) when compared with patients whose RegFrac was < 35%, even though statistically significance was not reached.
Conclusions: Using the criterion of RegFrac ≥ 35%, CMR re-classifies (half for each side) the patients with moderate and moderate-to-severe regurgitations by TTE. Recognizing, overcoming and resolving the disagreements between the techniques is the way forward to reach excellence.

CO 13. CLINICAL AND ECHOCARDIOGRAPHIC VERY LONG-TERM OUTCOMES AFTER PERCUTANEOUS MITRAL BALLOON VALVULOPLASTY IN SEVERE RHEUMATIC MITRAL STENOSIS

João Presume, Mariana Paiva, Daniel Gomes, Francisco Albuquerque, Joana Ferreira, Sara Guerreiro, Liliana Marta, Pedro Freitas, Marisa Trabulo, João Abecasis, Maria João Andrade, Pedro Araújo Gonçalves, Manuel Almeida, Miguel Mendes, Regina Ribeiras

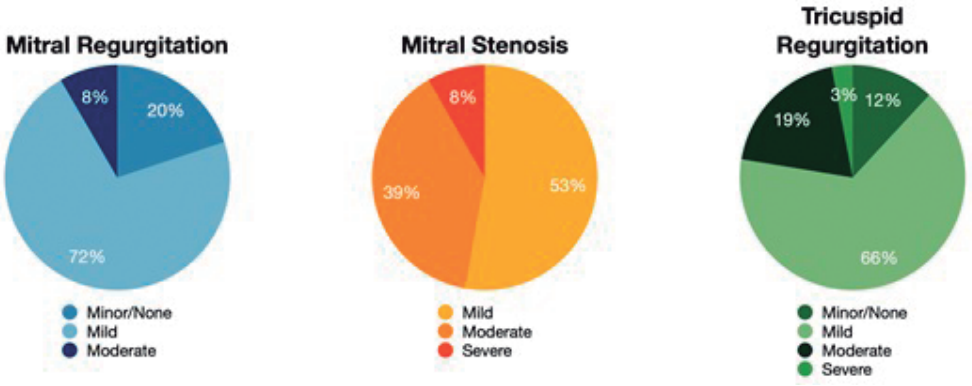
Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Mitral balloon valvuloplasty (MBV) is the guideline recommended treatment for symptomatic severe mitral stenosis (MS) with suitable anatomy, but is often deemed transitory. However, data on very-long term echocardiographic follow-up is scarce. The aim of our study was to describe clinical and echocardiographic outcomes in patients previously submitted to MBV for rheumatic MS.
Methods: We conducted a single-centre retrospective study enrolling patients previously submitted to MBV for rheumatic MS from 1990 until 2021. Follow-up was registered until the last echocardiographic re-evaluation available. Patients without electronic health records available were excluded. The primary endpoint was a composite of all-cause death or need of surgery.



CO 12 Figure

Figure 1 - Echocardiographic long-term outcomes on alive non-operated patients previously submitted to mitral balloon valvuloplasty for rheumatic mitral stenosis.



CO 13 Figure

Results: A total of 193 patients were included (15.5% male, with a mean age of 52 ± 15 years at the time of MBV, 60.6% with permanent atrial fibrillation). During a mean follow-up of 11 ± 8 years, 87 (45.1%) patients implanted a mitral valve prosthesis, 4 (2.1%) were submitted to surgical mitral valvuloplasty and 30 (15.5%) died without being reinterventioned. Moreover, a total of 23 (11.9%) embolic events were registered - 21strokes, 1 pulmonary embolism and 1 acute lower limb embolism. Overall, 133 patients (68.9%) survived more than 5 years, 95 (49.2%) more than 10 years and 56 (26.9%) more than 15 years since MBV without meeting the primary endpoint. The maximum follow-up without intervention was 32 years. Concerning patients submitted to surgery, the mean time from MBV until operation was 9.4 ± 7.3 years (minimum 8 days; maximum 29.3 years). In regard to echocardiographic long-term outcomes on alive non-operated patients (mean follow-up of 12 ± 9 years), 52.8% remain with mild MS, 91.6% with mild or no mitral regurgitation and 77.6% with mild or no tricuspid regurgitation. Furthermore, only 20.4% have right ventricle dysfunction (defined as a TAPSE < 17 mm), 18.3% have pulmonary hypertension (pulmonary artery systolic pressure > 45 mmHg), and 6.8% have residual interatrial communication.

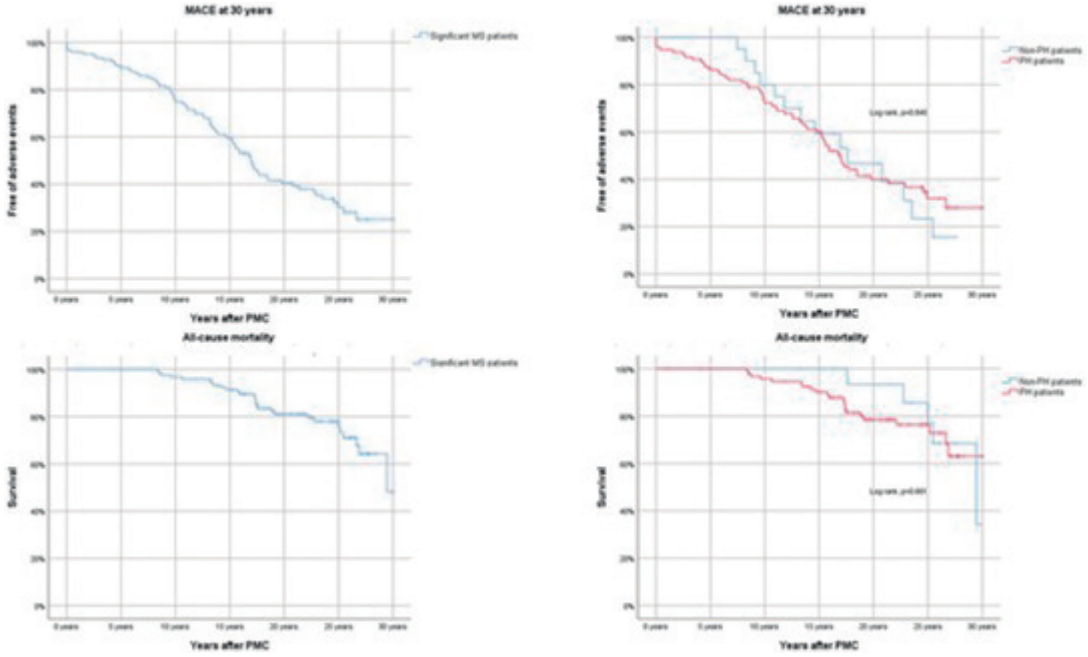
Conclusions: MBV is a minimally invasive procedure that has an important benefit in a very significant proportion of patients with rheumatic mitral stenosis, with potential benefit that may last more than three decades without need for another invasive intervention.

CO 14. PERCUTANEOUS VALVE COMMISSUROTOMY FOR MITRAL STENOSIS PATIENTS: A 20 YEARS FOLLOW-UP

Ricardo Alves Pinto, Miguel Martins Carvalho, Tânia Proença, Catarina Costa, Ana Filipa Amador, João Calvão, Catarina Marques, André Cabrita, Luís Santos, Ana Pinho, Cátia Priscila, Mariana Paiva, João Carlos Silva, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Percutaneous valve commissurotomy (PMC) is a viable alternative to mitral valve surgery in the treatment of patients with clinically significant mitral stenosis (MS). Although rheumatic MS incidence



CO 14 Figure

has decreased in developed countries, it remains a prevalent healthcare problem in Cardiology clinics.
Objectives: To evaluate the early and long-term results of PMC in patients with rheumatic MS and to compare long-term events between patients with and without pulmonary hypertension (PH).
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 long-term follow-up. MACE was a composite of adverse events defined as all-cause mortality, mitral valve re-intervention or hospitalization for a cardiovascular cause.
Results: A total of 124 patients were enrolled: 87% were female, with a mean age at the time of repair of 46 ± 11 year-old and a mean follow-up of 20 ± 6 years. Before the procedure, 34% were in NYHA class ≥ III and 81% had a Wilkins score ≤ 8; all patients had preserved biventricular systolic function, 83% presented PH, mean transvalvular gradient (TVG) and mitral valve area (MVA) were 12.8 mmHg and 1.0 cm^2, respectively. Most of the procedures were successful (91%) and without complications (94%), with a mean MVA improvement of 0.9 cm^2 and reduction of 8.5 mmHg in TVG and 9.7 mmHg in pulmonary artery systolic pressure (PASP) after PMC. During long-term follow-up, 42% of patients were submitted to re-intervention (most of them surgically) and 24% died. In patients non-submitted to re-intervention, TVG and PASP remained similar with early post-procedure evaluation (p = 0.109 and p = 0.777, respectively), while MVA reduced over time, yet still statistically superior to baseline MVA (1.6 cm^2 *vs.* 1.0 cm^2, p < 0.001). Concerning time-to-event analysis, approximately 80% of patients kept uneventful after 10 years; after 30 years, more than 20% continued MACE-free and approximately 50% were alive. Regarding PH presence at time of PMC, there was no significant difference in MACE events and all-cause mortality between the two groups (Log Rank, p = 0,846 and p = 0.661, respectively).
Conclusions: PMC was safe and effective in clinically significant rheumatic MS. After a long-term follow-up patients maintained the reduction in TVG and PASP and a smaller but significative improvement in MVA. Most of the patients were free from adverse events after 10 years and half were alive after 30 years. There was no difference in all-cause mortality and in a composite of all-cause death, mitral valve re-intervention or cardiovascular hospitalization concerning PH presence.

CO 15. CONTRACTILE RESERVE: A KEY FACTOR IN AORTIC STENOSIS

Miguel Azaredo Raposo, Pedro Silvério António, Joana Rigueira, Sara Couto Pereira, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Catarina Gregório, Ana Abrantes, Susana Gonçalves, Daniel Caldeira, Cláudio David, Fausto J. Pinto, Ana G. Almeida

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

Introduction: Stress echocardiography (SE) is essential in the workup of patients(pts) with aortic stenosis (AS) with reduced left ventricular ejection fraction and low systolic volume. Our aim was to determine the prognostic impact of contractile reserve (CR) in low-flow low-gradient (LFLG) AS.
Methods: Retrospective, single-center study of consecutive pts with LFLG AS (mean transvalvular gradient < 40 mmHg, LVEF < 50%, indexed stroke volume (SVi) ≤ 35 mL/m^2 and an aortic valve area (AVA) ≤ 1 cm^2) submitted to SE between 01/2014 and 06/2021. Epidemiological, clinical and echocardiographic data were recorded. Patients were stratified by the presence of CR, defined as ≥ 20% increase in SVi during SE. Primary endpoint was defined as time to first major event (composite endpoint of all-cause mortality and heart failure (HF) hospitalization). Predictors of major events were analyzed by t-Student test and Cox regression.
Results: Fifty-seven pts were included, (40 male, 75.6 ± 8.5 years of age). Regarding cardiovascular risk factors, 48 pts had hypertension, 42 dyslipidemia, 28 diabetes and 28 coronary artery disease (CAD). At baseline, 34 pts were in NYHA functional class II and 20 pts in NYHA III. The mean follow-up (FUP) period was 22.6 ± 24.6 months. Exercise SE was performed in 2 pts and dobutamine SE in 55 pts. At rest, the mean LVEF was 34 ± 10.7%, SVi 32 ± 8.7 ml/m^2, median transvalvular gradient 25.5 ± 9 mmHg, AVAi 0.48 ± 0.14 cm/m^2. During stress the mean SVi was 38 ± 10.9 ml/m^2, median transvalvular gradient 34 ± 13 mmHg, AVAi 0.54 ± 0.17 cm/m^2. CR was present in 39 pts. During SE, 28 pts had true severe AS, 11 pts moderate AS, 5 pseudo-severe AS and the remaining were inconclusive. Twenty-six pts underwent valve implantation (VI), most of which percutaneous aortic VI. The absence of CR revealed to be a predictor of worst prognosis, with more major events in FUP (Log Rank 5.237, p = 0.022), especially in pts who were not submitted to VI. At univariate analysis, NYHA class (p = 0.009) and the absence of CR (p = 0.016) were the only predictors for the primary endpoint. The absence of CR was the sole independent predictor at multivariate analysis (HR 0.349; 95%CI 0.176-0.692, p = 0.003).

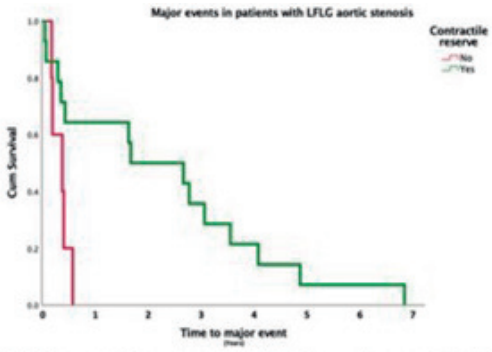


Figure 1: Major events in patients with LFLG AS according to contractile reserve in stress echocardiogram.

Conclusions: NYHA functional class and CR were predictors of major events in pts with LFLG AS. The absence of CR was the only independent predictor at multivariate analysis. This study shows the importance of clinical and SE assessment of CR for prediction of major events in these pts.

Sexta-feira, 22 Abril de 2022 | 09:30-10:30

Sala Vega | Comunicações Orais (Sessão 4) - Cardiopatias Congénitas, Doença Vascular Pulmonar e Embolia Pulmonar 1 - Foco no TEP e Hipertensão Pulmonar

CO 16. ACUTE PULMONARY EMBOLISM CATHETER-DIRECTED THERAPY: FIRST RESULTS OF A MULTIPARAMETRIC FOLLOW-UP PROTOCOL

André Grazina, Luís Almeida Morais, António Fiarresga, Ruben Ramos, Lídia de Sousa, João Reis, Ana Galrinho, José Miguel Viegas, Isabel Cardoso, Rita Teixeira, Helena Teles Antunes, Rita Barata Moura, 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. Although systemic fibrinolysis decreases this risk, it significantly increases the risk of major bleeding. 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, are innovative techniques, that allow faster reperfusion and hemodynamic improvement without the systemic hemorrhagic effects of systemic thrombolysis. The clinical evidence of its benefits is still limited.

Parameters	Admission	3 months	Mean difference	significance
NT-proBNP (pg/ml)	5251	341	-4909	*p* 0.107
TAPSE (mm)	15.2	20.7	+5.5	***p* 0.030**
CT-scan RV/LV ratio	1.32	0.85	-0.47	***p* 0.002**
RA pressure (mmHg)	10.0	7.3	-2.7	***p* 0.007**
PA systolic pressure (mmHg)	61.1	43.8	-17.3	***p* 0.013**
PA mean pressure (mmHg)	38.2	25.5	-12.7	***p* 0.012**
Cardiac Output (L/min)	4.71	6.72	+2.01	***p* 0.039**
Cardiac Index (L/min/m²)	2.41	3.41	+1.00	***p* 0.029**
Modified Miller Index	8.6	1.8	-6.8	***p* 0.005**

Table 1. Admission and 3-months parameters in Pulmonary Embolism patients submitted to acute-phase catheter director therapy. (NT-proBNP – N-terminal pro-hormone B-type natriuretic peptide; CT – computed tomography; RV – right ventricle; LV – left ventricle; RA – right atrium; PA – pulmonary artery)

CO 16 Figure

Objectives: This analysis aims to describe the initial experience of CDT in intermediate-high- and high-risk acute PE patients and compare their evolution in a predefined multiparametric follow-up protocol.
Methods: During 2021, consecutive intermediate-high- and high-risk PE patients considered suitable for CDT from our PERT, were prospectively enrolled in a single tertiary center. CDT options included mechanical thrombolysis using the Penumbra aspiration system and local alteplase perfusion (1 mg/h, for 12 hours) through a 5F McNamara catheter in the pulmonary artery (PA). A multiparametric protocol was designed to include baseline characteristics, blood tests, transthoracic echocardiogram (TTE), CT-scan, pulmonary angiogram and right heart catheterization (RHC) data collected at admission and at 3 months after CDT. The paired samples t-Test was used for the analysis of the variables.
Results: Of the 14 patients, 2 patients died (one for oncologic disease and the another from unknown cause after hospital discharge). Of the remaining, on the date, 6 patients (50% male, mean age 52.2 years old) have completed the follow-up and were included in this analysis. CT-scan showed a decrease in the right ventricle/left ventricle ratio by 0.47 (1.32 *vs.* 0.85, p 0.002). TTE showed a significant increase in TAPSE by 5.5 mm (15.2 *vs.* 20.7, p 0.03). RHC showed a significant reduction in right atrium and PA systolic and mean pressures by 2.7 mmHg (10.0 *vs.* 7.3, p 0.007), 17.3 mmHg (61.1 *vs.* 43.8, p 0.013) and 12.7 mmHg (38.2 *vs.* 25.5, p 0.012), respectively, as well as a significant increase in cardiac output and index by 2.01 L/min (4.71 *vs.* 6.72, p 0.039) and 1.00 L/min/m² (2.41 *vs.* 3.41, p 0.029), respectively. Pulmonary angiogram showed a reduction in clot burden, using the modified Miller Index, in 6.8 points (8.6 *vs.* 1.8, p 0.005).
Conclusions: This analysis shows encouraging data of our early experience of CDT in PERT selected intermediate-high and high-risk PE patients. In this follow-up analysis we verified a clinical, laboratorial and hemodynamic improvement with significative reduction in pulmonary vasculature pressures, thrombus burden and right ventricular function.

CO 17. COMPERA SCORE REVISED: BETTER RISK ESTIMATION TO BETTER TAILOR THERAPEUTICS IN PRECAPILLARY HYPERTENSION

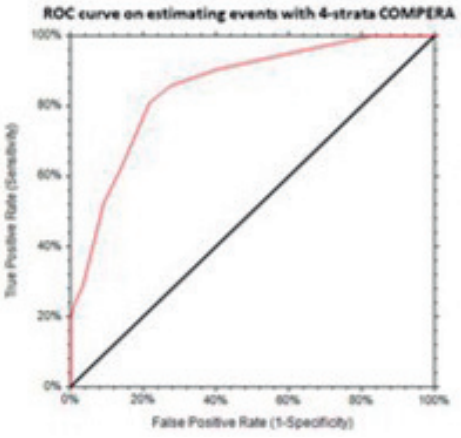
Pedro Alves da Silva, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Catarina Simões de Oliveira, Ana Margarida Martins, Ana Beatriz Garcia, Miguel Azaredo Raposo, Ana Abrantes, Tatiana Guimarães, Nuno Lousada, Fausto J. Pinto, Rui Plácido

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

Introduction: Pulmonary hypertension is a complex and often multifactorial disease, associated with mortality and morbidity, despite advances in therapeutic this last decade. Risk stratification is key in order to best follow and treat such patients; Current risk assessment tools divide patients as low, intermediate or high risk. However, most pts falls into the intermediate risk category and very recent data from the COMPERA Registry Investigators suggested that a 4-strata risk definition is more useful in categorizing these pts.
Objectives: To analyse the performance of a newly proposed 4-strata model in predicting outcomes in a population with precapillary hypertension.
Methods: Retrospective observational study of a population followed in a PH reference center. Clinical, laboratory, echocardiographic and cath data were collected at baseline and follow-up. Risk score derived from the COMPERA Registry was applied, in its 3 and 4-strata version to our population. Survival was calculated with Kaplan-Meier curves.

		COMPERA risk score							
		1		2		3		4	
		Count	N. %	Count	N. %	Count	N. %	Count	N. %
Death	No	52	96.3%	27	77.1%	8	53.3%	0	0.0%
	Yes	2	3.7%	8	22.9%	7	46.7%	4	100.0%
Event	No	40	74.1%	10	28.6%	1	6.7%	0	0.0%
	Yes	14	25.9%	25	71.4%	14	93.3%	4	100.0%

Table 1 – Events correlation with 4-strata COMPERA score



Results: We analysed a population of 108 pts with precapillary hypertension - divided between PAH (49.1%) and CTEPH (50.9%) – mean age 63.1 ± 23 years, 61% were females. Regarding therapeutics, 64.8% were under endotelin

antagonists, 58.3% phosphodiesterase inhibitors, 12.03% prostanoids, 19.4% riociguat and 7.6% selexipag. Both groups were homogenic, with no statistical differences, except for therapeutic with riociguat (p = 0.03). COMPERA score - using 3-strata (low, intermediate and high risk) and 4-strata (low, intermediate low, intermediate high and high risk) - were applied with data at beginning and during follow-up and then correlated with survival and a composite endpoint of death and hospitalization (Table 1). Kaplan Meier survival curves were obtained and an evident separation of the four groups were identified at early follow-up, a trend that was maintained during a 7-year follow-up. It is interesting to see that such trend was obtained in a population with PAH and in a broader population including also CTEPH. A ROC curve was obtained and showed a good sensitivity (AUC = 0.8525) in estimating the risk of events when applied at beginning and end of follow-up (Fig. 2).
Conclusions: In our population, a 4-strata risk assessment tool was able to better predict outcomes (mortality and admissions) in a population with precapillary pulmonary hypertension. Its implantation will help us on selecting some pts who might benefit early double therapy.

CO 18. MULTIDIMENSIONAL CT APPROACH TO PREDICT HEMODYNAMICS IN PULMONARY HYPERTENSION

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

Introduction: Mean pulmonary artery pressure (mPAP) measured by right heart catheterization (RHC) is the current cornerstone on pulmonary hypertension (PH) diagnosis. Non-invasive imaging techniques as angioCT allow for an excellent visualization of heart chambers and great vessels, and its measures may be associated with hemodynamic parameters, obviating the need for some invasive procedures.
Objectives: To evaluate the association between angioCT measurements with hemodynamics, clinical and laboratory data in a precapillary PH population.
Methods: Consecutive patients (pts) with precapillary PH followed in a tertiary center were evaluated with angioCT and RHC performed within a maximum time interval of 6 months. Clinical, laboratorial, imagiological and hemodynamic data were collected from all pts at baseline and follow-up. Statistical analysis was performed with Pearson analysis and Mann-Whitney. ROC curve analysis was applied to estimate the best angioCT parameters cut-offs for severe PH (mPAP > 35 mmHg).
Results: Our cohort included 47 pts (mean age: 64 ± 16 years, 60% male) 12 with clinical group I and 37 with clinical group 4. Pts had a mean mPAP of 44 ± 16 mmHg and a mean NT-proBNP of 1,109 ± 1,860 ng/mL, 56% were in functional class (FC) II and 21% in FC III. A significant correlation was observed between mean mPAP and angioCT parameters - septal angle (r 0.595, p < 0.001), right ventricle axial area (r 0.463, p = 0.001), right atrium (RA) axial area (r 0.374, p 0.010), RV free wall thickness (r 0.359, p = 0.037) and RV axial diameter (r 0.416, p = 0.013). For a mPAP over 35 mmHg the optimal cut-off for the previously correlated parameters were the following: septal angle value of 149º (AUC 0.788, Sn 67%, Sp 89%), RV axial area of 22.71 (AUC 0.839, Sn 73.5%, Sp 92.3%), RA axial area of 20.9 mm^2 (AUC: 0.785, Sn 76.5%, Sp 61.1%) and RV free wall thickness of 6.45 mm (AUC: 0.751, Sn 40%, Sp 100%). AngioCT parameters correlated not only with hemodynamics but also with clinical and laboratory parameters, as a higher RV and RA axial area had a significant positive correlation with NT-proBNP (p = 0.042 and p < 0.001) as well as with worse FC (p = 0.043 and p = 0.01). Higher septal angle and a thicker RV free wall also showed a positive correlation with worse FC (Table).
Conclusions: In this pilot trial with PH pts, non-invasive dimensional parameters acquired by CT-Angio significantly correlated with hemodynamic parameters assessed by RHC – namely mPAP - functional class and NTproBNP.

CO 19. PULMONARY HYPERTENSION IN CONNECTIVE TISSUE DISEASES WITH OVERT OF FEATURES OF VENOUS/CAPILLARIES INVOLVEMENT: CLINICAL IMPLICATIONS AND PROGNOSTIC IMPACT OF THIS PHENOTYPE

Bárbara Marques Ferreira, Filipa Ferreira, Sofia Alegria, Alexandra Briosa, Ana Rita Pereira, Débora Repolho, João Grade Santos, Mariana Martinho, Diogo Cunha, Maria José Loureiro, Hélder Pereira

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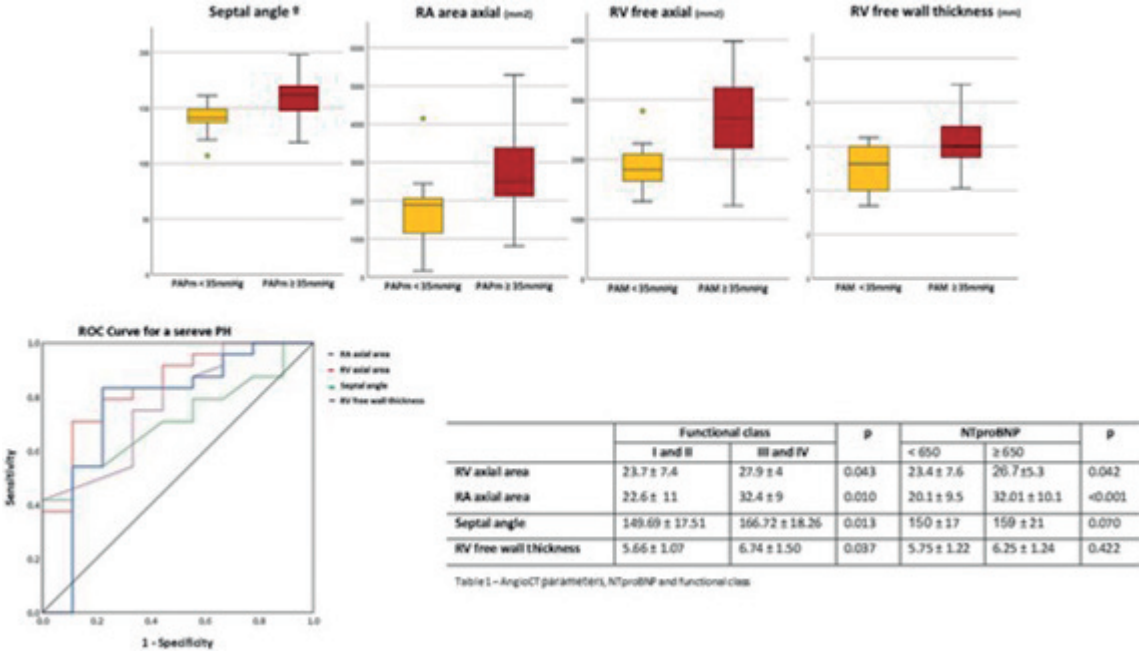
Introduction: Pulmonary hypertension (PH) is a serious complication of connective tissue disease (CTD) and remains one of the leading causes of mortality in this subset of patients (pts). Pulmonary veno-occlusive disease



	Functional class		p	NTproBNP		p
	I and II	III and IV		< 650	≥ 650	
RV axial area	23.7 ± 7.4	27.9 ± 4	0.043	23.4 ± 7.6	26.7 ±5.3	0.042
RA axial area	22.6 ± 11	32.4 ± 9	0.010	20.1 ± 9.5	32.01 ± 10.1	<0.001
Septal angle	149.69 ± 17.51	166.72 ± 18.26	0.013	150 ± 17	159 ± 21	0.070
RV free wall thickness	5.66 ± 1.07	6.74 ± 1.50	0.037	5.75 ± 1.22	6.25 ± 1.24	0.422

Table 1 – AngioCT parameters, NTproBNP and functional class

CO 18 Figure

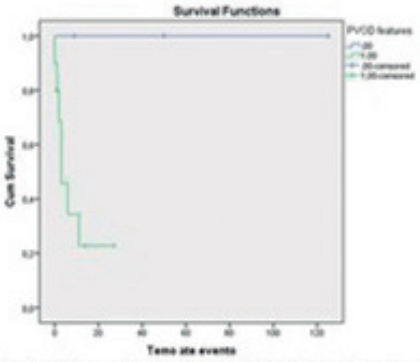


Figure 1 Kaplan-Meier survival in patients with CTD-PAH without signs evocative of PVOD (blue) versus patients with at least 1 sign evocative of PVOD (green).

	CTD-PAH	All other PAH	p value
PaO2 (mmHg)	64.9 +/- 16.0	66.0 +/- 14.0	0.868
DLCO (%)	44.0 +/- 10.8	57.0 +/- 14.9	**0.015**
NT pro-BNP (ng/L)	1325 (461-3365)	602 (231-1927)	0.738
6MWT (m)	315.8 +/- 131.0	406.0 +/- 118.0	0.854
PVR (WU)	11.49 +/- 6.06	12.63 +/- 8.58	0.568
PAPm (mmHg)	43.81 +/- 9.59	52.68 +/- 15.38	**0.025**
SvO2 (%)	63.85 +/- 10.84	67.01 +/- 10.57	0.793
PADP (mmHg)	8.13 +/- 5.54	8.98 +/- 0.76	0.878
CI (L/min/m2)	2.14 +/- 0.59	2.27 +/- 0.68	0.402
Mean age (years)	60.53 +/- 14.90	44.35 +/- 16.76	**0.001**

Table 1 Characteristics of patients in the CTD-PAH group versus all other PAH groups.

* Continuous variables are expressed as mean ± standard deviation with exception of NT-proBNP expressed as median, Q1 and Q3.

Abbreviations: CTD-PAH – PAH associated with CTD; PAH – pulmonary arterial hypertension; PaO2 – arterial oxygen pressure; DLCO – diffusing capacity of the lung for carbon monoxide; NT proBNP – N-terminal pro-brain natriuretic peptide; 6MWT – 6-minute walking test; PVR – pulmonary vascular resistance; PAPm – mean pulmonary arterial pressure; SvO2 – mixed venous oxygen saturation; PADP – pulmonary artery diastolic pressure; CI – cardiac index

CO 19 Figure

(PVOD), recently reclassified as pulmonary arterial hypertension (PAH) with overt features of venous/capillaries involvement, is a subgroup of group 1 PH, which has been rarely reported in CTD pts. Due to clinical similarities between CTD-related PAH and PVOD, some pts are misdiagnosed and this could explain, in part, the worse prognosis associated with this clinical condition.

Objectives: To analyze signs evocative of venous and capillary (pulmonary veno-occlusive disease/pulmonary capillary haemangiomatosis) involvement in pts with PAH associated with CTD (CTD-PAH).

Methods: We retrospectively included all pts with diagnosis of CTD-PAH (group 1.4.1) followed in a pulmonary hypertension referral center. Clinical parameters, pulmonary function tests and high-resolution computed tomography were reviewed looking for signs evocative of PVOD involvement: decreased diffusing capacity of the lung for carbon monoxide (DLCO) (< 50%), severe hypoxemia (PaO2 < 60 mmHg without supplementary oxygen), presence of septal lines, centrilobular ground-glass opacities/nodules (CLGGO) and mediastinal lymph node enlargement (MLNE). Follow-up period was up to 10 years. Cox's proportional hazards analyses was used to determine predictors of event-free survival defined as initiation of parenteric prostanoid therapy, referral for pulmonary transplant or death.

Results: In a universe of 91 pts with PAH, we included 17 pts with the diagnosis of PAH associated with CTD. All were females, mean age 60.5 ± 14.8. 82.4% were in WHO functional class (FC)≥ III. Compared to all other PAH groups, CTD-PAH were older, presented higher NT proBNP, lower mean pulmonary artery pressure and lower DLCO (Table). DLCO was < 50% in 71.4%, severe hypoxemia was present in 43.8%, MLNE in 38.5%, CLGGO in 35.7% and septal lines in 28.6% of the pts. Only 4 pts did not present any finding suggestive of PVOD. With a mean follow-up of 4,5 years, 8 pts had no adverse event and 3 died. WHO FC, DLCO and cardiac index were predictors of adverse events in this population. Kaplan-Meier survival analyses showed that the median survival time without events was 11 months and was significantly worst in pts with at least 1 sign evocative of PVOD (log rank p = 0,028; Fig.).

Conclusions: Signs evocative of PVOD involvement are frequent in PAH associated with CTD and their presence determine worse event-free survival.

CO 20. RIGHT HEART REMODELING AFTER BALLOON PULMONARY ANGIOPLASTY IN PATIENTS WITH CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION

Rita Calé, Filipa Ferreira, Ana Rita Pereira, Sofia Alegria, Mariana Martinho, Débora Repolho, Ângela Manuel, Pedro Santos, Sílvia Vitorino, Isabel João, Maria José Loureiro, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: In chronic thromboembolic pulmonary hypertension (CTEPH) there is right chambers (RC) remodeling to compensate for the increased

TABLE 1. Haemodynamic and Echocardiographic parameters (N=13 patients)

Variables	Initial (Time of diagnosis)	Baseline (Before BPA)	6-month follow-up	Initial vs. Baseline p-valor	Baseline vs. 6-month follow-up p-valor	Initial vs 6-month follow-up p-valor
Echocardiographic						
RA volume (ml)	94.4±86.6	74.7±45.4	47.7±18.0	p=NS	p=0.050	p=0.014
RA volume/BSA (ml/m2)	52.5±28.4	41.6±27.4	25.7±7.6	p=NS	p=0.054	p=0.017
RV diastolic area (mm2)	32.6±9.2	26.0±10.0	21.5±6.5	p=0.061	p=NS	p=0.015
RV systolic area (mm2)	23.3±8.6	18.5±9.5	12.5±4.3	p=NS	p=0.057	p=0.006
RVFAC (%)	25.8±9.2	31.9±11.8	41.5±7.5	p=NS	p=0.009	p=0.002
TAPSE (mm)	17.9±5.5	18.5±5.2	21.0±5.2	p=NS	p=0.076	p=0.063
RV S' (cm/s)	10.4±3.2	11.0±3.8	12.0±3.2	p=NS	p=NS	p=0.006
LV diastolic EI	1.4±0.4	1.2±0.3	1.0±0.0	p=NS	p=0.071	p=0.012
LV systolic EI	1.6±0.8	1.3±0.4	1.0±0.1	p=NS	p=0.016	p=0.031
Haemodynamic						
Mean PAP (mmHg)	45.1±11.4	35.9±12.7	25.9±6.3	p<0.001	p=0.015	p<0.001
PVR (uWood)	10.2±4.5	5.4±3.2	3.1± 1.3	p<0.001	p=0.013	p<0.001
Cardiac Index (L/min/m²)	2.4±0.6	2.8±0.6	3.0±0.9	p=0.052	p=NS	p=0.056

CO 20 Figure

resistance in the lung circulation. Furthermore, right ventricular (RV) function is a prognostic marker in these patients (pts). The aim of this study was to evaluate the effects on RC remodeling of a hybrid therapeutic approach with pulmonary vasodilators and balloon pulmonary angioplasty (BPA) in CTEPH.
Methods: Prospective single-centre study that included consecutive CTEPH pts submitted to BPA from 2017 to 2020. All patients underwent two-dimensional transthoracic echocardiography and right-heart catheterization at the time of diagnosis before starting vasodilator therapy, before and 6 months after BPA. RC remodeling was assessed as RV area and right atrial (RA) volume. For RV function the following parameters were measured: tricuspid annular plane systolic excursion (TAPSE), tricuspid lateral annular peak systolic velocity by pulsed tissue Doppler imaging (RV S´) and RV fractional area change (RVFAC). LV geometry was assessed by calculation of LV eccentricity index (EI).
Results: 70 BPA sessions were performed in 13 CTEPH pts (69.2% inoperable disease). Eleven pts (84.6%) were treated with specific vasodilator therapy (guanylate cyclase stimulators in 9; endothelin receptor antagonists in 6; phosphodiesterase type 5 inhibitors in 2, prostacyclin analogues in 4 and selexipag in 1). Mean number of BPA sessions was 5.4 ± 1.9 per pt (min 2-max 8) and mean number of total vascular segments treated 9.9 ± 2.3 per pt (min 6-max 15). We observed the reduction of the diastolic RV dimensions after starting vasodilator therapy, but a significant reverse remodeling of the RA and RV in systole was only observed after a BPA strategy on top of pulmonary vasodilator therapy. There was also an increased RVFAC and an improved LV eccentricity index after BPA, in proportion to the decrease in mean pulmonary artery pressure (mPAP) and pulmonary vascular resistance (PVR) induced by the treatment (Table).
Conclusions: BPA on top of pulmonary vasodilator therapy is associated with significant hemodynamic improvement and consequently right chambers remodeling and normalization of LV geometry.

Sexta-feira, 22 Abril de 2022 | 10:30-11:30

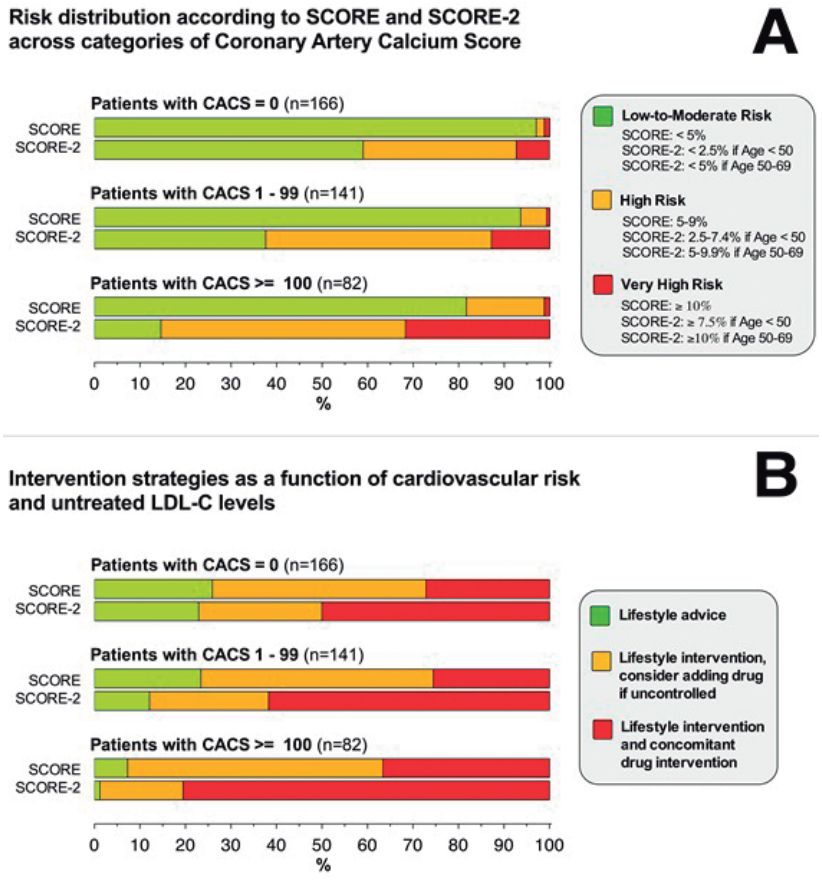
Sala Vega | Comunicações Orais (Sessão 5) - Risco CV, Prevenção e Reabilitação Cardíaca 1 - Foco nos *Scores* de Risco

CO 21. POTENTIAL IMPACT OF REPLACING SCORE WITH SCORE-2 ON RISK CLASSIFICATION AND STATIN ELIGIBILITY - A CORONARY CALCIUM SCORE CORRELATION STUDY

Mariana Sousa Paiva, Daniel A. Gomes, Pedro Freitas, João Presume, Rita Reis Santos, Pedro Lopes, Daniel Matos, 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: Recently, the European Society of Cardiology issued new algorithms to estimate the 10-year risk of atherosclerotic cardiovascular disease (ASCVD), along with new age-specific thresholds to classify individuals as low-to-moderate, high, or very-high risk. The aim of this study was to compare the latest SCORE-2 model with the older SCORE (Systematic COronary Risk Evaluation) in their ability to identify individuals with high coronary artery calcium score (CACS), and assess the relationship between potential eligibility for statin therapy and CACS.
Methods: Individuals 40-69 years old without diabetes or known ASCVD were identified in a single center registry of patients undergoing CACS and



CO 21 Figure

coronary CT angiography for suspected coronary artery disease. SCORE and SCORE-2 were calculated and used with each patient's untreated LDL-C values to assess eligibility for statin therapy. High CACS was defined as an Agatston score ≥ 100.

Results: A total of 389 pts (46% men, mean age 58 ± 8 years) were included, of which 15% (n = 60) were active smokers. The mean systolic blood pressure and untreated LDL-C values were 136 ± 17 mmHg and 155 ± 65 mg/dL, respectively. The proportion of patients classified as low-to-moderate risk, high risk, and very high risk was 93%, 6% and 1% using the SCORE algorithm, and 42%, 44%, and 14% using SCORE-2, respectively. Overall, 218 patients (56%) would have their risk category revised upwards, while no patients would be downgraded. The median CACS was 5 (IQR 0-71 AU), with 166 patients (43%) having CACS = 0, and 81 (21%) presenting CACS values ≥ 100. SCORE and SCORE-2 showed similar discriminative power to identify patients with CACS ≥ 100 (C-statistic 0.77, 95%CI 0.71-0.82, *vs.* 0.75, 95%CI 0.69-0.80, p = 0.109 for comparison]. The up-reclassification of risk conveyed by SCORE-2 affected patients across all categories of CACS (Fig. 1A). The proportion of patients in whom statin therapy would generally be indicated was higher with the SCORE-2 criteria *vs.* the SCORE algorithm (61 *vs.* 29%, respectively, p < 0.001). The broadening of potential indication for statin therapy spanned all categories of CACS, including patients with CACS = 0 (Fig. 1B).

Conclusions: Even though the discriminative power of SCORE-2 is similar to the older SCORE, the introduction of age-specific thresholds results in the up-reclassification of risk in roughly half of the patients. The application of SCORE-2 will broaden statin eligibility overall, not only in patients with high atherosclerotic burden, but also in those with CACS = 0. These findings support the use of risk modifiers in selected patients to improve the effectiveness of statin therapy.

CO 22. THE EVALUATION OF THE EUROPEAN SCORE2 IN A PORTUGUESE POPULATION

Margarida Temtem[1], Roberto Palma dos Reis[2], Marco Serrão[1], Débora Sá[1], Marina Santos[1], Carolina Soares[1], Ana Célia Sousa[1], Sónia Freitas[1], Eva Henriques[1], Mariana Rodrigues[1], Sofia Borges[1], Ilídio Ornelas[1], António Drumond[1], Maria Isabel Mendonça[1]

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

Introduction: In 2021, the European Society of Cardiology updated the Cardiovascular Disease (CVD) risk stratification in asymptomatic individuals with the validation of European SCORE2. This new score was developed to estimate 10-year fatal and non-fatal CVD risk in European individuals aged 40-69 years without previous CVD or diabetes. However, the Portuguese population was not included in SCORE2 project.

Objectives: Analyse the new European SCORE2 and its influence on MACE prediction in a Portuguese population.

Methods: A cohort of 1,100 individuals (mean age of 53.3 ± 6.9 and 74.1% male) was prospectively surveyed during an extended follow-up (mean of 4.9 ± 3.4 years). Population was stratified into three SCORE2 risk categories (low, moderate and high) and MACE were analysed in each group. Kaplan-Meier estimated the differences in the three survival curves of SCORE2 for MACE occurrence. A multivariate Cox regression analysis with hypertension, smoking, dyslipidemia, kidney failure was performed to calculate the hazard risk of SCORE2 for MACE.

Results: The higher percentage of our population (58.9%) was assigned to the moderate risk. In the higher risk category of SCORE2, 40% presented MACE and 15.3% had no-MACE (p < 0.0001). At ten-year follow-up for MACE occurrence, the probability of survival was 98.3%, 89.6% and 78.1 in the low, moderate and high risk categories, respectively (p < 0.0001). After multivariate Cox regression, SCORE2 remained in the model with an HR = 8.90 (p = 0.001) in the highest category. SCORE2 compared with the others risk factors, showed a better discrimination capacity for MACE (C-index = 0.707) relatively to risk factors only (C-index = 0.633), with statistical significance (p = 0.001).

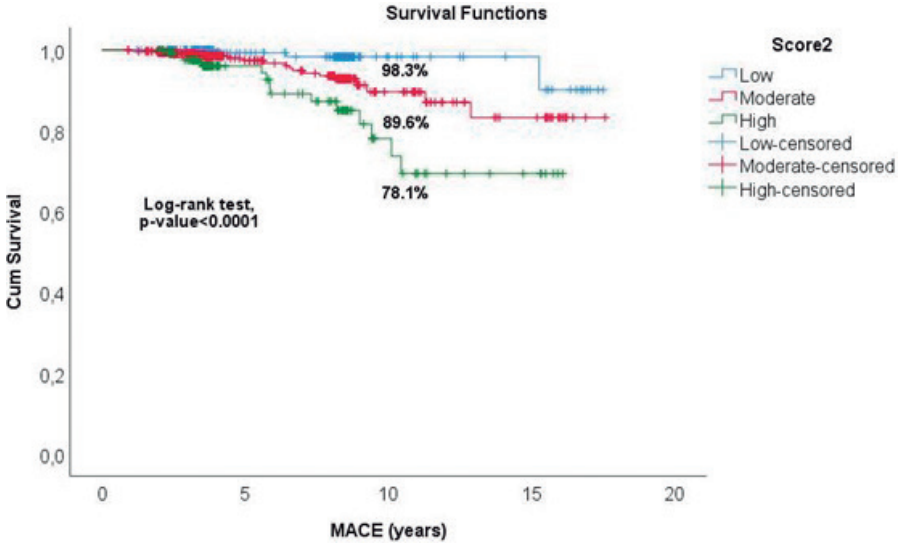
Conclusions: The new SCORE2 enhanced the identification of individuals at higher risk of developing MACE and also performed a good risk discrimination for MACE in this Portuguese population.

CO 23. PROGNOSTIC IMPACT OF ADDING CORONARY CALCIUM SCORE TO EUROPEAN SCORE2 IN AN ASYMPTOMATIC PORTUGUESE POPULATION

Margarida Temtem[1], Maria Isabel Mendonça[1], Marco Serrão[1], Marina Santos[1], Débora Sá[1], Carolina Soares[1], Ana Célia Sousa[1], Eva Henriques[1], Mariana Rodrigues[1], Sónia Freitas[1], Sofia Borges[1], Ilídio Ornelas[1], António Drumond[1], Roberto Palma dos Reis[2]

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

Introduction: The new European SCORE2 estimates the combined risk of fatal and non-fatal cardiovascular (CV) events, in contrast with SCORE's use for CV mortality only. Although controversial, several studies point out that Coronary Artery Calcification (CAC) scoring could improve CV risk stratification in primary prevention.



CO 22 Figure

Objectives: Assess the impact of including CAC scoring to the new SCORE2 in MACE prediction and cardiovascular risk stratification.
Methods: We calculate the new SCORE2 in a population-based cohort of 1,014 individuals without known CV disease and diabetes (mean age 58.6 ± 8.5 years). Population was stratified into three SCORE2 risk categories (low, moderate and high). According to the Hoff's nomogram, 3 categories were created for CAC score: low CAC (0≤ CAC ≤ 100 or p < 50); moderate CAC (100 ≤ CAC< 400 or P50-75) and high or severe CAC (CAC ≥ 400 or P> 75). Kaplan-Meier survival curves were estimated and a multivariate regression analysed the MACE risk for both scores. C-statistic methodology evaluated the improved capacity of adding CAC to the SCORE2 model.
Results: Cox regression analysis showed that the highest categories of CAC and SCORE2 remained in the equation with an HR of 3.7 (p = 0.008) and HR of 9.8 (p = 0.005), respectively, when compared with the lowest categories. C-statistic demonstrated that the predictive value for MACE was 0.668 for SCORE2 and 0.681 for CAC score. When CAC was added to the SCORE2 model, C-statistic increased to 0.787 (p = 0.007) showing a better discrimination capacity for MACE.

Cox regression* analysis for development of MACE

Variables	Hazard ratio (95% CI)	P-value
CAC score	----	0.010
Moderate	0.855 (0.218 – 3.349)	0.822
High	3.699 (1.397 – 9.793)	0.008
SCORE2	----	0.012
Moderate	3.820 (0.839 – 17.934)	0.083
High	9.871 (1.998 – 48.776)	0.005

*Forward wald method (SPSS vs. 25.0). MACE – Major adverse cardiovascular events; CAC – Calcium artery calcification; CI – Confidence interval. Statistically significant for p<0.05.

Comparison between different models using C-statistic methodology

Models	C-index (95% CI)	P-value
SCORE2	0.668 (0.582 – 0.754)	
CAC	0.681 (0.540 – 0.822)	
SCORE2 + CAC	0.787 (0.689 – 0.885)	0.007[a]

a) CAC score + SCORE2 vs SCORE2

Conclusions: Our results highlight the importance of adding CAC score 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 24. PROGNOSTIC ROLE OF ADDING A GENETIC RISK SCORE TO THE NEW EUROPEAN SCORE2 IN CARDIOVASCULAR EVENTS PREDICTION, IN A MODERATE-RISK REGION

Margarida Temtem[1], Roberto Palma dos Reis[2], Marco Serrão[1], Débora Sá[1], Marina Santos[1], Carolina Soares[1], Ana Célia Sousa[1], Mariana Rodrigues[1], Sónia Freitas[1], Eva Henriques[1], Sofia Borges[1], Graça Guerra[1], Ilídio Ornelas[1], António Drumond[1], Maria Isabel Mendonça[1]

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

Introduction: The new SCORE2 provides risk estimates for the combined outcome of fatal and non-fatal cardiovascular disease (CVD) events, in contrast with SCORE's use for CVD mortality only. Genetic predisposition to CVD is not considered in SCORE2 for prevention and treatment.
Objectives: Evaluate the impact of adding a Genetic Risk Score (GRS) to the new European SCORE2 in MACE prediction and estimate the additional value in cardiovascular risk stratification in our asymptomatic population.
Methods: We calculated the new SCORE2 prospectively in a population-based cohort of 1,100 individuals without known cardiovascular disease (CAD) and diabetes (mean age 53.3 ± 6.9). Three risk categories were considered for SCORE2: low, moderate and high-risk. For all included participants, a GRS was created, with 33 genetic variants previously associated with CAD, and two groups were analyzed: lower and higher than the GRS median. Kaplan-Meier survival curves were created and a Cox regression model was performed including the two scores to assess the risk of major cardiovascular events (MACE). Using C-statistic methodology we compared the models SCORE2 and SCORE2 plus GRS.
Results: Kaplan-Meier curves showed that the highest category had a worst survival for each score. Cox regression presented an HR of 7.597 (p = 0.001) for SCORE2 for the high-risk category. The GRS as a continuous value displayed an HR of 1.005 (p < 0.0001). C-statistic demonstrated that the SCORE2 predictive value was 0.678, increasing to 0.792 with the GRS incorporation (p = 0.0005). After Kaplan-Meier analysis for MACE occurrence, the group with low SCORE2 category showed better survival when compared to the other categories (p < 0.0001). When evaluating GRS, the group higher than median showed worst survival with statistical significance (p < 0.0001).

Cox regression* analysis for development of MACE

Variables	Hazard ratio (95% CI)	P-value
SCORE2	----	0.003
Moderate	3.609 (1.072 – 12.149)	0.038
High	7.597 (2.187 – 26.380)	0.001
GRS	1.005 (1.003 – 1.006)	<0.0001

*Forward wald method (SPSS vs. 25.0). MACE – Major adverse cardiovascular events; GRS – Genetic risk score; CI – Confidence interval. Statistically significant for p<0.05.

Comparison between different models using C-statistic methodology

Models	C-index (95% CI)	P-value
SCORE2	0.678 (0.604 – 0.752)	0.0005[b]
SCORE2 + GRS	0.792 (0.719 – 0.865)	

b) SCORE2 + GRS vs SCORE2

Conclusions: In this work, combining SCORE2 with multiple genetic loci gathered into a GRS, improved the identification of patients with the worst prognosis. This new tool may be of great utility in risk stratification in primary prevention. Larger prospective multicenter cohorts with longer follow-up should reproduce and validate these findings.

CO 25. A NEW SCORE MODEL FOR MORTALITY PREDICTION IN TREADMILL TEST

Inês Pereira Oliveira, Bruno Bragança, Isabel Cruz, Rafaela Lopes, Joel Monteiro, João Azevedo, Paula Pinto, Aurora Andrade

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

Introduction: Exercise stress testing is a established diagnostic and prognostic tool in cardiovascular (CV) disease patients (pts). Although functional capacity and heart rate (HR) response to exercise are known prognostic factors, its role to stratify high-risk pts is not well defined.
Objectives: To assess the association between functional capacity, HR response to exercise and CV outcomes in pts with coronary artery disease (CAD), in order to develop a score for risk stratification in this population.
Methods: We performed a retrospective analysis of a cohort of 497 consecutive patients with known CAD, who underwent Bruce protocol treadmill testing (TT) between 2009-2010, followed during 9.7 ± 2.7 years. We analyzed known cardiovascular risk factors and the available parameters of TT, and their correlation with the occurrence of all-cause mortality during the follow-up. A multivariate binary logistic regression analysis was performed according to Backward Wald method, selecting the clinical variables with highest mortality predictive power. A multiplicative score was developed as the following: Age × Metabolic Equivalent of Task (MET) × DHR. The predictive performance of this model was evaluated using ROC curve analysis.
Results: The variables associated with all-cause mortality during the follow up were age (p < 0.001), peak heart rate (p < 0.001), metabolic equivalent of task (p < 0.001), double product (p = 0.003) and heart rate variance between peak and rest (p < 0.001). The backwards-Wald logist regression identified Age, heart rate variance and MET as independent risk predictors. The multiplicative model showed association with all cause mortality (p < 0.001)

and a moderate-high risk prediction capacity using ROC curve analysis (AUC = 0.73). Optimal bining identified 24 and 12 as cutoffs for the model. The categorized score retained its prognostic capacity with an AUC of 0.72.
Conclusions: This simple model based on physiological variables drawn from the stress test, predicts long term all-cause mortality in a cohort of high-risk CAD patients. Its simple categorization retains the prognostic value of the model and allows for immediate risk assessment.

Sexta-feira, 22 Abril de 2022 | 11:30-12:30

Sala Vega | Comunicações Orais (Sessão 6) - DAC e Cuidados Intensivos 2 - Vários Tópicos

CO 26. PATIENT DELAY IN ACUTE MYOCARDIAL INFARCTION – A LONG JOURNEY STILL AHEAD

Catarina Amaral Marques, André Cabrita, Paulo Maia Araújo, Tânia Proença, Ricardo Alves Pinto, Miguel Martins de Carvalho, Catarina Martins da Costa, Ana Filipa Amador, João Calvão, Ana Isabel Pinho, Cátia Oliveira, Luís Daniel Santos, Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: It is overly known that time delays in acute myocardial infarction (AMI) strongly influence its outcomes. Patient delay (PD) is repeatedly pointed out as the longer one in this context, as well as it is the less modifiable one by organizational measures. Therefore, it is crucial to understand the reasons for longer PD in our population, to define proper strategies to improve PD and, ultimately, AMI-outcomes.
Methods: In this 6-month prospective study of patients (pts) admitted in a tertiary hospital due to type-1 AMI, 196 pts were consecutively enrolled between May and October 2021. Data was based on a pts well-structured interview within 48h after admission and review of medical records.
Results: Our work spotted several aspects significantly influencing PD in AMI context (Fig.). Concerning pts cardiovascular background, a trend towards a shorter PD was found in pts with at least 1 cardiovascular risk factor (CVRF) (p = 0.08) and with a previous history of AMI (p = 0.08). Regarding clinical presentation, a significantly shorter PD was found in pts presenting with associated symptoms (p = 0.02), higher chest pain intensity (chest pain intensity ≥ 7 *vs.* < 7 in a 0-10 scale; p = 0.03) and symptoms onset on weekdays rather than weekends (p = 0,003). Regarding pts knowledge, significant differences were found when pts recognized their symptoms as AMI, presenting a shorter PD in this context (p = 0,006). Curiously, pts ability to correctly identify AMI symptoms, when asked, or to acknowledge their CVRF (when present), did not influence PD. Considering sociodemographic factors, higher incomes (p = 0.03) and non-rural residence (p = 0.03) significantly translated into shorter PD. No differences were found in PD according to pts age, gender or educational level.
Conclusions: Our study clearly points to the need for increasing public awareness and educational measures, mainly in pts with lower socioeconomic status, in order to: 1) Improve pts knowledge about CVRF; 2) Improve pts knowledge about AMI symptoms, clarifying that atypical symptoms can happen; 3) Reinforce the importance of shortening AMI time delays, clearly explaining the concept "time is muscle".

CO 27. CORONARY SINUS REDUCER DEVICE FOR THE TREATMENT OF REFRACTORY ANGINA THERAPY. A MULTICENTRIC INITIAL EXPERIENCE

João Pedro Reis[1], Catarina Brizido[2], Sérgio Madeira[2], Rúben Ramos[1], Manuel Almeida[2], Duarte Cacela[1]

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

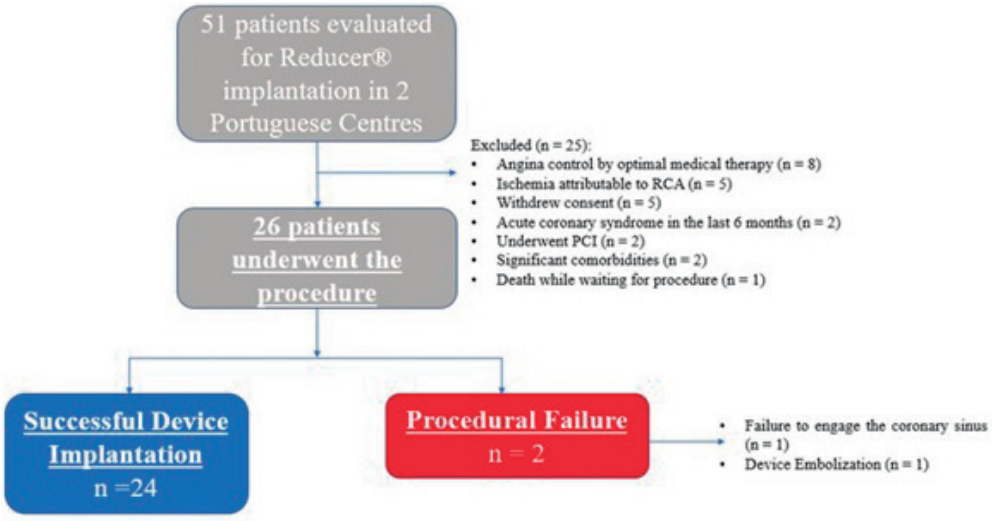
Introduction: The coronary sinus Reducer device (CSRD) emerged as a complementary therapy in patients with severe angina refractory to optimal medical therapy and not amenable to revascularization. Our aim was to assess the safety and efficacy of the CSRD in a real-world setting.
Methods: Twenty-six patients with refractory angina (RA), evidence of myocardial ischemia attributable to the left coronary artery unsuitable for revascularization were treated with the CSRD at two centres between May 2017 and July 2019. Safety endpoints were procedural success and complications. Efficacy endpoints, assessed at 6-month follow-up, were a reduction in CCS class, improvement in quality of life (QoL) assessed using the short version of the Seattle Angina Questionnaire (SAQ-7) and reduction in anti-anginal therapy.
Results: Twenty-three patients had end-stage CAD without revascularization targets and 3 patients had microvascular disease without epicardial stenosis. Procedural success was achieved 23 patients, with 2 device/procedural-related complications and one anatomically-related failure to deliver the device. Ultimately 25 patients implanted the device and entered the efficacy analysis. Eighteen patients (75.0%) had at least 1 reduction in CCS class, 41.7% had at least 2 class reductions, and 16.7% became asymptomatic, with a mean reduction of CCS class of 1.3 ± 0.2 (p = 0.001) at 6-month follow-up. All SAQ-7 domains improved, namely physical limitation (p = 0.001), angina frequency (p = 0.005) and QoL (p = 0.006). There was a mean reduction of anti-ischemic drugs from 3.4 ± 1.1 to 2.9 ± 1.2 (p = 0.010).
Conclusions: In this real-world, multicentric experience, implantation of the CSRD was associated with improvement of angina and QoL in patients with RA.

	CARDIOVASCULAR BACKGROUND		CLINICAL PRESENTATION			PATIENT KNOWLEDGE	SOCIODEMOGRAPHIC FACTORS	
	≥ 1 CVRF*[1]	Previous AMI history*[2]	Associated symptoms*[3]	Chest pain intensity ≥7*[4]	Symptoms on weekdays*[5]	Recognizing symptoms as AMI*[6]	Higher income*[7]	Non-rural residence*[8]
YES	95±245	65±190	77±205	90±233	73±215	73±125	30±88	Urban: 69±243 Suburban: 110±210
NO	356±645	120±293	168±400	192±439	170±382	150±368	110±253	192±605
TOTAL PD	105±248							

Figure 1 – Factors influencing patient delay (PD) in the acute myocardial infarction (AMI) context in our study.
All times are expressed in minutes and as median ± Interquartile Range (IQR). Non-parametric tests were used for statistical analysis.
Higher incomes were defined as gross income equal or superior to 2000€. Total PD corresponds to global PD identified in our study (n=196).
CVRF: Cardiovascular Risk Factors

*[1] p=0,08, *[2] p=0,08, *[3] p=0,02, *[4] p=0,03, *[5] p=0,003, *[6] p=0,006, *[7] p=0,03, *[8] p=0,03

CO 26 Figure



	Baseline	6-month follow-up	p
CCS Angina Class	2.7	1.4	< 0.001
SAQ-7 Summary Score	46.6	63.2	< 0.001
SAQ-7: Physical Limitation	50.3	70.6	0.001
SAQ-7: Angina Frequency	55.3	64.4	0.005
SAQ-7: Quality of Life	34.2	54.4	0.006

CO 27 Figure

CO 28. PERIPHERAL VENOARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION FOR REFRACTORY CARDIOGENIC SHOCK: SINGLE-CENTER EXPERIENCE

Daniel A. Gomes, Francisco Albuquerque, Christopher Strong, Pedro M. Lopes, Catarina Brízido, Sara Ranchordàs, Miguel Sousa Uva, Miguel Abecassis, Jorge Ferreira, António Tralhão, José Pedro Neves

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

Introduction: Venoarterial extracorporeal membrane oxygenation (VA-ECMO) provides short-term circulatory and respiratory support to patients with or at risk of refractory cardiogenic shock. Although reports are heterogeneous, complication and mortality rates remain high even in the most experienced centers. The aim of this study was to describe our experience using peripheral VA-ECMO for refractory cardiogenic shock.
Methods: All patients undergoing peripheral VA-ECMO implantation from January 2015 to November 2021 for refractory cardiogenic shock were retrospectively identified at a single-center. Indications, VA-ECMO-related complications, in-hospital and 30-day mortality were assessed. Predictors of in-hospital mortality were identified on multivariable analysis.
Results: A total of 46 patients (median age 55 years [IQR 40-63]; 73.9% male) were included, most with a femoro-femoral VA-ECMO configuration (n = 43; 93.5%). The most common clinical indications were cardiogenic shock due to acute myocardial infarction (n = 17; 40.0%), post-cardiotomy (n = 9; 19.6%) and acute decompensated heart failure (n = 7; 15.2%) (Table). Overall, 40.0% suffered pre-implantation cardiac arrest, most patients were at SCAI class D (n = 37; 80.4%) and median SAVE score was 0 (IQR -6 to 2). VA-ECMO-related complications were frequent, with at least one occurring in 33 patients (71.7%). The most common complications were access-site related (limb bleeding or ischemia in 24 patients [52.2%]) (Table). 66.7% had a distal perfusion cannula and left ventricular (LV) venting strategies were applied in 3 cases (6.5%). A total of 21 patients (45.6%) were successfully weaned, of which 8 (38.1%) ultimately received a heart transplant or a durable LV assist device. 30-day and in-hospital mortality were 56.5% and 65.2%, respectively, with non-cardiovascular mortality accounting for more than one third of all deaths. On multivariate analysis, SAVE score (HR 1.17 per each 1-point decrease; 95%CI: 1.03-1.32; p = 0.015) and the presence of any VA-ECMO-related complication (HR 4.94; 95%CI: 1.05-23.3; p = 0.04) were independent predictors of in-hospital mortality.

VA-ECMO indications	n (%)
Acute myocardial infarction	17 (40.0)
Post-cardiotomy	9 (19.6)
Acute decompensated heart failure	7 (15.2)
Myocarditis	6 (13.0)
Refractory ventricular tachycardia/ fibrillation	4 (8.7)
Pulmonary embolism	2 (4.3)
Valvular heart disease	1 (2.2)
Pre-VA-ECMO cardiac arrest	17 (40.0)
Intra-CPR VA-ECMO implantation	6 (13.0)
VA-ECMO-related complications	**n (%)**
Any complication	33 (71.7)
Access bleeding (BARC type 3 and 5)	19 (41.3)
Limb ischemia	10 (21.7)
Coagulopathy (including hemolysis)	16 (34.8)
Inadequate LV decompression	5 (10.9)
Thrombosis	3 (6.5)
Stroke	3 (6.5)
Access-site infection	3 (6.5)
Harlequin syndrome	2 (4.3)

Table 1– VA-ECMO clinical indications and complications. CPR – cardiopulmonary resuscitation; BARC – Bleeding Academic Research Consortium

Conclusions: In our small series, mortality in patients undergoing peripheral VA-ECMO implantation was high but similar to large-volume centers. Despite improved cannulation strategies, vascular complications remain frequent.

Specialized post-implantation management should reduce the impact of device related morbidity and mortality.

CO 29. CIRCADIAN RHYTHM IMPACT IN REMOTE ISCHEMIC CONDITIONING IN MYOCARDIAL INFARCTION

Carla Marques Pires, Diana Lamas, António Gaspar, Nuno Antunes, Jorge Marques, Adelino F. Leite-Moreira

Hospital de Braga, EPE.

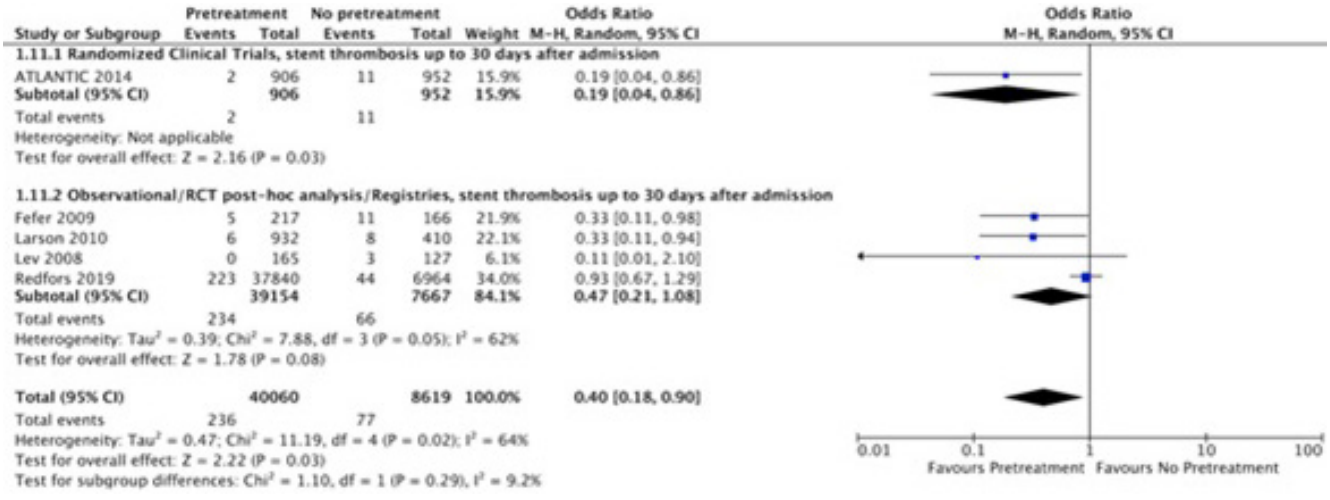
Introduction: Remote ischemic conditioning (RIC) as an adjuvant to primary percutaneous coronary intervention (PPCI) have been promising in ischemia-reperfusion injury (IRI) reduction in ST-elevation myocardial infarction (STEMI) patients. However, there are some controversial results regarding the improvement of clinical outcomes. Daytime variation seems to affect the tolerance of cardiomyocyte to IRI, and consequently, recovery of contraction and clinical outcomes.
Objectives: To assess the daytime variation impact on clinical outcomes of RIC as an adjuvant to PPCI in STEMI patients.
Methods: A post-hoc analysis of a prospective, single-center, open-label, randomized controlled trial was performed. This analysis included 448 STEMI patients, randomized in 2 groups: PPCI alone (n = 217) and RIC as an adjuvant to PPCI (n = 231). The sample was, additionally, divided according to the time of the PPCI: night-morning (22:00-11:59) (n = 216) and afternoon (12:00-21:59) (n = 232) periods. Clinical characteristics and follow-up clinical outcomes were analyzed and compared between groups. The factors that contribute to our primary follow-up endpoint (cardiac death and hospitalization due to heart failure) were identified through a survival analysis.
Results: There were no significant differences in clinical characteristics and follow-up clinical outcomes between both periods of the day. Afternoon period (HR = 0.474; p = 0.043) and RIC (HR = 0.423; p = 0.029) were independent predictors of primary follow-up endpoint. Univariate analysis showed a lower frequency of primary follow-up endpoint in RIC group compared to alone PPCI group just in the afternoon period (10.3 *vs.* 0.9%; p = 0.002). For these reason, a multivariate analysis was performed and revealed that RIC is an independent predictor of primary follow-up endpoint in the afternoon group ((HR = 0.98; p = 0.029), but not in the night-morning group.
Conclusions: Previous published literature already suggested that the impact of RIC could be restricted to a subgroup of higher risk patients. This study proposes that afternoon period improves cardioprotection induced by RIC. However, further studies with larger samples are needed to explore this topic.

CO 30. EFFECTIVENESS AND SAFETY OF P2Y12 INHIBITOR PRETREATMENT FOR PRIMARY PCI IN STEMI: SYSTEMATIC REVIEW AND META-ANALYSIS

João Presume, Daniel Gomes, Francisco Albuquerque, Carlos Aguiar, Manuel Almeida, Regina Ribeiras, Miguel Sousa Uva, Jorge Ferreira

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

Introduction: Dual antiplatelet therapy (DAPT) with aspirin and a P2Y12 inhibitor is the cornerstone of antithrombotic therapy in patients with ST-segment elevation myocardial infarction (STEMI). Yet, there is uncertainty surrounding the optimal timing for the initiation of the P2Y12 inhibitor. This study aims to evaluate the effectiveness and safety of P2Y12 pretreatment by means of a systematic review and meta-analysis of studies in primary percutaneous coronary intervention (PCI) in STEMI.
Methods:: We performed a systematic search of electronic databases Pubmed, CENTRAL and Scopus until March of 2021. Studies were considered eligible if they were: a) comparing P2Y12 inhibitor upstream administration *vs.* treatment during PCI; b) patients enrolled for STEMI and submitted to primary PCI. Studies with patients treated with fibrinolysis or medical therapy only were excluded. Major clinical outcomes included 30-day occurrence of all-cause death, definite stent thrombosis and re-infarction. Thrombolysis in myocardial infarction (TIMI) flow-grade pre-PCI and post-PCI, in-hospital cardiogenic shock and major bleeding events were analysed.
Results: Out of 2,193 articles, 18 studies were included (1 randomized clinical trial [RCT] and 17 observational studies [non-RCT]), with a total of 76,836 patients, 52,181 in the pretreatment arm. At 30 days, pretreatment was associated with a reduction in definite stent thrombosis (1 RCT & 4 Non-RCT: OR 0.40; 95%CI 0.18-0.90), but no significant reduction in all-cause death (1 RCT & 7 Non-RCT: OR 0.77; 95%CI 0.56-1.04) or re-infacrtion (1 RCT & 4 Non-RCT: OR 0.73; 95%CI 0.49-1.09). Regarding in-hospital outcomes, pretreatment showed a significant reduction in the occurrence of cardiogenic shock (5 Non-RCT: 0.62; 95%CI 0.51-0.79), major bleeding events (1 RCT & 14 Non-RCT: 0.83; 95%CI 0.75-0.92) and in the number of patients with TIMI flow < 3 post-PCI (1 RCT & 8 Non-RCT: 0.82; 95%CI 0.73-0.93). Pretreatment was not associated with lower number of patients with TIMI flow < 3 pre-PCI (1 RCT & 5 Non-RCT: 0.85; 95%CI 0.66-1.09).
Conclusions: Pretreatment with DAPT, including a P2Y12 inhibitor, was associated with lower risk for definite stent thrombosis and cardiogenic shock, but was not associated with lower all-cause death or re-infarction.



CO 30 Figure

Sexta-feira, 22 Abril de 2022 | 12:30-13:30

Sala Vega | Comunicações Orais (Sessão 7) - Intervenção Cardíaca Coronária e Estrutural 1 - Válvula Aórtica

CO 31. VALVE-IN-VALVE TAVI FOR FAILING SURGICAL AORTIC BIOPROSTHETIC VALVES: A SINGLE-CENTRE EXPERIENCE

Mariana Ribeiro Silva, Alberto Rodrigues, Cláudio Guerreiro, Gualter Santos Silva, Pedro Ribeiro Queirós, Mariana Brandão, Diogo Ferreira, Gustavo Pires Morais, Bruno Melica, Lino Santos, Pedro Braga, Ricardo Fontes-Carvalho

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

Introduction: Valve-in-valve (ViV) transcatheter aortic valve implantation (TAVI) is an alternative to redo surgery for surgical bioprosthetic (BP) valve deterioration. The clinical experience with this approach is gradually increasing.
Objectives: To assess periprocedural and short-term outcomes in patients (pts) undergoing ViV TAVI for degenerated surgical aortic BP valves.
Methods: Single-centre retrospective study of consecutive pts undergoing ViV TAVI for failed surgical aortic BP valves between 2007 and 2019. Data were analysed regarding periprocedural events according to the Valve Academic Research Consortium 2 criteria and 30-day and 1-year outcomes.
Results: TAVI was implanted in 705 pts, of which 43 (6.1%) were ViV TAVI procedures. Most pts were female (51.2%), with a mean age of 75.7 ± 11.2 years, median EuroSCORE II of 8.8% (IQR 4.7-10.5%). Prior surgical aortic BP were implanted for a mean 8.0 ± 3.2 years with a label size ≤ 21 mm in 66% pts. Surgical BP dysfunction was due to regurgitation (AR), stenosis or a combination of both in 21 (48.8%), 18 (41.9%) or 4 pts (9.3%), respectively. At the time of the intervention, the majority of pts were in NYHA-class ≥ III (70%), with 47% treated as urgent interventions. All pts were treated via transfemoral approach, the majority (84%; n = 36) with self-expandable TAVI. ViV TAVI procedural success rate was 98%. Intraprocedural coronary artery obstruction occurred in one pt. Periprocedural adverse events included major vascular complication (7%), major bleeding (7%), stroke (7%), acute kidney injury (19%) and permanent pacemaker implantation (PPI) (2.5%). There was 1 in-hospital death due to cardiogenic shock because of left main coronary artery obstruction. At discharge, mean aortic gradient (MAVG) was 20,4 ± 10 mmHg, with 45% of the pts presenting MAVG ≥ 20 mmHg and 12% AR grade ≥ II. At 30-day follow-up, no death or heart failure hospital admission was reported. One-year after the procedure, 89% of the pts were in NYHA class I-II; MAVG remained unchanged at 1-year in the majority of pts and 19% had AR grade ≥ II. One pt needed PPI and 3 pts were hospitalized due to acute heart failure in this follow-up period. One-year mortality was 7.1%.
Conclusions: In our population, ViV TAVI in degenerated surgical aortic BP was a safe procedure with persistence of favorable clinical results at 30-day and 1-year follow-up in this high-risk population.

CO 32. TRANSCATHETER AORTIC VALVE DESIGN AND MORTALITY: TRUTH OR REALITY?

Margarida Martins, Pedro Silvério António, Sara Couto Pereira, Pedro Alves da Silva, Beatriz Valente Silva, Joana Brito, Ana Beatriz Garcia, Catarina Oliveira, Fernando Ribeiro, Miguel Nobre Menezes, João Silva Marques, Cláudia Jorge, Pedro Carrilho Ferreira, Fausto J. Pinto, Pedro Cardoso

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

Introduction: Third generation transcatheter heart valves have been developed to improve safety of transcatheter aortic valve replacement (TAVR). This study aimed to compare mid-term outcomes after TAVR with Sapien 3 (S3), Sapien 3 Ultra (S3U), Evolut R (EvR) and Evolut Pro (EvP).
Methods: Patients (pts) who underwent TAVR between 2016 and 2020 at a single centre were retrospectively analysed. Primary endpoint was all-cause mortality. Secondary endpoint included peri-procedural results, clinical and echo findings.
Results: A total of 545 pts (S3 = 181; S3U = 83; EvR = 103; Evp = 155) were included: 55% female, mean age 82 ± 6 years, 91% had hypertension, 74%

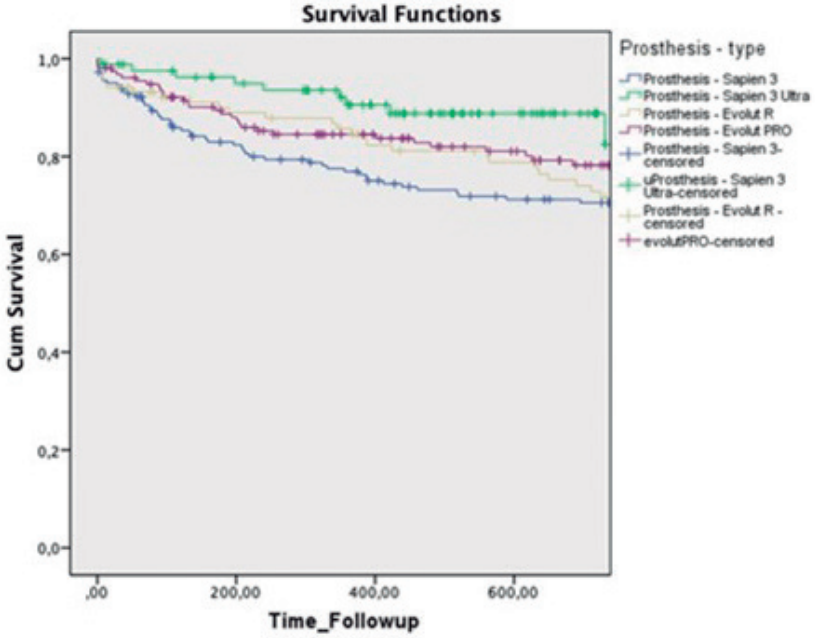


Figure 1: Cumulative survival comparison between 3rd generation transcatheter aortic prosthesis

CO 32 Figure

dyslipidemia, 37% diabetes mellitus, 14% coronary artery disease, 31% chronic kidney disease. Mean follow-up (FUP) was 768 ± 565 days. Mean EUROSCORE II was 4.2 ± 3.6. Pts who implanted 3rd generation prosthesis (S3U and EvP) had significantly lower EUROSCORE II compared to those who implanted 2nd generation prothesis (S3 and EvR): S3U 3.4 ± 1.9, S3 4.4 ± 3.9, EvoR 4.8 ± 3.6 and EvP 3.1 ± 3.4, p = 0.033. Pre-procedure NYHA was significantly higher in pts with S3 and EvR prosthesis (NYHA III-IV: 70% and 78%) than in pts with S3U and EvP (NYHA III-IV 48% and 54%), p < 0.001. Complication rates were similar in all prosthesis, namely major bleeding (3% for S3, EvR, EvP *vs.* 4% for S3U; p = 0.992) and ischemic stroke (1% in S3, 3% in S3U and EvP, and 2% in EvR; p = 0.592). Conduction disturbances leading to permanent pacemaker implantation after TAVR was of 20%, 22%, 27% and 26% for S3U, S3, EvR and EvP, with no significant differences (p = 0.10). As for hemodynamic profile, aortic mean gradient at 24 hours after TAVR compared with 1-year FUP was only significantly increased for S3U (10 *vs.* 14 mmHg, p = 0.005), although without clinical impact. No difference was found for ejection fraction for all prosthesis. Mortality rate was significantly different between groups (p < 0.001): 38%, 12%, 44% and 24% for S3, S3U, EvR and EvP, respectively. Survival analysis is shown in the figure (Log Rank 11.5, p = 0.009).

Conclusions: Although last generation prosthesis were associated with less mortality in our cohort, we found no differences regarding complication rates between different prosthesis. These findings may suggest that pts' comorbidities and functional class may be the main determinants of mortality among them.

CO 33. VASCULAR CLOSURE DEVICE IN TAVI WITH A DEDICATED ENDOVASCULAR PLUG-BASED DEVICE. EXPERIENCE FROM A HIGH-VOLUME TERTIARY CENTER

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

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

Introduction: Vascular complications at the access site are important adverse events during transcatheter aortic valve implantation (TAVI). Effective, reproducible, and safe closure of large-bore arteriotomies remains challenging as management strategies vary among centers and operators. MANTA™ is a dedicated plug-based vascular closure device (VCD) recently approved for percutaneous access site closure. This study aimed to describe our experience and to determine the safety and effectiveness of MANTA™ for large bore arteriotomies during transfemoral TAVI.

Methods: Single-center retrospective analysis on prospectively collected data of all consecutive patients who underwent transfemoral TAVI from 2018 to 2020. The primary safety outcomes were access-related vascular injury and bleeding complications according to VARC-3 criteria. Technical success was defined as puncture closure obtained with MANTA™ without the use of unplanned endovascular or surgical intervention. A secondary analysis according to center experience was performed.

Results: Of the 535 patients that underwent transfemoral TAVI during the study period (median age = 84 [IQR 80-87], 39.4% male; median EuroSCORE II of 3.89% [IQR 2.62 – 5.39]), MANTA® VCD was deployed in 320 (59.8%). Overall, 32 (10.0%) patients suffered an access-related vascular injury and 22 (6.6%) had a bleeding complication (Figure 1-A). Technical success was achieved in most cases (n = 298; 93.1%). 30-day mortality rate was 1.6% (n = 5). Since the first deployment in mid-2018, the rates of MANTA-related complications decreased with increasing experience and a steep learning curve effect was noted (Figure 1-B).

Conclusions: MANTA™ was rapidly adopted as the default strategy for vascular access site closure after TAVI at our center. A relatively steep learning was observed, suggesting that few procedures are required to acquire device proficiency. In addition, our results suggest that MANTA ™ can effectively close large bore arteriotomies with a low risk of severe complications.

CO 34. EARLY AORTIC VALVE REPLACEMENT *VERSUS* CONSERVATIVE MANAGEMENT IN ASYMPTOMATIC SEVERE AORTIC STENOSIS

Gonçalo Ferraz Costa[1], João Lopes Cardoso[1], Lino Gonçalves[2], Rogério Teixeira[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

Introduction: Aortic stenosis (AS) is the most common valvular disease in developed countries. Specific timing of intervention for asymptomatic patients with severe aortic stenosis.

Objectives: To compare the outcomes of early aortic valve replacement (AVR) *versus* watchful waiting (WW) in asymptomatic AS patients.

Methods: We systematically searched PubMed, Embase and Cochrane databases, in November 2021, for both interventional or observational studies comparing early-AVR with WW in the treatment of asymptomatic severe AS. Random-effects meta-analysis was performed.

Results: Thirteen studies were included in which two were randomized clinical trials. A total of 4,679 patients were included, providing a 1,268 pooled death events (327 in early-AVR and 941 in watchful waiting). Our meta-analysis showed a significantly lower all-cause mortality for the

Variable	N (%)
Bleeding and transfusions	
Type 1	6 (1.9%)
Type 2	10 (3.1%)
Type 3	4 (1.3%)
Type 4	2 (0.6%)
Major Vascular Complications	15 (4.4%)
Dissection	3 (0.9%)
Occlusion	1 (0.3%)
Pseudoaneurysm	4 (1.3 %)
Hematoma	9 (2.8 %)
MANTA ® failure	2 (0.6%)
Minor Vascular Complications	19 (5.9)
Dissection	2 (0.6)
Occlusion	13 (4.1%)
Pseudoaneurysm	2 (0.6%)
Hematoma	4 (1.3%)
MANTA ® failure	2 (0.6)

Figure 1 A

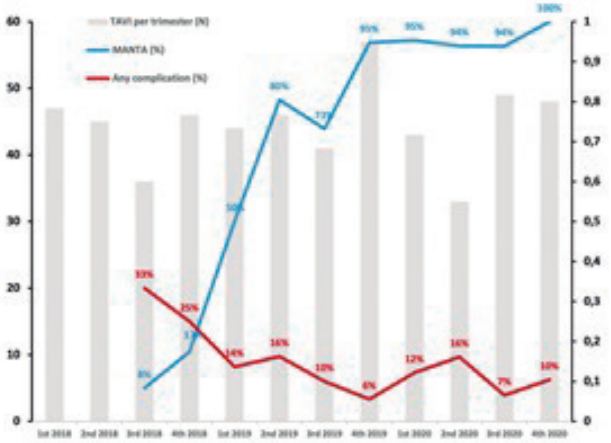
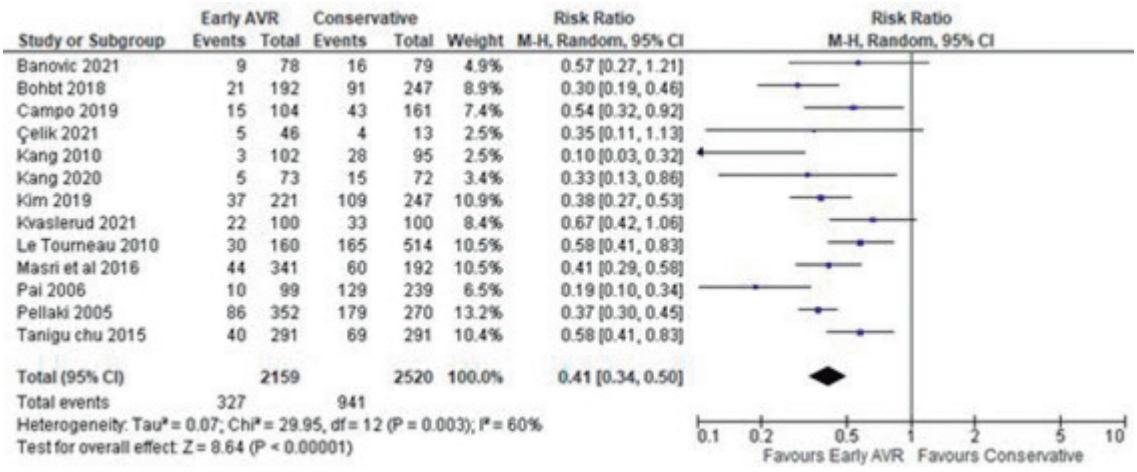


Figure 1 B

CO 33 Figure



CO 34 Figure

early-AVR compared with WW group, although with a moderate amount of heterogeneity between studies in the magnitude of effect (pooled OR, 0.41; 95%CI [0.34, 0.50], p < 0.01; I^2 = 60%). early surgery strategy displayed a significant lower cardiovascular mortality (pooled OR, 0.33; 95%CI [0.19, 0.56], p < 0.01; I^2 = 64%) and heart failure hospitalizations (pooled OR 0.19; 95%CI [0.10, 0.39], p < 0.01, I^2 = 7%). However, both groups had similar rates of stroke (pooled OR 1.30; 95%CI [0.73, 2.29], p = 0.36, I^2 = 0%) and myocardial infarction (pooled OR 0.49; 95%CI [0.19, 1.27], p = 0.14, I^2 = 0%). In terms of Major Adverse Cardiac Events, early AVR presented a lower rate of events (pooled OR 0.43; 95%CI [0.21, 0.87], p = 0.02, I^2 = 50%).

Conclusions: Our pooled data suggests that early-AVR strategy is preferable for asymptomatic severe AS patients.

CO 35. META-ANALYSIS COMPARING OUTCOMES IN PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION WITH *VERSUS* WITHOUT PERCUTANEOUS CORONARY INTERVENTION

Gonçalo Ferraz Costa[1], Vera Marinho[1], Diogo Fernandes[1], Joana Guimarães[1], Eric Monteiro[1], Marco Costa[1], Lino Gonçalves[2], Rogério Teixeira[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

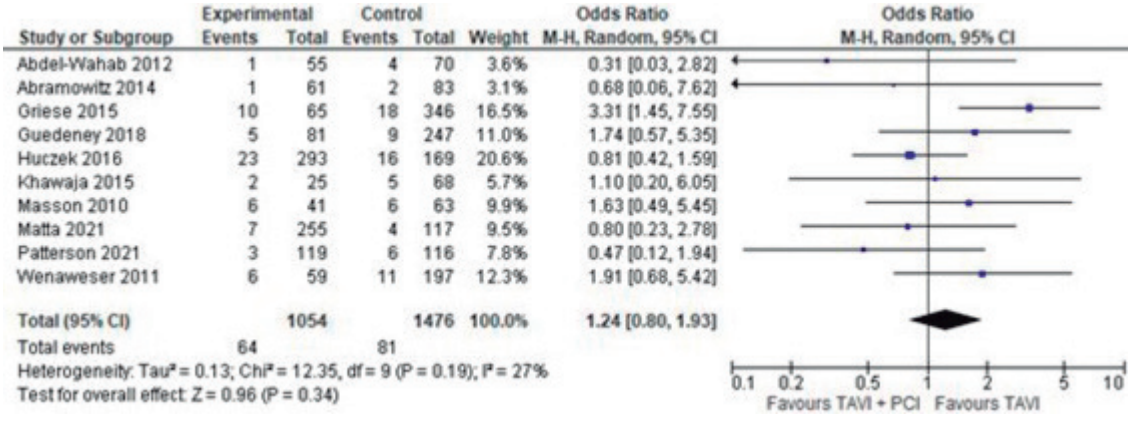
Introduction: Patients having transcatheter aortic valve implantation (TAVI) routinely undergo coronary angiography before the procedure to define the coronary anatomy and to evaluate the extend of coronary artery disease (CAD). Whether percutaneous coronary intervention (PCI) prior/concomitant with TAVI confers any additional clinical benefit in patients with CAD remains unclear.

Objectives: To compare the outcomes of PCI prior to TAVI in patients with significant coronary artery disease and severe aortic stenosis.

Methods: We systematically searched PubMed, Embase and Cochrane databases, in November 2021, for both retrospective and prospective studies comparing TAVI with PCI *versus* TAVI alone. Random-effects meta-analysis was performed.

Results: Eleven studies were included in which one was a randomized clinical trial. A total of 2530 patients were included, providing a 145 pooled death events (64 in TAVI with PCI and 81 in TAVI only). In terms of 30-day clinical outcomes, our pooled analysis revealed a similar all-cause mortality (pooled OR, 1.24; 95%CI [0.80, 1.93], p = 0.34; I^2 = 27%), cardiovascular mortality (pooled OR, 1.44; 95%CI [0.56, 3.75], p = 0.45; I^2 = 57%) and stroke (pooled OR, 1.07; 95%CI [0.53, 2.13], p = 0.86; I^2 = 0%). However, our analysis revealed a higher rate of myocardial infarction (pooled OR, 4.28; 95%CI [1.56, 11.69], p < 0.01; I^2 = 0%) and major bleeding events (pooled OR, 1.40; 95%CI [1.02, 1.93], p = 0.04; I^2 = 0%) in the TAVI with PCI group. A 1-year clinical outcomes analysis revealed a trend for lower all-cause mortality in TAVI only group (pooled OR, 1.37; 95%CI [0.98, 1.91], p = 0.06; I^2 = 0%), similar cardiovascular death rate (pooled OR, 1.15; 95%CI [0.70, 1.89], p = 0.59; I^2 = 6%) and major bleeding events (pooled OR, 1.62; 95%CI [0.95, 2.76], p = 0.07; I^2 = 0%).

Conclusions: Our pooled data suggests that PCI with TAVI in patients with severe aortic stenosis and concomitant CAD grants no additional clinical advantage.



CO 35 Figure

Sexta-feira, 22 Abril de 2022 | 13:30-14:30

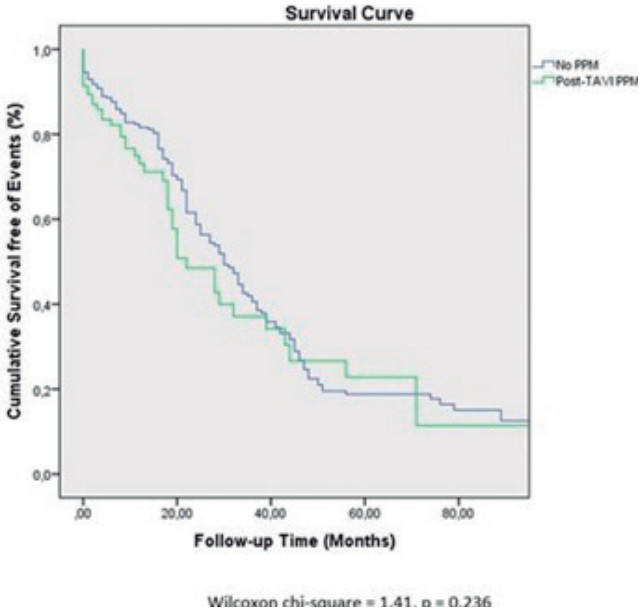
Sala Vega | Comunicações Orais (Sessão 8) - Arritmias 2 - *Pacing* e dispositivos cardíacos

CO 36. PROGNOSTIC IMPACT OF PERCENTAGE OF VENTRICULAR PACING IN PATIENTS REQUIRING PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

João Pedro Reis, Tiago Mendonça, Alexandra Castelo, Inês Rodrigues, António Fiarresga, Ruben Ramos, Mário Oliveira, Duarte Cacela, Rui Ferreira

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

Introduction: Despite the continuous developments of Transcatheter aortic valve implantation (TAVI), around 15% of the patients who undergo this procedure require permanent pacemaker (PPM). Right ventricular pacing (RVP), namely a cumulative percentage of ventricular pacing (CVp) above 40%, has been associated with detrimental effects on ventricular function and an increased risk of events in non-TAVI patients.
Objectives: To evaluate the long-term prognostic significance of RVP regarding overall mortality and the combined endpoint of overall mortality/heart failure hospitalization.
Methods: We retrospectively examined 517 patients who underwent TAVI with a self-expanding valve from 2009 to 2020 at our institution. All patients had pre-procedural clinical evaluation, cardiac computed tomographic angiography, transthoracic echocardiography and electrocardiography performed. CVp was determined from stored pacemaker data. Patients with previous PPM were excluded. Post-TAVI PPM implantation was defined as a device implantation during hospital stay or during the first month after discharge.



Results: 474 patients, 57% male, mean age 81.7 ± 6.5 years and a mean left ventricular ejection fraction of 51.5 ± 14.6% were analysed. Mean follow-up was 18.7 months. Mean STS score and mean Euroscore II were, respectively, 6.89% and 5.76%. Mean gradient was 51.67 mmHg and mean aortic valve area 0.71 cm². 104 patients (21.9%) required PPM implantation after TAVI, with a mean CVp of 65.3 ± 43.4. Post-TAVR PPM was not associated with a worse outcome - overall mortality: HR 1.13, 95%CI 0.72-1.78, p 0.57; overall mortality/heart failure hospitalization: HR 1.22, 95%CI 0.87-1.70, p 0.24. The follow-up Kaplan-Meier curves according to the need for PPM post-TAVI were similar: log rank p 0.24. A CVp cut-off of 40% was not associated with any of the study endpoints - overall mortality: HR 1.72, 95%CI 0.38-7.86, p 0.48; overall mortality/heart failure hospitalization: HR 1.32, 95%CI 0.45-3.91, p 0.61. Also, a CVp cut-off of 40% did not provide an accurate risk stratification as survival free of events was similar between these patients and patients below this cut-off (log rank p 0.11) and in comparison, with patients without PPM (log rank p 0.65).
Conclusions: In patients submitted to TAVI with a self-expanding valve the need for PPM implantation was not associated with increased risk of total mortality or heart failure hospitalization. A CVp cut-off of 40% showed poor discriminative ability regarding long-term events in this population.

CO 37. HEART RATE SCORE: A SIMPLE AND USEFUL PREDICTOR FOR CLINICAL OUTCOMES IN HEART FAILURE

M. Inês Barradas, Fabiana Duarte, Luís Resendes de Oliveira, Cátia Serena, António Xavier Fontes, André Viveiros Monteiro, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Heart rate score (HRS) is a simple index obtained from implantable cardioverter defibrillator (ICD) and cardiac resynchronization therapy defibrillator (CRT-D) and is defined as the percentage of all atrial-paced and sensed events in the single tallest 10 beats/min device histogram bin. It serves as a measure of impaired heart rate variability and HRS ≥ 70% may be associated with arrhythmic events and mortality in heart failure (HF) patients.
Objectives: We hypothesized that HRS ≥ 70% is associated not only with arrhythmic events and mortality, but also with HF decompensations and hospitalizations in HF patients.
Methods: HRS was calculated from remote monitoring in 103 HF patients with ICD or CRT-D. Two groups of patients were defined: HRS ≥ 70% (group 1) and HRS < 70% (group 2). Primary outcome was defined as HF hospitalizations and related admissions to emergency department (ED) and secondary outcome as device total and appropriate number of shocks, ventricular fibrillation (VF) episodes and cardiovascular (CV) death.
Results: Mean age was 64.39 ± 13.04 years, 69.9% were males and mean follow-up period was 61.65 ± 38.87 months. HF aetiology was idiopathic in 33.0% and ischemic in 30.1%. 61 (59.2%) patients had CRT-D and 42 (40.8%) ICD. Mean left ventricular ejection fraction was 33.62 ± 11.964% and mean HRS 51.07 ± 23.27%. Each patient had 1.23 ± 2.06 HF hospitalizations or related admissions to the ED, 3.04 ± 14.90 episodes of VF and 2.39 ± 8.936 device shocks. HRS was ≥ 70% in 55 (53.4%) patients (group 1) and < 70% in 48 (46.6%). Group 1 patients were more frequently males (p = 0.017) and had more frequently coronary artery disease (p = 0.035). HF hospitalizations and admissions to the ED were more common in group 1 (1.83 ± 2.35 *vs.* 0.60 ± 1.52, p = 0.002). Patients from group 1 had more episodes of non-sustained ventricular tachycardia (337.07 ± 755.90 *vs.* 23.70 ± 58.82, p = 0.001), VF episodes (9.15 ± 27.33 *vs.* 0.52 ± 1.65, p = 0.044) and appropriate (4.69 ± 9.594 *vs.* 0.13 ± 0.344, p = 0.004) and total device shocks (7.59 ± 15.945 *vs.* 0.26 ± 0.541, p = 0.004). CV death was higher in group 1 but without significance (2 patients in group 1 *vs.* 0, p = 0,177). HRS also correlated with composite outcome of number HF hospitalizations, HF related admissions to the ED, FV episodes and device shocks (r = 0.495, p = 0.001).
Conclusions: HRS is a simple and easily obtained indexthat correlates with HF hospitalizations and related admissions to the ED, VF episodes and total and appropriate device shocks and may be used as a predictor for clinical outcomes.

CO 38. WHAT IS THERE TO EARN WITH A CRT IMPLANTATION? PREDICTIVE FACTORS OF MORTALITY OR CLINICAL DETERIORATION IN PATIENTS RECEIVING CARDIAC RESYNCHRONIZATION THERAPY BASED ON PRE-IMPLANT FACTORS

João Grade Santos, Alexandra Briosa, Bárbara Ferreira, Mariana Martinho, Diogo Cunha, Khrystyna Budzak, João Simões, Carlos Alvarenga, Rita Miranda, Sofia Almeida, Luís Brandão, Hélder Pereira

Hospital Garcia de Orta, EPE.

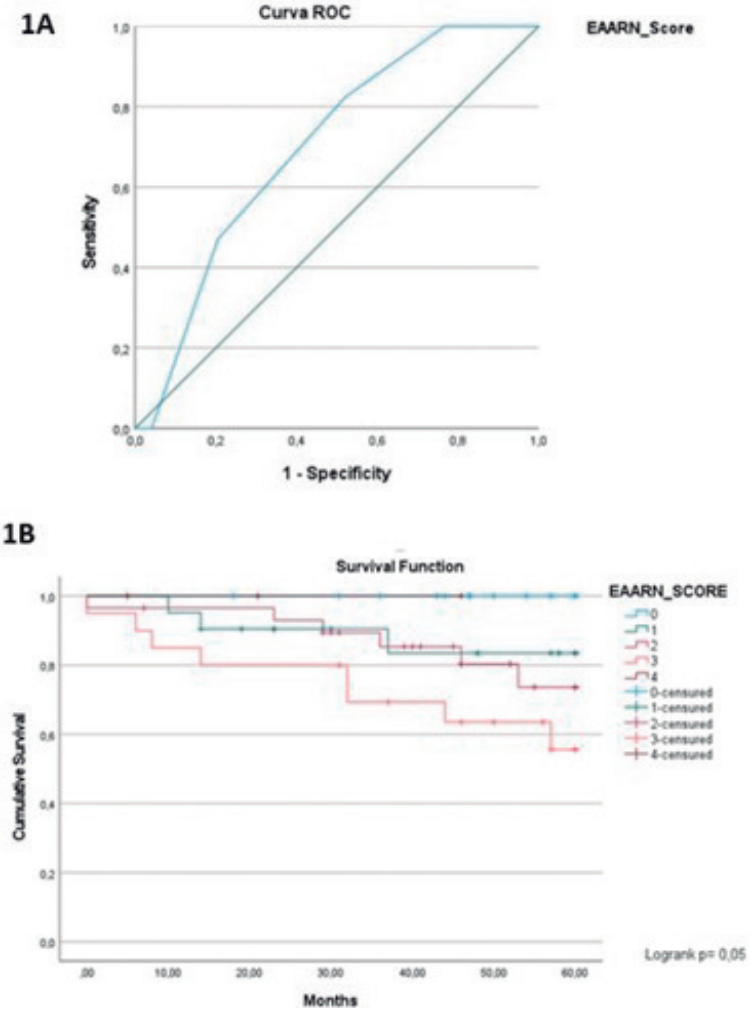
Introduction: Cardiac resynchronization therapy (CRT) in heart failure patients with reduced ejection fraction (HFrEF) and wide QRS complexes has been shown to improve both functional capacity and quality of life, and to decrease hospital admissions and mortality. Mortality in CRT patients has been associated with several pre-implant risk factors and some risk scores, like the EAARN score, have been developed to try and predict mortality and morbidity in this population.

Objectives: Our aim was to assess risk factors for a compositive end-point of admissions for heart failure or cardiovascular death at 5 years, particularly the EAARN SCORE (EF, Age, Atrial Fibrillation (AF), Renal dysfunction, New York Heart Association (NYHA) class IV), in patients with EF < 35% and QRS > 130 ms submitted to CRT implantation.

Methods: We performed a retrospective analysis between 2012 and May of 2019 of all patients admitted for CRT implantation due to HFrEF with EF < 35% and QRS > 130 ms in a single expert centre. Medical records were analysed for clinical, procedural data and outcomes. The predictive accuracy of the score was assessed using the area under curve (AUC) of receiver operating characteristics (ROC) curve. The association between EAARN and the composite end-point at 5-years was analyzed using a Cox regression model.

Results: Of the 134 patients assessed, 101 patients fulfilled all inclusion criteria. The mean age at implantation was 70.2 ± 10 years with a male preponderance (67.2%). This population was significantly symptomatic, with 35% in NYHA class II, 58% in NYHA class III and 5% in NYHA class IV. Most had an ischemic etiology (74.2%). 75% of patients were considered responders after implantation (NYHA improvement of at least 1 class and/or increase in 10% in EF). A primary composite end-point occurred in 17.8% of patients. The pre-procedure characteristics associated with an event were an ischemic etiology (OR 4.66; 95%CI 1.52-14.24, p < 0.05) and pre-procedure EF (OR 0.81; 95%CI 0.81-0.97, p < 0.05). The age, sex, NYHA class, presence of AF, renal function, bundle branch block morphology and responder status were non significant. The EAARN Score showed predictive power for the occurrence of an event (OR 1.95; 95%CI 1.13-3.36, p < 0.05) and a reasonable discriminative capacity with the ROC curve analysis (Fig. 1A) demonstrating an AUC of 0.70. The survival analysis (Fig. 1B) a Hazard Ratio of 1.88 (95%CI 1.158-3.058, p < 0.05) signifying an increased risk of an event of 88% per EAARN class increase, with the Kaplan Meier curves widening significantly in the different categories of the score.

Conclusions: In patients who implanted a CRT due to HFrEF with EF < 35% and QRS > 130 ms the EAARN score demonstrated a good predictive power and discriminative capacity for admission for heart failure or cardiovascular death at 5 years although it does not account for the etiology which was also a significant factor.



CO 39. PACING VENTRICULAR NA REGIÃO DO RAMO ESQUERDO – EXPERIÊNCIA INICIAL

Francisco Moscoso Costa, Pedro Carmo, Francisco Morgado, Gabriela Bem, Eduardo Varandas, Elisabete Vaz, Daniel Matos, Gustavo Rodrigues, João Carmo, Salomé Carvalho, Pedro Galvão Santos, Diogo Cavaco, Pedro Adragão, Miguel Mendes

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

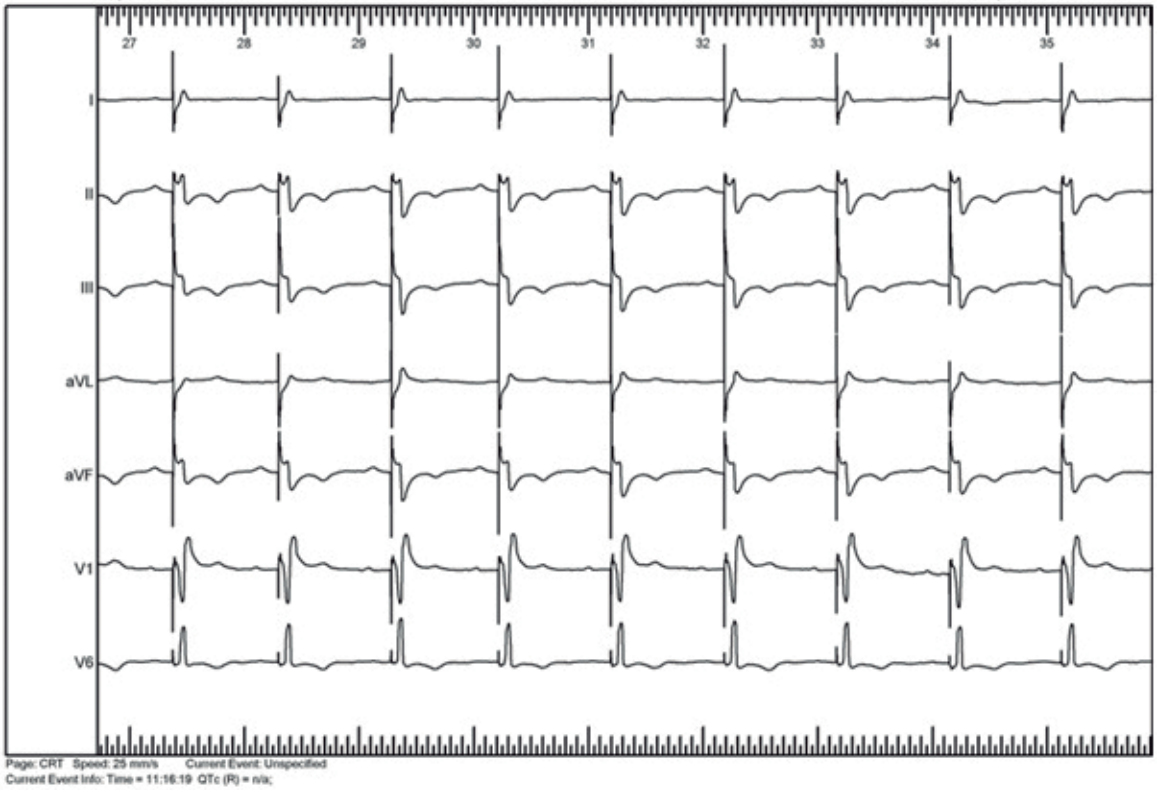
Introdução: A estimulação cardíaca através do feixe de his (*pacing* hisiano) tem a vantagem de preservar a sincronia e mecânica ventricular, contudo, os limiares elevados e o desafio técnico para a implantação, limitam a sua aplicabilidade. Recentemente a estimulação da região do ramo esquerdo do feixe de His surgiu como uma potencial alternativa. O objetivo deste trabalho é descrever as características técnicas da implantação e a experiência inicial de um centro.
Métodos e resultados: Incluíram-se os primeiros 13 doentes consecutivos (82 ± 8 anos), desde 27 de Outubro a 10 de Dezembro de 2021, referenciados para implantação de *pacemaker* convencional. Descreveram-se as características da implantação e os parâmetros pré alta. A indicação para implantação foi bradifibrilhação auricular em 3 doentes (23%) e doença do nodulo áurico-ventricular nos restantes 10 doentes (77%) incluindo dois doentes com bloqueio aurículo ventricular completo. O acesso vascular foi axilar esquerdo guiado por eco em todos os doentes. Foi utilizada a bainha pré formada C315 (Medtronic®) e o elétrodo de fixação ativa 3830 SelectSecure (Medtronic®). A região de interesse para entrega do elétrodo foi identificada utilizando a região do feixe de His como marco anatómico, seguida de *pacemapping* na região septal para melhor aferição do local (morfologia de *pacing* positiva em I e II e negativa em III). O elétrodo foi depois enroscado em posição perpendicular ao septo até atingir a região septal esquerda, monitorizando a impedância e morfologia do QRS sob *pacing* unipolar até obter padrão de bloqueio de ramo direito e um tempo estimulo-onda R (LVAT) em V6 < 100 ms. Foi possível atingir as características descritas em todos os doentes, com um tempo médio de procedimento de 75 ± 24 minutos e um tempo de fluoroscopia de 4 ± 2,5 minutos. O tempo médio de LVAT em V6 foi de 85 ± 10,8 ms, o limiar médio na implantação 0,6 ± 0,3 mv a 0,4 ms e a impedância 633,5 ± 149,9W. A onda R média foi de 12,3 ± 5,4 mv em bipolar. No final a largura do QRS foi de 90 ± 32 ms (Fig.). À data de alta não se verificou nenhum caso de deslocamento do elétrodo ou perfuração. Observou-se um caso de dor pleurítica pós procedimento e um acidente vascular cerebral em relação com a suspensão da hipocoagulação oral peri procedimento num doente com fibrilhação auricular.
Conclusões: A estimulação da região do ramo esquerdo do feixe de His é exequível e permite obter *pacing* permanente com bons limiares e preservando a sincronia ventricular esquerda. O acumular de experiência e o seguimento alargado serão fundamentais para o consolidar da técnica e para estabelecer as suas principais indicações e limitações.

CO 40. APICAL *VERSUS* SEPTAL PACING AND UPGRADE TO CARDIAC RESYNCHRONIZATION THERAPY: WHAT ARE THE ODDS?

Sara Couto Pereira, Nuno Cortez-Dias, Pedro Silvério António, Afonso Nunes-Ferreira, Gustavo Lima da Silva, Ana Bernardes, Helena Cristina Costa, Luís Carpinteiro, Andreia Magalhães, Pedro Marques, Fausto J. Pinto, João de Sousa

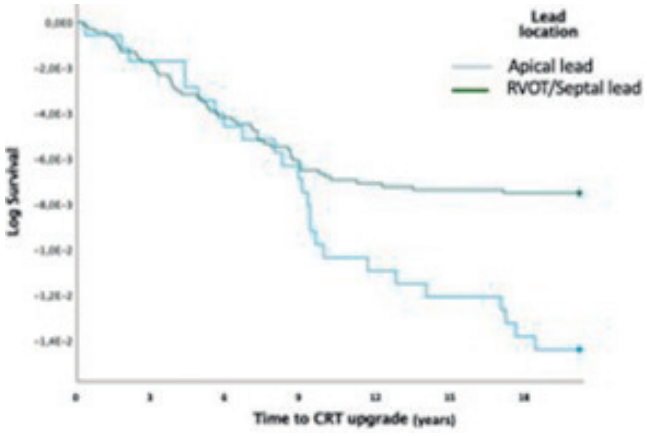
Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Right ventricular apical pacing (RVAp) may be deleterious to ventricular function and hemodynamics due to pacing induced dyssynchrony. In the last decades, some studies showed that RVAp has been associated with heart failure, deterioration of left ventricular function and high mortality. Some patients (pts) may need, during the follow up (FUP), an upgrade to cardiac resynchronization therapy (CRT). New techniques have emerged such as RV lead implantation in the high septum or outflow RV tract (RVOT) and, more recently, His bundle/LB pacing.
Objectives: To compare the need for upgrade to CRT in patients with RVAp *versus* septal/RVOT pacing.



CO 39 Figura

Methods: Retrospective single-center study of consecutive pts that implanted pacemakers in a tertiary center between January 1995 and December 2020. We collected data regarding pacing indication, RV pacing site (apex *versus* septum/RVOT) and need for an upgrade to CRT during follow up (FUP). Our primary endpoint was upgrade to CRT during the FU period. In the model, the impact of localization of the implanted lead on the survival free from upgrade was estimated assuming a neutral effect on mortality. Statistical analysis was performed using t-Student test and logistic regression.
Results: We included 8,761 pts, 60.2% (n = 5,275) were male, with a mean age of 76.5 ± 10.7 years. The main indications for pacemaker implantation were (1) complete atrioventricular (AV) block (2,239, 25.6%), (2) sick sinus syndrome (2211, 25.2%), (3) atrial fibrillation with AV block or bradycardia with significant pauses (17.4%) and (4) Mobitz II 2nd degree AV block (1,467, 16.7%). RVAp was performed in 1,746 (20%) patients and RVOT/septal pacing in 6,933 patients (80%; RVOT in 657 (9.5%)). During FUP, 26 (1.5%) RVAp pts and 52 (0.8%) RVOT/septal pacing pts underwent upgrade to CRT, in a total of 78 pts (CRT-P in 54 patients and CRT-D in 24 patients). We observed that patients with RVAp had twice the risk of CRT upgrade during FUP (OR: 2.0 (95%CI1.25-3.21), p = 0,004) when compared to patients with RVOT/septal pacing (Fig.).



Conclusions: Patients with RVAp presented a 2-fold higher risk for upgrade to CRT when compared to patients with RVOT/septal pacing in our center. This retrospective analysis shows that lead implantation in the septum/RVOT should be preferred instead of the apex to reduce pacing induced dyssynchrony and need for CRT upgrade.

Sexta-feira, 22 Abril de 2022 | 16:00-17:00

Sala Aquarius | Comunicações Orais (Sessão 9) - Intervenção Cardíaca Coronária e Estrutural 2 - Vários Tópicos

CO 41. A DECADE OF EXPERIENCE WITH ROTATIONAL ATHERECTOMY: A SINGLE-CENTRE STUDY

João Borges Rosa[1], Mafalda Griné[2], Manuel Oliveira-Santos[1], Joana Delgado Silva[1], Vítor Matos[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: Rotational atherectomy (RA) enables percutaneous coronary intervention (PCI) for complex and calcified coronary lesions, despite limited data regarding long-term outcomes. We aimed to characterize success rate, safety, and long-term outcomes with this technique in a single-centre with over a decade of experience.
Methods: We retrospectively analysed all cases of RA performed in a single-centre between January 2009 and December 2020. Angiographic success was defined as the presence of less than 30% residual stenosis and grade 3 TIMI (thrombolysis in myocardial infarction) flow. Complications included coronary perforation or dissection, burr entrapment, wire fracture, slow flow/no-reflow, side branch occlusion, peri-procedural myocardial infarction (MI), or death. Long-term major adverse cardiovascular (CV) events (MACE) included CV and all-cause death, MI, and target vessel revascularization.
Results: Of the total of 14,527 PCI performed, 410 procedures (2.8%) included RA. Most patients were male (74.0%) with mean age of 72.3 ± 9.3 years. There was a high prevalence of hypertension (85.65%) and dyslipidaemia (74.2%) which increased significantly over time (p trend = 0.008 and p trend< 0.001, respectively). One-third presented with acute coronary syndrome, most patients had multivessel disease (38.4% two-vessel, 32.7% three-vessel), and 12.2% had significant left main disease. Over time there was an increase in disease complexity, reflected by the proportion of type B2/C lesions (p trend = 0.003) and median SYNTAX score (p trend = 0.003). The utilization of transradial access increased over time (p trend = 0.003) and the maximum burr size was ≤ 1.50 mm in most cases (88.0%), with smaller sizes over time. The overall angiographic success

Figure 1. Tends in peri-procedural outcomes. Angiographic success rate (light blue bars) remained unchanged over time (p trend=0.938), while the incidence of peri-procedural complications (dark blue line) declined (p trend=0.029).

CO 41 Figure

rate was 96.6% without significant variation over time while complications (9.0%) showed a temporal decline (p trend = 0.029) (Figure 1). Most frequent complications were coronary dissection (n = 17) and burr entrapment (n = 6). After a median follow-up of 40 (16-76) months, MACE occurred in 27.7% of patients, mainly due to CV death. At one year of follow-up, MACE, all-cause mortality and, target vessel revascularization occurred in 12.1%, 6.4%, and 5.6%, respectively, without variation over time.
Conclusions: RA is an effective and safe technique, with a declining rate of peri-procedural complications along with technical developments. The rate of long-term events is concordant with the CV risk profile and coronary lesion complexity.

CO 42. RESIDUAL SHUNT AFTER PATENT FORAMEN OVALE CLOSURE: PREDICTORS' AND ITS IMPACT ON LONG-TERM OUTCOMES

Carolina Saleiro, Sara Matos, Telma Alves, Diana de Campos, Manuel Oliveira-Santos, Gustavo Santo, Fernando Silva, João Sargento Freitas, Luís Paiva, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral.

Introduction: Percutaneous closure is the standard therapy when a high-risk patent foramen ovale (PFO) is considered to have an important pathogenic role in stroke. Residual shunt after closure represents a problem in some patients.
Objectives: To assess the predictors of residual shunt at three-six months after PFO closure. To assess the impact of residual shunt on stroke/transitory ischemic attack (TIA) recurrence, headache symptoms relief or need for re-intervention.
Methods: 336 consecutive patients who underwent PFO closure between 09/2003 and 11/2021 were included in the analysis. Demographic, imagological, and procedural data were collected. Median follow-up time was 12 [6-29] months.
Results: Mean age was 47 ± 11years old, with 58% female patients. Comorbidity with CV risk factors was low, but almost a quarter reported headache. The main indication for closure was previous stroke/TIA (91%). Mean number of PFO risk characteristics was 4 ± 2 (aneurismatic septum 41.8%, moderate shunt 14.5%; severe shunt 68.5%; septum hypermobility 41.1%; long tunnel 73.6%; Chiari web 0.9%; large PFO 62.3%). Amplatzer device was used more frequently (71.4%) followed by Premere (15.2%), Figulla (4.2%), Solysafe (1.5%), Gore Cardioform (0.3%) and CeraFlex (0.3%). Remaining shunt after the procedure was confirmed by colour doppler in 0.6% of the patients 24 hours after the procedure and in 3.6% one-month after. Evaluation with agitated saline echocardiography at three to six months was performed in 251 patients and residual shunt was confirmed in 7.7%. Grade 1 shunt was present in 43.5% of the cases, grade 2 in 21.7% and grade 3 in 34.8%. At one-year, the rate of residual shunt decreased to 3.6%. The anatomical characteristics of the PFO were not predictors of residual shunt, either when analysed in isolation or as cumulative number of risk characteristics (p = 0.51). However, despite the small sample size, there is an association between the Occluder device and residual shunt (p = 0.001, Table 1). Stroke/TIA recurrence rate was 1.5% and residual shunt was not a predictor of recurrence (p = 0.48). In a subgroup of patients with headache, residual shunt was not related to the absence of symptoms relief (p = 0.24). Reintervention rate was 0%.

Occluder Device	*No shunt (N=224)*	*Residual shunt (N=26)*
Amplatzer, n (%)	169 (88.5%)	22 (11.5%)
Premere, n (%)	38 (97.4%)	1 (2.6%)
Figulla, n (%)	13 (92.9%)	1 (7.1%)
Solysafe, n (%)	4 (100%)	0 (0%)
Gore Cardioform, n (%)	0 (0%)	1 (100%)
CeraFlex, n (%)	0 (0%)	1 (100%)

Table 1- Incidence of residual shunt at six-months stratified by Occluder device used.

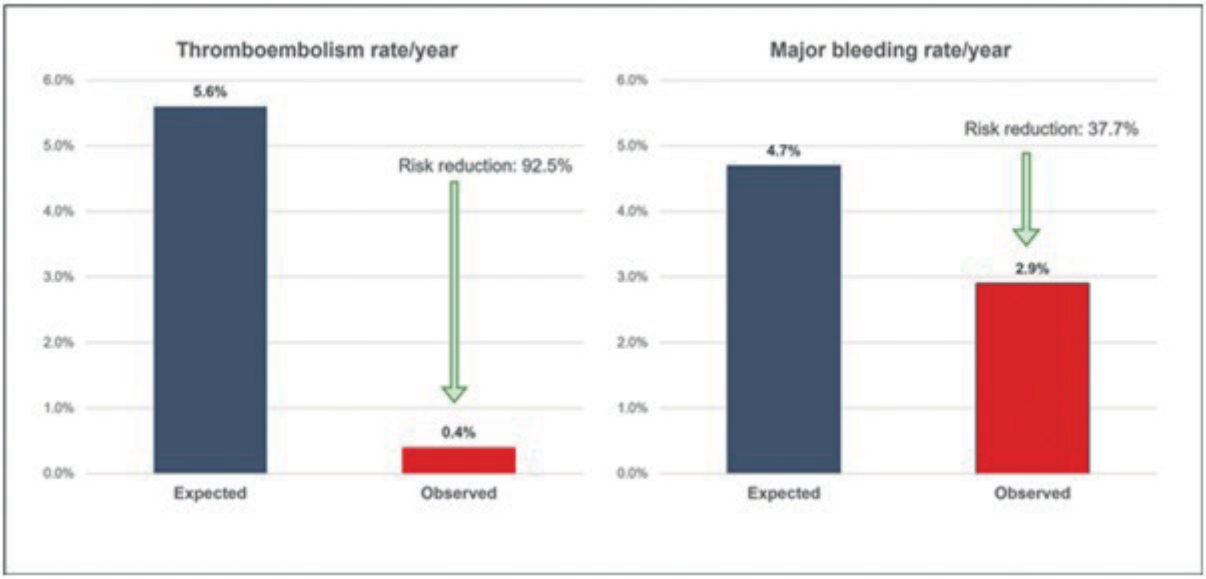
Conclusions: Incidence of residual shunt after PFO closure at three to six months was 7.7%. There is an association between the Occluder device and risk of residual shunt. Residual shunt did not affect stroke recurrence, headache symptom relief or the need for re-intervention.

CO 43. PERCUTANEOUS LEFT ATRIAL APPENDAGE CLOSURE: A SINGLE CENTER EXPERIENCE

Ana Rita M. Gomes[1], Carolina Saleiro[2], Natália António[2], Manuel Oliveira-Santos[2], Luís Paiva[2], Marco Costa[2], Lino Gonçalves[2]

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

Introduction: In patients with atrial fibrillation and high thromboembolic risk, percutaneous closure of left atrial appendage (LAA) is an alternative treatment in case of contraindication to oral anticoagulants (OAC) or an additional strategy for therapeutic failure.



CO 43 Figure

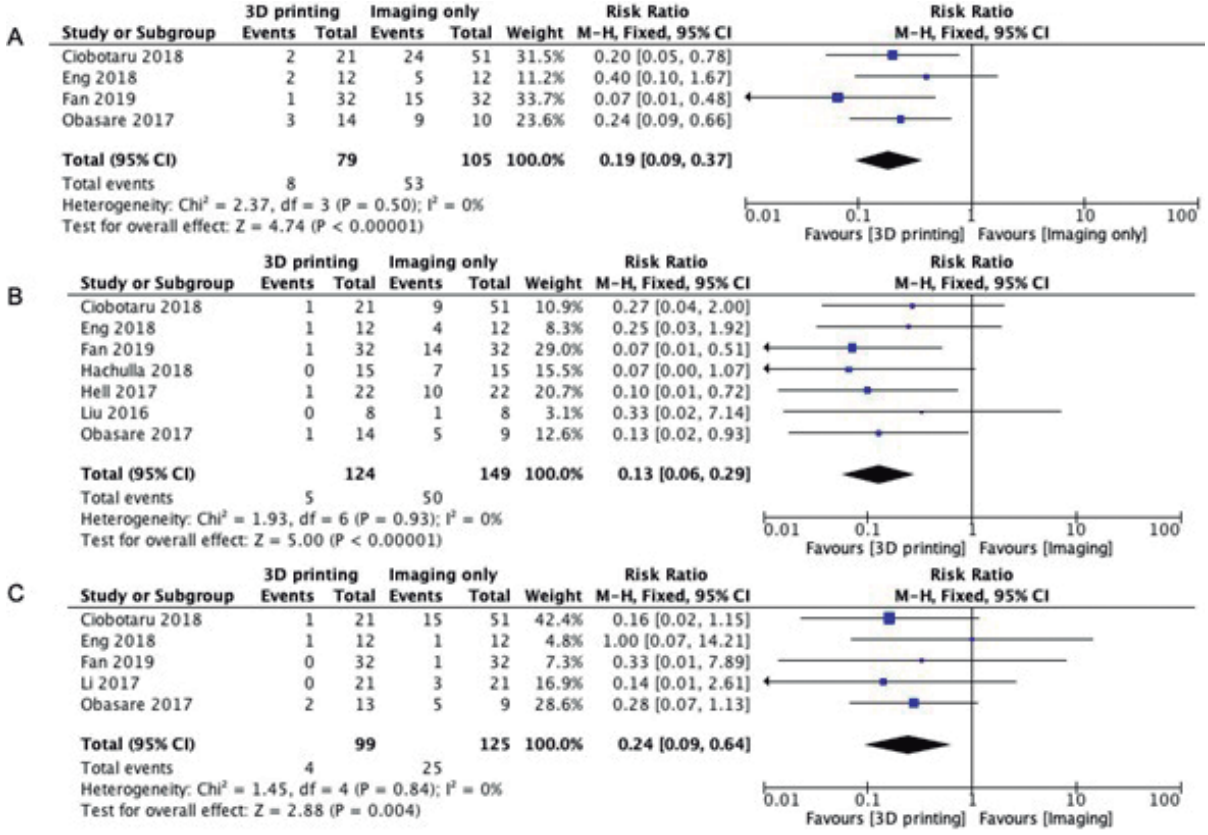
Objectives: This study aims to assess the feasibility and efficacy of LAA percutaneous closure in the prevention of thromboembolic events.
Methods: Retrospective analysis of patients consecutively admitted for percutaneous LAA closure in a single Cardiology Department between May 2010 and December 2021. The procedure was guided by transesophageal echocardiogram (TEE) or intracardiac echocardiography (ICE) and device options included first generation Amplatzer Cardiac Plug (ACP), second generation ACP (Amulet) and Watchmann. A short-term follow-up was conducted with echocardiographic control at 1 month. Long-term follow-up included screening for thromboembolic and hemorrhagic events.
Results: A total of 179 patients were included. The median age was 75 (68-80) years old, 65.4% were male and 30.2% had paroxysmal atrial fibrillation. About a third (36.3%) had previous history of stroke or transitory ischemic attack and 14.0% had coronary artery disease. The prevalence of arterial hypertension was 82.1%, 59.2% had dyslipidemia, 35.8% had diabetes mellitus and 30.2% chronic kidney disease. The mean CHA_2DS_2-VASc risk score was 4.3 ± 1.5 and mean HAS-BLED score was 3.1 ± 1.1 (≥ 3 in 72.7%). The main indications for LAA closure were previous major hemorrhage (57.0%), high bleeding risk (23.5%), embolic events while on OAC therapy (13.4%) or recurrent minor bleeding (12.8%). The procedural success rate was 95.5%. It was guided by TEE (59.8%) and/or ICE (46.9%). The most used device was Amulet (68.0%), followed by ACP (18.3%) and Watchmann (13.7%). Median follow-up time was 12.0 (5.0-21.0) months. In long-term follow-up, we registered a mortality rate of 10.1%, being 22.2% due to cardiovascular causes. Thromboembolic and bleeding events incidence was lower than expected from CHA_2DS_2-VASc (expected stroke rate/year 5.6 *vs.* observed stroke rate/year 0.4%; 92.5% risk reduction) and HAS-BLED (expected major bleeding rate/year 4.7 *vs.* observed major bleeding rate/year 2.9%; 37.7% risk reduction) scores, respectively.
Conclusions: According to our study, percutaneous left atrial appendage closure is feasible and seems to offer significant protection against thromboembolic and hemorrhagic events in high-risk patients.

CO 44. 3D PRINTING FOR LEFT ATRIAL APPENDAGE CLOSURE: A META-ANALYSIS OF COHORT STUDIES

Diana Decampos, Rogério Teixeira, Carolina Saleiro, Manuel Oliveira-Santos, Luís Paiva, Marco Costa, Ana Botelho, Lino Gonçalves

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

The most recent data on peridevice leaks (PDL) show that moderate to severe PDL are present at 12 months in 10% - 27.5% of patients following left atrial appendage closure (LAAC). Accurately sizing the occluder device is pivotal in LAAC to avoid PDL and procedural complications. Three dimension printing (3DP) has emerged as an alternative to imaging to guide LAAC device sizing. We assessed the usefulness of a 3DP based compared to a standard only-imaging approach for LAAC. A fixed-effects meta-analysis was performed targeting a co-primary endpoint of disagreement in device sizing and PDL. The quality of individual studies was assessed using the Newcastle-Ottawa scale. Subgroup analyses were performed to explore possible sources of heterogeneity. Eight studies met our inclusion criteria with a total of 307 patients (144 underwent 3DP). Mean ages ranged from 69 to 79 years. Baseline mean CHA2DS2-VASc and HAS-BLED scores ranged from 3.0 to 4.9 and 3.1 to 4.8 points, respectively. Stroke or transient ischemic accident and previous bleeding were prevalent conditions. The Amplatzer device was used in two studies and the Watchman device was the choice in the remaining series. Overall, 84 patients had a disagreement in device sizing and/or a PDL. 3DP significantly reduced the risk of the co-primary endpoint (RR = 0.19; 95%CI 0.09-0.37) with consistency across the studies (I2 = 0%). Individually, both size disagreements and leaks were reduced under a 3DP modeling strategy compared to an imaging-only strategy. Sensitivity analysis showed that the magnitude of the pooled estimates did not significantly change under a fixed-effects model. This meta-analysis of cohort studies shows that 3DP disagreement in device sizing and PDL when compared to



CO 44 Figure. (A) Fixed-effects model comparing the composite endpoint of disagreement in landing zone size estimation and peridevice leaks between procedures guided by 3D printing and procedures guided by imaging only. (B) Fixed-effects model comparing over and underestimation of the LAA occluder between 3D printing model and imaging. (C) Fixed-effects model comparing post-procedural peridevice leaks between 3D printing model and imaging.

an imaging-only approach. Larger randomized controlled trials with an imaging core laboratory are needed. Nevertheless, our analysis identified key experimental features required for future studies.

CO 45. ISCHEMIC HEART DISEASE: LOOKING BEYOND CORONARY STENOSIS

Vera Ferreira, Ruben Ramos, Tiago Mendonça, Luís Almeida Morais, Tiago Pereira-da-Silva, Eunice Oliveira, Cristina Fondinho, Alexandra Castelo, José Viegas, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: About 50% of patients referred for invasive coronary angiography (ICA) because of angina and/or myocardial ischemia are found to have non-obstructive coronary artery disease (NOCAD). The role of coronary vasomotion disorders (CVD), namely microvascular angina (MVA) and vasospastic angina (VSA), as mechanisms of ischemic heart disease are becoming increasingly recognized.
Objectives: Our aim was to describe coronary physiology and microvascular function in patients with angina and NOCAD referred to ICA applying a pre-approved, multi-parametric and sequential protocol covering the coronary functional testing whole spectrum.
Methods: Patients with persistent angina referred for ICA and found to have NOCAD, were included in this single centre prospective study and underwent our protocol for coronary function test (CFT) in last 10 months. Our protocol comprises assessment of coronary circulation vasorelaxation using invasive coronary physiology at rest and with hyperaemia and assessment of the propensity of the coronary circulation to excessive vasoconstriction using intra-coronary acetylcholine (Ach). Fractional flow reserve, coronary flow reserve (CFR) and index of myocardial resistance

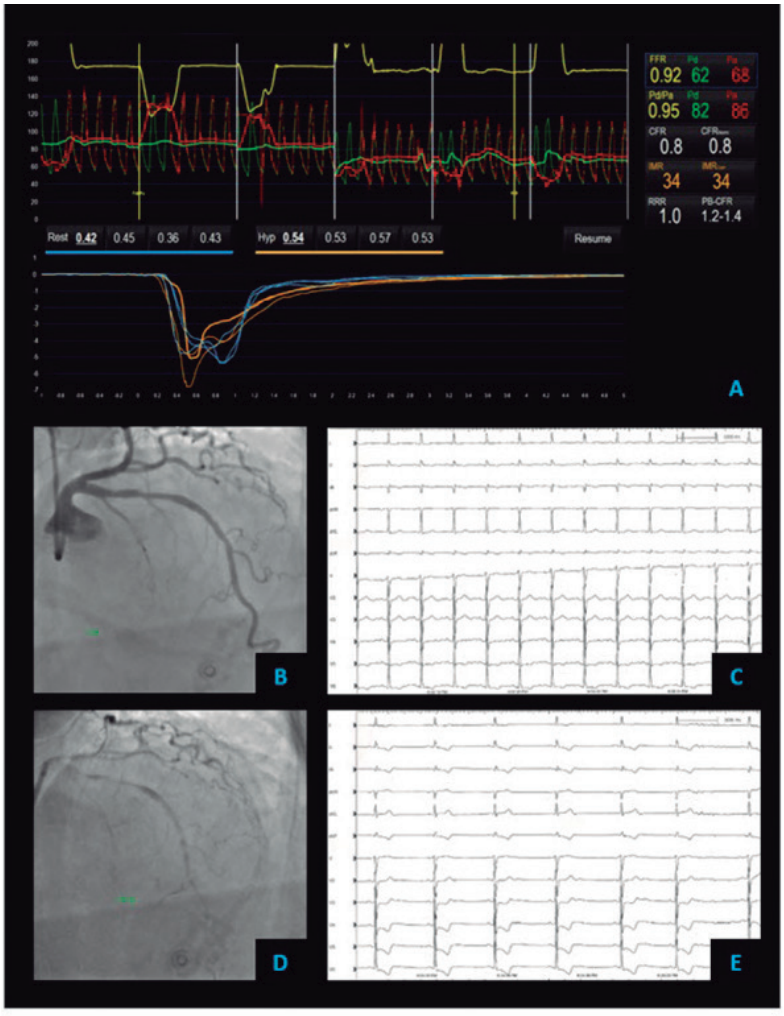


Figure 1 Microvascular and vasospastic angina – Coronary angiography revealed tortuous coronary arteries. LAD had no obstructive lesions - FFR 0.92 (A). Coronary vascular function testing was performed in the LAD using the thermodilution technique. Coronary flow reserve was low at 0.8 and index of microvascular resistance was high at 34 (A). On acetylcholine provocation testing, there was a diffuse vasospasm in the LAD (D), accompanied by inferior and lateral ST depression (E), which were not present at baseline (C) and complaints of precordial pain.

CO 45 Figure

(IMR) were recorded, using last generation software devices. CVD were diagnosed based on the criteria proposed by the Coronary Vasomotor Disorders International Study Group.
Results: A total of 20 patients were included, mean age was 63 ± 13 years and half were females. Hypertension and dyslipidemia were the most frequent cardiovascular risk factors (75% and 65%, respectively), and 20% had known ischemic heart disease with a previous percutaneous coronary intervention. Most patients (75%) had typical angina with median duration of 16 months before CFT. At baseline, 59% of patients had CCS class II angina and 55% had previous ICA/computed tomography due to typical anginal symptoms. Of patients who underwent non-invasive stress testing (80%), the majority had evidence of ischemia (75%). Our protocol was successfully and totally completed in all subjects without serious complications. Isolated MVA was found in 5 (25%), isolated VSA in 8 (40%), both conditions in 2 (10%), and noncardiac chest pain in 5 (25%) patients. Four patients had CFR < 2.0 and six had IMR ≥ 25. According to the diagnosis obtained in our protocol, antianginal therapy was modified in 70% of patients.
Conclusions: In patients with persistent angina and NOCAD, coronary functional abnormalities, including coronary spasm, impaired microvascular vasodilatation and resistance, are prevalent and frequently coexist. A predefined, standardized, multi-parametric protocol is feasible and safe in clinical practice, providing us definitive diagnosis for the underlying cause of angina, and more importantly, allowing a stratified treatment of the distinct CVD entities.

Sexta-feira, 22 Abril de 2022 | 17:00-18:00

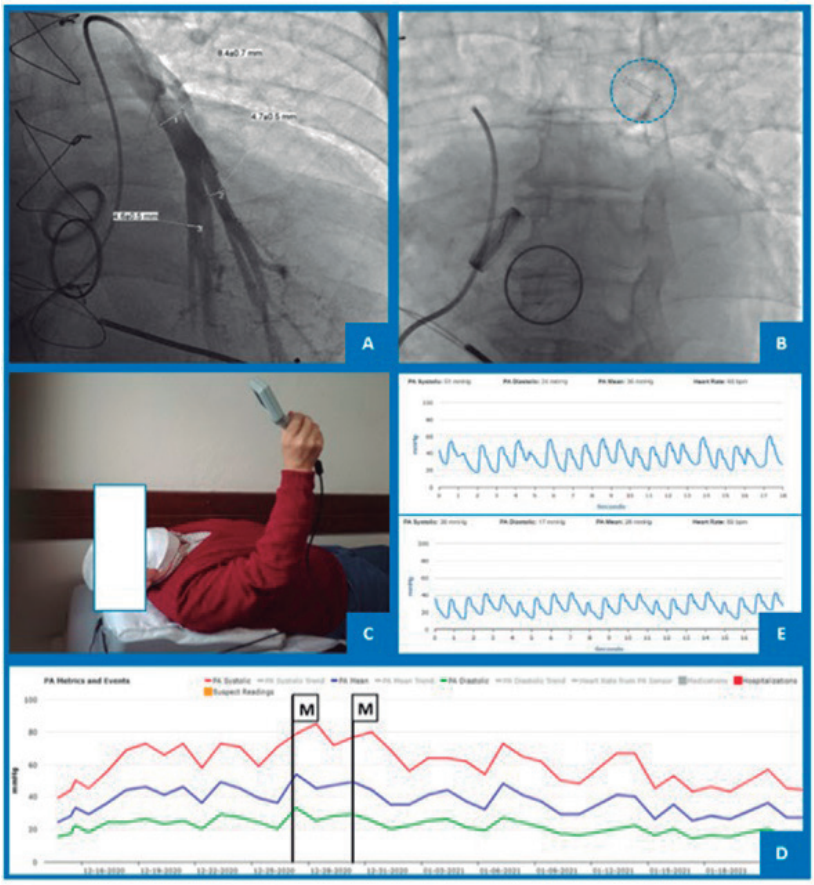
Sala Aquarius | Comunicações Orais (Sessão 10) - Insuficiência Cardíaca 1 - Parâmetros de Avaliação e Prognóstico

CO 46. REMOTE INVASIVE MONITORING OF PULMONARY ARTERY PRESSURE IN PATIENTS WITH HEART FAILURE: INITIAL EXPERIENCE OF A TERTIARY CARE CENTER

Vera Ferreira, Tiago Pereira-da-Silva, António Gonçalves, Rita Ilhão Moreira, João Alves, Sofia Barquinha, Carlos Franco, Miguel Trindade, Alexandra Castelo, Pedro Garcia Brás, Isabel Cardoso, Ana Timóteo, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Decompensated heart failure (HF) is associated with poor short- and long-term prognosis. Remote invasive monitoring of pulmonary artery pressure (PAP) enables an early detection of HF decompensations,



Selective pulmonary angiography to identify and measure an appropriate-sized pulmonary artery branch (**A**). Sensor (dotted circle) was released in the desired location (**B**). Patient transmits daily pressure readings using the home electronics (**C**). A marked increase in PAP was noted, requiring contact by HF team for dietary and diuretic dose adjustment leading to PAP reduction (**D**). Patient single-beat pulmonary artery pressure tracings before and after dose-adjustment of diuretics (**E**).
The notification M signals the treatment changes.

CO 46 Figure

before symptoms occur, and may improve clinical outcomes. We aimed to describe our initial experience with the use of the CardioMEMS™ remote monitoring system in patients with HF, including its safety and effectiveness.
Methods and results: Ten patients with HF in New York Heart Association class III and at least one hospitalization due to decompensated HF in the last 12 months, who underwent invasive remote monitoring of PAP, were included in this prospective registry. The mean age was 65 ± 13 years, nine were men and the mean LVEF was 30 ± 8%. The median of HF admissions in the previous 12 months was 2 (IQR 1-3). All patients were receiving a β-blocker, an ACE inhibitor/ARB/ARNI and an aldosterone antagonist. Mean glomerular filtration rate was 52.3 ± 12.5 mL/min per 1.73 m^2, mean NT-proBNP was 4,365 ± 3,628 pg/mL and mean baseline furosemide daily dosage was 64 ± 35 mg. The pulmonary artery (PA) sensor was placed in a left PA branch in all patients and no major procedural complications occurred. In a mean follow-up of 257 ± 111 days, a total of 2314 pressure readings were transmitted, with a patient reading compliance of 97.8%. There was one (late) sensor failure due to device migration to a segmentary PA branch. During follow-up, PAP remained inside the optimal range (which was individualized per patient) in 86.4% of readings. Of the 13.6% readings outside the optimal range, patients were asymptomatic in 87%. There was a need for 286 telephone contacts (about one per week) by the HF team with patients. Each patient had a median of 6 (IQR 3-7) medical adjustments due to increases in PAP to values above the targets, regardless of symptoms worsening. These required dietary and diuretic dose adjustments, leading to PAP reductions. One patient required an outpatient clinic visit for intravenous diuretic due to persisting PAP elevation. Only one hospitalization due to a non-cardiac cause was registered. No hospitalizations for HF or deaths occurred during follow-up.
Conclusions: A haemodynamic-guided HF monitoring was safe and effective and may be a useful adjunctive tool to the standard-of-care management in selected HF patients, particularly in the context of COVID-19 pandemics, where a reduction in the number of health-care visits may be desirable.

CO 47. BNP *VERSUS* NT-PROBNP FOR ECHOCARDIOGRAPHIC AND HEMODYNAMIC PARAMETERS PREDICTION IN HEART TRANSPLANTED PATIENTS

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

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

Introduction: Invasive right-heart (RH) catheterization for hemodynamic assessment and transthoracic echocardiography (TTE) for functional and structural evaluation are used on heart transplanted (HT) patients clinical approach. In this population, it is still unclear whether brain natriuretic peptide (BNP) and N-terminal-pro-hormone BNP (NT-proBNP) plasma levels predict unfavorable hemodynamic and TTE parameters.
Objectives: To assess whether BNP and NT-proBNP can predict hemodynamic and TTE parameters in the HT population.
Methods: Retrospective analysis of consecutive HT patients submitted to RH catheterization and TTE between February 2016 and November 2021. Plasma BNP and NT-proBNP, measured at the same day, were used to determine whether unfavorable hemodynamic and TTE characteristics might be predicted using the area under the curve (AUC) analysis of Receiver Operating Characteristic curve (SPSS®).
Results: A total of 127 RH catheterization and TTE were performed in the study period. Mean age was 49.5 years, mean left ventricular ejection fraction was 57.7 ± 10.2%, BNP 808 ± 984 pg/mL and NT-pro BNP 4,221 ± 8,418 pg/mL. AUC results of BNP and NT-proBNP values for TTE and RH hemodynamic parameters prediction are described in the table. BNP, but not NT-proBNP, was significantly increased in patients with pulmonary capillary wedge pressure (PCWP) ≥ 15 mmHg ($p < 0.001$), central venous pressure (CVP) ≥ 8 mmHg ($p = 0.012$), cardiac index < 2.5 L/min/m^2 ($p < 0.001$), cardiac power output < 0.6 ($p = 0.003$) on RH catheterization and left ventricular ejection fraction (LVEF) < 50% ($p = 0.013$) on TTE. Both BNP and NT-proBNP were significantly associated with mean pulmonary arterial pressure (mPAP) ≥ 20 mmHg ($p = 0.001$ and $p = 0.003$, respectively) on RH catheterization and systolic PAP > 30 mmHg as estimated by TTE ($p = 0.031$ and $p = 0.012$, respectively). BNP > 680 pg/mL had a sensitivity (S) of 81% and specificity (Sp) of 70% to predict PCWP ≥ 15 mmHg, a S of 79% and a Sp of 73% for mPAP ≥ 20 mmHg and a S of 70% and Sp of 50% for CVP ≥ 8 mmHg.
Conclusions: In the HT population, BNP was significantly associated with several hemodynamic parameters while NT-proBNP was not. In an era where many hospitals are replacing the use of BNP for NT-proBNP to follow Heart Failure patients using Sacubitril-Valsartan, physicians might consider these findings important to their clinical practice assessing HT patients.

CO 48. NT-PROBNP FOR FUNCTIONAL CAPACITY ASSESSMENT IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION

Daniel A. Gomes, Gonçalo l. Cunha, Jorge Ferreira, Sérgio Maltês, Bruno Rocha, Francisco Albuquerque, Mariana S. Paiva, Rita R. Santos, Francisco Gama, Pedro Freitas, Luís Moreno, Anaí Durazzo, Miguel Mendes

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

Table 1. Predictors of right-side catheterization and transthoracic echocardiographic parameters

Parameters		BNP			NT-pro BNP		
		AUC	*p* value	95% CI	AUC	*p* value	95% CI
Hemodynamic	PCWP > 15 mmHg	.806	< .001	.707 - .905	.513	.890	.334 - .690
	CVP > 8 mmHg	.686	.012	.565 - .807	.673	.140	.495 - .852
	CI < 2.5 L/min/m2	.811	< .001	.706 - .917	.357	.255	.130 - .583
	PAPi < 2	.645	.092	.706 - .917	.490	.931	.325 - .655
	CPO < 0.6	.723	.003	.594 - .852	.477	.128	.215 - .735
	mPAP > 20 mmHg	.767	.001	.660 - .874	.789	.003	.610 - .887
Echocardiographic	E/e' > 15	.574	.599	.348 - .800	.426	.673	0 - .875
	E/a > 2	.482	.851	.313 - .800	.625	.673	.458 - .875
	LVEF < 50%	.708	.013	.313 - .651	.536	.796	.254 - .817
	TAPSE < 16	.636	.135	.482 - .790	.428	.430	.268 - .589
	DT < 150 ms	.601	.180	.455 - .790	.450	.651	.237 - .662
	SPAP > 30 mmHg	.668	.031	.525 - .810	.741	.012	.577 - .662
	LA index volume > 34 ml/m2	.652	.067	.492 - .813	.657	.250	.303 - .932

Table 1. BNP versus NT-pro BNP as predictors of right-side hemodynamics and transthoracic echocardioghraphic parameters in heart transplanted patients.

CI=cardiac index, CVP=central venous pressure, CPO=cardiac power output, DT=desaceleration time, LA=left atrial, LVEF=left ventricular ejection fraction, mPAP=mean pulmonary artery pressure, PAPi=pulmonary artery pulsatility index, PCWP=pulmonary capillary wedge pressure, SPAP=systolic pulmonary artery pressure, TAPSE=tricuspid annular plane systolic excursion

CO 47 Figure

Introduction: Cardiopulmonary respiratory exercise testing (CPET) is the gold-standard for the assessment of functional capacity, even though it is not widely available. NT-proBNP is an easily obtainable measurement, that correlates with left ventricular (LV) filling pressures in patients with heart failure with reduced ejection fraction (HFrEF). The aim of this study was to evaluate the performance of NT-proBNP in predicting functional capacity.
Methods: Stable ambulatory patients with chronic HFrEF (LV ejection fraction [LVEF] < 40%) who underwent CPET from 2004 to 2021 were retrospectively identified at a single center. Those without serum NT-proBNP within 3 months from CPET were excluded (n = 42). Significant functional limitation was defined as peak oxygen consumption (pVO2) < 16 mL/Kg (Weber class C and D). Patients were randomized to a derivation or validation cohort in a 2:1 fashion, and, using c-statistic, further divided according to NT-proBNP levels in three groups: high, intermediate, and low probability of significant functional limitation.

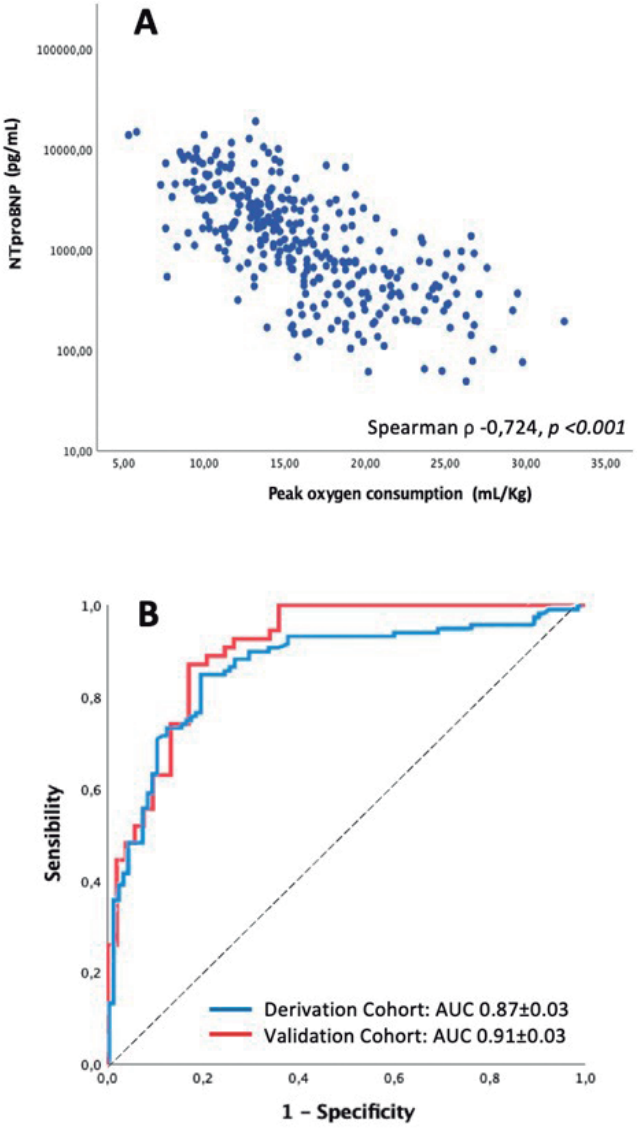


Figure. 1 – A: NT-proBNP and pVO2 correlation. B: ROC curves exhibiting NT-proBNP discriminative power for pVO2 < 16mL/Kg (significance at p<0.001)

Results: A total of 325 patients (mean age 57 ± 12 years, 80% male, 58% with ischemic HF and median LVEF of 30% [IQR 24-35]) were analyzed. Median NT-proBNP was 1,185 pg/mL (IQR 449-3,110), median pVO2 was 15.5 mL/Kg (IQR 12.8-19.4) and median respiratory exchange ratio was 1.11 (IQR 1.00-1.18). There was a strong correlation between log NT-proBNP and pVO2 (Spearman ρ -0,724, p < 0.001) (Fig. 1A). In the derivation cohort (n = 218), NT-proBNp < 650 and > 2,600 pg/mL were the best thresholds to identify patients with a low- or high-probability of significant functional limitation, respectively, with a negative predictive value of 88% and a positive predictive value of 93%. These cutoffs maintained similar performance in the the validation group (n = 107). NT-proBNP showed good discriminative power in both cohorts (respectively, AUC 0.87 ± 0.03 and 0.91 ± 0.03, p < 0.001) (Fig. 1B), and median pVO2 for patients with NT-proBNp < 650 or > 2,600 pg/mL were 20.4 mL/Kg (IQR 17.5-23.7) and 11.6 mL/Kg (IQR 10.4-14.2). A subgroup analysis of patients with atrial fibrillation (n = 59) showed similar thresholds, whereas, in obese patients (n = 81), lower cutoffs were identified (< 200 and > 2,000 pg/mL, respectively).
Conclusions: In our population of HFrEF patients, NT-proBNP accurately stratified functional capacity. In selected cases, this simple measurement may preclude the need for a CPET for the sole purpose of exercise capacity evaluation.

CO 49. CAN ECHOCARDIOGRAPHIC PARAMETERS EFFECTIVELY PREDICT ELEVATED PCWP IN HEART TRANSPLANT PATIENTS?

Ana Raquel Carvalho Santos, António Valentim Gonçalves, Tiago Pereira-da- Silva, Rui Soares, Rita Ilhão Moreira, Lídia de Sousa, Francisco Barbas de Albuquerque, José Viegas, Alexandra Castelo, Vera Ferreira, Pedro Brás, João Reis, Tânia Mano, Tiago Mendonça, Rui Cruz Ferreira

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

Introduction: PCWP measurement remains the gold standard for the diagnosis of Heart Failure with preserved ejection fraction. Nevertheless, right heart catheterization (RHC) is a last step procedure nowadays, with most of the patients diagnosed solely by transthoracic echocardiography (TTE) parameters, as it is widely available and not associated with the risks of the invasive procedures. Heart transplant (HT) patients, on the other hand, routinely perform RHC as follow-up for rejection surveillance, allowing frequent invasive hemodynamic assessment.
Objectives: Evaluate the association between TTE parameters and the invasively measured pulmonary capillary wedge pressure (PCWP) by RHC in HT patients.
Methods: A retrospective analysis of consecutive HT patients submitted to RHC between February 2016 and November 2021, who previously performed TTE, was made. The area under the curve (AUC) was performed to evaluate the association between several TTE parameters (left ventricular (LV) end-diastolic diameter (LVEDD), LV end-systolic diameter (LVESD), LV ejection fraction (LVEF), interventricular septum wall thickness (ST), LV global longitudinal strain (GLS), left atrium volume index (LAVi), transmitral E/A ratio (E/A), LV E/e' ratio (E/e'), E velocity deceleration time (DT), isovolumetric relaxation time (IVRT), tricuspid annular plane systolic excursion (TAPSE) and systolic pulmonary artery pressure (sPAP)) and elevated PCWP (defined as > 15 mmHg). Statistical differences with a p-value < 0.05 were considered significant.
Results: A total of 127 RHC were performed during the study period. Mean age was 50 years, 79% (n = 100) were male, mean LVEF 58 ± 10% and mean BNP 808 ± 984 pg/mL. Mean PCWP was 12 ± 6 mmHg, with 28% (n = 35) with a value higher than 15 mmHg. AUC results of several TTE parameters for the prediction of elevated PCWP are depicted in the table. LVEF (AUC 0.702, p = 0.001) and GLS (AUC 0.768, p = 0.07) were significantly correlated with elevated PCWP, while the remaining parameters failed to do so.
Conclusions: In this HT group, several TTE indices commonly employed for non-invasive estimation of increased intraventricular pressures, including E/e', E/A ratio, LAVi, and sPAP, showed a poor correlation with elevated PCWP. GLS, a TTE parameter widely used to assess subclinical dysfunction were the parameter with the most robust association with elevated PCWP in this population, demonstrating that it has the potential to be used in routine clinical practice.

Table 1: Association between PCWP and echocardiographic parameters of cardiac transplar patients analyzed by receiver operating characteristic curve

PARAMETERS	AUC	p	95% CI
Left ventricular end-diastolic diameter	0.556	0.344	0.448-0.664
Left ventricular end-systolic diameter	0.659	0.007	0.550-0.767
Left ventricular ejection fraction	**0.702**	**0.001**	**0.594-0.811**
Septal diameter	0.562	0.302	0.448-0.676
Left ventricular global longitudinal strain	**0.768**	**0.07**	**0.522-1.000**
Left atrium volume index	0.570	0.271	0.437-0.704
Transmitral E/A ratio	0.601	0.132	0.485-0.716
Left ventricular E/e ratio	0.670	0.029	0.535-0.805
E velocity deceleration time	0.313	0.006	0.185-0.441
Tricuspid annular plane systolic excursion	0.549	0.448	0.396-0.701
Systolic pulmonary artery pressure	0.644	0.028	0.517-0.771
Isovolumetric relaxation time	0.459	0.555	0.325-0.593

CO 49 Figure

CO 50. LONG-TERM BENEFITS OF NON-INVASIVE TELEMONITORING IN PATIENTS WITH CHRONIC HEART FAILURE

Catarina Gregório, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Oliveira, João Santos Fonseca, Ana Abrantes, Afonso Nunes Ferreira, João Agostinho, Fausto J. Pinto, Dulce Brito

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

Introduction: The impact on prognosis and quality of life of non-invasive remote monitoring (TM) of patients with heart failure (HF) is controversial. In addition, studies evaluating the results of TM in long-term follow-up are scarce.
Objectives: To assess in chronic HF patients the 36-month efficacy of a TM program *vs.* usual care (UC) *vs.* a protocol-based follow-up program (PFP) but with no TM facilities.
Methods: Prospective and single center study of propensity score matched patients discharged from hospital after an episode of decompensated HF. Patients were matched according to age, NYHA at discharge and ejection fraction (EF), and three groups were considered: 50 integrated a PFP after hospital discharge; 50 were followed according to UC; and 25 integrated a TM program. This last group included only patients ≥ 1 HF hospitalization in the previous year included in the program. These patients were evaluated remotely 24/7. The 36-month TM program efficacy was assessed by composite endpoint of death or HF hospitalization (Kaplan-Meier analysis). Secondary endpoints included the number of days lost due to unplanned hospital admission, evaluated by hospital emergency department admission, days of hospitalization or death -analysed by t-Student test.
Results: Mean age of patients was 66.8 ± 10.6 years, 28% female. Dilated cardiomyopathy was the main aetiology (53.3%). All patients had a reduced EF (HFrEF), median EF baseline was 26% and NTproBNP was 3,293 ± 3,542 pg/mL. There were no significant differences in the baseline clinical and laboratory characteristics of patients. In the 36-month efficacy evaluation, there was a reduction in the composite endpoint of death or HF hospitalization between TM and UC (28 *vs.* 66%; HR 0.54, 95%CI 0.36-0.82, p < 0.01); TM was similar to PFP (HR 0.63, p = 0.28). These TM prognostic benefits were mainly driven by a reduction in all-cause death compared to UC (12 *vs.* 34%, log rank 3.98, p = 0.046). TM was similar to PFP regarding all-cause death (12 *vs.* 20%, HR 0.58, p = 0.41) and HF hospitalization (28 *vs.* 32%, HR 0.85, p = 0.72). There was a reduction in the average number of days lost due to unplanned hospital admissions or all-cause death in the TM group compared to UC (61.9 *vs.* 186.4 days, p < 0.01) and PFP (61.9 *vs.* 112.2 days, p < 0.01).
Conclusions: In the long-term follow-up of severe HFrEF patients, non-invasive TM facilities may have prognostic benefit when compared to UC, and significantly reduces unplanned hospital admission compared to both UC and PFP.

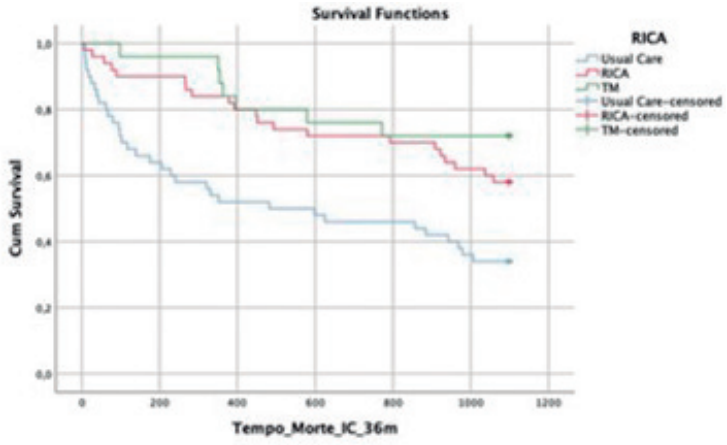


Figure 1: Diferences between UC, PFP and TM in the composed endpoint

CO 50 Figure

Sábado, 23 Abril de 2022 | 08:30-09:30

Sala Aquarius | Comunicações Orais (Sessão 11) - Imagem 1 - TC e RM Cardíaca e Cardiologia Nuclear

CO 51. USE OF CORONARY CALCIUM SCORE TO REFINE THE CARDIOVASCULAR RISK CLASSIFICATION OF THE NEW SCORE-2 AND SCORE-2 OP ALGORITHMS IN PATIENTS UNDERGOING CORONARY CT ANGIOGRAPHY

Mariana Sousa Paiva, Rita Reis Santos, Pedro Freitas, João Presume, Daniel A. Gomes, Pedro Lopes, Daniel Matos, 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: Recently, the European Society of Cardiology issued new algorithms (SCORE-2 and SCORE-2 OP) to estimate the 10-year risk of atherosclerotic cardiovascular disease (ASCVD). CACS has been shown to reclassify a significant proportion of patients when applied on top of several scores, but data on its use with these new algorithms are lacking. The aim of this study was to assess the risk reassignment that can be attained by using CACS as a risk modifier of the SCORE-2/SCORE-2 OP classification, in patients referred for coronary CT angiography (CCTA).
Methods: Individuals without diabetes or known ASCVD were included in a single center registry of patients undergoing CCTA for suspected coronary artery disease (CAD). The 10-year risk of cardiovascular disease was calculated for each patient using SCORE-2 (ages 40-69) or SCORE-2 OP (ages 70-89), and categorized as low-to-moderate, high, or very-high risk, according to guideline-recommended age-specific thresholds. CACS was considered to reclassify risk one level downward if = 0 in high or very-high risk patients, and reclassify risk upward if > 100 (or > 75th percentile) in those with low-to-moderate risk, or > 1,000 in those with high-risk.
Results: A total of 529 patients (43% men, mean age 63 ± 10 years) were included, of which 13% (n = 69) were active smokers. The mean systolic blood pressure and non-HDL-C values were 137 ± 18 mmHg and 140 ± 37 mg/dL, respectively. A total of 47 patients (9%) had obstructive CAD on CCTA, classifying them as very-high risk. In the remainder 482 patients without obstructive CAD, the median CACS was 8 (IQR 0-80 AU), with 194 patients (40%) having CACS = 0, and 111 (23%) presenting CACS values ≥ 100. The proportion of patients classified as low-to-moderate risk, high risk, and very high risk was 36%, 46% and 19% using the SCORE-2/SCORE-2 OP algorithm. Using CACS would reclassify 150 patients (31%): 107 patients (22%) downward, and 43 patients (9%) upward. The extent of risk reclassification conveyed by CACS was 33% in patients assessed with SCORE-2, and 25% with SCORE-2 OP (p = 0.082). Overall, most of the risk reassignment (42%, n = 93) would occur in patients originally classified as high-risk – Fig. 1. At the time of testing, 32% (n = 61) of patients with CACS = 0 were being treated with statins, whereas 52% (n = 58) of those with CACS ≥ 100 were not.
Conclusions: Even when the most recent SCORE-2/SCORE-2 OP algorithms are used, risk refinement with CACS leads to the reclassification of nearly one third of the patients undergoing CCTA, mostly from downgrading risk. This opportunistic use of CACS may be employed to improve the allocation of primary prevention therapies.

CO 52. INDEXING CALCIUM SCORE OF THE AORTIC VALVE TO THE ANNULUS AREA IMPROVES THE GRADING OF AORTIC STENOSIS SEVERITY IN PATIENTS WITHIN THE "GREY ZONE" OF AORTIC VALVE CALCIFICATION

Daniel A. Gomes, Rita R. Santos, Pedro Freitas, João Presume, Gustavo S. Mendes, Ana C. Santos, Sara Guerreiro, João Abecasis, Regina Ribeiras, Maria João Andrade, Rui Campante Teles, Carla Saraiva, Miguel Mendes, António M. Ferreira

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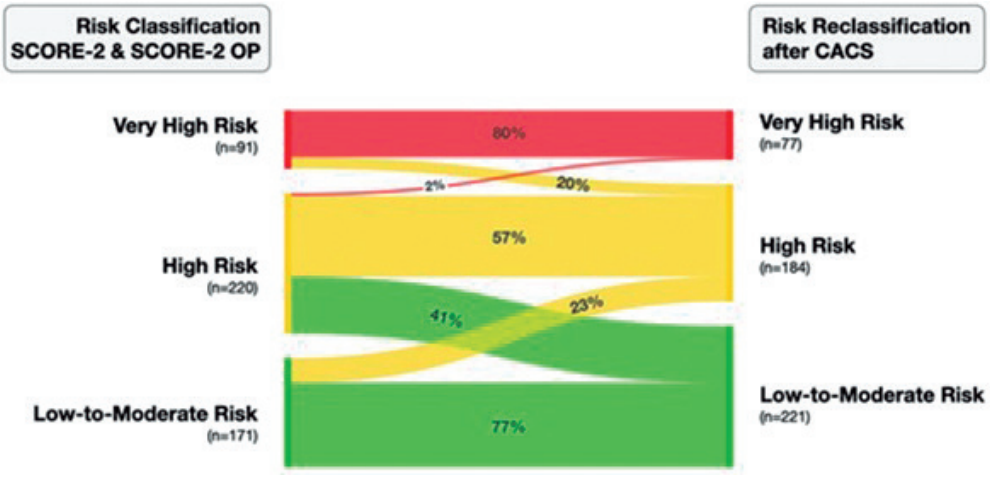
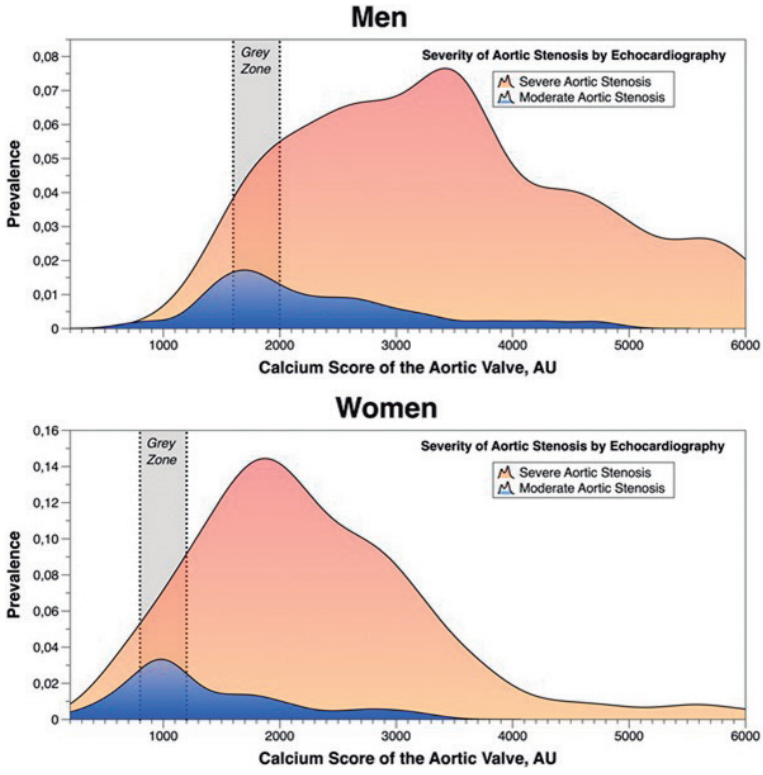
Introduction: Calcium score of the aortic valve (CaScAoV) is recommended as a supporting tool to assist in the grading of aortic stenosis (AS) severity when echocardiographic assessment is inconclusive. However, a significant proportion of patients have CaScAoV values within a "grey zone" between the "unlikely" and "likely" thresholds. The purpose of this study was to assess the potential usefulness of indexing CaScAoV to the area of the aortic annulus, in order to improve the discriminative power of CaScAoV in this subset of patients.
Methods: Consecutive patients evaluated at a single center transcatheter aortic valve implantation (TAVI) program were retrospectively identified and included in the analysis if cardiac CT and echocardiography were performed within a 6-month timeframe. Those with left ventricular ejection fraction (LVEF) < 50%, indexed stroke volume < 35 ml/m^2, rheumatic heart disease, or bicuspid aortic valves were excluded. Severe AS was defined as mean transvalvular gradient ≥ 40 mmHg. The likelihood of severe AS assessed by CT was categorized according to the guideline-recommended sex-specific CaScAoV thresholds. Patients were considered to be in the "grey zone" if their CaScAoV values were between 800-1,200 for women, and between 1,600-2,000 for men.



CO 51 Figure



CO 52 Figure

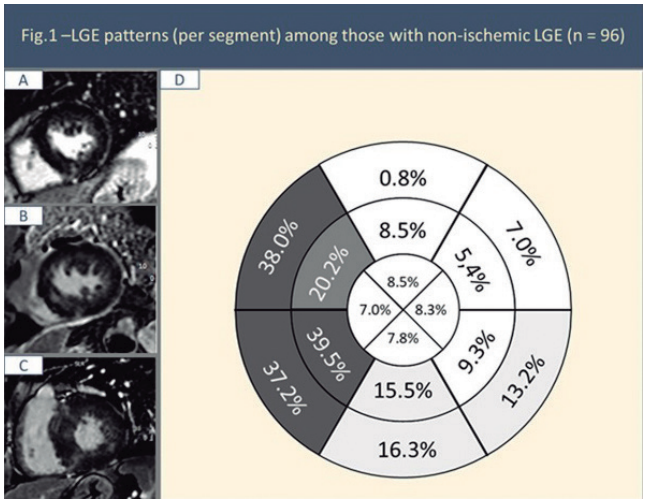
Results: A total of 655 patients were included (282 men (43.1%), median age 83 years [IQR 79-86]). AS was considered severe by echocardiographic criteria in 587 patients (89.6%), and moderate in the remaining ones. Median transvalvular gradient was 49 mmHg (IQR 43-59), and median CaScAoV values were 3,329 (IQR 2,356-4,500) for men, and 1995 (IQR 1,462-2,781) for women. Overall, 77 patients (11.7%) had CaScAoV values in the "grey zone", of which 24 (31.2%) had moderate AS (Fig.). Patients within this region of uncertainty were no different form the others in terms of age, sex, annulus size and body surface area. In this subset of patients, indexing CaScAoV to aortic annulus area showed good discriminative power to identify severe AS (AUC 0.69, 95%CI 0.56-0.81, p = 0.008). Using previously established thresholds (> 300 AU/cm^2 for women and > 500 AU/cm^2 for men), 48 patients (62.3%) were correctly reclassified (net reclassification index of 0.45, p = 0.03). These findings were similar for both sexes.
Conclusions: In patients undergoing cardiac CT for known or suspected severe AS with CaScAoV values within the "grey zone", indexing CaScAoV to the area of the aortic annulus improves the classification of AS severity and may decrease diagnostic uncertainty.

CO 53. LATE GADOLINIUM ENHANCEMENT PATTERNS IN SEVERE SYMPTOMATIC HIGH-GRADIENT AORTIC STENOSIS

Sérgio Maltês[1], João Abecasis[1], Rita Reis Santos[1], Luís Oliveira[2], Gustavo Sá Mendes[1], Sara Guerreiro[1], Telma Lima[1], Pedro Freitas[1], António Ferreira[1], Nuno Cardim[3], Vitor Gil[3], Miguel Mendes[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Hospital do Divino Espírito Santo, Ponta Delgada. [3]Hospital da Luz Lisboa.

Introduction: Left ventricular (LV) remodeling in patients with severe aortic valve stenosis (AS) is a complex process that goes beyond hypertrophic response and may involve reparative/replacement fibrosis. Currently, cardiac magnetic resonance (CMR) is the gold-standard imaging technique for detecting focal myocardial fibrosis through late gadolinium enhancement (LGE). However, myocardial fibrosis prevalence and distribution is quite variable among series. Our goal was to assess LGE prevalence and distribution pattern in severe symptomatic high-gradient AS.
Methods: Single-center prospective cohort of 132 patients with severe symptomatic high-gradient AS (mean age 73 ± 11 years; 48% male, mean valvular transaortic gradient 60 ± 20 mmHg; mean aortic valve area 0.7 ± 0.2 cm^2/m^2; mean LV ejection fraction by 2D echocardiogram 58 ± 9%), all with normal flow (except one) undergoing surgical aortic valve replacement. Those with previous history of myocardial infarction or other cardiomyopathy were excluded. All patients performed 1.5T CMR assessment with LV myocardium tissue characterization prior to surgery. Segmental LGE presence was assessed by two independent operators and classified according to the AHA 16 segment model, using 5-standard deviations from remote myocardium as the signal intensity cut-off for LGE identification and quantification.



Results: Overall, 96 patients (74%) had non-ischemic LGE (median LGE mass 3.2 g [IQR 0.2-8.3] g; median percentage of LGE myocardial mass 2.5% [IQR 0.1-6.1]%); 22 patients [17%] with exclusively junctional LGE); in one patient an incidental ischemic scar (subendocardial distribution) was identified. No cases of subepicardial distribution were found. Intramyocardial LGE was most frequently observed in basal and mid-anterior and inferior interventricular septum (Fig.). In these segments, LGE was most often junctional at right-ventricular insertion points (54%), followed by mid-wall LGE (32%) or both sites involvement (14%).
Conclusions: LGE is frequent in symptomatic high-gradient AS patients with preserved left ventricular ejection fraction, most often presenting as junctional enhancement in basal/mid-anterior and inferior interventricular septum. Future studies may address whether distinct LGE patterns may impact patient prognosis.

CO 54. 99MTC-DPD SCINTIGRAPHY IN THE DIAGNOSIS AND PROGNOSIS OF TRANSTHYRETIN V30M CARDIAC AMYLOIDOSIS

Conceição Azevedo Coutinho[1], Nuno Cortez-Dias[1], Guilhermina Cantinho[2], Susana Gonçalves[1], Nelson Cunha[1], Tiago Rodrigues[1], Laura Santos[1], Isabel Conceição[1], João Agostinho[1], Fausto Pinto[1]

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

Introduction: Early diagnosis and prognostic stratification of transthyretin amyloid cardiomyopathy (ATTR-CM) are crucial. Previous findings suggested that ^{99m}Tc-3.3-diphosphono-1.2-propanodicarboxylic acid (DPD) scintigraphy has the potential to provide an earlier diagnosis of ATTR-CM but it seems to present suboptimal accuracy to detect ATTR-CM caused by V30M mutation, particularly in patients with onset of symptoms bellow 50 years of age. Furthermore, its prognostic value has never been evaluated in this mutation.
Objectives: To assess the diagnostic value of DPD scintigraphy to detect cardiomyopathy in a large cohort of patients with ATTR-V30M mutation and to explore its association with mortality.
Methods: Of the 305 ATTRV30M mutation carriers followed prospectively and who underwent DPD scintigraphy, 288 individuals [median age 46 (39-56); 49% male] without myocardial thickening attributable to other causes were enrolled in the study. ATTR-CM was defined by septal thickness ≥ 13 mm plus at least one of the following criteria: (1) late heart-to-mediastinum (H/M) ^{123}I-metaiodobenzylguanidine (MIBG) ratio < 1.60; (2) electrical heart disease (arrhythmia or cardiac conduction defect); or (3) amyloid infiltration documented in biopsy.
Results: ATTR-CM was identified in 41 (14.2%) patients and 34 (11.8%) individuals presented abnormal cardiac DPD uptake. A strong association was noted between cardiac DPD retention and the presence of amyloid cardiomyopathy. Cardiac DPD retention was associated with a 27-fold higher likelihood of having ATTR-CM (OR: 27.4; 95%CI 11.6-65.0; p < 0.001). During a mean follow-up of 33.6 ± 1.2 months, 16 patients died (5.6%). Mortality was 14 times higher in patients with amyloid cardiomyopathy (HR: 14.1; 95%CI 4.9-40.7; p < 0.001), 13 times higher in those with abnormal cardiac DPD uptake (HR: 12.59; 95%CI% 4.56-34.72; p < 0.001) and 10 times higher in those with H/M MIBG ratio < 1.60 (HR: 10.40; 95%CI 2.95-36.69; p < 0.001). The prognostic value of ventricular thickness and cardiac DPD uptake was additive: patients without septal thickening and no cardiac DPD retention had excellent prognosis (5-year mortality of 0.75%), while those with septal thickening and/or abnormal DPD retention presented 5-year mortality rates ranging from 39.9 to 53.3%.
Conclusions: DPD scintigraphy is valuable in the evaluation of V30M mutation carriers, particularly for prognostic stratification purposes, identifying patients at higher risk of death.

CO 55. LEFT VENTRICULAR REMODELING IN AORTIC STENOSIS PATIENTS REFERRED FOR SURGICAL AORTIC VALVE REPLACEMENT

Rita Reis Santos[1], João Abecasis[1], Sérgio Maltês[1], Gustavo Sá Mendes[1], Luís Oliveira[2], Eduarda Horta[1], Sara Guerreiro[1], Pedro Freitas[1], António Ferreira[1], Regina Ribeiras[1], Maria João Andrade[1], Nuno Cardim[3], Victor Gil[4], Miguel Mendes[1], José Pedro Neves[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Hospital do Divino Espírito Santo, Ponta Delgada. [3]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School. [4]Hospital da Luz Lisboa.

Introduction: Left ventricular (LV) hypertrophy is a common expected finding in aortic stenosis (AS) patients. Cardiac magnetic resonance

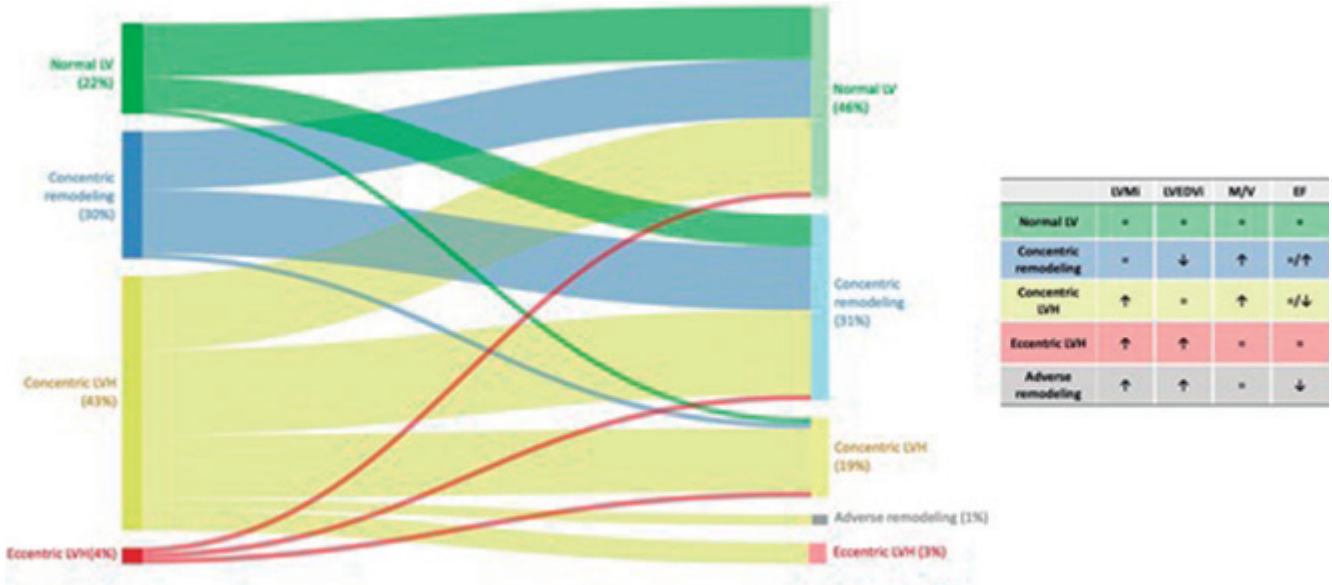


Figure 1 – Sankey diagram of Cardiac Magnetic Resonance patterns (pre and post-surgical aortic valve replacement) of left ventricular hypertrophy in aortic stenosis patients.

CO 55 Figure

(CMR) plays an important role as a non-invasive method for determining LV mass and volume, and to characterize the LV remodeling response in AS.
Objectives: To assess the prevalence, to describe the patterns and evolution of LV remodeling (by CMR) in AS patients referred for surgical aortic valve replacement (AVR).
Methods: Single-center prospective cohort of 134 consecutive patients (73years [68-77years], 49% men] with severe AS: mean transaortic pressure gradient (AVmean): 61 ± 1.5 mmHg; aortic valve area (AVA): 0.7 ± 0.1 cm^2, referred for surgical AVR, with no previous history of ischemic cardiomyopathy. Before surgery, all patients underwent electrocardiogram, complete transthoracic echocardiogram (TTE) and CMR for LV assessment and tissue characterization (mean LV indexed mass [LVMi]: 80.3 ± 26.5 g/m^2; mean end-diastolic LV indexed volume [LVEDVi]: 84.4 ± 24.5 mL/m^2 and median geometric remodeling ratio [M/V]: 0.95 g/mL [IQR 0. 81-1.08 g/mL]). Patterns of LV remodeling were investigated before and after AVR by CMR measurements of LVMi, LVEDVi and M/V. Besides normal LV ventricular structure, four other patterns were considered: concentric remodeling, concentric hypertrophy, eccentric hypertrophy, and adverse remodeling (Fig.).
Results: Overall, 43% (n = 58) of the patients had concentric hypertrophy, 30% (n = 40) concentric remodeling, 22% (n = 29) normal ventricular geometry, 4% (n = 5) eccentric hypertrophy and in two patients we observed an adverse remodeling pattern. AVR was performed in 80 patients. At the 3rd to 6th month post-AVR assessment, LV remodeling changed to: normal ventricular geometry in 46%, concentric remodeling in 31%, concentric hypertrophy in 19%, eccentric hypertrophy in 3% and adverse remodeling in only one patient (Fig.).
Conclusions: in this group of patients with severe aortic stenosis, concentric hypertrophy was not the sole pattern of LV remodeling and one out of every five still presented a normal ventricular geometry and mass as assessed by CMR. LV response was dynamic after AVR which stands for complex and multifactorial interaction in this group of patients despite similar valvular pathophysiology and therapeutic intervention.

Sábado, 23 Abril de 2022 | 08:30-09:30

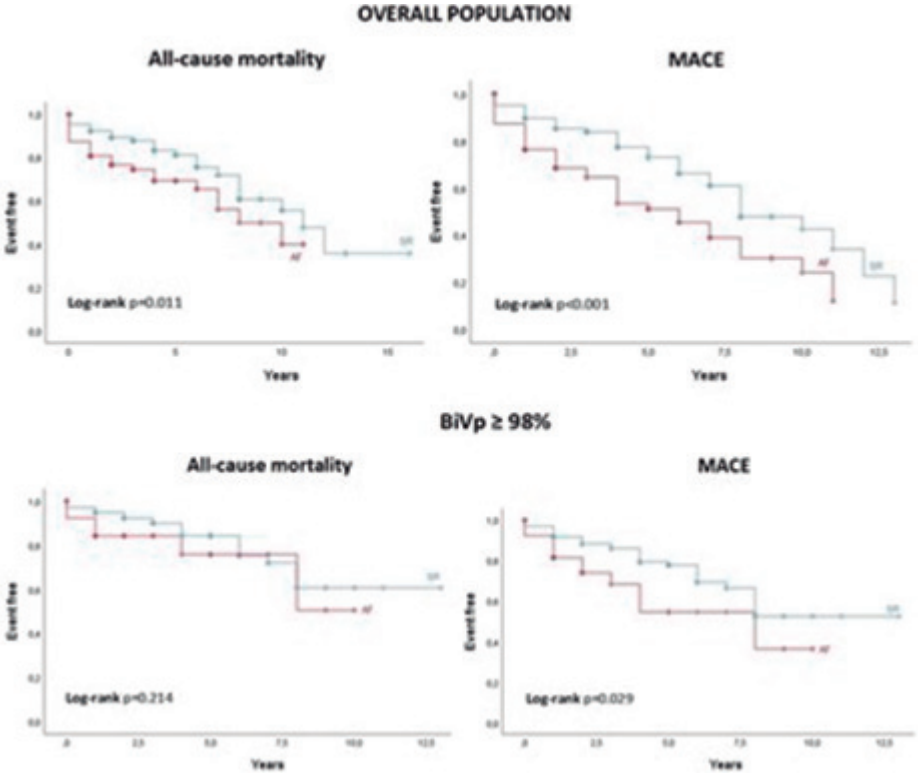
Sala Vega | Comunicações Orais (Sessão 12) - Insuficiência Cardíaca 2 - Tratamento

CO 56. CARDIAC RESYNCHRONIZATION THERAPY IN ATRIAL FIBRILLATION: RESPONSE AND LONG-TERM OUTCOMES

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

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

Introduction: Patients (pts) with atrial fibrillation (AF) were excluded from major resynchronization therapy (CRT) trials. Studies suggest AF pts derive less benefit from CRT.
Objectives: To compare response and clinical outcomes after CRT in pts in AF or in sinus rhythm (SR).
Methods: Single-center retrospective study of consecutive pts submitted to CRT implantation (2007-2018). Major adverse cardiac events (MACE) included heart failure (HF) hospitalization or all-cause mortality (ACM). Clinical response was defined as NYHA class improvement without MACE in the 1st year of follow-up (FU). Left ventricle end-systolic volume reduction of > 15% at 1-year defined echocardiographic (echo) response. Survival analysis with Kaplan-Meier method and *Log-rank* test was performed.
Results: 295 CRT pts (70.5% male, 68 ± 16 years, 54.6% CRT-D) were included. 95 (32.6%) pts presented in AF; these were older (72 *vs.* 67, p = 0.007), with higher prevalence of coronary disease (40.2 *vs.* 24.2%, p = 0.008), significant tricuspid regurgitation (21.7 *vs.* 8.8%, p = 0.011) and kidney disease (33.0 *vs.* 16.5%, p = 0.003). AF pts had larger left atrial diameters (50.5 *vs.* 44.6 mm, p < 0.001) and higher baseline N-terminal pro B-type natriuretic peptide values



CO 56 Figure

(6,738.6 *vs.* 3,179.4 pg/ml, p = 0.044). HF etiology (p = 0.242) and type of device (p = 0.127) did not differ. Secondary prevention indications for CRT-D were more common in AF pts (45.0 *vs.* 15.7%, p < 0.001). Atrioventricular junction ablation was performed in 14.0% of AF pts. Median percentage of biventricular pacing (BiVp) was significantly lower in AF pts (97 *vs.* 99, p < 0.001). NYHA class improvement (79.3 *vs.* 78.9%, p = 0.930) and echo response (65.4 *vs.* 75.2%, p = 0.269) were similar between AF and SR pts. Clinical response was lower in AF pts (52.7 *vs.* 66.5%, p = 0.036). During a median FU of 3 ± 5 years, occurrence of MACE (log-rank test, p < 0.001) and all-cause mortality (log-rank test, p = 0.011) were higher in AF. Among pts achieving BiVp ≥ 98% (67.8%), clinical response did not differ between AF and SR pts (68.4 *vs.* 70.5%, p = 0.968). Mortality was also similar between groups (log-rank test, p = 0.214). MACE remained more frequent in AF group (log-rank test, p = 0.029).

Conclusions: In this cohort, despite having a higher comorbidity burden, AF pts showed similar NYHA class improvement and echo response to SR pts. Among pts with BiVp ≥ 98%, clinical response and all-cause mortality were also comparable between groups. Strategies to optimize response and outcomes in AF pts are warranted.

CO 57. ONLY RIGHT VENTRICULAR FUNCTION PARAMETERS CAN PREDICT ACUTE CELLULAR REJECTION IN HEART TRANSPLANT PATIENTS?

Francisco Barbas de Albuquerque, Ana Raquel Carvalho Santos, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira-da-Silva, Valdemar Gomes, Rui Soares, 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 measures to detect ACR remain a clinical challenge. Whether non-invasive analytical and transthoracic echocardiography (TTE) parameters and invasive right heart catheterization (RHC) parameters can confidently predict ACR is still not well stablished.

Objectives: To determine whether analytical, TTE, and RHC parameters can predict ACR in a HT population.

Methods: Retrospective analysis of consecutive HT patients submitted to EMB between February 2016 and November 2021, who performed at the same day blood analysis, TTE and RHC. Significant ACR was defined as ≥ 2R on EMB, according to the International Society of Heart and Lung Transplantation 2004 grading. Analytical, TTE and RHC parameters were assessed by the area under curve (AUC) of Receiver Operating Characteristic curve (SPSS®) for the prediction of ACR. Statistical differences with a p-value < 0.05 were considered significant.

Results: A total of 127 EMB were performed during the study period with the following histological results (0: 33%; 1R: 59%; 2R: 8%). Mean age was 50 years, 79% were male, mean left ventricular ejection fraction was 58 ± 10% and mean BNP 808 ± 984 pg/mL. AUC results of analytical, TTE and RHC parameters for the prediction of ACR are depicted in the table. Neither analytical nor TTE parameters were able to predict ACR. Central venous pressure (CVP) (p = 0.002) and pulmonary artery pulsatility index (PAPi) (p = 0.009) were significantly associated with ACR. CVP > 8 mmHg had a sensitivity (S) of 60% and a specificity (Sp) of 80% for ACR ≥ 2R. ACR did not occur for CVP values < 6 mmHg (S 100% and Sp 57%). PAPi < 2 had a S of 60% and a Sp of 85% for predicting ACR.

Conclusions: Detecting ACR in HT patients without invasive measures remains a clinical challenge. However, two important messages can be taken

Table 1.	Acute celular rejection predictors			
	Parameters	**AUC**	***p* value**	**95% CI**
Analytic	NT-pro BNP	0.62	0.426	0.359-0.881
	BNP	0.659	0.145	0.461-0.856
	Troponin I	0.456	0.645	0.234-0.768
	Glomerular Filtration Rate	0.54	0.674	0.339-0.741
Echocardiographic	Left Ventricular Ejection Fraction	0.447	0.582	0.293-0.601
	Tricuspid Annular Plane Systolic Excursion	0.563	0.579	0.282-0.844
	Global Longitudinal Strain	0.583	0.587	0.280-0.886
	E/A	0.55	0.682	0.302-0.798
	E/e'	0.732	0.084	0.587-0.876
	Desaceleration time	0.545	0.696	0.319-0.770
	Pulmonary Artery Systolic Pressure	0.557	0.619	0.410-0.703
	Left Atrial Volume	0.543	0.668	0.324-0.763
Hemodynamic	Cardiac Index	0.609	0.254	0.238-0.44
	Central venous pressure (CVP)	0.793	0.002	0.685-0.900
	Pulmonary capillary wedge pressure (PCWP)	0.66	0.092	0,530-0,808
	Right ventricular end-diastolic pressure	0.766	0.008	0.656-0.876
	Right ventricular end-systolic pressure	0.583	0.411	0.411-0.754
	Systolic Pulmonary artery pressure	0.674	0.068	0.515-0.833
	Diastolic Pulmonary artery pressure	0.663	0.088	0.512-0.814
	Mean pulmonary artery pressure	0.674	0.069	0.525-0.822
	Pulmonary artery pulse pressure	0.586	0.369	0.369-0.803
	Pulmonary artery resistance	0.463	0.712	0.279-0.647
	Systemic vascular resistance	0.412	0.36	0.272-0.553
	Pulmonary Artery Pulsatility Index	0.749	0.009	0.111-0.391
	PVC/PCWP	0.704	0.042	0.549-0.859
	Cardiac Power Output	0.441	0.535	0.279-0.603
	Mean Arterial Pressure	0.414	0.368	0.246-0.582

CO 57 Figure

from this study to our clinical practice. First, this study demonstrates that right heart function parameters, such as CVP and PAPi, are the most reliable predictors of ACR, whereas left ventricular function parameters should only be influenced later in the rejection process. Secondly, low CVP levels can rule out ACR. Because venous jugular pressure can be used to estimate CVP during a physical examination, clinicians may still have a non-invasive way to rule out ACR in HT patients.

CO 58. THE EFFECT OF HEART FAILURE THERAPY IN PATIENTS WITH MILDLY REDUCED EJECTION FRACTION: A NETWORK META-ANALYSIS

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

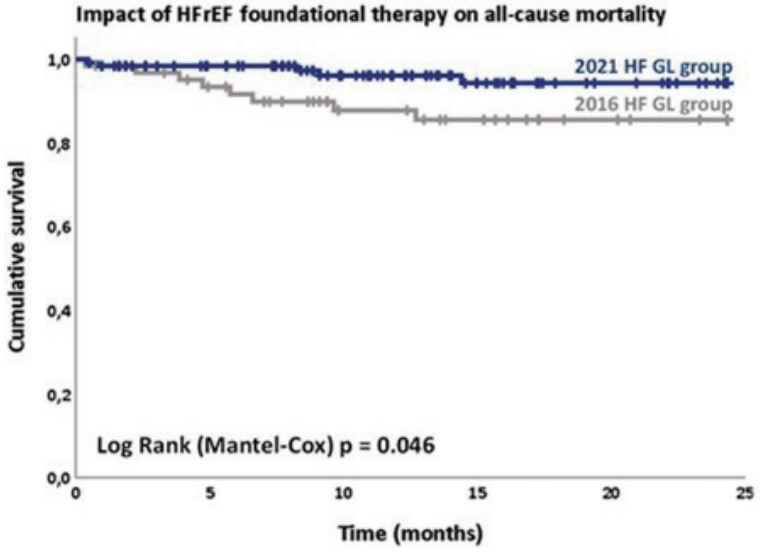
Introduction: Recent 2021 heart failure (HF) guidelines have renamed patients with left ventricular ejection fraction (LVEF) between 41-49% as heart failure with mildly reduced ejection fraction (HFmrEF). HFmrEF treatment is often considered a gray zone as there are no RCTs conducted exclusively in these patients. Network meta-analysis is a new statistical technique that compares several interventions simultaneously in a single analysis by combining both direct and indirect evidence across a network of studies.
Objectives: To evaluate and compare the relative efficacy of spironolactone (MRA), candesartan (ARB), sacubitril-valsartan (ARNI), and beta-blockers (BB) in HFmrEF.
Methods: RCTs evaluating the efficacy of pharmacological treatments in HF that included patients with LVEF between 40%-50% were searched. Hazard ratio (HR) was extracted from each subanalysis for intervention *versus* placebo. A fixed and random-effects network meta-analysis was performed using *R* statistical software. The three outcomes analyzed were a composite of cardiovascular death and HF hospitalizations, cardiovascular death, and HF hospitalizations.
Results: From the literature, we found four RCTs with subgroup analysis according to participants' ejection fraction (TOPCAT, CHARM, PARADIGM/PARAGON), and an individual patient-level analysis of double-blind randomized trials of BB (BB-HCFG). A total of 3,844 patients were included. There is a significant reduction of events with pharmacological treatment compared with placebo in the composite endpoint (ARNI *vs.* placebo: HR 0.62, 95%CI 0.45-0.85; ARB *vs.* placebo: HR 0.76, 95%CI 0.61-0.94) and in HF hospitalizations (BB *vs.* placebo: HR 0.48, 95%CI 0.24-0.95). We did not observe a statistically significant difference in any comparisons between treatments (indirect comparisons), which suggests a similar magnitude of effect. Nevertheless, there was a sound reduction of the composite endpoint with ARNI (HR *vs.* BB: 0.74, 95%CI 0.47-1.16; HR *vs.* MRA 0.86, 95%CI 0.53-1.38). Although BB were globally less beneficial in the composite endpoint and cardiovascular death, they seemed to be more effective in reducing HF hospitalizations (HR *vs.* ARB: 0.59, 95%CI 0.28-1.25; HR *vs.* MRA: 0.70, 95%CI 0.30-1.60; HR *vs.* ARNI: 0.62, 95%CI 0.28-1.40).
Conclusions: Pharmacological treatment recommended for reduced LVEF can also be effective in HFmrEF. This network meta-analysis did not show significant superiority of any pharmacological class compared to the others.

CO 59. HEART FAILURE WITH REDUCED EJECTION FRACTION FOUNDATIONAL THERAPY: WHY SHOULD WE FOLLOW THE 2021 EUROPEAN SOCIETY OF CARDIOLOGY HEART FAILURE GUIDELINES AND FORGET THE PREVIOUS THERAPEUTIC ALGORITHM?

Joana Brito, João Agostinho, Pedro Silva, Beatriz Silva, Ana Margarida Martins, Ana Beatriz Garcia, Catarina Simões de Oliveira, Sara Couto Pereira, Pedro Silvério António, Rafael Santos, Doroteia Silva, Fausto J. Pinto, Dulce Brito

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

Introduction: Recently published European Society of Cardiology Heart Failure Guidelines (2021 HF GL) recommend early introduction of 4 pharmacological classes considered the foundational therapy (FT) for heart failure with reduced ejection fraction (HFrEF): sacubitril/valsartan (ARNi), beta-blocker (BB), mineralocorticoid receptor antagonist (MRA) and SLGT2 inhibitor. This approach contrasts with the sequential therapy suggested by previous guidelines (2016 HF GL).
Objectives: To compare in the real-world practice the effect on 2-year all-cause mortality of the simultaneous use of every HFrEF FT class *versus* sequential therapy initiation and up-titration.
Methods: A population of patients (pts) included in a HF follow-up program was split in two groups: 1) pts started on all pharmacological classes of the HFrEF FT – "2021 HF GL"; 2) pts started on ACEi/ARB/ARNI, BB and MRA- "2016 HF GL group". Chi-square and Mann-Whitney tests were used. Impact on all-cause mortality was established with Kaplan-Meier survival analysis and multivariate Cox regression.
Results: A total of 276 pts with HFrEF were included and followed for 14.6 ± 7.9 months. One hundred twenty-five patients were included in the FT group and 63 in the 2016 HF GL. The study population (71.3% males, 65.7



CO 59 Figure

± 13.2 years) were mainly in NYHA class II (60.1%) and III (32.4%). The most common HF etiologies were ischemic heart disease (48.4%) and dilated cardiomyopathy (40.4%); mean left ventricular ejection fraction was 27.9 ± 7.7%; 17% of the patients had a CRT and 29.3% an ICD. All-cause mortality rate during follow up was significantly different: 4% in the FT group and 12.7% in the 2016 HF GL group (p = 0.046) (Fig.). The implementation of all foundational therapy classes was an independent protective factor for all-cause mortality (HR 0.29; IQR 0.086-0.948; p = 0.041). Statistical significance for mortality reduction was observed since month 6 (p = 0.037).
Conclusions: This real-world study suggests that simultaneous initiation of all pharmacological classes that nowadays are considered the foundational therapy as recommend by the 2021 HF GL may be more effective on reducing all-cause mortality in HFrEF than sequential therapy initiation as suggested by the 2016 HF GL. Considering the small size of the studied sample, demonstration of significant effect on mortality reduction since month 6 of follow-up supports the need for early introduction of all foundational therapy classes followed by a tailored titration.

CO 60. MAIN LIMITING FACTORS OF FOUNDATIONAL THERAPY INTRODUCTION IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION

Catarina Simões de Oliveira, João Agostinho, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Beatriz Garcia, Ana Margarida Martins, Rafael Santos, Joana Rigueira, Doroteia Silva, Nuno Lousada, Fausto J. Pinto, Dulce Brito

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

Introduction: ESC Heart failure (HF) guidelines recommend the introduction of 4 different pharmacological classes – foundation therapy (FT) – in all patients (pts) with HFrEF as all these classes have a significant impact in mortality and HF hospitalizations. However, due to these drugs side effects and the complexity of HFrEF pts, pharmacologic initiation and uptitration may become a challenge.
Objectives: To identify the main limiting factors that conducted to non-initiation of foundational therapy in a cohort of pts with HFrEF.
Methods: Retrospective single-center study of HFrEF pts followed in a multidisciplinary HF unit. Clinical characteristics and pharmacological therapy data, mainly the reasons for therapy non-initiation were collected. Statistical analysis was performed using Chi-square and Mann-Whitney tests and the impact of the main FT initiation limiting factors was assessed using Cox regression and Kaplan-Meier survival analysis.
Results: A total of 275 pts (mean age: 66 ± 14 years; 70.7% males) were included. Ischemic heart disease (45.7%) and dilated cardiomyopathy (41.7%) were the main HFrEF etiologies. At follow-up 58.3% patients were at NYHA functional class II and 7.2% at III. The mean left ventricular ejection fraction (LVEF) was 36 ± 12%, NT-proBNP, 3,385 ± 8,701 pg/mL, eGFR, 61 ± 27 and potassium, 4.7 ± 0.58 mmol/L. At the end of follow-up, a reason that inhibited therapy initiating was present in 148 (54%) pts and 127 (46%) were treated with all the 4 FT classes; 271 (98.2%) pts were treated with a B-blocker, 178 (64.5%) with ARNI, 86 (31.1%) with ACEi/ARB, 236 (85.5%) with MRA and 176 (63.8%) with iSGLT2. The highest rate of therapy non-initiation was observed in ARNI (64 pts) and the main reasons were symptomatic hypotension (22 pts) and economic insufficiency (23 pts). Most pts that did not started on MRA had prohibitive hyperkaliemia (18 pts) or worsening renal function (7 pts). Pts that were not started on SGLT2 had symptomatic hypotension (14 pts) or worsening renal function (7 pts). The most well tolerated drug were B-blockers, with a very low rate of non-initiation (10 pts) mainly because of lower heart rate (Fig.). During a mean follow-up of 1.43 ± 1.15 years, 33 (12%) pts died and 40 (14.5%) pts were hospitalized due to HF. Globally symptomatic hypotension was the main reason of FT non-initiation. On multivariate analysis symptomatic hypotension was a predictor of HF events independently of its impact on FT initiation (HR 2.37, 95%CI 1.2-4.8; p = 0.016) (Fig.).
Conclusions: This real-world cohort showed a high rate of FT non-initiation in HFrEF pts. The main FT initiation limiting factor was symptomatic hypotension that had a significant impact on prognosis partially related with its repercussion in HFrEF medical therapy.

Sábado, 23 Abril de 2022 | 09:30-10:30

Sala Aquarius | Comunicações Orais (Sessão 13) - Arritmias 3 - Fibrilhação auricular

CO 61. ATRIAL GANGLIONATED PLEXI MODIFICATION COMBINED WITH PULMONARY VEIN ISOLATION IN ATHLETES WITH HIGHLY SYMPTOMATIC ATRIAL FIBRILLATION AND BASELINE BRADYCARDIA

Mário Martins Oliveira[1], Pedro S. Cunha[1], Sérgio Laranjo[1], Mauricio Scanavacca[2], Guilherme Portugal[1], Bruno Valente[1], Ana Lousinha[1], André Grazina[1], Hipólito Reis[3], Ana S. Trindade[4], Cláudia Mendes[3], Margarida Paulo[1], Rui C. Ferreira[1]

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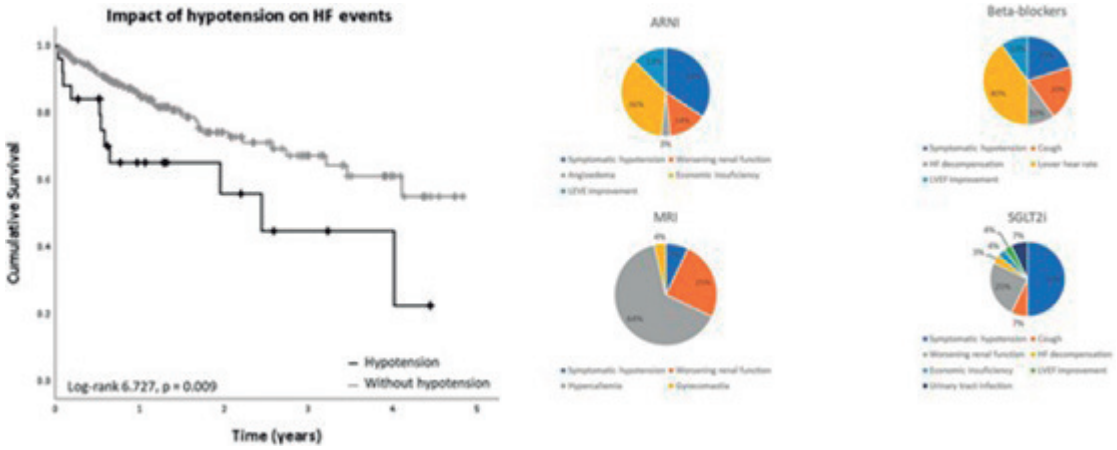
Introduction: Experimental and clinical studies have established an important influence of autonomic nervous system activity on the initiation



CO 60 Figure

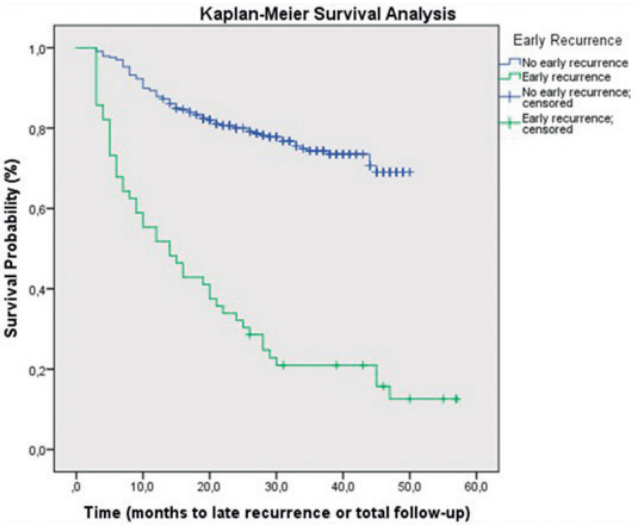
and maintenance of atrial fibrillation (AF). Long-term endurance sports training is associated with a higher risk of developing AF, due to increased vagal tone, acting synergistically with sympathetic hyperactivity during intense exercise, creating the electrophysiological conditions for the occurrence of AF episodes. In this population, the use of antiarrhythmic drugs (AAD) contributes to more pronounced bradycardia and a decrease in exercise performance.
Objectives: Evaluate the safety and success rates of combining pulmonary vein isolation (PVI) and anatomic modification of the major left atrial ganglionated plexi (GP) in athletes with AF and sinus bradycardia.
Methods: 22 consecutive patients (46 ± 11 years; 17 male; left atrial volume 32-56 ml/m^2; left ventricular ejection fraction > 50%; CHADSVASc 0-2; AAD used as "pill in the pocket") undergoing PVI + atrial GP ablation with radiofrequency (RF) due to AF (paroxysmal AF – 77.3%) and pronounced rest bradycardia (< 50 bpm). The primary outcome was the freedom from AF or sustained atrial tachycardia during 12-months follow-up verified by ECG (every 3 months or if symptoms), external event recorder (blanking period), and 24h-Holter (at 3 and 12 months).
Results: Patients underwent successful PVI (4-5 PV) and RF modification of the four GP in the vicinity of the PV. All but one had extreme bradycardia or pauses during RF application in GP locations. The average procedure time was 150 min and fluoroscopy time 15 min. The duration of RF (20-35W) was 40 ± 10 min. There was a pericardial effusion drained in the laboratory, with no other acute complications. The mean heart rate (24h-Holter recording) changed from 53 bpm to 67 bpm, before and 3 months after ablation, respectively (p = 0.03). At 12-month follow-up, maintenance of sinus rhythm was 86.3%, with an EHRA score for AF-related symptoms of I-II.
Conclusions: Left atrial neuromodulation as an adjunctive procedure to PVI may provide benefits in AF suppression for the treatment of athletes suffering from AF and sinus bradycardia.

CO 62. NOT SUCH A BLANKING PERIOD AFTER ALL: EARLY RECURRENCE PREDICTS LATE RECURRENCE AFTER AF ABLATION

Mariana Ribeiro Silva[1], Pedro Ribeiro Queirós[1], Gualter Santos Silva[1], Rafael Teixeira[1], Sara Fernandes[2], João Almeida[1], Paulo Fonseca[1], Marco Oliveira[1], Helena Gonçalves[1], Alberto Rodrigues[1], Sílvia O. Diaz[3], Francisca Saraiva[3], António S. Barros[3], João Primo[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Centro Hospitalar de Leiria/Hospital de Santo André. [3]Faculdade de Medicina da Universidade do Porto.

Introduction: AF recurrence after catheter ablation (CA) within the blanking period is generally classified as benign, but recently has been associated with later recurrence. The prediction of early recurrence (ERAF) and late recurrence (LRAF) AF after CA remains challenging as well as the predictive value of ERAF.
Objectives: To determine the clinical and procedural predictors of ERAF and LRAF after CA.
Methods: Single-centre retrospective study that included all patients (pts) who underwent AF CA between January 2017 and October 2019. Ablation procedures included radiofrequency and second-generation cryoballoon CA. ERAF was defined as any recurrence of AF, atrial flutter or atrial tachycardia > 30 seconds within 90 days after CA and LRAF was defined as any recurrence after 90 days of CA. The independent association between clinical and procedural variables and AF recurrence was evaluated with logistic regression analysis for ERAF and Cox regression analysis for LRAF.
Results: We included 395 pts, 64.6% male and with a mean age of 56.8 ± 11.6 years; most of them had paroxysmal AF (76.7%) with a CHADSVASC score ≥ 2 points in 41.8%; mean pericardial adipose tissue volume was 149.0 ± 73.2 cm^3 and 19.4% of the pts had coronary calcium scoring > 100. Overall, median follow-up was 33.0 months (IQR 25-42). ERAF occurred in 57 pts (14.4%), on average 29.1 ± 25.3 days after CA. After multivariate logistic regression, we identify left atrium (LA) enlargement (defined as LA indexed volume > 34 mL/m^2 or LA diameter > 38 mm for female or > 40 mm for male) [odds ratio (OR) 4.29 95% confidence interval (CI) 1.38-13.33; p = 0.012], persistent AF (OR 2.33, 95%CI 1.01-5.33; p = 0.046) and pericardial adipose tissue volume (OR 1.01, 95%CI 1.001-1.01; p = 0.020) as independent predictors associated with ERAF. LRAF was observed in 129 pts (32.7%), on average, 15.1 ± 10.9 months after CA. Cox regression analysis identified ERAF as the only independent predictor of late recurrence of AF (OR 3.64, 95%CI 2.32-5.71; p < 0.001). Regarding patients with ERAF, most of them also had LRAF (84.2%). In pts with LRAF, it is important to emphasize that 37.2% of them also had ERAF whereas in patients without LRAF only 3.4% had ERAF (p < 0.001) (Fig.).



Conclusions: In our cohort, LRAF was significantly higher in pts with recurrence within the blanking period, which was the only independent predictor of AF late recurrence. These results support the urgent need for more studies to redefine the blanking period.

CO 63. FLUOROLESS CAVOTRICUSPID ISTHMUS ABLATION SUCCESSFULLY ACHIEVES ATRIAL FLUTTER CONTROL

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

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

Introduction: Cavotricuspid isthmus (CTI) ablation in patients with typical atrial flutter (AFL) has improved in the past years, especially by the use of three-dimensional (3D) electroanatomic mapping systems. These mapping tools contributed to reduce radiation exposure, but most ablation procedures still require varying amounts of fluoroscopy.
Objectives: We aim to examine whether fluoroless CTI ablation is effective and safe in reducing AFL recurrence, compared with CTI ablation using fluoroscopy and a 3D mapping system.
Methods: A retrospective analysis of CTI ablation procedures performed at a tertiary center between December 2008 and December 2020 was conducted. Cases were divided in two groups: fluoroless and fluoroscopic, according to the use of radiation. Procedural duration, fluoroscopy time (FT), use of 3D mapping system, complications and recurrence rates at one year were analyzed.
Results: A total of 324 CTI ablations performed on patients with documented typical AFL were included. Mean age was 62.3 ± 14.0, with 78.1% male patients. Fluoroless ablations were performed based on a 3D mapping system, and all fluoroscopic procedures also used 3D electroanatomic mapping. The FT was zero in the fluoroless group - 31 cases (9.6%), and 7.0 ± 4.4 minutes in the fluoroscopic group - 291 cases (90.4%) (p < 0.001). There was no statistically significant difference between the two groups, regarding AFL recurrence at one year (21.7% in the fluoroless group *vs.* 13% in the fluoroscopic group; odds ratio [OD] 0.54; 95% confidence interval [CI]

0.18-1.62; p = 0.27). Total procedure duration was significantly shorter in the fluoroless group (1h07m *vs.* 1h40m; t-test 4.261, p < 0.001, CI 0h16m-0h50m). There were no acute complications for both groups.
Conclusions: Fluoroless CTI ablation, avoiding any radiation exposure to the patient and operator, can be performed in patients with typical AFL, without compromising duration, safety or efficacy of the procedure.

CO 64. CRYO-3D - A THREE-DIMENSIONAL MAPPING-GUIDED CRYOBALLOON-BASED ATRIAL FIBRILLATION ABLATION: FEASIBILITY AND PRELIMINARY RESULTS

André Paulo Ferreira, Pedro Silva Cunha, Bruno Tereno Valente, Guilherme Portugal, Sérgio Laranjo, Ana Lousinha, Ana S. Delgado, Margarida Paulo, Manuel Brás, Rui Cruz Ferreira

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

Introduction: Cryoballoon-based ablation (CBA) has become widely used as a "single-shot" approach in the treatment of paroxysmal atrial fibrillation (AF) and persistent AF, being an unquestionable alternative approach to point-by-point radiofrequency (RF) ablation for circumferential pulmonary veins isolation (PVI). The CBA as the drawback of longer fluoroscopy times when compared with the RF.
Objectives: To demonstrate the potential benefits of a CBA procedural technique, utilizing the Achieve Advance Mapping Catheter and the Ensite Precision system to reduce the fluoroscopy times, maintaining procedure duration, safety and efficacy.
Methods: Consecutive patients submitted to AF ablation, with CBA and a 3D mapping system (Crio 3D group) between March 2021 and October 2021, were compared with a historical cohort of CBA (ConV group) from the previous 2 years. The circular mapping catheter was used to create electroanatomic maps with an open mapping system (EnSite Precision (Abbott, Inc.)) in all patients in the Crio 3D group.
Results: A total of 37 CBA of AF using a 3D mapping system were performed during the study period and included in the Crio 3D group. Patient mean age was 61.1 ± 10.9 years, 51.4% were male (n = 19) and paroxysmal AF was present in 70.3% (n = 26) of cases. A total of 160 conventional CBA of AF were performed during the cohort period and included in the ConV group. There were no significant differences between group's demographics. Mean left atrium (LA) size was similar between groups (35.6 ± 9.7 ml/mm^2 in the Crio 3D group *vs.* 38.0 ± 13.9 ml/mm^2 in the ConV group, p = 0.592) and mean number of isolated pulmonary veins on each procedure was also similar (3.8 ± 0.7 in the Crio 3D group *vs.* 3.9 ± 0.7 in the ConV group, p = 0.609). In the Crio 3D group procedure time was significantly lower (79.2 ± 20.9 *vs.* 122.7 ± 38.4 minutes, p < 0.01) and so was fluoroscopy time (8.7 ± 4.0 *vs.* 21.1 ± 9.2 minutes, p < 0.01), when compared to the ConV group. Only one 1 (2.7%) acute complication was observed in the Crio 3D group, compared to 4 (2.5%) acute complications in the Conv group.
Conclusions: CBA with the aid of a 3D mapping system is feasible in a subset of patients referred to AF ablation and leads to a significant sustained decrease in both procedure and fluoroscopy times, when compared with the conventional approach.

CO 65. ISOLATION OF PULMONARY VEINS WITH DUTY-CYCLED CIRCULAR MULTI-POLAR CATHETER

Ana Lobato de Faria Abrantes, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Margarida Martins, Ana Beatriz Garcia, Catarina Simões de Oliveira, Afonso Nunes-Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: The isolation of pulmonary veins (IPV) is the central element in the ablation of atrial fibrillation (AF) and can be obtained with different ablation modalities. The duty-cycled circular multi-pole catheter PVAC allows linear application of radiofrequency energy with the production of circumferential lesions. Conceptually, it can make ablation simpler and faster in patients with favorable anatomy.
Objectives: To evaluate the safety and efficacy of ablation with a PVAC catheter and to compare it with the conventional point-to-point, with irrigated catheter technique (TCv).

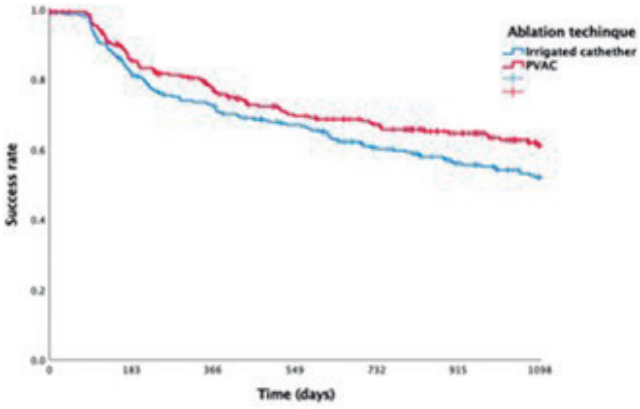
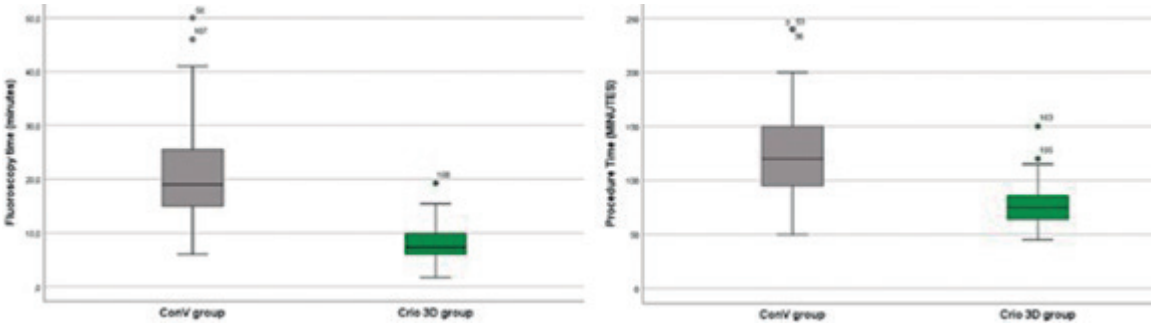


Figure 1: Long-term sucess rate of atrial fibrillation ablation according to the employed technique

Methods: Single-center retrospective study of consecutive AF patients (pts) refractory to antiarrhythmic therapy and submitted to ablation with PVAC or TCv. The ablation strategy consisted of IPV, complemented with ablation of the cavo-tricuspid isthmus in pts with a history of concomitant flutter. Monitoring was performed with a 7-day event recorder at 3, 6 and 12 months and annually from the 2nd year. Success was defined by AF-free survival or any maintained supraventricular tachycardia. Kaplan-Meier survival curves were used to estimate the risk of events. The groups were compared using Chi-square and Mann-Whitney analysis.
Results: We included 629 patients (67.2% males, 60 ± 12 years, TCv: 319, PVAC: 310), 56.9% with paroxysmal AF, 23.7% with short duration persistent AF and 13.5% with long-standing persistent AF. There were no differences



CO 64 Figure

between the two groups. The mean follow-up period was 1,224 ± 1,567 days. Among the PVAC treated patients, acute success rate of IPV was similar to that of the TCv group (99.7 *vs.* 97.8%, p = 0.092). PVAC patients presented lower complication rate (PVAC: 4.1 *vs.* TCv: 9.9%, p = 0.006) and lower hemopericardium risk (0 *vs.* 3.4%; p = 0.01). Three patients treated with PVAC developed stroke (1 *vs.* 0.9%; p = 0.972). Procedure time was lower among the patients treated with PVAC [120 (90-155) *vs.* 225 (180-250) min; p < 0.001], as well as the fluoroscopy time [20 (12-29) *vs.* 25.5 (14.0-35.6) min; p < 0.001]. PVAC presented a trend for superior success rate after first intention ablation at 36 months (66.4 *vs.* 56.7%; p = 0.56; Fig.). In the PVAC group, when considering multiple ablations, the success rate increased 22.9%, however without statistical difference between groups (p = 0.49).
Conclusions: The multipolar PVAC catheter can represent an added value in AF ablation, making the procedure simpler and faster, ensuring similar efficacy to the TCv and with a lower risk of complications.

Sábado, 23 Abril de 2022 | 09:30-10:30

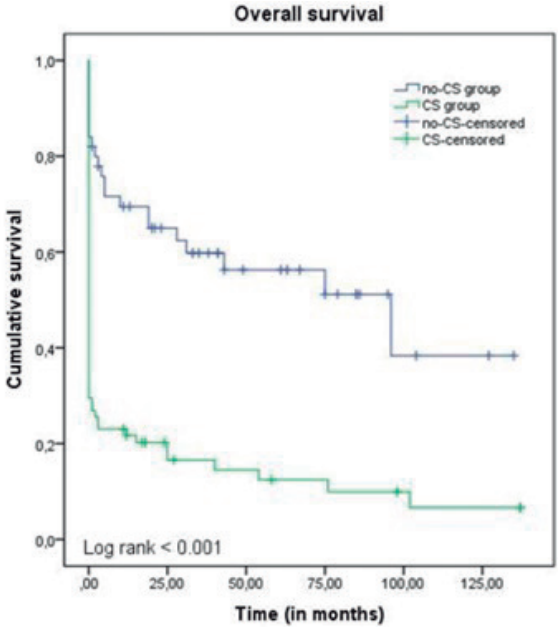
Sala Vega | Comunicações Orais (Sessão 14) - DAC e Cuidados Intensivos 3 - Foco na Oclusão do Tronco Comum

CO 66. CARDIOGENIC SHOCK COMPLICATING ACUTE MYOCARDIAL INFARCTION DUE TO LEFT MAIN CORONARY ARTERY OCCLUSION: A MULTICENTRE STUDY

Marta Braga[1], João Calvão[1], João Carlos Silva[1], Andreia Campinas[2], André Alexandre[2], Bruno Brochado[2], Mariana Brandão[3], Marisa Passos Silva[3], Gustavo Pires Morais[3], Filipe Macedo[1]

[1]Centro Hospitalar Universitário de S. João, EPE. [2]Centro Hospitalar do Porto, EPE/Hospital Geral de Santo António. [3]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Cardiogenic shock (CS) complicating acute myocardial infarction (MI) occurs in about 8% of patients and carries a high in-hospital mortality if untreated. Revascularization has improved survival in these patients. Reported data concerning outcomes of CS in setting of MI due left main coronary artery (LMCA) occlusion are scarce. In this study we describe patients with CS due to acute LMCA occlusion and evaluate their in-hospital and 1-year mortality.
Methods: We performed a retrospective multicentre study of patients with ST-segment elevation MI (STEMI) or high-risk non-ST segment elevation MI who underwent emergent coronary angiography (eCA) between January 2008 and December 2020 in 3-hospital centres. Among this cohort, 128 patients presented with unprotected LMCA occlusion (Thrombolysis In Myocardial Infarction – TIMI ≤ 2) and were categorized according to the presence/absence of signs of CS at admission: CS and no-CS.
Results: Of 128 patients with acute MI due to LMCA occlusion, 78 patients presented with CS (60.9%). Mean age was 62.4 ± 10.8 years in CS patients and 65.1 ± 12.2 years in no-CS patients, p = 0.203. In both groups, most patients were male and have at least 1 cardiovascular risk factor. Previous angina/positive ischemic test were found in only 9.0% of CS patients (*vs.* 24.0% in no-CS patients, p = 0.02). STEMI presentation was more frequent in CS group (81.6 *vs.* 46.9%, p < 0.001). TIMI = 0 (55.1 *vs.* 32.0%, p = 0.01) and slow/no-reflow phenomenon (28.8 *vs.* 5.3%, p = 0.004) in eCA were also more prevalent in CS group. Primary percutaneous coronary intervention was performed in 92.3% of CS patients and in 76.0% of no-CS patients (p < 0.001). Invasive mechanical ventilation (71.8 *vs.* 22.0%, p < 0.001), haemodialysis (18.8 *vs.* 2.0%, p = 0.010) and mechanical circulatory support ([MCS] 65.4 *vs.* 36.0%, p = 0.002) were more frequent in CS group. Haemorrhagic complications were higher in CS patients (14.7 *vs.* 2.1%, p = 0.022). In-hospital mortality in CS group was 73.1%, compared to 18.0% in no-CS group (p < 0.001). Almost 80% of CS patients had died at 1-year after index-event, in contrast to 32.7% in no-CS group (p < 0.001). MCS use in CS patients, pre/post-LMCA revascularization, was not a survival predictor.



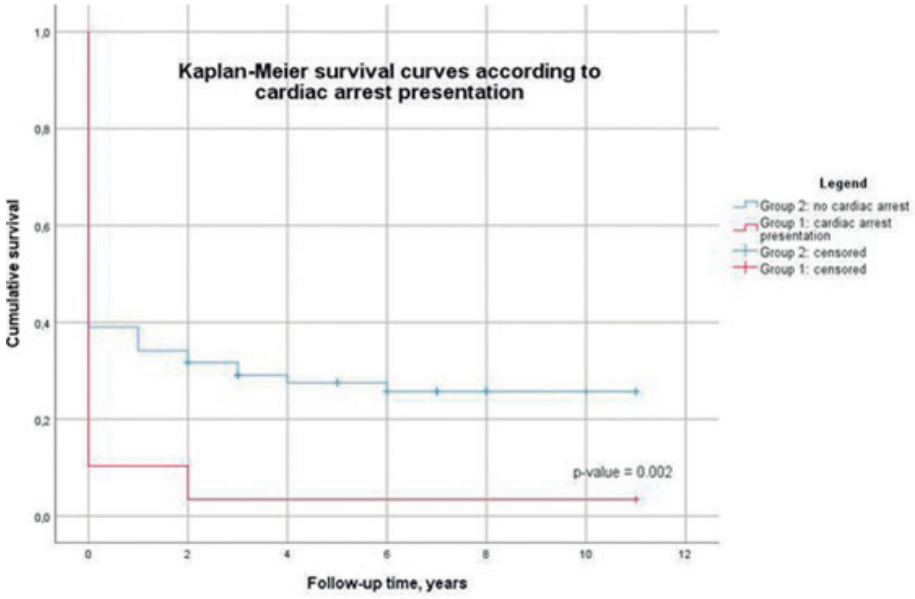
Conclusions: CS complicating acute MI due to LMCA occlusion is common and results in an extremely high mortality rate, mainly in the acute phase. Further studies are crucial in this population to refine initial medical treatment in order to improve their prognosis.

CO 67. CARDIAC ARREST IN PATIENTS WITH ACUTE LEFT MAIN STEM OCCLUSION: A REAL-WORLD MULTICENTER REGISTRY

André Alexandre[1], Marta Braga[2], Andreia Campinas[1], Ricardo Costa[1], Dias de Frias[1], João Calvão[2], Mariana Brandão[3], Marisa Passos Silva[3], Gustavo Pires de Morais[3], João Carlos Silva[2], Raquel Santos[1], Bruno Brochado[1], André Luz[1], João Silveira[1], Severo Torres[1]

[1]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António. [2]Centro Hospitalar Universitário de S. João, EPE. [3]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction and objectivses: Patients presenting with acute coronary syndrome (ACS) with unprotected left main coronary artery (LMCA) occlusion are at higher risk for mortality. Most studies have shown an association between LMCA occlusion and cardiac arrest at admission. We aimed to evaluate clinical determinants and prognostic factors of cardiac arrest presentation in patients with ACS from unprotected LMCA occlusion.
Methods: We conducted a retrospective multicenter registry of patients with ACS with unprotected LMCA occlusion admitted in three central hospitals from Portugal between 2008 and 2020. Patients were divided according to cardiac arrest presentation.
Results: Of 128 patients with ACS from unprotected LMCA occlusion, 26% presented with cardiac arrest and they were younger (58 *vs.* 65 years; p = 0.001). Comorbidities such as hypertension, diabetes, dyslipidemia, previous ACS, left ventricular dysfunction, peripheral artery disease, or chronic kidney disease were not clinical determinants for cardiac arrest. There was no significant association between the site of LMCA lesion and cardiac arrest (p = 0.935). Similarly, there was no association with the number of other epicardial vessels with significant disease. Regarding interventional procedures, cardiac arrest at admission was associated with a shorter symptom-to-balloon time (150 *vs.* 195 minutes; p = 0.042).



CO 67 Figure

In terms of outcomes, there was a significant association with cardiogenic shock (88 *vs.* 51%; p < 0.001) and with the need for aminergic support (91 *vs.* 64%; p = 0.004), but not with mechanical circulatory support (MCS) (58 *vs.* 53%; p = 0.624). Furthermore, cardiac arrest patients had significantly higher in-hospital (79 *vs.* 45%; p = 0.001) and 5-year (97 *vs.* 73%; p = 0.008) mortality, as anticipated by Kaplan-Meier survival curves (p = 0.002; log-rank test).
Conclusions: In our real-world population, more than one quarter of patients with ACS with LMCA occlusion present with cardiac arrest, which correlates with higher probability of cardiogenic shock and dictates higher short- and long-term mortality. Despite cardiac care improvements, technological evolution and better patient/system-delay times, this is still a subpopulation with poor prognosis. Further studies (namely with early use of MCS) are needed to find innovative strategies that can make a difference in this subgroup of patients.

CO 68. ACUTE TOTAL OCCLUSION OF THE UNPROTECTED LEFT MAIN CORONARY ARTERY - PATIENT CHARACTERISTICS AND OUTCOMES

João Calvão[1], Marta Braga[1], Mariana Brandão[2], Andreia Campinas[3], André Alexandre[3], Ana Filipa Amador[1], Catarina Martins da Costa[1], Miguel Martins de Carvalho[1], Ricardo Alves Pinto[1], Tânia Proença[1], João Carlos Silva[1], Gustavo Pires-Morais[2], Marisa Passos Silva[2], Bruno Brochado[3], Filipe Macedo[1]

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Introduction: Acute total occlusion of the unprotected left main coronary artery (ATOLMCA) is a dramatic entity with very high mortality. Owing to its infrequency, there is limited and inconsistent data regarding this population.
Objectives: To describe the clinical presentation, short- and long-term outcomes of patients with ATOLMCA.
Methods: This retrospective multicentric cohort study included all patients presenting with acute (< 12h) myocardial infarction (MI) due to ATOLMCA (Thrombolysis In Myocardial Infarction - TIMI = 0) between January 2008 and December 2020 in three tertiary hospitals.
Results: In the period of the study, 11,036 emergent coronary angiographies were performed in the participating centers, 59 of which were ATOLMCA (0.5%). Mean age of patients at the time of the event was 61.2 (± 12.2) years. Seventy-three percent were male. At presentation, 72.9% of patients were in cardiogenic shock, and aborted cardiac arrest occurred in 27.1%. Right dominance was present in all patients except one, who had a balanced dominance. Primary percutaneous coronary intervention (PCI) was performed in 89.8% of the patients, with angiographic success being achieved in 55.6% of the procedures. Overall, the in-hospital mortality rate was 57.6%. Mortality was significantly higher in patients without angiographic criteria for PCI success (87.5 *vs.* 36.7%, p < 0.001). Among survivors, 91.7% were still alive at 1-year and 66.7% at 5 years of follow-up.
Conclusions: Patients with ATOLMCA have a dismal prognosis. Most patients present with cardiogenic shock, and a significant number develop cardiac arrest during the acute phase. Despite medical care, in-hospital mortality is high. Patients with left dominance may not even reach the hospital. Among survivors, long term outcomes are reasonable. Further studies are needed in order to improve the management and outcomes of patients with ATOLMCA.

CO 69. MECHANICAL CIRCULATORY SUPPORT DEVICES IN LEFT MAIN OCCLUSION: A MULTICENTER STUDY FROM 2008 TO 2020

Andreia Campinas[1], Marta Braga[2], André Alexandre[1], Ricardo Costa[1], André Frias[1], João Calvão[2], Mariana Brandão[3], João Carlos Silva[2], Marisa Passos Silva[3], Gustavo Pires de Morais[3], Bruno Brochado[1], André Luz[1], Catarina Gomes[1], João Silveira[1], Severo Torres[1]

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Introduction: Evidence of benefit in the use of mechanical circulatory support devices (MCS) in patients with acute myocardial infarction (AMI) is scarce. We aimed to evaluate the clinical characteristics, prognosis and factors associated with the use of MCS in patients with AMI due to left main (LM) occlusion.
Methods: We performed a retrospective multicenter study of 128 consecutive patients with AMI with ≤ 12h of presentation with LM occlusion submitted to immediate reperfusion between January 1, 2008, until December 31, 2020 in three terciary hospitals of Portugal. Among this cohort, we divided patients into two groups according to the use of MCS devices.
Results: Regarding the baseline characteristics no statistically significant differences were found, except for the presence of cerebrovascular disease (2.9% in group with *vs.* 16.9% in group without MCS, p = 0.007)

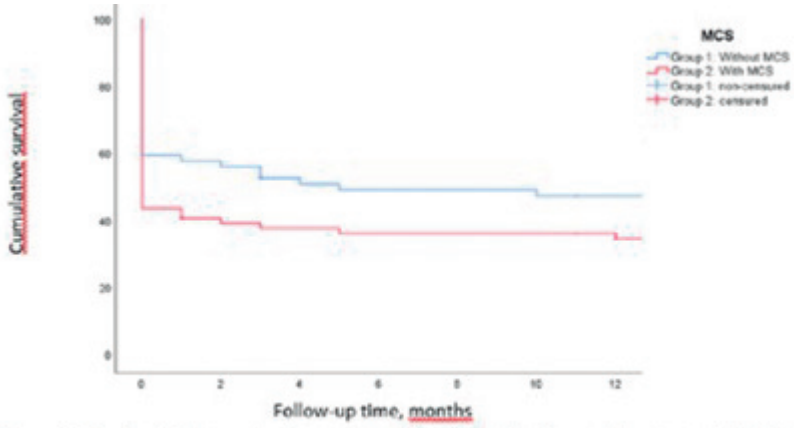

Figure 1: Kaplan-Meier survival curves for all-cause of death according to use of MCS in patients with AMI with left main culprit lesion

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and peripheral artery disease (8.8% in group with *vs.* 22% in group without MCS, p = 0.037). We observed that the use of MCS devices was statistically different between the three centers (47.8%, 42%, 8.7%, p < 0.001). No differences were found at presentation for ST-segment elevation *vs.* non-ST segment elevation AMI (p = NS). The presence of cardiogenic shock (72.4 *vs.* 45.8%, p = 0.002), cardiac arrest (27.5 *vs.* 23.7%,p = 0.034) and more severe thrombolysis in myocardial infarction (TIMI) flow at presentation (55.1 *vs.* 35.6%, p = 0.015) were more frequent in group with MCS. The rate of 1-year cumulative mortality was high in both groups (31/59 = 52.5% in the group without *vs.* 47/69 = 68.1%, p = NS). Also, no statistically significant differences were found in terms of survival, but we observed a trend to higher mortality in those who received MCS as Kaplan-Meier survival curves show (log rank = 0.062). Finally, in multivariable analysis, older age [odds ratio (OR), 0.935; 95%CI 0.87-0.99], the presence of diabetes (OR 0.223; 95%CI 0.056-0.88), peripheral artery disease (OR 0.070; 95%CI 0.009-0.566) and extra-hospitalar cardiac arrest (OR 0.06; 95%CI 0.007-0.543) were characteristics associated with lower odds of receiving MCS. Contrarily, male sex (OR 5; 95%CI, 1-20.4) and the presence of cardiogenic shock (OR 5.7, 95%CI 1.42-23) were factors associated with higher use of MCS.

Conclusions: The use of MCS does not seem to modify prognosis in patients admitted with AMI due to left main occlusion. Only cardiogenic shock and male gender were predictors of MCS use.

CO 70. AMI DUE TO LEFT MAIN CORONARY ARTERY OCCLUSION: A COMPARATIVE MULTICENTER STUDY FROM 2008 TO 2020

Andreia Campinas[1], Marta Braga[2], André Alexandre[1], Ricardo Costa[1], André Frias[1], João Calvão[2], Mariana Brandão[3], João Carlos Silva[2], Marisa Silva Passos[3], Gustavo Pires de Morais[3], Bruno Brochado[1], André Luz[1], Catarina Gomes[1], João Silveira[1], Severo Torres[1]

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Introduction: Acute myocardial infarction (AMI) due to left main coronary artery (LMCA) occlusion is a potentially fatal condition. We aimed to study a cohort of patients admitted in three tertiary hospitals of Portugal with AMI due to LMCA occlusion.

Methods: We performed a retrospective multicenter study of 128 consecutive patients with AMI with LMCA occlusion submitted to immediate percutaneous coronary intervention (PCI) between January 1, 2008, until December 31, 2020. We sought to compare clinical characteristics, interventions and prognosis between an older group (from January 2008 to December 2012, N = 28) and a contemporary group (from January 2017 and December 2020, N = 48).

Results: No statistically significant differences were found in baseline risk factors between the two groups, except for hypertension (50% in group 1 *vs.* 75% in group 2, p = 0.027). There was no difference regarding presentation with cardiogenic shock (57.1 *vs.* 64.6%, p = NS). The median time of symptoms to balloon was high but similar in both groups [180 min (120-300) *vs.* 210 min (120-420),p = NS]. Group 1 had a lower pre-PCI thrombolysis in myocardial infarction (TIMI) flow (64.3% of the patients were classified as TIMI = 0, while in group 2 only 33.3% presented TIMI = 0, p = 0.009). Radial access was more frequent in the contemporary group (33 *vs.* 10.7%, p = 0.028) as well as the administration of glycoprotein IIb/IIIa inhibitors (14.6 *vs.* 12%, p = 0.004) and the rate of implantation of drug eluting stents (100 *vs.* 63.2%, p = 0.01). The use of mechanical cardiac support was higher in group 1 (82 *vs.* 46%, p = 0.002) but the intra-aortic pump balloon (IABP) was the only device available. In group 2, utilization of IABP, Impella pump, and extracorporeal membrane oxygenation was 37.5%, 20.8%, and 2.1%, respectively. The second *antiplatelet* agent used was also different between groups (ASA/ticagrelor 75.6% preferred in group 2, p < 0.001). In-hospital mortality (46.4 *vs.* 54.2%,p = NS) and 1-year cumulative mortality (17/28 = 60.7 *vs.* 29/48 = 60.4%, p = NS) were high in both groups and no statistically significant differences in mortality rate at 12 months were found (log rank = 0.572).

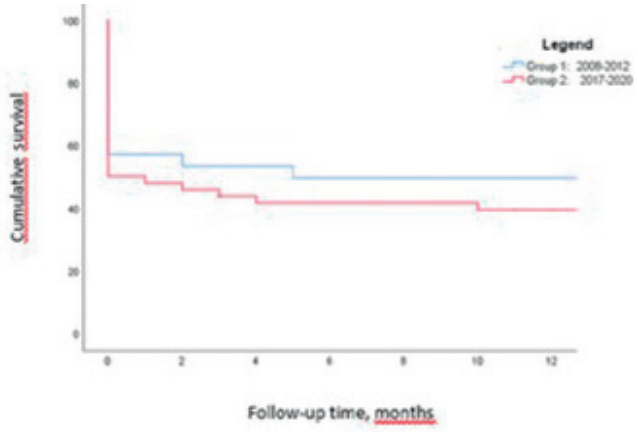

Figure 1: Kaplan-Meier survival curves for all-cause of death by subgroups of time to admission in patients with AMI with left main occlusion.

Conclusions: The use of new drugs and more advanced devices was more common in the contemporary group but the median time to reperfusion remained unchanged. The last may explain why the prognosis of this condition remained dismal in this Portuguese cohort.

Sábado, 23 Abril de 2022 | 10:30-11:30

Sala Aquarius | Comunicações Orais (Sessão 15) - Enfermagem e Técnicos de Cardiopneumologia

CO 71. PERCEPTION OF NOISE IN A CICU: IMPLICATIONS ON THE WELL-BEING OF PERSON IN CRITICAL SITUATION

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Introduction: The relevance of noise in Intensive Care Units (ICUs) has been recognized as a determining factor in the well-being and comfort of patients, having become an uncomfortable and ubiquitous factor. Thus, a study was carried out on this theme, which we consider relevant and follows the very genesis of nursing since Florence Nightingale, revealing itself to be of crucial importance due to the implications it has for people in critical situations.
Objectives: To analyze the relation between social demographic variables, previous hospitalization experience, clinical variables, noise (perceived) and the subjective well-being (SWB) of people in critical situations admitted to a Cardiac Intensive Care Unit (CICU).
Methods: Descriptive, correlational, cross-sectional study with a quantitative approach, with a sample of 131 patients admitted to a CICU, in the northern region of the country. For data collection, a form was used and the sound pressure level was measured using a sound level meter. The data was treated using the SPSS software, using descriptive and inferential statistics. The level of significance considered was 5%.
Results: Of the total patients in the sample, all reported noise and 63.4% considered it bearable. We observed that there is a highly significant negative correlation (Pearson: $p < 0.000$) of low intensity (correlation coefficient = -0.309), between the Global Environmental Comfort Score and the SWE Global Score. When we analyze the relationship between the Environmental Comfort Scale recoded in three categories and the BES Global Score, there is a statistically very significant relationship ($p < 0.003$). We conclude that the patients in our study report High Environmental Comfort. However, the average continuous sound pressure level (LAeq) to which patients were subjected was 53,440 dB (A), exceeding the guidelines of the World Health Organization (WHO). Thus, from the analysis of the results, an intervention proposal was made, with the primary purpose of sensitizing health professionals to this problem. We consider contributing to a better well-being of the person in a critical situation and contributing to excellent care.

CO 72. TÉCNICOS DE CARDIOPNEUMOLOGIA NO SERVIÇO DE URGÊNCIA NA PRESTAÇÃO DE CUIDADOS AOS DOENTES COM SÍNDROME CORONÁRIA AGUDA

Filipa Castro[1], Nazaré Rego[2], Olga Azevedo[1], Isabel Oliveira[1], António Lourenço[1]

[1]Hospital da Senhora da Oliveira, EPE-Guimarães. [2]Universidade do Minho.

Introdução: A doença arterial coronária é responsável por 4000 mortes anuais em Portugal. Para uma orientação e tratamento precoces das situações agudas, é fundamental o cumprimento dos tempos preconizados pelas orientações da Sociedade Europeia de Cardiologia, registando-se ainda atrasos que importa auditar e corrigir.
Objetivos: Caracterizar doentes com enfarte agudo do miocárdio admitidos no serviço de urgência hospitalar; avaliar o impacto da presença dos Técnicos de Cardiopneumologia no cumprimento de tempos preconizados pelas orientações da Sociedade Europeia de Cardiologia.
Métodos: Foram analisados os processos clínicos dos doentes admitidos no Serviço de Urgência, com enfarte agudo do miocárdio, entre 2015 e 2019, com supradesnivelamento de ST ou bloqueio completo de ramo esquerdo de novo, procedendo-se ao levantamento dos seus dados sociodemográficos, de triagem e tempos até à realização do eletrocardiograma, intervenção coronária percutânea e alta hospitalar e tendo-se analisado estes dados usando técnicas estatísticas.
Resultados: Os 79 doentes estudados apresentavam uma idade média de 60,4 anos ± 11,04 anos. Na presença dos técnicos, com 95% de confiança a média do tempo porta-ECG situa-se entre 1,0 e 40,5 minutos, enquanto, na sua ausência, se situa entre 49,7 e 126,6 minutos. O mesmo se passa com o tempo porta-balão: com 95% de confiança, a média deste tempo situa-se entre 88,3 e 146,9 minutos com presença de técnico e entre 168,7 e 282,7 minutos sem presença de técnico. Na presença de técnico, o atendimento aos pacientes com dor precordial (sintomatologia típica) respeitou, em média, os tempos preconizados a nível europeu, com uma média de tempo porta-ECG, na amostra analisada, de 5,1 minutos e de porta-balão de 88,6 minutos. Na sua ausência, as médias foram superiores aos tempos recomendados. Enfartes que apresentaram sintomatologia atípica resultaram em triagens menos acertadas e, consequentemente, tempos mais longos até ao eletrocardiograma e diagnóstico; porém, sempre com atendimento mais precoce na presença de técnico de Cardiopneumologia.
Conclusões: A presença de Técnicos de Cardiopneumologia diminuiu significativamente os tempos porta-ECG e porta-balão. Investir na integração permanente destes profissionais num serviço de urgência poderá constituir um importante vetor estratégico, promovendo uma melhoria na prestação de cuidados de saúde.

CO 73. VASCULAR REMODELLING DURING PREGNANCY AND POSTPARTUM

Ana Filipa Ferreira[1], Maria João Azevedo[2], Francisca Saraiva[1], Ana Paula Machado[3], Sofia Torres[3], Carla Sousa[3], Benedita Sampaio-Maia[2], Adelino Leite-Moreira[1], Carla Ramalho[3], Inês Falcão-Pires[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]I3S - Instituto de Investigação e Inovação em Saúde, UP. [3]Centro Hospitalar Universitário de S. João, EPE.

Introduction: Pregnancy is a physiological condition of hemodynamic overload, characterized by a progressive reduction of peripheral vascular resistance, which normalizes postpartum.
Objectives: To characterize longitudinal changes in maternal arterial stiffness, endothelial function and ventricular-arterial coupling during pregnancy and postpartum.
Methods: Prospective cohort study including volunteer pregnant women (healthy, obese and/or hypertensive and/or diabetic) recruited in two tertiary centres between 2019 and 2020, at their 1st or 3rd trimester of pregnancy. Women were evaluated at the first trimester [1T, 10-15 weeks, baseline], third trimester of pregnancy [3T, 30-35 weeks, peak of cardiac remodelling] as well as at the 1st month and 6th month after delivery [during reverse remodelling, RR]. Systemic vascular resistance (SVR), arterial elastance, left ventricular (LV) end-systolic elastance, arterial stiffness and endothelial function were assessed using echocardiography and blood pressure, pulse wave velocity (PWV) and EndoPAT, respectively. Friedman tests were used to compare four evaluation moments.
Results: We included 77 pregnant women with a median age of 34 [26;44] years-old, 69% being healthy. As shown in the table, PWV decreased significantly from the 1st to the 3rd trimester (6.3 [5.3;7.8] m/s to 5.7 [4.6;7.3] m/s, $p < 0.001$) and normalized as soon as 1 month after delivery (6.4 [5.3;8.6] m/s, $p < 0.001$). The SVR rose significantly 1 month after delivery (1,336 [1,015;2,049] $dyn \cdot s \cdot cm^{-5}$ to 2,087 [1,283;2,699] $dyn \cdot s \cdot cm^{-5}$, $p < 0.001$). Despite the absence of significant variation of arterial elastance during follow-up period, the ventricular-arterial coupling increased significantly from 1st to 3rd trimester (0.49 [0.34;0.85] to 0.60 [0.37;1.49], $p < 0.001$) due to a significant reduction of the net arterial load on the left ventricular between the 1st and the 3rd trimester, as assessed by LV end-systolic elastance (3.34 [2.31;4.76] mmHg/mL to 2.56 [1.09;4.93] mmHg/mL, $p = 0.009$). This value normalized only 6 months after delivery (2.56 [1.09;4.93] mmHg/mL to 3.19 [1.94;7.42], $p = 0.002$). A significant deterioration of endothelial function became evident from 1st to 3rd trimester, as assessed by the logarithm of reactive hyperemia index [lnRHI, 0.78 [0.05;1.36] *vs.* 0.44 [-0.20;0.85],$p = 0.014$],

Table 1: Hemodynamic assessment in total cohort sample.

	1st Trimester	3rd Trimester	1 month after delivery	6 month after delivery	p-value
Mean arterial pressure [mmHg]	83.3 [56.7;95.3]	80.0 [70.0;100.0]	86.7 [70.0;106.7]	87.7 [70.0;113.3]	<0.001
Pulse wave velocity [m/s]	6.3 [5.3;7.8]	5.7 [4.6;7.3]	6.4 [5.3;8.6]	6.4 [5.3;8.6]	<0.001
Systemic vascular resistance [dyn-s-cm^{-5}]	1337 [1030;2589]	1336 [1015;2049]	2087 [1283;2700]	1848 [1226;3296]	<0.001
Arterial elastance [mmHg/mL]	1.61 [1.18;2.71]	1.62 [1.30;2.40]	1.76 [1.15;2.45]	1.69 [1.13;2.83]	0.093
Left ventricular end-systolic elastance [mmHg/mL]	3.34 [2.31;4.76]	2.56 [1.09;4.93]	3.11 [1.01;4.82]	3.19 [1.94;7.42]	0.002
Ventricular-arterial coupling	0.49 [0.34;0.85]	0.60 [0.37;1.49]	0.56 [0.37;1.14]	0.52 [0.33;1.17]	<0.001
Stroke volume (mL)	60 [37;78]	61 [44;76]	56 [40;81]	61 [38;82]	0.062
Cardiac output (mL/min)	4.6 [2.8;6.7]	4.8 [3.1;6.0]	3.4 [2.6;4.6]	3.7 [2.6;5.5]	<0.001
Logarithm of reactive hyperaemia index	0.78 [0.05;1.36]	0.44 [-0.20;0.85]	0.45 [0.17;1.11]	0.43 [0.10;1.01]	0.004

Values expressed by median [min; max].

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followed by slight amelioration 1 month postpartum (0.44 [-0.20;0.85] *vs.* 0.45 [0.17;1.11], p > 0.999).
Conclusions: Our cohort presented a significant decrease in arterial stiffness during pregnancy and normalization at 1st month after delivery. The SVR revealed a similar pattern, which recovered as soon as one month after delivery. In addition, an increased ventricular-arterial coupling was documented at peak of vascular remodelling, inherent to volume overload present in pregnancy context.

CO 74. + CORAÇÃO + VIDA: MAIOR ARTICULAÇÃO E VIGILÂNCIA DO UTENTE COM PATOLOGIA CARDIOVASCULAR E SUAS FAMÍLIAS

Filipa Homem[1], Ana Caetano[1], Anaísa Reveles[2], Helena Martins[1], Joana Sousa[3], Luís Miguel Rodrigues[4], Tânia Azevedo[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral. [2]Hospital Distrital da Figueira da Foz, EPE. [3]Escola Superior de Saúde do Instituto Politécnico de Leiria. [4]UCC Coimbra Saúde - ACeS Baixo Mondego.

As doenças cardiovasculares (DCV) são a principal causa de morte em Portugal (30,2%), e uma das mais importantes causas de morbilidade, de incapacidade e invalidez e de anos potenciais de vida precocemente perdidos. Vários são os estudos que têm demonstrado a eficácia de diferentes estratégias para evitar as readmissões hospitalares do utente com DCV, nomeadamente na qualidade de vida e redução dos internamentos hospitalares. Existem ainda estudos que demonstram a importância da articulação dos CSP com os CSD em Cardiologia, tornando-se fulcral para melhorar o acesso, eficiência e qualidade dos cuidados de saúde, reduzindo os encaminhamentos para cuidados hospitalares. O *Global Burden of Disease Study* (2019) reforça que as doenças crónicas e a falha na prevenção das doenças evitáveis, torna a população vulnerável a emergências agudas como foi a COVID-19. Neste sentido, torna-se urgente garantir sistemas de saúde mais robustos que assegurem uma melhor vigilância das doenças crónicas. Neste contexto, surge o projeto «+ coração + vida» que tem como finalidade melhorar o desempenho e a articulação dos serviços de saúde no atendimento de pessoas com DCV e suas famílias, assim como melhorar a gestão da DCV nos CSP. Para tal, foram definidos os seguintes objetivos: 1) Implementação de consulta de enfermagem especializada no acompanhamento de pessoas com DCV nos CSP (Elaboração de manual e formação dos enfermeiros do ACeS BM); 2) Implementação de protocolo de colaboração entre Médico de Família e Cardiologista, através de telemedicina; 3) Referenciação de todos os utentes da área de residência do ACeS Baixo Mondego, com alta dos serviços de Cardiologia e Cirurgia Cardiotorácica, para consulta de enfermagem especializada no acompanhamento de pessoas com DCV nos CSP; 4) Convocatória para consulta de todos os utentes com DCV por parte dos CSP. Este projeto assenta num processo de melhoria contínua da qualidade dos cuidados prestados nos serviços de saúde que exige mudanças no processo assistencial do utente com DCV, no sentido de aumentar a qualidade e satisfação não só dos utentes como dos profissionais de saúde envolvidos. Contudo é um enorme desafio gerir e liderar a mudança. Para Kotter (2017), a condução da mudança nas organizações compreende oito fases: estabelecer um sentido de urgência, criar uma coligação liderante, desenvolver uma visão e estratégia, comunicar a visão da mudança, dar poder a um amplo conjunto de pessoas para tomar iniciativas, gerar vitórias de curto prazo, consolidar os ganhos e produzir mais mudanças, e institucionalizar as novas abordagens na cultura da organização. Consideramos que a fase 1 (estabelecer um sentido de urgência) já foi alcançado, uma vez que tanto o CHUC, como o ACeS BM abordam esta temática nos respetivos planos estratégicos. Agora é tempo de criar uma coligação liderante que consiga sucesso na mudança (CHUC e ACeS BM), que consiga transmitir esta visão estratégica.

CO 75. IMPACTO DA INTERVENÇÃO DO ENFERMEIRO DE REABILITAÇÃO NA REDUÇÃO DOS REINTERNAMENTOS POR INSUFICIÊNCIA CARDÍACA AOS 30 DIAS

Patrícia Silva, Inês Oliveira, Sónia Cátia Apolinário Ferreira, Ana Carina Dias Ferreira, Lícinia Aguiar, Raul Pinto, Cristiana Teles, Joana Antunes, Bruno Bragança, Isabel Cruz, Rafaela Lopes, Magda Soares, Aurora Andrade

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

Introdução: A Insuficiência Cardíaca (IC) é uma síndrome com elevada incidência e prevalência em Portugal associadas a elevados custos na saúde, essencialmente devido ao elevado número de internamentos, com alto impacto na qualidade de vida dos doentes. Atualmente, estima-se que a taxa de readmissão aos 30 dias após internamentos por IC seja de cerca de 20 a 25% em adultos com mais de 65 anos. (Leavitt, et al., 2020). Por este motivo, é urgente a estruturação de melhores estratégias de transição dos cuidados com o objetivo de diminuir os reinternamentos, através da consciencialização para a síndrome e focando na maior capacidade para o autocuidado: na gestão da medicação, da dieta e do exercício físico; no controlo de fatores de risco cardiovascular; na monitorização do peso; e no reconhecimento precoce dos sinais e sintomas de descompensação, promovendo o contacto atempado com a equipa de saúde. Vários estudos demostram que uma hora de educação para a saúde durante o internamento melhora o conhecimento do doente acerca da sua patologia, contribuindo para a redução das readmissões hospitalares.
Objetivos: Avaliar a taxa de reinternamentos dos doentes admitidos por IC num serviço de Cardiologia, após a realização do plano de educação para a saúde pela equipa de Enfermagem de Reabilitação (EER).
Métodos: Estudo retrospetivo, unicêntrico, descritivo. Avaliada a taxa de readmissões, aos 30 dias dos doentes internados por IC num serviço de Cardiologia, no período de 1 de janeiro a 31 de outubro de 2021, seguidos pela equipa de ER. Consideraram-se como readmissões os episódios no serviço de urgência, os reinternamentos por IC e os episódios não

programados em hospital de dia. Todos os doentes participaram em pelo menos 1 sessão de educação para a saúde com a EER.
Resultados: Foram seguidos 110 doentes internados com diagnóstico de IC, dos quais 72 (65,4%) apresentava IC com fração de ejeção reduzida, e 19 (17,3%) com fração de ejeção preservada e ligeiramente reduzida. 58,1% (n 64) eram do género masculino, e a idade média foi de 66,8 anos. Recorreram ao serviço de Urgência ou ao hospital de dia de forma não programada nos 30 dias após a alta7 doentes (6.36%) e foram readmitidos 2 (1,82%).
Conclusões: À semelhança de outros estudos, na nossa *coorte* a taxa de reinternamentos dos doentes admitidos por IC após realização do plano de educação para a saúde foi inferior às reportadas nos estudos sem esta estrutura implementada.

Sábado, 23 Abril de 2022 | 11:30-12:30

Sala Vega | Comunicações Orais (Sessão 16) - Doença CV em Populações Especiais

CO 76. PREVALENCE OF RV DYSFUNCTION IN PATIENTS UNDER CARDIOTOXIC CHEMOTERAPY: A PRELIMINARY ANALYSIS

Sérgio Maltês[1], Bruno M. l. Rocha[1], Gonçalo J. I. Cunha[1], Mariana Paiva[1], Ana Carolina Vasques[2], Pedro Freitas[1], Sara Guerreiro[1], Liliana Marta[1], João Abecasis[1], Regina Ribeiras[1], Maria João Andrade[1], Carlos Aguiar[1], Ana Martins[2], Miguel Mendes[1]

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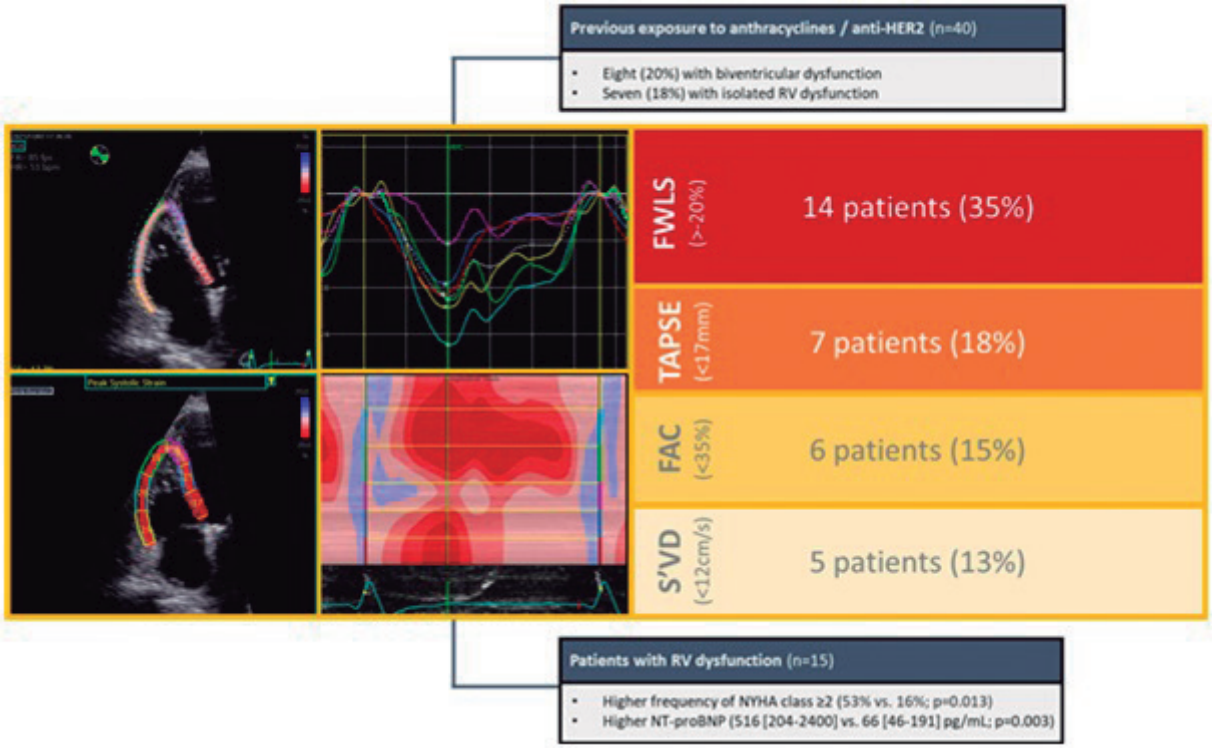
Introduction: Chemotherapy-induced cardiotoxicity is a serious complication often leading to symptomatic heart failure. While the left ventricle (LV) has been thoroughly implicated in this process, data is scarce on right ventricular (RV) function following cardiotoxic chemotherapies. Our goal was to determine the prevalence and clinical significance of RV dysfunction in a cohort of patients who had received these drugs.
Methods: Single-center retrospective study of cancer patients performing 2D transthoracic echocardiogram between January 2020 and December 2021. Those previously exposed to anthracyclines and/or anti-HER2 agents (≥ 6 months prior to echocardiogram) were included. Patients with known coronary artery disease or cardiomyopathy were excluded, as were those with prior pulmonary embolism. LV function was assessed through LV ejection fraction (LVEF) and global longitudinal strain (GLS). LV cardiotoxicity was defined as per 2020 ESMO guidelines. RV function was considered abnormal if any of the following criteria were met: tricuspid annular systolic plane excursion (TAPSE) < 17 mm, lateral tricuspid annulus systolic velocity by pulsed wave Doppler tissue imaging (S'VD) < 12 cm/s, fraction area change (FAC) < 35% and mean free wall longitudinal strain (FWLS) > -20%.
Results: Forty patients were included (mean age 58 ± 13 years; 95% female; 93% with breast cancer; 30%, 20% and 50% previously treated with anthracyclines, anti-HER2 or both, respectively). Mean LVEF and GLS were 56 ± 7% and -17 ± 3%, respectively. Overall, 13 patients had current LV cardiotoxicity. RV dysfunction was documented in 15 (38%) patients, most often through FWLS (Fig.). Seven patients (18%) and one patient (3%) had ≥ 2 and ≥ 3 abnormal RV parameters, respectively. Those with RV dysfunction were more often symptomatic (NYHA class ≥ 2: 53 *vs.* 16%; p = 0.013), had higher NT-proBNP levels (516 [204-2,400] *vs.* 66 [46-191] pg/mL; p = 0.003) and most often had LV cardiotoxicity (62 *vs.* 26%, p = 0.029). Isolated RV dysfunction was observed in 7 (18%) patients.
Conclusions: In our cohort of patients treated with cardiotoxic anti-neoplastic drugs, RV dysfunction was frequent (approximately one in every five patients with isolated RV dysfunction), most often detected by RV 2D strain and associated with worse symptoms and higher NT-proBNP levels.



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CO 77. CARDIOTOXICITY IN BREAST CANCER PATIENTS – RISK FACTORS AND ROLE OF CARDIOPROTECTIVE DRUGS

Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Inês Costa, Sofia Cardoso Torres, Carlos Xavier Resende, Pedro Grilo Diogo, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Carla de Sousa, Mariana Paiva, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Recent advances in cancer treatment have led to improved survival, albeit with cardiovascular adverse effects being some of the most frequent and feared consequences. Patient's risk stratification, prevention and treatment are still to be fully elucidated. Our aim was to evaluate the risk and therapy of cardiotoxicity (CT) secondary to cancer treatment in a subset of patients with breast cancer (BC).
Methods: We collected a retrospective cohort of female with BC treated with conventional chemotherapy (CHT) and/or anti-HER2-targeted therapies (AHT) referred to Cardio-oncology consultation from January 2017 to November 2019. All patients were evaluated before CHT and at least at 3, 6 and 12-months with echocardiogram and cardiac biomarkers, namely high sensitivity troponin I (hs-cTnI) and brain natriuretic peptide (BNP). CT was defined as left ventricle ejection fraction (LVEF) under 50% or decline of at least 10% in LVEF during follow-up. As cardioprotective drugs (CPD) were considered renin-angiotensin-aldosterone system inhibitors and beta-blockers.
Results: A total of 174 women were enrolled with mean age 51.4 ± 11.1 year-old. As for the cardiovascular risk factors (CVRF) 24.7% had hypertension, 32.2% dyslipidaemia, 9.8% diabetes and 24.1% were smokers or previous smokers. 36.4% of patients were already on CPD before CHT. The majority of patients had a high or very-high CT risk score (98.3% with score ≥ 5). All patients were submitted to CHT, whether adjuvant (43.5%), neoadjuvant (54.3%) or palliative (2.2%) and 15.8% were submitted to radiotherapy (RT). Anthracyclines (AC) and AHT were applied to 81.5% and 41.8% of patients, respectively, with 26.6% of patients taking both. At presentation, 99.4% had normal cardiac function with mean LVEF of 62.9%; mean hs-cTnI and BNP were 3.3 ng/L and 35.9 pg/mL, respectively. During a median follow-up of 16 months, 10.4% of patients developed CT, leading to initiation or titration of CPD in 83.3% and treatment interruption in 22.2%; most of them recovered (94.1%). During treatment there was a significantly increase of hs-cTnI (mean - 18.6 ng/L at 3 months, p < 0.001) and a decrease of LVEF during follow-up (decrease of 2.2% at 12 months, p < 0.001). Both AHT and AHT plus AC were significantly associated with CT (p = 0.002 and p = 0.002, respectively), with an extremely high prevalence in the latter group (24.5%). Nor CVRF neither RT raised the risk of CT. Although patients on CPD didn't had lower prevalence of CT (7.9 *vs.* 11.8%, p = 0.421), they presented a non-significative higher rate of cardiac function recovery (100 *vs.* 66.7%, p = 0.084).
Conclusions: Patients submitted to AHT or AHT plus AC were at higher risk of developing CT. This and the significant LVEF decline during follow-up highlighted the importance of long-term-monitoring of these patients. Although needing further validation CPD seemed to be associated with cardiac recovery.

CO 78. THE IMPACT OF COMORBIDITIES IN CARDIAC REMODELLING AND REVERSE REMODELLING INDUCED BY PREGNANCY

Ana Filipa Ferreira[1], Diana Jesus[1], Maria João Azevedo[2], Francisca Saraiva[1], Tânia Proença[3], Ana Paula Machado[3], Carla Sousa[3], Benedita Sampaio-Maia[2], Adelino Leite-Moreira[1], Carla Ramalho[3], Inês Falcão-Pires[1]

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Introduction: Hemodynamic overload during pregnancy induces cardiac remodelling which is characterized by non-pathological left ventricle (LV) eccentric hypertrophy and left-atrium enlargement. After delivery, the woman's heart undergoes reverse remodelling (RR) and myocardial performance normalize to their pre-gravid state. Currently, the impact of comorbidities in cardiac remodelling and RR is variable and remains to clarify.
Objectives: To characterize cardiac remodelling and RR during pregnancy and postpartum, as well as to investigate the impact of comorbidities in these processes.
Methods: This prospective cohort study included volunteer pregnant women recruited in two tertiary centres between 2019 and 2021. Women were evaluated by echocardiography at the 1st [1T, 10-15 weeks] and 3rd trimesters [3T, 30-35 weeks] of pregnancy as well as at the 1st and 6th month after delivery. Kruskal-Wallis test and Friedman test were used as appropriate to between and within groups comparisons.
Results: We included 77 pregnant women with a median age of 34 [26;44] y ears, 31% being hypertensive and/or obese and/or diabetic. As shown in the table, pregnant women tended to develop from 1T to 3T eccentric hypertrophy, characterized by a significant increase of LV mass index (LVMi, p = 0.001), accompanied by atrial (p = 0.012) and ventricular enlargement (p < 0.001). A significant rise in filling pressures was also documented

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]	58 [32;81]	71 [43;101]	62 [44;88]	59 [42;93]	<0.001
Relative Wall Thickness	0.31 [0.22;0.40]	0.34 [0.24;0.45]	0.31 [0.22;0.44]	0.30 [0.22;0.43]	0.004
Left Atrial Volume Index [mL/m²]	26 [18;34]	28[20;46]	23 [15;32]	22 [16;32]	<0.001
Left Ventricular Diastolic Volume Index [mL/m²]	47 [34;59]	54 [35; 75]	49 [30;63]	48 [31;62]	<0.001
Left Ventricular Systolic Volume Index [mL/m²]	18 [13;23]	22 [13;57]	19 [14;47]	19 [11;29]	<0.001
Heart Rate (bpm)	71 [55;97]	81 [59;102]	58 [45;80]	64 [44;79]	<0.001
Ejection Fraction (%)	62 [51;70]	59 [51;72]	62 [56;67]	61 [53;73]	0.029
Global Longitudinal Strain (%)	-24.8 [-30.7;-21.1]	-24.5 [-28.0;-18.0]	-22.9 [-25.3;-20.4]	-22.5 [-27.4;-21.1]	0.801
Global Circumferential Strain (%)	-27.9 [-33.8;-26.2]	-30.3 [-37.1;-26.0]	-28.9 [-31.6;-21.2]	-26.6 [-33.1;-25.9]	0.319
E/e'	6.1 [4.0;8.7]	6.5 [4.3;8.6]	5.3 [4.1;9.3]	5.7 [3.7;8.2]	<0.001
Right Atrial Volume [mL/m²]	31 [18;52]	33 [21;50]	34 [21;50]	34 [19;50]	0.027
TAPSE [mm]	25 [18;32]	26 [16;31]	23 [16;29]	23 [16;32]	<0.001
S' tricuspid wave [cm/s]	14.3 [9.8;18.3]	14.2 [9.9;19.6]	12.5 [10.0;16.6]	12.6 [8.9;16.7]	<0.001

Values expressed by median [min; max]. Legend: TAPSE - tricuspid lateral annular systolic velocity wave

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during gestation (E/e',p = 0.011). During postpartum, while indexed left atrial (p = 0.001) and ventricular volumes (p = 0.002) normalized as soon as 1 month after delivery, regression of hypertrophy decreased significantly only 6 months after delivery (p < 0.001). Ventricular filling pressures also normalized 1 month after delivery (p < 0.001). Systolic function was preserved with a significant increase of ejection fraction after delivery (3T to 6 months postpartum, p = 0.025), while global longitudinal (p = 0.801) and circunferential strains (p = 0.319) were similar between all time-points. Regarding right ventricle, a significant reduction of TAPSE (p = 0.035) and S' (p < 0.001) were documented after delivery. Compared to the healthy pregnant women, the group with comorbidities showed higher relative wall thickness (RWT) for all time points, except 6 months after delivery (p = 0.53), with similar values of LVMi and indexed cardiac volumes. Pregnant women with comorbidities revealed higher values of E/e' from the 3rd trimester (p = 0.046) until the 6th month of postpartum (p = 0.009).
Conclusions: Right ventricle seems to be more sensitive to pregnancy-induced volume overload, as evident by increased systolic function in the 3rd trimester. While most cardiac parameters recover as soon as one month after delivery others, such as hypertrophy, only normalize 6 months after delivery. Pregnant women with comorbidities showed higher RWT and diastolic dysfunction when compared with healthy women.

CO 79. CARDIOPULMONARY EXERCISE TESTING IN FONTAN PATIENTS: UNMASKING THE SECRET OF "SUPER-FONTANS"

Mariana Sousa Paiva, João Rato, Rita Reis Santos, Gonçalo l Cunha, Daniel A. Gomes, Rita Lima, Rita Amador, Rita Bello, Susana Cordeiro, Sara Guerreiro, Sérgio Madeira, Luís Moreno, Anaí Durazzo, Miguel Mendes, Rui Anjos

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

Introduction: Exercise capacity is usually reduced in Fontan patients, however there is a subset of patients who have normal exercise capacity and better outcomes, the "Super-Fontans". The aim of this study was to characterize a cohort of Fontan patients undergoing cardiopulmonary exercise testing (CPET) and identify predictors of better functional capacity.
Methods: Single center retrospective analysis of consecutive Fontan patients aged > 10 years old who underwent CPET, between March 2018 and May 2021. Peak respiratory exchange ratio > 1.05 defined maximal CPET. Peak VO2 (pVO2) as a percentage of its predicted value was used as reference value to stratify patients in tertiles. Patients in 3rd tertile, with a percentage of predicted pVO2 superior to 75%, were considered good-performers. Blood tests and transthoracic echocardiogram (TTE) were performed on the same day. Additional data were collected from electronic charts.
Results: In total, 49 patients were included (mean age 19±7 years old, 67% male) with intra or extracardiac conduit implanted in mean 12±7 years prior to the CPET. The most common primary diagnoses were tricuspid/pulmonary atresia (43%), followed by unbalanced complete AV septal defect (14%) and double inlet left ventricle (14%). 12 patients had a systemic right ventricle. All, except 5 patients, had preserved systolic ventricular function and 37% had moderate to severe AV regurgitation. The majority had normal hemoglobin levels (median 15.6 g/dL), hepatic enzymes (median total bilirubin 0.8 mg/dL), renal function (median creatinine 0.8 mg/dL) and low NT-proBNP (median 122 pg/mL). All patients had maximal CPET, median %VO2 at VT1 was 57% of peak and mean pVO2 was 66 ± 14% of the predicted. Most patients (69%) showed exercise limitation due to cardiovascular cause, followed by O2 desaturation, present in 22% of CPETs. The age of Fontan completion was not associated with functional capacity (p=0.6). The good-performer group comprised 13 patients (27%), all in sinus rhythm, of which 10 were physically active. Compared with the remainder, this group had higher VO2 at VT1 (18.7 *vs.* 14.6, p = 0.011) and VO2 at VT2 (25.9 *vs.* 22.1, p = 0.019), both in mL/kg/min. Also, peak heart rate (% predicted) (90 vs. 80.5, p=0.028) was higher in this subgroup (Fig.). Conversely, differences on TTE parameters (GLS and AV valve regurgitation) and blood biomarkers were not statistically significant. On multivariable analysis, no single variable predicted better functional capacity.
Conclusions: In our Fontan cohort, most patients had reduced exercise capacity, largely due to cardiovascular dysfunction. However, "Super-Fontans" stood out as they had a higher anaerobic threshold illustrating their better physical condition. These findings highlight the role of regular physical activity in Fontan patients as a cornerstone for better functional capacity.

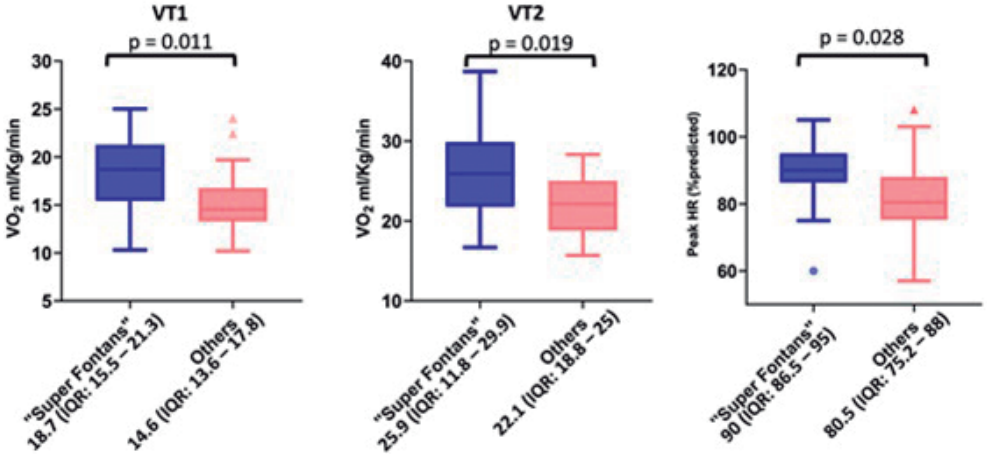
CO 80. COMPARISON OF DIFFERENT CLINICAL PROGNOSTIC SCORES IN PATIENTS WITH PULMONARY EMBOLISM AND ACTIVE CANCER

Beatriz Valente Silva, Pedro Silvério António, Sara Couto Pereira, Pedro Alves da Silva, Joana Brito, Ana Beatriz Garcia, Catarina Simões de Oliveira, Ana Margarida Martins, Miguel Azaredo Raposo, Rui Plácido, Miguel Nobre Menezes, Fausto J. Pinto

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

Introduction and objectives: Several prognostic models have been validated for risk-stratification in patients with pulmonary embolism (PE), but current

Figure 1- Box plots representing VO2 at VT1, VO2 at VT2 and peak heart rate (% predicted) in the good-performer group and in the remainder



CO 79 Figure

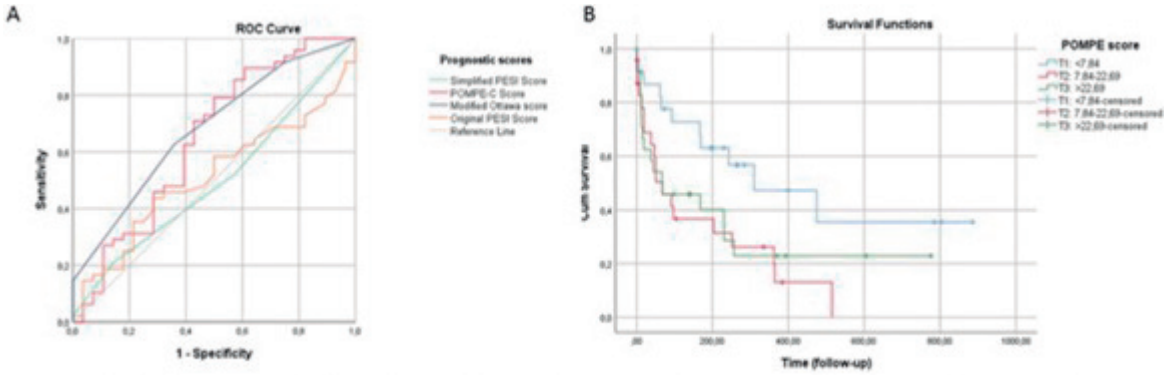


Figure 1: **A** - Prognostic accuracy of diferent prognostic scores; **B** – Cumulative survival analysis stratified according to POMPE-score.

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literature lacks a consensus tool to quantify short-term prognosis among cancer patients. This study aimed to compare the prognostic performance of generic (original and simplified PESI) and cancer-specific prognostic scores (POMPE-C and modified Ottawa) to estimate 30-day mortality after PE.

Methods: Retrospective study of patients with PE and active cancer. The primary outcome was 30-day overall mortality. The prognostic accuracy of the clinical scores was determined using receiver operating characteristic (ROC) curve analysis.

Results: Seventy-six patients were evaluated (50% female, mean age 71 ± 14 years). Mortality at 30 days occurred in 21 patients (27.6%). The figure 1 shows the ROC curves for 30-day overall mortality. Original and simplified PESI scores did not predict mortality in PE patients with cancer. Indeed, sPESI score categorized all cancer patients as high risk, limiting its discriminatory power. Only the cancer-specific POMPE-C and modified Ottawa scores predicted PE-related mortality in this population (AUC 0.65 and 0.68, respectively). Compared to patients with POMPE-C score < 7.7 (1st tertile), 30-days mortality was four times higher in the ones presenting higher scores (OR: 4.0; 95%CI: 1.05-15.22; p < 0.042). The Kaplan-Meier individual survival analysis for mortality stratified by POMPE-C score is represented in figure 2 (log rank 6.27, p = 0.043).

Conclusions: Clinical course of cancer patients differs from those without cancer, and malignancy itself may contribute to a substantial proportion of the risk of death. Thus, cancer-specific PE prognostic scores (POMPE-C and Ottawa) performed better than generic scales (original PESI and sPESI).

Sábado, 23 Abril de 2022 | 12:30-13:30

Sala Vega | Comunicações Orais (Sessão 17) - Ciência Básica e Saúde Digital

CO 81. HISTOLOGY-VERIFIED MYOCARDIAL FIBROSIS IN SEVERE AS PATIENTS: PREVALENCE AND CORRELATION WITH NON-INVASIVE LV MYOCARDIAL TISSUE ASSESSMENT

Sérgio Maltês[1], João Abecasis[1], Daniel Gomes Pinto[1], Rita Reis Santos[1], Pedro M. D. Lopes[2], Gustavo Sá Mendes[1], Sara Guerreiro[1], Telma Lima[1], Pedro Freitas[1], António Ferreira[1], Sância Ramos[1], Ana Félix[1], Nuno Cardim[3], Victor Gil[3], Miguel Mendes[1]

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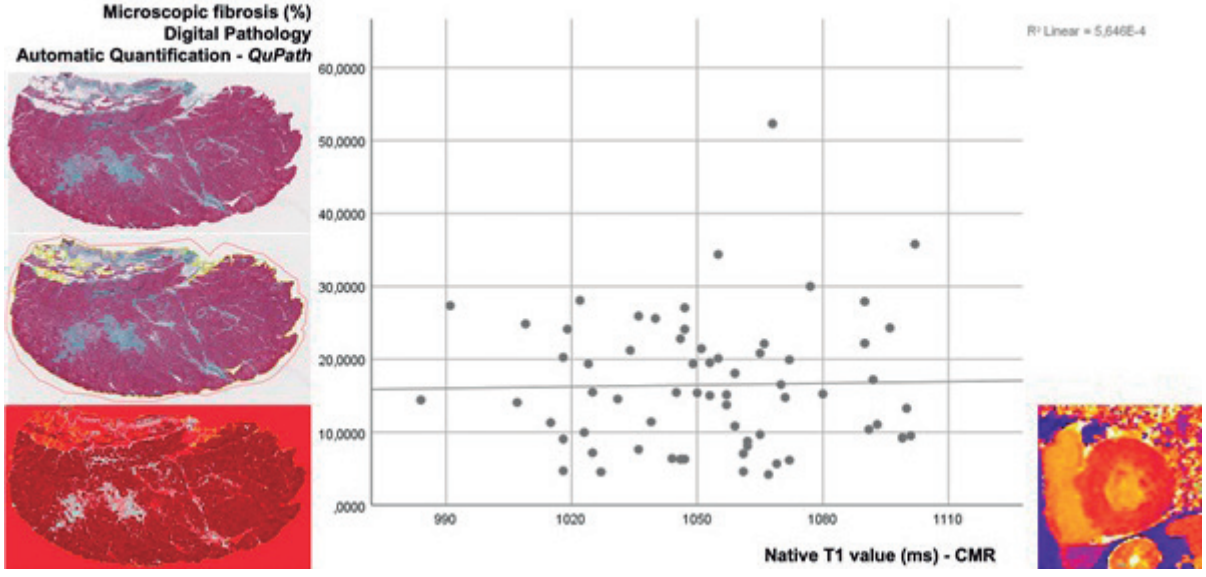
Introduction: Myocardial fibrosis (MF) is a common finding and a potential adverse prognostic marker in several cardiac diseases, including in severe aortic stenosis (AS). While histological analysis obtained through endomyocardial biopsy remains the gold-standard for MF assessment, non-



CO 81 Figure

invasive cardiac imaging may offer surrogate biomarkers for fibrosis. We tried to assess the correlation between MF quantification at histopathology and cardiac magnetic resonance (CMR)-derived tissue characterization data in patients with severe AS.
Methods: Single-center prospective cohort enrolling 71 patients with severe symptomatic high-gradient AS undergoing surgical aortic valve replacement (SAVR) (mean age 71 ± 9 years; 49% male, mean valvular transaortic gradient 60 ± 20 mmHg; mean left ventricle [LV] ejection fraction by CMR 58 ± 9%). Those with past history of myocardial infarction or other cardiomyopathy were excluded. All patients underwent pre-operative CMR study with LV tissue characterization and quantification. Elevated T1 mapping was defined as a value > 1,021 ms as per center protocol. Myocardial tissue was obtained during SAVR either through biopsy at basal LV septum or harvested from surgical myectomy specimens. Masson´s trichrome stain was used for collagen/fibrosis assessment. Automatic quantification was obtained at *QuPath*™ digital pathology software after applying a dedicated artificial intelligence algorithm on ultra-high-resolution digital slide scanning images (*Aperio AT2 brightfield scanner*™).
Results: Histology-confirmed MF was observed in all patients (median percentage of fibrotic myocardial tissue 15% [IQR 9-22%]). Median global T1 mapping and extracellular volume (ECV) percentage was 1,048 ms (IQR 1,027-1,078) and 24% (IQR 20-30%), respectively. Late gadolinium enhancement (LGE) with a non-ischemic pattern was present in 42 patients (59%) with a median LGE mass of 5.8 g [IQR 1.0-10.2]; median percentage of LV mass with LGE 3.7% [IQR 0.6-10.4]. While neither T1 mapping (global or basal LV septum), ECV nor LGE had any significant correlation with histology-confirmed MF (Fig.), the vast majority of patients had significantly elevated global and basal LV septum T1 mapping – 81% and 92%, respectively.
Conclusions: In this single-center prospective study, microscopic MF was present in all patients with severe symptomatic high-gradient AS, was accompanied by elevated T1 mapping values but no correlation was found between myocardial fibrosis at histopathology analysis and CMR-derived LV tissue characterization parameters. This may not only stem from sampling (single point biopsy *vs.* whole myocardial tissue assessment) but also from distinct evaluation of different types of fibrosis by different methods.

CO 82. TRANSCRIPTION FACTOR 21 AND PROGNOSIS IN A CAD POPULATION

M. Raquel Santos[1], Maria Isabel Mendonça[1], Margarida Temtem[1], Débora Sá[1], Ana Célia Sousa[1], Sónia Freitas[1], Mariana Rodrigues[1], Eva Henriques[1], Sofia Borges[1], Graça Guerra[1], Ana Freitas[1], Ilídio Ornelas[1], António Drumond[1], Roberto Palma dos Reis[2]

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

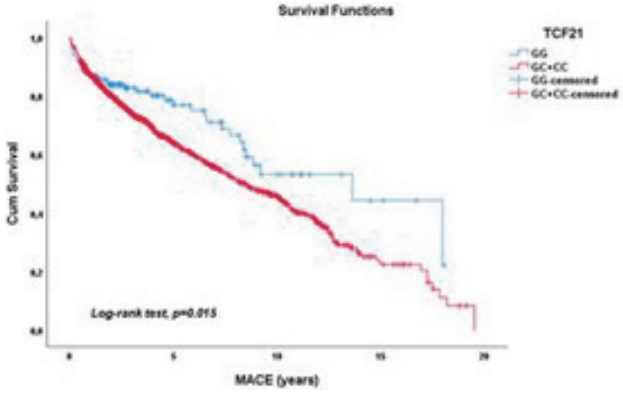
Introduction: TCF21 is a member of the basic- helix-loop-helix (bHLH) transcriptor factor family, being critical for embryogenesis of the heart. It regulates epicardium-derived cells differentiation into smooth muscle (SMC) and fibroblast lineages. The biological roles of TCF21 in epicardial fate determination and the progression of atherosclerosis remained a controversial issue.
Objectives: Investigate the impact of the TCF21 rs12190287 gene variant on the prognosis of a coronary artery disease (CAD) cohort.
Methods: 1,713 CAD patients mean age 53.3 ± 7.8; 78.7% male sex were surveyed in terms of MACE occurrence in an extended follow of 5.0 ± 4.3 (range 1 to 20 years). After considering all the genetic models, we used the dominant (GC+CC) as the best model. This model was compared with the wild type of GG with Kaplan Meier methodology to evaluate the survival probability. A Cox regression analysis with all the risk factors and genetic models was performed to assess the independent variables associated with the prognosis.
Results: GG wild genotype presented 9.5% of the whole population, GC 43.2% and the risk genotype CC 47.3%. After Kaplan Meier estimated GC+CC showed a worse survival throughout the follow-up period. After multivariate Cox regression analysis, this dominant model remained in the equation as an independent risk factor to MACE occurrence with an HR of 1.41; p = 0.033, together with multivessel disease, physical inactivity, chronic kidney disease (CKD) and diabetes.
Conclusions: TCF21 rs12190287 is a risk factor for prognosis in our population. The role of this gene may influence fundamental SMC processes in response to vascular stress, accelerating atherosclerosis progression and may represent a target for future therapies.

CO 83. PLASMA LIPIDOMICS IN PATIENTS WITH HEART FAILURE WITH PRESERVED EJECTION FRACTION

Sílvia O. Diaz[1], António S. Barros[1], José M.G. Alvarenga[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, NOVA Medical School|Faculdade de Ciências Médicas da Universidade NOVA de Lisboa.

Introduction: The importance of plasma lipids is well established in the context of cardiovascular diseases (CVD). Still, a comprehensive and detailed evaluation of plasma lipidome in HFpEF patients is missing and may provide important mechanistic clues with potential therapeutic impact.
Objectives: To study the lipidomic profile in patients with stable HFpEF compared to comorbidity-matched controls.
Methods: Single-center and prospective cohort study including stable HFpEF patients (n = 60) and comorbidity-matched controls (n = 13). Plasma samples were analyzed using top-down shotgun lipidomics. The acquired MS shotgun signals were explored through orthogonal partial least squares discriminant analysis (OPLS-DA) to untangle and then identify lipid profiles distinctive of each group. Due to the unbalanced number of patients in both groups, which impacted the model's accuracy, specificity, sensitivity, and robustness, the SMOTE technique was previously applied. *SMOTE - Synthetic Minority Over-sampling Technique* – a kNN-nearest neighbour-based algorithm was used to generate partially synthetic data of the minority class, in this case, the controls samples. The OPLS-DA model was internally validated using bootstrapping (resampling with 15% repetitions, recomputed 300 times).



Independent risk factors for MACE occurrence (Cox regression*)

Variables	Hazard ratios (95% CI)	P-value
Multivessel disease	1.809 (1.525 – 2.146)	<0.0001
TCF21 (GC+CC)	1.408 (1.027 – 1.930)	0.033
Physical inactivity	1.402 (1.168 – 1.682)	<0.0001
Clearance<60	1.357 (1.047 – 1.760)	0.021
Diabetes	1.237 (1.046 – 1.464)	0.013

**Forward wald method (SPSS vs. 25.0). Hypertension, smoking status and diabetes did not remain in the equation. MACE – Major adverse cardiovascular events; CI – Confidence interval. Statistically significant for p<0.05.*

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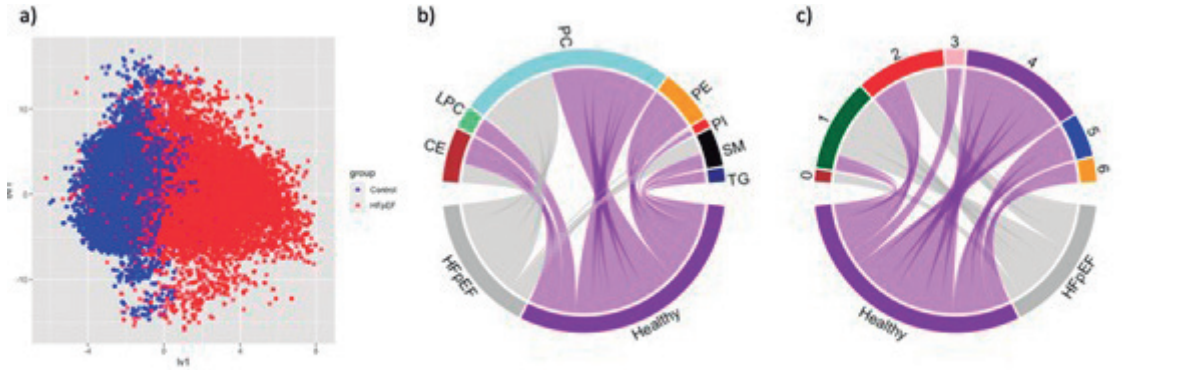

Figure 1: a) OPLS-DA scores plot obtained after class balancing and bootstrapping for internal validation and robustness purposes. Control cases are shown in blue and HFpEF in red. b and c) representation of the 29 lipids that explain the separation between HFpEF and controls visible in a), and their characterization in terms of b) family and c) number of unsaturations, linked to the group where they are increased, *i.e.* grey connectors indicate lipids increased in HFpEF, and purple connectors indicate lipids increased in controls.

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Results: The resulting model showed a group separation trend, as shown in the score plot (Fig. 1a, controls shown in blue and HFpEF in red). Loading plots and Variable Importance to the Projection (VIP) revealed that 29 lipids (Fig. 1 b-c) were harbouring this separation. Out of this panel, lipids increased in HFpEF predominantly belong to the family of phosphocholines, cholesterol esters and sphingomyelins (Fig. 1b, grey connectors) and have, on average, a low number of unsaturations (Fig. 1c, grey). On the other hand, lipids increased in controls mainly belong to the triacylglycerols, phosphoinositols, phosphoethanolamines, lyso-phosphocholines, some sphingomyelins, and cholesterol esters (Fig. 1b, purple connectors) and have a higher number of unsaturations (Fig. 1c, purple). These findings are widely consistent with previous work and support that polyunsaturated lipids are inversely associated with CVD. In contrast, sphingolipids and low unsaturated PC are directly associated with CVD.
Conclusions: Despite the low and unbalanced sample numbers available, the use of appropriate data-analysis procedures, namely over-sampling and bootstrapping, enabled the development of robust multivariate models with interpretative value. These preliminary results showed that the lipidomic screening might help unravel the molecular mechanisms involved in HFpEF.

CO 84. THERAPEUTIC EFFECT OF UROCORTIN-2 IN HEART FAILURE WITH PRESERVED EJECTION FRACTION

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[1]Faculdade de Medicina da Universidade do Porto. [2]Instituto de Ciências Biomédicas Abel Salazar.

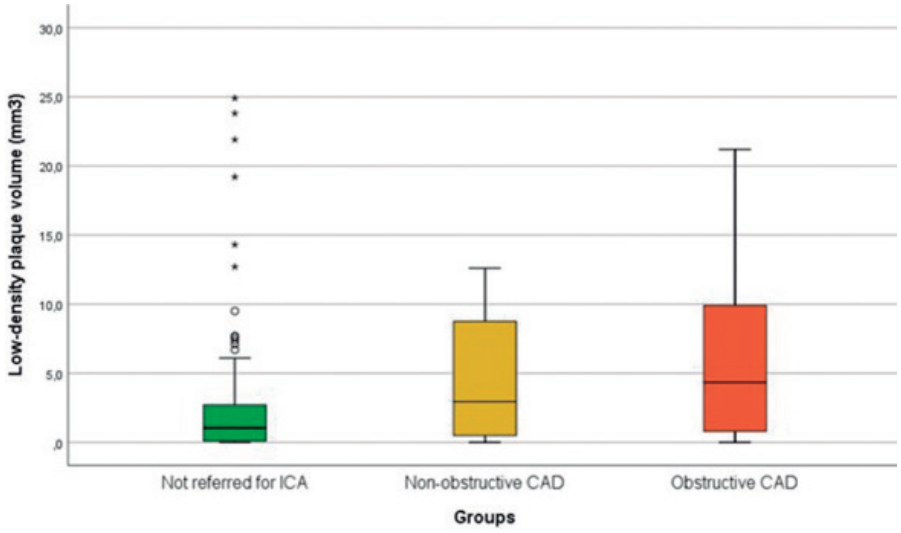
Introduction: Although initially believed to be less severe than heart failure with reduced ejection fraction (HFrEF), heart failure with preserved ejection fraction (HFpEF) prevalence has increased and accounts for as much as 50% of heart failure cases. Treatment options remain limited and aim primarily for symptom relief and improvement of patients' quality of life. Urocortin-2 (Ucn-2) belongs to the corticotrophin-releasing hormone family and has been found to have significant beneficial hemodynamic, hormonal and renoprotective effects in both animal models and humans with HFrEF.
Objectives: In this work we studied the role of the Ucn-2/CRHR2 system in the pathophysiology of HFpEF and evaluated the efficacy of Ucn-2 as a novel therapeutic strategy in this clinical syndrome.
Methods: 18-week-old male ZSF1-Lean (n = 26) and ZSF1-Obese (n = 28) rats randomly received either Ucn-2 (15 μg/kg/day, subcutaneously) or vehicle (0.9% NaCl), for 12 weeks. During the treatment period evolution of cardiac (dys)function was assessed by echocardiography. After treatment, invasive hemodynamic analysis was performed, with subsequent sample collection. Histological analysis of the left ventricle (LV) was performed as well as quantitative RT-PCR analysis for relevant molecular markers.
Results: mRNA expression of Ucn-2 and CRHR2 was decreased in the LV of ZSF1-Obese rats compared to ZSF1-Lean and correlated with LV structure and diastolic function. In both morphometric and echocardiographic analysis we found that ZSF1-Obese rats presented significantly higher cardiac and LV weight, compared to Lean counterparts. Cardiomyocyte cross-sectional area and fibrosis were found to be increased in Obese rats, corroborating morphometric and echocardiographic measurements. Chronic Ucn-2 treatment showed beneficial effects in both cardiac hypertrophy and fibrosis. Furthermore, ZSF1-Obese rats displayed increased BNP and TNF-α LV mRNA expression, both of which were decreased with chronic treatment. Interestingly, Col3A1 LV mRNA expression was found to be decreased in ZSF1-Obese rats compared to ZSF1-Lean, and Ucn-2 chronic treatment resulted in a faint further decrease of Col3A1 expression, compared to non-treated animals.
Conclusions: This work suggests that Ucn-2/CRHR2 system is altered in experimental HFpEF and that chronic administration of Ucn-2 attenuates LV remodeling, in particular the hypertrophic changes of the cardiac muscle, a beneficial effect for patients with HFpEF.

CO 85. APPLICATION OF ARTIFICIAL INTELLIGENCE IN CORONARY CT ANGIOGRAPHY: A POTENTIAL GATEKEEPER STRATEGY?

José Miguel Viegas, João Ferreira Reis, Rita Teixeira, Sofia Jacinto, Tiago Mendonça, Ruben Ramos, Hugo Marques, Luísa Figueiredo, Rui Cruz Ferreira

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

Introduction: Coronary computed tomography angiography (CCTA) analysis plays a critical role in the diagnosis of coronary artery disease (CAD), however it can be time consuming and subject to significant inter-reader variability. Medical artificial intelligence (AI) is rapidly developing and moving from the research field to daily clinical practice. AI algorithms have demonstrated high performance and computational efficiency, reducing the degree of manual input and processing time. For its widespread clinical implementation, validation of these algorithms are highly necessary.
Objectives: This study aimed to determine the impact of an AI-enabled CCTA analysis for comprehensive coronary artery evaluation in patients (P) with suspected CAD.
Methods: We analysed 100 CCTA exams from a cohort of symptomatic patients (P) with mild-to-moderately abnormal non-invasive ischemia test. Stenosis severity was assessed by level III experts (manual evaluation, MEv). A novel AI-based software tool (automatic evaluation, AEv) was also used to quantify coronary stenosis and characterize plaque phenotype. In P later referred for invasive coronary angiography (ICA), diagnostic and revascularization yields of MEv and AEv were compared.



CO 85 Figure

Results: 100P, 52% male, mean age 68 ± 10 years. One-third had persistent typical angina, of which 67% had a Canadian Cardiovascular Society angina grade ≥ 2. Overall prevalence of obstructive CAD determined by MEv and AEv was 25% and 21%, respectively, with a significant association between both assessments ($p < 0.001$). Framingham risk score was significantly higher in P with obstructive stenosis (12 (22) *vs.* 24 (15)%, $p = 0.042$). Based upon MEv, referring physician decided to proceed to ICA in 22P (21P with significant and 1P with minimal non-obstructive stenosis). For those undergoing ICA, 13P also had obstructive CAD established by AEv. Diagnostic yields for MEv and AEv-guided ICA was 82 and 60%, and revascularization yields 73 and 60%, respectively. AEv atherosclerosis quantification revealed significant differences between P who did not undergo ICA, P referred for ICA without significant stenosis and P with obstructive CAD on ICA: median total plaque volume (126 *vs.* 312 *vs.* 518 mm^3, $p < 0.001$), calcified plaque volume (23 *vs.* 197 *vs.* 222 mm^3, $p < 0.001$), non-calcified plaque volume (71 *vs.* 112 *vs.* 252 mm^3, $p < 0.001$) and low-density plaque volume (1.1 *vs.* 3.0 *vs.* 4.4 mm^3, $p = 0.042$) (Fig.).
Conclusions: A diagnostic strategy using AI-based analysis of coronary stenosis severity on CCTA had a similar performance compared to MEv. In addition, risk prediction can be enhanced by AI assessment of plaque composition. This study is an example of the potential role of AI in the CCTA workflow. Further validation of these algorithms are needed.

Sábado, 23 Abril de 2022 | 13:30-14:30

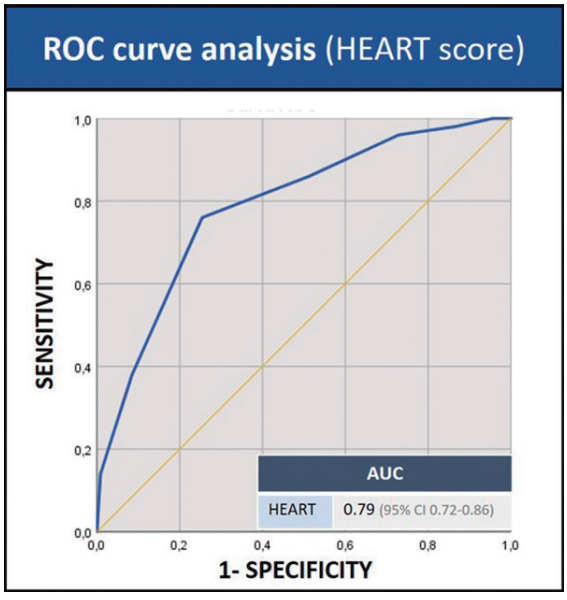
Sala Vega | Comunicações Orais (Sessão 18) - DAC e Cuidados Intensivos 4 - Risco e Prognóstico

CO 86. CORRELATION BETWEEN NSTE-ACS RISK SCORES WITH SYNTAX: CAN WE PREDICT CORONARY LESION COMPLEXITY BEFORE ANGIOGRAPHY?

Sérgio Maltês, Mariana Paiva, Gustavo Sá Mendes, Sérgio Madeira, Rui Campante Teles, Manuel Almeida, Jorge Ferreira, Miguel Mendes

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

Introduction and objectives: Standard single antiplatelet regimen (SAPT) is currently recommended before invasive risk stratification in non-ST elevation acute coronary syndromes (NSTE-ACS). However, there are subsets in whom dual antiplatelet therapy (DAPT) may be more protective according to the coronary anatomy and revascularization strategy. We aimed to identify pre-procedural predictors of coronary artery complexity that may be helpful in selecting an individualized antiplatelet regimen.
Methods: Retrospective single-center study including patients with NSTE-ACS performing coronary angiography between January 2020 and July 2021. Clinical variables and classic NSTE-ACS risk scores (TIMI, GRACE and HEART) were captured and SYNTAX 1 score was calculated. Patients were divided into low (0-22), moderate (23-32) and high (≥ 33) SYNTAX score. Multivariate logistic regression analysis was performed to determine predictors of anatomical complexity (defined as significant left main disease [stenosis ≥ 50%] or SYNTAX ≥ 33).



Results: A total of 448 patients were included (mean age 67 ± 13 years; 74% males; 85% with NSTE-myocardial infarction). Overall, 350 (78%), 63 (14%) and 35 (8%) patients had a low, moderate or high-SYNTAX score, respectively. Thirty-one (7%) patients had significant left main disease. At multivariate analysis (adjusted for age, diabetes, renal function, GRACE and TIMI scores), the HEART score (odds ratio 2.3, 95% confidence interval 1.5-3.3, $p < 0.001$) predicted a high coronary anatomical complexity. When performing ROC curve analysis, the HEART score had a significant discriminative ability in identifying those with complex coronary anatomy (area under the curve

0.79, 95%CI 0.72-0.86, p < 0.001) (Fig.) – a score > 7 showed a sensitivity of 76% and specificity of 75% in identifying such patients.
Conclusions: In this cohort of NSTE-ACS patients, the HEART score was an independent predictors of complex coronary anatomies. These results suggest that those with high (> 7) HEART score benefit from SAPT as opposed to DAPT, given the high probability of complex lesions amenable to CABG.

CO 87. NEW-ONSET OF ATRIAL FIBRILLATION IN ST-ELEVATION MYOCARDIAL INFARCTION

Hélder Santos, Mariana Santos, Sofia B. Paula, Inês Almeida, Samuel Almeida, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

Introduction: ST-Elevation Myocardial Infarction (STEMI) is a major health problem, that without an emergency reperfusion therapy is associated with a worse prognosis. Nevertheless, in some cases, this pathology can be accompanied by other diseases, for example, atrial fibrillation (AF). AF presence at admission can be interpreted as an early and hemodynamic response to STEMI, yet after 48 hours its significance is not completed clarified.
Objectives: Evaluate differences between early and late new-onset AF in STEMI patients.
Methods: Multicenter retrospective study, based on the Portuguese Registry of ACS between 1/10/2010-4/09/2019. New-onset AF was defined as the first episode of AF in patients without a history of AF and if occurred during the hospitalization for ACS. Patients were divided into two groups: A) early new onset of AF (first 48h after the initial electrocardiogram); B) late new onset of AF, more than 48 hours after the electrocardiogram.
Results: A total of 29,851 patients was analyze and 501 patients presented new-onset of AF during the hospitalization for STEMI, 332 in group A (66.3%) and 169 in group B (33.7%). Both groups were similar regarding gender, body mass index, arterial hypertension, dyslipidemia, diabetes mellitus, coronary artery disease, stroke history, peripheral artery disease, chronic kidney disease, Killip-Kimball class > I, creatinine at admission, glycemia levels at admission, HbA1c, platelet count, cholesterol levels, re-infarction as complication, STEMI mechanical complication, stroke as a STEMI complication and hospitalization death. Group A was directly admitted more frequent in the Cat lab (36.6 *vs.* 26.2%, p = 0.020), had more smokers (29.3 *vs.* 18.0%, p = 0.006), hemoglobin at admission (13.7 ± 1.8 *vs.* 13.3 ± 2.2, p = 0.016), left ventricular ejection fraction (46 ± 13 *vs.* 43 ± 13, p = 0.016), heart failure complication (30.3 *vs.* 17.3%, p = 0.002), cardiogenic shock complication (15.0 *vs.* 6.6%, p = 0.007), atrioventricular block complication (7.9 *vs.* 1.8%, p = 0.006), sustained ventricular tachycardia (10.9 *vs.* 4.7%, p = 0.022) and cardiac arrest (12.7 *vs.* 2.4%, p < 0.001). On the other hand, group B was elderly (70 ± 14 *vs.* 75 ± 11, p < 0.001), was higher time from the first symptoms until medical assistance (p < 0.001) and brain natriuretic peptide (720 ± 1,212 *vs.* 1,051 ± 1,239, p = 0.006). Curiously, late AF group had higher rates of amiodarone prescription (22.8 *vs.* 38.3%, p < 0.001), and the early group had more frequent beta blocker prescription (73.7 *vs.* 63.4%, p < 0.001).
Conclusions: Late new-onset of AF in STEMI patients was elderly, had higher time since the first symptom until medical assistance and had higher levels of brain natriuretic peptide. On the other hand, early new-onset of AF in STEMI had higher rates of major cardiac adverse events.

CO 88. FUNCTIONAL IRON DEFICIENCY IN ACUTE CORONARY SYNDROMES: PREVALENCE AND PROGNOSTIC IMPACT

Ana Fátima Esteves, Sara Gonçalves, Tatiana Duarte, José Maria Farinha, António Pinheiro, Joana Ferreira, Rui Coelho, Jéni Quintal, Nuno Fonseca, Rui Caria

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

Introduction: Functional iron deficiency (ID) is a well-known prognostic marker in heart failure (HF), independent of the presence of anemia. However, its impact in acute coronary syndromes (ACS) is not well established. Recent studies show that ID could have prognostic value in this setting but don't discriminate between absolute and functional ID.
Objectives: To evaluate the prevalence of functional ID in patients with ACS and its prognostic impact during follow-up.
Methods: Retrospective analysis of consecutive patients admitted with ACS from January to December 2019. The population was evaluated according to basal characteristics. We divided the population in two groups: with or without functional ID (defined as transferrin saturation < 20% and ferritin between 100 and 299ng/mL), which were compared according to demographic and index-hospitalization variables, co-morbidities, analytical and echocardiographic data and adverse events. We determined the predictive value of functional ID on occurrence of HF, urgent care admissions, HF and total re-hospitalizations, reinfarction, hemorrhage and death.
Results: We included 297 patients, mean age 65.67 (± 13.5) years, 72% male. From these, 167 (56%) presented with ST-segment elevation myocardial infarction (MI), 48 (16%) with a Killip class equal or above 2. Previously known HF was present in 4 (1.3%) patients; on admission, 110 (37%) had a left ventricle ejection fraction (LVEF) < 50%. Functional ID was identified in 70 (24%), absolute ID in 69 (23%) and anemia in 92 (31%). Of note, 70% patients with functional ID had no anemia. During a mean follow-up of 25 (± 9.2) months, 61 (21%) patients were hospitalized (7% with HF) and 52 (18%) died. There were no significant differences between the two groups in terms

	Univariate analysis OR (95% CI), p-value	Multivariate analysis OR (95% CI), p-value
Functional iron deficiency	2.828 (1.117-7.159), **0.028**	3.019 (1.015-8.981), **0.047**
Age in years	1.095 (1.047-1.146), **<0.001**	1.081 (1.026-1.139), **0.004**
Anemia	5.162 (1.977-13.477), **0.001**	2.998 (1.018-8.832), **0.046**
LVEF	0.948 (0.917-0.981), **0.002**	0.955 (0.916-0.996), **0.030**
De novo AF	3.950 (1.301-1.989), **0.015**	1.968 (0.523-7.403), 0.317
AKI	3.673 (1.455-9.270), **0.006**	0.948 (0.282-3.270), 0.948
Infection treated with antibiotics	3.617 (1.390-9.408), **0.008**	1.068 (0.335-3.403), 0.911

Table: Predictors of HF hospitalizations

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of basal characteristics, LVEF, NT-proBNP levels or Killip class. In univariate analysis, patients with functional ID had a significantly higher rate of HF urgent care admissions and hospitalizations. In multivariate analysis, the presence of functional ID was an independent predictor of HF hospitalizations during follow-up with OR 3.019, 95%CI 1.015-8.981, p-value 0.047 (Table). There was no independent impact of functional ID regarding other adverse events.
Conclusions: In this population of patients with ACS, the presence of functional ID is associated with adverse outcomes, with a higher risk of HF hospitalizations. A larger number of patients is required for more definite conclusions.

CO 89. WORKLOAD-INDEXED BLOOD PRESSURE RESPONSE PREDICTS CARDIOVASCULAR EVENTS IN CORONARY ARTERY DISEASE

Bruno Bragança, Inês Oliveira, Isabel Cruz, Rafaela Lopes, Conceição Queirós, Paula Pinto, Aurora Andrade

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

Introduction: Abnormal blood arterial pressure response to exercise (BPR) is a cardiovascular (CV) risk factor (CVRF). The concept of pathological BPR, believed to be an excessive raise or decrease, has been challenged. The workload-indexed blood pressure response (WBPR) recently emerged in an attempt to normalize hypertensive responses to exercise. However, it remains to be explored its value in high-risk CV subjects.
Methods: A cohort of 318 patients with known coronary artery disease (CAD), who underwent Bruce protocol treadmill testing between 2009-2010, were retrospectively followed to 11/2021 (9.9 ± 2.3 years) to assess the predictive value of WBPR for the occurrence of death and CV events. The WBPR is the ratio between systolic blood pressure variation from rest to peak exercise (?SBP) and metabolic equivalent of task (MET-1). High and low ?SBP/MET groups were created based on median value for this sample (5.2 mmHg/MET). Data presented: mean ± standard deviation; 95% confidence interval (CI) for hazard ratios (HR); significance between groups $p < 0.05$.
Results: Low *vs*. high ?SBP/MET groups were similar at baseline for sex (88% male,p = 0.67), hypertension (63%, p = 0.18), diabetes (32%, p = 0.34); dyslipidemia (72%,p = 0.62), myocardial infarction (75%, p = 0.39) and heart failure (HF) (9.9%,p = 0.07), with exception for overweight/obesity (90 *vs*. 82%, p = 0.009) and age (57 ± 11 *vs*. 61 ± 8 years, p = 0.009) that were higher in the ?SBP/MET^{high}. No significant differences were detected between groups for medication at baseline, including anti-hypertensive/-thrombotic/-ischemic drugs. In the follow-up period occurred 43 deaths (12 CV deaths), 58 reinfarctions, 94 worsening/*de novo* HF and 29 strokes. A non-linear J-shaped relationship was observed between ?SBP/MET and most events. In survival analyses using Cox regression, ?SBP/MET^{high} was associated with all death (HR 2.0 (CI 1.0-3.9, p = 0.042), reinfarction (HR 2.3 (CI 1.2-4.1,p = 0.008), and worsening/*de novo* HF (HR 1.7 (CI 1.0-2.9, p = 0.043) after adjusting for age, CVRFs and medication. In receiver operating characteristic curves, adding ?SBP/MET to a model with other cardiac stress variables (double product, ST-T changes, symptoms, and test positivity) significantly improved the power to predict all death, with an area under curve of 0.73 (CI 0.66-0.80, p = 0.037).
Conclusions: Data shows, for the first time, that ?SBP/MET is a powerful independent predictor of future cardiovascular events and deaths in the high-risk CAD population.

CO 90. LONG-TERM PROGNOSIS OF MYOCARDIAL INFARCTION WITH NON-OBSTRUCTIVE CORONARY ARTERIES *VERSUS* MYOCARDIAL INFARCTION WITH OBSTRUCTIVE CORONARY ARTERY DISEASE

Eric Alberto 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], João Gameiro[1], André Azul[1], José Sousa[1], Cátia Ferreira[1], Rui Baptista[1], Pedro Monteiro[1], Sílvia Monteiro[1], Francisco Gonçalves[1], Marta Madeira[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: The long-term survival rates of myocardial infarction with non-obstructive coronary arteries (MINOCA) patients is lower than in the general population. Nevertheless, there are conflicting results regarding the prognosis of MINOCA patients in comparison to myocardial infarction with obstructive coronary artery disease (MI-CAD) patients. The aim of this study was to assess the long-term all-cause mortality of MINOCA patients and compare it to MI-CAD patients.
Methods: Retrospective analysis of 2443 consecutively admitted patients for acute myocardial infarction (AMI), in a single coronary intensive care unit. Only patients with 5 years of follow-up and those who died before the 5-year mark were considered. Patients were divided into two groups according to the presence or absence of obstructive coronary artery disease on angiography (≥ 50% stenosis). Demographic characteristics, symptoms at presentation, past medical history, laboratory characteristics and medication at discharge were compared using the Mann-Whitney U or χ^2 test (according to variable type) to ensure comparability between groups. Five-year all-cause mortality was the target endpoint. Five-year survival was modelled through the Cox proportional hazard regression model. The variable of interest (MINOCA *vs*. MI-CAD) and possible confounders that displayed statistically significant differences in the initial demographic analysis were included in univariable Cox regressions, and those with statistically significant associations were included in a multivariable model. Those that displayed non-significant associations in the multivariable model

	MINOCA n=428	AMI-CAD n=2015	P value
Age – years	64 (IQR 55-72)	66 (IQR 56-74)	<0.001
Males – %	55	76.7	<0.001
BMI – kg/m²	27.3 (IQR 24.6-30.1)	27.3 (IQR 24.9-29.6)	0.381
Hypertension – %	76.5	76	0.759
Dyslipidemia – %	77.8	80	0.242
Current smoking – %	12.6	20.6	<0.001
Diabetes mellitus – %	37.4	49.7	<0.001
Previous history of angina – %	59.3	63.2	0.06
Previous history of MI – %	16.2	23.8	<0.001
Killip – %			<0.001
1	94.8	89.5	
2	3.8	7.3	
3	1	1.7	
4	0.4	1.5	
Troponin I – ng/mL	0.2 (IQR 0.04-3.32)	1.81 (IQR 0.16-13.81)	<0.001
Creatinine – mg/dL	0.85 (IQR 0.73-1.0)	0.9 (IQR 0.8-1.1)	<0.001
LDL-C – mg/dL	121.5 (IQR 97.5-146)	127 (IQR 100-154)	0.019
Haemoglobin – g/dL	13.6 (IQR 12.5-14.6)	13.75 (IQR 12.5-14.9)	0.115
LVEF – %	58 (IQR 50-61)	52 (IQR 44-60)	<0.001
BB at discharge – %	74.2	87.3	<0.001
RAS blocker at discharge – %	88.4	88.3	0.929
Aspirin at discharge – %	76.5	88.3	<0.001
Statin at discharge – %	98.2	98.7	0.258

Table 1: Comparison between groups.
MINOCA = myocardial infarction with non-obstructive coronary arteries; AMI-CAD = myocardial infarction with obstructive coronary artery disease; BMI = body mass index; MI = myocardial infarction; LDL-C = low density lipoprotein cholesterol; LVEF = left ventricular ejection fraction; BB = beta-blocker; RAS = renin-angiotensin system.

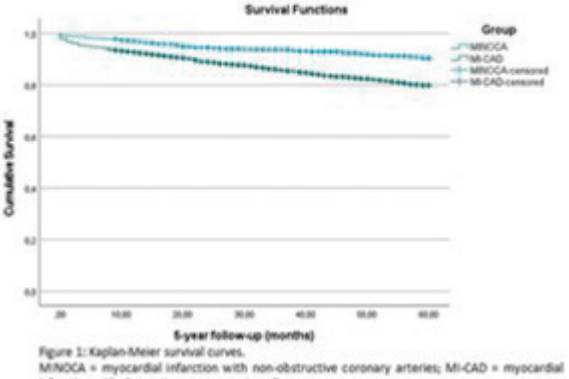

Figure 1: Kaplan-Meier survival curves.
MINOCA = myocardial infarction with non-obstructive coronary arteries; MI-CAD = myocardial infarction with obstructive coronary artery disease

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were subsequently removed until we were left with significant associations only, giving us an adjusted hazard ratio.
Results: Comparison between groups is presented in table 1. MINOCA patients were younger and more often women. They were less likely to have smoking habits, diabetes, or a previous history of AMI. They had a lower Killip class, as well as lower troponin I, serum creatinine and low-density lipoprotein cholesterol at admission. On the other hand, they had higher left ventricular ejection fractions. They were also less likely to have beta-blockers or aspirin prescribed at discharge. All-cause mortality at 5 years was 13.1% among MINOCA patients and 28.3% among MI-CAD patients (Kaplan-Meier survival curves in the figure), with an unadjusted hazard ratio (HR) of 0.421 (95%CI 0.322-0.550), p < 0.001. Adjusting for known confounders, the HR was 0.461 (95%CI 0.261-0.816), p = 0.008.
Conclusions: Compared with MI-CAD patients, those with MINOCA were slightly younger and had fewer comorbidities. In spite of having a worse long-term prognosis when compared to the general population, MINOCA patients have a significantly higher 5-year survival rate than MI-CAD patients, even after adjustment of confounding factors.

Sábado, 23 Abril de 2022 | 14:30-16:00

Sala Vega | Comunicações Orais (Sessão 19) - Prémio Jovem Investigador - Investigação Clínica

CO 91. SEGMENTAL ANALYSIS OF MICROVASCULAR DYSFUNCTION AND TISSUE CHARACTERIZATION IN HYPERTROPHIC CARDIOMYOPATHY BY MAGNETIC RESONANCE IMAGING

Pedro Garcia Brás[1], Isabel Cardoso[1], Sílvia Aguiar Rosa[1], Boban Thomas[2], António Fiarresga[1], Miguel Mota Carmo[3], Gonçalo Branco[2], Ricardo Pereira[2], Mafalda Selas[1], Filipa Silva[1], Rui Cruz Ferreira[1], Luís Rocha Lopes[4]

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Introduction: While left ventricular hypertrophy (LVH) and myocardial fibrosis are frequently evaluated in hypertrophic cardiomyopathy (HCM), microvascular dysfunction is often overlooked. The aim of this study was to assess the association between wall thickness, microvascular dysfunction and tissue characteristics in HCM patients (P), comparing individual myocardial segments.
Methods: Prospective evaluation of HCM P (P with "end-stage" HCM, prior septal reduction therapy or epicardial coronary artery disease were excluded). All underwent a cardiac magnetic resonance (CMR) protocol (1.5-T), from which the following parameters were analysed: maximal LV wall thickness (MLVWT), T1 and T2 mapping, extracellular volume (ECV), late gadolinium enhancement (LGE) and stress perfusion. Results were stratified according to the 16 American Heart Association segments. Multivariate regression analyses for perfusion defects and tissue characteristics were performed.
Results: 75 P (total of 1,200 myocardial segments analysed), 63% male, mean age 55 ± 15 years, MLVWT of 20 ± 4.5 mm (61% asymmetric septal LVH, 29% apical LVH and 8% concentric LVH). 28% presented LV outflow tract obstruction. Among the 424 segments (35.3%) with a perfusion defect, 286 (23.8%) had a defect only in the endocardial layer and 138 (11.5%) in both endocardial and epicardial layers with defects more often detected in hypertrophied segments. This association was verified in segments with MLVWT 12-14 mm and MLVWT ≥ 15 mm (OR 7.83, 95%CI 5.75-10.67, p < 0.001) (Table 1). Among the 660 segments with normal MLVWT (≤ 11 mm), 123 (19%) presented perfusion defects. A perfusion defect was more frequent in segments of obstructive HCM P (OR 1.48, 95%CI 1.13-1.92, p = 0.004). Microvascular dysfunction was associated with changes in tissue characteristics. For the same thickness, segments with perfusion defects had a higher T1 mapping (β-estimate 37.71, 95%CI 31.20-44.21, p < 0.001) and T2 mapping values than those without. Furthermore, regardless of MLVWT, segments with perfusion defects had LGE more often (OR 4.16, 95%CI 3.19-5.41, p < 0.001) and a higher ECV. On the other hand, among the 424 segments with a perfusion defect, 115 (27%) did not present LGE. MLVWT was associated with tissue characteristics. Comparing to non-hypertrophied segments, T1 mapping was higher in segments with MLVWT 12-14 mm and with ≥ 15 mm (β-estimate 37.71, 95%CI 31.2-44.21, p < 0.001). Segments with MLVWT ≥ 15 mm showed a significantly superior ECV comparing to non-hypertrophied segments. LGE was more frequent in the more hypertrophied segments: MLVWT 12-14mm and ≥ 15 mm (OR 9.02, 95%CI 6.42-12.67, p < 0.001) (Table 2).

Table 1. Multivariable logistic and linear regression for perfusion defect and tissue characteristics

Perfusion defect			
Model	Odds ratio estimate	95% confidence interval	p-value
Thickness 12-14mm	3.54	2.50 to 5.01	<0.001
Thickness ≥15 mm	7.83	5.75 to 10.67	<0.001
Obstructive HCM	1.48	1.13 to 1.92	0.004
Native T1 mapping			
Model	β-estimate	95% confidence interval	p-value
Thickness 12-14mm	15.32	7.82 to 22.81	<0.001
Thickness ≥15 mm	37.71	31.20 to 44.21	<0.001
Perfusion defect	30.90	25.18 to 36.62	<0.001
LGE	31.23	25.76 to 36.70	<0.001
Diabetes	11.02	3.24 to 18.79	0.006
Male gender	-15.2	-9.34 to -21.04	<0.001
Native T2 mapping			
Model	β-estimate	95% confidence interval	p-value
Perfusion defect	0.72	0.31 to 1.23	0.001
LGE	1.05	0.66 to 1.44	<0.001
Obstructive HCM	1.23	0.79 to 1.66	<0.001
Male gender	-0.61	-1.10 to -0.20	0.004
Late gadolinium enhancement			
Model	Odds Ratio estimate	95% confidence interval	p-value
Thickness 12-14mm	2.66	1.92 to 3.68	<0.001
Thickness ≥15 mm	9.02	6.42 to 12.67	<0.001
Perfusion defect	4.16	3.19 to 5.41	<0.001
Obstructive HCM	0.52	0.40 to 0.68	<0.001
Extracellular volume			
Model	β-estimate	95% confidence interval	p-value
Thickness ≥15 mm	2.51	1.79 to 3.24	<0.001
Perfusion defect	1.57	0.92 to 2.22	<0.001
LGE	3.00	2.40 to 3.60	<0.001
Diabetes	2.60	1.70 to 3.40	<0.001

Reference categories: Wall thickness ≤11mm, non-obstructive HCM, absence of perfusion defect. p-values were obtained by mixed effects regression models.

HCM: Hypertrophic cardiomyopathy, LGE: Late gadolinium enhancement

Conclusions: Microvascular dysfunction is more prevalent in obstructive HCM, particularly in the more hypertrophied segments. The presence of microvascular dysfunction is associated with diffuse tissue abnormalities and replacement fibrosis.

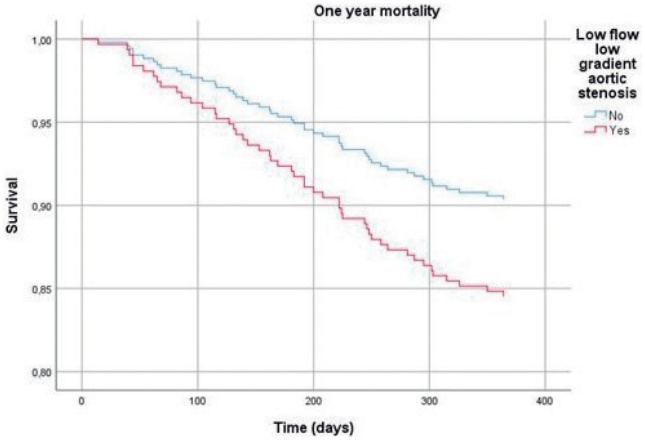
CO 92. TRANSCATHETER AORTIC VALVE IMPLANTATION OUTCOMES IN PATIENTS WITH LOW FLOW – LOW GRADIENT AORTIC STENOSIS

Alexandra Castelo, André Grazina, Tiago Mendonça, Inês Rodrigues, Pedro Brás, Vera Ferreira, José Viegas, Ruben Ramos, António Fiarresga, Duarte Cacela, Rui Ferreira

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

Introduction: There are limited data about the outcomes of transcatheter aortic valve implantation (TAVI) in patients with low flow – low gradient (LF-LG) aortic stenosis (AS), but some studies suggest that these patients may have worse results.
Objectives: To compare outcomes between LF-LG AS and high gradient AS patients submitted to TAVI.

Methods: Retrospective analysis of consecutive patients (P) submitted to TAVI between 2009 and 2020 in a tertiary center. Baseline characteristics and outcomes after the procedure were collected. LF-LG AS was considered in patients with mean gradient < 40 mmHg, valve area < 1 mm^2, stroke volume index < 35 mL/m^2 and at least one other criteria of contractile reserve confirmed by stress echocardiography, with elevation of mean gradient to > 40 mmHg, or high aortic calcium score in angio-CT.



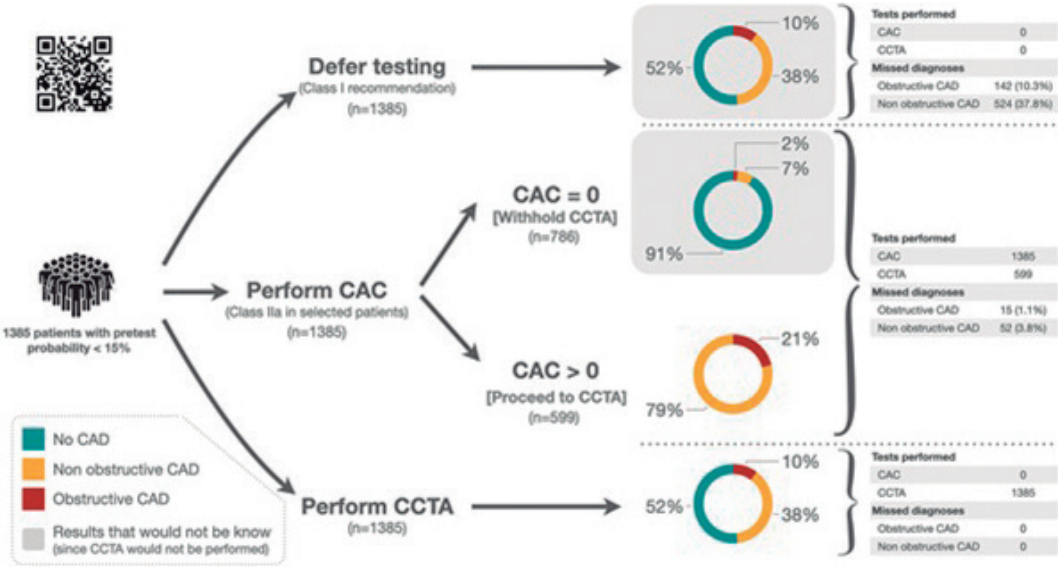
Results: A total of 517P (56.3% female) were included, with a mean age of 82 ± 6years. Patients with LF-LG AS (99P, 19.1%) had worse baseline characteristics, with higher STS score (7.4 *vs.* 5.6%, p < 0.0001), and natriuretic peptide B (9,585 *vs.* 2,903 pg/mL, p = 0.001), more frequent left ventricular ejection fraction (LVEF) < 40% (27.3 *vs.* 8.8%, p < 0.0001), more coronary artery disease (54.5 *vs.* 37.1%, p = 0.002), including previous myocardial infarction (25.3 *vs.* 14.1%, p = 0.008) and coronary artery bypass graft (27.3 *vs.* 12.3%, p < 0.0001), more frequent previous valvular surgery (12.1 *vs.* 5.5%, p = 0.02) and more atrial fibrillation (44.4 *vs.* 32.2%, p = 0.022) and pacemaker implantation (13.1 *vs.* 7.1%, p = 0.049). In univariable analysis, LF-LG AS was associated with worse 30-day, 1 year and long-term functional class (NYHA 3-4 - 11.5 *vs.* 2.9%, p = 0.001; 16.5 *vs.* 3.6% p < 0.0001 and 18.7 *vs.* 5.8%, p < 0.0001, respectively), 1 year mortality (17.2 *vs.* 9.8%, p = 0.045) and 1 year and long-term heart failure hospitalizations (16.3 *vs.* 3%, p < 0.0001 and 22.8 *vs.* 6.0%, p < 0.0001). When adjusted to the differences in baseline characteristics, in a multivariable analysis, LF-LG AS was still associated with worse functional class at 30 days (p = 0.011), 1 year (p = 0.021) and long-term (p = 0.021) and with heart failure hospitalizations at 1 year and long-term (p = 0.001 for both). In a sub-analysis considering only the patients with LF-LG AS, those with LVEF < 40% have the worst outcomes, with more global, intra-hospital and 30 days mortality (48.1 *vs.* 18.1%, p = 0.002; 14.8 *vs.* 1.4%, p = 0.019; 18.5 *vs.* 1.4%, p = 0.005), global and 30 days cardiovascular mortality (25.9 *vs.* 5.6%, p = 0.004 and 18.5 *vs.* 1.4%, p = 0.005), worse 1 year functional class (31.8 *vs.* 11.6%, p = 0.026) and more long-term heart failure hospitalizations (40.9 *vs.* 17.1%, p = 0.002).
Conclusions: Patients with LF-LG AS have worse short and long-term outcomes, even when adjusted for baseline characteristics differences. The sub-group of patients with LVEF < 40% have the worst global outcomes.

CO 93. IMPLICATIONS OF THE NORTH AMERICAN 2021 CHEST PAIN GUIDELINES IN THE DIAGNOSTIC APPROACH TO PATIENTS WITH STABLE CHEST PAIN AND LOW PRETEST PROBABILITY OF OBSTRUCTIVE CORONARY ARTERY DISEASE

Pedro M. Lopes[1], Francisco Albuquerque[1], Pedro de Araújo Gonçalves[2], João Presume[1], Pedro Freitas[1], Sara Guerreiro[1], João Abecasis[1], Ana Coutinho Santos[1], Carla Saraiva[1], Miguel Mendes[1], Hugo Marques[2], António M. Ferreira[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]UNICA - Cardiovascular CT and MR Unit, Hospital da Luz, Lisboa.

Introduction: The North American 2021 Chest Pain Guidelines recommend not testing stable patients with low pretest likelihood of obstructive coronary artery disease (CAD), defined as pretest probability < 15% using contemporary models (Class I recommendation). In selected cases among this subset of patients, coronary artery calcium (CAC) score is considered a "reasonable first-line test" (Class IIa). Despite some supporting evidence, the clinical implications of a widespread adoption of these recommendations remain unclear. The purpose of this study was to assess the results of three different testing strategies for patients with pretest probability < 15%: A) defer testing; B) perform CAC score and withhold further testing if = 0, and proceed to coronary CT angiography (CCTA) if > 0; C) perform CCTA in all.
Methods: We conducted a two-center cross-sectional study assessing symptomatic patients with suspected CAD who underwent CAC score and CCTA. Patients with known CAD, suspected acute coronary syndrome, or symptoms other than chest pain or dyspnea were excluded. Pretest probability of obstructive CAD was calculated based on age, sex and symptom typicality. Obstructive CAD was defined as any luminal stenosis ≥ 50% on CCTA.
Results: A total of 2,259 patients were screened, of which 1,385 (61.3%) had pretest probability < 15% and were included in the analysis (mean age 57 ± 11 years, 79% women). Symptom characteristics were: 48% non-anginal chest



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pain, 26% atypical angina, 21% dyspnea, and 5% typical chest pain. Overall, the prevalence of obstructive CAD was 10.3% (n = 142). In the 786 patients (56.6%) with a CAC score of 0, 8.5% (n = 67) had some degree of CAD [1.9% (n = 15) obstructive, and 6.6% (n = 52) nonobstructive]. Among those with CAC > 0 (n = 599), 21.2% (n = 127) had obstructive CAD. The results that would be reached with each of the 3 diagnostic strategies are presented in the figure. The number of patients needed to scan with strategy B (CAC as gatekeeper) *vs.* A (no testing) to identify one patient with obstructive CAD was 11, whereas the number needed to scan with strategy C (CCTA for all) *vs.* strategy B was 91.

Conclusions: Not testing patients with suspected CAD and pretest likelihood < 15% would lead to missing obstructive CAD in 1 out of 10 patients. Using CAC as a gatekeeper in this subgroup would decrease the use of CCTA by more than 50%, at the cost of missing obstructive CAD in 1 out of 100 patients. These findings may be used to inform decisions on testing, which will ultimately depend on how much diagnostic uncertainty and missed diagnoses patients and their physicians are willing to accept.

CO 94. FUNCTIONAL MITRAL REGURGITATION: KEEPING COHERENCE WITH THE ASE GRADING GUIDELINES, WHICH PROPORTIONALITY CONCEPT BEST PREDICTS PROGNOSIS IN THE REAL WORLD?

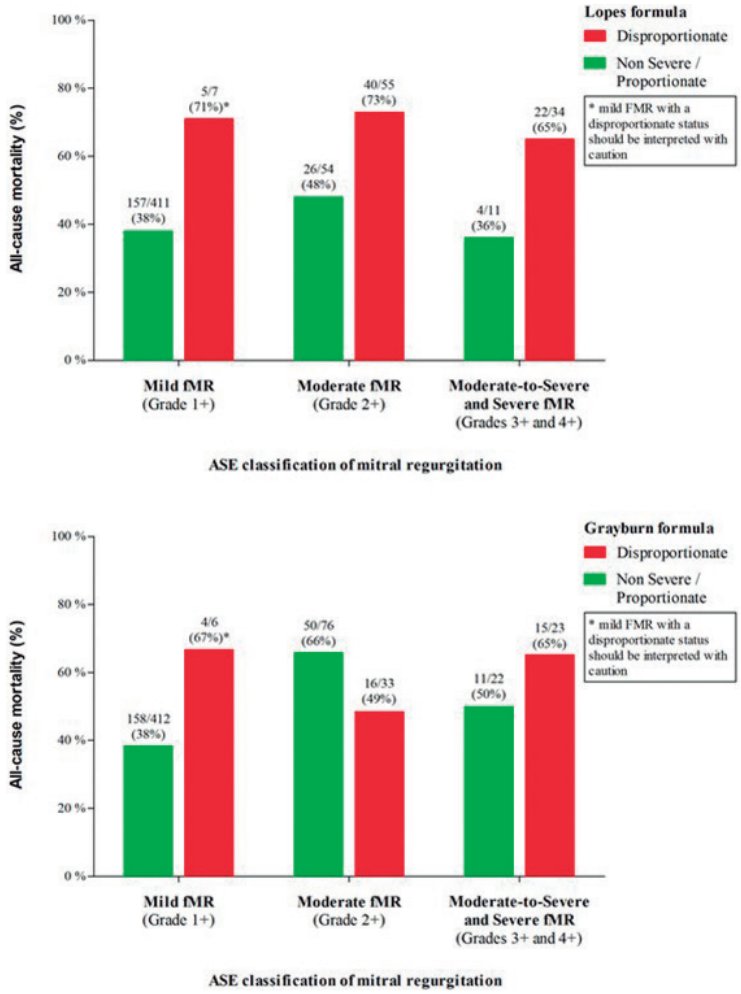
João Presume, Pedro Lopes, Pedro Freitas, Francisco Albuquerque, Carla Reis, Eduarda Horta, Sara Guerreiro, Liliana Marta, Marisa Trabulo, João Abecasis, Maria João Andrade, Miguel Mendes, Regina Ribeiras

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

Introduction: While the proportionality concept of functional mitral regurgitation (fMR) has been proposed as a potential explanation for the different results of two landmark mitral edge-to-edge trials, it still remains to be established which is the best way to assess it. The aim of this study was to evaluate the prognostic value of two proportionality concepts and assess their ability to improve MR stratification proposed by the American Society of Echocardiography (ASE).

Methods: We conducted a single-centre retrospective analysis in patients with reduced LVEF (< 50%) and at least mild fMR under optimal medical therapy. Proportionality status was calculated using the formulas proposed by: a) Grayburn, *et al.* – disproportionate fMR defined as (*EROA/LVEDV*) ≥ 0.15; b) Lopes, *et al.* – disproportionate fMR is present when measured EROA > individualized EROA cut-off (determined as: (50% × LVEF × LVEDV)/ Mitral VTI). The primary endpoint was all-cause mortality.

Results: A total of 572 patients (mean age 69 ± 12 years; 76% male) were included. Mean LVEF was 33 ± 9%, with a median LVEDV of 174 mL [136;220], and a median EROA of 14 mm^2 [8;22]. During a mean follow-up of 4.1 ± 2.7 years, there were 254 (44%) deaths. FMR (ASE guidelines) was classified as grade I in 418 (73%) patients, grade II in 109 (19%), grade III in 33 (6%) and grade IV in 12 (2%). Considerable disagreement (p < 0.001) exists between the two formulas: 46 (48%) of the 96 patients with disproportionate fMR by Lopes' formula were proportionate by Grayburn's; and 12 (19%) of the 62 patients with disproportionate fMR by Grayburn's were proportionate by Lopes'. Two different models were created to test each formula's prognostic impact. Each model was adjusted for multiple variables with prognostic value. While Lopes' formula maintained independent prognostic impact (aHR 1.5 [95%CI 1.07-2.1], p = 0.018), Grayburn's formula was not associated with all-cause mortality in multivariate analysis (aHR 1.0 [95%CI 0.67-1.5], p = 0.998). The distribution and mortality of ASE fMR classification was



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restratified according to each disproportionate formula (Fig.). Only Lopes' formula was able to distinguish lower and higher risk subsets of patients.
Conclusions: While two formulas exist to define fMR proportionality status, only the formula integrating LVEF at its core (Lopes's formula) maintained independent prognostic impact and was able to improve risk stratification of fMR severity according to the ASE.

CO 95. DEVELOPMENT OF DEEP LEARNING SEGMENTATION MODELS FOR CORONARY X-RAY ANGIOGRAPHY: PERFORMANCE ASSESSMENT BY NEW CLINICAL CRITERIA SCORE AND COMPARISON WITH HUMAN PERFORMANCE

Beatriz Silva[1], Miguel Nobre Menezes[1], João Lourenço[2], Tiago Rodrigues[1], Ana Rita Francisco[1], Pedro Carrilho Ferreira[1], Arlindo Oliveira[2], Fausto J. Pinto[1]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Instituto Superior Técnico.

Introduction: Artificial intelligence applied to invasive coronary angiography is underexplored. Few publications explored automatic invasive coronary angiography segmentation, arguably the first step for future clinical application. None have provided an appreciation of the results using clinical experts' criteria. The purpose of this study was to develop artificial intelligence models for invasive coronary angiography segmentation and assess the results with a set of criteria clinically defined by a panel of Interventional Cardiologists.
Methods: Patients undergoing invasive coronary angiography and physiology assessment were randomly selected. Per incidence, an ideal frame was segmented by trained physicians, forming a baseline human dataset. A baseline artificial intelligence model was then trained. An enhanced human segmentation was created combining the best of baseline human model, baseline artificial intelligence model and additional human segmentation as needed. An enhanced artificial intelligence model was trained with the enhanced human model dataset (Figs. 1A and 1B). Results were assessed by three Interventional Cardiologists with eleven criteria, combined into a Global Segmentation Score (GSS: 0-100 points), where each criteria's relevance was weighted (Fig. 1C).
Results: We included 416 images from 69 patients. Global Segmentation Score for baseline human dataset, enhanced human segmentation, baseline artificial intelligence model and enhanced artificial intelligence model were 96,9 ± 5,7; 98,9 ± 3,1; 86,1 ± 10,1 and 90 ± 7,6, respectively (p < 0,001 for both paired and global differences) (Fig. 1D). The enhanced artificial intelligence model outperformed the baseline artificial intelligence model in coronary segmentation, catheter to coronary transition and catheter thickness, but performed less well in other catheter tasks.
Conclusions: The use of Global Segmentation Score and its criteria was feasible. Artificial intelligence models performed very well. Human models were superior to artificial intelligence models, but only enhanced human segmentation achieved a near perfect Global Segmentation Score.

Sábado, 23 Abril de 2022 | 16:00-17:00

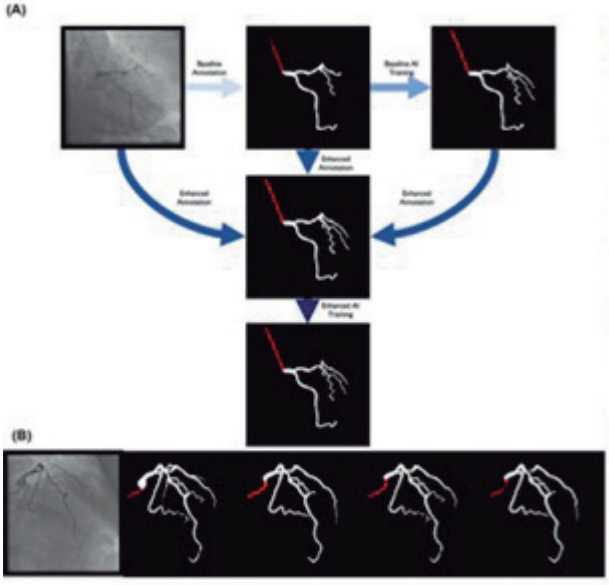
Sala Aquarius | Prémio Manuel Machado Macedo

CO 146. BIOLOGICAL OR MECHANICAL AORTIC PROSTHESES IN PATIENTS AGED 40-60 YEARS: A SINGLE CENTRE EXPERIENCE

Inês Alves

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

Introduction: The choice of prostheses type when performing surgical aortic valve replacement (SAVR) remains controversial in middle aged patients. Mechanical prostheses are associated with risks due to the need of anticoagulation therapy, while biological valves have a higher risk of deterioration. In recent guidelines, the ESC/EACTS recommends mechanical valves should be considered in patients < 60 and biological valves in patients > 65. US guidelines recommend either biologic or mechanical prostheses in patients aged 50 to 70 years. Baseline characteristics, life expectancy, contraindications for anticoagulation and patient preference are also considered in prostheses choice. Despite guidelines, biological valve use has increased over the last decades in all age groups We set out to study long-term outcomes of mechanical *versus*



(C)

Criteria	Catheter Vs Coronary Relative Weight	Individual Criteria Relative Weight	Points
Main Vessel Segmentation	70%	40%	28,0
Main Vessel Gaps		10%	7,0
Catheter to Artery Transition		15%	10,5
Branch Segmentation		20%	14,0
BranchGaps		5%	3,5
Coronary Artifacts		10%	7,0
Catheter Segmentation	30%	40%	12,0
Catheter Gaps		10%	3,0
Catheter Artifacts		15%	4,5
Catheter Location		5%	1,5
Catheter Thickness		30%	9,0
Total			100

(D)

Global segmentation score	Group				
	Baseline human model	Enhanced human model	Baseline artificial intelligence model	Enhanced artificial intelligence model	Between all
Mean +/- SD	96,9 +/-5,7	98,9 +/- 3,1	86,1 +/- 10,1	90 +/- 7,6	< 0,001
Median (IQR)	100 (9)	100 (0)	87,5 (9)	92 (9,5)	

Figure 1. (A) – Annotation and training process; **(B)** - (left to right): the first human segmentation incorrectly labels contrast backflow as coronary. The baseline artificial intelligence model improves on the human segmentation, but is still not perfect. The enhanced human model perfectly segments the transition. The enhanced artificial intelligence model is hampered by catheter gaps, but identifies the transition correctly; **(C)** - Global Segmentation Score (GSS: 1,5 to 100 points) taking into account the relevancy of each criteria, defined by the expert authors; **(D)** – Overall performance of different models according to GSS.

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biologic prostheses in patients aged 40-60 years and analyse the use of biological valves in this group.
Methods: We performed a single-centre retrospective observational study. Patients aged 40 to 60 that underwent SAVR in our centre from 2006 to 2016 were included (n = 383). The primary outcome was all-cause long-term mortality or aortic valve reoperation within the study time. Univariable analysis of relevant variables was performed comparing patients who underwent mechanical (n = 343) or biological (n = 40) prostheses. A propensity score nearest neighbour matching (1:1) for the biological valves group using the statistically different variables was used. Primary outcome was studied using Kaplan Meier Curves.
Results: Mean follow-up was 10.7 years. Mortality or reoperation was 19.8% in the mechanical and 35% in the biological prostheses. In the overall study group, mortality was significantly higher in the biological group, but when applied to the propensity matched sample, mortality was significantly higher in the mechanical group (figure 1 and 2). When comparing the population and propensity matched sample, the later showed higher pre-op chronic kidney disease (p = 0.024) and stroke (p = 0.002), lower left ventricle ejection fraction (p < 0.001) and more post-operative complications (p = 0.021). Overall survival was lower in the matched group.

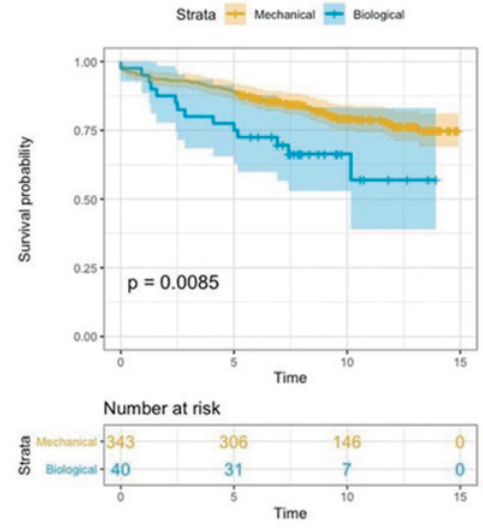


Figure 1 – Kaplan Meier Curve analysis of mortality in overall study population

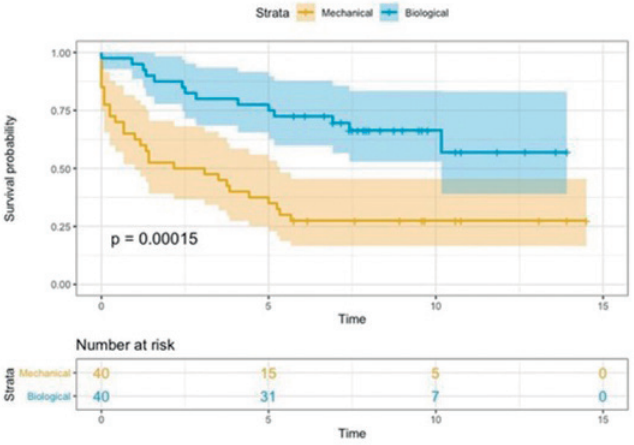


Figure 2 – Kaplan Meier Curve analysis of mortality in propensity matched sample

Conclusions: The present study has limitations, including the type of study and reduced number of patients, that can account for some of the results found. However, based on our centre's experience we hypothesize that in a select group of patients, even in younger ages, the use of biological protheses may prove beneficial, highlighting the importance of the patient's comorbidities and characteristics in prostheses choice. Further studies to analyse these findings could be beneficial, since very few other studies focused on this age group were found.

CO 147. MIECTOMIA MORROW NA MIOCARDIOPATIA HIPETRÓFICA OBSTRUTIVA: RESULTADOS A CURTO E LONGO PRAZO DE UM CENTRO REFERÊNCIA

Rui Pedro Cerejo, Carolina Rodrigues, Manuela Silva, Tiago Silva, Sílvia Rosa, Pedro Coelho, Rui Rodrigues, José Fragata

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

Introdução: O tratamento cirúrgico com Miectomia *Morrow* é considerado o tratamento *gold standard* para desobstrução da câmara de saída do ventrículo esquerdo (CSVE) nos doentes sintomáticos com Miocardiopatia Hipertrófica Obstrutiva. Em centros de referência é uma cirurgia segura e com resultados comprovados. Neste estudo revemos os resultados a curto e longo prazo desta cirurgia num centro de média dimensão.
Métodos: Revisão dos resultados de todos os doentes submetidos a Miectomia de *Morrow* por Miocardiopatia Hipertrófica obstrutiva num período de 12 anos (2009-2021) num centro terciário. Analisaram-se as características dos doentes, variáveis intra-operatórias, variáveis ecocardiográficas pré e pós procedimento, e outros fatores relacionados com sucesso do procedimento a curto e longo prazo, tais como: necessidade de *pacemaker* ou cardiodesfibrilhador, melhoria da capacidade funcional, eventos arritmicos e mortalidade.
Resultados: Foram realizadas 47 procedimentos: 30 sexo feminino (63,8%), idade média 54,2 anos (+-20,8 anos), gradiente na CSVE pre op em repouso médio 87 mmHg (+-53 mmHg) e provocado de 128 mmHg (+- 47 mmHg). Espessura média do septo de 21,5 mm (+-6,9 mm). Em 34 doentes (72,3%) correspondeu a ciurgia isolada e em 13 doentes existiram outros procedimentos concomitantes (valvular, coronário e/ou outro). Em 8 doentes (17%) interviu-se também no aparelho sub-valvular mitral (excisão de cordas anomalas e/ou sobre músculo papilar). Como complicações a destacar bloqueio auriculoventricular completo com necessidade de colocação *pacemaker* definitivo em 5 doentes (10,6%) e mortalidade em 3 doentes (6,4%). No ecocardiograma pos-op imediato o gradiente CSVE desceu para uma média de 21.5 mmHg (± 24,4 mmHg). Na avaliação ecocardiografica 1 ano pos-op gradientes intra-ventriculares mantiveram-se estáveis com uma média de 20 mmHg (± 15,5 mmHg). Na última avaliação *follow-up* maioria dos doentes encontrava-se pouco sintomática: 57% encontravam-se em NYHA I e 38% em NYHA II.
Conclusões: Miectomia cirúrgica é muito eficaz na remoção do obstáculo sub-aórtico que é responsável pelo mau prognóstico da MCHO, os seus resultados são duradouros com melhoria do prognóstico e qualidade de vida destes doentes. É um procedimento seguro e com baixa taxa de complicações quando realizado num centro de referência.

Domingo, 24 Abril de 2022 | 09:00-10:00

Sala Pégaso | Comunicações Orais (Sessão 20) - Insuficiência Cardíaca 3 - Terapêutica Farmacológica

CO 96. LEFT VENTRICULAR STRAIN IMAGING IN HEART FAILURE PATIENTS UNDER SACUBITRIL/VALSARTAN THERAPY

Ana Rita Teixeira, Pedro Garcia Brás, António Valentim Gonçalves, Luísa Moura Branco, Rita Ilhão Moreira, Tiago Pereira da Silva, Ana Teresa Timóteo, Pedro Rio, Rui Cruz Ferreira

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

Introduction: Sacubitril/valsartan (SV) is one of the cornerstones of heart failure with reduced ejection fraction (HFrEF) therapy, with results in reversing left ventricular (LV) remodelling. However, data is limited on myocardial LV strain imaging in different HFrEF etiologies in patients (P) under SV therapy. This study aimed to evaluate improvement in LV strain and strain rate parameters with SV therapy in nonischemic and ischemic HFrEF.
Methods: Prospective evaluation of HFrEF patients under guideline-directed medical therapy. LV mechanics were assessed by 2D speckle-tracking at baseline and after 6 months of SV therapy. LV longitudinal, radial, and circumferential (circ) strain and respective strain rates were compared and stratified according to nonischemic (group A) and ischemic (group B) etiology. Data analysis was performed with Student's t-test and Wilcoxon test.
Results: 35 patients were evaluated (83% male, mean age of 59 ± 11 years). 40% had atrial fibrillation and 43% ischemic etiology. Regarding longitudinal strain, there was a significant improvement in peak longitudinal strain in both groups (A: -5.13 *vs.* -9.66%, p < 0.001; B: -6.23 *vs.* -8.81%, p < 0.001). There was also an improved systolic strain rate (SRs) (-0.31 *vs.* -0.50s^{-1}, p < 0.001), early (SRe) (0.24 *vs.* 0.48s^{-1}, p = 0.001) and late diastolic strain rate (SRa) (0.28 *vs.* 0.45s^{-1}, p = 0.031) in group A, as well as in B: SRs (-0.34 *vs.* -0.44s^{-1}, p = 0.003), SRe (0.32 *vs.* 0.46s^{-1}, p = 0.029) and SRa (0.34 *vs.* 0.43s^{-1}, p = 0.029). Regarding radial strain, both had a significant peak radial strain improvement (A: 6.03 *vs.* 10.37%, p = 0.010; B: 5.65 *vs.* 12.2%, p = 0.001) and SRe (A: 0.44 *vs.* 0.89 s^{-1}, p = 0.014; B: 0.67 *vs.* 1.03s^{-1}, p = 0.031). SRs was improved in group A (0.63 *vs.* 0.95s^{-1}, p = 0.001) but the improvement was nonsignificant in B (0.71 *vs.* 0.83s^{-1}, p = 0.274). SRa did not show significant difference in both groups. In circ strain, both presented significant improvement of peak circ strain (A: -7.39 *vs.* -9.53%, p = 0.036; B: -7.99 *vs.* -10.48%, p = 0.008). While there was a significant improvement SRs in group A (-0.64 *vs.* -0.87s^{-1}, p = 0.021), it was nonsignificant in B (-0.85 *vs.* -0.87s^{-1}, p = 0.530). SRe and SRa wasn't significant in both groups.
Conclusions: After 6 months of SV therapy, there was significant improvement in LV peak longitudinal, radial, circ strain and longitudinal strain rate in nonischemic and ischemic HFrEF P. Radial SRs and circ SRs were significantly improved in nonischemic HFrEF P in contrast to ischemic HFrEF P.

CO 97. SAFETY AND EFFECTIVENESS OF SACUBITRIL-VALSARTAN IN A REAL-WORLD POPULATION

Mariana Tinoco, Ana Filipa Cardoso, Geraldo Dias, Tâmara Pereira, Bebiana Faria, Filipa Almeida, Sérgio Leite, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: PARADIGM-HF demonstrated superiority of Sacubitril-Valsartan (SV) over enalapril in patients with heart failure with reduced ejection fraction (HFrEF). However, patients in clinical practice may differ in their characteristics compared with patients in clinical trials.
Objectives: To characterize a real-world population of patients with HFrEF under SV therapy, and evaluate its safety and effectiveness.
Methods: Retrospective study of patients with HFrEF under SV therapy followed in an HF clinic between Jan 2018 and Jun 2020, with a follow up period until Oct 2021.
Results: A total of 90 patients were included: 80% (72) male, 65 ± 12 years, mostly with dilated cardiomyopathy (46.7%, 42) and ischemic cardiomyopathy (42.2%; 38). In the evaluation before starting SV, mean LVEF was 26.35 ± 7.32%, 50% of patients were in NYHA class III-IV; 89% were on ACEI/ARB, 92% on beta-blocker (BB) and 92% on MRA; 43.3% had an ICD and 31.1% a CRT-D; Up-titration to target dose (TD) was achieved in 57.8%. During a median follow-up (FUP) of 31.5 months [IQR: 23-41] we observed: an improvement in functional class (p = 0.019); NT-PBNP did not significantly change (3,718 *vs.* 3,110 pg/ml); a statistically significant increase in percentage of BB TD (50.28 *vs.* 65.28%, p = 0.003) and a marked reduction in furosemide use (21.1 *vs.* 7.9%, p < 0.001) and dose (mg) (67.04 *vs.* 45.14, p < 0.001).On TTE we observed an increase in LVEF (26.59 *vs.* 35.64; p < 0.001), a decrease in LV end-diastolic volume index (LVEDVi) (142.2 *vs.* 86.2; p < 0.001), in LV end-systolic volume index (LVESVi) (108.75 *vs.* 59.86; p < 0.001) and in E/e' (13.49 *vs.* 11.21, p = 0.09). After starting SV, major adverse cardiovascular events (MACE) occurred in 18.9% (17) of patients of which 8.9% (8) died for CV causes and 18.9% (17) had hospitalizations for HF.SV discontinuation occurred in 7.8% (7) of patients, being symptomatic hypotension (43%) and economic insufficiency (29%) the most common reasons. Dose reduction was needed in 12.2% (11), being symptomatic hypotension (43%) and hyperkalaemia (27%) the most common reasons.
Conclusions: We observed the impact of SV in improving NYHA functional class and in reducing the needed of loop diuretic, as well as on cardiac remodelling. SV was well tolerated and uptitration to the maximal TD was possible in 57.8%. In our real-world cohort, with heterogeneous patients, with more comorbidities and many who did not tolerate TD, the overall outcomes rates were similar when compared to PARADIGM-HF.

CO 98. SACUBITRIL-VALSARTAN *VERSUS* ACEI IN LEFT VENTRICULAR REVERSE REMODELLING AND CARDIOVASCULAR OUTCOMES

Mariana Tinoco, Ana Filipa Cardoso, Geraldo Dias, Tâmara Pereira, Bebiana Faria, Filipa Almeida, Sérgio Leite, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: PARADIGM-HF demonstrated superiority of Sacubitril-Valsartan (SV) over enalapril in patients with heart failure with reduced ejection fraction (HFrEF). However, the results of SV in hard endpoints in patients treated in routine clinical practice is missing evidence.
Objectives: The aim of this study was to assess comparative effectiveness of SV *vs.* ACEI on left ventricular reverse remodelling (LVRR) and in major adverse cardiovascular events (MACE).
Methods: We performed a retrospective study of patients with HFrEF observed at an HF clinic between Jan 2018 and Jun 2020, with a follow up period until Oct 2021. We defined LVRR as an absolute increase in LVEF≥ 10 and a relative decrease in indexed LV end-diastolic diameter of at least 10%. MACE was defined as composite of death from CV causes or hospitalization for HF. One-to-one propensity score matching was used.
Results; A total of 173 HFrEF patients were included, 90 (52%) and 83 (48%) adults treated with SV or ACEI, respectively. The final propensity-matched cohort included 72 pairs taking SV or ACEI: 78.5% (113) male, 64.19 ± 11.74 years, mean LVEF 26.01 ± 7.47% and median follow up (FUP) of 33 months (22.5-48.75). LVRR was observed more frequently in ACEI group than in SV group (38.9 *vs.* 19.4%; p = 0.017). The change in LVEF from baseline to FUP was greater in ACEI group than in SV group (15.05 *vs.* 8.61%, p = 0.016). ACEI increased the prevalence of LVEF ≥ 40% at FUP (56.9 *vs.* 33.3%; p = 0.014). The components of CV outcomes all showed trends toward lower numbers of events with SV *vs.* ACEI, but those were not statistically significant, possibly due to a low FUP. MACE occurred in 21 (29.2%) patients treated with SV and in 26 (36.1%) patients taking ACEI. During FUP, 11 (15.3%) patients treated with SV died, compared with 17 (23.6%) treated with ACEI. The proportion of CV mortality was 6 (8.3%) for SV patients and 10 (13.9%) for ACEI patients. HF hospitalization occurred in 18 (25%) patients taking SV *vs.* 20 (28.6%) patients taking ACEI, of which 10 (13.9%) and 7 (9.9%), respectively, were rehospitalised for HF.
Conclusions: We observed an increased benefit of using ACEI over SV on recovery of LVEF. Despite this, treatment effect on CV outcomes of SV *vs.* ACEI did not show a significant difference, however there is a trend for patients taking SV to have a reduction in MACE. Improvement in LVEF is an important marker, nonetheless it was not translated into an effective reduction in mortality or hospitalizations in this population.

CO 99. DOES DAPAGLIFLOZIN IMPROVE CARDIOPULMONARY PERFORMANCE OF NON-DIABETIC HEART FAILURE PATIENTS?

Ana Rita Teixeira, João Ferreira Reis, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira da Silva, Ana Teresa Timóteo, Pedro Rio, Sofia Silva, Rui Cruz Ferreira

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

Introduction: Sodium-glucose co-transporter 2 inhibitors have shown to reduce events in Heart Failure (HF) with reduced Ejection Fraction patients – HFrEF. The cardiopulmonary exercise test (CPET) is a powerful predictor of mortality in this

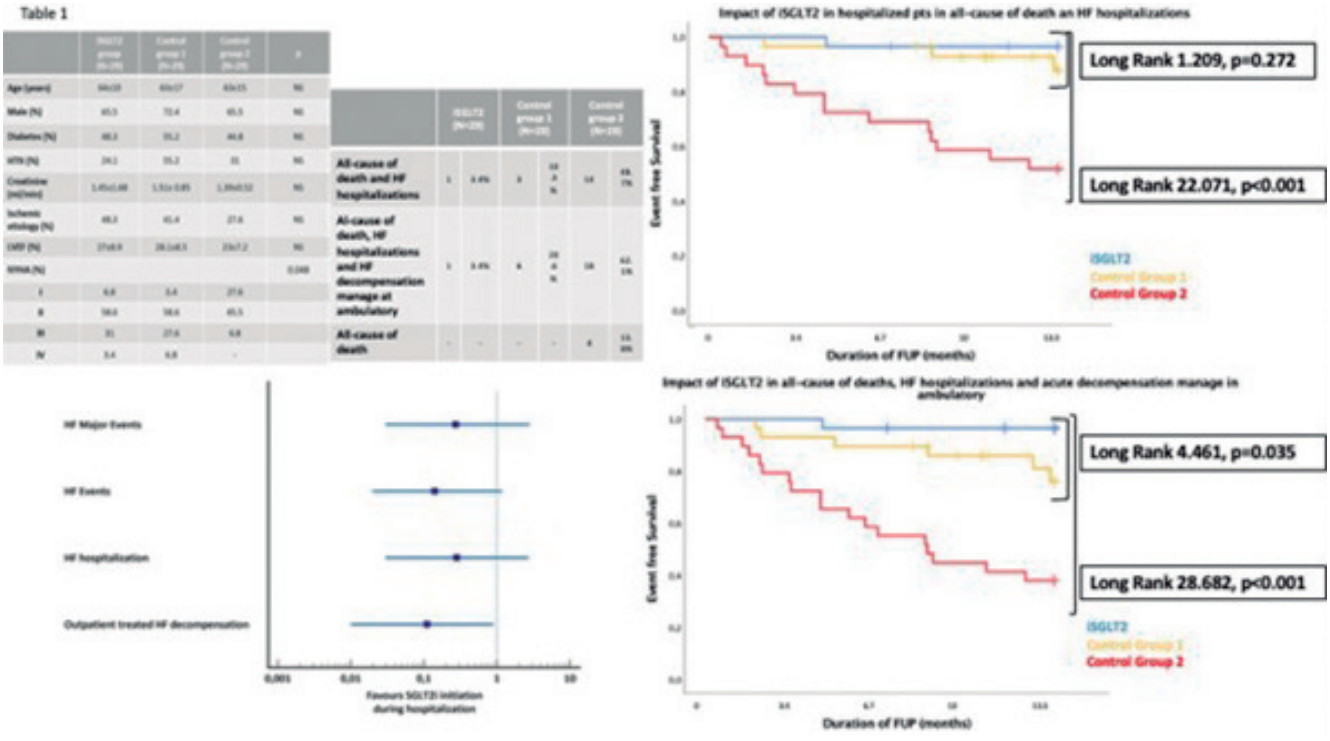
setting. Our aim was to assess whether Dapagliflozin improves cardiopulmonary performance of non-diabetic HF patients (Ps) in a real-world setting.
Methods: Adult HF Ps were randomized 1:1 to receive dapagliflozin 10 mg or placebo. All Ps had a LVEF < 50%, were in NYHA class II-III and under guideline-recommended OMT for the previous 3 months, including a BB, ARNI/ACEi and MRA. They were excluded if they had a previous history of diabetes mellitus or a GFR ≤ 30 ml/min. Baseline and 6-month post-treatment measurements of CPET were evaluated.
Results: 40 Ps were included (82.5% male, mean age of 61 ± 13 years, mean LVEF 34 ± 5%, 70% with ischemic etiology). In the 20 Ps randomized to dapagliflozin, no major safety events were recorded, and the reported compliance was 100%. There were no significant differences between groups regarding baseline clinical and demographic characteristics. The mean respiratory exchange ratio (RER) was 1.10 ± 0.11 and the mean peak oxygen consumption (pVO_2) was 16.4 ± 4.5 ml/kg/min. Treatment with dapagliflozin led to a significant increased pVO_2: 3.09 ± 3.81 *vs.* 0.11 ± 3.29 mL/kg/min, p = 0.030. There was also a reduction in VE/VCO_2 slope (-0.81 ± 5.92 *vs.* 3.33 ± 4.02, p = 0.027). In both groups there was an increase in RER, which was more significant in Ps taking dapagliflozin (0.10 ± 0.09 *vs.* 0.02 ± 0.11, p = 0.027). No statistically significant difference was found in CPET duration (p = 0.225), heart rate recovery (p = 0.452), peak heart rate (p = 0.240), and peak systolic blood pressure (p = 0.094) or any other CPET parameter.
Conclusions: Dapagliflozin use led to a significant improvement of cardiorespiratory fitness at 6-months follow-up in non-diabetic HFrEF Ps, improving several CPET variables with established prognostic value in HFrEF.

CO 100. SGLT2 INHIBITOR INITIATION IN PATIENTS HOSPITALIZED FOR ACUTE HEART FAILURE: DOES IT STILL MATTER WHEN PATIENTS ARE STRICTLY FOLLOWED AFTER DISCHARGE?

Pedro Silvério António, Sara Couto Pereira, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Catarina Oliveira, Beatriz Garcia, Margarida Martins, Rafael Santos, Joana Rigueira, Doroteia Silva, Nuno Lousada, João Agostinho, Fausto J. Pinto, Dulce Brito

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

Introduction: The EMPULSE Trial recently showed that starting empagliflozin in patients (pts) admitted due to acute heart failure (HF) led to significant reduction in 3-month HF hospitalizations and all-cause mortality. However real-world data regarding initiation of SGLT2 inhibitors (SGLT2i) during an HF hospitalization are scarce.
Methods: Quasi-experimental study comparing 3 groups: a group of clinically stable pts started on iSGLT2 during an HF admission included in a post-discharge HF follow-up program (FUPP) – SGLT2i group; a group of pts discharged after HF admission included in the FUPP – control group 1 (FUPPCG); and a group of pts discharged from an HF admission not in FUPP – control group 2 (CG2). Pts were matched for clinical characteristics in a 1:1:1 ratio. The co-primary endpoints were 1-year HF major events (all-cause mortality and HF hospitalization) and 1-year HF events (all-cause mortality, HF hospitalization, outpatient treated HF decompensation). Between groups, differences were established using Chi-square, Mann-Whitney test, Cox Regression and Kaplan-Meier analysis.
Results: From a total of 276 pts included in the FUPP, 29 pts met inclusion criteria in SGLT2i group. The 3 groups did not differ on baseline characteristics (Table). After a mean follow-up of 293 ± 111 days, there were no deaths in SGLT2i group and FUPPCG. Four (13.8%) pts died in the CG2. Major-HF events occurred in 3.4% in the SGLT2i group, 10.3% pts in FUPPCG and 48.3% pts in CG2, whereas HF events occurred in 3.4% in the SGLT2i group, 20.7% in FUPPCG and 62.1% in CG2. On survival analysis there was no difference on HF major events incidence between the 2 groups and both had a lower rate of HF major events than CG2 (HR 0.29; 95%CI 0.14-0.625; p = 0.002). Regarding HF events, there was a trend towards its reduction in SGLT2 group when comparing to FUPPCG (HR 0.14; 95%CI 0.02-1.17; p = 0.07) and a significant reduction when comparing to CG2 (HR 0.4; 95%CI 0.22-0.71; p = 0.001). Differences between SGLT2i group and FUPPCG were mainly driven by a reduction in outpatient treated HF decompensations (HR 0.11; 95%CI 0.01-0.9; p = 0.036).
Conclusions: This small study shows that starting SGLT2i in pts hospitalized due to acute HF may be beneficial in reducing HF events as seen on EMPULSE Trial. Despite the benefit hampering by the inclusion in an HF FUPP, there were still more outpatient treated HF decompensation when SGLT2i was not initiated, showing that, although FUPP is highly effective, there is still some prognostic benefit on inpatient SGLT2i initiation.



CO 100 Figure

Domingo, 24 Abril de 2022 | 09:00-10:00

Sala Vega | Comunicações Orais (Sessão 21) - Intervenção Cardíaca Coronária e Estrutural 3 - Vários Tópicos

CO 101. PERCUTANEOUS BALLOON MITRAL VALVULOPLASTY FOR MITRAL STENOSIS PATIENTS: AN OLD BUT RELIABLE WEAPON

Vera Ferreira, Inês Rodrigues, Luís Almeida-Morais, Luís Bernardes, Duarte Cacela, Lino Patrício, Alexandra Castelo, Pedro Garcia Brás, André Grazina, Luísa Moura Branco, Rui Cruz Ferreira

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

Introduction: In the era of transcatheter intervention, percutaneous balloon mitral valvuloplasty (PBMV) remains the primary treatment option in anatomic suitable patients.
Objectives: This study aimed to evaluate longterm follow-up (FU) of PBMV and to determine predictors of MACE.

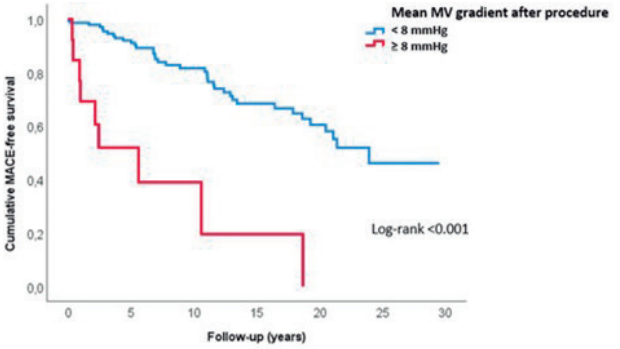


Figure 1 Kaplan–Meier curves for MACE-free survival in patients stratified according to the mean MV gradient after PBMV.

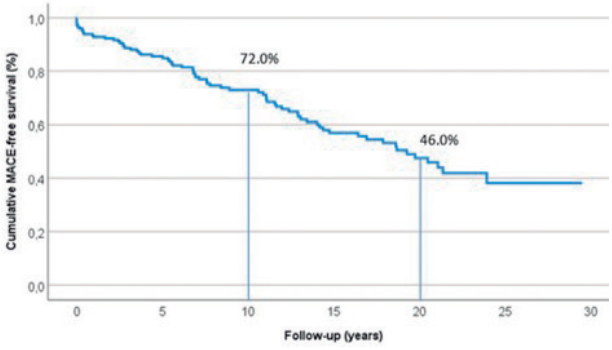


Figure 2 Kaplan–Meier curves for MACE-free survival after PBMV in long term follow-up.

Methods: Between 1991 and June 2021, 202 consecutive patients underwent PBMV in a single tertiary center. Clinical data, echocardiographic parameters, and MACE (cardiovascular mortality, need for percutaneous or surgical mitral reintervention and hospitalization for heart failure) were analysed. Predictors of MACE were determined by Cox regression analysis. Mean age was 47.3 ± 13.6 years, 89.6% female, 47.3% patients presenting atrial fibrillation. Mean Wilkins score was 7.6 ± 1.4, 51.5% had mild or moderate mitral regurgitation and mean pulmonary artery systolic pressure (PASP) of 46.7 ± 17.1 mmHg. Mean pre MVA and mean mitral valve (MV) gradient were 1.1 ± 0.2 cm2 and 10.8 ± 5.6 mmHg, respectively. Successful PMBV was achieved in 89.1% and 3.0% suffered procedural complications, including one cardiogenic shock, 3 urgent cardiac surgeries and 2 deaths (stroke and cardiac tamponade). During a mean FU of 12.0 ± 8.8 years, there were 25 deaths (12.4%) and 33.3% needed MV reintervention (6.5% underwent PBMV and 29.7% needed MV surgery). At univariate analysis, previous MV intervention [HR = 1.95 (1.02-3.72), p < 0.05], Wilkins score [HR = 1.22 (1.01-1.47), p < 0.05], pre mean MV gradient≥ 8 [HR = 0.62 (0.38-1.00), p < 0.05], mean MV gradient after procedure [HR = 1.37 (1.19-1.58), p < 0.05] and PASP > 45 mmHg [HR = 3.29 (1.13-9.55), p < 0.05] were predictors of MV reintervention. At multivariate analysis, pre mean MV gradient≥ 8 [HR = 0.17 (0.037-0.81), p < 0.05] and mean MV gradient after procedure were independent predictors of MV reintervention [HR = 1.74 (1.21-2.49), p < 0.05]. Wilkins score [HR = 1.29 (1.06-1.57), p < 0.05] and mean MV gradient after procedure [HR = 1.41 (1-21-1.63), p < 0.05] were independent predictors of MACE. Cumulative event-free survival at 10 and 20 years were 72.0 and 46.0%, respectively.
Conclusions: PBMV remains a reliable and efficient therapeutic option of mitral stenosis, warranting event-free survival at 10 years in most patients selected for the procedure. Mean MV gradient after procedure was independent predictors of MV reintervention and MACE during follow-up.

CO 102. PREDICTORS OF FUNCTIONAL RECOVERY AFTER MITRAL TRANSCATHETER-EDGE-TO-EDGE REPAIR

Diogo Santos Ferreira[1], Cláudio Guerreiro[1], Gualter Silva[1], Ana Rita Moura[2], Silvia Diaz[3], Eulália Pereira[1], Francisco Sampaio[1], Fábio Nunes[1], Rafael Teixeira[1], Lino Santos[1], Alberto Rodrigues[1], Pedro Braga[1], Gustavo Pires de Morais[1], Bruno Melica[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Hospital Distrital de Santarém, EPE. [3]Faculdade de Medicina da Universidade do Porto.

Introduction: Mitral regurgitation (MR) is now the second-most frequent valvular heart disease in Europe, and can significantly impair functional performance, which can be easily assessed using New York Heart Association (NYHA) heart failure classification. Mitral transcatheter-edge-to-edge repair (TEER) is an increasingly attractive solution has a rather minimal-invasive approach to reduce MR, symptoms and, in some cases, prognostic, in eligible patients.
Methods: A single-centre retrospective database of all consecutive TEER procedures for primary and secondary MR performed between May 2014 and November 2020 was analyzed. The primary outcome was defined as a reduction of NYHA class of at least 1 point one month after treatment, and the secondary outcome considered a reduction of at least 2 classes. Clinical, echocardiographic and blood-analysis data previous to TEER were explored as potential predictors of good NYHA response, using Pearson's Chi-squared test, Wilcoxon rank sum test and Fisher's exact test, as appropriate. A p < 0.05 was considered statistically significant.
Results: A total of 86 cases had complete information regarding NYHA status both prior and 1 month after TEER (Fig.). 60% of the patients improved at least one NYHA class, and both age and sex seem not to have influenced this response. On the other hand, a higher body surface area was associated with functional recovery. Interestingly, a lower N-terminal pro-brain natriuretic peptide (NTproBNP) at baseline was linked to a higher response after intervention (2,048 *vs.* 5,676 pg/ml, p < 0.001). However, there were no differences regarding existing cardiovascular risk factors, atrial fibrillation and chronic obstructive pulmonary disease between NYHA responders and non-responders. The same scenario was found regarding echocardiographic data, namely for ejection fraction (EF), severity of mitral and tricuspid regurgitation, right ventricular function and left atrial size. There was a tendency for higher predicted surgical risk assessed through EuroSCORE II to be associated with a positive response after treatment, which did not reach statistical significance (p = 0.068). Only 13% cases exhibited a NYHA improvement of at least 2 functional classes, and these also had lower NTproBNP basal levels (p = 0.006) and tended to have lower inferior vena cava (IVC) diameter (10 *vs.* 23 mm, p = 0.039) and estimated systolic pulmonary artery pressure (sPAP, 39 *vs.* 56 mmHg, p = 0.041).
Conclusions: According to the present study, only three-fifths of cases improved their NYHA class after mitral TEER. These data suggest that patients

Table 1 – Predictors of NYHA recovery ≥1 class after Mitral TEER.

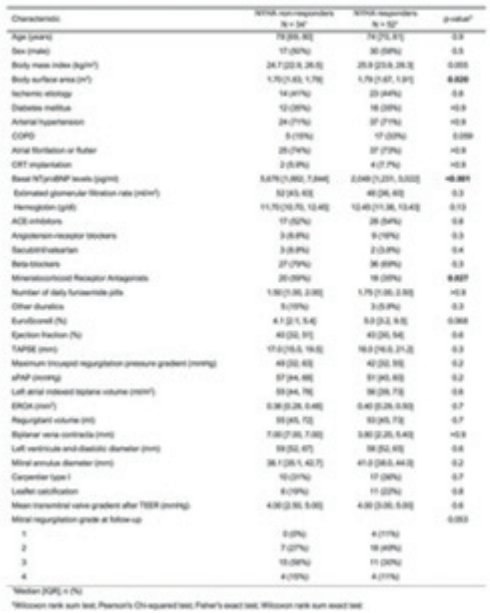
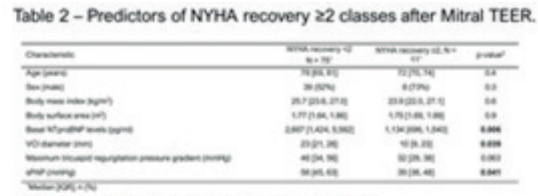


Table 2 – Predictors of NYHA recovery ≥2 classes after Mitral TEER.



CO 102 Figure

treated during earlier signs of disease – with lower NTproBNP levels, less severe pulmonary hypertension, and lower IVC diameters – are associated with a more clinical benefit from intervention, though these are merely exploratory deductions of a relatively low number, single-centre, patients.

CO 103. REFINING PATIENT SELECTION TO PERCUTANEOUS MITRAL VALVE REPAIR IN SECONDARY MITRAL REGURGITATION

Ana Abrantes, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Beatriz Garcia, Catarina Gregório, Miguel Nobre Menezes, Cláudia Jorge, João Silva Marques, Fausto J. Pinto, Pedro Cardoso

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

Introduction: Secondary mitral regurgitation (SMR) may lead to functional limitation and carries a poor prognosis in heart failure (HF) patients (pts). These patients often have high or prohibitive surgical risk and the remodeling achieved with optimal medical therapy frequently fails to significantly reduce MR. Percutaneous mitral valve repair (PMVR) emerged as a valuable therapeutic modality despite conflicting evidence from clinical trials.
Objectives: To find predictors of MR improvement after PMVR that may help refine patient selection.
Methods: Twenty-five consecutive pts with grade 3 and 4 SMR submitted to PMVR with MitraClip between 2013 and 2021 were included in this single center study. Demographic, clinical and echocardiographic data (TTE, including left ventricle (LV) and right ventricle (RV) strain) before PMVR, immediately after the procedure and during follow up (FUP) were recorded. For statistical analysis, Student's t tests, Chi-square and non-parametric tests were performed when appropriate.
Results: Mean age of the 25 included pts was 65.6 ± 12.5 years, 76% males. Ischemic heart disease was the most frequent etiology (52%, 13 pts) and the remainder had non-ischemic dilated cardiomyopathy. A total of 9 (36%) patients had CRT and 15 (60%) had ICD implanted before PMVR. Acute success rate was 96% and complications occurred in one pt (procedure failure due to ruptured chordae). From baseline to FUP, NYHA functional class improved significantly (2.9 ± 0.7 *vs.* 1.8 ± 0.6 *vs.* 2.0 ± 0.6, p < 0.001), NT-proBNP decreased (5,662 ± 7,347 *vs.* 3,263 ± 2,543 *vs.* 2,947 ± 1,932 pg/mL, p = 0.239) and there was a tendency to reduce furosemide dosage (66 ± 31 mg *vs.* 56 ± 25 mg, p = 0.084). We also observed improvement of RV function (RV strain -13.12 ± -5 *vs.* -13.4 ± 4, p = 0.043; TAPSE 17 ± 4 mm *vs.* 21 ± 16, p = 0.22). Additionally, there was a trend toward positive LV remodeling, with decreased LV end-diastolic volume (162 ± 72 ml *vs.* 158 ± 63 ml, p = 0.260), LV end-systolic volume (121 ± 61 ml *vs.* 115 ± 73 ml, p = 0.128) and improvement in LVEF (29 ± 9 *vs.* 34 ± 12%, p = 0.130). On univariate analysis, PMVR had higher RV strain (p = 0.047) and lower NYHA functional class at baseline (p = 0.013).
Conclusions: In this study, PMVR in SMR led to a positive impact on symptoms, RV function and LV remodelling. Better RV function and lower functional class at baseline were the only predictors of MR improvement in those pts. Our findings support the notion that early referral of SMR to PMVR may lead to better outcomes.

CO 104. IMPACT OF RESIDUAL SIGNIFICANT MITRAL REGURGITATION IN TAVR PATIENTS

Gualter Santos Silva, Mariana Silva, Pedro Queirós, Mariana Brandão, Diogo Ferreira, Cláudio Guerreiro, Gustavo Pires-Morais, Lino Santos, Bruno Melica, Alberto Rodrigues, Pedro Braga, Ricardo Fontes-Carvalho

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

Introduction: Significant mitral regurgitation (MR) is commonly encountered in patients with severe aortic stenosis undergoing transcatheter aortic valve replacement (TAVR). A decrease in MR severity after aortic valve replacement may be seen as a result of reverse left ventricle remodelling, including a reduction in LV end-diastolic volume and a decrease in mitral tethering forces. However, the impact of MR severity improvement in outcomes of patients undergoing TAVR has not been well established.
Objectives: The purpose of this study was to evaluate the improvement of significant MR and the impact of residual MR on mortality in patients undergoing TAVR.
Methods: Retrospective analysis of patients who underwent TAVR in a single centre between August 2007 and September 2020 and performed an echocardiogram before and at least 3 months after the procedure. MR severity was graded as no/mild (0/1), moderate (2), moderate-severe (3) or severe (4). Improvement in MR severity was defined as a decrease in at least one grade. Patients were stratified by existence of improvement in MR severity after TAVR (yes/no). The primary endpoint was all-cause mortality.
Results: A total of 684 patients (mean age 79.7 ± 7.6 years, 52% woman) were enrolled and 103 (15.1%) had significant MR (grade ≥ 3). Overall, there was an improvement in MR severity in 179 (26.2%) patients. In the group of preoperative significant MR, MR regressed in 66 (64.1%) patients and persisted

in 37 (35.9%) after TAVR. There is no difference in baseline characteristics between these two groups. One-year mortality was significantly lower in those with MR regression (1.5 *vs.* 17.1%, p = 0.003).
Conclusions: Concomitant significant baseline MR is relatively common in TAVR patients. In two-thirds of these patients, the degree of MR improves after the procedure with an associated positive impact on clinical outcomes. Risk stratification based on the improvement of MR after TAVR can help to identify patients at higher risk of mortality, who may need closer surveillance and possible transcatheter mitral valve intervention.

CO 105. CAROTID ANGIOPLASTY STENTING *VERSUS* ENDARTERECTOMY *VERSUS* BEST MEDICAL TREATMENT – WHAT IS THE BEST STRATEGY FOR THE TREATMENT OF CAROTID STENOSIS?

Rafaela Fernandes, Joana Delgado Silva, Joana Moura Ferreira, Lino Gonçalves

Centro Hospitalar de Coimbra, EPE/Maternidade Bissaya Barreto.

Introduction: Carotid stenosis causes 15% of strokes, which represent 10.8% of deaths in Portugal. Carotid angioplasty stenting (CAS), endarterectomy (CEA) and best medical treatment (BMT) are important in preventing *major* cardiovascular (CV) events.
Methods: We conducted a systematic review and metanalysis, with randomized controlled trials (RCT), to compare CAS with CEA and BMT regarding the short and long-term major periprocedural and follow-up CV events (stroke, myocardial infarction, and death) in symptomatic and asymptomatic carotid stenosis. We searched for RCT published from 2008 to 2021 in databases such as *Pubmed/MEDLINE, B-On, Embase, Clinical Trials from U.S. National Library of medicine and International Clinical Trials Registry Platform*, between July of 2018 and January of 2019, and in October of 2021.
Results: Nine RCT were included, with a total of 9162 participants for CAS *versus* (*vs.*) CEA, and 513 participants for CAS *vs.* TMO. Compared with CEA, CAS is associated with periprocedural stroke and death in symptomatic patients (HR = 1.65, 95%CI 1.29-2.11, p = 0.05, I^2 = 62%), due to higher stroke events than deaths. That association does not occur in asymptomatic patients in which CAS is not associated with periprocedural stroke or death (CAS = 8.55%, CEA = 7.05%, p = 0.09). During follow-up there were no significant differences between CAS and CEA in symptomatic patients regarding stroke (HR = 1.51, 95%CI 1.23-1.84, p = 0.57, I^2 = 0%) and death (HR = 1.10, 95%CI 0.93-1.30, p = 0.69, I^2 = 0%). Periprocedural MI incidence is higher in CEA (CAS = 1.1%; CEA = 2.3%; p = 0.03), without influence of symptomatic status. CAS is not inferior to CEA, in both symptomatic and asymptomatic patients with high surgery risk, as for periprocedural and one year CV *major* events (CAS = 12.2%, CEA = 20.1%, absolute difference = -7.9, 95%CI -16.4-0.7, p = 0.004). BMT had no significant findings *vs.* CAS in asymptomatic patients (HR = 3.5, 95%CI 0.42-29.11, p = 0.246).
Conclusions: CAS is not inferior to CEA as for the periprocedural and one-year *major* CV events in patients with normal surgery risk. However, there is a higher risk of periprocedural stroke in CAS for symptomatic patients, and of periprocedural MI in CEA with no influence of symptomatic status. CAS seams to prevent middle and long-term ipsilateral stroke in symptomatic patients. BMT has yet to prove not to be inferior to CAS in asymptomatic patients.

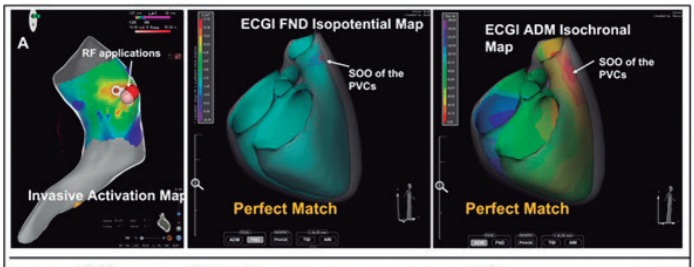
Domingo, 24 Abril de 2022 | 10:00-11:00

Sala Vega | Comunicações Orais (Sessão 22) - Arritmias 4 - Vários Tópicos

CO 106. ACCURACY OF NONINVASIVE ELECTROCARDIOGRAPHIC IMAGING USING ISOPOTENTIAL *VERSUS* ISOCHRONAL MAP FOR IDENTIFYING THE SITE OF ORIGIN OF VENTRICULAR ARRHYTHMIAS

Leonor Parreira[1], Rita Marinheiro[1], Pedro Carmo[2], Dinis Mesquita[1], Sofia Mancelos[2], Sílvia Nunes[2], Alexandra Goncalves[1], Pedro Amador[1], Antonio Ferreira[2], Pedro Goncalves[2], Hugo Marques[2], Pedro Adragão[2]

[1]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo. [2]Hospital da Luz Lisboa.



	Overall sample N=20	RVOT PVCs N=10	Non-RVOT PVCs N=10	P value
Age in years	58 (47-71)	58 (47-67)	59 (45-72)	0.971
Male gender, n (%)	11 (55)	5 (50)	6 (60)	1.000
Nº of leads, n (%)	139 (117-159)	134 (117-162)	145 (115-159)	0.853
FND perfect match, n (%)	19 (95)	10 (100)	9 (90)	1.000
ADM perfect match, n (%)	13 (65)	8 (80)	5 (50)	0.350
FND near match, n (%)	19 (95)	10 (100)	9 (90)	1.000
ADM near match, n (%)	17 (85)	10 (100)	7 (70)	0.211

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Introduction and objectives: Previous studies reporting the results of noninvasive electrocardiographic imaging (ECGI) used both isopotential map and isochronal map to assess the site of origin (SOO) of premature ventricular contractions (PVCs). The aim of this study was to evaluate the accuracy of both methods globally, and according to the location of the arrhythmia: from the right ventricular outflow tract (RVOT) or other locations (non-RVOT).
Methods: We studied with ECGI 30 consecutive patients with frequent (> 10,000/24 h) PVCs. Patients were excluded if the ablation was not performed (3 patients) or was unsuccessful (7 patients). The study group consisted of 20 patients, 11 male, median age of 58 (47-71) years. The ECGI was performed with the epi-endocardial system Amycard. Two noninvasive maps were obtained per patient: isopotential map using the first negative deflection method (FND) and the isochronal map obtained using the activation direction method (ADM) (Figure). The invasive activation map was obtained with the Carto or the Ensite system and radiofrequency was applied at the earliest activation site with QS morphology on the unipolar electrogram and a pace match of at least 11/12. The SOO of the PVCs was considered the site where the PVCs were abolished. We assessed the accuracy of the ECGI to identify the SOO of the PVCs using both methods. A perfect match was defined as a predicted location by the ECGI within the same anatomic segment of the actual SOO of the PVCs and a near match as a predicted location within the same segment or a contiguous one. Values are presented as median (Q_1-Q_3)
Results: PVCs originated in the RVOT in 10 (50%) patients. The percentage of near matches was not significantly different between FND and ADM methods (95 *vs.* 85%, p = 0.50), however the percentage of perfect matches was significantly higher with the FND than with the ADM technique (95 *vs.* 65%, p = 0.031). We found no significant differences in accuracy according to the location of the PVCs: in the RVOT or outside (Table).
Conclusions: We found a good agreement between ECGI and invasive maps, however the FND technique showed a better accuracy regardless the site of the PVCs.

CO 107. HIGHER CORONARY CALCIUM SCORE IS ASSOCIATED WITH INCREASED RISK OF ATRIAL FIBRILLATION RECURRENCE

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[1]Centro Hospitalar de Leiria/Hospital de Santo André. [2]Faculdade de Medicina da Universidade do Porto. [3]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

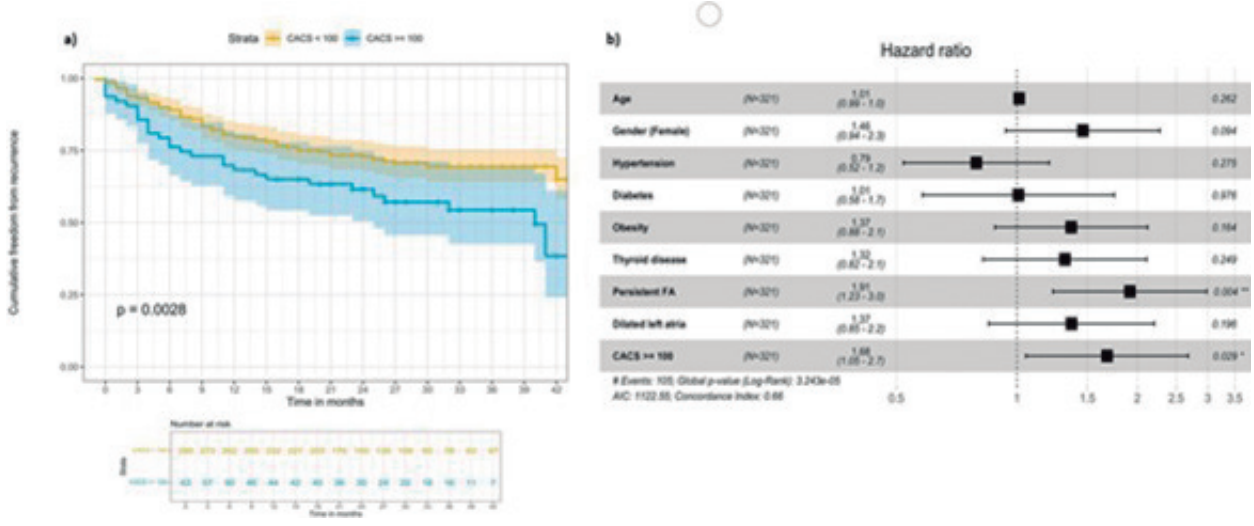
Introduction: Patients with atrial fibrillation (AF) referred for catheter ablation routinely undergo cardiac computed tomography (CCT) for procedure planning. An opportunistic evaluation of coronary artery calcium score (CACS) can be an important tool to improve clinical care. It is already known that CACS is associated with a high risk of AF development, particularly if values are above 100, but few data are available regarding the impact of CACS in AF recurrence after ablation.
Objectives: To assess the impact of CACS on atrial fibrillation recurrence following catheter ablation.
Methods: Retrospective, single-centre cohort study of consecutive patients with AF undergoing CCT for ablation procedure planning, from 2017 to 2019. Baseline clinical and demographical data were collected. Patients with known history of coronary artery disease (CAD) and moderate to severe valvular heart disease were excluded. CACS was assessed using the Agatston method. Recurrence was defined as any documented episode of AF, atrial flutter or atrial tachycardia after 3 months from procedure. Patients were stratified in CACS< 100 and CACS ≥ 100. Explorative analysis incorporated Kaplan-Meier survival curves and Cox regression.
Results: A total of 354 patients were included, with a mean age of 56 ± 12 years, 66% male and 21% with persistent AF. More than half of the patients had a CACS> 0 (n = 185, 52%) and 63 patients (18%) had a CACS ≥ 100. Patients with CACS ≥ 100 were older (63 ± 7 *vs.* 54 ± 12 years, p < 0.001), had higher prevalence of hypertension (68 *vs.* 43%, p < 0.001) and diabetes mellitus (21 *vs.* 10%, p = 0.012) and higher left atrial volume (39 ± 9 *vs.* 35 ± 9 ml/m^2, p = 0.018). After a median observation time of 34 months (IQR 24-43), 117 patients (33%) had AF recurrence. CACS ≥ 100 was associated with increased risk of AF recurrence (unadjusted Cox regression: hazard ratio [HR] 1.85; 95% confidence interval [CI], 1.23-2.79, p = 0.003). After covariate adjustment (age, gender, hypertension, diabetes mellitus, obesity, thyroid disease, AF type and left atria enlargement) CACS ≥ 100 remained an independent predictor of the risk of AF recurrence (HR, 1.68; 95%CI, 1.05-2.70, p = 0.03) as well as persistent AF (HR, 1.91; 95%CI, 1.23-3.00, p = 0.004).
Conclusions: In patients with AF undergoing catheter ablation, without previous history of CAD, a CACS ≥ 100 was independently associated with a 68% increase in the risk of AF recurrence.

CO 108. PREVALENCE AND IMPACT OF TACHYARRHYTHMIAS IN PATIENTS ADMITTED WITH COVID-19 PNEUMONIA

Diogo de Almeida Fernandes, Joana Guimarães, Eric Monteiro, Gonçalo Costa, Natália António, Lino Gonçalves

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

Introduction: The COVID-19 pandemic has shifted tremendously the paradigm of hospital care and treatment of cardiovascular (CV) patients. According to most recent evidence, due to its multisystemic impact, COVID-



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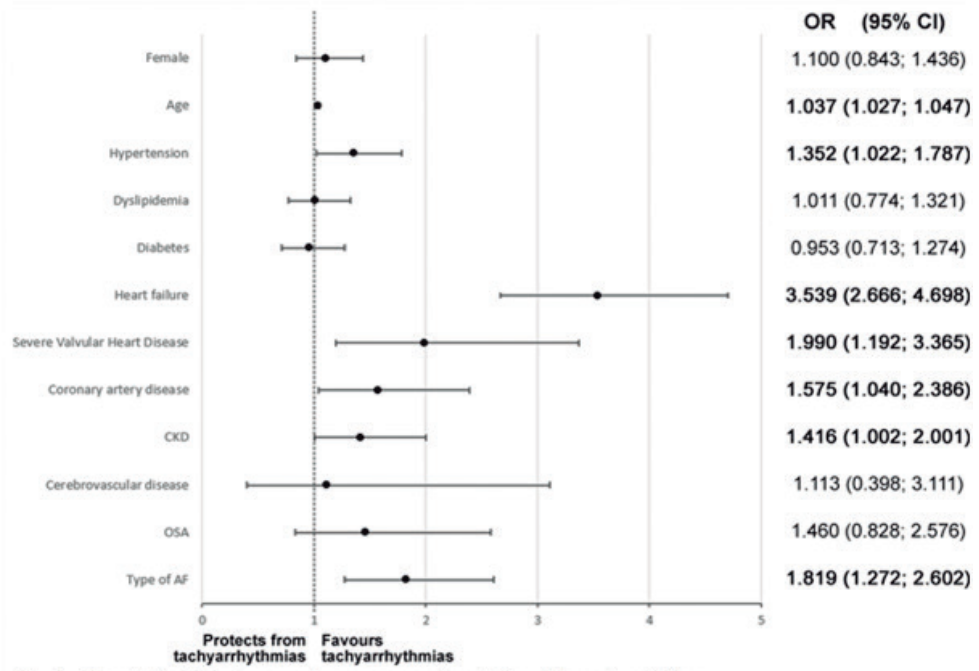

Fig. 1 - Forest plot of primary outcome according to the different variables

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19 may lead to an increased risk of cardiac arrhythmias with subsequently increased morbimortality.

Objectives: Determine the prevalence of tachyarrhythmias in patients admitted with COVID-19, possible predictors and impact on in-hospital mortality.

Methods: A retrospective study of 3,475 consecutive patients with COVID-19 pneumonia admitted to our hospital between February 2020 and November 2021 were included. The main outcome was tachyarrhythmias (high ventricular rate (HVR) or new-onset atrial fibrillation (AF), HVR or new-onset atrial flutter (AFL), other supraventricular tachycardias (SVT), ventricular tachycardia (VT) and ventricular fibrillation (VF)). Secondary outcome was in-hospital mortality. Sociodemographic variables and clinical data were recorded. Statistical comparison was made between groups, including logistic regression to determine odds ratios (OR).

Results: A total of 215 patients presented HVR AF (6.31%), 79 of which with new-onset AF (36.74%). 8 patients had HVR AFL (0.23%), 5 VT (0.15%), 4 VF (0.12%) and only 3 patients had a SVT identified (0.09%). Patients with tachyarrhythmias were significantly older (77. 74 ± 11.25 68.94 ± 17.51 years, p < 0.001) and had more hypertension (p 0.034), heart failure (HF) (p < 0.001), severe valvular heart disease (VHD) (p 0.007), coronary artery disease (CAD) (p 0.031), chronic kidney disease (CKD) (p 0.048) and paroxysmal AF (if previously diagnosed (p 0.001). There were no significant differences regarding gender, dyslipidemia, diabetes, cerebrovascular disease and obstructive sleep apnoea (OSA). Patients with HF had the highest risk of tachyarrhythmia (OR 3.539; 95%CI 2.666-4.698; p < 0.001), followed by severe VHD (OR 1.990; 95%CI 1.192-3.365; p 0.009) and CAD (OR 1.575; 95%CI 1.040-2.386; p 0.032). Older patients or patients with hypertension or CKD were also at an increased risk. Also of note, patients previously diagnosed with paroxysmal AF were more likely to have episodes of HVR AF than the ones with persistent or permanent AF (OR 1.460; 95%CI 0.828-2.576; p 0.001), Regarding the secondary outcome, patients with tachyarrhythmias during hospital stay had an odd almost 3 times higher of death (OR 2.820; 95%CI 2.151-3.695; p < 0.001).

Conclusions: Tachyarrhythmias is a common complication in COVID-19 patients during hospital stay that is significantly linked to higher in-hospital mortality. Patients presenting with high CV disease burden are at particularly significant risk and should be carefully managed.

CO 109. CARDIONEUROABLATION OF NEURALLY MEDIATED REFLEX SYNCOPE: THE EXPERIENCE OF TWO PORTUGUESE CENTRES

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Introduction: Neurocardiogenic syncope (NCS) is the most frequent aetiology of syncope in young people. Cardioinhibition with asystole and/or transitory atrio-ventricular block induced by a massive vagal reflex is commonly observed in severe cases. According to the current guidelines, cardiac pacing is indicated in patients > 40 years old with severe, recurrent syncope and documented cardioinhibitory reflex. In younger patients there is no recommendation. Although pacing therapy could be effective, complications after pacemaker implantation are commonly seen. Recently, cardioneuroablation (CNA), a technique based on radiofrequency ablation of vagal ganglia, was developed to treat NCS as an alternative to pacemaker implantation in younger patients. However, this method is still evolving, and existing data refer to a small number of patients in a limited number of centres.

Objectives: The aim of our study was to evaluate the efficacy and safety of CNA in patients with highly symptomatic neurocardiogenic syncope.

Methods and results: A total of 15 patients (11 male; aged 40.0 ± 13.3 years) who underwent CNA in two Portuguese centres between January 2019 and September 2021 were included. All had recurrent syncope with documented pauses at head-up tilt test, Holter or implantable loop recorder. Radiofrequency energy was applied in ganglionated plexi (GP) 1 (between the right upper pulmonary vein and the right atrium) in 14 patients, GP2 (between the superior vena cava and aortic root just above the right upper pulmonary vein) in 9 patients, GP3 (between the inferior vena cava and the right and left atrium) in 5 patients and GP4 (at the insertion of the left pulmonary veins) in 9 patients. The end point of procedure was the inhibition of the vagal response at target sites. Ablation was successfully performed in all patients. One patient had a convulsive episode after the procedure, requiring admission to intensive care but without neurological sequelae. No other major complications occurred. At a mean follow-up

of 17.1 ± 12.6 months (range 3-35 months), 13 patients remained free of syncope. Other 2 patients had spontaneous recurrence of syncope (both 9 months after CNA) and underwent a new procedure. These 2 patients had a new symptomatic recurrence and a pacemaker was implanted.
Conclusions: CNA appears to be an effective and safe treatment option for patients with refractory neurocardiogenic syncope and provide a new potential approach without pacemaker implantation.

CO 110. USEFULNESS OF THE NON-INVASIVE ASSESSMENT OF LATE POTENTIALS FOR RISK STRATIFICATION IN BRUGADA SYNDROME

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

Introduction: Brugada syndrome (BrS) is a relevant cause of sudden cardiac death (SCD) in young adults. Several risk factors have been identified, but clinical decision making remains extremely challenging, particularly in asymptomatic patients (pts).
Objectives: To explore the usefulness of the non-invasive assessment of late potentials (LPs) based signal-averaged ECG (SAECG) for risk stratification in BrS.
Methods: Prospective single-center study of pts with BrS included from 2003 to 2021. LPs were evaluated by SA-ECG with determination of the total filtered QRS duration (fQRS), root mean square voltage of the 40ms terminal portion of the QRS (RMS_{40}) and duration of the low amplitude electric potential component of the terminal portion of the QRS (LAS40) in conventional and modified right precordial leads. The primary endpoint was the occurrence of malignant arrhythmic events (MAEs), defined as a composite of SCD or appropriate shocks. Uni- and multivariate Cox regression survival analyses were used to identify significant prognostic predictors considering the clinical, genetic, and electrocardiographic characteristics as well as the tertile distribution of the SAECG parameters. A risk score was computed incorporating the significant LPs variables and its usefulness for prognostic stratification was explored using Kaplan Meier survival analysis.
Results: Our cohort consisted of 117 pts (mean age: 47 ± 13 years, 33% male), including 75 (65%) with type 1 spontaneous pattern and 92 (79%) asymptomatic individuals. Symptoms at presentation included syncope in 16 pts (14%) and polymorphic VT/cardiac arrest in 4 (3.4%). During a median follow-up of 4.1 ± 0.3 years, 8 pts (6.8%) suffered MAEs: 3 (2.6%) with SCD and 5 (4.3%) with appropriate shocks. The risk of events differed in relation to the several SAECG parameters (Table), increasing linearly with the fQRS duration determined either in the conventional (HR 1.03, 95%CI 1.01-1.06, p = 0.008) or modified leads (HR: 1.03, 95%CI 1.01- 1.05, p = 0.003). The SAECG score incorporated as risk markers a fQRS ≥ 113 ms and a RMS_{40} < 13 μV. Pts with both risk markers presented a 7-fold increased risk (HR 7.17, 95%CI 1.29-40, p = 0.025), independently of the baseline symptomatic status and ECG pattern.
Conclusions: This study shows that the non-invasive assessment of LPs based on SAECG is useful for prognostic stratification of BrS. It was possible to identify a subset of pts presenting a high risk of events who may deserve individualized preventive strategies.

Domingo, 24 Abril de 2022 | 11:00-12:00

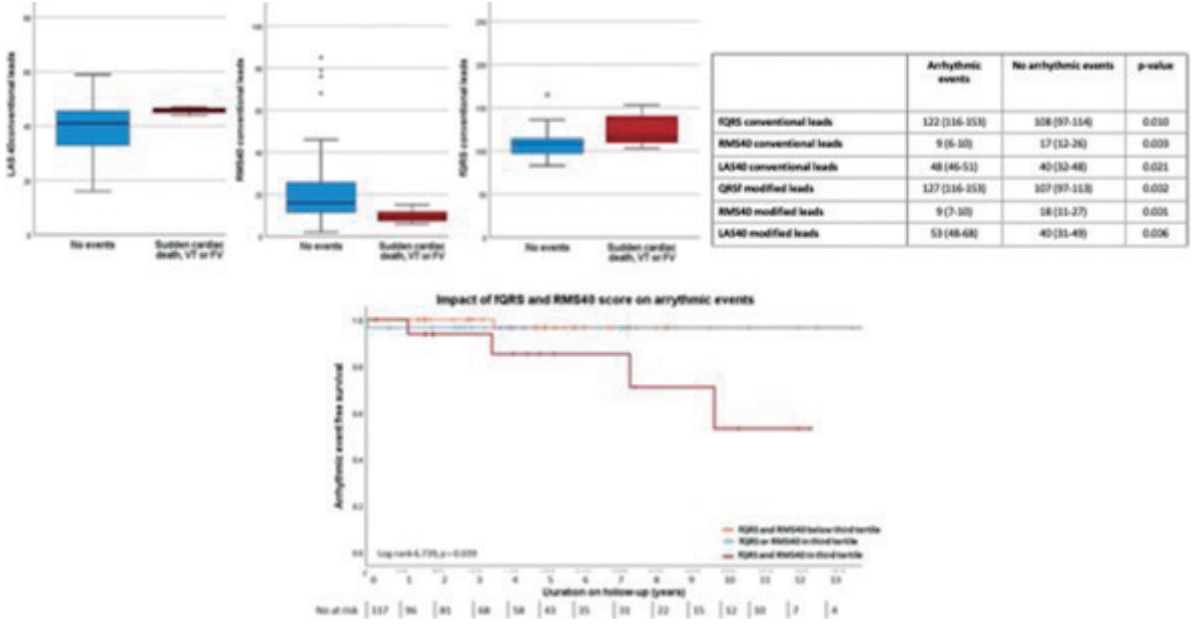
Sala Aquarius | Comunicações Orais (Sessão 23) - Doenças do Miocárdio e Pericárdio 1 - Miocardiopatia hipertrófica

CO 111. ECHOCARDIOGRAPHIC OUTCOMES OF OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY AFTER PERCUTANEOUS ASA: A SINGLE CENTRE EXPERIENCE

Vera Ferreira, Pedro Garcia Brás, Sílvia Aguiar Rosa, Isabel Cardoso, António Fiarresga, Ana Galrinho, Luísa Moura Branco, Ruben Ramos, Alexandra Castelo, Rui Cruz Ferreira

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

Introduction: Alcohol septal ablation (ASA) has been widely accepted as an alternative to surgical myectomy in patients with symptomatic obstructive hypertrophic cardiomyopathy (OHCM) despite optimal medical treatment.



	Arrhythmic events	No arrhythmic events	p-value
fQRS conventional leads	122 (116-153)	108 (97-114)	0.010
RMS40 conventional leads	9 (6-10)	17 (12-26)	0.009
LAS40 conventional leads	48 (46-51)	40 (32-48)	0.021
QRSf modified leads	127 (116-153)	107 (97-113)	0.002
RMS40 modified leads	9 (7-10)	18 (11-27)	0.001
LAS40 modified leads	53 (48-68)	40 (31-49)	0.006

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	Total N=110	Successful ASA N=92	Unsuccessful ASA N=18	p-value
Clinical characteristics				
Age (years)	65±12.2	66.1±11.2	60.2±16.0	0.063
Female	73 (66.4%)	58 (63.0%)	15 (83.3%)	0.108
Hypertension	70 (64.8%)	60 (65.2%)	10 (55.6%)	0.234
Dyslipidemia	49 (45.4%)	43 (46.7%)	6 (33.3%)	0.177
Diabetes mellitus	11 (10.0%)	8 (8.7%)	3 (16.7%)	0.327
NHYA class > II	96 (87.3%)	80 (87.0%)	16 (88.9%)	0.822
Angina CCS class II/III	58 (52.7%)	50 (54.3%)	8 (44.4%)	0.417
Syncope	11 (10.0%)	8 (8.7%)	3 (16.7%)	0.319
Atrial fibrillation	23 (20.9%)	20 (21.7%)	3 (16.7%)	0.674
Paroxysmal	6 (5.5%)	5 (5.4%)	1 (5.6%)	
Permanent	17 (15.5%)	15 (16.3%)	2 (11.1%)	
Beta-blocker	88 (80.0%)	73 (79.3%)	15 (83.3%)	0.760
Calcium channel blocker	50 (45.5%)	45 (48.9%)	5 (27.8%)	0.099
Double therapy	33 (30.0%)	28 (30.4%)	5 (27.8%)	0.801
Previous pacemaker implantation	11 (10.0%)	10 (10.9%)	1 (5.6%)	0.563
Baseline echocardiographic data				
Maximum basal septal thickness (mm)	21.0±3.3	20.9±3.1	21.7±4.3	0.412
Rest LVOT gradient (mmHg)	93.6±39.8	94.0±40.6	91.9±36.8	0.837
Valsalva LVOT gradient (mmHg)	118.9±44.2	122.2±43.4	97.6±46.9	0.173
Moderate mitral regurgitation	27 (24.5%)	23 (35.0%)	4 (22.2%)	0.653
Systolic anterior motion of mitral valve	58 (52.7%)	52 (56.5%)	6 (33.3%)	0.669
Left atrial volume index (ml/m2)	48.9±11.2	48.9±11.7	49.4±5.9	0.917
Systolic pulmonary artery pressure (mmHg)	43.2±18.5	44.8±19.0	32.4±9.2	0.157
Post procedure data				
Maximum basal septal thickness (mm)	16.4±2.7	16.3±2.7	16.5±2.6	0.897
3-month LVOT gradient (mmHg)	33.3±31.5	24.6±23.9	82.0±28.7	**0.003**
6-month LVOT gradient (mmHg)	31.8±34.5	24.9±25.9	68.6±27.8	**0.027**
Moderate regurgitation	6 (5.5%)	4 (4.3%)	2 (11.1%)	0.132
Peak creatine kinase level (U/L)	1306.6±816.7	1307.7±861.9	1300.8±505.4	0.975
Alcohol injection (ml)	2.1±0.3	2.1±0.3	2.0±0.5	0.390
Events				
Atrioventricular block (transient or permanent) during ASA hospitalization	29 (26.4%)	26 (28.3%)	3 (16.7%)	0.770
Pacemaker implantation during ASA hospitalization	17 (17.1%)	17 (18.5%)	0	**<0.001**
Reintervention	14 (12.7%)	7 (7.6%)	7 (38.9%)	**0.001**
ASA redo	10 (9.1%)	4 (4.3%)	6 (33.3%)	
Surgical myectomy	4 (3.6%)	3 (3.3%)	1 (5.6%)	
Clinical endpoint	28 (25.5%)	19 (20.7%)	9 (50.0%)	**0.013**
Follow up (years)	3.4±2.1	3.4±2.6	3.2±1.5	0.880

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The aim of this study was to analyse the effect of ASA on anatomical and functional features analysed by echocardiography, as well as its clinical impact.

Methods and results: Retrospective analysis of consecutive patients submitted to ASA (2009-2019) in a single tertiary centre. A dedicated echocardiogram was performed at 3 and 6 months after procedure. Echocardiographic primary endpoint was a > 50% reduction in left ventricular outflow tract (LVOT) gradient (the definition used for successful procedure). Echocardiographic secondary endpoint was improvement in mitral regurgitation. Clinical primary endpoint was defined as a combined endpoint of cardiac death or hospitalization during follow-up (FU). 110 patients were included, 66.4% women, mean age 65.1 ± 12.2 years. Functional class NHYA class III/IV, angina CCS class II/III and syncope were present in 87.3%, 52.7% and 10.0%, respectively. Baseline LVOT gradients at rest and at Valsalva manoeuvre were 93.6 ± 39.8 mmHg and 118.9 ± 44.2 mmHg. Maximum septal thickness was 21.0 ± 3.3 mm, 24.5% had moderate mitral regurgitation and 52.7% showed systolic anterior motion of mitral anterior leaflet. During hospitalization for ASA, peak creatine kinase after procedure was 1,306 ± 816 U/l. 17 (17.1%) patients required permanent PM due to induction of permanent complete heart block. There was one case of inferior myocardial infarction and one case of cardiac tamponade. Echocardiographic primary endpoint was achieved by 83.6% of patients. At 3 and 6-months follow up, LVOT gradients was significantly decreased in successful comparing with unsuccessful procedure group (24.6 ± 23.9 *vs.* 82.0 ± 28.7 mmHg, p = 0.003 and 31.8 ± 34.5 *vs.* 68.6 ± 27.8 mmHg, p = 0.027, respectively). There was no difference in baseline clinical or echocardiographic parameters between both groups. Regarding the echocardiographic secondary endpoint, among patients with moderate mitral regurgitation, 80% improved to mild regurgitation. A significant reduction in basal septal thickness was achieved in most patients, from 21.0 ± 3.3 mm to 16.4 ± 2.7 mm after ASA (p = 0.001). During mean FU of 3.4 ± 2.1 years, clinical primary endpoint occurred in 25.5%, mainly in unsuccessful procedure group (50.0 *vs.* 20.7%, p = 0.013). Reintervention was performed for recurrence of symptoms in 14 (12.7%) patients, surgical myectomy in 4 (3.6%) and repeated ASA in 10 (9.1%).

Conclusions: ASA allows a significant reduction in LVOT gradient and improvement of mitral regurgitation in the majority of patients with OHCM. Systematic and comprehensive echocardiographic evaluation assumes a paramount importance for the evaluation of procedure success.

CO 112. THREE DIMENSIONAL MYOCARDIAL DEFORMATION PARAMETERS ARE ASSOCIATED WITH FUNCTIONAL CAPACITY IN HYPERTROPHIC CARDIOMYOPATHY

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Introduction: Three-dimensional (3D) echocardiography is an emerging tool for assessment of left ventricular function, with a promising role in the evaluation of cardiomyopathies. Hypertrophic cardiomyopathy (HCM) is often associated with reduced exercise capacity. The aim of this study was to evaluate the importance of 3D myocardial deformation as a predictor of exercise capacity in HCM patients (P).
Methods: This prospective study enrolled P with HCM. Each P underwent a comprehensive transthoracic echocardiogram including 3D speckle-tracking to measure global longitudinal, radial and circumferential strain, twist, torsion and global area strain. Functional capacity was objectively assessed by treadmill cardiorespiratory exercise testing.
Results: 83 P with HCM, 50 (60%) male, mean LV ejection fraction (LVEF) of 68 ± 7%, 27 (33%) with obstructive HCM (LV outflow tract [LVOT] gradient of 89 ± 60 mmHg). Impairment in LV myocardial deformation parameters was significantly correlated with lower peak VO2: global longitudinal 3D strain (r = -0.397, p < 0.001), global radial 3D strain (r = 0.336, p = 0.003) and global circumferential 3D strain (r = -0.353, p = 0.002). Impaired LV twist was significantly correlated with inferior peak VO2 (r = 0.264, p = 0.033) (Fig.) and peak circulatory power (r = 0.371, p = 0.003). Torsion impairment also significantly associated with lower peak VO2 (r = 0.285, p = 0.021), circulatory power (r = 0.380, p = 0.002), time to ventilatory anaerobic threshold (VAT) (r = 0.369, p = 0.003) and (VE/VCO2 slope)/peak VO2 ratio (r = -0.316, p = 0.012). Furthermore, global area strain impairment showed significant relation with decreased peak VO2 (r = -0.368, p = 0.001), lower exercise duration (r = -0.384, p = 0.001), time to VAT (r = -0.404, p < 0.001), circulatory power (r = -0.272, p = 0.032) and (VE/VCO2 slope)/peak VO2 ratio (r = 0.391, p = 0.002). LV twist (r = -0.135, p = 0.284), torsion (r = -0.120, p = 0.341) and global area strain (r = 0.152, p = 0.235) impairment did not correlate with VE/VCO2 slope. Exercise capacity was not associated with LV mass index (r = 0.209, p = 0.095), maximum wall thickness (r = 0.041, p = 0.744), LVEF (r = -0.092, p = 0.458), 2D global longitudinal strain (r = -0.024, p = 0.848) or peak LVOT gradient (r = -0.006, p = 0.964). In a subanalysis examining only the nonobstructive (nHCM) P, we found that peak VO2 had a superior correlation with global longitudinal 3D strain (r = -0.420, p = 0.004), global radial 3D strain (r = 0.356, p = 0.016) and global circumferential 3D strain (r = -0.357, p = 0.016) as well as LV twist (r = 0.300, p = 0.046) and torsion (r = 0.336, p = 0.024).
Conclusions: Although P with HCM often have supranormal LVEF, 3D speckle-tracking echocardiographic imaging has the potential to demonstrate subclinical impairment of LV function. Impaired LV 3D strain, twist, torsion and global area strain were associated with reduced exercise capacity, particularly in nHCM P.

CO 113. MICROVASCULAR DYSFUNCTION IS ASSOCIATED WITH IMPAIRED MYOCARDIAL WORK IN OBSTRUCTIVE AND NONOBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY: A MULTIMODALITY APPROACH

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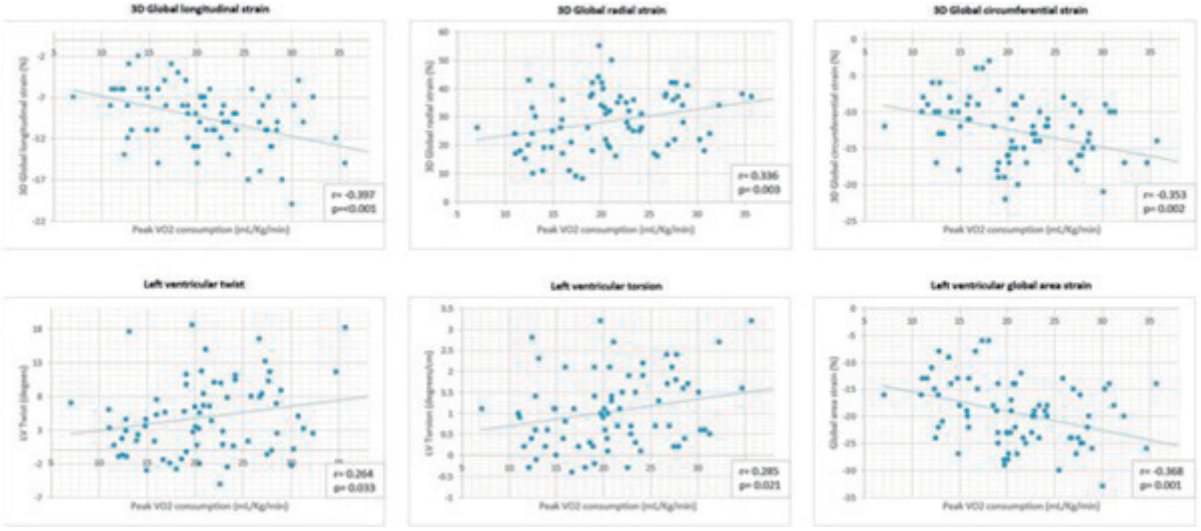
Introduction: Myocardial work is a dynamic non-invasive method for assessing myocardial deformation. Microvascular dysfunction is a hallmark of hypertrophic cardiomyopathy (HCM). We hypothesized that there is an association between impaired myocardial work, evaluated by echocardiography, and left ventricular (LV) ischemia, detected by cardiac magnetic resonance (CMR).
Methods: Prospective assessment of HCM patients' (P) myocardial strain parameters with 2D speckle-tracking echocardiography. All P underwent CMR protocol (1.5-T) for the analysis of stress perfusion and late gadolinium enhancement (LGE). Perfusion defects were quantified as burden of ischemia (% of LV mass). Results were stratified according to obstructive (oHCM) and nonobstructive (nHCM) HCM as well as according to the presence of significant replacement fibrosis (LGE of ≥ 15% or < 15% of LV mass). Multivariate regression analyses were used to explore the relation between myocardial work and the burden of ischemia.
Results: 75 P with HCM (63% male, age 55 ± 15 years), 61% with asymmetric septal LVH, 29% with apical LVH, 8% with concentric LVH and 28% exhibiting LV outflow tract obstruction (mean maximal LVOT gradient of 89 ± 60 mmHg). Perfusion defects were found in 68 P (90.7%), with a mean of 22.5 ± 16.9% of LV mass and 29 P (38.7%) had LGE ≥ 15% of LV mass. A lower global work index (GWI) significantly correlated with higher burden of myocardial perfusion defects (r = -0.520, β-estimate -0.019, 95%CI -0.028 to -0.010, p < 0.001). Likewise, impaired values of global work efficiency



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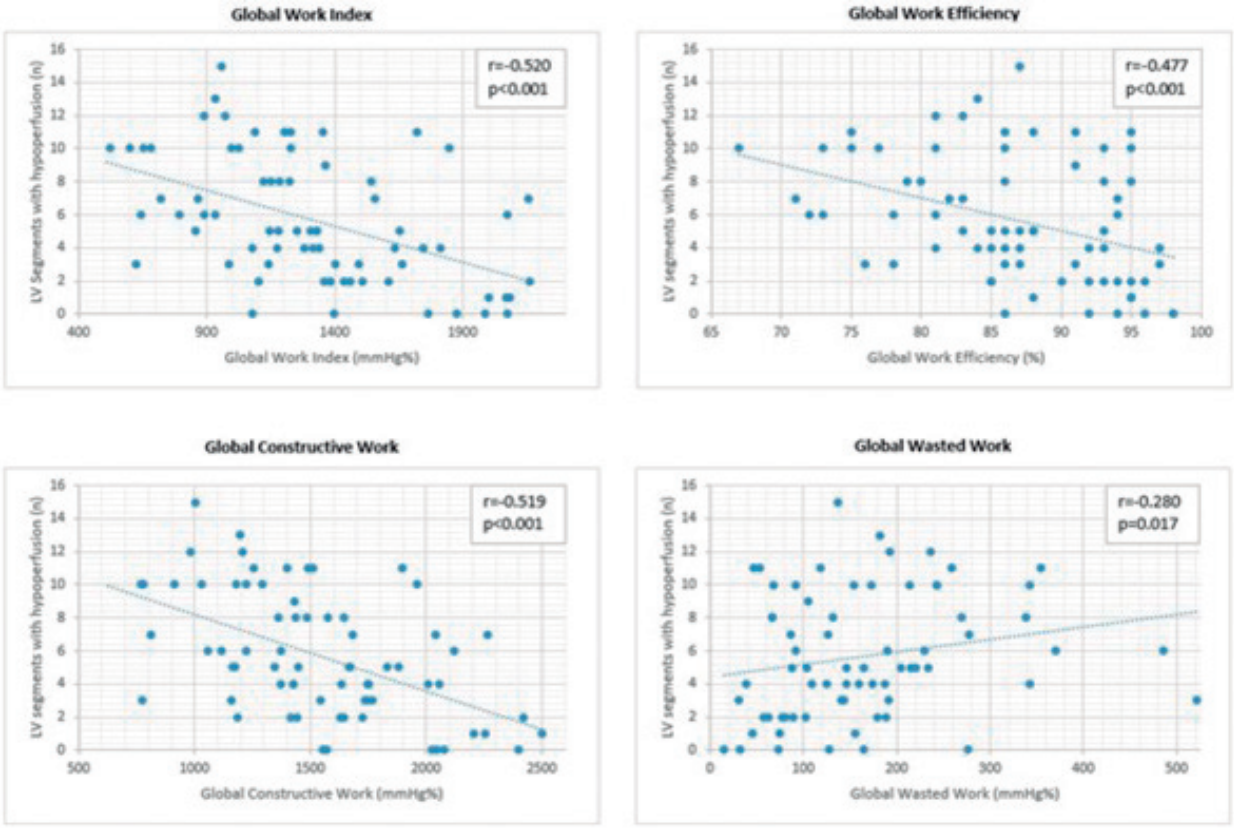

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(GWE) were linked to higher percentage of hypoperfusion (r = -0.477, β-estimate -0.713, 95%CI -1.250 to -0.176, p < 0.001). Moreover, impaired global constructive work (GCW) (r = -0.519, β-estimate -0.021, 95%CI -0.030 to -0.013, p < 0.001) and a higher global wasted work (GWW) (r = 0.280, p = 0.017) were associated with a higher burden of perfusion defects. GWI showed a higher correlation with perfusion defects in oHCM P (r = -0.492, p < 0.001) *vs.* nHCM P (r = -0.158, p = 0.019), and the same was also found with GWE (oHCM: r = -0.591, p = 0.006 *vs.* nHCM: r = -0.317, p = 0.022). Furthermore, GCW showed a slightly higher correlation with hypoperfusion in oHCM P (r = -0.564, p = 0.010) *vs.* nHCM P (r = -0.520, p < 0.001). There was no significant difference between oHCM and nHCM P regarding GWW. In P with LGE ≥ 15%, GWI showed a better correlation with perfusion defects (r = -0.489, p = 0.007) *vs.* P with LGE of < 15% (r = -0.369, p = 0.007). Moreover, GCW showed a higher correlation with hypoperfusion in P with LGE ≥ 15% (r = -0.455, p = 0.013) comparing with P with LGE < 15% LV mass (r = -0.359, p = 0.019). No difference was found regarding GWE and GWW according to LGE burden.

Conclusions: In our cohort of P with HCM, impaired GWI, GWE and GCW and a higher GWW were significantly correlated with the presence of myocardial ischemia in CMR. This correlation was greater in P with oHCM and in P with LGE of ≥ 15% of LV mass.

CO 114. MYOCARDIAL DEFORMATION ANALYSIS USING CARDIAC MAGNETIC RESONANCE IN APICAL HYPERTROPHIC CARDIOMYOPATHY

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Introduction: Apical hypertrophic cardiomyopathy (aHCM) has a broad phenotypic spectrum and still poses many diagnostic and prognostic challenges. Myocardial deformation analysis using cardiac magnetic resonance tissue tracking (CMR-TT) has shown value as an adverse events predictor in classic HCM, but information in aHCM is scarce.

Objectives: To examine the prognostic value of myocardial deformation obtained with CMR-TT analysis in predicting adverse outcomes in aHCM patients.

Methods: We conducted a retrospective study enrolling patients referred to CMR in our Cardiology Department from August 2009 to October 2021, to whom the diagnosis of aHCM was made. CMR-TT analysis was performed to each patient to characterize the myocardial deformation pattern. We further analysed clinical and other complementary diagnostic exams characteristics, as well as follow-up data. Primary endpoint was the composite of all-cause hospitalizations and mortality.

Results: During the 12-year period, 51 patients with aHCM were diagnosed by CMR, with a median age of 64 years-old and male predominance (60.8%). Family history of HCM or sudden cardiac death was present in 7.8%. T-wave inversion on resting electrocardiogram was present in 78.4% of patients and 56.9% had an echocardiogram suggestive of aHCM. Patients expressed the "relative form" in 43.1%, 37.3% had the "pure apical" form and 17.6% the "mixed form". In our population, median maximum left ventricle (LV) thickness was 15 mm, with a median LV mass index of 76 g/m^2. Late gadolinium enhancement was present in 78.4% of patients, in a median of five LV segments. Applying CMR-TT analysis, median global longitudinal strain was -14.4%, with a median global radial strain of 30.4% and global circumferential strain of -18.0%. During a median follow-up of 5.3 years, no patient had sustained ventricular dysrhythmias, but 21.6% had non-sustained ventricular tachycardia on 24h-Holter. Primary endpoint occurred in 10 patients (21.3%), with a hospitalization rate of 17.8% (cardiac causes in 2%) and all-cause mortality rate of 6.4%. Those patients were older (69.2 *vs.* 59.5 years-old; p = 0.01), had a larger prevalence of chronic obstructive pulmonary disease (20 *vs.* 2.7%; p = 0.047), and lower longitudinal strain rate in apical segments (0.27 *vs.* -0.74 s^{-1}; p = 0.021). After multivariable analysis, only longitudinal strain rate in apical segments was an independent predictor of the primary endpoint (p = 0.023).

Conclusions: CMR-TT analysis, namely through longitudinal strain rate, could be useful in predicting adverse outcomes in aHCM.

CO 115. REDUCED 3D-LEFT ATRIUM EJECTION FRACTION PREDICTS DEVELOPMENT OF ATRIAL FIBRILLATION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Ana Filipa Amador, João Calvão, Catarina Martins da Costa, Ricardo Alves Pinto, Miguel Martins Carvalho, Tânia Proença, Catarina Amaral Marques, André Cabrita, Carlos Xavier Resende, Pedro Grilo Diogo, Cátia Oliveira, Ana Isabel Pinho, Luís Daniel Santos, Carla Margarida Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Atrial fibrillation (AF) is the most common sustained arrhythmia in hypertrophic cardiomyopathy (HCM), occurring in approximately 25% of patients, related to left atrial (LA) dilatation and remodeling. HCM patients who develop AF have increased risk of HCM-related death, functional impairment, and stroke. Accurate risk stratification for AF in this population is crucial as contemporary treatments are highly successful.
Objectives: To assess if new echocardiographic parameters can predict the development of AF in HCM patients.
Methods: HCM patients who underwent comprehensive echocardiographic examination during 2011 were followed and checked for *de novo* AF until November 2021. We searched for associations between AF development and novel echocardiographic parameters such as LA Volume index, Left Atrioventricular Coupling Index (LACI, as LAVI/a'), 3D LA volumes and 3D LA ejection fraction (3D-LAEF).
Results: A total of 43 patients were included, with 62.8% male and mean age 56.1 ± 6.2 years old. 55.8% had the septal asymmetric HCM type and mean LV mass was 326 ± 127 g. Mean LA diameter and biplane 2D volume was 46 ± 7 mm and 78 ± 37 mL, respectively. 11.6% of patients already had AF. During a median follow-up of 9.4 years, the incidence of "de novo" AF was 31.6%. Within the total 17 patients with AF, 35.2% took warfarin and the remaining direct oral anti-coagulation. No stroke was documented. There were 3 deaths (mortality rate of 7.0%), none from cardiac causes. No association was found between AF development and LAVI, LACI or 3D LA volumes. We only found a statistically significant difference regarding 3D-LAEF, which was lower in patients who developed AF compared with those without AF (26 ± 12% VS 39 ± 19%, p = 0.04). Binary logistic regression analysis found that reduced 3D-LAEF predicts the development of AF (p = 0.019, odds ratio [OR] 2.6, 95% confidence interval [CI] 1.0 to 1.1). The area under a receiver operating characteristic curve using 3D-LAEF as a predictive marker for AF development in HCM patients was 0.743 (p = 0.004). When the cut-off value of 3D-LAEF was set at 34.5%, the sensitivity and specificity for AF diagnosis were 66% and 86%, respectively.
Conclusions: In our study, 3D LAEF predicted the development of AF in HCM patients – this may be a useful tool to identify patients at high risk of future AF who may benefit from more intensive rhythm monitoring and a lower threshold for oral anticoagulation.

Domingo, 24 Abril de 2022 | 12:00-13:00

Sala Aquarius | Comunicações Orais (Sessão 24) - Cardiopatias Congénitas, Doença Vascular Pulmonar e Embolia Pulmonar 2 - Foco no Adulto com Cardiopatia Congénita

CO 116. PREGNANCY OUTCOMES IN WOMEN WITH SEVERE CONGENITAL HEART DISEASE - A SPECIALIZED CENTRE EXPERIENCE

Vera Ferreira, Tânia Branco Mano, Tiago Rito, Ana Agapito, Alexandra Castelo, Pedro Garcia Brás, Rita Ilhão Moreira, Fátima Pinto, Lídia Sousa

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

Introduction: Progress in pediatric cardiology and cardiac surgery has dramatically increased the number of women with severe complex congenital heart disease (SC-CHD) that reach reproductive age. Pregnancy in this group of women has an increased risk of adverse cardiac and neonatal events and its predictive factors are not fully defined. Our purpose was to assess the experience of our center regarding pregnancy and neonatal outcomes in women with SC-CHD.
Methods: Retrospective analysis of obstetric data in women with CHD followed at our institution. Pregnancy and neonatal outcomes were evaluated regarding patients presenting SC-CHD and mild and moderate complexity (MMC-CHD), according to ESC CHD guidelines classification.
Results: The study enrolled 680 women with CHD (median age, 27.2 years) who experienced 1,262 pregnancies, resulting in 998 live births. A previous corrective procedure was found in 334 women (49.1%). CHD complexity was considered mild, moderate and severe in 263 (38.7%), 359 (52.8%) and 58 (8.5%), respectively. SC-CHD included 38 women with cyanotic CHD and 18 with pulmonary vascular disease. The most common heart defect in SC-CHD patients was cyanotic tetralogy of Fallot (19%), followed by dextro-transposition of the great arteries with atrial switch/palliative procedures (13.8%) (Fig.). Patients with SC-CHD had successful deliveries in 56.1% comparing with 82.1% in MMC-CHD. Women with SC-CHD had significantly higher incidence of preterm birth (24.6 *vs.* 7.4%, p < 0.001), spontaneous abortion (26.3 *vs.* 12.3%, p = 0.004) and neonatal mortality (10.3 *vs.* 2.3%) comparing with MMC-CHD. Low birth weight was also extremely more frequent in the SC-CHD group (44.7 *vs.* 8.5%, p < 0.001). No difference

Severe CHD	N=58
Tetralogy of Fallot (cyanotic)	11 (19.0%)
Transposition of the great arteries (atrial switch /palliative procedures)	8 (13.8%)
Ventricular septal defect associated with PVD ± cyanotic	6 (10.3%)
Ebstein disease (cyanotic)	6 (10.3%)
Univentricular heart	6 (10.3%)
Atrial septal defect with PVD ± cyanotic	5 (8.6%)
Double-outlet ventricle	4 (7.0%)
Patent ductus arteriosus (cyanotic)	4 (7.0%)
Pulmonary atresia	3 (5.2%)
Truncus arteriosus	2 (3.4%)
Atrioventricular septal defect with PVD ± cyanotic	1 (1.7%)
Tricuspid atresia	1 (1.7%)
Ventriculoarterial connection	1 (1.7%)

PVD: pulmonary vascular disease

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was found relating to the presence of CHD in infants from SC-CHD mothers compared to off-spring from MMC-CHD (8.4 *vs.* 5.3%, p = 0.407). Cesarian deliveries had similar rates independently of increased CHD complexity (34.2 *vs.* 32.1%). Overall, pregnancy was quite well tolerated, although cardiac complications were more common in SC-CHD pregnancies (0.4 *vs.* 4.3%, p 0.013). Only one maternal death was registered, during 1st trimester, in a woman with a large unrepaired ventricular septal defect and cyanosis.
Conclusions: Severe complex CHD remains a challenging condition for pregnancy with increased maternal and neonatal morbimortality. This emphasizes the importance of extensive prepregnancy counselling and centralization of care to address specific risks and requirements of the condition.

CO 117. IMPACT OF COVID-19 IN ADULT PATIENTS WITH CONGENITAL HEART DISEASE

Isabel Gonçalves Machado Cardoso, Tânia Branco Mano, José Miguel Viegas, Andreia Constante, Tiago Rito, José Diogo Martins, Rui Cruz Ferreira, Lídia de Sousa

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

Introduction: COVID-19 is responsible for a worldwide pandemic, causing more than 18,000 deaths to date in Portugal. Data already exists regarding the increased risk of adverse events in patients with cardiovascular diseases, however the impact of SARS-CoV-2 infection in patients (P) with congenital heart disease (CHD) is still under investigation.
Methods: Adult patients seen at the CHD outpatient's clinic at a tertiary centre, who became infected with SARS-CoV-2 infection up to December 2021 were included. Assessment of patients' symptoms, need for hospitalization and admission in an intensive care unit was assessed based on medical records.
Results: We identified seventy-nine patients (pts) with COVID-19 infection. Symptoms were present in 67 (84%). The median age was 44 (15) years, 52% were females. Eight P (10%) had complex cyanotic disease; seven Tetralogy of Fallot; five (6%) transposition of great arteries; eight (10%) right ventricle obstacle; two (3%) atrioventricular canal defect; sixteen (20%) atrial septal defect; nine (11%) ventricular septal defect; eight (10%) aortic coarctation; two (3%) had Eisenmenger syndrome. 49% of P had previous surgery or percutaneous procedure. 63% of P were at New York Heart Association (NYHA) class of I and 30% at NYHA II. Mild symptoms were reported by 56 P (71%). Ten adults (7.9%) experienced moderate symptoms (dyspnea and hypoxia) that led to hospitalization for oxygen therapy, none required mechanical ventilation. One death was reported in an 83-year-old patient with non-corrected interventricular communication and compromised biventricular function. There was a significant association between the gravity of CHD and hospitalizations (p = 0.02).
Conclusions: Our pts had mainly mild to moderate symptoms and did not appear to have a disproportionately negative outcome; the need for hospitalization was more frequent in patients with higher CHD gravity. These findings are in line with the emerging data regarding COVID-19 in CHD P, and may be in part explained by the patient's young age and functional status.

CO 118. CARDIOPULMONARY EXERCISE TESTING IN REPAIRED TETRALOGY OF FALLOT AND SUPRAVENTRICULAR ARRYTHMIAS

Ana Rita Teixeira, Pedro Garcia Brás, João Ferreira Reis, Tânia Branco Mano, Tiago Rito, Pedro Rio, Sofia Silva, Sónia Coito, Rui Cruz Ferreira, Lídia Sousa

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

Introduction: The arrhythmia burden in adult patients (Ps) with tetralogy of Fallot (TOF) is considerable, being a major late complication in repaired TOF. The incidence of atrial arrhythmias is relatively high and one of the main causes of morbidity. Our aim was to assess which cardiopulmonary exercise testing (CPET) parameters best correlate with supraventricular arrythmias (SVA) to potentially improve identification of high-risk Ps.
Methods: A single-center retrospective analysis was performed from 2009 to 2018 on adult Ps with repaired TOF who underwent maximal CPET. Ambulatory ECG monitoring was used to analyze the arrhythmic profile. Demographics, standard measures of CPET interpretation, and major cardiovascular outcomes were collected. Multivariate analysis for the prediction of SVA was performed using Cox Regression, by including all statistically significant variables in the univariate analysis and those considered clinically relevant.
Results: CPET was performed in 63 repaired TOF Ps (57% male, mean age of 34 ± 9 years), with a mean follow-up of 60 ± 33 months. 56% Ps had severe pulmonary regurgitation and 48% Ps underwent pulmonary valve replacement (PVR). Supraventricular arrhythmias occurred in 12 Ps (19%), mainly atrial fibrillation or atrial flutter (67%). There were no statistically significant differences regarding the clinical profile and baseline CPET parameters between both groups, namely: age (p = 0.113), male gender proportion (p = 0.581), proportion of Ps who underwent PVR (p = 0.578), RV systolic dysfunction prevalence (p = 0.854) and peak oxygen uptake (p = 0.083). VE/VCO_2 slope was an independent predictor of SVA (HR 1.41, 95%CI 1.08-1.84, p = 0.012). Exercise capacity assessed by estimated metabolic equivalents (METS), as well as the peak heart rate (PHR) during exercise (HR 0.86, 95%CI 0.76-0.96, p = 0.007), revealed a protective effect regarding SVA (HR 0.71, 95%CI 0.51-0.98, p = 0.045). Neither peak oxygen uptake (p = 0.090) nor cardiorespiratory optimal point (p = 0.427) showed statistically significant correlation with SVA during follow-up. Ps with a PHR above 165 bpm had a significantly higher survival free of SVA (log-rank p = 0.045).
Conclusions: In our population, VE/VCO_2 slope was an independent predictor of SVA during follow-up, while both a higher PHR and a higher exercise capacity had a protective effect. CPET could be an accessible way of improving risk-stratification of TOP Ps and should therefore be included in their routine assessment.

CO 119. BETA-BLOCKERS: A MODIFIER OF THE NATURAL HISTORY OF BICUSPID AORTIC VALVES?

Sara Couto Pereira, Joana Rigueira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Afonso Nunes-Ferreira, Catarina Simões de Oliveira, Ana Margarida Martins, Cláudio David, Fausto J. Pinto, Ana G. Almeida

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

Introduction: Bicuspid aortic valve (BAV) disease is one of the most common congenital heart diseases, with an incidence of 0.5-2.0%. In BAV disease, aortic dilatation (AD) is frequent and the use of beta-blockers (BB) and angiotensin receptor blockers (ARB) are expected to slow ascending aorta dilation. In BAV patients (pts) the rule of BB an ARB to prevent AD is not established.
Objectives: To characterize a population of BAV pts and evaluate the impact of BB and ARB to prevent AD.
Methods: Single-center retrospective study of consecutive pts with isolated BAV documented on the laboratory center echocardiography from 2014 to 2020. Baseline demographic, clinic (including baseline therapy) and echocardiography data were collected. Follow-up (FUP) data of aortic surgery and death were registered. For statistical analysis we performed Chi-Square, Mann-Whitney, Cox regression and survival analysis with Kaplan-Maier curves.
Results: We included 250 pts with BAV (mean age 53 ± 15 years, 70.8% males), 148 pts (59.2%) with type 1 Sievers classification, 61 pts (24.4%) with type 2, 9 pts (3.6%) with type 3. Clinical characteristics were similar between groups. At baseline, 114 (45.6%) had AD (root, ascending aorta or both). We observed that BAV type 1 was associated with higher rates of aortic valvopathy: more pts with severe aortic regurgitation (total n = 31; 80.6% type 1 *vs.* 19.4% type 2, p = 0.030) and severe aortic stenosis (total n = 43; 55.8% type 1 *vs.* 37.2% type 2, p = 0.042). On the other hand, we didn't find any association regarding the phenotype of BAV and presence

of AD (p = NS). During a mean FUP of 5.6 ± 5.3 years, from 136 pts without previously documented AD, 52 pts (38.2%) developed this complication. At baseline, 46 (34.6%) were under BB and 20 (15%) pts under ARB, while the remaining had no medication. We found that BB therapy was a protective factor for AD during the FUP (log rank: 4.052, p = 0.044), but ARB therapy was not (p = NS). Mortality at FUP occurred in 32 pts (15.2%, more frequent in type 1, n = 15) with no differences according to phenotypes, AD or valvopathy.

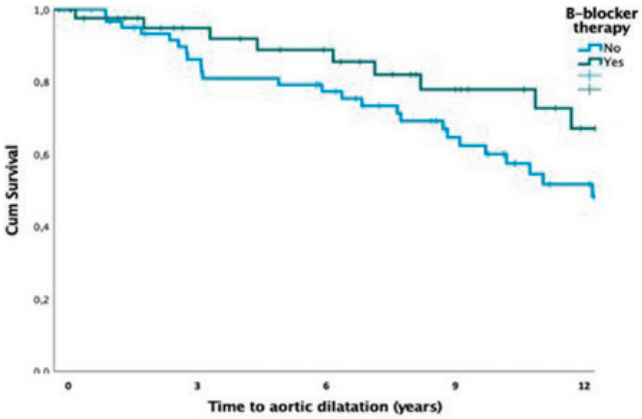


Figure 1: Impact of B-blockers in aortic dilatation.

Conclusions: The natural history of BAV seems worst in BAV type 1 with more valvopathy, but with no differences in terms of mortality. BB therapy seems protective of AD in previous non-dilated aorta in BAV pts. We hypothesize that in BAV pts therapy with BB when started before AD could prevent this complication. A larger study is needed to validate our findings.

CO 120. THE WORLD UPSIDE DOWN – AFTER 20 YEARS FOLLOW-UP OF DEXTRO-TRANSPOSITION OF THE GREAT ARTERIES

Ricardo Alves Pinto, Miguel Martins Carvalho, Tânia Proença, João Calvão, Catarina Costa, Ana Filipa Amador, Catarina Marques, André Cabrita, Cátia Priscila, Luís Santos, Ana Pinho, Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

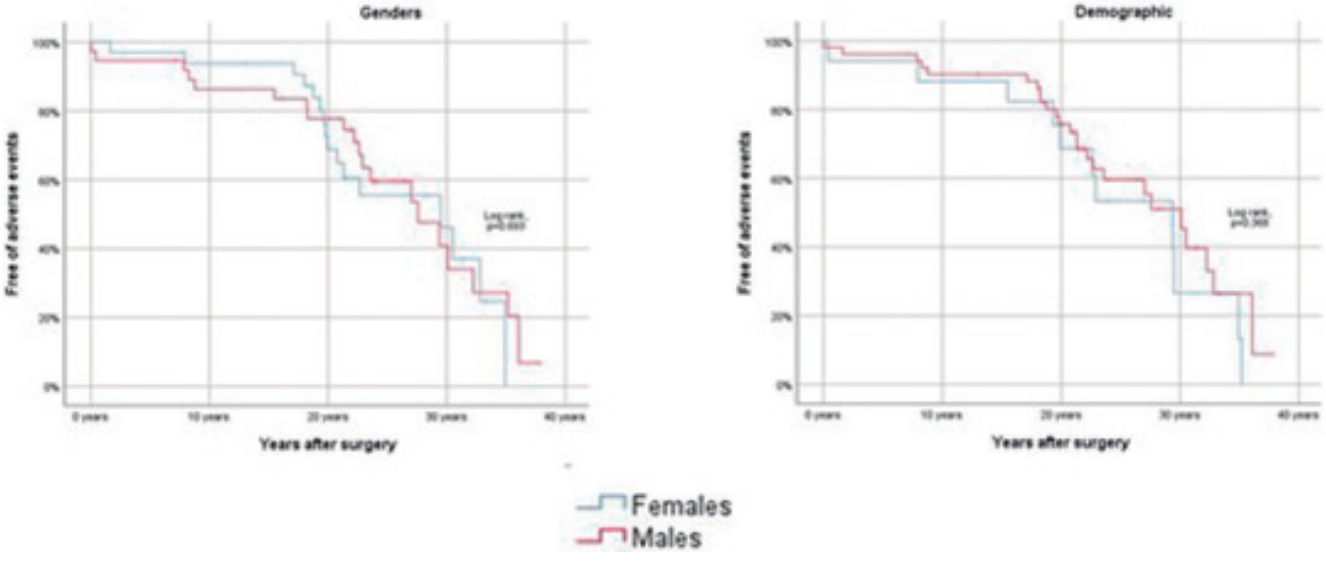
Introduction: Congenital Heart Disease (CHD) affects under 1% of newborns and thanks to its prognosis improvement, most patients survive until adulthood. Dextro-transposition of the great arteries (dTGA) is a CHD classically palliated with atrial switch (ATS) procedure and nowadays corrected with an arterial switch (ARS), with better clinical outcomes. Nevertheless, several post-ATS patients remain alive and questions persist regarding their long-term prognosis.

Objectives: To observe a group of dTGA patients followed in an Adult CHD outpatients clinic, access their comorbidities, surgical interventions, complications and clinical outcomes.

Methods: We retrospectively analyzed a group of dTGA patients born between 1974 and 2001. Clinical features were collected and time-to-event statistics were analyzed. Adverse event was defined as a composite of death, stroke, myocardial infarction or coronary revascularization, arrhythmia and ventricular, valvular or conduct dysfunction.

Results: A total of 80 patients were enrolled with a mean follow-up of 26 years after surgery: 46% were female, median age 27 (19-57) year-old. Concerning other concomitant defects, 25% had ventricular septal defect, 12% pulmonary stenosis, 3% aortic coarctation and 1% single coronary ostium. ATS palliation was performed in 54% of patients and ARS in 45% of patients; median age at procedure was 13 months and 10 days, respectively. During follow-up, almost all patients submitted to ARS remained in sinus rhythm (97%) *versus* 64% of ATS patients (p = 0.037). The latter group had higher incidence of arrythmias (40 *vs*. 3%, p = 0.013), mostly atrial flutter or fibrillation (present in 28%), followed by bradyarrhythmia (10%); median time from surgery to first arrhythmic event in these patients was 23 years. Also, systemic ventricle systolic dysfunction (SVSD) and chronotropic incompetence were significantly higher in ATS (41 *vs*. 3%, p < 0.001 and 46 *vs*. 9%, p = 0.005, respectively); mean time to SVSD was 29 years. In respect to long-term outcomes in ARS, the most frequent complications were moderate to severe aortic regurgitation, pulmonary stenosis and regurgitation, occurring in 21%, 7% and 3%, respectively. Concerning both groups, mean time to first adverse-event was 21 years. Regarding gender and demographic features, there were no differences in time-to-adverse-event, comparing patients living in urban *versus* rural neighbourhoods and female *versus* male (log rank, p = 0.368 and p = 0.693). Only one patient died, submitted to ATS, at 46 years-old, from chronic heart failure.

Conclusions: After a long-term free of events, ATS patients experienced more arrhythmic complications and SVSD. ARS complications were anastomosis related. This report highlights the efforts that should be made to identify late complication is this particular population. Of note, no demographic or gender differences were observed.



CO 120 Figure

Domingo, 24 Abril de 2022 | 12:00-13:00

Sala Vega | Comunicações Orais (Sessão 25) - Risco CV, Prevenção e Reabilitação Cardíaca 2 - Vários

CO 121. CARDIAC REHABILITATION AND MUSCLE EFFICIENCY IMPROVEMENT IN HEART FAILURE PATIENTS

Daniel A. Gomes, Sérgio Maltês, Gonçalo Cunha, Gustavo S. Mendes, Mariana S. Paiva, Rita R. Santos, Luís Moreno, Anaí Durazzo, Jorge Ferreira, Miguel Mendes

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

Introduction: Cardiac rehabilitation programs (CRP) are known to improve functional capacity in heart failure (HF) patients. However, the underlying mechanisms by which CRP improves exercise tolerance are not yet fully understood. We hypothesize that increased muscle efficiency (ME), which is inversely proportional to oxygen consumption (VO2) for similar load conditions, may explain such benefits by optimizing energy use independently of muscle oxygen delivery.
Methods: Retrospective single-center study enrolling consecutive patients with chronic (> 3 months) and stable HF with reduced ejection fraction (HFrEF < 40%) under optimal medical therapy (including cardiac resynchronization therapy) who completed a phase 2 CRP from 2016 to 2021. Patients underwent four months of CRP as per site protocol, and all had a pre- and post-CRP cardiopulmonary exercise test (CPET) performed within one month before CRP start and two weeks after the end. Those who performed different exercise protocols in both CPETs were excluded (n = 22). VO2 comparison for similar work conditions (eg. 25%, 50%, 75% and 100% of attained metabolic equivalent [METS] at first CPET) before and after CRP was used as a surrogate for ME.

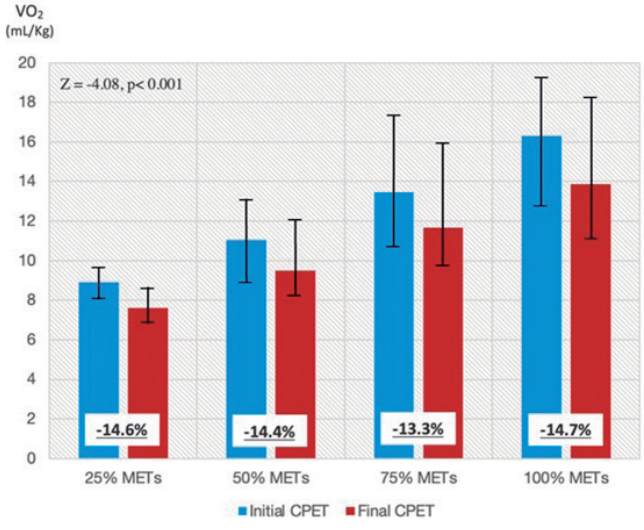


Figure 1 - VO2 comparison for similar work conditions between initial and final CPET (25%, 50%, 75% and 100% of attained METS at first CPET).

Results: Overall, 44 patients (mean age 61 ± 11 years; 80% male; 66% with ischemic HF; median left ventricular ejection fraction of 30% [IQR 25-35]; 93% in NYHA class II-IV) were included. CPET was performed using standard Bruce or Ramp protocol in 20% and 80% of patients, respectively. A significant increase in exercise duration before and after CRP was detected (6.4 [IQR 5.2-7.1] *vs.* 9.3 [IQR 8.5-10.4] minutes, p < 0.001), while no differences were found at peak VO2 and first ventilatory threshold levels. Oxygen consumption for similar workloads was significantly lower in the final CPET at both submaximal (25%, 50% and 75%) and peak exercise level (at 100% METS: 13.9 [11.1-18.2] *vs.* 16.3 [12.8-19.4] mL/kg; Wilcoxon signed ranks test Z = -4.08, p < 0.001) (Fig.). Those with ME increment ≥ 10% at peak exercise (n = 21, 48%) showed a higher exercise capacity improvement after CRP (median estimated METS increase between CPETs: 1.9 [1.2-2.6] *vs.* 1.0 [0.0-1.7], p = 0.01).
Conclusions: In a cohort of HFrEF patients, CRP increased ME by 14% at submaximal (25%, 50%, 75%) and at peak exercise level. These findings suggest that optimal muscle energy use may explain, at least partially, the functional capacity improvement observed after cardiac rehabilitation.

CO 122. IMPACT OF CARDIAC REHABILITATION ON INFLAMMATION IN PATIENTS WITH ISCHAEMIC CARDIOMYOPATHY

Dias de Frias[1], Ricardo Costa[1], Cristine Schmidt[2], Andreia Campinas[1], André Alexandre[1], Anaisa Pereira[1], David Sá-Couto[1], Preza Fernandes[1], Sandra Magalhães[1], Mário Santos[1], Severo Torres[1]

[1]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: The benefits of cardiac rehabilitation (CR) in patients with ischaemic cardiomyopathy are well-known. However, inflammatory states have been associated to an increased risk of cardiovascular events.
Objectives: Evaluate the impact of CR in the serum levels of inflammatory biomarkers and identify potential predictors of that effect.
Methods: We retrospectively studied consecutive patients with ischaemic cardiomyopathy who completed a CR programme between 2011 and 2017. Patients underwent a supervised exercise training protocol, twice a week during a period of 8 to 12 weeks. Functional capacity was evaluated by metabolic equivalents assessed prior the beginning and 3 months after the programme with a symptom limited exercise treadmill test. Patients without levels of serum C-reactive protein at beginning and at the end of CR programme were excluded. Median variation of serum C-reactive protein was assessed and two groups were defined: one with levels above that and one with levels below.
Results: Of 250 patients (60.3 ± 11.1 years, 84% male), 67% were admitted after an acute myocardial infarction. Left ventricular ejection fraction ≤ 40% before CR was present in 32% of individuals. Median levels of serum C-reactive protein before CR were 8.8 (3.1-21.7) mg/L and median variation after CRP was a decrease of 5.1 (0.9-17.7) mg/L (p < 0.001). Before CR, higher levels of serum C-reactive protein were seen in obese (15.7 [8-52.7] *versus* 8.8 [3.2-27.8], p = 0.04) and those with higher NT-proBNP (p < 0.001). Patients with decrease of > 5.1mg/L of serum C-reactive protein had lower prevalence of hypertension (18% *versus* 30%, p = 0.02), higher prevalence of obesity (16% *versus* 7%, p = 0.03), lower levels of HDL cholesterol (38.3 [11.1] *versus* 43.2 [12.6], p < 0.001) and higher levels of NT-proBNP (1079 [610.3-1,988] *versus* 488 [215-777], p < 0.001) at baseline. An increase of at least of 10% of functional capacity after CR was reached in 65% of patients, similar between groups. Patients with decrease of serum C-reactive protein > 5.1mg/L had also higher reduction of NT-proBNP after CR comparing to baseline (491.1 [142.7-948.5] *versus* 162.0 [30.9-295.2], p < 0.001).
Conclusions: Serum levels of inflammatory biomarkers decreased after CR in patients with ischaemic cardiomyopathy. Normotension, obesity, lower HDL and higher levels of natriuretic peptides are associated to a better response.

CO 123. IS THE OBESITY PARADOX LEADING TO A LESS STRINGENT SECONDARY PREVENTION STRATEGY IN PATIENTS WHO HAVE SUSTAINED AN ACUTE CORONARY SYNDROME?

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Introduction: Patients with acute coronary syndrome (ACS) are at very high risk of recurrent cardiovascular (CV) events. Despite being a major CV risk factor, obesity was associated with best survival in patients with ACS, the so-called "obesity paradox". It is uncertain if this finding is leading to a less stringent secondary prevention strategy in this group of patients, and whether it influences prognosis.
Objectives: To analyze the impact of obesity on outcomes after ACS and on other CV risk factor management.
Methods: Single-center, retrospective observational study that included all consecutive post-ACS patients enrolled in a phase 2 cardiac rehabilitation (CR) program in 2017. Patients were classified in 2 groups according to body mass index (BMI) classification at baseline: Group 1 (G1) were obese patients (BMI≥ 30 kg/m^2), and Group 2 (G2) were non-obese patients (BMI< 30kg/m^2). Major adverse cardiovascular events (MACE) were defined as a composite of death, non-fatal ACS, non-fatal stroke, and unplanned revascularization.
Results: 198 patients were included (mean age of 60.3 ± 10.7 years, 82% male) with a mean BMI of 27.7 ± 4.2 kg/m^2. Forty-seven patients had a BMI ≥ 30 kg/m^2. Patients in G1 were more likely to have hypertension (79 *vs*. 55%; p = 0.003) and diabetes (36 *vs*. 20%; p = 0.022). CR program was associated with smoking cessation, significant BMI (G1: -0.69 (95%CI: -0.40 to -0.10); G2: -0.39 (95%CI: -0.20 to -0.57) and LDL-Cholesterol (LDL-C) reduction (G1: -38 (95%CI: -25 to -50); G2: -29 (95%CI: -22 to -36), and functional capacity improvement (G1: +1.2 METs (95%CI: +0.9 to +1.5); G2: +1.1 METs (95%CI: +1.0 to +1.4) in both groups at 3 months, with similar magnitude of improvement. At 24 months, BMI had returned to baseline values in both groups, while the improvement in smoking status, LDL-C and functional capacity persisted. At 24 months, MACE occurrence was numerically increased in obese group (G1: 26.1 *vs*. G2: 17.2%, p = 0.182), with a statistically significant higher incidence of non-fatal recurrent ACS (reACS) in G1 (17 *vs*. 7.3%, p = 0.048).
Conclusions: ACS patients with obesity have worse prognosis, despite the similar improvement in CV risk profile. Our data also suggests that, despite the short-term improvement in BMI, current treatment strategies are not effective in achieving a persistent weight control over 24-months.

CO 124. SYNERGISM OF TWO ACE GENE VARIANTS IN THE ONSET OF HYPERTENSION IN A PORTUGUESE POPULATION

Ana Célia Sousa[1], Roberto Palma dos Reis[2], Carolina Aguiar[1], Carolina Barros[1], Helena Luís[1], Mariana Gomes[1], Eva Henriques[1], Sónia Freitas[1], Mariana Rodrigues[1], Sofia Borges[1], Maria João Oliveira[1], Ana Isabel Freitas[1], Ilídio Ornelas[1], Maria Isabel Mendonça[1]

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Introduction: The Renin-Angiotensin-Aldosterone system is a important key in arterial hypertension (AHT) regulation. Genetic polymorphisms that interfere in this system are candidate genes for AHT genesis. Particularly, it has been described that genetic variants of angiotensin converting enzyme (ACE) are potentially associated with AHT in some populations, but not in others. The existence or not of synergistic actions between the ACE genetic variants in the appearance of AHT remains unknown.
Objectives: Investigate the association between ACE gene polymorphisms, ACE I/D rs 4340 and ACE A2350G rs4343, and AHT. Additionally, we aim to evaluate whether there is a synergism effect of ACE variants with AHT.
Methods: A case-control study was performed with a total of 715 participants under the age of 50 years, including 339 hypertensive individuals and 376 controls. All collected blood for biochemical and genetic analysis. The frequency of polymorphic variants of the ACE gene, ACE I/D rs 4340 and ACE A2350G rs4343, were evaluated in both groups and the Odds Ratio (OR) was calculated under the inheritance models: dominant, recessive, additive and allelic. Finally, we evaluated the possible synergistic effect between the two ACE gene variants in the appearance of AHT through multivariate analysis.
Results: The genetic variant ACE DD was more frequent in the hypertensive individuals compared to controls (OR = 1.472; CI 1.092-1.984; p = 0.011). ACE 2350GG variant was also more prevalent for the AHT group with an OR of 1.524 (CI 1.029-2.258; p = 0.035). A synergistic effect between the two variants in hypertension onset was verified with an AHT risk (OR) of 1.716 (CI 1.107-2.661; p = 0.016).
Conclusions: This study showed the existence of a statistically significant association between ACE variants (DD and 2350GG) and AHT appearance. Additionally, a synergistic effect on AHT onset between the two variants studied was proved. This result highlights the existence of genetic variants of renin-angiotensin-aldosterone system that favor the appearance of AHT in our population. AHT is not explained in a simple way, with a single polymorphism of a gene, but with complex interactions of polymorfisms, as synergistic effects between polymorphisms of the same gene.

CO 125. EFFECTS OF HOME-BASED ISOMETRIC HANDGRIP TRAINING IN OLDER ADULTS WITH HIGH BLOOD PRESSURE

Diogo Pinto[1], Nuno Dias Rato[1], Maria J. Marques[2], Teresa Amaral[2], Leonor Amaral[2], Pedro Ruivo[2], Ricardo Abreu[3], Cristiana Carneiro[3], Ana P. Oliveira[3], Jorge Polónia[4],José Mesquita-Bastos[5], João l. Viana[1], Linda S. Pescatello[6], Fernando Ribeiro[7], Alberto J. Alves[1]

[1]Research Center in Sports Sciences, Health Sciences and Human Development - University of Maia. [2]Family Health Unit Santa Joana, Aveiro. [3]Family Health Unit Serzedelo, Guimarães. [4]Unidade Local de Saúde de Matosinhos, EPE/Hospital Pedro Hispano. [5]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro (Aveiro). [6]Department of Kinesiology, College of Agriculture, Health and Natural Resources, University of Connecticut. (7) Universidade de Aveiro.

Introduction: Evidence suggests isometric handgrip training (IHT) lowers blood pressure (BP). However, the impact of IHT in older adults is unclear. Here we report the preliminary results of the HoldAge trial on the effects of home-based IHT and aerobic exercise training (AET) on BP in older adults with high normal blood pressure or hypertension (ClinicalTrials.gov: NCT04275037).
Methods: Participants (n = 35; 46% men; age 72.2 ± 3.5 years) with a resting systolic BP of 140.1 ± 15.9 mmHg and diastolic BP of 80.9 ± 8.6 mmHg were

Synergism between ACE DD and ACE 2350GG in the onset of hypertension

Variables	Odds ratio (95%CI)	P-value
ACE (II)*ACE2350 (AA)	Reference	0.081
ACE (ID)*ACE2350 (AG)	1.206 (0.792 – 1.834)	0.383
ACE (DD)*ACE2350 (AG)	1.800 (0.990 – 3.274)	0.054
ACE (ID)*ACE2350 (GG)	1.500 (0.092 – 24.518)	0.776
ACE (DD)*ACE2350 (GG)	1.716 (1.107 – 2.661)	**0.016**

Logistic regression, Forward wald method (SPSS vs. 25.0). CI – Confidence interval. Statistically significant for p<0.05.

CO 124 Figure

randomized into IHT (n = 14), AET (n = 12), or an attention control group (ACG, n = 9). Participants performed IHT or AET, 3 times/week, for 8 weeks. IHT consisted of 4x45 sec contractions, alternatively with both hands, at an intensity of 50% of the maximum voluntary contraction, with a 1-min interval between sets. AET consisted of walking at an intensity of 50-70% of the peak maximal oxygen consumption. ACG continued with their daily life activities.

Results: Of the 35 enrolled participants, 32 finished the intervention (91.4%), with an adherence rate of 95.2% for IHT and 79.4% for AET. There were no differences between groups at baseline for office SBP (p = 0.137),DBP (p = 0.200), or pulse pressure (PP, p = 0.255) AET reduced SBP (146.4 ± 16.6 *vs.* 135.0 ± 17.2 mmHg; p = 0.048) and PP (61.7 ± 10.2 *vs.* 55.5 ± 10.5; p = 0.025), but not DBP (84.5 ± 8.9 *vs.* 79.5 ± 9.6 mmHg; p = 0.163). IHT reduced SBP (140.6 ± 16.2 *vs.* 128.7 ± 10.7 mmHg; p = 0.004), DBP (80.5 ± 8.4 *vs.* 75.3 ± 8.9 mmHg; p = 0.030), and PP (60.2 ± 11.3 *vs.* 53.4 ± 9.8; p = 0.012). There were no differences in ACG for SBP (131.3 ± 13.9 *vs.* 126.9 ± 20.5 mmHg; p = 0.273), DBP (78 ± 8.3 *vs.* 75 ± 9.5 mmHg; p = 0.058), and PP (53.2 ± 11.5 *vs.* 51.8 ± 13.7; p = 0.628). Moreover, AET and IHT elicited similar reductions in SBP (p = 0.89) and DBP (p = 0.97).

Conclusions: AET and IHT lowered SBP and PP in older adults with high BP, whereas IHT lowered DBP but not AET. Our findings suggest IHT and/or AET may be used as adjuvant lifestyle therapy for controlling BP in older adults.

Domingo, 24 Abril de 2022 | 13:00-14:00

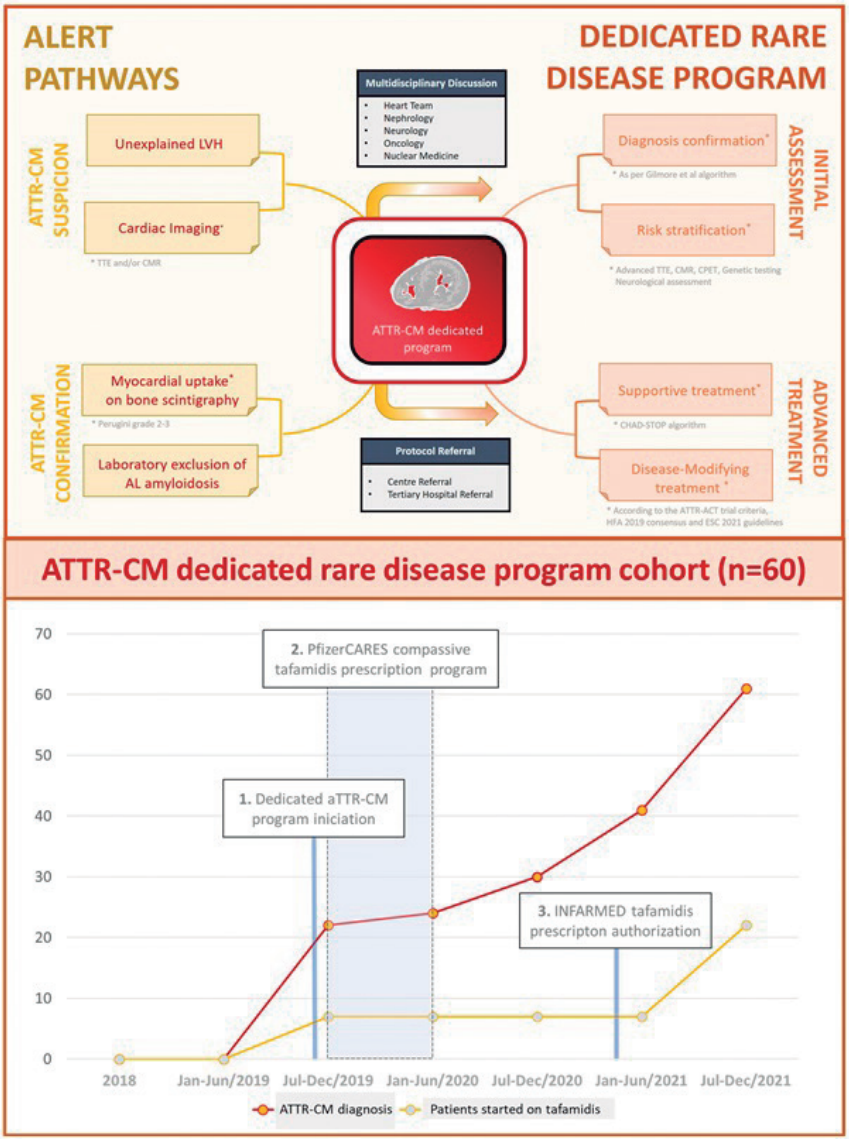
Sala Aquarius | Comunicações Orais (Sessão 26) - Insuficiência Cardíaca 4 - Vários Tópicos

CO 126. TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: A 2-YEAR SINGLE-CENTRE EXPERIENCE

Bruno M. Rocha, Rita Amador, Sérgio Maltês, Andreia Marques, Catarina Oliveira, Pedro Lopes, Gonçalo Cunha, Mariana Paiva, Christopher Strong, Fernando Abreu, Sophia Pintão, Carlos Aguiar, Miguel Mendes

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

Introduction: Transthyretin Amyloid Cardiomyopathy (ATTR-CM) is an under-diagnosed condition often presenting with Heart Failure (HF). We aimed to



CO 126 Figure

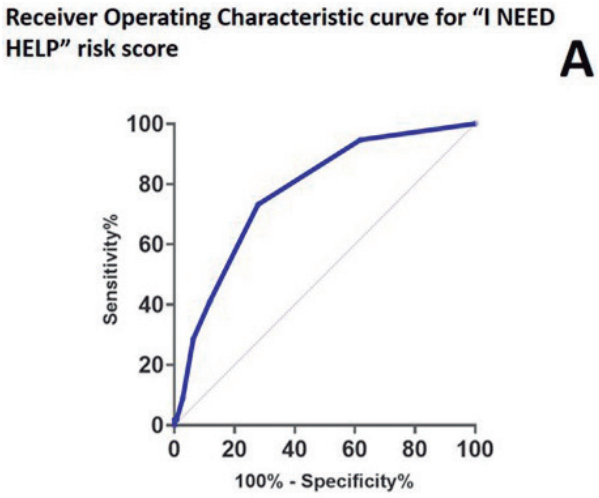
assess a cohort of patients with ATTR-CM and HF, focusing on the centre strategies to identify new cases, prognosticate and tailor treatment.
Methods: We conducted an all-comers single-centre prospective registry of consecutive patients with HF due to ATTR-CM followed in our centre from November 2019 to 2021. As per site protocol, diagnosis is established according to the algorithm by Gilmore et al. and all patients are assessed in our HF outpatient clinic at least twice yearly with systematic electronic chart data collection. We evaluated disease-modifying treatment and compliance with the current European Guidelines and CHAD-STOP management. A summary of this program is presented in the central figure.
Results: Overall, 60 patients were included (mean age 83 ± 7 years; 80% male). ATTR-CM was confirmed by the non-invasive algorithm in all but 8 patients, in whom endomyocardial biopsy was positive. Of those undergoing genetic testing (n = 30), 7 (23%) presented with the hereditary form of ATTR-CM (4 Val50Met and 3 Val142Ile mutations). The initial presentation was most often HF (n = 43), atrial fibrillation (n = 9), or "incidental" myocardial uptake on ^{99m}Tc-HMDP bone scintigraphy (grade 2-3) performed for cancer staging (n = 5). Beta-blockers were reduced or stopped in 40 (67%) patients, all of whom improved in NYHA class and/or NT-proBNP (> 30% reduction) at 1-3 months. Tafamidis 61mg was started in 22 patients and 15 more currently await approval. Those initiated on or referred to tafamidis 61 mg (n = 37) had less severe HF, as per NYHA (class I-II – 94 *vs.* 50%, p = 0,033) and performance status (e.g. Karnofsky score 80-100 – 79 *vs.* 21%, p = 0,010). Of those already on tafamidis (n = 22), NYHA class remained stable or improved in all but 1 patient. In the year following *vs.* preceding treatment there was 2 *vs.* 3 total HF hospitalizations. No drug-related severe adverse events were reported. Over a 2-year follow-up, 14 (23.3%) patients died, of whom 1 was on tafamidis (compassionate use for 19 months).
Conclusions: ATTR-CM recognition is improving in our dedicated rare disease program, possibly due to the implementation of several alert pathways. The identification of the disease at an earlier stage allows targeted treatment, compliant with the recommendations. Nonetheless, the rarity of this disease and the required expertise for its optimal management argues in favour of a national strategic plan based on referral centres for ATTR-CM.

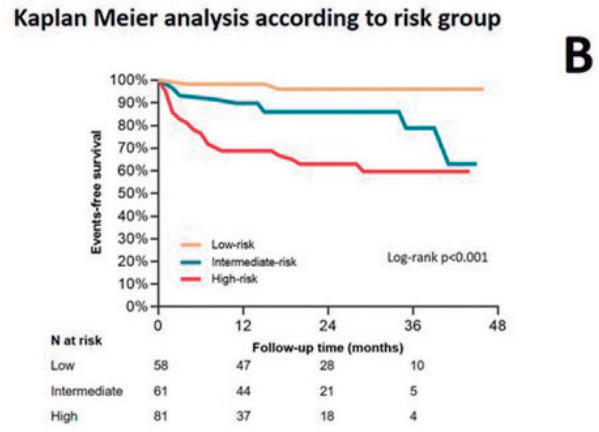
CO 127. I NEED HELP: FROM THE ACRONYM TO THE RISK SCORE FOR PREDICTING ADVERSE OUTCOMES IN CHRONIC HEART FAILURE WITH REDUCED EJECTION FRACTION

Mariana Sousa Paiva, Daniel A. Gomes, Sara Guerreiro, Bruno Rocha, Rita Bello, Sérgio Maltês, Gonçalo l. Cunha, Catarina Brízido, Christopher Strong, Pedro Freitas, António Tralhão, Carlos Aguiar, Miguel Mendes

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

Introduction: Although many risk scores for patients with heart failure (HF) have been proposed, the majority comprises innumerous variables, hampering their regular use. I NEED HELP is a simple acronym created to support the physician's referral to a HF specialist. The aim of this study was to convert the acronym into an easily appliable risk score for ambulatory patients with chronic HF and reduced ejection fraction (HFrEF).
Methods: Single-center retrospective cohort including consecutive patients with HFrEF (< 50%) who underwent both transthoracic echocardiography and cardiac MRI from 2018-2020. The acronym was transformed into the following variables: (I) need for intravenous inotropes; (N) NYHA functional class III-IV or NT-proBNP ≥ 1,000 pg/mL; (E_{rh}) renal dysfunction (GFR ≤ 30 mL/min/1.73m^2 by MDRD formula) or hepatic dysfunction (serum total bilirubin ≥ 1.8 mg/dL; (Eef) EF ≤ 30%; (D) appropriate defibrillator shocks; (H) more than one HF hospitalization in the previous year; (E_d) combination of diuretics; (L) systolic blood pressure (SBP) ≤ 90 mmHg or heart rate (HR) ≥ 100 bpm; (P) intolerance to betablockers or renin angiotensin aldosterone inhibitors. The primary outcome was a composite of HF hospitalization and all-cause mortality. Cox Regression analysis was performed to explore the relationship between variables and outcomes. A scoring system was developed giving one point to each variable of the acronym.
Results: A total of 200 patients were included (median age 66 years (IQR: 57-74), 74% male, 65% in NYHA II-III), of whom 66% had HF for more than 18 months. Over a mean follow-up of 25 ± 12 months, a primary outcome occurred in 56 patients (28%). The score median was 1 point (IQR: 0-2) and 58 patients had 0 points. Cox Regression analysis applied to the model confirmed its prognostic value (hazard ratio 1.5 for each point, p < 0.001). The model exhibited good discriminative power, with a C-statistic of 0.78 (95%CI 0.71-0.8) (Fig. 1A). Thereafter, the sample was stratified in 3 groups: low risk – 0 points; moderate risk – 1 point; high risk – 2+ points. Mean survival according to the predefined groups, in months, was 44 [95%CI 41-46] for the low-risk group, 37 [95%CI 33-41] for the moderate-risk group and 23 [95%CI 19-28] for the high-risk group (log-rank < 0.001) (Fig. 1B).





Conclusions: This is the first validation of the acronym "I NEED HELP" in a real-world population of patients with HFrEF. This new risk score "I NEED HELP" is simple to apply and strongly predicts adverse outcomes in HFrEF.

CO 128. CARDIORENAL SYNDROME AND DEATH RISK IN PATIENTS WITH HEART FAILURE OR CHRONIC KIDNEY DISEASE: AN UNMET CARDIORENAL NEED?

Tiago Taveira-Gomes[1], Carla Santos Araújo[2], Daniel Seabra[2], Filipa Bernardo[3], Johan Bodegård[3], Cristina Gavina[1]

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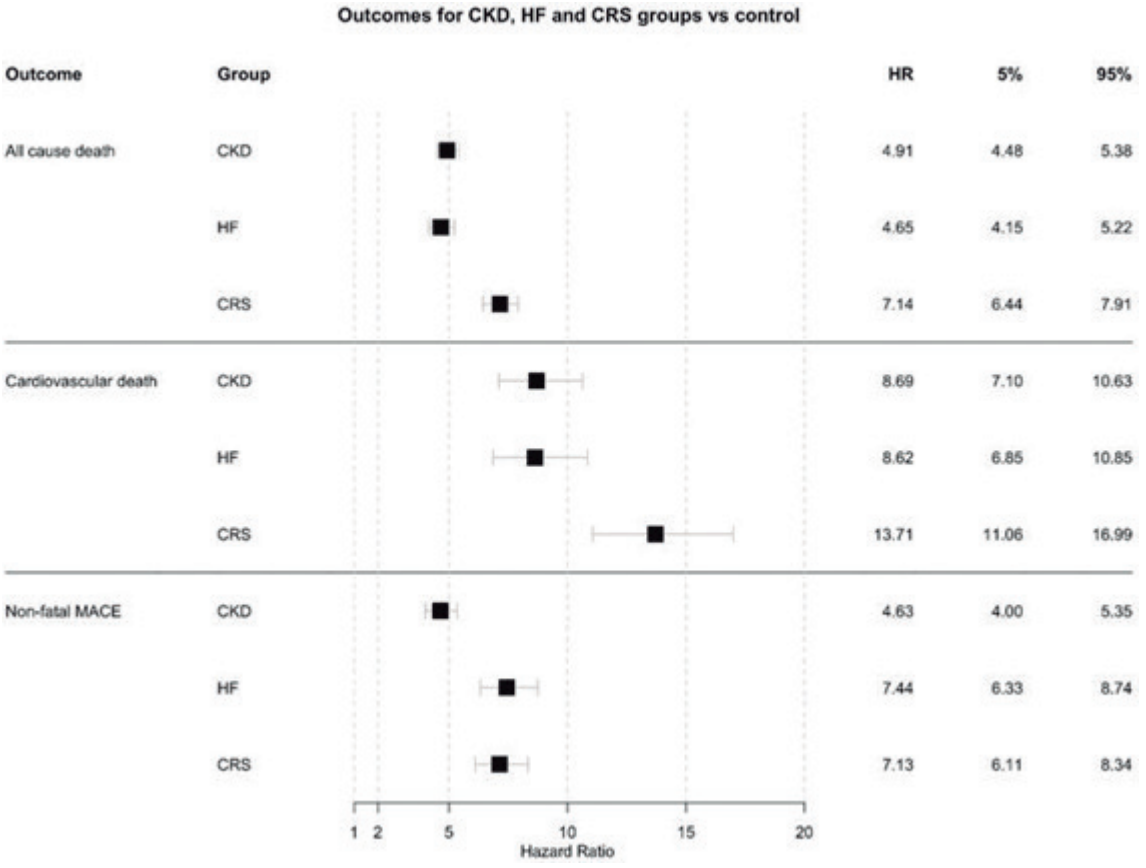
Introduction : Heart failure (HF) and chronic kidney disease (CKD) have interlinked pathophysiological pathways and patients having both conditions simultaneously are defined as having cardiorenal syndrome (CRS).



CO 128 Figure

Objectives: To estimate the risk of CRS in patients with initial presentation of HF (without prior CKD) or CKD (without prior HF) compared to mean age overall population in a real-world clinical setting. Also, to estimate the risk of all-cause death, cardiovascular (CV) death and non-fatal major CV events (MACE) in patients with HF, CKD and CRS compared to the mean-age overall population.
Methods: Clinical database analysis of a single primary and secondary healthcare institution from 2008-2019. We defined 4 incident cohorts: Control - patients at age 75; HF - HF patients without prior CKD; CKD - CKD patients without prior HF; CRS - patients with HF and CKD. Patients were indexed at the date of first event and followed one year. We defined HF as either: i) Ejection Fraction (EF) ≤ 40% and NT-proBNP ≥ 200 pg/mL (≥ 600 pg/mL if atrial fibrillation (AF)) OR BNP ≥ 100 pg/mL (≥ 125 pg/mL if AF); ii) EF> 40% in the presence of structural cardiac abnormalities. We defined CKD as eGFR ≤ 60 mL/min using EPI-CKD formula. All definitions were constructed using laboratory-level data complemented with episode-level data. Hazard ratios (HR) and 95% confidence intervals were estimated using Cox regression models adjusted for age, sex, age-sex interaction, prior history of hypertension, myocardial infarction, stroke, peripheral artery disease and type 2 diabetes.
Results: We identified 3,973 patients with HF, 13,990 with CKD, 6784 with CRS and 16,182 controls. Patients were in general 75-77 years old. The majority were females and were well treated with CV risk reducing drugs (Table). All-cause death risk was 4.7 (4.1-5.2) for HF and 4.9 (4.5-5.4) for CKD. CV death risk was 8.6 (6.8-10.8) for HF and 8.7 (7.1-10.6) for CKD. Non-fatal MACE risk was 7.4 (6.3-8.7) for HF, 4.6 (4.0-5.3) for CKD, and 7.1 (6.1-8.3) for CRS. CRS was associated with the highest risks of all-cause and CV death when compared with the control group - 7.1 (6.4-7.9) and 13.7 (11.7-17.0), respectively (Figure). More than half of events occurred in the first 90 days of follow-up for all outcomes.
Conclusions: Cardiorenal disease (HF or CKD) was associated with very high short-term risk (1 year) of developing CRS or death. Consecutively, patients with established CRS had the highest risk of dying. These results demonstrate serious cardiorenal risks in a real-world setting, supporting an urgent need for improved primary and secondary prevention of cardiorenal disease and cardiorenal syndrome.

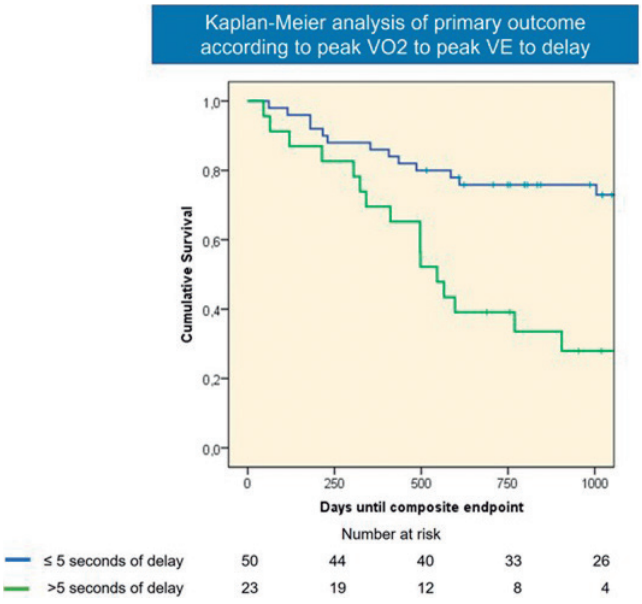
CO 129. EXERCISE OSCILLATORY VENTILATION – IS THERE MORE TO IT THAN JUST UPS AND DOWNS?

Gonçalo Lopes da Cunha, Bruno Rocha, Sérgio Maltês, Pedro Freitas, Francisco Gama, Carlos Aguiar, Luís Moreno, Anaí Durazzo, Miguel Mendes

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

Introduction: Exercise Oscillatory Ventilation (EOV) is fundamentally defined by the presence of an oscillatory phenomenon of the ventilation/minute with a given amplitude and frequency. Recently, it was proposed that a delay in O2 consumption (VO2) peak to minute ventilation (VE) peak during ventilatory oscillation predicts a worse prognosis in patients with Heart Failure (HF) and left ventricular ejection fraction (LVEF) < 50%. We aimed to evaluate whether these characteristics add further prognostic value to the subset of HF patients with EOV.
Methods: This was a single-centre retrospective cohort of consecutive patients with HF and LVEF < 50% that underwent cardiopulmonary exercise testing (CPET) from 2016-2020. EOV was defined as per Vainshelboim and colleagues (i.e. ≥ 3 consecutive cyclic fluctuations of ventilation during exercise, average amplitude over 3 ventilatory oscillations ≥ 5L and an average length of three oscillatory cycles 40-140s). Ventilation/minute graphs, with a rolling average of 5 consecutive breaths, were evaluated by 3 independent observers. The presence of EOV was established if at least 2 observers agreed on the classification. A second graph was then plotted, with both VO2 and VE over time and the mean delay between VO2 peak to VE peak during EOV was manually calculated. The primary endpoint

was a composite of time to all-cause death, heart transplantation or left ventricular assistance device (LVAD) implantation.
Results: Of the overall cohort of 285 patients with HF and LVEF < 50%, 78 (27%) were classified as having EOV (mean age 58 ± 12, mean LVEF 31 ± 10%; ischaemic HF – 63%). Sixty three percent of patients had over 1 second of mean VO2 peak to VE peak delay and 22% had over 10 seconds of mean delay. During a median follow-up of 27 (17-43) months, there were 32 patients with a primary outcome event: 4 LVAD, 12 heart transplants and 18 deaths. The rate of the primary outcome was 19% and 36% at 1- and 2-years, respectively. The amplitude, frequency, and maximum number of EOV cycles were not associated with the likelihood of the primary endpoint. Contrastingly, the mean delay of VO2 peak to VE peak during EOV was predictive of time to primary endpoint. The predictive capacity of this new parameter remained significant after adjustment for peak VO2 and VE VCO2 slope (adjusted HR: 1.06 95%CI 1.01-1.11). We found a cut-off of 5 seconds to be the most useful to predict the primary outcome at 2-years, with a sensitivity and specificity of 48 and 84%, respectively.



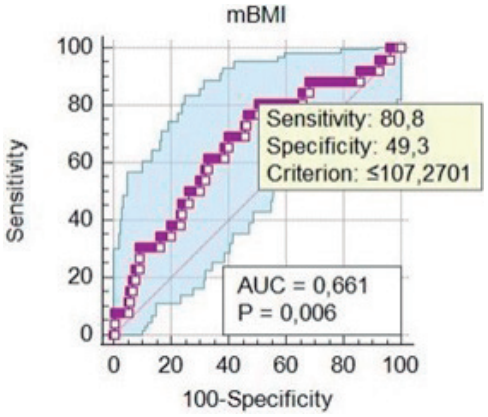
Conclusions: A novel CPET parameter associated with time to all-cause death, heart transplantation or LVAD implantation in patients with HF, reduced LVEF (< 50%) and EOV. VO2 peak to VE peak delay may have an added value in the prognostication of patients with HF and reduced LVEF.

CO 130. MODIFIED *VERSUS* CONVENTIONAL BODY MASS INDEX IN PATIENTS ADMITTED DUE TO ACUTE HEART FAILURE: ASSOCIATION WITH ADVERSE PROGNOSIS

Vanda Devesa Neto, João Miguel Santos, Inês Pires, Joana Laranjeira Correia, Gonçalo Ferreira, Luís Ferreira Santos

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Conventional body mass index (cBMI) and serum albumin (SA) are frequently used to predict malnutrition status. cBMI does not reflect fluid accumulation, so modified body mass index (mBMI) (SA x cBMI) has recently emerged as a marker for poor prognosis and mortality in critically ill patients. However, there is limited evidence of the impact of mBMI in patients with Acute Heart Failure (HF).
Objectives: Identify the association between mBMI and 12-month (12MM) mortality compared with cBMI in patients admitted with acute HF.
Methods: Retrospective study of 264 patients admitted for acute heart failure in a Cardiology Department. Baseline characteristics, laboratory findings, and disease severity were analyzed. BMI and SA were measured at admission, and mBMI was calculated for each patient. Analysis of the receiver operating characteristic (ROC) curves was performed to evaluate mBMI and cBMI predictive value for post-hospitalization mortality. Kaplan-Meyer survival plots were used to assess 12MM. The Mann-Whitney U test was used for mean comparison between groups.
Results: Mean age was 75.0 ± 11.4 years; 51% were men. Mean left ventricular ejection fraction (LVEF) was 46.6 ± 16.7%. Mean SA and BMI values were 3.8 ± 0.5 g/dL and 27.0 ± 9.8 kg/m², respectively. 7% received inotropic treatment. 1.1% presented with cardiogenic shock at admission. The optimal cut-off point for cBMI assessed by Youden index was 22.2 (sensitivity (S)≈ 39% and specificity (E)≈ 86%; Youden index (IY = 0.2411) and the optimal cut-off point for mBMI was 107.2 (S≈ 81% and E≈ 49%; IY = 0.3005). 45% of patients had mBMI higher than 107.3 and 55% had mBMI lower than 107.3. 82% of patients had cBMI higher than 22.2 and 18% had cBMI lower than 22.2. Lower mBMI was correlated with 12MM ($p < 0.01$), treatment with inotropes during hospital stay ($p = 0.05$), age ($p < 0.01$), LVEF ($p = 0.05$) and number of days of hospitalization ($p < 0.01$). Lower cBMI was correlated with 12MM ($p < 0.01$) and age ($p < 0.01$). In survival analysis, both cBMI (18 *vs.* 7%; $p < 0.01$; χ^2 7.9) and mBMI (13 *vs.* 5%; $p < 0.01$; χ^2 8.5) were associated with 12MM. ROC curve analysis revealed that mBMI had the best predictive performance for 12MM (AUC 0.661; $p < 0.01$; 95%CI 0.596;0.721) compared to cBMI (AUC 0.603; $p = 0.13$; 95%CI 0.537;0.666).



Conclusions: Both cBMI and mBMI have a significant association with 12MM. mBMI has a better predictive performance for 12MM than cBMI and should be considered to assess malnutrition status and prognostic impact in patients with heart failure.

Domingo, 24 Abril de 2022 | 14:00-15:00

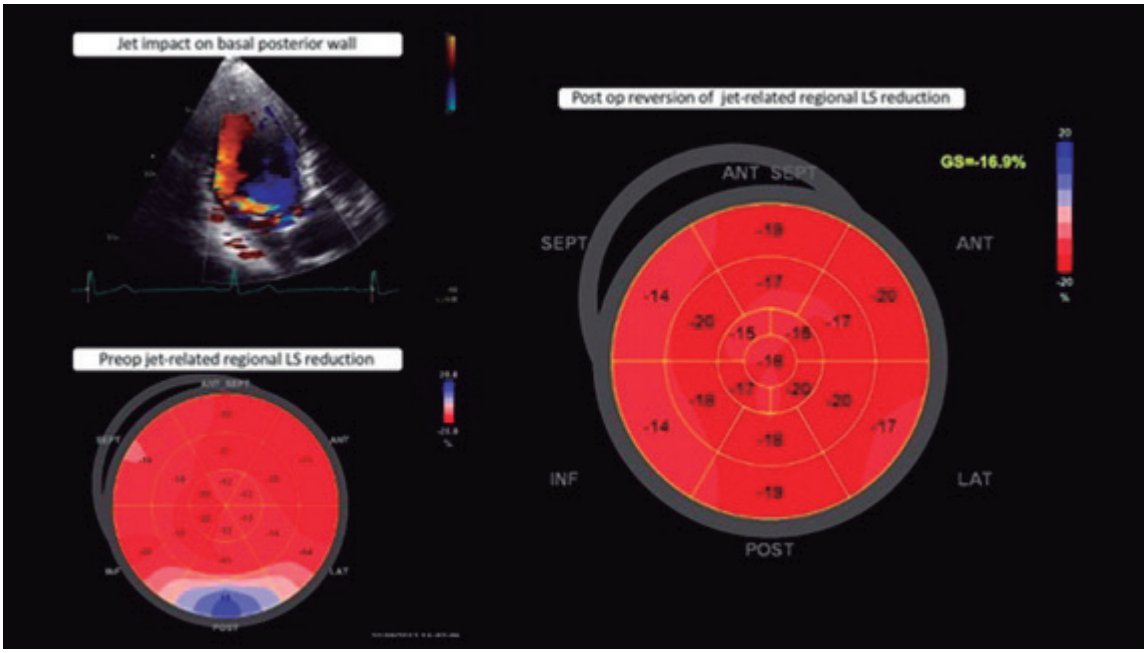
Sala Vega | Comunicações Orais (Sessão 27) - Imagem 2 - Ecocardiografia e *Strain*

CO 131. REGIONAL IMPAIRMENT OF LEFT VENTRICULAR LONGITUDINAL STRAIN IN AORTIC REGURGITATION – HAVE WE FOUND THE MISSING PIECE?

Joana Silva Ferreira[1], Liliana Marta[2], João Presume[2], Pedro Freitas[2], Sara Guerreiro[2], João Abecasis[2], Carla Reis[2], Eduarda Horta[2], Regina Ribeiras[2], Miguel Mendes[2], Maria João Andrade[2]

[1]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo. [2]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Aortic regurgitation (AR) has been shown to have an impact on myocardial mechanics and recent studies have proved the value of global



CO 131 Figure

longitudinal strain (GLS) as an additional parameter in the assessment of disease severity and prognosis. However, a direct and localized influence of the regurgitant jet (RJ) on regional deformation has not yet been demonstrated.

Objectives: To assess if there is a regional pattern of impairment of longitudinal strain (LS) in AR connected to the direction of the RJ, as well as its potential reversibility and prognostic impact.

Methods: We studied patients (pts) with chronic moderate and severe isolated AR referred for echocardiographic evaluation. For each patient, we established the direction of the RJ according to the myocardial segments impacted by its turbulent portion. Pts were considered to have a jet-related LS reduction (JRSR) when the wall segments impacted by the jet had a relative reduction in LS of at least 30% compared to non-affected segments. Parameters of AR severity and left ventricular (LV) size and function were also assessed. For those who underwent surgical correction of AR, the postop TTE was also compared with the preop.

Results: Of the 203 AR pts screened, 80 met inclusion criteria (median age 57 years, 83% male). Mean GLS and ejection fraction (EF) were -16% and 54%, respectively. In 34 of the 80 pts, there was a regional reduction of 10 percentage points in the absolute value of LS in the segments impacted by the jet, compared to non-affected segments (median of -8 *vs*. -18%, $p < 0.001$), corresponding to a 56% relative decrease. The predominant jet directions were basal septum (44%), mid posterior and lateral (24%), and basal inferior (12%). Demographics, severity of AR and parameters of systolic and diastolic function did not significantly differ between those who had JRSR or not. Of the 34 pts with JRSR, 20 underwent corrective surgery. In an early postop TTE, the difference in LS between the segments impacted by the jet and the non-affected segments attenuated (4.7% absolute difference *vs*. 10% in the preop TTE, $p = 0.001$). Pts with JRSR in the preop echo had lower rates of improvement of GLS (11 *vs*. 46% of pts improved at least 2.5%, $p = 0.043$) and a tendency towards lower rates of recovery of EF after surgery (17 *vs*. 46% recovered at least 5% in EF, $p = 0.07$).

Conclusions: This study identifies an association between the parietal impact of the RJ in AR and regional LS impairment. It suggests that external factors such as blood flow dynamics affect myocardial deformation. Additionally, the longstanding impact of the jet might damage the myocardium to the point of limiting recovery of systolic function after corrective surgery. This is, to our knowledge, the first reported case series showing the negative effect of the jet's impact on LV longitudinal function and, most importantly, on postop outcomes. Longer follow-up is needed to confirm its prognostic role.

CO 132. A CMR MYOCARDIAL STRAIN PATTERNS ANALYSIS IN LEFT BUNDLE BRANCH BLOCK

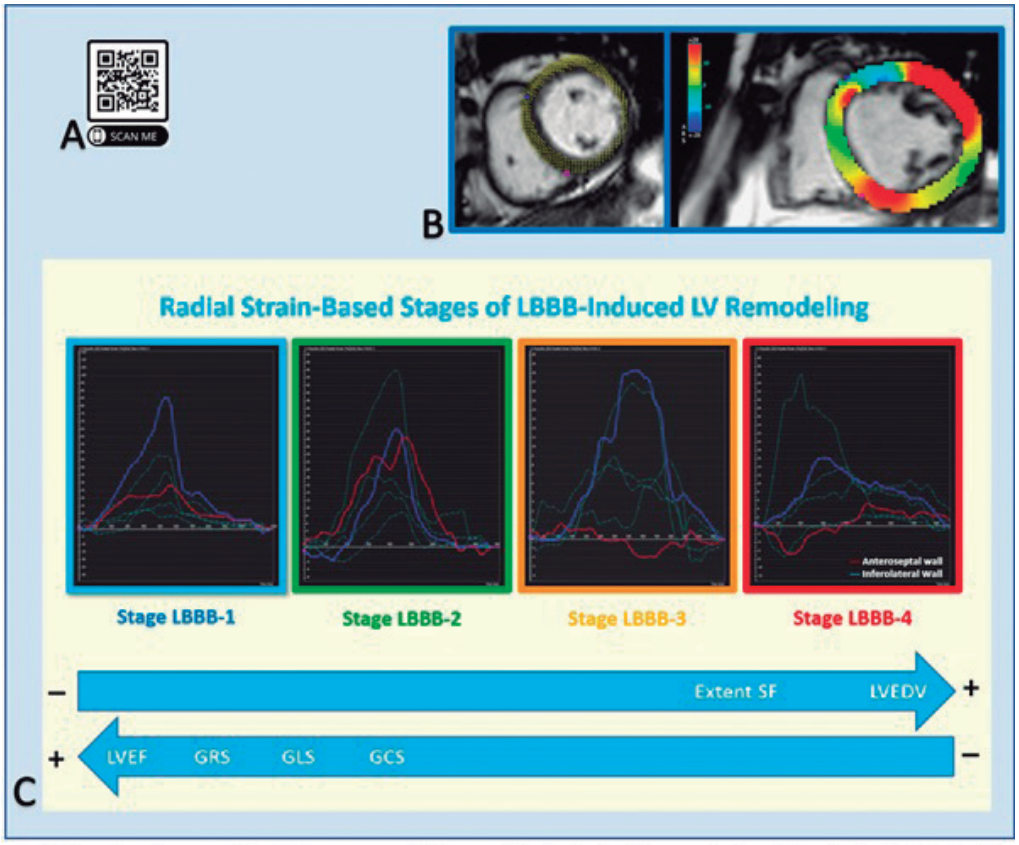
M. Raquel Santos[1], Mariana da Silva Santos[2], Sara Guerreiro[3], Daniel A. Gomes[3], Gonçalo Lopes da Cunha[3], Bruno M. Rocha[3], Pedro Freitas[3], João Abecasis[3], Ana Santos[3], Carla Saraiva[3], Miguel Mendes[3], António Miguel Ferreira[3]

[1]Hospital Dr. Nélio Mendonça. [2]Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo. [3]Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Recently, a classification with four types of septal longitudinal strain patterns was described using a speckle tracking based strain analysis in echocardiography suggesting pathophysiological continuum of LBBB-induced LV remodeling. Little data exist on feature tracking cardiac magnetic resonance (FT-CMR) in LBBB patients, and whether such patterns could be reproduced in CMR is not established yet. Therefore, in this study, we aimed to: 1) Assess and reproduce the new strain patterns classification by CMR and 2) Evaluate its association with LV remodeling and myocardial scar in a LBBB cohort.

Methods: Single center registry which included LBBB patients with septal flash (SF) referred to CMR to assess the structural cause of LV dysfunction. LBBB was defined according to Strauss criteria as strict LBBB, non-strict LBBB or nonspecific LV conduction delay. A semi-automated FT-CMR (Circle CVI42®) was used to quantify myocardial strain and detect the four septal longitudinal and radial strain patterns, according to the recent classification (LBBB-1 through LBBB-4) (Fig.). Extent of SF was visually scored as mild, moderate, or prominent.

Results: A total of 115 patients were included (mean age 66 ± 11 years; 57% men; 38% with ischemic heart disease). Median duration of QRS was 150 ± 26ms and majority of the patients (n = 90, 78%) were classified as strict LBBB. In longitudinal strain analyses LBBB-1 was observed in 23 (20%), LBBB-2 in 37 (32.1%), LBBB-3 in 25 (21.7%), and LBBB-4 in 30 (26%) patients. Patients at higher LBBB stages (longitudinal or radial pattern) had more prominent septal flash, greater LV volumes, lower LV ejection fraction and lower absolute global longitudinal, circumferential and radial strain values compared with patients in less advanced stages ($p < 0.05$ for all). There was no difference between patterns in clinical characteristics, ischemic etiology, QRS duration and time delay between septal and lateral LV wall. Late gadolinium enhancement (LGE) was found in 63 patients (54.8%), with a septal location in 34 (29.6%) patients, lateral in 4 (3.5%) patients, septal



A. Link to the reference article. **B.** Image at medial short-axis level showing how to obtain radial strain by CMR. **C.** Radial strain-based stages of LBBB-induced LV remodeling. The 4 stages of LBBB induced strain patterns and their relationship with LV adverse remodeling and SF.
LVEDV – LV end-diastolic volume; LVEF – LV ejection fraction; GRS – global Radial strain; GLS – global longitudinal strain; GCS – global circumferential strain.

CO 132 Figure

and lateral in 11 (9.6%) patients. Furthermore, no difference was found for LGE presence, distribution or location between the four strain patterns.
Conclusions: Among patients with LBBB, our study found a good association between longitudinal and radial strain patterns with the degree of LV remodeling and LV dysfunction by FT-CMR analysis. Additionally, myocardial fibrosis didn't seem to interfere with the staged LBBB classification.

CO 133. RELATIVE APICAL SPARING IN SEVERE AORTIC STENOSIS: DOES IT MEAN CONCOMITANT AMYLOID CARDIOMYOPATHY?

Rita Reis Santos[1], João Abecasis[1], Sérgio Maltês[1], Gustavo Sá Mendes[1], Sara Guerreiro[1], Carolina Campino Padrão[1], Pedro Freitas[1], António Ferreira[1], Regina Ribeiras[1], Maria João Andrade[1], Nuno Cardim[2], Victor Gil[3], José Pedro Neves[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. [3]Hospital da Luz Lisboa.

Introduction: Relative apical sparing (RAS) of left ventricular (LV) longitudinal strain (LS) is a red flag marker for the suspicion of amyloid cardiomyopathy. However, it has also been described in patients with severe aortic stenosis (AS).
Objectives: To assess the prevalence of RAS in patients with severe symptomatic AS referred for surgical aortic valve replacement (AVR), to evaluate its clinical significance and assess its presence after surgery.
Methods: We prospectively studied 135 consecutive patients (age: 73y [IQR 68-77 y], 49% men) with severe symptomatic AS - mean transaortic pressure gradient (AVmean): 60.9 ± 17.7 mmHg; mean aortic valve area: 0.7 ± 0.2 cm^2, referred for surgical AVR with no previous history of ischemic cardiomyopathy or other. Beyond 12 lead-ECG and transthoracic echocardiography (TTE), all patients underwent cardiac magnetic resonance (CMR) before surgery. RAS was defined by the ratio> 1 of *average LS at apical segments/sum of the average basal and mid LS* at speckle tracking analysis. AVR with septal myocardial biopsy, for investigational purposes, was performed in 80 patients. AS severity indexes, LV remodeling and tissue characterization parameters were compared in both groups of patients, with and without RAS. LS deformation pattern was reassessed at 3-6 months after AVR.
Results: RAS was present in 24 patients (18%). In the whole cohort there were neither pseudoinfarct pattern or low voltage ECG criteria, nor infiltration suspicion from CMR (native T1 value 1,053 ms [IQR 1,025-1,071 ms] for institutional reference values: 972-1,070 ms; ECV 24% [IQR 21-27%]). None of the patients had amyloid deposition at histopathology. Overall, mean CMR LV ejection fraction (LVEF) was 59.6 ± 10.5% and 98 patients (74%) had non-ischemic delayed enhancement, with a median fibrosis fraction of 4.1% [IQR 1.6-7.8%]. RAS cohort had a significantly higher AVmean gradient, relative wall thickness, maximum septal thickness, peak systolic dispersion, with lower global LS at TTE, as well as higher LV mass and lower LVEF at CMR. RAS group has also higher NT-proBNP ambulatory values (Table). Follow-up evaluation after AVR revealed RAS disappearance in 19 patients (79.2%).
Conclusions: RAS occurs in almost one-fifth of the patients in this cohort despite the absence of signs of myocardial infiltration. This deformation pattern elapses with worse indexes of LV remodeling consistent with a more advanced stage of the disease, being reversible after AVR, which stands for the absence of concomitant myocardial infiltration.

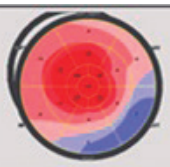
			*p-value*
AV mean (mmHg)	70.2 ± 20.1	59.3 ± 16.6	p=0.006
Relative wall thickness	0.6 ± 0.1	0.5 ± 0.1	p=0.002
Maximum septal thickness (mm)	17.8 ± 3.2	15.8 ± 2.5	p=0.002
Peak systolic dispersion (ms)	71 (59-85)	60.1 (49-71.5)	p=0.022
Global longitudinal strain (%)	-13.2 (-13.9 - -10.6)	-15.5 (-17.5 - -12)	p<0.001
LV ejection fraction (%)	54.1 ± 10.4	60.6 ± 10.3	p=0.006
LV indexed mass (g/m2) (CMR)	97.1 ± 28.7	77.6 ± 24.4	p<0.001
NT-proBNP (ng/mL)	1479 (429 – 2999)	512 (217 – 1428.5)	p=0.002

Figure 1 – Comparative analyses of distinct TTE and CMR indexes in patients with and without pre-operative RAS (AV – aortic valve; LV – Left ventricle).

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CO 134. LEFT ATRIAL STRAIN ANALYSIS IN PATIENTS WITH SEVERE RHEUMATIC MITRAL STENOSIS SUBMITTED TO MITRAL BALLOON VALVULOPLASTY

João Presume, Daniel Gomes, Mariana Paiva, Francisco Albuquerque, Joana Ferreira, Sara Guerreiro, Liliana Marta, Pedro Freitas, João Abecasis, Marisa Trabulo, Maria João Andrade, Pedro Araújo Gonçalves, Manuel Almeida, Miguel Mendes, Regina Ribeiras

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

Introduction: Left atrial (LA) strain is a novel tool to evaluate LA dysfunction. Little is known about its role to evaluate patients with severe rheumatic mitral stenosis (MS) treated with balloon mitral valvuloplasty (MBV). The aim of our study was to assess the prognostic impact of peak atrial longitudinal strain (PALS) and LA ejection fraction (EF) in a cohort of patients with severe rheumatic MS.
Methods: We conducted a single-centre retrospective study enrolling patients with rheumatic mitral stenosis submitted to mitral balloon valvuloplasty (MBV) from 2010 to 2021. All patients included underwent transthoracic echocardiogram before and after the procedure. PALS and LAEF were assessed by 2D speckle tracking in apical 4-chamber view (as per EACVI current recommendations). PALS variation after MBV was assessed by the difference between PALS after MBV and PALS before MBV. The primary outcome was a composite of mitral valve surgery or death.
Results: A total of 26 patients were included (50 ± 19 years old, 19% male), 54% with permanent atrial fibrillation. Overall, the main echocardiographic findings of this cohort before intervention were: median anatomical and functional mitral valve area of 1.1 [0.6;1.2] and 1.3 cm^2 [0.7;1.3], respectively; median mean transmitral gradient of 9 mmHg [7;23]; median Wilkins score of 9 [6;10]; and a median pulmonary artery systolic pressure of 56 [40;80] mmHg. MVB resulted in the following results: a median anatomical valve area of 2.0 [1.3;2.3] cm^2; median mean transmitral gradient of 5 [4;9] mmHg; median pulmonary artery systolic pressure of 41 [32;50] mmHg; and only 2 patients ended up with moderate mitral regurgitation (no severe cases). During a mean follow-up of 33 ± 23 months, the primary outcome occurred in 9 (34.6%) patients (5 submitted to surgery, 4 died). On LA strain analysis before the procedure, mean PALS was 10 ± 4% and mean LAEF was 26 ± 11%. After MBV, there was a significant increase in PALS to 14% (p = 0.004) and in LAEF to

Table 1 – a) Paired t-test analysis of peak atrial longitudinal strain and left atrial ejection fraction before and after mitral balloon valvuloplasty; b) Univariate cox regression analysis for the primary outcome (mitral surgery or all-cause death).

a)

	Mean value before MBV	Mean value after MVB	p-value	Improved (n)	Neutral (n)	Worsened (n)
PALS	10%	14%	0.004	15	5	6
LA EF	26%	36%	<0.001	18	0	6

b)

Strain parameter	HR (95% CI)	p-value
LAEF before MBV	0.864 (0.747-0.999)	p=0.048
PALS before MBV	0.857 (0.699-1.050)	p=0.137
PALS variation after MBV	0.871 (0.738-1.028)	p=0.102

LAEF - Left atrial ejection fraction; MBV – Mitral balloon valvuloplasty; PALS - Peak atrial longitudinal strain;

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36% (p < 0.001) (Table 1a). On univariate Cox regression (Table 1b), LAEF was significantly associated with the primary outcome (HR 0.864; 95%CI 0.747-0.999). There was also a non-significant positive trend for PALS (HR 0.857; 95%CI 0.699-1.050) and PALS variation after MBV (HR 0.871, 95%CI 0.738-1.028).
Conclusions: LA strain and EF seem to be significantly impaired in severe rheumatic MS. Moreover, our findings highlight these markers as potentially useful prognostic markers in rheumatic MS.

CO 135. PROGNOSTIC VALUE OF GLOBAL LONGITUDINAL STRAIN IN PATIENTS WITH TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

Ana Abrantes, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Catarina Oliveira, Ana Margarida Martins, Miguel Azaredo Raposo, Catarina Gregório, Joana Rigueira, Dulce Brito, Ana G. Almeida, Fausto J. Pinto

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

Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is an important cause of heart failure (HF) in older patients (pts), frequently underdiagnosed, that carries a bad prognosis when untreated. Transthoracic echocardiography (TTE) plays a key role in the diagnosis by allowing early recognition of ATTR-CM findings, like left ventricular hypertrophy (LVH) and apical sparing on global longitudinal strain (GLS).
Objectives: To evaluate the prognostic value of GLS in a population with ATTR-CM.

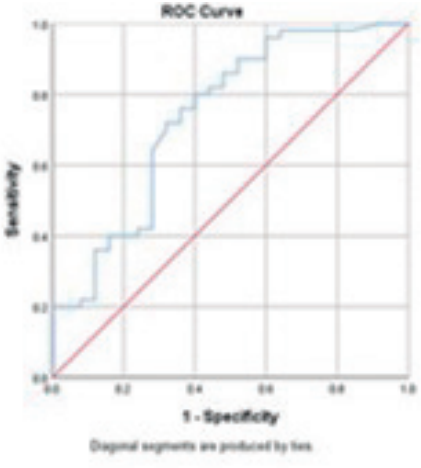

Figure 1 – ROC curve showing optimal GLS cut off value for predict mortality in ATTR-CM (AUC 0.779, p=0.001, -9.35: specificity 47% and sensibility 90%)

Methods: Retrospective, single-center study of consecutive pts diagnosed with hereditary ATTR-CM (hATTR-CM) and wild-type ATTR-CM (wtATTR-CM) followed in a tertiary center. We performed speckle tracking strain for GLS using Echopac GE Healthcare software in the diagnostic TTE. Clinical, TTE and epidemiological data were recorded. Statistical analysis was performed with non-parametric tests (Chi-square and Mann-Whitney). Survival analysis was performed with Kaplan-Meier and Cox regression. ROC curves were obtained to determine the optimal cut-off values of GLS.
Results: We included 66 pts, 24 with wtATTR-CM and 42 with hATTR-CM. Mean age was 71 ± 12 years, 83.3% being man. Regarding clinical characteristics, 42 pts had hypertension, 12 pts diabetes, 29 pts dyslipidemia, 31 pts chronic kidney disease (eGFR < 60 mL/min/m^2), 69.7% pts presented polyneuropathy and 50% autonomic dysfunction. Most of the pts were at NYHA II (54.5%) or III (37.9%). The mean NT-proBNP at diagnosis was 3,961 ± 6,624 pg/mL. At baseline, mean GLS was -12.5 ± 4, LVEF 54 ± 12.7% and TAPSE 18.5 ± 3.5 mm. During a mean follow-up period (FUP) of 22.2 ± 22.6 months, 34.5% pts were hospitalized with HF decompensation. Seventeen pts died, most of them had wtATTR-CM (12 *vs.* 5 pts). ATTR-CM pts with GLS ≤ -9.0 presented higher risk of mortality during FUP (log rank 19.1, p < 0.0001). A cut-off of GLS -9.35 was a strong predictor of mortality in the global population (AUC 0.779, p = 0.001, specificity 47% and sensibility 90%, Fig.). On multivariate analysis, NT-proBNP (p = 0.001, HR: 1.00, 95%CI: 1-5) and GLS (p = 0.0015; HR: 1.331, 95%CI: 1.058-1.674) at baseline were independent predictors of mortality as opposed to age and LVEF.
Conclusions: Our study shows that pts with ATTR-CM and GLS ≤ -9% have a high mortality risk, with GLS -9.35% as a strong predictor of mortality in this subset of pts. Therefore, we found that GLS can be considered a valuable prognostic tool in the assessment of ATTR-CM pts.

Domingo, 24 Abril de 2022 | 15:00-16:00

Sala Vega | Comunicações Orais (Sessão 28) - Cardiopatias Congénitas, Doença Vascular Pulmonar e Embolia Pulmonar 3 - Vários Tópicos

CO 136. RISK STRATIFICATION IN PULMONARY ARTERIAL HYPERTENSION: DO OUR PATIENTS BENEFIT FROM A 4-STRATA MODEL?

Bárbara Marques Ferreira, Filipa Ferreira, Sofia Alegria, Alexandra Briosa, Ana Rita Pereira, Débora Repolho, João Grade Santos, Mariana Martinho, Diogo Cunha, Maria José Loureiro, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Risk stratification plays an essential role in the management of patients with pulmonary arterial hypertension (PAH). The current European guidelines propose a 3-strata model to categorize risk as low, intermediate, or high, based on the expected 1-year mortality. However, with this model, most patients are categorized as intermediate risk. A recent publication purposed a refined risk assessment model for PAH based on 4 risk categories (low, intermediate-low, intermediate-high and high risk), based in simple and non-invasive measures like functional class (FC), 6-minute walking distance (6MWD) and NTproBNP.
Objectives: To analyze the prognostic impact of further risk substratification in intermediate-low and intermediate high in patients with PAH.
Methods: Retrospective longitudinal study that included all patients with pulmonary arterial hypertension (PAH) followed in a referral center. Uncorrected complex congenital heart disease and Eisenmenger physiology were excluded. Baseline data was collected to calculate patient risk using COMPERA risk score. Intermediate risk group was subdivided using refined cut-off values into intermediate-low (FC I-II; 6MWD 320-440 m; NTproBNP 300-649 ng/L) or intermediate-high (FC III, 6MWD 165-319 m; NTproBNP 650-1,100 ng/L). Adverse events during follow-up included initiation of parenteric prostanoid therapy, referral for lung transplantation and death.
Results: The cohort included 75 patients (82.1% female, mean age at diagnosis 47.4 ± 17.6 years). Baseline characteristics: WHO Functional class I/II/III/IV 2.7%/25.3%/54.7%/17.3%, respectively; 6MWD 386.7 ± 128.7m, cardiac index 2.26 ± 0.64 L/min/m^2, mean pulmonary vascular resistance 11.54 ± 5.60 WoodsU (Table). Using COMPERA risk score, 23% of the patients were at low risk, 62.2% on intermediate risk and 14.9% at high risk. Substratification of the 46 pts in the intermediate-risk category based on the mentioned methodology identified 22 pts (47.8%) in the intermediate-low and 26 pts (52.2%) in the intermediate-high risk categorie. Mean COMPERA risk score using 4 strata for this pts was 2.022 ± 0.39 and 3.04 ± 0.39, respectively. Baseline clinical differences between the 4 risk groups are represented in the table. The Kaplan-Meier survival analysis (Figure) revealed worse outcome for pts in intermediate-high compared to intermediate-low risk: log-rank 0.019; HR 0,382 (0,16-0,89).
Conclusions: In pts with PAH further risk stratification of intermediate risk group into intermediate-high and intermediate-low using refined cut-offs for FC, 6MWT and NTproBNP, can identify patients at higher risk of adverse

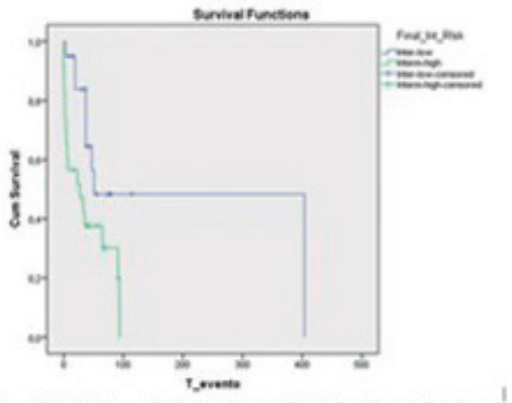

Figure 1 **Kaplan-Meier survival curve for intermediate-high and intermediate-low risk groups (log-rank 0,019).**

	Low (n=17)	Intermediate-low (n=22)	Intermediate-high (n=26)	High (n=11)	All	p-value *
Mean age (years)	40.47 +/- 13.40	50.00 +/- 16.89	52.91 +/- 17.40	43.55 +/- 13.85	47.44 +/- 17.55	0.570
Female (%)	47.1	81.8	83.3	63.6	82.1	0.890
WHO FC I (%)	5.9	4.5	0	0	2.7	**0.012**
WHO FC II (%)	64.7	36.4	4.2	0	25.3	
WHO FC III (%)	29.4	59.1	83.3	36.4	54.7	
WHO FC IV (%)	0	0	12.5	63.6	17.3	
6MWD (m)	484.7 +/- 56.3	409.4 +/- 105.8	335.7 +/- 135.6	304.8 +/- 80.1	386.7 +/- 128.7	0.070
NTproBNP (ng/L)	177 (446)	377 (347)	1634 (2134)	4178 (3307)	1040 (1634)	**0.001**
RAP (mmHg)	6.31 +/- 4.13	7.12 +/- 4.19	8.32 +/- 4.58	15.55 +/- 6.74	8.90 +/- 5.60	0.406
PAPm (mmHg)	50.57 +/- 16.27	51.20 +/- 16.98	48.32 +/- 14.32	56.00 +/- 8.43	49.94 +/- 13.77	0.564
PCWP (mmHg)	10.71 +/- 7.02	9.44 +/- 4.21	10.23 +/- 3.82	10.00 +/- 5.12	10.89 +/- 7.00	0.502
CI (L/min/m2)	2.78 +/- 0.50	2.05 +/- 0.63	2.30 +/- 0.54	1.68 +/- 0.42	2.26 +/- 0.64	0.212
PVR (WU)	9.22 +/- 3.41	14.22 +/- 12.54	11.83 +/- 7.06	17.21 +/- 5.19	11.54 +/- 5.60	0.420
SvO2 (%)	72.84 +/- 5.56	67.90 +/- 9.15	68.20 +/- 9.88	52.65 +/- 8.13	65.95 +/- 10.72	0.921

Table 1 Baseline clinical differences between the 4 risk groups.
*P-value reports comparison between intermediate-low and intermediate-high group
Continuous variables are expressed as mean ± standard deviation with exception of NT-proBNP expressed as median and Q3.
Abbreviations: WHO FC – WHO functional class; 6MWD – 6-minute walking distance; NT-proBNP – N-terminal pro-brain natriuretic peptide; RAP – right atrial pressure; PAPm – mean pulmonary arterial pressure; PCWP – pulmonary capillary wedge pressure; CI – cardiac index; PVR – pulmonary vascular resistance; SvO2 – mixed venous oxygen saturation

CO 136 Figure

events. This pts might benefit from a more aggressive upfront combination therapy at the time of diagnosis.

CO 137. FOLLOW-UP OF CHILDREN WITH BRUGADA SYNDROME: EXPERIENCE FROM A TERTIARY PAEDIATRIC REFERRAL CENTRE

Sara Lopes Fernandes[1], Carolina Saleiro[2], Andreia Palma[3], Diogo Faim[3], João Dias[3], Izidro Borges[3], Isabel Santos[3], Helena Andrade[3], António Pires[3]

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Introduction: Brugada syndrome (BrS) is an autosomal dominant channelopathy, which typically presents in young adults. It can also be diagnosed in children, but data in this age group is scarce.
Objectives: To describe the clinical features, management and long-term follow-up of children with BrS history followed-up in a tertiary paediatric referral centre.
Methods: Single centre retrospective study of consecutive patients with history of BrS, defined as having a BrS positive phenotype (BrS (+)), or a negative phenotype-positive genotype (BrS (-)). They were all followed up in a paediatric heart rhythm clinic. Clinical and demographical data were collected and analysed according to the phenotype.
Results: 30 patients were included, with a median age at diagnosis of 7 years (IQR 1-13) and a mean follow-up time of 7 ± 3 years. Sixteen patients were BrS(+), predominantly male (n = 13, 81%). 88% (n = 14) performed a genetic test, which was positive in 57% (n = 8); the most frequent mutation was SCN5A (n = 5). Family history of BrS was present in 56% (n = 9) and almost one third had family history of sudden cardiac death (SCD). Most of the patients had a type 1 Brugada ECG pattern (n = 14) and 2 patients presented a fever and drug induced pattern, respectively. Fourteen patients were BrS(-), mostly female (n = 11, 79%) with a loss-of-function mutation in the SCN5A gene (n = 10). They all had family members with BrS, mainly from the paternal side, and 43% (n = 6) mentioned SCD history. Although most of the patients were asymptomatic, the prevalence of rhythm or conduction disturbances was not infrequent, particularly in BrS(+) patients (n = 12, 75%). Also, in this group and during follow-up, 3 patients had documented supraventricular tachyarrhythmias, and 2 patients had syncope episodes, one of which required an implantable cardioverter-defibrillator. No events were reported in the BrS (-) patients. Nine patients (n = 9/30, 30%) were hospitalized, 3 due to an arrhythmic event (all in the BrS(+) group). Overall, no sudden cardiac death event was reported during follow-up.
Conclusions: In our study, although the majority of the patients were asymptomatic, the occurrence of arrhythmic events was not negligible, especially in the BrS(+) patients. Despite the significant family history, patients with BrS(-) had no events reported during follow-up. Nevertheless, the management of these patients is not clear cut, and a personalized therapeutic strategy with close follow-up is essential.

CO 138. THORS SCORE, A BETTER PREDICTOR OF IN-HOSPITAL AND LONG-TERM MORTALITY AFTER ACUTE PULMONARY EMBOLISM?

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Introduction: Pulmonary embolism (PE) is a frequent and life-threatening disorder associated with significant in-hospital mortality (IHM). Several scores for mortality prediction have been validated in these patients. Our purpose was to evaluate if a simple and objective score - THORS 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 shock or hemodynamic instability at admission were excluded. FAST, PESI and BOVA scores were calculated for each patient. The newly designed THORS score (variables: Systolic blood pressure, Heart rate, Right ventricular pressure overload signs on CT scan, Troponin I serum levels and pO2/FiO2 ratio) was calculated for each patient (range 0-12 points), after identification of 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 for IHM. Kaplan-Meyer survival plots were used to assess 8-year follow-up mortality (8YM) and the composite endpoint of 8-year re-hospitalization for cardiovascular causes or death (8YHD).
Results: Mean age was 62 ± 17y; 62.7% were female; 15.7% had previous history of venous thromboembolism; 16.4% and 53.7% of patients, respectively, had an identifiable major or minor precipitating factor for PE. 32.8% had low-risk PE, 58.2% intermediate-low risk PE and 9% intermediate-high risk PE, as defined by current guidelines. Mean PESI was 94 ± 38, mean BOVA 3.7 ± 1.9, mean FAST 2.6 ± 1.6 and mean THORS score was 4.4 ± 2.8. IHM was 5.9%. 8YM and 8YHD rates were 27.1% and 55.6%, respectively. ROC curve analysis revealed that THORS score had the best predictive performance for IHM (AUC: 0.922, p = 0.001), followed by FAST score (AUC: 0.750, p = 0.04). Other scores had poor predictive performance for this outcome. The optimal cut-off point for IHM using THORS, assessed by the Youden index (YI), was 6 (YI: 0.857, sensitivity: 85.7%, specificity: 100%). When stratified by risk categories (high risk if THORS score > 6 and low risk if THORS ≤ 6), we observed no in-hospital mortality in low-risk patients, while high-risk patients had 30.4% IHM risk. Kaplan Meyer analysis by risk subgroup revealed significantly lower median time to 8-year mortality in patients with high-risk THORS score (1,964 ± 276 days *vs.* 2,505 ± 99.4 days, mortality 43.5 *vs.* 21.3%, $\chi^2 = 4.966$, p = 0.026) in comparison with low-risk patients. Analysis of 8YHD rate did not reveal significant differences between groups (p = 0.541).
Conclusions: THORS is a simple and objective score that allows excellent IHM risk prediction in patients hospitalized due to acute PE. This new score might be a better tool for IHM prediction in patients hospitalized due to PE and particularly useful for defining a low-risk subgroup, with very low IHM risk.

CO 139. ACUTE PULMONARY EMBOLISM CATHETER-DIRECTED THERAPY: A SAFETY AND FEASIBILITY ANALYSIS

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Introduction: Pulmonary embolism (PE) is the third most common cause of cardiovascular death. It has a broad clinical spectrum of severity. Systemic fibrinolysis is associated with reduction of circulatory collapse, long-term pulmonary hypertension (PH) and death in intermediate-high- and high-risk PE patients, when compared to anticoagulation alone. Dedicated multidisciplinary Pulmonary Embolism Response Teams (PERT) were created to deliver better care for these patients, centered in innovative catheter directed therapies (CDT) with mechanical thrombolysis and local fibrinolysis with the potential to reduce the systemic hemorrhagic effects of fibrinolysis.
Objectives: This analysis focus on the safety and feasibility of our PERT early experience with CDT.

	%	n		%	n
Clinical data			**Admission Transthoracic Echo**		
Mean age	55.9 ± 19.3 y/o		RV dilatation	100%	14
Gender (% of male)	36 %	5	RV dysfunction	62%	8
Previous oncologic disease	7%	1	TAPSE (mm)	15.7 ± 3.3	
Active oncologic disease	14%	2	Estimated PASP (TR jet)	54.3 ± 16.3	
Thrombophilia	0%	0	**Admission blood tests**		
Recent SARS-CoV2 infection (<1M)	0%	0	Peak hs-troponin I	2043	
Previous PE	7%	1	Admission NT-proBNP	7372	
Syncope	65%	13	Peak D-dimer	11084	
Dyspnea	30%	6	**RHC and Pulmonary angiogram**		
Initial evaluation			RA pressure	9.2 ± 3.3	
Systolic blood pressure	113.3 ± 16.7		PA systolic pressure	54.1 ± 18.7	
Heart rate	104.4 ± 25.9		PA diastolic pressure	21.4 ± 7.8	
Lactate at admission	1.5 ± 0.7		PA mean pressure	34.1 ± 11.2	
PaO2/FiO2	267.3 ± 119.7		Cardiac Output	4.9 ± 1.6	
CT-scan			Cardiac Index	2.5 ± 0.8	
RV/LV ratio	1.3 ± 0.2		PA resistance (Wood units)	3.6 ± 2.1	
Central PE	43%	6	Modified Miller Index	9.7 ± 3.0	

Table 1. Baseline Characteristics (SARS-CoV2 – Severe Acute Respiratory Syndrome Coronavirus 2; PE – Pulmonary Embolism: RV – right ventricle; LV – left ventricle; TAPSE – Tricuspid Annular Plane Systolic Excursion; PASP – Pulmonary Artery Systolic Pressure; TR – Tricuspid Regurgitation; NT-proBNP – N-terminal pro-hormone type-B natriuretic peptide; RA – Right Atrium; PA – Pulmonary Artery)

	%	n		%	n
Major/ potentially fatal bleeding	0%	0	Cardiogenic shock	0%	0
Retroperitoneal	0%	0	CTEPH	7%	1
Intracranial	0%	0	Submitted to PEA	7%	1
Alveolar / pulmonary	0%	0	Re-hospitalizations	0%	0
PA perforation	0%	0	All-cause death	14%	2
PA dissection	7%	1	In-hospital death	7%	1
PV moderate/severe regurgitation	0%	0	Cardiovascular death	0%	0
Vascular access complication	0%	0	Oncologic death	7%	1

Table 2. Procedure-related complications and Outcomes (PA – Pulmonary Artery; PV – Pulmonary Valve; CTEPH – Chronic Thromboembolic Pulmonary Hypertension; PEA – Pulmonary Endarterectomy)

Methods: During 2021, consecutive intermediate-high- and high-risk PE patients considered suitable for CDT from our PERT, were prospectively enrolled in a single tertiary center. CDT options included mechanical thrombolysis using the Penumbra aspiration system and local fibrinolysis (alteplase perfusion 1mg/h, for 12 hours) through a 5F Craig McNamara catheter in the pulmonary artery (PA). Baseline characteristics, procedure data, complications and outcomes were noted.
Results: 14 patients (mean age 55.9 ± 19.3 years old, 36% male) were submitted to CDT for intermediate-high-risk PE (Table). Mean admission lactate levels and PaO2/FiO2 ratio were 1.5 ± 0.7 mmol/L and 267 ± 120, respectively. Mean peak hs-troponin I and NT-proBNP levels were 2,043 pg/ml and 7,372 pg/ml, respectively. CT-scan showed a central PE in 43% (n = 6) and a mean RV/LV ratio of 1.3 ± 0.2. Pre-procedural Transthoracic echocardiogram revealed RV dilation in 100% (n = 14) and RV dysfunction in 62% (n = 8), with mean TAPSE of 15.7 ± 3.3 mm and estimated PASP of 54.3 ± 16.3 mmHg. Right heart catheterization showed mean right atrium (RA) pressure of 9.2 ± 3.3 mmHg and PA systolic, diastolic and mean pressures of 54.1 ± 18.7 mmHg, 21.4 ± 7.8 mmHg and 34.1 ± 11.2 mmHg, respectively. Cardiac Output and Cardiac Index were 5.9 ± 1.6 L/min and 2.5 ± 0.8 L/min/m². Mean PA resistance was 3.6 ± 2.1 Wood units. Pulmonary Angiogram revealed a modified Miller Index of 9.7 ± 3.0. Regarding complications, no major or potentially fatal bleeding were noted. It was noted a PA dissection, treated conservatively and no PA perforations or moderate/severe pulmonary valve regurgitation. Two patients died (one in-hospital death due to oncologic disease progression and another of unknown cause after hospital discharge). No re-hospitalizations were noted during the follow-up period (average of 6.5 months).
Conclusions: Intermediate-high risk patients constitute a particularly challenge group of PE patients. We believe that PERT improves care in this subset, when a strict by-protocol application of CDT is implemented. Our first experience data supports the safety and feasibility of our approach.

CO 140. CARDIOPULMONARY EXERCISE TESTING IN REPAIRED TETRALOGY OF FALLOT AND RIGHT VENTRICLE DILATATION

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Introduction: Long standing pulmonary regurgitation (PR) is a common occurrence after the repair of tetralogy of Fallot (TOF). Exposure of the right ventricle (RV) to a chronic regurgitant load leads to RV dilatation and has been associated with exercise intolerance, arrhythmia, and sudden cardiac death. Our aim was to assess which CPET parameters best correlate with RV dilatation to potentially improve risk stratification of this population.
Methods: A retrospective review was done from 2009 to 2018 on adult patients with repaired TOF who underwent maximal CPET. Demographics, standard measures of CPET interpretation, and major cardiovascular outcomes were collected. RV dilatation was defined as an echocardiographically measured basal RV linear diameter > 41 mm and/or a mid-cavity RV linear diameter > 35 mm in the RV-focused view. Multivariate analysis for the prediction of RV dilatation was performed using Cox Regression, by including all statistically significant variables in the univariate analysis and those considered clinically relevant.
Results: CPET was performed in 63 repaired TOF patients (57% male, mean age of 34 ± 9 years), with a mean follow-up of 60 ± 33 months. 56% of patients had severe pulmonary regurgitation and 48% were submitted to pulmonary valve replacement (PVR). 80.4% of repaired TOF patients had RV dilatation, with a mean RER of 1.06 ± 0.08 and a mean peak oxygen uptake of 25.7 ± 6.4 ml/kg/min. These patients had undergone a higher rate of PVR (56.8 *vs.* 11.1%, p = 0.023) and had a higher arrhythmia burden (31.4 *vs.* 0%, p = 0.048), while presenting significantly higher VE/VCO2 slope: 32.0 ± 5.7 *vs.* 28.1 ± 5.l, p = 0.048. A previous PVR (HR 21.06, 95%CI 1.56-28.47, p = 0.022) and VE/VCO2 slope (HR 1.21 95%CI 1.02-1.47, p = 0.049) were independent predictors of RV dilation. Peak oxygen uptake (p = 0.845) showed no statistically significant correlation with RV dilatation during follow-up.

Conclusions: VE/VCO2 slope was an independent predictor of RV dilatation, thus this CPET parameter may be used to refine risk stratification and improve this population's follow-up and management.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Vega | Comunicações Orais (Sessão 29) - Doenças do Miocárdio e Pericárdio 2 - Vários Tópicos

CO 141. MICROVASCULAR DYSFUNCTION AND MYOCARDIAL FIBROSIS IMPACT ON LEFT VENTRICULAR MYOCARDIAL DEFORMATION IN HYPERTROPHIC CARDIOMYOPATHY – PER SEGMENT ANALYSIS BY MAGNETIC RESONANCE IMAGING

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Introduction: Left ventricular hypertrophy (LVH) and microvascular dysfunction are hallmarks of hypertrophic cardiomyopathy (HCM). We hypothesized that microvascular dysfunction contributes to LV myocardial deformation impairment.

Table 1. Multivariable linear regression analysis for left ventricular myocardial deformation parameters

Longitudinal strain			
Model	β-estimate	95% confidence interval	p-value
Thickness ≥15 mm	2.31	0.91 to 3.70	<0.001
Obstructive HCM	2.44	1.15 to 3.72	<0.001
Diabetes mellitus	1.84	0.26 to 3.42	0.023
Hypertension	1.28	0.11 to 2.45	0.032
BMI > 25 kg/m²	3.35	1.87 to 4.84	<0.001
Circumferential strain			
Model	β-estimate	95% confidence interval	p-value
Thickness 12-14mm	2.31	1.36 to 3.25	<0.001
Thickness ≥15 mm	5.29	4.47 to 6.12	<0.001
Perfusion defect	2.75	2.00 to 3.50	<0.001
LGE	2.49	1.77 to 3.22	<0.001
Obstructive HCM	1.25	0.44 to 2.06	0.003
Diabetes mellitus	1.26	0.27 to 2.25	0.013
Male gender	1.58	0.83 to 2.33	<0.001
Radial strain			
Model	β-estimate	95% confidence interval	p-value
Thickness 12-14mm	-10.64	-13.95 to -7.33	<0.001
Thickness ≥15 mm	-20.67	-23.36 to -17.97	<0.001
Perfusion defect	-10.60	-13.08 to -8.13	<0.001
LGE	-10.49	-12.86 to -8.11	<0.001
Obstructive HCM	-3.27	-5.96 to -0.58	0.017
Diabetes mellitus	-3.78	-7.07 to -0.49	0.027
BMI > 25 kg/m²	-3.28	-6.36 to -0.20	0.037
Hypertension	-2.74	-5.17 to -0.32	0.027
Male gender	-5.72	-8.21 to -3.24	<0.001

Reference categories: Wall thickness ≤11 mm, non-obstructive HCM, absence of perfusion defect, female gender, BMI ≤25 kg/m².
p-values were obtained by mixed effects regression models.
BMI: Body mass index, LGE: Late gadolinium enhancement, HCM: hypertrophic cardiomyopathy

Methods: Prospective evaluation of adult patients with HCM (patients with "end-stage" HCM, prior septal reduction therapy or epicardial coronary artery disease were excluded). All underwent a cardiac magnetic resonance (CMR) protocol (1.5-T), from which the following parameters were analysed: maximal LV wall thickness (MLVWT), T1 and T2 mapping, extracellular volume, late gadolinium enhancement (LGE) and stress perfusion assessment. Three-dimensional (3D) strain analysis was obtained by using feature-tracking from cine images. Results were stratified according to the 16 American Heart Association segments. Multivariate regression analyses for longitudinal, circumferential and radial strain were performed.
Results: A total of 1200 myocardial segments were analysed (75 patients, 63% male, age 54.6 ± 14.7 years) including 61% with asymmetric septal LVH, 29% with apical LVH, 8% with concentric LVH, 28% exhibiting LV outflow tract obstruction Mean MLVWT was 20 ± 4.5 mm. Higher values of longitudinal strain (lower deformation) were found in segments with MLVWT ≥ 15 mm (β-estimate: 2.31, 95%CI 0.91-3.70, p < 0.001) and in patients with obstructive HCM (β-estimate: 2.44, 95%CI 1.15-3.72, p < 0.001]) (Table). No association was found between perfusion defects, LGE and longitudinal strain. Higher values of circumferential strain (lower deformation) were found in segments with MLVWT 12-14 mm (β-estimate: 2.31, 95%CI 1.36-3.25, p < 0.001), ≥ 15 mm (β-estimate: 5.29, 95%CI 4.47-6.12, p < 0.001), with perfusion defects (β-estimate: 2.75, 95%CI 2.0-3.5, p < 0.001), with LGE (β-estimate: 2.49, 95%CI 1.77-3.22, p < 0.001) and in patients with obstructive HCM (β-estimate: 1.25, 95%CI 0.44-2.06, p = 0.003). Lower radial strain values were found in segments with MLVWT 12-14 mm (β-estimate: -10.64, 95%CI -13.95 to -7.33, p < 0.001), MLVWT ≥ 15 mm (β-estimate: -20.67, 95%CI -23.36 to -17.97, p < 0.001), with perfusion defects (β-estimate: -10.60, 95%CI -13.08 to -8.13, p < 0.001), and with LGE (β-estimate: -10.49, 95%CI -12.86 to -8.11) (Table). Diabetes, hypertension, BMI > 25 kg/m² and male gender were also associated with impaired myocardial deformation. No association was found between parametric mapping values and LV myocardial deformation.
Conclusions: In patients with HCM, 3D speckle tracking parameters for LV systolic function were particularly impaired in segments with LVH, microvascular dysfunction or fibrosis. LVH was associated with abnormal longitudinal, circumferential and radial strain while perfusion defects and LGE correlated with impaired circumferential strain and radial strain.

CO 142. MECHANICAL DISPERSION: CAN IT PREDICT THE OCCURRENCE OF VENTRICULAR ARRHYTHMIAS IN FABRY DISEASE?

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Introduction: Fabry disease (FD) is an X-linked progressive and multisystemic disease, that could lead to left ventricular hypertrophy (LVH). Mechanical dispersion (MD) has been associated to a risk of ventricular arrhythmias and sudden death in several cardiomyopathies.
Objectives: To evaluate MD and arrhythmic burden in FD patients with and without LVH.
Methods: We conducted a prospective study encompassing FD patients followed in a Reference Center of Lysosomal Storage Disorders. All patients performed a complete echocardiographic evaluation, including left ventricular (LV) strain analysis by two-dimensional speckle tracking imaging. Clinical characteristics, echocardiographic parameters and 24h-holters results were analysed. FD patients were divided in two groups according to the presence or absence of LVH. Chi-square test and Student's t-test were applied for categorical and continuous variables, respectively. The significance level was 0.05.
Results: A total of 91 FD patients were included, with female predominance (62.6%) and a LVH prevalence of 36.3%. Patients with LVH were older (63.6 *vs.* 44.2 years-old; p < 0.001), were predominantly male (60.6 *vs.* 24.1%; p = 0.001), and had a larger prevalence of arterial hypertension (63.6 *vs.* 10.3%; p < 0.001) and stroke (9.1 *vs.* 0%; p = 0.02). In FD patients with LVH, mean interventricular septum thickness was 16.4 mm, mean LV mass index was 157.7 g/m², mean left atrial volume index was 34.4 ml/m² and mean E/e' was 12.6 with 63.6% of these patients having diastolic dysfunction. Global longitudinal strain (GLS) was lower in patients with LVH (-15.6 *vs.*

-19.6%; p < 0.001), with a higher base-to-apex longitudinal strain gradient (9.3 *vs.* 6.5%; p = 0.013). Global radial and circumferential strains were not statistically different between both groups. Interestingly, twist was higher in patients with LVH (17.5º *vs.* 13.8º) despite the lower GLS, but this finding did not reach statistical significance (p = 0.077). MD was higher in patients with LVH (72.4 *vs.* 38.3 ms; p < 0.001), as well as the prevalence of premature ventricular contractions (PVC) (93.8 *vs.* 61.8%; p = 0.001) and non-sustained ventricular tachycardia (NSVT) (18.8 *vs.* 9.1%; p = 0.191). Patients with higher frequency of PVC had higher MD (55.2 *vs.* 35.6 ms; p = 0.001) and the same was verified for NSVT (65 *vs.* 48.6 ms; p = 0.054), despite not reaching statistical significance.
Conclusions: FD patients with LVH present lower GLS, with a higher base-to-apex longitudinal strain gradient and higher MD, compared to patients without LVH. Both PVC and NSVT were significantly associated with LVH and higher MD, but the latter did not reach statistical significance.

CO 143. CLINICAL AND ECHOCARDIOGRAPHIC PROGNOSTIC FACTORS IN WILD TYPE TRANSTHYRETIN CARDIAC AMYLOIDOSIS

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Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is an increasingly recognized etiology of heart failure (HF) due to the possibility of non-invasive diagnosis and emergence of treatment options. Early recognition and prognosis assessment of ATTR-CM are crucial to guide proper management and treatment. This study aims to identify independent predictors of prognosis in patients with wild-type ATTR-CM.
Methods: This is a retrospective single-center study including all patients with diagnosis of wild-type ATTR-CM between January 2014 and May 2021. ATTR-CM diagnosis was based on the AHA diagnostic criteria. The primary endpoint was the composite endpoint of hospitalization due to HF or death for any cause. Clinical, laboratory and echocardiographic data were compared between patients reaching and not reaching primary endpoint in order to identify prognostic factors. Regression analysis was performed to identify independent predictors of prognosis.
Results: 60 patients with wild-type ATTR-CM were included (mean age 86 ± 5 years, 68.3% males, 56.7% atrial fibrillation, baseline left ventricular ejection fraction (LVEF) 53% ± 14). The mean follow-up was 30 ± 23 months. During follow-up, the primary endpoint occurred in 37 patients (61.7%); 27 patients (45%) died within 2.5 years of their diagnosis, 13 of them (48%) by cardiovascular cause. Patients reaching the primary endpoint had more commonly a pro-B-type natriuretic peptide (proBNP) above 3,000 pg/ml (86.7 *vs.* 47.1%, p = 0.004) and a higher frequency of left ventricular systolic dysfunction (LVSD) (59.5 *vs.* 17.4%, p = 0.0001), right ventricular systolic dysfunction (59.5 *vs.* 30.4%, p = 0.029) and CKD (59.5 *vs.* 30.4, p = 0.029). In these patients, mean LVEF was lower (47 ± 14 *vs.* 61 ± 10%, p < 0.001) and mean global longitudinal strain (GLS) was significantly worse (-9.7 ± 2.9 *vs.* 14.1 ± 3.8%, p < 0.001). Index left ventricular mass was higher (196 ± 47 *vs.* 168 ± 41 p = 0.031) as well as right ventricular thickness (10.4 ± 1 *vs.* 8.5 ± 1, p = 0.015). In a multivariate logistic regression analysis, LVSD and pro-BNP value were the only independent predictors of the primary endpoint (HR 7.8 95%CI 1.6-37.8, p = 0.011; HR 7.0 95%CI 1.4-34.6, p = 0.016, respectively).
Conclusions: LVSD and BNP value 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. Prospective studies assessing the incremental value of prognostic factors are needed.

CO 144. DOES MY TAVR PATIENT HAVE CARDIAC AMYLOIDOSIS?

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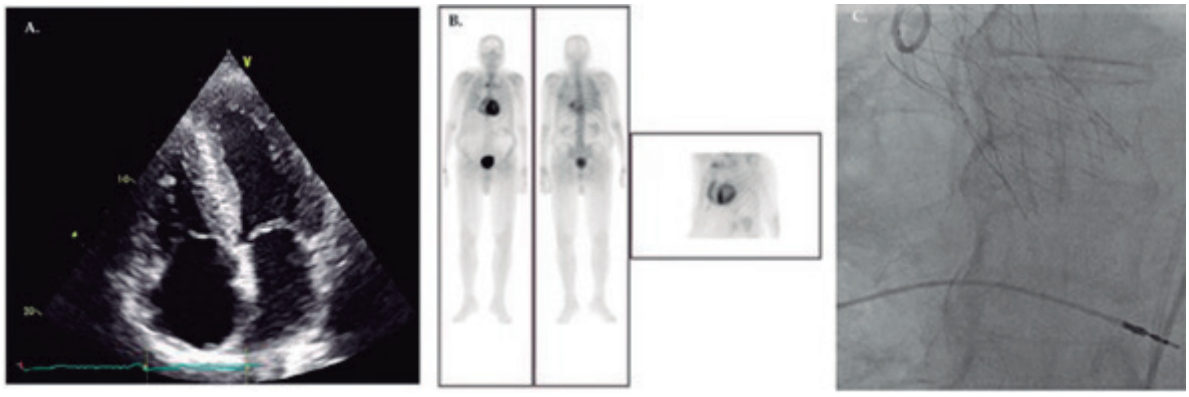
Introduction: Aortic stenosis (AS) is highly age-related, and its prevalence is increasing rapidly in high-income countries. There are 2 major types of amyloid protein responsible for cardiac amyloidosis (CA) - transthyretin (TTR) and immunoglobulin lightchain (AL). Previous cohorts report an incidence ranging from 9 to 16% for the presence of CA in patients with AS referred for TAVR. These patients appear to have a similar prognosis to those with lone AS when undergoing TAVR, but a trend toward worse prognosis if left treated. We aimed to investigate the prevalence of CA in patients with severe AS referred for TAVR in the Portuguese population.
Methods: We prospectively recruited 60 consecutive patients referred for TAVR at our tertiary center between November 2020 and May 2021. 59 patients agreed to participate and signed an informed consent, approved by the local Ethics Commission. All patients performed coronary angiogram, echocardiogram, thoracic abdominal pelvic CT scan, ECG, bone scintigraphy (99mTc-3.3-diphosphono-1,2-propanodicarboxylic acid [DPD]) and blood and urine monoclonal immunoglobulin testing (Figure).
Results: About half (54.2%) of patients were male, average age was 82 years and the prevalence of ischemic heart disease and cardiovascular risk factors was high. About one third of patients had atrial fibrillation and 27.1% were pacemaker carriers. Echocardiographic baseline findings were: maximum aortic valve gradient 72.77 ± 18.18 mmHg ; mean aortic valve gradient 43.49 ± 11.60; aortic valve area 0.65 ± 0.15 cm2; interventricular septum thickness 1.30 ± 0.23 cm; left ventricular ejection fraction (LVEF) 52.06 ± 11.35%; E/E' 14.63 ± 7.5; tricuspid annular plane systolic excursion 19.2 ± 4 mm; right ventricle/right atrial gradient 38.1 ± 14.32 mmHg. CA was diagnosed in 6 (10.2%) patients. Perugini grade was 1 (n = 3) and 3 (n = 3). One patient (Perugini grade = 3) was found to have plasma cell dyscrasia, producing monoclonal IgG Kappa protein. CA patients were all male, older (86.5 *vs.* 81.30 years, p = 0.049), more frequently pacemaker carriers (66.7 *vs.* 22.6%, p = 0.041) and had a tendency to have a thicker interventricular septum (1.48 *vs.* 1.28 cm, p = 0.065).



CO 144 Figure

Conclusions: We show that in the Portuguese population, the prevalence of CA in severe AS patients referred for TAVI is in line with what is observed in other countries. This has important consequences regarding the diagnosis and management of these patients.

CO 145. MYOCARDITIS, PERICARDITIS AND COVID-19 VACCINATION - A TRUE CONCERN?

Tânia Proença, Ricardo Alves Pinto, Miguel Martins Carvalho, Filipa Amador, Catarina Costa, João Calvão, André Cabrita, Catarina Marques, Cátia Priscila, Ana Pinho, Luís Santos, Paula Dias, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Myocarditis and pericarditis are inflammatory diseases affecting 1 to 10 persons in 100,000/year. During Covid-19 pandemic, anti-SARS-Cov-2 vaccines are being widely used worldwide, and concerns about its association with a higher risk of cardiac inflammatory syndromes are being raised. National data are warrant to clarify the true prevalence of these possible side effects.
Objectives: To compare the prevalence and severity of myocarditis and/or pericarditis admissions before and after COVID-19 vaccination.
Methods: We retrospectively analysed all patients admitted to a Cardiology Department due to myocarditis and/or pericarditis during COVID-19 pandemic and compared the clinical data between two 10-months periods, before and after Covid-19 vaccination in Portugal. Pre-vaccination period (PVp) was defined from March to December 2020 and vaccination period (VCp) from January to October 2021.

Results: A total of 23 patients were enrolled, 12 in PVp and 11 in VCp, with a median age of 28 year-old. Of total, 44% had perimyocarditis, 30% myocarditis and 26% pericarditis. In VCp there was significatively more man admitted (50 *vs.* 90%, p = 0.019). Concerning clinical data, the two periods were similar; 9% had hypertension, 9% dyslipidemia, 4% were obese, 21% were smokers or previous smokers, and none was diabetic. Only 4% had previous paroxysmal AF and none had CKD. Median CRP was 68 mg/L, and in perimyocarditis or myocarditis median troponin and BNP were 10 250 ng/L and 38 pg/mL, respectively. The majority of patients had ECG abnormalities, mostly ST-elevations (39%) and repolarization abnormalities (20%). At presentation, left systolic function was preserved in all patients in PVp group, while 27% had mildly to moderate reduced ejection fraction in VCp (p = 0.052); all of them improved to normal function. Of the 17 patients with myocarditis or perimyocarditis, 14 were submitted to MRI (median 6 days after the event): 60% had high signal intensity in T2 weighted sequences suggestive of oedema and 73% had LGE enhancement compatible with myocarditis. Median left and right ventricular ejection fraction by MRI were both 61%. In PVp group, 55% of patients were previous vaccinated (3 patients with Moderna, 1 with Pfizer and 2 with Janssen vaccines). The median time between last vaccine administration and event was 73 days (2-112). In this group, five patients with myocarditis diagnosis previous vaccinated three had no-LGE enhancement while all of non-vaccinated exhibited LGE-enhancement (p = 0.038).
Conclusions: In a Cardiology Department, during two equal periods of 10-months before and after Covid-19 vaccination in Portugal, there was no difference in the number of patients admitted with myocarditis and/or pericarditis. Most had a favorable outcome with preserved systolic function. Curiously patient with previous Covid-19 vaccination exhibited less LGE-enhancement on MRI.

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POSTERS (PO)

Congresso Português de Cardiologia 2022 (CPC 2022)

22 a 24 de Abril de 2022

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 1) - Imagem 1 - TC Cardíaca e Cardiologia Nuclear

PO 1. CARDIAC FAT AND MICROCALCIFICATION AS SURROGATE MARKERS OF CORONARY ATHEROGENESIS

João Borges Rosa, José Lopes de Almeida, Manuel Oliveira-Santos, Rodolfo Silva, Nuno Pereira da Silva, Antero Abrunhosa, Miguel Castelo-Branco, Lino Gonçalves, Maria João Ferreira

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

Introduction: Calcification plays a major role in coronary atherogenesis. Positron emission tomography (PET) imaging with fluorine-18 sodium fluoride (Na[^{18}F]F) is able to detect microcalcification and is associated with cardiovascular (CV) risk factors. Thoracic fat volume (TFV) and epicardial adipose tissue (EAT) are associated with atherosclerosis, pro-inflammatory state, and CV events. We aimed to evaluate the association between Na[^{18}F]F uptake and cardiac fat variables.
Methods: Thirty-four high CV risk individuals without previous CV events were retrospectively scanned with Na[^{18}F]F PET-CT. Cardiac Na[^{18}F]F uptake was assessed as global molecular calcification score (GMCS): the sum of the product of the mean standardized uptake value times the area of the cardiac regions of interest times the slice thickness for all cardiac transaxial slices, divided by the total number of slices. TFV was assessed in computed tomography (CT) using automated software to sum the voxels consisting of fat (threshold of -190 to -30 Hounsfield units) between the bifurcation of pulmonary artery and the end of pericardial sac. EAT was segmented manually tracing the counter of the pericardium with 3DSlicer and the final volume calculated using the dedicated software. Coronary artery calcium score (CAC) was measured with dedicated software for calcium scoring (GE Healthcare Advantage Workstation 4.2).
Results: Thirty-four high CV risk individuals without previous CV events (50% with ≥ 5 CV risk factors) were retrospectively scanned with Na[^{18}F]F PET-CT. Mean age is 63.5 ± 7.8 years and 62% male. Median values are: GMCS 320.9 (240.8-402.8), TFV 167.8 (131.4-211.3) mL, EAT 81.3 (60.7-107.2) cm3, and CAC 0.0 (2.5-20.0). There is a positive correlation between GMCS and abdominal perimeter (r_s = 0.74), weight (r_s = 0.61), TFV (r_s = 0.47), and EAT (r_s = 0.41), all with p≤ 0.01. Thoracic and epicardial fat volumes are strongly correlated (r_s = 0.80, p < 0.01). Both TFV and EAT are correlated with abdominal perimeter (r_s = 0.60, p < 0.01 and r_s = 0.46, p < 0.01, respectively) and weight (r_s = 0.47, p < 0.01 and r_s = 0.42, p = 0.01, respectively). GMCS [356.7 (321.0-409.6) *vs.* 261.1 (225.6-342.1), p = 0.01] and thoracic fat volume [184.3 (153.2-303.7) *vs.* 142.1 (90.0-173.1) mL, p = 0.01] are higher in patients with ≥ 5 CV risk factors, but not EAT [92.5 (62.0-145.7) *vs.* 76.7 (56.2-86.8) cm^3, p = 0.14]. Neither GMCS (r_s = -0.06, p = 0.77), TFV (r_s = 0.20, p < 0.32) nor EAT (r_s = 0.06, p < 0.76) are correlated with CAC score.
Conclusions: In this exploratory analysis with high CV risk patients, the global cardiac microcalcification burden assessed by GMCS is associated with TFV and EAT, but there was no correlation between these variables and CAC. We hypothesize that both GMCS and cardiac fat variables might help to identify higher-risk patients in earlier phases than traditional CT.

PO 2. ASSOCIATION OF EPICARDIAL FAT AND CORONARY ARTERY CALCIUM SCORE IN PATIENTS WITH ATRIAL FIBRILLATION

Sara Lopes Fernandes[1], Inês Cruz[2], Ricardo Ladeiras-Lopes[3], Mariana Silva[3], Gualter Silva[3], Pedro Queirós[3], Sílvia O. Diaz[2], António S. Barros[2], Francisca Saraiva[2], Rita Faria[3], João Almeida[3], Paulo Fonseca[3], Nuno Ferreira[3], João Primo[3], Ricardo Fontes-Carvalho[3]

[1]Centro Hospitalar de Leiria/Hospital de Santo André. [2]Faculdade de Medicina da Universidade do Porto. [3]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Both coronary artery calcium (CAC) and epicardial adipose tissue (EAT) had been implicated in coronary artery disease (CAD) and risk of future adverse cardiovascular events. There are scarce data regarding the assessment and association of EAT volume and CAC score (CACS) in atrial fibrillation (AF) patients.
Objectives: To assess the association between EAT volume and the presence and severity of CAC in patients with AF.
Methods: Retrospective and single-centre study including consecutive patients with AF undergoing contrast-enhanced cardiac computed tomography for catheter ablation planning, from 2017 to 2019. Patients with known history of CAD and moderate to severe valvular heart disease were excluded. Baseline clinical and demographical data were collected, as well as their cardiovascular risk, based on the SCORE (Systematic Coronary Risk Evaluation) system and cardiovascular risk categories. We assessed CACS (Agatston method) and EAT volume and analysed their association. EAT was defined as the adipose tissue accumulated between the visceral pericardium and the myocardium and was semi-automatically reconstructed by manually tracing the pericardium. Patients were split into three groups according to CACS: 0, 1-99 and ≥ 100. A logistic regression (LR) analysis was performed to explore the relationship between EAT

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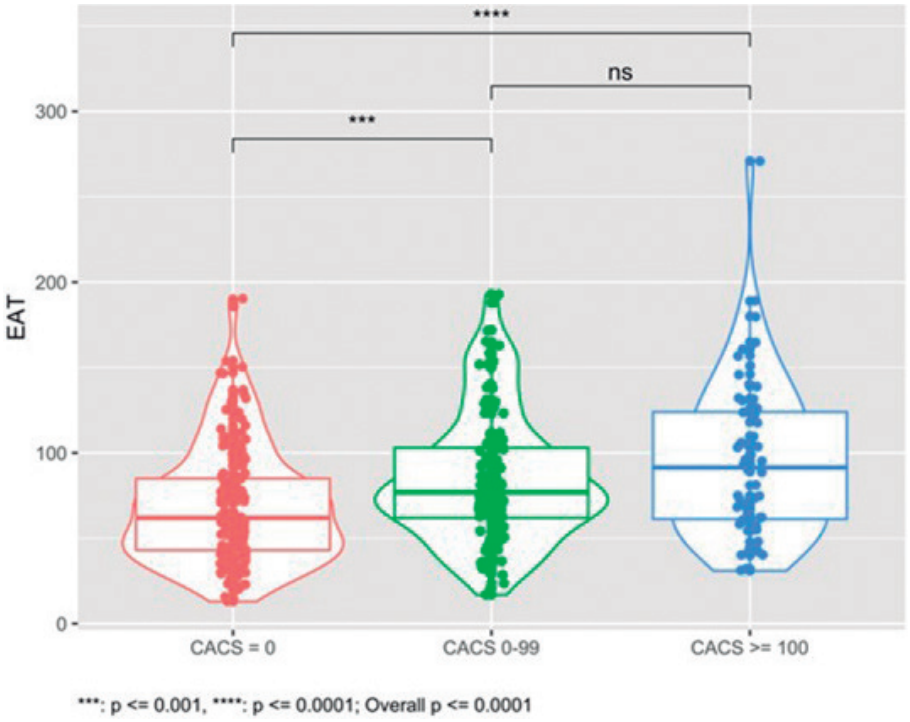


PO 2 Figure

volume and the presence of CAC (CACS > 0), adjusted for age, gender, obesity, diabetes mellitus and hypertension.
Results: A total of 354 patients were included, with a mean age of 56 ± 12 years, 66% male and 21% with persistent AF. A CHA2DS2-VASc score ≥ 2 was present in 130 (37%) patients and most patients had a low to moderate cardiovascular risk (n = 213, 82%). More than half of the patients had a CACS> 0 (n = 185, 52%), of which 63 patients (18%) had a CACS≥ 100. The mean EAT volume was 79 ± 39 ml. There was a significant association between EAT volume and the presence of CAC: CACS = 0 69 ± 34 ml *vs.* CACS 1-99 84 ± 38 ml *vs.* CACS ≥ 100 95 ± 45 ml (p < 0.001) (Fig.). After covariate adjustment (LR model R^2 = 0.373, p < 0.0001), the presence of CAC was not associated with EAT volume (OR 1.00, 95%CI 1.00.1.01, p = 0.2) or obesity, and only with higher age, male gender, hypertension and diabetes mellitus.
Conclusions: In our cohort of patients with AF undergoing catheter ablation we observed an association between EAT volume and CACS. Nevertheless, EAT volume was not an independent predictor of CACS and only the classical cardiovascular risk factors remained significant.

PO 3. GENDER-SPECIFIC DIFFERENCES IN OBSTRUCTIVE CORONARY ARTERY DISEASE BY CORONARY CT ANGIOGRAPHY

Ana Filipa Cardoso[1], Paulo Pereira[2], Nuno Ferreira[3], Rita Faria[3], Wilson Ferreira[3], Mónica Carvalho[3], António Lourenço[1], Ricardo Fontes-Carvalho[3], Ricardo Ladeiras-Lopes[3]

[1]Hospital da Senhora da Oliveira, EPE - Guimarães. [2]Faculdade de Medicina da Universidade do Porto. [3]Centro Hospitalar de Vila Nova de Gaia/ Espinho, EPE.

Introduction: Gender affects coronary artery disease (CAD) presentation. However, its impact in the atherosclerotic findings by coronary CT angiography (CCTA) in obstructive CAD is less described. Our aim was to evaluate gender differences in the clinical profile and atherosclerotic findings on CCTA in patients with obstructive CAD.
Methods: Single-centre retrospective cohort study of patients with no known CAD who performed a CCTA from January 2017 to May 2021. Patients with obstructive CAD on CCTA (CAD-RADS classification of 4A/4B/5) were included. Coronary artery calcium score (CACS) was calculated using the Agatston method. A comparative analysis between females and males was performed. A combined endpoint (EP) of acute coronary syndrome (ACS), coronary revascularization by percutaneous coronary intervention (PCI) or surgery (CABG) and cardiovascular (CV) death was evaluated during the follow-up.
Results: From a total of 3,436 exams, 298 (9%) patients with obstructive CAD were identified. Mean age was 60 ± 9 years and 81 (27%) were women. Females with obstructive CAD were older (64 ± 7 *vs.* 59 ± 10 years, p < 0.001). Their comorbidities were similar, except for a lower prevalence of smoking habits (15 *vs.* 43%, p < 0.001). They had more complaints of chest pain (77 *vs.* 61%, p = 0.011), but similar rates of typical angina (32 *vs.* 24%, p = 0.182). Their pre-test probability of obstructive CAD (according to the new ESC model) was lower (11%, IQR 6-16 *vs.* 22%, IQR 12-27, p = 0.010). Women had a lower median CACS (133 AU, IQR 30-348 *vs.* 194 AU, IQR 67-422; p = 0.045). This included 19% of females with a CASC< 10AU in comparison to only 10% of males (p = 0.039). A lower calcium volume (119 mm^3, IQR 34-219 *vs.* 186 mm^3, IQR 67-403; p = 0.014) was identified. Calcium density score was similar (p = 0.243). Females had less multivessel disease on CTTA (19 *vs.* 30%, p = 0.035). An invasive coronary angiogram was performed in 229 (77%) patients, including 67 women (p = 0.142). During a median follow-up of 29 (IQR 14-43) months, 126 (42%) patients had the combined EP (7 ACS; 92 PCI and 27 CABG). There were no CV deaths. The combined EP occurred in a similar proportion in both groups.
Conclusions: In this study, almost 1 out of 5 women with obstructive CAD had a CACS < 10 AU. They had a lower pre-test probability of obstructive CAD, lower CACS and less multivessel disease. Different pathophysiology mechanisms of CAD may justify these differences, which should be taken into account when evaluating these patients.

PO 4. LOW CORONARY CALCIUM SCORE IN PATIENTS WITH OBSTRUCTIVE CORONARY DISEASE

Ana Filipa Cardoso[1], Paulo Pereira[2], Nuno Ferreira[3], Rita Faria[3], Wilson Ferreira[3], Mónica Carvalho[3], António Lourenço[1], Ricardo Fontes-Carvalho[3], Ricardo Ladeiras-Lopes[3]

[1]Hospital da Senhora da Oliveira, EPE - Guimarães. [2]Faculdade de Medicina da Universidade do Porto. [3]Centro Hospitalar de Vila Nova de Gaia/ Espinho, EPE.

Introduction: Coronary artery calcium score (CACS) is a marker of coronary atherosclerosis. However, a non-negligible number of patients has obstructive coronary artery disease (CAD) despite a low CACS. Our aim was to characterize patients with obstructive CAD on coronary computed tomography angiography (CCTA) and a low CACS.
Methods: Single-centre retrospective cohort study of patients with no known CAD who performed a CCTA from January 2017 to May 2021. Patients with obstructive CAD on CCTA (CAD-RADS classification of 4A/4B/5, therefore including at least a coronary stenosis of ≥ 70%) were included. A low CACS (calculated using the Agatston method) was considered if < 100 AU. A combined endpoint (EP) of acute coronary syndrome (ACS), coronary revascularization by percutaneous coronary intervention (PCI) or surgery (CABG) and cardiovascular (CV) death was evaluated during the follow-up.
Results: From a total of 3,436 exams, 298 (9%) patients were identified (73% male; mean age 60 ± 9 years). Ninety-three (31%) had multivessel disease and median CACS was 170 (IQR 54-406) AU. Low CACS was present in 105 (35%) patients, including 16 with a CACS of 0. Patients with a low CACS and obstructive CAD were younger (57 ± 11 *vs.* 62 ± 8 years, p < 0.001) and had a lower prevalence of hypertension (58 *vs.* 72%, p = 0.015) and diabetes (15 *vs.* 25%, p = 0.043). They had more frequently typical chest pain (34 *vs.* 22%, p = 0.025) and less dyspnoea (4 *vs.* 12%, p = 0.020). Their pre-test probability of obstructive CAD (according to the new ESC model) was lower (13% IQR 10-24 *vs.* 22% IQR 11-26, p = 0.010). Multivessel disease on CCTA was less frequent (20 *vs.* 38%, p = 0.002). During a median follow-up of 29 (IQR 14-43) months, 126 (42%) patients had the combined EP (7 ACS; 92 PCI and 27 CABG). There were no CV deaths. There were no significant differences in the incidence of the combined EP, despite a trend towards a higher number of events in the low CACS group (hazard ratio = 1.35, 95%CI 0.94-1.92; p = 0.103). This was due to higher rates of PCI in the low CACS group (43 *vs.* 27%; hazard ratio = 1.73, 95%CI 1.16-2.58; p = 0.007).
Conclusions: In our cohort, 35% of patients with obstructive CAD had a CACS lower than 100. Those patients were younger, had lower pre-test probability of CAD, but more typical presentation and higher rates of subsequent coronary revascularization by PCI. Our data adds value to the increasingly complex understanding of the association between CACS and presence of obstructive CAD.

PO 5. ARTIFICIAL INTELLIGENCE-ENABLED COMPREHENSIVE CORONARY PHENOTYPING IN PATIENTS WITH SUSPECTED CAD

José Miguel Viegas, João Ferreira Reis, Bárbara Teixeira, André Grazina, Tiago Mendonça, Ruben Ramos, Hugo Marques, Luísa Figueiredo, Rui Cruz Ferreira

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

Introduction: The capabilities of artificial intelligence (AI) are rapidly progressing and the research community is getting increasingly interested in its possibilities. AI algorithms are able to work continuously and at high speed, reducing human workload and saving time that physicians can spend on more complex data or rarer cases. However, many clinical AI applications are currently only used in a research setting and lack proper testing and validation.
Objectives: This study aimed to determine the accuracy and performance of a novel AI-based software tool for coronary computed tomography angiography (CCTA) analysis compared to conventional expert evaluation.
Methods: We evaluated 100 CCTA exams from a cohort of symptomatic patients with mild-to-moderately abnormal non-invasive ischemia test. Stenosis severity assessed by AI-based analysis (automatic evaluation, AEv) was compared with a level III expert CCTA interpretation (manual evaluation, MEv). AI-based analysis reported exact% stenosis and obstructive coronary artery disease (CAD) was considered if maximal stenosis was ≥ 50%. Plaque phenotype was also estimated using AI algorithms.
Results: The study cohort was as follows: 52% male, mean age 68 ± 10 years. The prevalence of hypertension, dyslipidemia and diabetes was 77%, 81% and 23%, respectively, and 10-year cardiovascular risk was 19 ± 10% as predicted by Framingham risk score. Typical angina was present in 33%, of which 67% had a Canadian Cardiovascular Society angina grade ≥ 2. Overall prevalence of obstructive CAD determined by MEv and AEv was 25% and 21%, respectively, with a significant association between both assessments (p < 0.001). When compared to MEv as reference, AEv method performed with a sensitivity, specificity, positive and negative predictive values of 0.56, 0.91, 0.58 and 0.86, respectively. Area under the curve was 0.871 (p < 0.001) demonstrating high accuracy. AEv atherosclerosis quantification revealed significant differences between patients with and without obstructive CAD according to MEv: median total plaque volume (569 *vs.* 115 mm^3, p < 0.001), calcified plaque volume (297 *vs.* 19 mm^3, p < 0.001), non-calcified plaque volume (235 *vs.* 71 mm, p < 0.001), low-density non-calcified plaque volume (2.8 *vs.* 1.0 mm^3, p = 0.023) and percent atheroma volume (16.1 *vs.* 3.8 mm^3, p < 0.001).
Conclusions: In patients with suspected CAD and mild-to-moderately abnormal ischemia tests, a diagnostic strategy using AEv as a gatekeeper is effective, providing a quantitative stenosis evaluation with similar diagnostic performance for obstructive CAD when compared to MEv. AI-enabled approach additionally allows a fully automated quantification of coronary plaque volumes and composition, which would further enhance risk prediction.

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 2) - Arritmias 1 - Fibrilhação Auricular 1

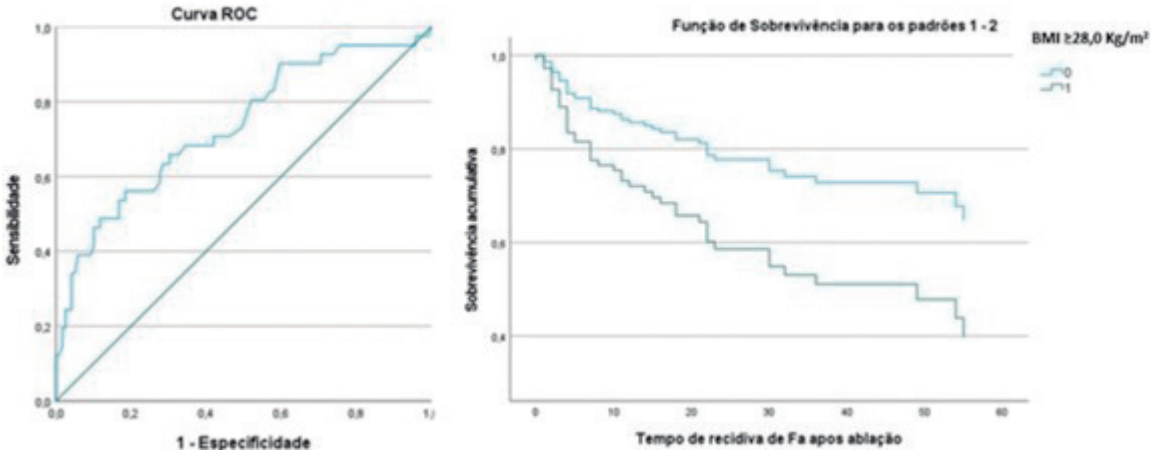
PO 6. BENEFIT OF SLEEP STUDY IN ALL PATIENTS WITH ATRIAL FIBRILLATION AND BMI> 28,0 KG/M^2 BEFORE CATHETER ABLATION

Rui Antunes Coelho, Leonor Parreira, José Maria Farinha, Ana Fátima Esteves, António Pinheiro Cumena Candjondjo, Joana Silva Ferreira, Jéni Quintal, Ana Rita Marinheiro, Ana Rita Piteira, Pedro Campos Amador, Dinis Mesquita, Artur Lopes, Susana Sousa, Rui Caria

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

Introduction: Sleep apnea and obesity are known risk factors for atrial fibrillation recurrence after catheter ablation. Despite this, in recent atrial fibrillation guidelines, it is unclear in which group of patients should be done sleep study before catheter ablation.
Objectives: Evaluate if body mass index (BMI) has a good discriminative power to predict sleep apnea in patients with atrial fibrillation proposed to catheter ablation.
Methods: We retrospectively studied 160 consecutive patients undergoing catheter ablation of paroxysmal or persistent atrial fibrillation in our institution. We evaluated recurrence of atrial fibrillation after catheter ablation and analysed diagnosis of sleep apnea, body mass index and other comorbidities and clinical characteristics. Receiver operator characteristics (ROC) curve and area under the curve (AUC) were obtained to determine the discriminative power of body mass index as predictor of sleep apnea. Optimal cut-point value was obtained (Youden index) and patients were divided according to this value.
Results: During a mean follow-up time of 22.8 ± 19.9 months, 46 patients (28.8%) had atrial fibrillation recurrence and none died. The recurrence was associated with hypertension, alcohol habits and untreated sleep apnea (HR 3.74; 95%CI 1.89-7.42; p < 0.001). Optimal cut-point value of BMI for predicting sleep apnea in patients with atrial fibrillation proposed to catheter ablation was 28.0 Kg/m^2 (AUC 0.733, p = 0.001, 95%CI 0.640-0.827). The group of patients with BMI of 28.0 Kg/m^2 had a 4-fold increased risk of sleep apnea (OR 3.95, 95%CI 1.85-8.42, p = 0.001) and 2-fold risk of atrial fibrillation recurrence (HR 1.96; 95%CI 1.10-3.51; p = 0.023).
Conclusions: In this group of patients undergoing catheter ablation of atrial fibrillation, a BMI ≥ 28.0 Kg/m^2 independently predict sleep apnea and

Figura 1 – Body mass index, sleep apnea and atrial fibrillation recurrence



PO 6 Figure

recurrence of atrial fibrillation. In patients with atrial fibrillation proposed to catheter ablation and BMI ≥ 28.0 Kg/m² is reasonable to perform a sleep study before catheter ablation.

PO 7. ROLE OF EPICARDIAL ADIPOSE TISSUE VOLUME AS PREDICTOR OF ATRIAL FIBRILLATION RECURRENCE

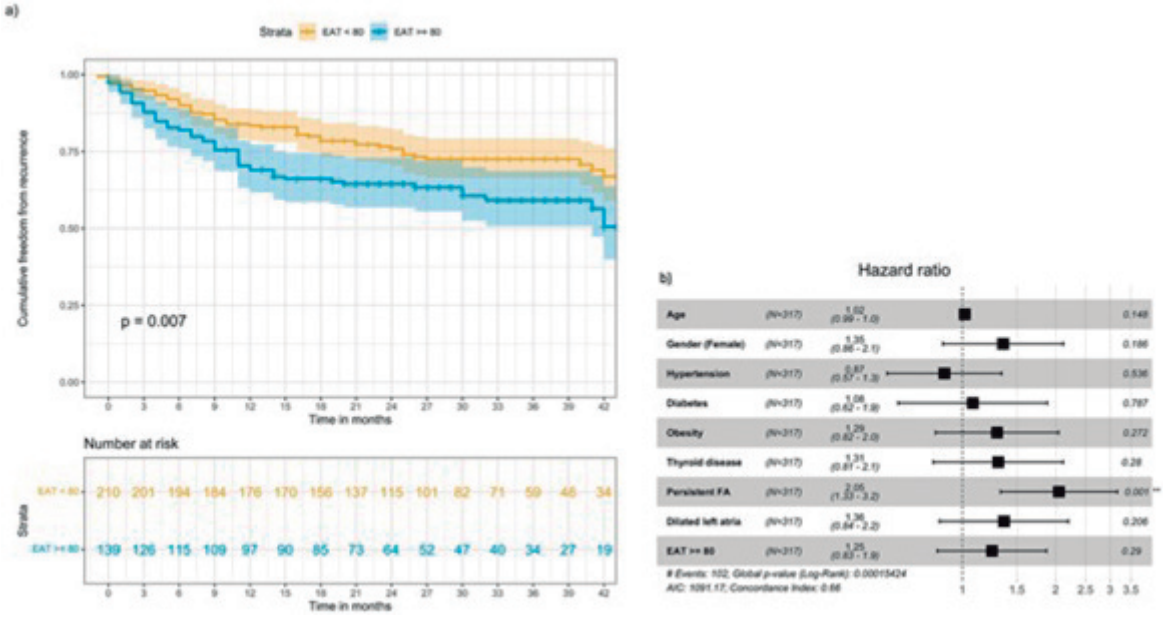
Inês Cruz[1], Sara Lopes[2], Ricardo Ladeiras-Lopes[3], Sílvia O. Diaz[1], Mariana Silva[3], António S. Barros[1], Francisca Saraiva[1], Rita Faria[3], João Almeida[3], Paulo Fonseca[3], Helena Gonçalves[3], Marco Oliveira[3], Nuno Ferreira[3], João Primo[3], Ricardo Fontes-Carvalho[3]

[1]Faculdade de Medicina da Universidade do Porto. [2]Centro Hospitalar de Leiria/Hospital de Santo André. [3]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

Introduction: Several studies have demonstrated the relation between general obesity and atrial fibrillation (AF). Epicardial adipose tissue (EAT), due to its local paracrine effect and the intimate relation with the atrium, could influence AF recurrence rates, but very few studies have explored this association. In this study, we aimed to evaluate, if epicardial fat could be a predictor of AF recurrence after an AF ablation procedure.

Methods: We included all consecutive patients submitted to AF ablation (2017-2019) who performed a CT scan prior to the procedure. EAT volume was semi-automatically reconstructed by manually tracing the pericardium. Adipose tissue was defined in the range between -150 and -50 Hounsfield units. Recurrence was defined as any documented (ECG/Holter) episode of AF, atrial flutter, or atrial tachycardia after 3 months of the procedure. Logistic regression with a restricted cubic polynomial transformation was used to model the non-linear relationship between recurrence and EAT volumes. Inspection of the partial effect curves suggested that a cutoff for EAT volume ≥ 80 mL could stratify patients at risk of recurrence and a Time-to-event analysis was carried.

Results: A total of 354 patients (66% male, median age 57 years [IQR 48-65] and 21% persistent AF) were included. During a median follow-up of 34 months [IQR 24-43], 117 patients (33%) had AF recurrence. These patients had a significantly greater EAT volume (76 mL [IQR 55-111] *vs.* 72 mL [IQR 48-95], p = 0.03) when compared to those without recurrence. Also, patients with higher EAT volume (≥ 80 mL) had a higher risk of recurrence compared to patients with lower volume (Figure 1a, log-rank test p = 0.007). After adjusting for clinical risk factors (age, gender, hypertension, diabetes,



PO 7 Figure

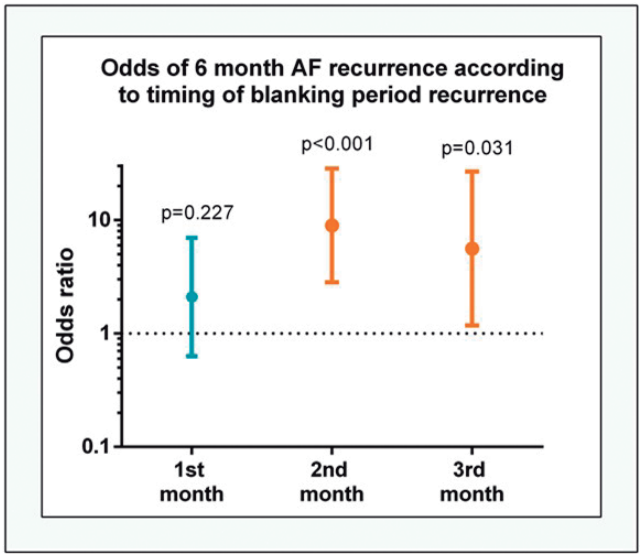
obesity, thyroid disease, AF type and LA enlargement), higher EAT volume did not remain an independent predictor of AF recurrence (Figure 1b, HR 1.25 [95%CI, 0.83-1.86] p = 0.3).
Conclusions: In this cohort of patients with AF submitted to catheter ablation, EAT volume ≥ 80 mL was associated with increased risk of AF recurrence. However, it was not an independent predictor of AF recurrence after adjustment to clinical risk factors.

PO 8. EVALUATING THE VALUE OF THE TIMING OF RECURRENCE DURING BLANKING PERIOD AFTER ATRIAL FIBRILLATION ABLATION

Gonçalo Lopes da Cunha, Gabriela Bem, Anaí Durazzo, Daniel Matos, Gustavo Rodrigues, João Carmo, Maria Salomé Carvalho, Pedro Galvão Santos, Francisco Moscoso Costa, Pedro Carmo, Diogo Cavaco, Francisco Morgado, Miguel Mendes, Pedro Adragão

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

Introduction: In the first weeks after atrial fibrillation (AF) ablation, the arrythmia may recur theoretically due to transient local inflammation and not due to treatment failure. This is defined as the blanking period, with a proposed duration of 3 months. Recently, this time period has been brought into question. The aim of this work was to evaluate the correlation between the timing of blanking recurrence and late AF recurrence.
Methods: This was a single-centre retrospective study including patients without structural heart disease that underwent first AF ablation and were subsequently enrolled in the post ablation structured program between 2018 and 2021. Patients were excluded if they had < 6 months follow-up. Appointment with ECG and Holter monitoring was performed at 1, 3, 6 and 12 months after ablation.
Results: We included a total of 193 patients (56% male, mean age 63 ± 12 years). Of these, 79% had paroxysmal AF and mean left atrial volume index was 58 ± 18 mL/m^2. During the 3-month blanking period, there were 39 (21%) recurrences, 18 (9%) of which in the first month. After blanking period, at 6 months, 25 (13%) patients had AF recurrence, 56% of which had already recurred during blanking period. AF recurrence in the 2nd and 3rd month of blanking increased the odd of recurrence at 6-month by more than 5-fold (odds ratio (OR) 8,944; 95%CI 2,817-28,400 p < 0.001 and OR 5,591; 95%CI 1,173-26,651; p = 0.031). On the other hand, recurrence of AF during the 1st month of blanking was not associated with increased chance of 6-month AF recurrence (OR 2,095, 95%CI 0,630-6,964, p = 0.227) (Fig.). There were no significant differences in clinical variables, including LA volume, between patients with 1-month recurrence and patients without recurrences. However, patients with AF recurrence in the 2nd and 3rd month of blanking had significantly increased LA volume.



Conclusions: Our study suggests that patients with AF recurrence in the 2nd and 3rd month of blanking have structurally different atria and are at a significantly higher risk of post blanking AF recurrence, in contrast with patients with AF recurrence in the 1st month of blanking, thus questioning the appropriate duration of the blanking period.

PO 9. X-RAY AF: RESULTADOS PRINCIPAIS DO REGISTO DE FIBRILHAÇÃO AURICULAR EM PORTUGAL CONTINENTAL

Francisco Moscoso Costa[1], Carlos Aguiar[1], Daniel Caldeira[2], Cristina Gavina[3]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [3]Unidade Local de Saúde de Matosinhos, EPE/Hospital Pedro Hispano.

Introdução: A Fibrilhação Auricular (FA) é a arritmia mais frequente na prática clínica e está associada ao risco de acidente vascular cerebral. Em Portugal, é escassa a informação que permita caracterizar o perfil de risco destes doentes. O objetivo deste estudo foi caracterizar o perfil clínico e o padrão do tratamento antitrombótico dos doentes com FA não valvular em Portugal continental
Métodos e resultados: Estudo prospetivo, observacional de doentes com FA avaliados em consulta de medicina geral e familiar em Portugal continental. Foram incluídos 268 doentes (35 centros - Janeiro de 2016 a Dezembro de 2019), idade média 77 (± 8) anos, 56,3% do sexo masculino. O fator de risco mais frequente foi hipertensão arterial 87,1% seguido de diabetes 26%. O diagnóstico de insuficiência cardíaca estava presente em 22,1% dos doentes, dos quais 10% com internamento por descompensação nos últimos 12 meses. Observou-se disfunção renal (TFG < 60 ml/min) em 19,4%dos doentes, antecedentes de AVC em 12,4% (sendo 0,4% AVC hemorrágico) e neoplasia ativa em 6,1% dos doentes. No total, 78,8% tinham outra doença crónica concomitante, 15% fazia uso de apoio para a marcha (bengala ou equivalente) e 14,6% tiveram um episódio de queda. Nos doentes com FA conhecida, era utilizada terapêutica hipocoagulante em 97,6% dos casos, 62% antagonista da vitamina K *versus* 38% NOAC. Nos seis meses anteriores à inclusão verificou-se incumprimento terapêutico em 87,6% dos doentes, maioritariamente por esquecimento (89,8%) *versus* 8,9% por suspeita de efeito adverso. No momento da inclusão, apenas 19% dos doentes apresentava sintomas relacionados com a FA, 55,1% EHRA II e 22,4% EHRA III. A FA era permanente em 61,2%, persistente em 17,9% e paroxística em 19,4% (1,5% com FA inaugural). A estratégia de controlo de frequência foi adotada em 73,8% dos doentes *versus* 26,2% para o controlo de ritmo. Amiodarona foi o fármaco antiarrítmico mais utilizado (9,2% do total de doentes), seguida de propafenona (2,3%), flecainida (1,2%) e sotalol (1,2%).
Conclusões: Neste registo de doentes com FA em Portugal continental, verificou-se uma população com idade avançada (media 77 anos) e elevada frequência de comorbilidades. A hipocoagulação oral é utilizada na maioria dos doentes sendo o esquecimento a principal causa para incumprimento. O controlo de ritmo é adotado em apenas 26,2% dos doentes. Estes dados devem contribuir para redefinir e otimizar estratégias de prevenção e controlo da FA à escala nacional.

PO 10. AUTONOMIC DYSFUNCTION IS DIVERSE IN REFLEX SYNCOPE AND ATRIAL FIBRILLATION

Mónica Ferreira[1], Sérgio Laranjo[2], Pedro Cunha[3], Helena Fonseca[2], Mário Oliveira[2], Isabel Rocha[4]

[1]Faculdade de Medicina da Universidade de Lisboa. [2]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [3]Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta. [4]FMUL-IMM.

Introduction: Syncope and atrial fibrillation (AF) are both common entities and frequently occur together in an acute clinical scenario. Both are multifactorial in etiology. The autonomic nervous system (ANS) modulates the pathophysiology of both reflex syncope (Rs) and paroxysmal AF (PAF).

The level of functional autonomic deficit related to each condition has implications on therapeutic decisions and is influenced by the corresponding degree of autonomic dysfunction which is still a matter of debate. Thus, in the present study, we intend to analyze the autonomic modulation and sensitivity and efficacy of arterial baroreflex during the passive orthostatism test (HUT) in patients with RS and PAF.
Methods and results: 20 subjects with PAF were compared with 20 patients with RS and 20 healthy subjects. Each subject was submitted to HUT. The systolic blood pressure (SBP) peaks and the R-R intervals were analysed in 4 intervals: 2 minutes in the supine position; first 2 minutes of orthostatism (TA1); next 2 minutes (TA2); 2 minutes of rest. Significant differences were identified in both the blood pressure and chronotropic profiles of the different groups during HUT. As for the SNA activity patterns, PAF and Rs presented a globally decreased heart rate variability when compared with the control group. Three different profiles could be found: a progressive increase in sympathetic activity and a decrease in parasympathetic activity during TA1 were observed in the control group. In the FAP group, the increase of sympathetic activity was blunted in TA1, being delayed to TA2 where a significant increase was seen, with no changes in parasympathetic activity. In the Rs group an initial significant increase in sympathetic activity was seen, followed by a progressive decrease. In the baroreflex response there was a progressive and significant increase in the number of ramps/min in the control group, which wasn't replicated in the Rs and FAP groups. The sensitivity of the baroreflex was similar between the groups in the basal period, with a significant decrease after orthostatism, values being significantly lower in the PAF and Rs groups. The baroreflex efficacy index was significantly lower in the Rs and PAF group in all periods analysed, when compared with the control group.
Conclusions: There are different patterns of hemodynamic, autonomic response and baroreflex adaptability between the three groups These results seem to translate some degree of diverse autonomic impairment in FAP and Rs.

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 3) - Doença Cardiovascular em Populações Especiais 1

PO 11. PERI-PROCEDURAL, 30-DAY AND 1 YEAR-OUTCOMES IN CHRONIC DIALYSIS PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION

Francisco Albuquerque, Maria Rita Lima, Rui Campante Teles, Daniel A. Gomes, Pedro Lopes, Afonso Félix de Oliveira, Mariana Gonçalves, João Brito, Luís Raposo, Sílvio Leal, Henrique Mesquita Gabriel, Pedro de Araújo Gonçalves, Manuel de Sousa Almeida, Miguel Mendes

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

Introduction: Patients on chronic dialysis (CD) due to end-stage renal disease (ESRD) with symptomatic severe aortic stenosis eligible for transcatheter aortic valve implantation (TAVI) were excluded from randomized clinical trials. Our study aimed to investigate the outcomes of patients with chronic dialysis who underwent TAVI.
Methods: Single-center analysis on prospectively collected data of all consecutive patients who underwent TAVI between January 2011 and December 2020 according to baseline renal function: chronic dialysis group (CD) and control group (CTRL). Procedural, 30-day, and 1-year outcomes were assessed. Outcomes were defined in accordance with the VARC-3 criteria.
Results: A total of 875 patients underwent TAVI during the study period, of whom 22 (2.5%) were on chronic dialysis. Patients on CD were younger (median age 80 years, [IQR 73-84] *vs.* 84 years, [IQR 80-87]; p < 0.001), more likely to be men [365/863 (42.8%) *vs.* 18/22 (81.8%); p < 0.001] and more likely to have peripheral vascular disease [41/853 (4.8%) *vs.* 7/22 (31.8%); p = 0.031] and lower body mass index (median 24.1 Kg/m², [IQR 21.5-26.5] *vs.* 26.3 Kg/m², [IQR 23.7-29.3]). Short-term major or life-threatening bleeding were significantly higher in CD patients (odds ratio [95% confidential interval]: 3.67 [1.50-8.96], p 0.005). In contrast, no differences were found regarding rates of vascular complications requiring intervention (OR [95%CI]: 1.35 [0.31-5.90], p = 0.662), permanent pacemaker implantation (OR [95%CI]: 0.87 [0.25-2.98], p = 1.000) or stroke (OR [95%CI]: 1.51 [0.20-11.64], p = 0.504). Importantly, dialysis patients had significantly higher rates of in-hospital, 30-day and 1-year mortality rates (13.6 *vs.* 2.1%, p < 0.001; 18.9 *vs.* 2.9, p < 0.001 and 26.4 *vs.* 10.7%, p < 0.001, respectively). On multivariate analysis, after adjusting for age, gender, relevant co-morbidities, and procedure-related complications, CD remained independently associated with mortality at 1-year. Survival curves during follow up are presented in the Figure.

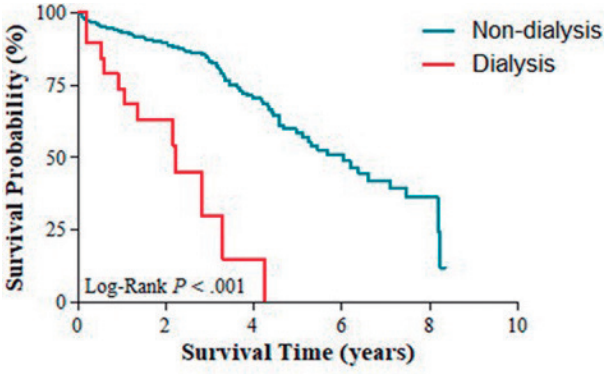


Figure 1

Conclusions: Chronic dialysis patients submitted to TAVI had significantly higher rates of short-term life-threatening and/or major bleeding, short-term and long-term mortality. Careful selection of patients who would benefit from TAVI among patients with ERDS requiring dialysis is necessary to prevent high rates of postprocedural complications and improve outcomes of this high-risk population.

PO 12. SCREENING PULMONARY HYPERTENSION IN SYSTEMIC SCLEROSIS USING CARDIOPULMONARY EXERCISE TEST

Maria Isilda Oliveira, Inês Furtado, Luísa Carvalho, Fabienne Gonçalves, Abílio Reis, Mário Santos

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

Introduction: Pulmonary arterial hypertension (PAH) is one of the most severe complication of systemic sclerosis (SSc). Its early detection and treatment improve prognosis. We aimed to study the diagnostic performance of cardiopulmonary exercise testing (CPET) for PAH screening in SSc patients.
Methods: We retrospectively reviewed clinical data from SSc patients from February 2019 to November 2021. SSc patients were considered not having PAH if they present (1) normal invasive hemodynamics or, in the absence of invasive hemodynamics, if (2) patients presented a normal resting echocardiogram, normal NT-proBNP and FVC/DLCO ratio ≤ 1.6. Informed by previous studies, our CPET variables of interest were VO2 peak% predicted, VO2 peak L/min/Kg, VE/VCO2 slope and peak PetCO2. For minimizing the false-positive results, we studied the thresholds for each parameter to have a sensitivity of 100%.

Results: Of 34 SSc patients with suspected PAH (61 ± 13 years; 94% female), 5 (15%) had the diagnosis of PAH (mean PAP 35 ± 11 mmHg ; PVR 4.1 ± 1.8 WU). Of patients without PAH who underwent right heart catheterization (n = 15), 27% had group 2 pulmonary hypertension. Patients with PAH had lower VO2 peak (14.4 ± 1.2 *vs.* 17.8 ± 3.4 L/min/Kg, p = 0.04), predicted VO2 peak (74 ± 10 *vs.* 83 ± 18%, p = 0.04) and peak PetCO2 (26.6 ± 4.6 *vs.* 32.9 ± 5.0 mmHg ; p = 0.01), and increased VE/VCO2 slope (40.7 ± 7.6 *vs.* 34.3 ± 6.0; p = 0.04). For these variables, the area under the curve for detecting PAH were 0.84, 0.68, 0.84 and 0.77, respectively. With a sensitivity of 100%, the threshold and specificity (S) for each parameter were: VO2 peak < 13 L/min/Kg (S-7%), predicted VO2 peak < 59% (S-7%), peak PetCO2 < 22 (S-4%) and VE/VCO2 slope > 32 (S-41%).
Conclusions: In patients with SSc, CPET parameters of maximal exercise capacity and ventilatory efficiency are associated with the presence of PAH. Peak VO2 and PetCO2 are the best discriminator of the presence of PAH. Despite the reduction in specificity for attaining a sensitivity of 100%, our data suggests the utility of CPET to reduce unnecessary right heart catheterization in SSc patients.

PO 13. ACUTE CORONARY SYNDROMES IN YOUNG PEOPLE: APPLICABILITY OF THE GRACE AND CRUSADE SCORES

Lisa Maria Ferraz[1], Pedro Carvalho[1], Diana Carvalho[1], Raquel Ferreira[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 - Centro Nacional de Coleção de Dados em Cardiologia.

Introduction: There is scarse information regarding the use GRACE and CRUSADE scores in acute coronary syndromes without ST-segment elevation (NSTEMI) occurring at an early age.
Objectives: To identify the main predictors of in-hospital mortality and major bleeding during hospitalization in patients (P) with NSTEMI and early age, and assess the adequacy of GRACE and CRUSADE risk scores in this population.
Methods: Retrospective study of 3,106 consecutive P included in the National Registry of Acute Coronary Syndromes diagnosed with NSTEMI at an early age (men < 55 and women < 65 years), between October 1, 2010 and December 31, 2020: 65% (n = 2018) men, 50 ± 7 years. Demographics, cardiovascular risk factors, clinical and laboratorial parameters, medication, coronary angiography, complications, GRACE and CRUSADE scores were evaluated. The main predictors of in-hospital mortality (IM) and major bleeding (MB) were evaluated and the adequacy of the GRACE and CRUSADE risk scores was analyzed.
Results: Female gender (64.3 *vs.* 33.3%, p < 0.001), renal failure (14.3 *vs.* 2.8%, p < 0.001) and left ventricular systolic function < 50% (53.8 *vs.* 21.7%, p < 0.001) were independent predictors of MB. The mean CRUSADE score was 17 ± 13, with 132 P (6%) with CRUSADE score ≥ 41. MB occurred in 14 P of which 35.7% had CRUSADE score ≤ 20; 14.3% CRUSADE score between 21 and 30; 28.6% CRUSADE score between 31 and 40 and 21.4% had CRUSADE score ≥ 51. The presence of previous angina pectoris (55.6 *vs.* 21.1%, p = 0.004) and acute myocardial infarction (55.6 *vs.* 17.5%, p = 0.007) were predictors of IM. Survival during hospitalization was associated with the most frequent medication with beta-blockers (88.3 *vs.* 55.6%, p < 0.001) and iACE/ARA (85.5 *vs.* 55.6%, p < 0.001), a Killip Kimball class I at admission (95.7 *vs.* 77.8%, p < 0.001) and the absence of left main coronary artery disease (97.8 *vs.* 66.7%, p < 0.001). The mean GRACE score was 102 ± 25, with 167 P (6.7%) with GRACE score > 140. IM occurred in 10 P of which 33.3% had GRACE score ≤ 108; 33.3% GRACE score 109-140 and 33.3% GRACE score > 140. On ROC curve analysis, there was a moderate diagnostic acuity of the GRACE score to identify P with in-hospital death (AUC 0.69, 95%CI 0.50-0.89, p = 0.048), and of the CRUSADE score to identify P with MB (AUC 0.68, 95%CI 0.52-0.84, p = 0.02).
Conclusions: For NSTEMI ocurring at an early age, the scores GRACE and CRUSADE were not able to correctly classify most P at risk of IM and MB, respectively, and showed only a moderate discriminative capability for these events. These data suggest the need for new scores, adjusted for this age group.

PO 14. PREVALENCE AND MANAGEMENT OF CARDIOVASCULAR DISEASE IN PATIENTS WITH PRIOR RENAL TRANSPLANTATION

Rita R. Amador, Sérgio Maltês, Bruno M. L. Rocha, Gonçalo J. L. Cunha, Catarina Mateus, Carlos Aguiar, André Weigert, Miguel Mendes

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

Introduction: Kidney transplantation (KT) is the preferred treatment for end-stage kidney disease and approximately 500 KT are performed annually in Portugal. Yet, despite successful KT rates, cardiovascular disorders (CVD) remain one of the major causes of death and allograft failure. Several transplantation-specific and cardiovascular (CV) risk factors pertain a higher risk for CVD. Our goal was to assess the prevalence of CV risk factors and structural heart disease in a KT population and assess the use of Optimal Medical Therapy (OMT) in this population.
Methods: We conducted a single-center retrospective study enrolling all 324 KT patients between Jan-15 and Jul-21. Those without 2D transthoracic echocardiogram (TTE) after transplantation were excluded. Patient data regarding cardiovascular (CV) risk factors or previous CVD were obtained from electronic clinical records. Structural heart disease was defined by the presence of at least one of the following on TTE: left ventricle ejection fraction (LVEF) < 50%; at least moderate valvular heart disease (VHD) or previous valvular heart surgery; right ventricular dysfunction as per the EACVI definition.
Results: A total of 124 patients were included (mean age 58 ± 11 years; 64% male; median time on renal replacement therapy prior to KT 5.9 [3.8-7.4] years; mean left ventricle ejection fraction [LVEF] by TTE 56 ± 8%). A high prevalence of CV risk factors was observed: 103 patients (83%) were hypertensive; 25 (20%) with diabetes; 52 (42%) with dyslipidemia; 34 (27%) with current or previous smoking. Out of the hypertensive patients, 7 (2%) were prescribed ACEi, and other anti-hypertension drugs were preferred. Overall, 31 patients (25%) had established structural heart disease: 13 (10%) with LVEF < 50%; 5 patients (4%) with right ventricular dysfunction, 11 (7%) had valvular disease that was at least moderate, 3 (2.5%) were submitted to surgical (aortic) valve replacement after KT. Moreover 97 (78%) had an indexed left atrial volume > 35 mL/m², 75 (61%) had pulmonary hypertension (defined as pulmonary artery systolic pressure > 35 mmHg) and 74 had left ventricle (LV) hypertrophy. Out of the patients with LVEF< 50%, 3 (21%) received Renin-Angiotensin-Aldosterone System inhibitors (RAASi), 1 (7%) received a Mineralocorticoid Antagonist, 8 (57%) received a beta-blocker and 1 (7%) received a SGLT2 inhibitor.

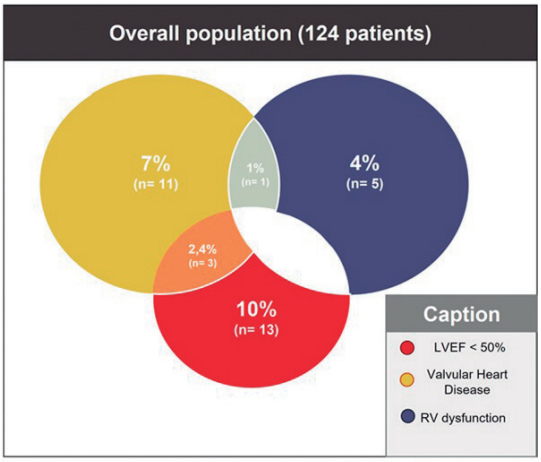


Figure 1 – Venn Diagram showing prevalence of LVEF < 50%, RV dysfunction and Valvular Heart Disease

Conclusions: In a cohort of KT patients, structural heart disease was common and over what one would expect in the general population. Management of LV dysfunction may be suboptimal with a significant proportion of patients not receiving disease modifying treatment. Our findings suggest that structural heart disease in KT recipients should be routinely performed, in order to promote early detection and facilitate treatment optimization.

PO 15. SEX DISPARITIES IN LIPID-LOWERING THERAPY AND DYSLIPIDEMIC CONTROL IN A CORONARY REHABILITATION PROGRAM

Tânia Proença[1], Ricardo Alves[1], Miguel Martins Carvalho[1], Catarina Costa[1], Filipa Amador[1], João Calvão[1], André Cabrita[1], Catarina Marques[1], Carlos Xavier Resende[1], Pedro Diogo, Sofia Torres, Joana Rodrigues, Vítor Araujo, Paula Dias, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Lipid control is one of the most important secondary cardiovascular prevention targets. Although cardiovascular disease is the most common cause of death for both sexes, several studies have consistently shown that women are less likely to receive guideline-recommended secondary prevention medications after an acute coronary syndrome (ACS).
Objectives: To compare sex disparities in dyslipidemic control in a secondary prevention population with ACS in light of the ESC Dyslipidemia Guidelines.
Methods: We retrospectively analysed all patients who participated in a Coronary Rehabilitation Program (CRP) after an ACS from January 2011 to October 2019. Clinical data was collected at presentation and during 12 months follow-up. Doses of atorvastatin ≥ 40 mg, rosuvastatin ≥ 20 mg or a combination of a statin and ezetimibe were considered high-intensity LDL-lowering therapy (HIT).
Results: Of a total of 881 patients enrolled, mean age 55.0 ± 10.0 year-old, 16.1% were female. At baseline there were no differences respecting clinical features between genres. 51.4% of patients had ST-elevation myocardial infarction. 63% patients had dyslipidemia, 46% had hypertension, 19% were diabetic, 76% were smokers or previous smokers, 27% had family history of coronary disease and 12% had previous coronary disease (ACS or > 50% coronary artery stenosis). At hospital admission, females and males had similar mean LDL-levels [120.7 *vs.* 118.1 mg/dL, t(708) = 0.691, p = 0.496]. The vast majority of patients of both genres were discharged on statin (99.5%) and maintain it during follow-up (99.3%). Female patients received more HIT during follow-up (67.8 *vs.* 53.9% at baseline, p = 0.015; 75.6 *vs.* 59.0% after CRP, p = 0.003; and 79.8 *vs.* 65.1% at 1-year-follow-up, p = 0.007). During follow-up, at the end of the CRP (about 3 months after event), male exhibit a better control of LDL [82.0 *vs.* 75.6 mg/dL, t(597) = 2.4, p = 0.016)] with 12.8 *vs.* 16.4% below 55 mg/dL and 29.8 *vs.* 44.5% below 70 mg/dL (p = 0.008). At 1-year follow-up, both genres exhibited similar LDL-control thanks to a worsening control of male population (81.9 *vs.* 80.6 mg/dL, t(540) = 0.52, p = 0.605). Only 13.3% of females had LDL below 55 mg/dL (*vs.* 12.9%, p = 0.921) and 32.5% below 70 mg/dL (*vs.* 37.0%, p = 0.432).
Conclusions: This real life study showed that guideline recommended LDL target is not achieved in the majority of patients even under a structured CRP. Unlike to other reports, women received more potent anti-dyslipidemic therapy. Nevertheless, they showed a poor control of LDL-concentration after three months of ACS and a similar control after 1-year; this highlights the uncertainties related to the efficacy of lipid-lowering therapy in women, a underrepresented population in clinical trials.

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

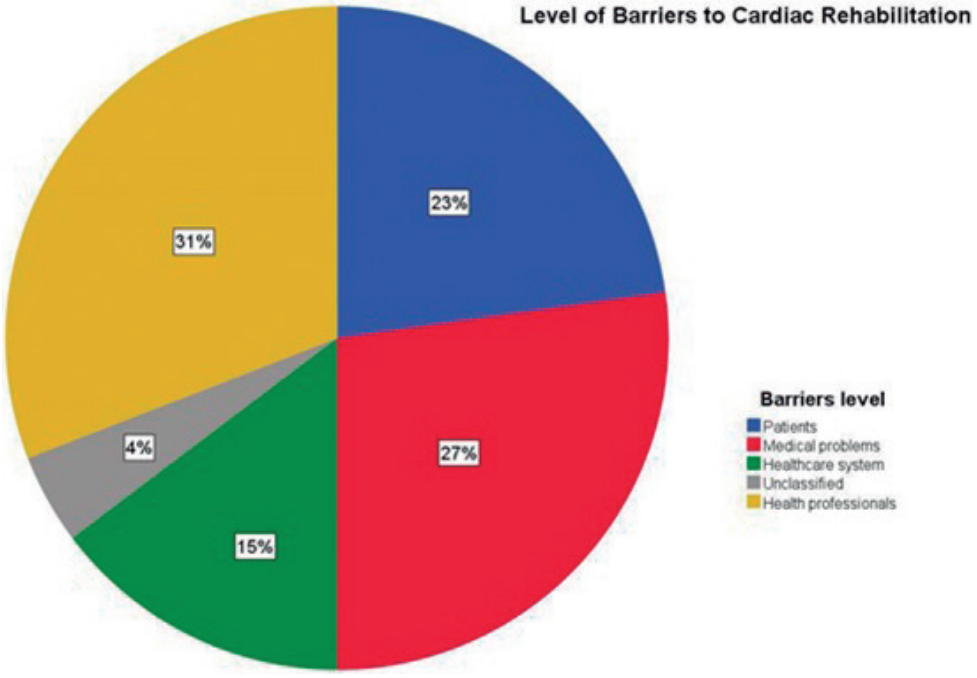
Sala Jardim de Inverno | Posters (Sessão 1 - Écran 4) - Insuficiência Cardíaca 1 - Vários 1

PO 16. CLINICAL DETERMINANTS AND BARRIERS TO CARDIAC REHABILITATION ENROLMENT OF HEART FAILURE PATIENTS

André Alexandre[1], Andreia Campinas[1], Cristine Schmidt[2], Sandra Magalhães[1], José Preza-Fernandes[1], João Silveira[1], Catarina Gomes[1], Mário Santos[1], Severo Torres[1]

[1]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António. [2]Departamento de Cirurgia e Fisiologia, Faculdade de Medicina da Universidade do Porto; CIAFEL, Faculdade de Desporto da Universidade do Porto.

Introduction: Cardiac rehabilitation (CR) is a recommended treatment for patients with heart failure with reduced ejection fraction (HFrEF).



PO 16 Figure

Despite the robust evidence supporting its safety and benefits, there is an incomplete understanding of the reasons of the underutilization of CR programs in HFrEF. These reasons are complex and probably encompass healthcare system- and patient-level barriers.
Objectives: To study the clinical determinants and barriers to enrolment in a CR program for HFrEF patients.
Methods: We conducted a study of consecutive heart failure patients followed at a dedicated HFrEF cardiology clinic from January 2019 to April 2021. Patients were divided according to previous enrolment in CR program. Data were collected from electronic health records, and in case of missing data patients were asked by telephone about the reason for not participating in CR using a structured and validated questionnaire for this purpose.
Results: Of 228 patients with HFrEF, 60% had not been enrolled in a CR program; they were older (63 *vs.* 58 years; p < 0.01) and more likely to have comorbidities such as hypertension (56 *vs.* 41%; p = 0.03) or concomitant chronic obstructive pulmonary disease (20 *vs.* 8%; p = 0.01). Conversely, patients enrolled in CR programs were more likely to have a previous history of acute myocardial infarction (34 *vs.* 20%; p = 0.02). Regarding heart failure-related clinical features (NYHA functional class, LVEF, ICD/CRT), we did not find any significant differences between groups. The main reasons for not being enrolled in CR programs were: no medical referral (31%), concomitant medical problems (27%) such as musculoskeletal problems, patient refusal (11%) and geographical distance to the hospital (9%).
Conclusions: Despite the high proportion (40%) of HFrEF patients who underwent CR program compared to previous studies, the enrolment to CR can be further improved. The main barriers are related to health professionals (no referral), healthcare system (geographical distance to the hospital) and patients (concomitant noncardiac problems). Innovative strategies should target these factors to increase the delivery of CR program in HFrEF.

PO 17. PHYSICAL ACTIVITY AND HEART FAILURE: A FORGOTTEN INDICATOR

M. Inês Barradas, Fabiana Duarte, Luís Resendes de Oliveira, Cátia Serena, António Xavier Fontes, André Viveiros Monteiro, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Low levels of physical activity may be associated with comorbidities, sedentary lifestyle or clinical worsening in heart failure (HF) patients. Cardiovascular implantable electronic devices (CIEDs) detect and analyse physical activity data that is often integrated in multifactorial algorithms for predicting HF decompensations, but its potential is probably underestimated.
Objectives: We hypothesized that low physical-activity levels, obtained from remote monitoring of CIEDs, help predict clinical outcomes in HF patients, independently from multifactorial algorithms.
Methods: We retrospectively evaluated consecutive patients with HF and CIEDs through clinical assessments and remote monitoring (two monitoring systems were used). Low activity was defined as < 1 hour/day of physical activity and two groups of patients were defined: patients with low activity alerts (group 1) and patients without low activity alerts (group 2). Primary outcome was defined as death by all causes and secondary outcome as HF hospitalizations and sustained ventricular tachycardia (VT) or ventricular fibrillation (VF) episodes.
Results: From 121 patients with RPM, physical activity data was obtained in 104 (85.9%). Mean age was 63.98 ± 12.44 years, 70.2% were males and follow-up was 59.19 ± 38.491 months. Fifty-four (51.9%) had implantable cardiac resynchronization therapy (CRT) defibrillator (CRT-D), 46 (44.2%) transvenous implantable cardioverter defibrillator (ICD), and 4 (3.8%) CRT pacemaker (CRT-P). The aetiology was idiopathic in 42.5% and ischemic in 40.2%. Mean left ventricular ejection fraction was 34.08 ± 11.40% and mean physical activity duration was 2.25 ± 1.84 hours/day. Forty-eight (53.7%) patients had low activity alerts (group 1) and 56 (46.3%) had no low activity alerts (group 2). In group 1 mean period of low activity was 52.978 ± 15.75 days/year. Patients from group 1 were older (p = 0.001), had more oncological disease (p = 0.041) and peripheral artery disease (p = 0.028). Three deaths occurred in total, all in group 1 (p = 0.039) and HF hospitalizations were more frequent in group 1 (1.68 ± 2.59 *vs.* 0.69 ± 1.32, p = 0.005). Low activity burden was also associated with atrial fibrillation burden (r = 0.473, p < 0.05) and number of episodes of VT or VF (r = 0.267, p = 0.007). A decrease of 50% or more in mean duration of physical activity, but above 1 hour/day, was associated with increase HF hospitalizations (1.83 ± 2.13 *vs.* 1.05 ± 1.95, p = 0.006).
Conclusions: Low physical activity data obtained from CIEDs was associated with HF hospitalizations, arrhythmic events and death by all causes, independently of multifactorial algorithms. A decrease in basal activity even above alert threshold, was associated with HF hospitalizations and may be an even earlier sign of HF decompensations.

PO 18. HEART FAILURE- ONE ONLY DISEASE OR A GROUP OF DIFFERENT ENTITIES?

José João Monteiro, Sara Borges, Pedro Carvalho, Catarina Carvalho, Marta Bernardo, Joaquim Chemba, Fernando Goncalves, Jose Pedro Guimarães, Hélder Ribeiro, José Ilídio Moreira

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

Introduction: Left ventricular ejection fraction (LVEF) recovery is usually associated with better long-term outcomes in heart failure patients (pts). However, the degree of recovery of EF is quite heterogeneous between heart failure etiologies and had different structural features associated.
Objectives: To study the evolution of structural and clinical features in a cohort of pts with heart failure secondary to different etiologies.
Methods: Were included consecutive pts with heart failure diagnosis with reduced LVEF (< 40%) and regular follow-up (fup) for at least 12 months in a heart failure unit (n = 207, mean fup of 17.83 ± 6.97 months). They were divided in 4 groups, according with heart failure etiology: ischemic (n = 70), toxic (n = 22), tachicardiomiopathy (n = 12), and others (familiar, idiopathic, and hypertensive, n = 103). Then, was evaluated the trend of LVEF, End Diastolic Left Ventricle Diameter (EDLVD), and a combined outcome of cardiovascular death, hospital admissions, and urgency department visits secondary to heart failure (MACE), during the fup period and compared them between each group. To characterize these differences was used a One Way ANOVA Test and Qui Square Test to compare baseline differences of the population of each group (Table).
Results: Pts from ischemic heart failure group had more dyslipidemia (71.4%) than other groups (p = 0.027), pts from the group of "other etiologies" had few smokers than other groups, 16.5% (p < 0.01), and those from tachycardiomiopathy group had more atrial fibrillation, 83.3% (p < 0.001) (see table 1). Pts were under similar heart failure modifying-disease drugs, except mineralocorticoid receptor antagonists, less prevalent in the tachicardiomiopathy group (p < 0.001). Pts with tachicardiomiopathy showed the higher LVEF recovery, 16.2% ± 11.39%, and those from the ischemic group had the slighter increase, 5.24% ± 9.47, (p = 0.014). Use of loop diuretic drugs decreases during fup time, and the magnitude of decrease was higher in tachicardiomiopathy, with no statistically significant differences between groups. EDLVD decreases in all groups, mainly in the toxic heart failure group, although without reaching statistical significance. NYHA Class variation and MACE didn't achieve significant differences between different groups.
Conclusions: Our results suggest that tachicardiomiopathy is possibly a more reversible form of heart failure, showing a higher percentage of LVEF recovery during fup time in our heart failure unit. Loop diuretic dose reduction varied in a similar trend, being more pronounced in pts with tachicardiomiopathy, although not reaching statistic significance. In spite of these differences in EF and loop diuretic dose, ventricle reverse remodeling showed a more pronounced trend in the toxic heart failure group. These results highlight the importance of heart failure etiology in the natural history of the disease.

	Ischemic heart failure (n=70)	Toxic heart failure (n=22)	Tachicardiomiopathy (n=12)	Other etiologies of heart failure (n=103)	Statistic significance
Male sex (%)	82.9	81.8	83.3	51.5	**P<0.001**
Age (years)	69.84	73.36	65.92	70.56	P=0.308
Diabetes Mellitus (% of patients)	37.1	31.8	41.7	28.2	P=0.56
Dyslipidemia (% of patients)	71.4	50.0	66.7	49.5	**P=0.027**
HTA (% of patients)	71.0	72.7	83.3	64.1	P=0.47
Smoking (% of patients)	50.0	40.9	50.0	16.5	**P<0.01**
Chronic Kidney failure (% of patients)	12.3	0	9.1	8.5	P=0.427
Atrial Fibrillation(% of patients)	20	31,8	83.3	28.4	**P< 0.001**
ACE inhibitor or ARNI (% of patients)	98.6	100	100	100	P= 0.60
Beta blockers (% of patients)	94.0	100	100	88.4	P= 0.14
MRAs (% of patients)	72.9	77.3	8.3	75.7	**P< 0.001**
SGLT2 inhibitors (% of patients)	32.90	27.3	25.0	36.9	P= 0.73
LVEF baratino (%)	5.24	9.2	16.2	8.6	**P=0.014**
EDLVD variation (mm)	-0.25	-11.4	-0.07	-2.92	P=0.064
Loop diuretic variation (mg)	-4.79	-0.91	-15.0	-2.94	P=0.65
NYHA Class variation	-0.33	-0.41	-0.17	-0.4	P=0.675
MACE (% of patients)	30.0	22.7	0	24.3	P= 0.169
Mean Follow-up Time (months)	17.59	20.48	13.92	17.91	P=0.074

Table 1- Differences between each group of heart failure etiology. ACE- Angiotensin conversion enzyme; ARNI angiotensin receptor neprilysin inhibitor; EDLVD- End Diastolic left Ventricle Diameter; LVEF- Left Ventricular Ejection Fraction; MRA mineralocorticoid receptor antagonist; NYHA- New York Heart Association

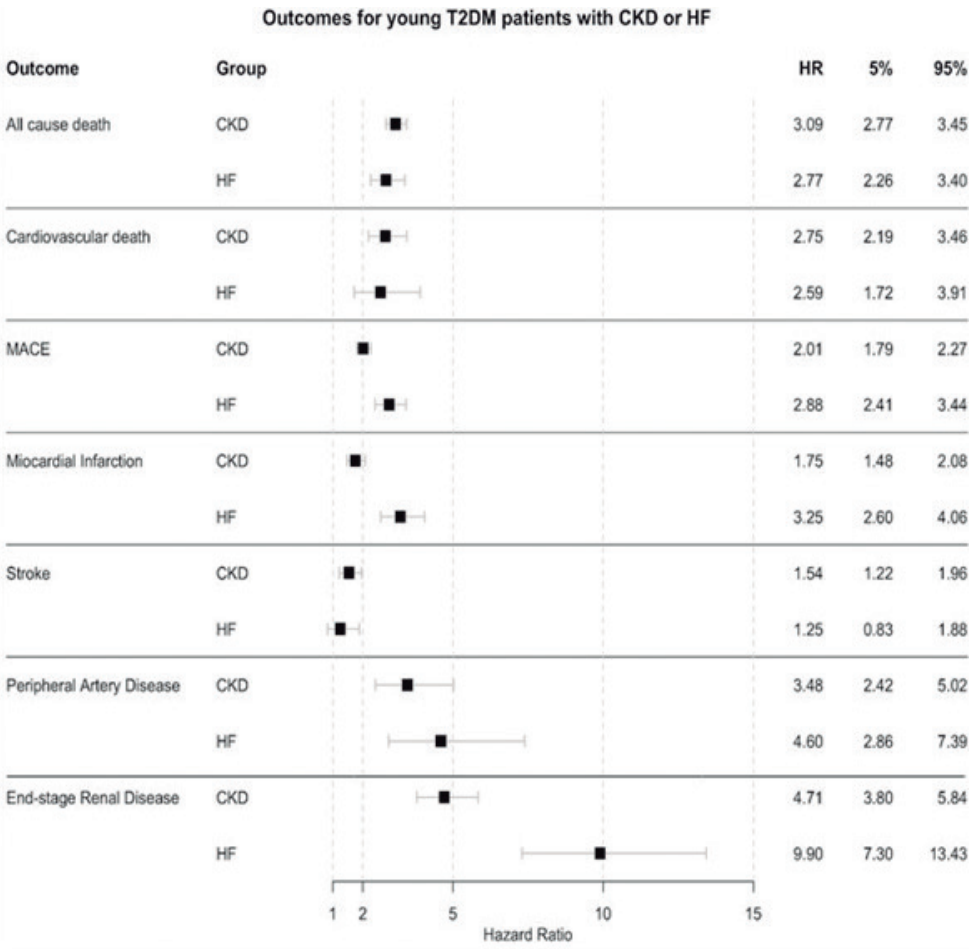
PO 18 Figure

PO 19. HEART-KIDNEY CROSSTALK: HEART FAILURE AND THE RISK OF CARDIOVASCULAR EVENTS AND END STAGE RENAL DISEASE IN YOUNG TYPE 2 DIABETIC PATIENTS

Daniel Seabra-Carvalho[1], Filipa Bernardo[2], Carla Santos Araújo[1], Tiago Taveira-Gomes[3], Cristina Gavina[1]

[1]*Unidade Local de Saúde de Matosinhos, EPE/Hospital Pedro Hispano.* [2]*AstraZeneca.* [3]*Faculdade de Medicina da Universidade do Porto.*

Introduction: Type-2 diabetes mellitus (T2DM) is one of the most relevant risk factors for both heart failure (HF) and chronic kidney disease (CKD). Target organ damage causes significant morbi-mortality, especially when these two conditions are combined with diabetes. Understanding the natural history of the combination of these conditions is crucial to implement tailored preventive measures.
Objectives: To estimate the risk of all-cause death, cardiovascular (CV) death, non-fatal major CV events (MACE) and End Stage Kidney Disease (ESKD) in young T2D patients with HF (T2D-HF) or CKD (T2D-CKD) compared to the young T2D patients without these conditions in a real-world clinical setting.
Methods: Retrospective cohort study (2000-2019) performed in a healthcare centre that provides primary and secondary care. It included adults with T2DM aged between 40 and 65 years stratified into three groups: i) T2DM -HF defined as either: Ejection Fraction (EF) ≤ 40% and NT-proBNP ≥ 200 pg/mL (≥ 600 pg/mL if atrial fibrillation (AF)) or BNP ≥ 100 pg/mL (≥ 125 pg/mL if AF); EF > 40% in the presence of structural cardiac abnormalities; ii) T2DM-CKD (eGFR ≤ 60mL/min using EPI-CKD formula); and T2DM without HF or CKD. We modelled 1-year risk for CV death, all-cause mortality and non-fatal MACE using multivariate weighted Cox regression models clustered by patient. Models were adjusted for age (using penalized splines), sex, age-sex interaction, prior history of hypertension, myocardial infarction, stroke, and peripheral arterial disease. We reported hazard ratios (*versus* T2DM without HF or CKD) with 95% confidence intervals.
Results: We identified 14,986 patients with T2DM without HF or CKD, 1101 with T2DM with HF and 3114 with T2DM with CKD. Patients were in general 55-58 years old, with a slight predominance of the male gender across the groups. One-year event rate for all-cause death was 14% in T2DM-HF, 15% in T2DM-CKD and 5% in TD2 without these conditions. Comparing with T2DM without HF or CKD, hazard ratio for one-year all-cause death was 2.77 (2.26-3.40) for T2DM-HF and 3.09 (2.77-3.45) for T2DM-CKD. CV death risk was 2.59 (1.72-3.91) higher for T2DM-HF and 2.75 (2.19-3.46) for T2DM-CKD. Non-fatal MACE risk was 2.82 (2.34-3.41) higher for T2DM-HF and 1.90 (1.66-2.17) for T2DM-CKD. Regarding MACE, the one-year event rate was 32% in T2DM-HF, 13% in T2DM-CKD but only 6% in T2DM without these comorbidities. T2DM-HF was associated with the highest risks of myocardial infarction (3.25 [2.60-4.06]) and end-stage kidney disease (9.9 [7.3-13.43]).
Conclusions: Young patients with T2DM combined with HF or CKD have an increased risk of early adverse CV and renal events. HF was linked



PO 18 Figure

with highest risk of myocardial infarction and end-stage kidney disease. Early identification and management of HF and CKD is paramount for T2D patients.

PO 20. LEFT BUNDLE BRANCH BLOCK – IS IT POSSIBLE TO PREDICT LEFT VENTRICLE DYSFUNCTION?

João Santos Fonseca, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Abrantes, Miguel Azaredo Raposo, Joana Rigueira, Rui Plácido, Cláudio David, Fausto J. Pinto, Ana G. Almeida

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

Introduction: Left bundle branch block (LBBB) might be a cause of left ventricle dysfunction (LVD) even in patients without cardiomyopathy or ischemic heart disease. Predict which patients (pts) with LBBB and normal left ventricle ejection fraction (LVEF) will develop LVD remains challenging.
Objectives: Our aim was to identify echocardiographic and electrocardiographic (ECG) predictors of LVD in pts with LBBB.
Methods: Retrospective, single-centre study of 839 consecutive pts with documentation of *LBBB and LV disynchrony* from our echocardiographic and ECG database from January 2010 to December 2020. Other inclusion criteria were (1)initially preserved LVEF (≥ 50%), (2)absence of documented clinically relevant coronary arterial disease/cardiomyopathy and (3)echocardiographic reassessment of LVEF after a follow up period (FUP) of ≥ 6 months. Baseline echocardiographic, ECG and clinical data were recorded. Statistical analysis was performed using Kaplan-Meier curves for survival, Chi-square and Mann-Whitney tests to look for predictors of LVD.

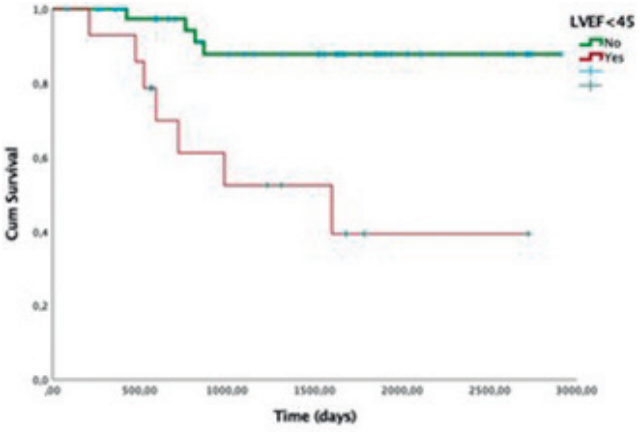


Figure 1: Impact of LVEF<45% on Heart Failure hospitalizations.

Results: After screening, 59 pts were included with a mean age of 70 ± 12 years, 35.6% males, 83.1% hypertensive, 27.1% diabetic, 39% with dyslipidemia and atrial fibrillation in 25.4%. Most of the pts were at sinus rhythm (74.6%), with mean average QRS 151 ± 13.5 msec and 59.3% with typical LBBB pattern. At baseline, the mean LVEF was 59 ± 6%, enddiastolic (TD) and endsystolic (TS) diameter was 52 ± 6 mm and 34 ± 7 mm, respectively; mean TD and TS volume was 106 ± 30 mL and 44 ± 16 mL, respectively. The global longitudinal

strain (GLS) was globally reduced (mean -14.3 ± -3.2%; normal cut-off value ≥ -18%). During FUP (mean 51 ± 25 months), LVEF decreased to < 45% in 23.7% pts and a reduction ≥ 10% from baseline was seen in 35.6% pts. A higher TS (p = 0.013) was associated with LVD with LVEF< 45%. Higher TD (p = 0.048) and TS (p = 0.002) also associated with LVD with LVEF< 50%. GLS and QRS duration didn't associate with LVD during FUP. Pts who developed LVD had higher risk of HF hospitalizations (Log rank 11.4, p < 0,001; Fig.) and death (9 *vs*. 2 pts in LVEF< 45%, p = 0.013).
Conclusions: Our study supports that LBBB might be a cause for LVD even without documented structural heart disease. TD and TS associated LVD in our sample. Although prospective trials with a higher number of pts are warranted, we hypothesized that these group of pts might benefit of early cardioprotective treatment and closer FUP.

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 5) - Doença Vascular e Cirurgia Cardíaca

PO 21. POSTSTERNOTOMY MEDIASTINITIS - OUR 10 YEAR EXPERIENCE WITH OMENTUM FLAP SURGERY

Hagen Kahlbau, Valdemar Gomes, Luís Miranda, Pedro Félix, Helena Antunes, Manuela Silva, Pedro Coelho, José Fragata

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Introduction: The management of postoperative mediastinitis remains challenging. Due to the severity of infection and patient's individual comorbidities, the optimal treatment is highly variable and multiple operations are usually performed. Vacuum assisted therapy combined with systemic antibiotics are used frequently with good results upon any sign of sternal wound infection. However, when deep sternal wound infection or persistent infections are present, more radical surgical options are necessary.
Objectives: Based on the literature, we developed an algorithm for patients with mediastinitis with an emphasis on the treatment with an omentum flap, which was used in early postoperative or in late infections when a large defect was present (Fig.).
Methods: From January 2012 until December 2021, a total of 28 patients (5 female/23 male), 0.4% of our total sternotomy population, were treated according to the departments algorithm with an omentum flap. We retrospectively analyzed preoperative patient´s risk profile, intraoperative data, clinical presentation with laboratory, microbiological and imaging data.
Results: Mean age was 67.3 years (51-82 years). The majority of patients (13 patients, 46%) underwent coronary artery bypass grafting (CABG), 8 patients valve surgeries, 5 combined CABG and valve surgery and 2 cardiac transplants. Median EuroScore 2 was 2.85% (0.55-16.06%) and median STS Score Mortality was 1.47% (0.22-5.56%). Median STS risk for deep sternal wound infection was low with 0.17% (0.07-0.49%). Relevant risk factors for infection included previous diabetes (57%), history of smoking (46%), hospitalization before surgery (36%), obesity (BMI > 32 kg/m², 25%) and chronic obstructive lung disease (18%). Reoperation for mediastinitis was performed an average of 16 days (range 6-44 days) after initial operation. We performed the omentoplasty through a laparotomy, a secondary pectoralis muscle flap was necessary in 8 patients to achieve skin closure. Two patients required titanium plates in order to stabilize the sternum. In-hospital mortality was 21% (6 patients). Late epigastric hernia occurred in three patients. We did not observe early or late omentum flap failures.
Conclusions: In our center, omentum flaps for mediastinitis are used for the severest patient group in a standardized fashion with good clinical outcome.

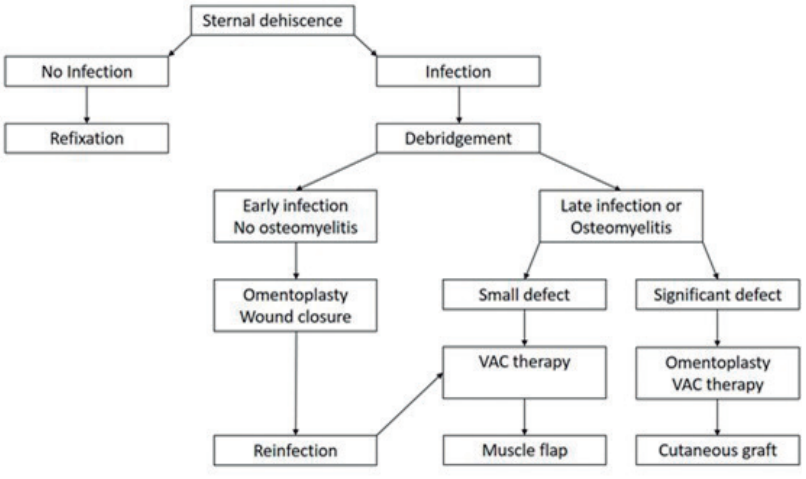

Figure 1. Treatment algorithm for patients with sternal dehiscence

PO 21 Figure

PO 22. QUILTY EFFECT AND ITS UNCERTAIN REPERCUSSION IN HEART TRANSPLATED PATIENTS

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

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

Introduction: Endomyocardial biopsy (EBM) remains the gold-standard technique to assess acute cellular rejection (ACR) in heart transplant (HT) patients. Quilty effect (QE) is a nodular lymphoid subendocardial inflammatory infiltrate occasionally seen histologically in EMB. Its clinical significance, regarding ACR and poor analytical, transthoracic echocardiographic (TTE), and right-heart catheterization (RHC) hemodynamic parameters is still not well established.
Objectives: To assess whether presence of QE on EMB was associated with analytical, TTE and RHC hemodynamic parameter values differences, compared to the group without QE on EMB.
Methods: Retrospective analysis of consecutive HT patients submitted to EMB between February 2016 and November 2021, who performed at the same day blood analysis, TTE and RHC. EMB histology reports were peer

Table 1.		Presence of Quilty effect on EMB				
	Parameter	Yes (n=11)		No (n=116)		p value
		Mean	SD	Mean	SD	
Analitic	NT-pro BNP	12260.68	15387.43	2681.24	5336.78	<.001
	BNP	769	1019.96	811.47	989.27	.979
	Troponin I	152.45	295.32	182.46	412.53	.736
	Glomerular Filtration Rate	66.8	24.06	75.78	26.30	.835
Hemodynamic	Cardiac Index	3.14	0.41	3.07	0.71	.062
	Central venous pressure (CVP)	4.82	2.56	6.63	5.27	.065
	Pulmonary capillary wedge pressure (PCWP)	10.27	4.82	12.23	6.44	.280
	Right ventricular end-diastolic pressure	5.36	2.58	6.44	4.20	.170
	Right ventricular end-systolic pressure	32.36	6.56	32.05	9.74	.247
	Systolic Pulmonary artery pressure	32.36	8.213	32.95	9.74	.097
	Diastolic Pulmonary artery pressure	9.27	4.07	12.8	6.32	.181
	Mean pulmonary artery pressure	20.09	3.91	20.83	7.38	.210
	Pulmonary artery pulse pressure	23.09	5.47	19.28	6.67	.714
	Pulmonary artery resistance	1.64	0.54	1.63	0.87	.216
	Systemic vascular resistance	1177.22	454.87	1455.44	447.77	.331
	Pulmonary Artery Pulsatility index	5.92	3.52	4.77	4.05	.863
	PVC/PCWP	0.53	0.23	0.53	0.27	.446
	Cardiac Power Output CPO	1.20	0.28	1.26	0.32	.803
	Mean Arterial Pressure MAP	95.7	8.74	101.24	13.06	.079
Echocardiographic	Left Ventricular Ejection Fraction	57.38	7.21	57.69	10.45	.200
	Tricuspid Annular Plane Systolic Excursion	15.38	1.85	14.11	3.55	.091
	Global Longitudinal Strain	-14.95	4.59	-13.13	2.40	.200
	E/A	1.46	0.58	1.75	0.61	.543
	E/e'	11.43	4.20	9.82	6.75	.917
	Desaceleration time	178.71	19.33	158.74	41.25	.119
	Pulmonary Artery Systolic Pressure	31.33	3.67	32.64	8.36	.089
	Left Atrial Volume	28.00	4.82	27.25	7.57	.390

PO 22 Figure

reviewed for the presence of QE to compare groups. Mean comparison of analytical, TTE and RHC parameter values was performed by independent sample T-Test with *p* value < 0.05 for clinical significance (SPSS®).
Results: A total of 127 EMB were performed during the study period. Of these, 11 (8.6%) had QE on EMB histology and 117 (91.3%) did not have QE. 2 patients had both QE and ACR (defined as ≥ 2R grading on EMB) and 9 had QE without ACR (defined as 0 or 1R grading on EMB). Mean age was 49.5 years, mean left ventricular ejection fraction was 57.7 ± 10.2%, BNP 808 ± 984 pg/mL and NT-pro BNP 4,221 ± 8,418 pg/mL. Analytical, TTE and RHC hemodynamic parameters mean values comparison between groups is illustrated on Table 1. The presence of Quilty effect was not significantly associated with any TTE parameters value between the two studied groups. RHC hemodynamic values also did not proved to be significantly different between groups. NT-proBNP was the only analytical parameter to be significantly increased in QE group.
Conclusions: The role of presence of QE in HT patient clinical status, as well as its repercussion on analytical, TTE and RHC hemodynamic values is still challenging and controversial. This study showed the presence of QE was not associated with differences in analytical, TTE and RHC hemodynamic values between patients with and without QE. Also, only a small percentage of patients had both ACR and QE on EMB. In this study population QE appeared to be a benign situation, not associated with any particular outcome, compared to patients who did not have this finding on EMB.

PO 23. MORTALITY PREDICTORS IN INFECTIVE ENDOCARDITIS PATIENTS SUBMITTED TO SURGERY - WHAT CAN BE IMPROVED?

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

Introduction: Infective endocarditis (IE) is associated with a high morbidity and mortality, frequently requiring surgical treatment in high-risk situations. However, even with surgery, mortality remains high. This study aims to evaluate the mortality predictors of IE patients submitted to surgery.
Methods: This single-centre retrospective study enrolled patients diagnosed with active IE that underwent surgery from June 2013 to October 2018. The primary outcome was all-cause mortality at 1-year.
Results: One-hundred consecutive patients were included, 73% were male, with a median age of 60 years (Table). Seventy-six had native valve endocarditis (45 aortic, 46 mitral, 5 tricuspid and one pulmonary, with 21 patients having multivalvular IE), 20 prosthetic valve IE (13 aortic, 7 mitral, 12 early IE) and 4 cardiac device related IE (3 related to pacemaker and 1 related to CRT). The most frequent microorganism isolated from blood cultures was *Staphylococcus aureus* (36.5%) followed by *Streptococcus* spp. (29.7%). The median EuroSCORE II was 9.37% (IQR 2.41-11.38%). The most common indication for surgery was severe valvular regurgitation (N = 54, with 5 prosthesis dehiscence), large vegetations and embolic events (N = 49), paravalvular complications (N = 40) and shock (N = 26). During a median follow up of 58 (44-71) months, 30 patients died (1 intra-operatory death) and 7 had recurrence of IE. Predictors of death were male sex (HR 2.342; 95%CI 1.117-4.911; p = 0.024), older age (HR 1.053; 95%CI 1.02-1.08; p = 0.002), arterial hypertension (HR 5.844; 95%CI 2.483-13.756; p < 0.001), atrial fibrillation (HR 2.63; 95%CI 1.255-5.510; p = 0.01), diabetes mellitus (HR 2.812; 95%CI 1.324-5.974; p = 0.007), acute kidney injury requiring haemodialysis (HR 4.736; 95%CI 1.784-12.571; p = 0.002), heart failure in NYHA III-IV (HR 3.959; 95%CI 1.61-9.73; p = 0.003) and EuroSCORE II (HR 1.057; 95%CI 1.03-1.08; p < 0.001). Prosthetic valve IE was also associated with a higher mortality (HR 2.622; 95%CI 1.190-5.773; p = 0.017), as was intracranial haemorrhage (HR 15.374; 95%CI 1.851-127.711; p = 0.011) and embolic events (HR 18.330; 95%CI 2.131-157.664).
Conclusions: In our study, the potentially modifiable predictors of mortality were the presence of embolic events, kidney dysfunction and a higher functional class of heart failure at time of the surgery, which reflects the need for a timely diagnosis, early administration of adequate antibiotic therapy and a rapid referral for surgery.

Table 1 - Baseline Characteristics of IE patients submitted to surgery		
Demographics and Medical History		
Age, mean ± SD (years)		60 ± 16
Male sex, n (%)		73 (73%)
Origin, n (%)	Community-acquired	66 (66%)
	Health care-associated	11 (11%)
	Nosocomial	13 (13%)
	Associated with intravenous drug use	10 (10%)
Atrial Fibrilation, n (%)		24 (24%)
HTN, n (%)		44 (44%)
COPD/asthma, n (%)		5 (5%)
CKD, n (%)		10 (10%)
Hemodialysis, n (%)		7 (7%)
Autoimmune disease, n (%)		3 (3%)
Diabetes mellitus, n (%)		20 (20%)
Obesity (BMI=30Kg/m^2), n (%)		14 (14%)
Current/former smoker, n (%)		35 (35%)
Previous stroke, n (%)		14 (14%)
Heart Failure, n (%)		22 (22%)
Coronary Artery Disease, n (%)		13 (13%)
Congenital Heart	Bicuspid Aortic Valve	5 (5%)
Disease, n (%)	Corrected Tetralogy of Fallot	1 (1%)
Cancer, n (%)		13 (13%)
Intravenous drug user, n (%)		10 (10%)
Previous endocarditis, n (%)		3 (3%)
Cardiac Device	Pacemaker	5 (5%)
Implanted, n (%)	CRT	1 (1%)
Clinical Presentation of IE		
NYHA class at	I	11 (11%)
presentation, n (%)	II	39 (39%)
	III	32 (32%)
	IV	18 (18%)
EF at presentation, n	Preserved (>51%)	87 (87%)
(%)	Slightly reduced (31-50%)	12 (12%)
	Reduced (21-30%)	1 (1%)
Type of IE, n (%)	Native valve IE	76 (76%)
	Early Prosthetic Valve IE	12 (12%)
	Late Prosthetic Valve IE	8 (8%)
	Cardiac device related	4 (4%)
Native Valve IE, n (%)	Mitral	46 (47.4%)
	Aortic	45 (46.4%)
	Tricuspid	5 (5.15%)
	Pulmonary	1 (1%)
Multivalvular, n (%)		21 (20.8%)
Prosthetic Valve IE, n	Aortic	13 (65%)
(%)	Mitral	7 (35%)
Cardiac device related	Pacemaker	3 (75%)
IE, n (%)	CRT	1 (25%)

PO 24. COULD CMV VIREMIA HAVE AN IMPACT ON HEART TRANSPLANT PATIENTS' HEMODYNAMICS?

Ana Raquel Carvalho Santos, António Valentim Gonçalves, Tiago Pereira-da-Silva, Rui Soares, Rita Ilhão Moreira, Lídia de Sousa, Francisco Barbas de Albuquerque, José Viegas, Alexandra Castelo, Vera Ferreira, Pedro Brás, João Reis, Tânia Mano, Tiago Mendonça, Rui Cruz Ferreira

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

Introduction: Cytomegalovirus (CMV) viremia is associated with an increased risk of cardiac allograft vasculopathy, the major limiting factor for long-term survival after heart transplantation. It induces inflammation, myocyte damage, ischemia and fibrosis, resulting in cardiac dysfunction. These should be easily detectable yet the quest for a sufficiently sensitive, specific, and conclusive marker has been elusive.
Objectives: Compare the differences in transthoracic echocardiography (TTE) and right heart catheterization (RHC) parameters in patients with and without CMV viremia.
Methods: A retrospective analysis of consecutive HT patients submitted to RHC between February 2016 and November 2021, who performed TTE and blood CMV PCR at the same day, was made. An independent t-test was performed to evaluate the association between several TTE and RHC parameters in CMV positive and negative patients. Statistical differences with a p-value < 0.05 were considered significant.
Results: A total of 127 RHC were performed during the study period. The patients mean age was 50 years, 79% (n = 100) were male, mean left ventricular ejection fraction (LVEF) 58 ± 10% and mean BNP 808 ± 984 pg/mL. There were 10% (n = 13) CMV positive patients, with viral loads between 57 and 15,300 UI/mL (mean 1457,4, median 139). Mean values and respective p values of several TTE and RHC parameters between CMV positive and negative patients are depicted in the table. CMV positive patients had lower LVEF (49.90 ± 10.91 *vs.* 58.41 ± 9.91%, p = 0.006) and higher systolic pulmonary arterial pressure (PAP) (40.89 ± 8.65 mmHg *vs.* 67 ± 7.62 mmHg, p < 0.001) by TTE, as well as higher mean PAP (24.92 ± 7.06 mmHg *vs.* 20.33 ± 7.03 mmHg, p = 0.017) and right atrial pressure (2.09 ± 0.71 mmHg *vs.* 1.59 ± 0.85, p = 0.025) by RHC.
Conclusions: Heart Transplant patients with CMV viremia had significantly lower LVEF, higher PAP and higher right atrial pressure than patients without CMV viremia. The hemodynamic imbalance caused by this virus is reinforced by this research.

PO 25. ELECTROCARDIOGRAPHIC ASSESSMENT OF LVH IN AORTIC STENOSIS PATIENTS: HOW WELL DOES IT CORRELATE WITH MYOCARDIAL MASS?

Ana Rita Bello[1], João Abecasis[1], Sérgio Maltês[1], Rita Reis Santos[1], Gustavo Sá Mendes[1], Carla Reis[1], Luís Oliveira[2], Sara Guerreiro[1], Pedro Freitas[1], António Ferreira[1], Nuno Cardim[3], Victor Gil[3], Miguel Mendes[1]

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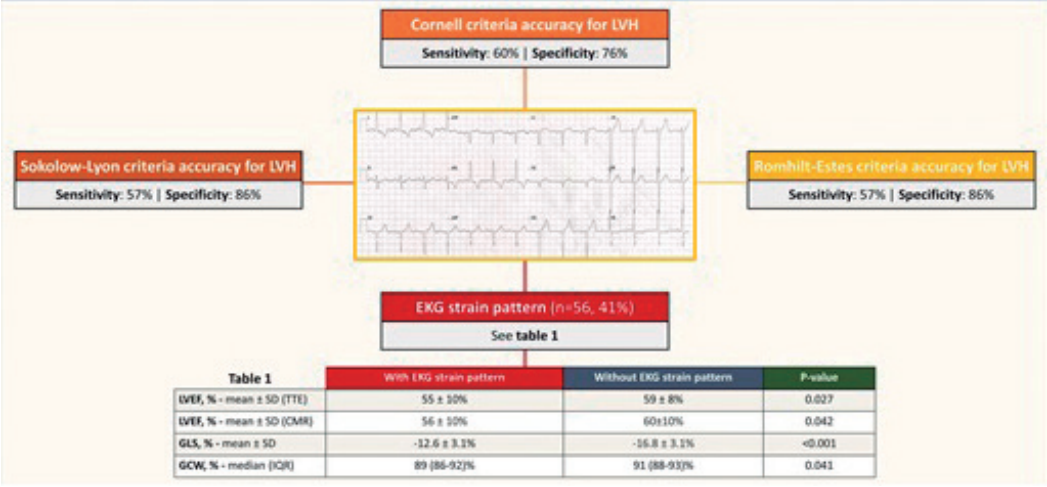
Introduction: Aortic stenosis (AS) is a well-known cause of left ventricle hypertrophy (LVH) due to chronic pressure overload. While imaging techniques remain the gold-standard in determining myocardial mass, electrocardiogram (EKG) may also help in assessing LVH and remodeling. Our goal was to determine the correlation between LVH criteria by EKG, echocardiogram (TTE) and cardiac magnetic resonance (CMR).
Methods: Single-center prospective study enrolling patients with severe symptomatic high-gradient AS undergoing surgical aortic valve replacement with no previous known cardiomyopathy. All patients performed EKG, TTE and CMR prior to surgery. Those with bundle branch block were excluded. LVH was defined by an index left ventricular mass higher than 115 g/m^2 (male) or 95 g/m^2 (female) by TTE or > 85 g/m^2 (male) or 68 g/m^2 (female) by CMR. LVH by EKG was determined by the presence of at least one of the following: positive Cornell (R wave aVL + S wave V3 ≥ 28 mm [male] or ≥ 20 mm [female]) or Sokolow-Lyon (S wave V1 + R wave V5/V6 ≥ 35 mm) criteria; Romhilt-Estes score ≥ 5. Diagnostic accuracy was determined for each criteria. EKG strain pattern (downsloping convex ST segment and/or inverted asymmetrical T wave) and fragmented QRS ([fQRS] - defined as the presence of various RSR´ patterns with different QRS morphologies) were compared with LVH, AS severity and LV function indexes.
Results: A total of 135 patients were included (age 71 ± 8y; 47% male; median transaortic gradient [AVmean] 58 [47-69] mmHg; mean LV ejection fraction [LVEF] by TTE and CMR 58 ± 9% and 60 ± 11%, respectively). Overall, 118 patients (83%) and 60 patients (42%) met LVH criteria by TTE and CMR. EKG sensitivity and specificity regarding LVH (by CMR) were as follows: 57% and 86% (Sokolow-Lyon); 60% and 76% (Cornell); 57% and 86% (Romhilt-Estes). Those with EKG strain pattern (n = 56, 41%) had lower LVEF by TTE and CMR, worse global longitudinal strain and worse myocardial work efficiency (Fig.). No differences were observed among those with (n = 29, 21%) or without fQRS.
Conclusions: In a cohort of severe symptomatic high-gradient AS, EKG criteria had a low sensitivity but moderate-to-high specificity in identifying those with CMR-confirmed LVH. EKG strain pattern may be an adjunctive tool to identify patients with possible advanced LV functional impairment in this setting.

Table 1: CMV infection association with echocardiographic and right heart catheterization parameters using independent T-test analysis

PARAMETERS	CMV positive	CMV negative	p
Echocardiography			
Left ventricular end-diastolic diameter	48.00 ± 7.34	47.54 ± 6.38	0.411
Left ventricular end-systolic diameter	32.27 ± 1.13	30.84 ± 6.91	0.254
Left ventricular ejection fraction	**49.90 ± 10.91**	**58.41 ± 9.91**	**0.006**
Left atrium volume index	27.78 ± 8.63	27.51 ± 7.32	0.146
Interventricular septum wall thicknesses	11.30 ± 1.25	11.28 ± 1.79	0.489
Isovolumetric relaxation time	111.71 ± 20.83	103.72 ± 27.57	0.229
Systolic pulmonary artery pressure	**40.89 ± 8.65**	**31.67 ± 7.62**	**<0.001**
Transmitral E/A ratio	1.97 ± 0.59	1.71 ± 0.61	0.098
E velocity deceleration time	140.86 ± 11.08	162.05 ± 41.43	0.092
Tricuspid annular plane systolic excursion	15.18 ± 3.97	14.09 ± 3.41	0.163
Right heart catheterization			
Cardiac output	5.09 ± 1.23	5.70 ± 1.35	0.061
Systolic pulmonary artery pressure	36.17 ± 9.11	31.65 ± 9.46	0.059
Mean pulmonary artery pressure	**24.92 ± 7.06**	**20.33 ± 7.03**	**0.017**
Systemic vascular resistance index	1590.44 ± 351.27	1411.27 ± 461.93	0.090
Pulmonary artery pulsatility index	3.50 ± 2.88	5.02 ± 4.09	0.107
Right atrial pressure	**2.09 ± 0.71**	**1.59 ± 0.85**	**0.025**
Pulmonary capillary wedge pressure	13.92 ± 6.46	11.85 ± 6.30	0.132

PO 24 Figure



PO 25 Figure

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 6) - DAC e Cuidados Intensivos 1 - Síndromes Coronárias Crónicas

PO 26. COMPARISON BETWEEN THE EUROPEAN SCORE AND THE UPDATED SCORE2 FOR CARDIOVASCULAR OUTCOMES

Margarida Temtem[1], Maria Isabel Mendonça[1], Marco Serrão[1], Marina Santos[1], Débora Sá[1], Carolina Soares[1], Ana Célia Sousa[1], Mariana Rodrigues[1], Sónia Freitas[1], Eva Henriques[1], Sofia Borges[1], Ilídio Ornelas[1], António Drumond[1], Roberto Palma dos Reis[2]

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

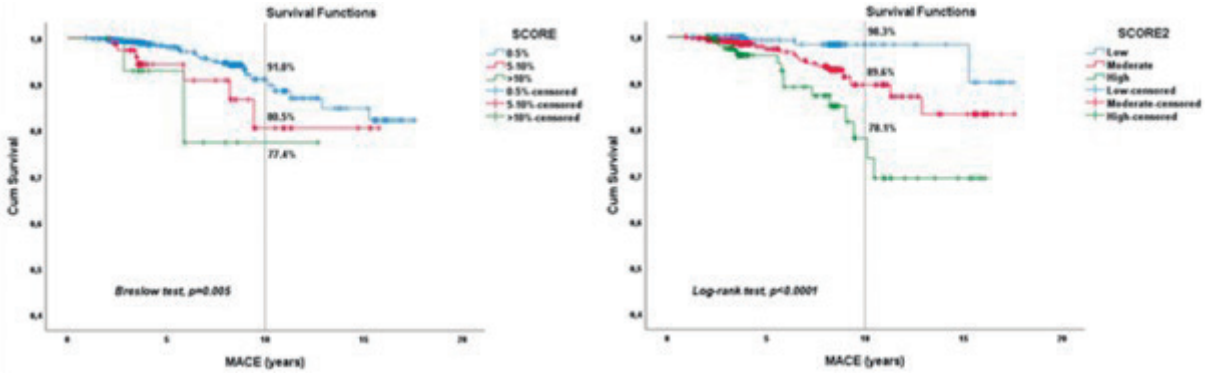
Introduction: The European Systematic Coronary Risk Evaluation (SCORE) has predicted a 10-year risk of Cardiovascular Disease (CVD) since 1986. It included only fatal CVD outcomes, underestimating the total CVD burden, especially for younger people. To counteract this issue, a new SCORE was created (SCORE2) to estimate 10-year fatal and non-fatal CVD risk in Europeans without previous CVD or diabetes aged 40-69 years.

Objectives: Establish a comparison between SCORE and SCORE2 in terms of CV outcomes for a moderate-risk population.

Methods: A population of 1,178 individuals without CVD was stratified by three risk categories for SCORE and SCORE2: low, moderate and high risk. Using t-test and Chi-square, we compared the two scores in terms of means and risk categories. Kaplan-Meier estimator evaluated MACE occurrence for each category of the two scores during an extended follow-up (mean of 5.2 ± 3.4 years). MACE discriminative capacity of SCORE and SCORE2 was verified through C-index methodology.

Results: The means of the two scores were significantly different ($p < 0.0001$): 2.1 ± 2.4 for SCORE and 6.0 ± 3.3 for SCORE2. One hundred individuals at the lowest risk category of SCORE moved to the highest category of SCORE2. SCORE2 showed a better discrimination capacity for MACE (C-index 0.678) relatively to SCORE (C-index 0.591), with statistical significance ($p < 0.0001$).

Conclusions: SCORE2 enhanced the identification of individuals at higher risk of developing CVD and better-discriminated MACE occurrence relatively to SCORE.



PO 26 Figure

PO 27. RELATIONSHIP BETWEEN THE BLOOD PRESSURE AND THE LONG-TERM PROGNOSIS IN A COHORT OF CORONARY PATIENTS

M. Raquel Santos[1], Roberto Palma dos Reis[2], Débora Sá[1], Margarida Temtem[1], Ana Célia Sousa[1], Eva Henriques[1], Mariana Rodrigues[1], Sónia Freitas[1], Sofia Borges[1], Ilídio Ornelas[1], António Drumond[1], Maria Isabel Mendonça[1]

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

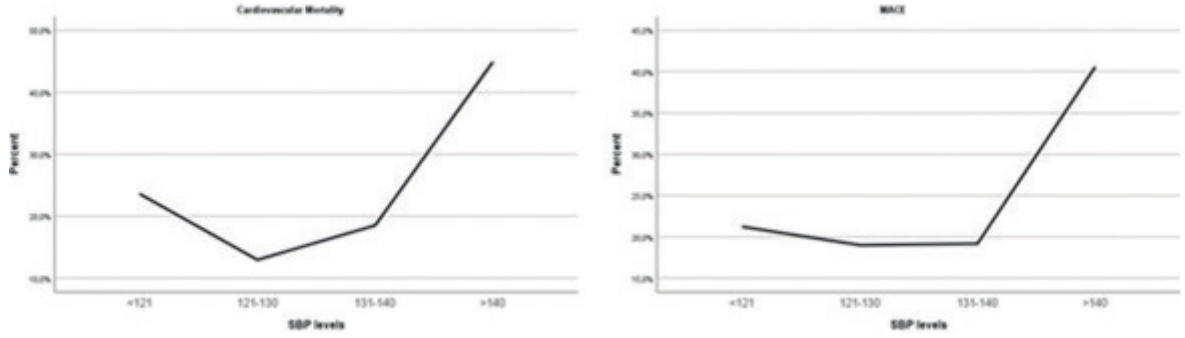
Introduction: Recent studies emphasized strict blood pressure (BP) control for patients at high-risk for cardiovascular (CV) events. Although guidelines recommend a BP target of less than 130/80 mmHg in individuals with stable ischemic heart disease, there are little data about the relationship between BP levels and prognosis in patients with coronary artery disease (CAD).
Objectives: Evaluate the relationship between BP levels and CV mortality in a long-term follow-up of coronary patients.
Methods: 1,723 coronary patients (mean age 53.3 ± 7.9 years, 78.7% male) were prospectively followed-up, mean of 4.9 ± 3.4 years (range 1 to 17 years). This population was stratified according to systolic and diastolic BP into different levels: SBp < 121 mmHg, 121-130 mmHg, 131-140 mmHg and > 140 mmHg and DBp < 71 mmHg, 71-80 mmHg, 81-90 mmHg and > 90 mmHg. The percentage of CV deaths were assigned into each BP level using Chi-squared test. A multivariate analysis with BP levels and other risk factors to CV mortality was performed.
Results: SBP levels < 121 mmHg were associated with a high mortality rate (22%), decreasing as SBP gradually rises up to a threshold of 140 mmHg. From this point, mortality increases abruptly to about 46.0%, demonstrating a "J" shape according to SBP. A similar shape plot was verified for MACE occurrence. Multivariate analysis showed that SBp < 121 and > 140 mmHg were independent risk factors for mortality (p = 0.004 and p = 0.024, respectively). On the other hand, there was no statistically significant relationship between DBP and MACE or mortality.
Conclusions: SBP levels < 121 mmHg and > 140 mmHg, unlike DBP levels, were associated with a worse prognosis and increased mortality. According to this study, coronary patients with elevated BP should be recommended to lower systolic blood pressure to values within the range from 131 mm Hg to 140 mmHg.

PO 28. LIPOPROTEIN(A) AND CARDIOVASCULAR OUTCOMES IN PATIENTS WITH CORONARY ARTERY DISEASE AND IMPAIRED GLUCOSE METABOLISM

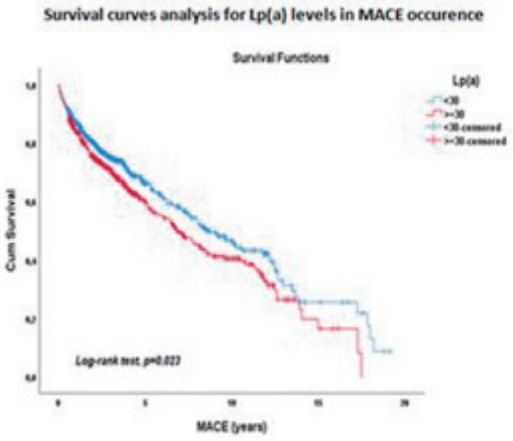
Débora Sá[1], Roberto Palma dos Reis[2], Marina Santos[1], Margarida Temtem[1], Ana Célia Sousa[1], Eva Henriques[1], Mariana Rodrigues[1], Sónia Freitas[1], Sofia Borges[1], Ilídio Ornelas[1], António Drumond[1], Maria Isabel Mendonça[1]

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

Introduction: Lipoprotein(a) [Lp(a)] is an LDL-like molecule composed of a part of apolipoprotein(a) bounding covalently to apolipoprotein B-100. High plasma Lp(a) levels were associated with MACE in stable CAD patients. Recent research shows contradictory results in stable CAD patients with high Lp(a) plasmatic levels and impaired glucose metabolism in MACE occurrence.
Objectives: Investigate whether high Lp(a) levels were associated with MACE in CAD patients with impaired glucose metabolism, at an extended follow-up.
Methods: A prospective cohort of 1,127 CAD patients with impaired glucose metabolism (pre-diabetes and diabetes) was observed during 4.9 ± 3.4 years (range 1 to 17 years). Pre-diabetes was considered when fasting plasma glucose ranged from 5.6 to 6.9 mmol/L, or hemoglobin A1c levels ranging from 5.7 to 6.4%. We consider high Lp(a) when values ≥ 30 mg/dL. Bivariate and multivariate analysis evaluated the risk of Lp(a)≥ 30 mg/dL for MACE occurrence. Kaplan-Meier curves estimated the survival probability for low and high Lp(a) levels.
Results: Of the patients with Lp(a) levels > 30 44.4% presented MACE and 32.0% presented no MACE (p < 0.0001). Cox regression analysis with smoking, hypertension, dyslipidemia, physical inactivity and kidney failure (creatinine clearance < 60 mL/min) showed that high Lp(a) remained in the equation as an independent risk factor for MACE (HR = 1.24; p = 0.031). The Kaplan-Meier showed better survival in the group with lower Lp(a) levels (p = 0.023).



PO 27 Figure



Independent risk factors for MACE occurrence (Cox regression*)

Variables	Hazard ratio (95% CI)	P-value
Physical inactivity	1.322 (1.064 – 1.643)	0.012
Creatinine <60	1.450 (1.074 – 1.958)	0.015
Lp(a)≥30	1.240 (1.020 – 1.507)	0.031

*Forward wald method (SPSS vs 25.0). Smoking, hypertension and dyslipidemia did not remained in the equation. Statistically significant for p<0.05.

PO 28 Figure

Conclusions: Our study demonstrated that high Lp(a) levels were an independent predictor for MACE and for cardiovascular mortality in a CAD population with impaired glucose metabolism. This result suggests that Lp(a) measurement may help further risk stratification for diabetes and pre-diabetes patients suffering CAD. With the recent development of drugs that selectively lower Lp(a) levels, this marker can become a clinical target for reducing CVD risk.

PO 29. MY PATIENT HAS A POSITIVE ISCHEMIA TEST: WILL HE HAVE OBSTRUCTIVE CORONARY ARTERY DISEASE?

Raquel Menezes Fernandes, Hugo Alex Costa, Miguel Espírito Santo, Dina Bento, João Pedro Guedes, Hugo Vinhas, Ilídio Jesus

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

Introduction: Functional non-invasive tests are useful to detect myocardial ischemia in patients with chronic coronary syndrome (CCS). However, their false positive rate is not negligible.
Objectives: To characterize CCS patients referred to coronary angiography (CA) after a positive ischemia test, in whom obstructive coronary artery disease (CAD) is detected.
Methods: We conducted a retrospective study enrolling CCS patients referred to CA in our Cardiology Department from October 2018 to January 2021, after a positive ischemia test. Clinical and complementary diagnostic exams characteristics, and follow-up data were analysed. Obstructive CAD was defined as the presence of at least one stenosis ≥ 70% (> 50% if left main coronary artery (LMCA)). Primary endpoint was the composite of myocardial infarction (MI), all-cause hospitalization and mortality.
Results: During this period, 236 CCS patients were referred to CA, with a median age of 67 years-old and male predominance (76.6%). The prevalence of cardiovascular risk factors was high and 79.5% of patients were in Canadian Cardiovascular Society class II. The majority only performed exercise electrocardiogram (ECG) (62.7%), followed by myocardial perfusion scintigraphy (MPS) (25%) and stress echocardiogram (9.7%). Stress echocardiogram was the ischemia test with higher sensitivity (78.3%), while MPS had the lowest sensitivity (54.2%). 65.7% of patients had obstructive CAD and coronary intervention was performed in 96%. The rate of severe CAD was 47.9% (LMCA – 8.5%, proximal left anterior descendent artery stenosis – 25%; multivessel disease – 38.6%) and 26.3% had at least one chronic total occlusion. Major procedural complications (p.e. MI, stroke and death) occurred in 2.1%. Patients with obstructive CAD were predominantly male (84.5 *vs.* 61.7%; p < 0.001), had a larger prevalence of previous percutaneous coronary intervention (23.2 *vs.* 12.3%; p = 0.045) and a higher pre-test probability (33.91 ± 13.9 *vs.* 27.27 ± 12.5%; p = 0.003). 82.2% had chest pain and 83.7% had preserved left ventricle ejection fraction. Patients that had a clinical and electrically positive exercise ECG had a larger prevalence of obstructive CAD (81.8 *vs.* 56.1%; p = 0.01). After multivariable analysis, only chest pain was an independent predictor of obstructive CAD (odds ratio = 3.17 [1.31-7.62]; p = 0.01). During a median follow-up of 428 days, primary endpoint occurred in 12.1% of patients, with no statistically significant difference depending on the presence of obstructive CAD.
Conclusions: In our study, 65.7% of CCS patients with a positive ischemia test had obstructive CAD (severe in 47.9%). Stress echocardiogram was more sensitive in detecting CAD, and MPS was the least sensitive. However, chest pain was the only independent predictor of obstructive CAD in our population, reinforcing the role of an accurate clinical history in the management of these patients.

PO 30. EXERCISE ELECTROCARDIOGRAM – A DIAGNOSTIC TEST OF THE PAST?

Raquel Menezes Fernandes, Hugo Alex Costa, Miguel Espírito Santo, Dina Bento, João Pedro Guedes, Hugo Vinhas, Ilídio Jesus

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

Introduction: Functional non-invasive tests are useful to detect myocardial ischemia in patients with chronic coronary syndrome (CCS), but exercise electrocardiogram (ECG) has now a secondary role in the diagnosis of obstructive coronary artery disease (CAD).
Objectives: To characterize CCS patients referred to coronary angiography (CA) after a positive exercise ECG, in whom obstructive CAD is detected.
Methods: We performed a retrospective study enrolling CCS patients referred to CA in our Cardiology Department from October 2018 to January 2021, after a positive ischemia test. We then selected those that only performed an exercise ECG as an initial diagnosis test. Clinical characteristics, complementary diagnostic exams and angiographic characteristics were analysed. Obstructive CAD was defined as the presence of at least one stenosis ≥ 70% (> 50% in the case of the left main coronary artery - LMCA).
Results: During this period, 236 CCS patients were referred to CA, with a median age of 67 years-old and male predominance (76.6%). The prevalence of cardiovascular risk factors was high (arterial hypertension-76.3%; dyslipidemia-88.1%; diabetes mellitus-36.4%; smoking habits-46.2%; obesity-18.1%). 15.7% of patients had a previous MI, 79.5% were in CCS class II and 84.4% had preserved left ventricle ejection fraction. One hundred and forty-eight patients (62.7%) only performed exercise ECG, with a sensitivity rate of 68.2%, which was higher than myocardial perfusion scintigraphy (54.2%). Patients with obstructive CAD were predominantly male (84.2 *vs.* 59.6%; p = 0.001), had a larger frequency of chest pain (89.1 *vs.* 75.6%; p = 0.044) and a higher pre-test probability (36.04 ± 13 *vs.* 28.26 ± 13.4%; p = 0.012). Patients with a clinical and electrically positive exercise ECG had a larger prevalence of obstructive CAD (61 *vs.* 30.8%; p = 0.01), most of them with a shorter duration of exercise (5.92 *vs.* 7.5 min; p = 0.095) and ST-segment depression in inferolateral leads (38.5 *vs.* 12.3%; p = 0.471). The rate of severe CAD was 48% (LMCA disease – 9.5%, proximal left anterior descendent artery stenosis – 26.4%, multivessel disease – 37.8%) and

21.6% had at least one chronic total occlusion. Coronary intervention was performed in 96% of patients with obstructive CAD. Major complications occurred in 2.1%. After multivariable analysis, only a clinical and electrically positive exercise ECG was an independent predictor of obstructive CAD (p = 0.016).
Conclusions: In our study, 68.2% of CCS patients with a positive exercise ECG had obstructive CAD. Exercise ECG is an easily accessible and low-cost exam. It still has a role in diagnosing CAD, especially in patients with a simultaneous clinical and electrically positive test.

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 7) - Miscelânia - Vários Temas

PO 31. PREDICTING THE LONG-TERM OUTCOME OF PATIENTS ADMITTED WITH ACUTE HEART FAILURE TO THE EMERGENCY DEPARTMENT USING RENAL MARKERS

José Lopes de Almeida, Gustavo Campos, Patrícia Alves, Sofia Martinho, João Rosa, Maria João Ferreira, Lino Gonçalves

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

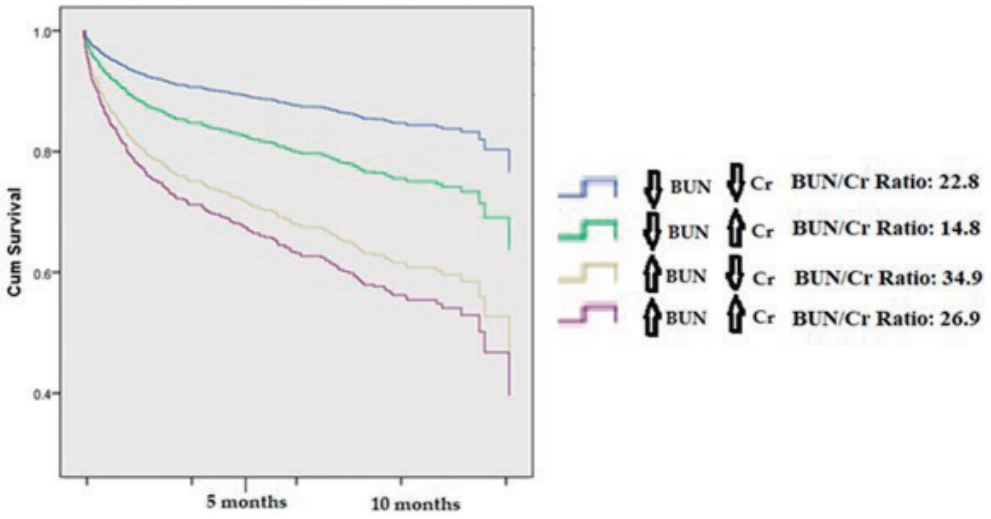
Introduction: Renal dysfunction is one of the most important comorbidities in patients with chronic heart failure (HF) and frequently accentuated in the setting of acute HF (AHF). Serum creatinine and blood urea nitrogen (BUN) have been classically used as markers of renal dysfunction, despite having several limitations. High (BUN)/creatinine ratio has been associated with higher mortality in patients with HF. We aimed to predict the long-term outcome of patients admitted with acute heart failure to the emergency department using renal markers.
Methods: 900 patients admitted to our emergency department diagnosed with AHF were retrospectively analysed. Patients were divided into 4 groups according to BUN and SCr on admission: BUN ≤ 33 mg/dL and SCr ≤ 1.56 mg/dL (group LowBUN/LowCr), n = 544; BUN ≤ 33 mg/dL and SCr > 1.56 mg/dl (group LowBUN/HighCr), n = 25; BUN > 33 mg/dL and SCr ≤ 1.56 mg/dL (group HighBUN/LowCr), n = 131; BUN > 33 mg/dL and SCr > 1.56 mg/dL (group HighBUN/HighCr), n = 200. The primary end-point of this study was the occurrence of all-cause mortality during follow-up.
Results: The median (IQR) BUN level on admission was 28.0 (20) mg/dL, median (IQR) SCr level on admission was 1.15 (0.73) mg/d, mean age was 81 ± 7 years, 50.8% (n = 457) were women and median follow up was 7 months. A total of 41.2% patients were diabetic, 21.7% had at least mild COPD, CAD was present in 28.9% of cases, 44.0% had valvular heart disease and 68.4% patients had atrial fibrillation.
Creatinine, BUN and Cr/BUN ratio predicted survival at 6 months (p < 0.05). Survival was the lowest in the group HighBUN/HighCr and the highest in the group LowBUN/LowCr. As expected, BUN/Cr ratio was the highest in group HighBUN/LowCr and the lowest in group LowBUN/HighCr.
Conclusions: Despite not having the highest BUN/Cr ratio, patients with BUN > 33 mg/dL and SCr > 1.56 mg/dL showed the worst prognosis.

PO 32. HOW MUCH MORE HYPERGLYCEMIC IS MY MYOCARDIAL INFRACTION PATIENT AND WHY DOES IT MATTER?

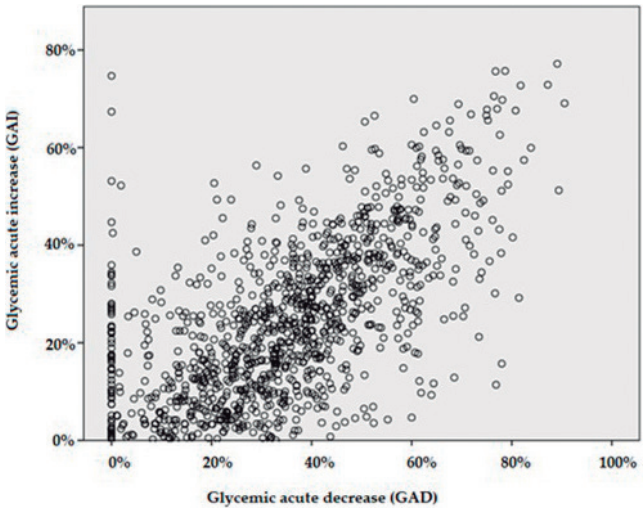
José Lopes de Almeida, Sofia S. Martinho, Gustavo Campos, João Rosa, João Ferreira, Maria João Ferreira, Lino Gonçalves

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

Introduction: Optimal blood glucose concentration target range in myocardial infarction (MI) patients is still a matter of discussion. Both hypoglycemia and hyperglycemia are associated with an increased risk of death and more attention is being given to glycemic variability and how to measure it. We propose two ways of evaluating relative hyperglycemia in MI patients and access its impact on prognosis.
Methods: We retrospectively studied 1117 MI patients admitted to our Coronary Unit for a 10-year period (2004-2014). Admission data and 5-year outcomes were collected. Glycemic acute increase (GAI) was calculated estimating the average 3 months glycaemia (3MG) using admission HbA1c and comparing it with admission glycaemia (AG) using the formula: GAI = ((AG-3MG)/AG)*100. Glycemic acute decrease (GAD) was calculated by comparing admission and discharge glycaemia (DG) using the formula: GAD = ((AG-DG)/AG)*100.
Results: 51.9% patients had STEMI and 48.1% NSETMI. 70.9% were male, average age was 68 years, 36.9% had diabetes,75.4% hypertension, 75.4% dyslipidemia,15% were smokers, 8.4% had previous PCI and 3.5% previous CABG. Average GAI was 24.8% and average GAD was 35.4%. GAI and GAD were both strong predictions of 6 months, 1 year, 3 years and 5 years mortality (p < 0.05). GAI and GAD were moderately correlated (Spearson correlation = 0.63, p < 0.001, Fig.). Patients who died after 5 years of follow-up had a 7.9% higher GAI (31.7 *vs.* 23.8%, p < 0.001) and a 4.4% higher GAD (39.3 *vs.* 34.9%, p < 0.001).



PO 31 Figure



Conclusions: The degree of hyperglycemia relative to the patient baseline correlates with prognosis in patients with MI.

PO 33. SHOULD WE TRUST SCORES TO RULE OUT TRANSESOPHAGIC ECHOCARDIOGRAPHY IN PATIENTS WITH *STAPHYLOCOCCUS AUREUS* BACTERIEMIA?

Ana Beatriz Garcia, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Catarina Oliveira, Ana Margarida Martins, Ana Abrantes, Miguel Azaredo Raposo, João Fonseca, Catarina Gregório, Pedro Carrilho Ferreira, Fausto J. Pinto

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

Introduction: *Staphylococcus aureus* remains the most frequent pathogen in infectious endocarditis (IE) with high mortality and complication rates, despite widespread prophylaxis, diagnostic and therapeutic procedures. Due to the high frequency of IE and its potential complications, current ESC guidelines recommend routine echocardiographic examination in pts with S. aureus bacteriemia (SAB), with either TTE or TOE. Despite higher sensitivity, TOE is an invasive method, not widely available and thus patient selection is key. Recently, three scores have been proposed to best select pts with SAB who may not need TOE if deemed low risk.

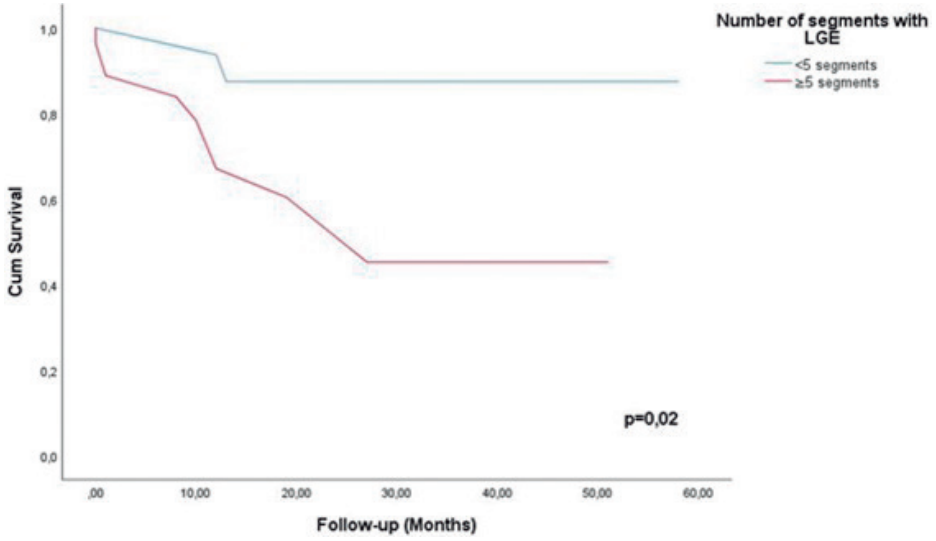
Objectives: To validate the diagnostic accuracy of three predictive scores in a population of pts with SAB.
Methods: Single center observational study, of 79 pts with SAB who performed TOE for EI diagnosis. Clinical and laboratory characteristics were collected at baseline. Three diagnostic scores – POSITIVE, PREDICT and VIRSTA – were calculated for every patient and results were compared using Chi-square and Mann-Whitney tests.
Results: We compared 21 pts with EI *vs.* 53 pts with bacteriemia only. There were no statistical significant differences in demographic (mean age 64 ± 15 years *vs.* 65 ± 16 years, p = 0.876; 66% males *vs.* 79%; p = 0.45), clinical and echocardiographic features. No significant difference in baseline characteristics regarding prosthesis, implantable devices or other risk factors, such as iv drug use. We applied the predictor scores to both groups and saw no statistical differences between them – PREDICT 2.55 ± 1.1 *vs.* 2,92 ± 1.54, p = 0.350; VIRSTA 3.96 ± 2.65 *vs.* 4.55 ± 2.79 p = 0.293; POSITIVE 1.41 ± 2.16 *vs.* 2.00 ± 2.50 p = 0.317). No other variables were predictors of endocarditis, except for bicuspid aortic valve which associated with higher risk (p = 0.044). When analysing outcomes in these two groups we noted a higher rate of complications in pts with IE: cerebral embolic events - 3 stroke and 2 silent embolic event (SEE) in comparison with just 3 events on the other group (1stroke and 2 SEE), p = 0.029 – and need for mechanical ventilation during hospitalization (15 *vs.* 2.1%, p = 0.042).
Conclusions: In our population we did not find these scores able to accurately classify SAB pts as low risk and thus safely exclude TOE from diagnostic approach. Given the high risk of complications associated with IE, clinical evaluation, lab tests and imaging should be integrated to best select the right method for each patient.

PO 34. CARDIAC MAGNETIC RESONANCE IN MYOCARDITIS: BESIDES THE DIAGNOSIS?

Pedro Rocha Carvalho, José Monteiro, Catarina Carvalho, Marta Bernardo, Catarina Ferreira, Inês Silveira, Paulo Fontes, Ilídio Moreira

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

Introduction: Patients with acute myocarditis (AM) can be at increased risk of adverse cardiac events after the index episode. Beyond its undoubted role in diagnosis, Cardiac Magnetic Resonance (CMR) can also provide additional prognostic information and contribute to the patients risk stratification.
Methods: Retrospective study with patients admitted with the clinical suspicion of myocarditis in our center from February/2018 to September/2021, in whom CMR was performed. A total of 48 patients were included and divided into two groups based on the number of segments with late gadolinium enhancement (LGE). The threshold (> or < than 5 segments)



PO 34 Figure

was determined according to ROC curve analysis. The primary outcome was a composite of all-cause mortality, heart failure and myocarditis recurrence.
Results: We included 48 patients (95.8% males; mean age 37.0 ± 16.1 years old), 93.8% presenting with chest pain and 63.2% presenting with st-segment elevation on electrocardiogram. During hospitalization, 3 patients needed ionotropic support, 7 had supraventricular tachycardia, 9 non-sustained ventricular tachycardia, 1 sustained ventricular tachycardia, 1 needed extracorporeal membrane oxygenation and 9 had heart failure. CMR (performed 6 days (median) after admission) showed LGE in 45 patients (93.8%) and mean left ventricular ejection fraction (LVEF) of 55.5 ± 8.7%. Both groups had similar age (35.0 ± 13.7 *vs*. 38.5 ± 17.6 years, p = 0.45), cardiovascular risk factors, st-segment elevation at admission (61.9 *vs*. 63.0%, p = 0.38), pro-BNP levels at admission [286 (IQR 144-699) mg/dl *vs*. 522 (IQR 222-1253) mg/dl, p = 0.20] and peak C-reactive protein [5.7 (IQR 4-12) *vs*. 5.2 (IQR 2.6-12.5), p = 0.77]. Patients with LGE in ≥ 5 segments (56.3%) had lower LVEF (53.2 ± 9.6 *vs*. 58.2 ± 6.6, p = 0.02), had more non-sustained ventricular tachycardia episodes (29.6 *vs*. 4.8%, p = 0.03), incidence of heart failure during hospitalization (25.9 *vs*. 9.6%, p = 0.02) and higher peak troponin levels [1.54 (IQR 0.64-2.45) *vs*. 0.594 (IQR 0.374-1.07), p = 0.002]. During a median follow-up of 21.5 (IQR 8-35.2) months, 11 patients (22.9%) experienced the primary outcome (6 for heart failure, 4 for AM recurrence, 1 death). The incidence of the primary endpoint increased by 1.20 (95%CI 1.08-1.60) for each segment involved. Patients with ≥ 5 segments had a higher incidence of this outcome (25.7 *vs*. 5.1 per 100 patient/year, log rank p = 0.02) (figure 1). After adjusting for possible cofounders, LGE≥ 5 segments on CMR was an independent predictor of all-cause mortality, heart failure and myocarditis recurrence (HR 7.22, 95%CI 1.33-39.16).
Conclusions: In this study, LGE involving 5 or more segments by LGE was correlated with adverse cardiovascular events among patients with suspected myocarditis. These data suggest that cardiac resonance imaging might add value to currently existing diagnostic tools for risks assessment in AM.

PO 35. IMPLICATIONS OF SEPTAL LATE GADOLINUM ENHANCEMENT IN PATIENTS WITH ACUTE MYOCARDITIS

Gonçalo R. M. Ferreira[1], Luísa Gonçalves[1], Inês Pires[1], João Miguel Santos[1], Joana Correia[1], Vanda Neto[1], João Fiuza[1], João Corrêa[2], Gabriela Venade[1], Bruno Marmelo[1], Miguel Correia[1], Costa Cabral[1]

[1]Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio. [2]Centro Hospitalar Cova da Beira, EPE/Hospital Distrital da Covilhã.

Introduction: Acute myocarditis (AM) is an inflammatory disease of the heart muscle, usually with a benign clinical course. Recent and conflicting data suggest that myocardial septal late gadolinium enhancement (LGE) in cardiac magnetic resonance (CMR) may be associated with a worse prognosis.
Objectives: The aim of the present study was to evaluate the prevalence and prognostic implications of septal LGE in AM.
Methods: Selected all patients admitted in five consecutive years in a Cardiology ward, with AM diagnosis by the Lake-Louise criteria on CMR. Division in two groups: Group A – AM with septal LGE; and Group B - AM without septal LGE. Comparison between the groups in terms of clinical, blood analysis, and cardiac imaging on admission, and significant events on follow-up, like mortality, rehospitalization, and left ventricular ejection fraction (LVEF) by echocardiography. Follow-up of up to 2-years. Groups were compared using the student T-test and Pearson's Chi-Square.
Results: 82 patients were selected, 87.8% male (n = 72) with mean age of 31 [18-74 years]. 26.8% in Group A (n = 22). In terms of follow-up, 90.2% (n = 74) of the patients completed the 2-year clinical follow-up, but only 56% (n = 46) of them had the echocardiography assessments available at two years follow-up. In comparison with Group B, Group A was composed more frequently by women (27.3 *vs*. 6.7%, p = 0.012), presentation with syncope (9.1 *vs*. 0.0%, p = 0.018), and ventricular tachycardia on ECG (9.1 *vs*. 0.0%, p = 0.018), a superior length of stay (8 ± 0.9 *vs*. 6 ± 0.4 days, p = 0.012), no difference on the admission troponin, but a higher troponin peak (31,630 ± 13,259 *vs*. 18,634 ± 2,035 ng/L, p = 0.001), lower serum creatinine (0.79 ± 0.05 *vs*. 0.82 ± 0.01 mg/dL, p = 0.023). There was no difference in the assessment of LVEF by echocardiogram on the acute episode (A: 59.5 ± 1.6 *vs*. 58.3 ± 1.2, p = 0.4), but in the follow-up, Group A had lower LVEF (60.5 ± 1.8 *vs*. 66.5 ± 0.8, p = 0.04). No patient died during the follow-up, and there was no difference in morbidity during the follow-up (dysrhythmias, dilated cardiomyopathy, implantable cardioverted defibrillator/pacemaker, heart transplant). A total of 10 patients were readmitted due to recurrent MC in the two-year follow-up, but without differences between groups.
Conclusions: AM with septal LGE seems to be associated with clinical and analytical features that are already known to be associated with a worse prognosis in AM. It would be important to access the prognosis on a longer follow-up because, although during the 2 years follow-up no clinical adverse event was recorded, septal LGE was associated with a lower LVEF.

Sexta-feira, 22 Abril de 2022 | 10:00-11:00

Sala Jardim de Inverno | Posters (Sessão 1 - Écran 8) - Doença Valvular 1 - Vários

PO 36. TRICUSPID REGURGITATION – PATIENTS CHARACTERISTICS, TREATMENT AND OUTCOMES

Alexandra Castelo, Duarte Cacela, António Fiarresga, Ruben Ramos, Luísa Branco, Ana Galrinho, Pedro Brás, Vera Ferreira, Bárbara Teixeira, Rui Ferreira

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

Introduction: Tricuspid valve has been neglected for a long time, but there is increasing evidence of its importance in patients' morbidity and mortality, with increasing interest on its treatment.
Objectives: To describe a cohort of patients with tricuspid regurgitation, concerning comorbidities, treatment options and clinical outcomes.
Methods: Retrospective analysis of patients (P) with tricuspid regurgitation between 2018 and 2021 in a tertiary center. Baseline characteristics, treatment decisions and outcomes were collected.
Results: 67P were included (73.1% female), with a mean age 76 ± 12 years. P had several associated comorbidities (hypertension 80.6%, coronary artery disease 14.9%, previous stroke 13.4%, atrial fibrillation 88.1%, chronic kidney disease 52.2%, previous bleeding 17.9%). 27P had previous cardiac surgery (34.3% valvular surgery). A device was implanted in 43.3% (90% pacemaker and 10% defibrillator). All P were taking diuretics (100% furosemide, mean dose 56 mg, 35.8% spironolactone, mean dose 27 mg, 11.9% metolazone, mean dose 4 mg) and 76.1% were under oral anticoagulation (45% vitamin K antagonists, 55% direct oral anticoagulants). 65P were in NYHA class 2 or 3, 55P had peripheral edema, 17P had ascites and 25P had previous hospital admissions for heart failure (1-6 admissions). On echocardiography 59.7% had right ventricle dilation, mean TAPSE was 19.5 mm and PASP 44 mmHg. Tricuspid regurgitation was classified into severe in 68.7%, massive in 4.5% and torrential in 26.9%, and was caused by annulus dilation in 65.7%, leaflet restriction in 6% and prolapse in 4.5% and lead induced in 16.4%. Mean Euroscore II was 5.34 ± 4.24%. 7P were accepted for surgery (4P were effectively operated), 4P for clip implantation (3P submitted to the procedure), 8P for TricValve implantation (4P with implantation done), 19P are still being study and 29P were considered for clinical surveillance only (17P with few symptoms, 7P with contraindication for intervention and 5P with frailty). During the follow up 15P (22.4%) died, 3 of them related to heart failure. The majority (12P) died without any tricuspid intervention (5P were accepted for a procedure but died before it could be done), 1P died after surgery (cardiogenic shock) and 2P died after TricValve implantation (1P in the same hospital admission, 1P 4 months later with a septic shock). All the other treated patients had a significant clinical improvement (NYHA

class I or II on follow up, no edema and no ascites), without new heart failure hospital admissions and with diuretic doses reductions.
Conclusions: Tricuspid regurgitation is associated with increased morbidity and mortality when a timely treatment is not achieved. Besides frailty, most of these patients have several comorbidities, which makes the percutaneous interventions an attractive new treatment option.

PO 37. IMPACT OF CONCOMITANT MITRAL AND TRICUSPID REGURGITATION IN PATIENTS WITH SIGNIFICANT CHRONIC AORTIC REGURGITATION

Gualter Santos Silva, Mariana Brandão, Mariana Silva, Pedro Queirós, Diogo Ferreira, Ricardo Fontes-Carvalho, Francisco Sampaio

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

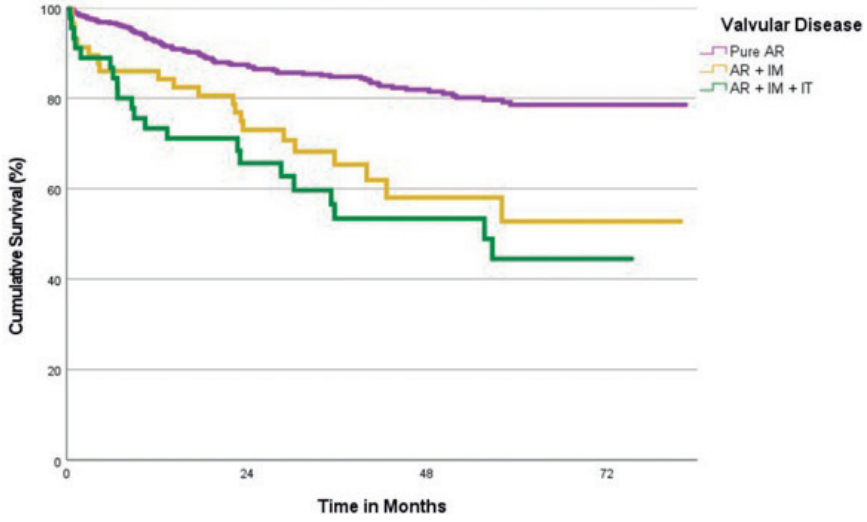
Introduction: Clinical outcomes of patients with significant chronic aortic regurgitation (AR) may be affected by a series of "downstream" pathophysiological cardiac consequences. However, the impact of cardiac consequences of AR beyond those related to the left ventricle (i.e., dilation and systolic dysfunction) are not well established.
Objectives: Our aim was to investigate the prognostic impact of concomitant significant mitral regurgitation (MR) and tricuspid regurgitation (TR) in patients with significant AR.
Methods: Clinical, echocardiographic and outcome data of patients with moderate-severe AR who underwent transthoracic echocardiography between January 2014 and September 2019 were retrospectively analysed. According to echocardiographic characteristics (i.e. significant mitral and/or tricuspid regurgitation) patients were divided into three groups: pure AR, AR + MR and AR + MR + TR. The primary endpoint was all-cause mortality. Exclusion criteria were severe aortic stenosis and previous valve repair or replacement.
Results: Of 571 patients enrolled (median age 73, IQR 62-80 years, 51% male), 469 (82%) had pure AR, 57 (10%) had AR + MR and 45 (8%) had AR + MR + TR. Median follow-up time of 39.5 months (IQR 22.2 to 61.0). At baseline, groups exhibited differences in age (69 ± 14, 75 ± 10 and 77 ± 11 years, respectively), male sex (45%, 37% and 33%), history of smoking (19%, 11% and 9%), atrial fibrillation (22%, 34% and 67%), LV dysfunction (18%, 40% and 44%), LV end-systolic volume (62 ± 37, 83 ± 63 and 69 ± 38 mL) and RV dysfunction (1%, 11% and 16%). At the end of follow-up, cumulative death was significantly higher in AR + MR and AR + MR + TR patients (log rank < 0.001; Fig.). On multivariable analysis (adjusted for age, sex, atrial fibrillation, history of smoking, LV dysfunction, LV end-systolic volume, right ventricle dysfunction and aortic valve replacement), compared with pure AR, AR + MR + TR was independently associated with all-cause mortality (HR: 2.16; 95%CI 1.26 to 3.70; p = 0.005).
Conclusions: Our study showed that concomitant significant valvular damage is not uncommon (18%). As compared with pure AR, AR + MR + TR carry a survival penalty and represents an advanced stage within the AR clinical spectrum. These downstream consequences beyond the left ventricle should be considered to establish the timing of intervention, even in patients with moderate to severe AR, in whom current guidelines do not recommend AVR.

PO 38. CLINICAL AND ECHOCARDIOGRAPHIC PREDICTORS OF WORSENING MITRAL REGURGITATION AFTER PERCUTANEOUS MITRAL VALVE REPAIR

Catarina Simões de Oliveira, Pedro Silvério António, Sara Couto Pereira, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Ana Margarida Martins, Ana Beatriz Garcia, Catarina Gregório, João Santos Fonseca, Miguel Nobre Menezes, Cláudia Jorge, João Silva Marques, Fausto J. Pinto, Pedro Cardoso

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

Introduction: Percutaneous mitral valve repair is an option for patients (pts) with severe mitral regurgitation (MR) that are not good surgical candidates. Since mitral edge-to-edge repair improves MR severity, pts usually report symptomatic and functional improvement. However, there is a trend towards worsening MR overtime after repair.
Objectives: Evaluate predictors of recurrence and worsening MR after percutaneous mitral valve repair in a real-world population.
Methods: Single-center record registry of consecutive pts submitted to percutaneous MR repair with MitraClip from 2013 to October 2021. Demographic, clinical and echo variables were obtained before and after the procedure and during follow up (FUP).
Results: Sixty three procedures were included (mean age 73.5 ± 12 years, 60.3% males). Most pts had secondary grade 3 and 4 MR (38 pts, 60.3%), predominantly with Carpentier type 3b MR (33, 52.4%); 35 pts were in NYHA class III and 14 in class IV. At baseline TTE, mean left ventricular ejection fraction was 40.5 ± 17%, LV end diastolic volume 147 ± 107mL, LV end systolic volume 96 ± 88 mL, mean vena contracta 7.3 ± 1.7 mm, mean regurgitant volume 75 ± 37 mL, mean EROA 0.67 ± 1.3 cm^2, LV global longitudinal strain -10.4 ± -4%, RV 4 chambers (C) strain -15.2 ± -6.5, RV free wall (FW) strain -16.2 ± 7, TAPSE 19.4 ± 10 mm and PSAP 50.5 ± 17.4 mmHg. Procedure success was achieved in 95.2%, with a complication rate of 6.3% (4 pts: procedure failure in 2; 1 vascular complication and 1stroke). During FUP, 19 pts died (8 from cardiovascular causes). Success of the procedure with acute improvement of MR occurred in 59 pts (≥ 2 grades to no regurgitation or mild in 36 pts). After a mean FUP of 13 ± 14.7 months, 32 pts had TTE to evaluate MR: 12 did not worsen MR, 15 worsened MR by 1 point and 5 pts by 2 points. We



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observed significant improvement of NYHA class in the short term (3.0 ± 0.7 *vs.* 2 ± 0.7, p = 0.001). After a mean FUP of 34.6 ± 25.3 months pts maintained symptomatic improvement (2 ± 0.7 *vs.* 1.9 ± 0.5, p = 0.366). Lower baseline RV strain (4C and FW) and TAPSE were predictors of MR worsening to the same grade before the procedure (p = 0.011, p = 0.027, p = 0.005 respectively). We didn't find other TTE or clinical predictors of MR worsening in FUP.
Conclusions: RV function evaluated with strain and TAPSE before MitraClip were the only predictors of worsening MR at long term FUP. However, our data suggest that clinical improvement may be seen, regardless of MR progression after edge-to-edge repair.

PO 39. COVID-19 IMPACT ON REFERRALS, TREATMENT DECISIONS AND TIME ON THE WAITING LIST FOR VALVULAR HEART DISEASE INTERVENTION

Mariana Passos[1], Carolina Pereira Mateus[1], Inês Fialho[1], Joana Lima Lopes[1], João Baltazar Ferreira[1], David Roque[1], Márcio Madeira[2], João Bicho Augusto[1], Miguel Santos[1], Sérgio Bravo Baptista[1], Pedro Farto e Abreu[1], Carlos Morais[1], José Neves[2]

[1]*Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra.*
[2]*Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz.*

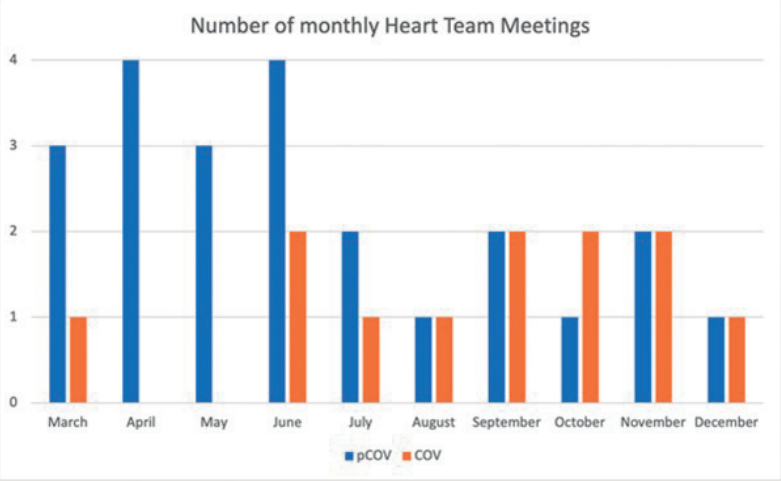
Introduction: While a significant impact of COVID-19 on healthcare is well documented, the impact on the specific context of Heart Team (HT) is unknown. The objective of this study was to evaluate how the pandemic may have impacted HT referrals, treatment decisions, time on the waiting list for valvular heart disease (VHD) intervention and major events in this population.
Methods: Single center prospective registry of patients (pts) with VHD discussed at the HT meeting between March and December 2020 (COVID-19 period - COV) and a control group from the corresponding period in 2018 (pre-COVID, pCOV). Patients were followed for 12 months. We defined major adverse events (MACCE) as a composite of all-cause mortality, stroke, myocardial infarction, hospital readmission due to cardiac causes or worsening heart failure symptoms.
Results: A total of 151 pts were analyzed (49.0% female, median age 77 [IQR 70-83] years). A numerically inferior number of pts were discussed in the COV period (n = 63) as compared with pCOV (n = 88). Between April and May 2020, the HT meetings were suspended (Fig.). There were no significant differences regarding baseline characteristics, except for a higher frequency of aortic valve stenosis and insufficiency in the COV group (p = 0.023 and p = 0.04, respectively). There were no significant differences on the acceptance rate for intervention (pCOV 94.3 *vs.* COV 96.8%, p = NS). The median waiting time (WT) tend to be higher in the COV period (200 [IQR 103-352] *versus* 151.5 [IQR 29-335] days, p = 0,056), with the pre-specified WT determined during the HT meeting not being accomplished in a significantly higher proportion of COV period patients (85.5 *vs.* 69.1%, p = 0.04). The frequency of interventions prioritized as "high" (due in < 15 days) were significantly higher in the pCOV group (23.9 *vs.* 9.5%, p = 0.031); conversely, in the COV group a "normal priority" (due in 45-90 days) was more frequent (69.8 *vs.* 48.9%, p = 0.012). Among patients with "intermediate" priority (due in 15-45 days) there were a significantly higher prevalence of MACCE in the COV group (50 *vs.* 14.3%, p = 0.04).
Conclusions: The impact of the first year of COVID-19 pandemic was two-fold. First, there was a marked reduction in VHD patients referred to the HT meeting, with a coincidentally smaller acceptance rate and increased waiting time for intervention. Second, there was an increase in cardiovascular events among intermediate priority patients. Healthcare agents, and HT doctors in particular, should be aware of these aspects in order to minimize the impact of potential future COVID-19 waves on VHD interventions.

PO 40. IS WILKINS SCORE OVER 9 A DEFINITIVE LIMIT TO FAVORABLE LONG-TERM SUCCESS IN PERCUTANEOUS VALVE COMMISSUROTOMY?

Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, João Calvão, Catarina Costa, Ana Filipa Amador, Catarina Marques, André Cabrita, Luís Santos, Cátia Priscila, Ana Pinho, Mariana Paiva, João Carlos Silva, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Percutaneous valve commissurotomy (PMC) is an established treatment in patients with significative mitral stenosis (MS). Although rheumatic MS incidence has decreased in the last century, it remains a prevalent pathology worldwide. The Wilkins score (WS) is a reference in echocardiographic assessment of MS; a score ≤ 8 is considered a predictor of treatment success and score between 9 and 11 is a "gray zone" (WGZ) in which doubts persists regarding PMC success.
Objectives: To evaluate the early and long-term results of PMC in patients with rheumatic MS and to compare long-term events between patients with WS ≤ 8 and patients in WGZ.
Methods: We retrospectively analysed all patients between 1991 and 2008 with significative rheumatic MS undergoing PMC. Data were collected at baseline and during long-term follow-up. MACE was defined as a composite of all-cause mortality, mitral valve re-intervention or cardiovascular hospitalization.
Results: In our cohort, 124 patients were included. Most were female (87%), mean age at the time of repair was 46 ± 11 year-old and mean follow-up was 20 ± 6 years. Before the procedure, 81% had WS ≤ 8 and 19% were in WGZ. Both groups had similar baseline characteristics, namely age at first intervention, NYHA class and follow-up time. All patients had preserved biventricular systolic function, 83% presented PH, mean transvalvular gradient (TVG) and mitral valve area (MVA) were 12.8 mmHg and 1.0 cm², respectively. Most of the procedures were successful (91%) and without



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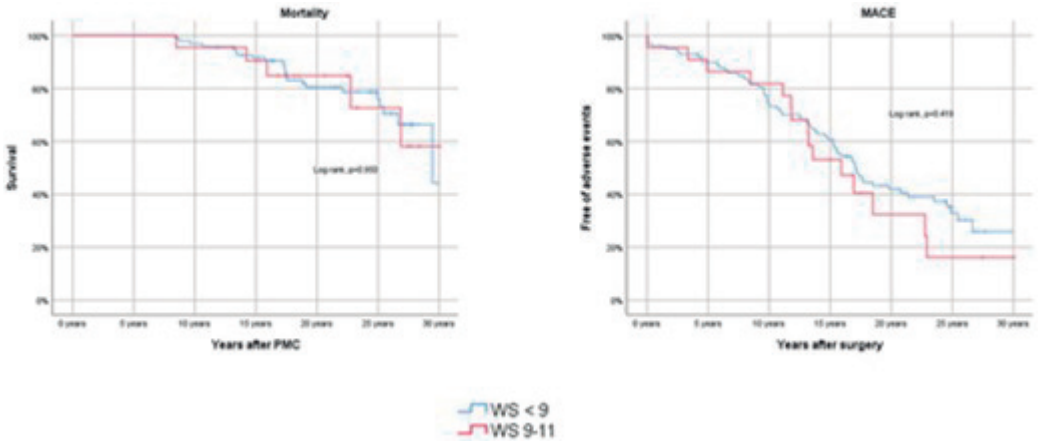

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complications (94%). Mean MVA improvement was similar in both groups [0.9 cm^2 in WS ≤ 8 and 0.8 cm^2 in WGZ, t(102) = 0.173, p = 0.863]; there was also no significative difference in TVG and PASP reduction after PMC. During long-term follow-up, re-intervention and mortality occurred in 40% and 23% in WS ≤ 8 and in 50% and 29% in WGZ, respectively, and none of these differences was statically significant (p = 0.389 and p = 0.544, respectively). Concerning time-to-event analysis, approximately 80% of patients kept uneventful and > 90% alive after 10 years in both groups and no significant difference in MACE events and all-cause mortality between WS ≤ 8 and WGZ was observed (Log Rank, p = 0,419 and p = 0.950, respectively).
Conclusions: PMC was safe and effective in clinically significant rheumatic MS in both WS ≤ 8 and WS 9-11, with similar MVA improvement. After 10 years, approximately 80% of patients maintained MACE-free and > 90% alive in both groups. There was no difference in all-cause mortality and in a composite of all-cause death, mitral valve re-intervention or cardiovascular hospitalization concerning WS groups.

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

Sala Jardim de Inverno | Posters (Sessão 2 - Écran 1) - DAC e Cuidados Intensivos 2 - Tronco comum e Idade

PO 41. MANAGEMENT OF ACUTE LEFT MAIN OCCLUSION IN SURGICAL AND NON-SURGICAL CENTERS: A MULTICENTER STUDY

Mariana S. Brandão[1], Marta Braga[2], João Calvão[2], Andreia Campinas[3], André Alexandre[3], Bruno Brochado[3], João Carlos Silva[2], Gustavo Pires-Morais[1], Pedro Braga[1], Marisa Passos Silva[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Centro Hospitalar Universitário de S. João, EPE. [3]Centro Hospitalar do Porto, EPE/Hospital Geral de Santo António.

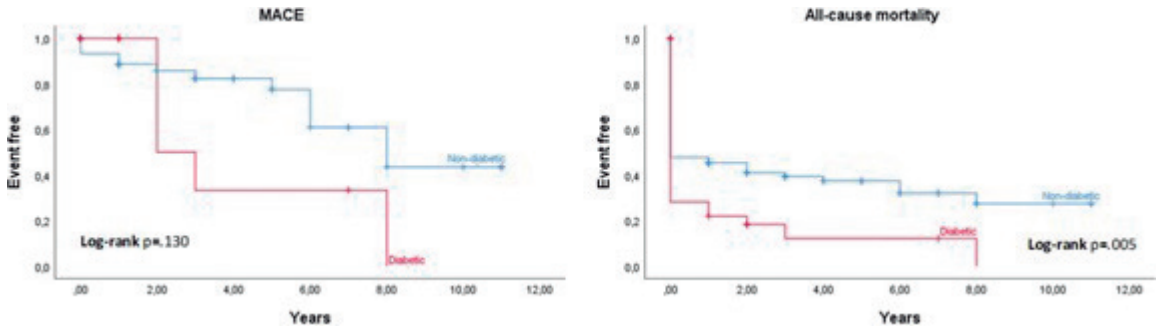
Introduction: Myocardial infarction due to acute left main coronary artery (LM) occlusion (ALMO) is often catastrophic, with frequent need for mechanical circulatory support (MCS) and surgery. We aimed to compare the management of patients (pts) with ALMO in surgical and non-surgical centers.
Methods: Multicenter retrospective study including 2 surgical centers (SC) and 1 non-surgical center (NSC). All patients presenting with unprotected ALMO (Thrombolysis In Myocardial Infarction [TIMI] ≤ 2) between January 2008 and December 2020 were included.
Results: 128 patients (age 63.4 ± 11.4 years, 74.2% male) were included (SC: n = 85, 66.4%; NSC: n = 43, 33.6%). Baseline characteristics were comparable between groups. In SC, more patients presented with total (TIMI 0) ALMO (56.5 *vs.* 25.6%, p < 0.001) and with cardiogenic shock (69.4 *vs.* 41.9%, p = 0.006). Use of MCS was more frequent in SC (75.3 *vs.* 20.9%, p < 0.001), as were device-related complications (p = 0.002). The intraaortic balloon pump was the mainly used device in both groups (n = 66); duration of support was longer in SC (2.3 ± 2.9 *vs.* 0.8 ± 1.5 days, p = 0.026). Concomitant use of > 1 MCS device (n = 14), use of venoarterial extracorporeal membrane oxygenation (n = 19) and Impella (n = 2) were exclusive of SC. Use of vasopressors (80.7 *vs.* 51.2% p < 0.001) and mechanical ventilation (60.0 *vs.* 37.2%, p = 0.024) was more common in SC. Radial access was used less often in SC (12.9 *vs.* 51.2%, p < 0.001). In both groups, pts were mostly treated with PCI (84.3 *vs.* 97.6%, p = 0.059). Thrombectomy was performed more often in SC (38.8 *vs.* 19.0%, p = 0.041), whereas stent implantation in the index procedure was rarer (64.7 *vs.* 86.0%, p = 0.02). Multivessel disease was rarer in SC pts (12.9 *vs.* 46.5%, p < 0.001). More patients in SC underwent coronary artery bypass grafting [CABG] (15.3 *vs.* 2.3%, p = 0.026).In-hospital mortality was comparable (56.5 *vs.* 48.8%, p = 0.528). Need for reintervention in the LM was found solely in NSC patients (9.3 *vs.* 0%, p = 0.019), all previously treated with PCI. During a mean follow-up of 1.6 ± 2.8 years, mortality remained comparable between groups (*Log rank* test, p = 0.572).
Conclusions: Disparities in the access to therapies still pose a challenge to acute cardiovascular care teams. Management in SC was related to more frequent and longer use of MCS and supportive therapies, and of CABG. Despite a higher rate of multivessel disease, CABG was rare in NSC patients. Still, in-hospital and long-term outcomes were comparable between SC and NSC.

PO 42. A MULTICENTER REGISTRY OF ACUTE LEFT MAIN CORONARY ARTERY OCCLUSION: DIABETES MATTERS?

Mariana S. Brandão[1], Marta Braga[2], João Calvão[2], Andreia Campinas[3], André Alexandre[3], Bruno Brochado[3], João Carlos Silva[2], Gustavo Pires-Morais[1], Pedro Braga[1], Marisa Passos Silva[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Centro Hospitalar Universitário de S. João, EPE. [3]Centro Hospitalar do Porto, EPE/Hospital Geral de Santo António.

Introduction: Acute left main coronary artery (LMCA) occlusion is often a catastrophic event. Diabetes may add complexity to this high-risk scenario.
Objectives: To compare outcomes of diabetic (DM) and non-diabetic (NDM) patients presenting with acute LMCA occlusion.
Methods: Multicenter retrospective study including all patients presenting with acute unprotected LMCA occlusion (Thrombolysis In Myocardial Infarction [TIMI] ≤ 2) between January 2008 and December 2020. Patients were divided into 2 groups: DM and NDM. MACE comprised reinfarction, reintervention, hospitalization for heart failure, stroke and cardiovascular mortality.
Results: 128 patients (74.2% male, mean age 63.4 ± 11.4 years) were included, of whom 39 (30.7%) were diabetic. DM patients were older (66.9 *vs.* 61.0



PO 42 Figure

years, p = 0.010), and more often hypertensive (84.6 *vs.* 54.5%, p = 0.002) and dyslipidemic (74.4 *vs.* 50.0%, p = 0.018). ST-elevation myocardial infarction was the main clinical presentation in both groups (68.4 *vs.* 68.6%, p = 0.984). Symptom to coronary angiography time (4.0 *vs.* 4.5 hours, p = 0.472), occurrence of cardiac arrest (47.4 *vs.* 50.0%, p = 0.939) or cardiogenic shock (66.7 *vs.* 56.8%, p = 0.427) did not differ. Three-vessel disease was more common in DM (38.5 *vs.* 17.0%, p = 0.017); degree of collateral circulation was comparable between groups. Most patients underwent PCI (94.6 *vs.* 86.0%, p = 0.289), and procedural characteristics did not differ significantly, except for lower use of glycoprotein IIb/IIIa inhibitors in DM (12.8 *vs.* 30.2%, p = 0.037). CABG was rare in both groups (5.1 *vs.* 13.6%, p = 0.248). In-hospital (64.1 *vs.* 48.9%, p = 0.163) and 30-day (56.4 *vs.* 43.2%, p = 0.332) mortality were comparable between groups, but 5-year mortality was higher in DM patients (84.6 *vs.* 61.6%, p = 0.016). Among patients surviving the index-event, occurrence of MACE was similar between groups (Log-rank test, p = 0.130). During a mean follow-up of 1.6 ± 2.8 years, all-cause mortality was higher in DM patients (*Log-rank* test, p = 0.005) [Fig.].

Conclusions: In this cohort of patients presenting with acute LMCA occlusion, clinical presentation and method of revascularization did not differ between diabetic and non-diabetic patients. While in-hospital and short-term outcomes were comparable between groups, long-term outcomes were poorer in diabetic patients: all-cause mortality was higher in the DM group, during follow-up. Larger studies are warranted to clarify if the management of diabetic patients in this setting should be tailored.

PO 43. OUTCOMES OF PATIENTS WITH ACUTE UNPROTECTED LEFT MAIN CORONARY OCCLUSION: A MULTICENTRE STUDY

Marta Braga[1], João Calvão[1], João Carlos Silva[1], Mariana Brandão[2], Marisa Passos Silva[2], Gustavo Pires Morais[2], André Alexandre[3], Andreia Campinas[3], Bruno Brochado[3], Filipe Macedo[1]

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Introduction and objectives: Acute myocardial infarction (MI) due to left main coronary artery (LMCA) occlusion is a rare event and limited data are available on morbidity and mortality of these patients. This study sought to evaluate short- and long-term outcomes of patients with acute MI (≤ 12h of symptom onset) due to unprotected LMCA occlusion.

Methods: We performed a retrospective multicentre analysis of 128 consecutive patients presented with ST-segment elevation MI (STEMI) or very high-risk non-ST segment elevation MI from January 2008 to December 2020, whose emergent coronary angiography showed acute unprotected left main coronary artery occlusion/subocclusion (Thrombolysis In Myocardial Infarction – TIMI ≤ 2).

Results: Mean age was 63.3 ± 11.4 years and 74.2% were male. Only 12.5% of patients had previous MI. Chest pain was the most frequent symptom referred, whereas syncope was described in 10.2% of patients. Most patients presented with STEMI and 50.8% had V1-V4 ST elevation on electrocardiography. Emergent coronary angiography showed distal LMCA occlusion in 71 (55.5%) patients, 59 (46.1%) had TIMI 0 and 88 (68.8%) had Rentrop grade 0. Primary percutaneous coronary intervention (PCI) was performed in 110 (85.9%) patients and was successful (remaining stenosis< 30% and TIMI = 3) in 71.8%. Severe left ventricle systolic dysfunction (LVSD) was reported in 32.3% and only 10 patents (7.8%) had moderate to severe mitral valve regurgitation. Only 1 mechanical myocardial complication was described. About 74.2% of patients complicated with cardiogenic shock (CS) at admission or during hospitalization, 52.3% needed mechanical invasive ventilation and 10.9% required haemodialysis. Mechanical circulatory support (MCS) was used in 69 (53.9%) patients, mostly intra-aortic balloon pump. Extracorporeal membrane oxygenation was used in 19 (14.8%) patients. In-hospital mortality was 51.6%. Severe LVSD and CS were independent predictors of in-hospital mortality (odds ratio [OR]: 63.4 [95% confidence interval (CI): 6.0 to 669.7], p = 0.001, and OR 10.5 [95%CI: 1.4 to 77.6], p = 0.021, respectively). After a median follow-up of 32.0 months (P_{25} 12.8, P_{75} 75.0), 38.7% of in-hospital survivors had died and 30 (48.4%) patients experienced major adverse cardiac events, defined as death, acute MI, repeated LM PCI, or heart failure hospitalization.

Conclusions: Acute MI due to unprotected LMCA occlusion is associated with high in-hospital mortality, especially if patients presented with CS and/or severe LVSD. Survivors of index MI have also poor long-term outcomes. This study highlights the need to further trials in this high-risk subgroup to optimize treatment strategy and improve their outcomes.

PO 44. ACUTE MYOCARDIAL INFARCTION IN PATIENTS WITH ACUTE OCCLUSION OF THE LEFT MAIN CORONARY ARTERY – DOES AGE MATTER?

João Calvão[1], Marta Braga[1], Mariana Brandão[2], Andreia Campinas[3], André Alexandre[3], Ana Filipa Amador[1], Catarina Martins da Costa[1], Catarina Amaral Marques[1], André Cabrita[1], Ana Isabel Pinho[1], João Carlos Silva[1], Bruno Brochado[3], Gustavo Pires-Morais[2], Marisa Passos Silva[2], Filipe Macedo[1]

[1]Centro Hospitalar Universitário de S. João, EPE. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [3]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António.

Introduction: Acute myocardial infarction (AMI) due to acute occlusion of the left main coronary artery (LMCA) is an uncommon event associated with a dismal prognosis. There is limited data regarding management and outcomes in this population. Moreover, elderly patients may be at a particularly high risk of poor outcome.

Objectives: To characterize elderly patients presenting with acute LMCA occlusion and assess their short- and long-term outcomes.

Methods: In this retrospective multicentric study, we identified 11 036 patients with ST-segment elevation myocardial infarction (STEMI) or high-risk non-ST segment elevation myocardial infarction who underwent emergent coronary angiography between January 2008 and December 2020. Among this cohort, we analyzed 128 patients who presented with unprotected LMCA occlusion (Thrombolysis In Myocardial Infarction – TIMI ≤ 2) and divided them in 2 groups according to their age at presentation: G1 (patients ≥ 70 years old) and G2 (< 70 years old).

Results: Of 128 patients with AMI due to LMCA occlusion, 41 patients had ≥ 70 years and 87 patients had < 70 years. The mean age was 76.2 ± 5.5 years in G1 and 57.5 ± 8.0 years in G2. Most patients in both groups were male. At

presentation, the proportion of patients with STEMI (63.4 *vs.* 70.2%, p = 0.44), cardiogenic shock (53.7 *vs.* 64.0%, p = 0.27) and cardiorespiratory arrest (17.1 *vs.* 29.9%, p = 0.12) were similar between groups. Most patients were submitted to primary percutaneous coronary intervention, which was considered successful in 76.3% of G1 patients and 68.0% of G2 patients (p = 0.36). The use of intra-aortic balloon pump was similar in both groups (51.2 *vs.* 51.7%, p = 0.96). VA-ECMO was used in 21.8% of G2 patients. None of the patients from G1 received VA-ECMO support. Overall, in-hospital mortality was high, with no statistically significant differences between groups (46.3 *vs.* 54.0%, p = 0.42). Among patients surviving the index-event, there was however a lower long-term survival among G1 patients (p = 0.002), who had a 5-year all-cause mortality of 76.5% compared to 29.3% in G2 patients (p = 0.002).
Conclusions: A substantial proportion of AMI due to LMCA occlusion occurs in elderly patients. This subgroup has similar in-hospital mortality compared to younger patients, but outcomes among survivors are significantly worse. There is a need of further studies in order to improve the initial and subsequent medical treatment in an attempt to improve the prognosis of these patients.

PO 45. EMERGENT CORONARY ANGIOGRAPHY IN A 90-PLUS POPULATION – OUTCOMES AT 5-YEARS FOLLOW-UP

Ricardo Alves Pinto, Tânia Proença, Miguel Martins Carvalho, Ana Filipa Amador, Catarina Costa, João Calvão, André Cabrita, Catarina Marques, Ana Pinho, Luís Santos, Cátia Priscila, Paula Dias, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Elderly people represents a vulnerable and increasing population presenting with acute coronary syndrome (ACS). Several data suggest the benefit of an early revascularization in ST-elevation (STE)-ACS or non-STE-ACS with positive troponin. However questions persist considering the unavoidable adverse prognosis, patient's functional and cognitive status, comorbidities and preferences.
Objectives: To evaluate a group of very old patients who underwent emergent coronary angiography (CA).
Methods: We retrospectively analyzed a group of very old patients (≥ 90 year-old) who underwent emergent CA from January 2008 to September 2020. Clinical features were collected; survival and MACE were compared with an aged-matched control population with ACS not submitted to emergent CA. MACE was defined as a composite of all-cause death, ischemic stroke, ACS and hospitalization for acute heart failure.
Results: A total of 34 patients were enrolled: 56% female, with mean age 92 ± 2 year-old. As for the cardiovascular risk factors, 88% had hypertension, 49% dyslipidaemia, 12% diabetes and 15% were previous smokers. Concerning other comorbidities, 27% had atrial fibrillation, 21% chronic kidney disease, 12% had cerebrovascular disease and median modified Rankin scale for neurologic disability was 2. Almost all patients had STE-ACS, 68% anterior and 29% inferior, inferolateral or inferoposterior infarction; 3% had infarction of indeterminate location. In CA, 65% had multivessel disease, 14% of them involving left main coronary artery; coronary intervention was performed in 71% of patients (mostly stent implantation), the remaining 29% had no invasive treatment. Concerning to clinical status, median troponin was 131,517 ng/L and median BNP 496 pg/mL; 36% of patients evolved in Killip class III or IV and only 32% of patients had normal left ventricular systolic function. Regarding mortality, 38% of patients died in the index-event *versus* 25% in the aged-matched control group (p = 0.319). During five years of follow-up, there was no significant difference in mortality between the two groups (log rank, p = 0.403) and more than 50% of patients died in two years. Comparing MACE occurrence, both groups were similar (log rank, p = 0,662), with more than 80% having at least one event in five years.
Conclusions: Very old patients submitted to emergent CA had a high percentage of multivessel disease, left ventricular dysfunction and mortality during hospitalization. Compared to an aged-matched control group, they showed no survival or MACE benefit of emergent CA strategy during a five-years follow-up. Although this is a small study, these findings highlight the efforts that should be made to optimize care in this vulnerable population, under-represented in the clinical trials. Special caution should be given to avoid possible unnecessary discomfort in this setting.

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

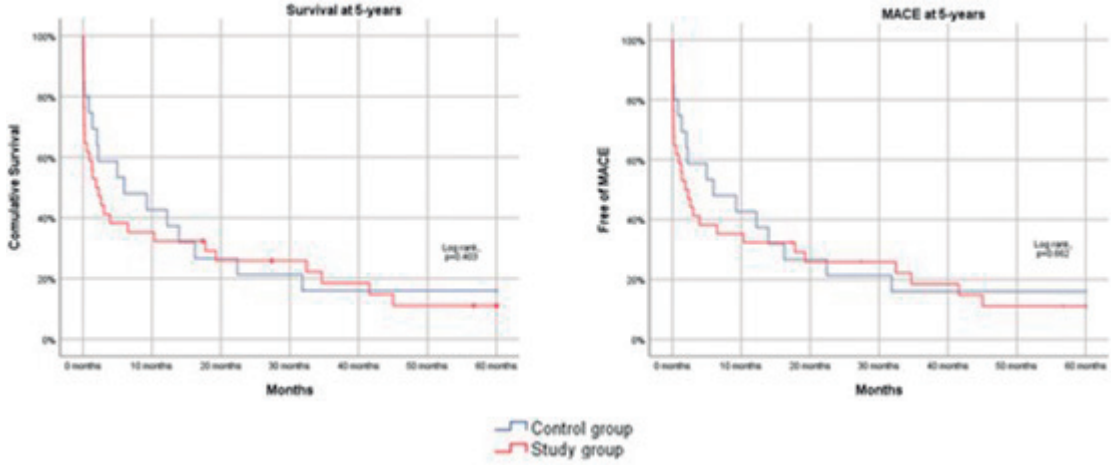
Sala Jardim de Inverno | Posters (Sessão 2 - Écran 2) - Arritmias 2 - Arritmias Ventriculares 1

PO 46. PREDICTORS OF SURVIVAL AND ICD SHOCKS IN NON-ISCHEMIC CARDIOMYOPATHY PATIENTS SUBMITTED TO VENTRICULAR TACHYCARDIA ABLATION

João Santos Fonseca, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Miguel Azaredo Raposo, Afonso Nunes Ferreira, Gustavo Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Patients (pts) with non-ischemic cardiomyopathy (NICM) present an increased morbidity and mortality from sustained monomorphic ventricular tachycardia (VT). Implantable cardiac defibrillators effectively



PO 45 Figure

Table 1. Univariate and Multivariate Analysis of Risk Factors Associated With All-cause Mortality

	Univariate analysis		Multivariate analysis	
	HR (95%CI)	P value	HR (95%CI)	P value
NYHA functional class III-IV	1.035 (0.369-2.904)	0.034	-	-
LVEF < 30%	1.8 (0.69 – 5.095)	0.035	-	-
NT-proBNP	1 (0.9-1)	0.041	-	-
CKD*	3.2 (1.16-8.86)	0.006	6.0 (1.5 -23.2)	0.010
Previous VT ablation	2.188 (0.811-5.906)	0.08	-	-
Secondary prevention ICD	2.646 (0.984-7.116)	0.001	-	-

*Estimated glomerular filtration rate δ 60 ml/m2
LVEF : Left ventricle ejection fraction; NYHA: New York Heart Association

PO 46 Figure

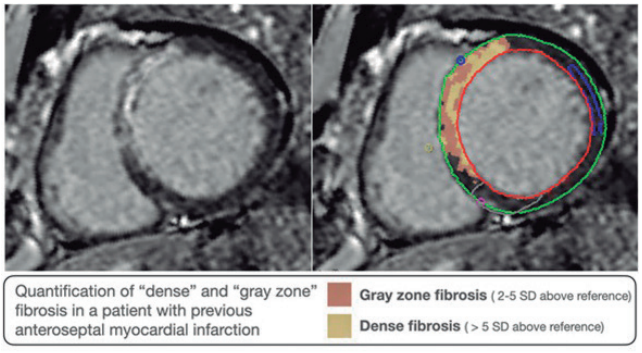
terminate VT, but ablation is usually required to prevent recurrences and appropriate shocks. Although several risk factors have been pointed out, clear prognostic predictors need to be established and addressed.
Objectives: To evaluate risk factors associated with all-cause mortality and ICD shocks in NICM pts submitted to VT ablation.
Methods: Prospective, observational, single-centre study of pts with NICM submitted to VT ablation using high density mapping tools. The primary outcome was all-cause death or VT recurrence terminated with appropriate ICD shock during long-term follow up. Kaplan-Meier analysis was used to estimate the long-term event-free survival. Uni and multivariate Cox regression analyses were used to determine relevant prognostic predictors.
Results: A total of 27 consecutive pts with NICM were referred for a first-ever VT ablation procedure between June 2015 and June 2021 (males: 93%; mean age: 61 ± 12 years). The mean left ventricular ejection fraction (LVEF) was 35 ± 12% and 70% of pts had NYHA class I or II. During a mean follow-up of 29 ± 19 months, VT recurrences requiring ICD shocks occurred in 25.9% of pts. VT ablation success and the risk of ICD shocks were not associated with any of the clinical characteristics. Long-term all-cause mortality was 37%. In univariate analysis, LVEF < 30%, NT-proBNP, NYHA classification III-IV, chronic kidney disease (CKD), ICD for secondary prevention and prior VT ablation (p = 0.08) were associated with reduced survival. On multivariate analysis, CKD was identified as the strongest independent survival predictor (HR 6.9; 95%CI: 1.5-23-2, p = 0.010).
Conclusions: In pts with NIDM, VT ablation may be successful even in pts with advanced heart disease. However, long-term survival will depend mostly on the stage of disease progression and is strongly associated with the clinical markers of end-stage heart failure. Therefore, a timely referral is crucial to derive the best clinical benefit from VT ablation in this population.

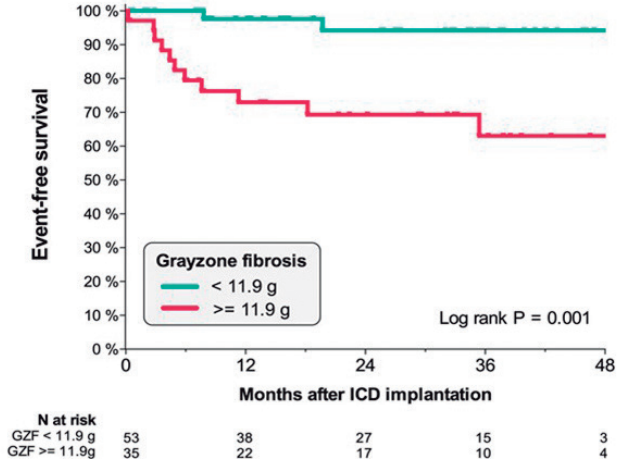
PO 47. THE PERI-INFARCT "GRAY ZONE" OF MYOCARDIAL FIBROSIS IS A BETTER PREDICTOR OF VENTRICULAR ARRHYTHMIAS THAN DENSE CORE FIBROSIS IN PATIENTS WITH PREVIOUS MYOCARDIAL INFARCTION

Pedro M. Lopes, Gonçalo Cunha, Pedro Freitas, Bruno Rocha, João Abecasis, João Carmo, Sara Guerreiro, Pedro Galvão Santos, Francisco M. Costa, Pedro Carmo, Diogo Cavaco, Francisco Morgado, Miguel Mendes, Pedro Adragão, António M. Ferreira

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

Introduction: Current sudden cardiac death (SCD) risk stratification relies heavily on left ventricular ejection fraction (LVEF), but markers to refine risk assessment are needed. Dense core fibrosis (DCF) and peri-infarct "gray zone" of myocardial fibrosis (GZF) on late gadolinium enhancement (LGE) cardiac magnetic resonance (CMR) have been proposed as potential arrhythmogenic substrates. The aim of our study was to determine whether DCF and GZF could predict the occurrence of ventricular arrhythmias in patients with previous myocardial infarction.
Methods: We performed a single centre retrospective study enrolling consecutive patients with previous myocardial infarction undergoing CMR before implantable cardioverter-defibrillator (ICD) implantation. Areas of LGE were subdivided into "core" DCF and "peri-infarct" GZF zones based on signal intensity (> 5 SD, and 2-5 SD above the mean of reference myocardium, respectively). The primary endpoint was a composite of sudden arrhythmic death, appropriate ICD shock, ventricular fibrillation (VF), or sustained ventricular tachycardia (VT) as detected by the device.
Results: A total of 88 patients (median age 61 years [IQR 54-73], 84% male, median LVEF 30% [IQR 23-36%], 14% secondary prevention) were included. During a median follow-up of 23 months [IQR 9-38], 13 patients reached the primary endpoint (10 appropriate ICD shock, 2 sustained VT or VF, and 1 sudden arrhythmic death). Patients who attained the primary endpoint had similar DCF (30.4 g ± 14.7 *vs.* 28.0 g ± 15.3; p = 0.601) but a greater amount of GZF (18.1 g ± 9.6 *vs.* 11.9 g ± 6.7; p = 0.005). On univariate analysis, GZF was associated with the composite endpoint (HR: 1.09 per gram; 95%CI: 1.02-1.15; p = 0.006), whereas DCF was not (HR: 1.01 per gram; 95%CI: 0.98-1.05; p = 0.571). After adjustment for LVEF, GZF remained independently associated with the primary endpoint (adjusted HR: 1.06 per gram; 95%CI: 1.01-1.12; p = 0.035). Decision tree analysis identified 11.9 g of GZF as the best cut-off to predict life-threatening arrhythmic events. The primary endpoint occurred in 11 out of the 35 patients (31.4%) with GZF ≥ 11.9 g, but in only 2 of the 53 patients (3.8%) with GZF < 11.9 g (Fig.).





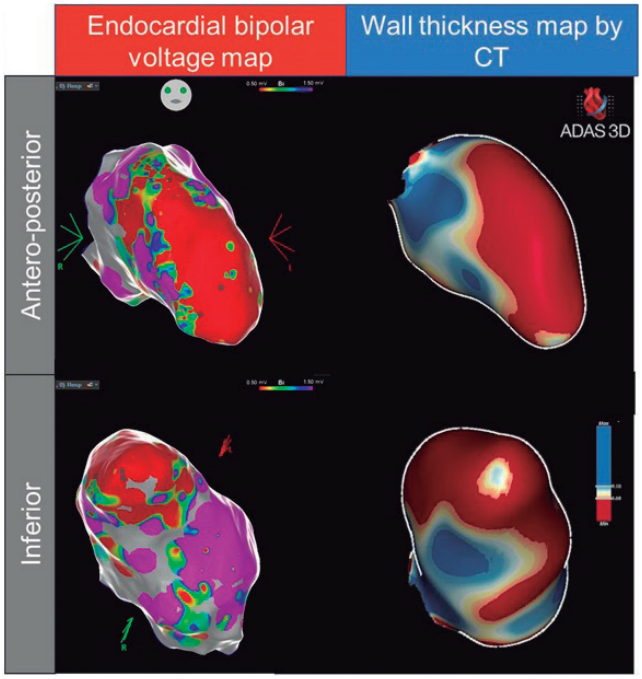
Conclusions: The extent of peri-infarct GZF seems to be a better predictor of ventricular arrhythmias than DCF. This parameter may be useful to identify a subgroup of patients with previous myocardial infarction at increased risk of life-threatening arrhythmic events.

PO 48. CORRELATION BETWEEN LEFT VENTRICLE WALL-THICKNESS BY CT AND ENDOCARDIAL POTENTIALS IN PATIENTS WITH ISCHEMIC CARDIOPATHY- A PILOT STUDY

Gonçalo Lopes da Cunha, Sérgio Maltês, Pedro Freitas, Sara Guerreiro, João Abecasis, Gustavo Rodrigues, João Carmo, Pedro Galvão Santos, Francisco Costa, Pedro Carmo, Diogo Cavaco, Francisco Morgado, Miguel Mendes, António Ferreira, Pedro Adragão

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

Introduction: Scar-related ventricular tachycardia (VT) is frequently the treatment target in patients with ischemic cardiopathy undergoing VT ablation. While cardiac magnetic resonance (CMR) is the gold standard for planning VT ablation, its accuracy is hindered in patients with implanted cardiac defibrillators (ICD) and resynchronization therapy (CRT). Cardiac computed tomography (CT) has emerged as an alternative for ablation planning in these patients. The purpose of this study was to evaluate the relationship between wall thickness (WT) on cardiac CT and intensity of electrical potentials on endocardial eletroanatomic mapping (EAM) in patients with ischemic cardiopathy.



Methods: This was a single centre retrospective study enrolling patients with ischemic cardiopathy referred for endocardial VT ablation that underwent cardiac CT for procedure planning. Patients were excluded if EAM had < 1,000 data points. ADAS 3D® software was used to analyse CT images, automatically segmenting the left ventricle (LV) into the 17 American Heart Association segments and calculating end-diastolic WT for each one. Screenshots of the segmented LV on ADAS were taken in 4 standardized planes (antero-posterior, postero-anterior, superior and inferior) and used to aid in manual segmentation of EAM. The endocardial voltage maps were created using CARTO3® (Biosense Webster). For each patient, EAM was interpreted to create 2 bulls 'eye maps, according to the presence or absence of bipolar potentials < 0.5 (dense scar) or 1.5 mV (low voltage). Only segments that had > 20% extension of low bipolar voltage were considered as altered.
Results: We included a cohort of 5 patients with a median age of 69 (68-71) years, all male with a median LVEF of 35% (28-35)). All but one patient had implanted cardiac device (3 ICD, 1 CRT-D). CT was performed a mean of 1.3 days before the ablation. We analysed 85 segments, 4 of which did not have voltage information. Of the remaining 81, 37 (44%) had dense scar and 45 (53%) had low voltage. There was a good correlation between mean WT and the presence or absence of both dense scar (area under de curve (AUC) 0.808, $p < 0.001$) and low voltage (AUC 0.796, $p < 0.001$) in each LV segment.
Conclusions: WT measured by CT seems to have a strong correlation with dense scar and low voltage in EAM in patients with previous myocardial infarction undergoing VT ablation. This technique may be useful to plan interventions in patients in whom CMR is not feasible.

PO 49. BRUGADA SYNDROME: CHARACTERIZATION OF A PORTUGUESE BRUGADA SYNDROME COHORT

Margarida Martins, Joana Brito, Pedro Silvério António, Sara Couto Pereira, Pedro Alves da Silva, Beatriz Valente Silva, Ana Beatriz Garcia, Catarina Simões de Oliveira, Catarina Gregório, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

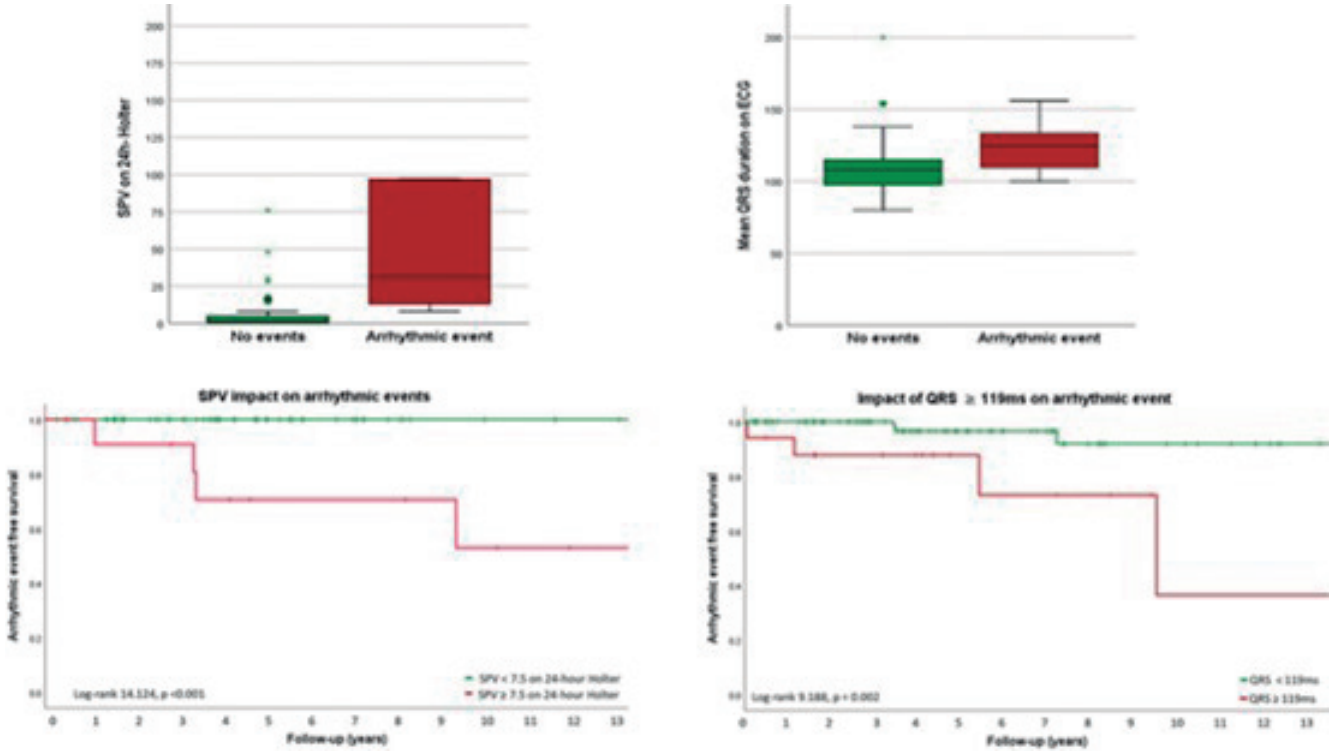
Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.

Introduction: Brugada syndrome (BrS) is an inherited cardiac arrhythmic disorder that can lead to sudden cardiac death. Although SCN5A was the first pathogenic associated gene, other potential genes have been described. The relationship between SCN5A, spontaneous type 1 pattern and the predisposition to ventricular arrhythmias is not totally understood.
Objectives: To characterize mutations in a Portuguese cohort with BrS and to explore the genotype-phenotype association in terms of electrocardiographic pattern and arrhythmic risk.
Methods: Prospective single-center study of patients (pts) with BrS. Genetic test included SCN5A direct sequencing from 2003 a broad panel of 120 genes associated with cardiomyopathies and arrhythmic disorders from 2018. Genetic test results were classified according to pathogenicity: mutations of unknown significance (MUS), mutations potentially pathogenic (MPP) and known pathogenic mutations (KPM). Kaplan-Meyer survival analysis was used to explore the association between genetic test results and the risk of arrhythmic events during follow-up.
Results: A total of 94 pts [46 ± 12 years, 67% male, 64.9% with type 1 spontaneous pattern, 35.1% with type 1 induced pattern] were submitted to genetic testing. No relevant mutations were identified in 68 pts (72%) and suspicious or pathogenic mutations were recognized in 26 (28%). The most frequent mutations occurred in SCN5A (N = 20, 76.9%), and included 8 KPM: 4 in exon 23 (3 of them had the same mutation, c.4018G>A), 2 in exon 26 (c.4534C>T), 1 in exon 28 and 1 in exon 16. All MPP in SCN5A occurred either in exon 23 or 28. Considering MUS, 7 different mutations were described in 6 different exons (8, 15, 18, 23, 25 and two in 28). Additionally, in 6 pts (6.4%) presented MUS in other genes: SCN10A (N = 2), ANK2 (N = 2), SFM13A, CAV2 (associated with long QT), CACNA1D and PXDNL. We found no differences in the prevalence of spontaneous type 1 pattern considering gene mutation or mutation pathogenicity. A non-significant trend to higher arrhythmic risk was observed in pts presenting genetic mutations (either KPM, MPP or MUS), Long-Rank: 1.743, $p = 0.187$ (Fig.).
Conclusions: Gene mutations are identified in a minority of BrS pts, mostly at SCN5A gene. No association was noticed between genetic test results and the ECG pattern. However, pts with identified mutation presented a tendency to higher arrhythmic risk. At present time, genetic tests in BrS are only relevant for familial screening, but long-term collection of data is crucial to elucidate the genotype-phenotype relation and arrhythmic risk.

PO 50. QRS DURATION AND FREQUENT PVC: ADDITIONAL FEATURES IN BRUGADA SYNDROME STRATIFICATION

Joana Brito, Pedro Silvério António, Beatriz Valente Silva, Pedro Alves da Silva, Sara Couto Pereira, Gustavo Silva, Afonso Nunes Ferreira, Ana Paixão, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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



PO 50 Figure

Introduction: Brugada syndrome (BrS) is a channelopathy with high prevalence of malignant arrhythmic events. The risk stratification in patients (pts) with Brugada electrocardiographic (ECG) pattern is of major importance, to prevent sudden cardiac death (SCD). A higher risk is evidenced in spontaneous type 1 pattern when compared with induced type-1 pattern, as so other electrocardiographic features have been explored aiming to detect additional prognostic factors.
Objectives: To evaluate the association of QRS duration and frequent premature ventricular contractions (PVC) with malignant arrhythmic events.
Methods: Prospective single-center study of consecutive pts with BrS, with spontaneous or induced type 1 pattern included from 2003 to 2021. All pts were enrolled in a protocol including annual non-invasive assessment with ECG and 24-hours Holter monitoring. Primary endpoints were defined as SCD or appropriate shocks in the context of ventricular tachycardia or fibrillation (VT/FV) during follow-up. Cox regression and Kaplan-Meier survival analyses were used to determine the association between the baseline ECG and Holter characteristics and the long-term risk of arrhythmic events.
Results: A total of 117 pts was included, 75 (65%) with a spontaneous type 1 pattern and 44 (33%) with an induced type 1 pattern. The mean age was 47 ± 13 years and 38 (32.5%) were male. During a median follow-up of 4.1 ± 0.3 years, the primary endpoint occurred in 8 (6.8%) pts, with sudden cardiac death in 3 (2.6%) and appropriate shocks due to VT/FV in 5 (4.3%). Pts who suffered arrhythmic events had presented at the study inclusion higher QRS duration (124 ± 18 *vs*. 108 ± 16 ms, p = 0.014) and more frequent PVCs on 24-hour Holter (169 ± 297 *vs*. 29 ± 198; p = 0.001). Indeed, the presence of QRS ≥ 119 ms was associated with a 7-fold higher risk (HR: 7.250, 95%CI 1.619-32.461, p = 0.010) and the presence of more than 6 PVC on 24-hour Holter was also associated with a 5-fold higher risk of malignant arrhythmic events (HR 5.376, 95% 1.186-24.260, p = 0.029).
Conclusions: QRS duration and frequent PVC may established themselves as additional risk factors. In our cohort, they were both predictors of arrhythmic events during follow-up and thus can further complement BrS risk stratification.

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

Sala Jardim de Inverno | Posters (Sessão 2 - Écran 3) - Ciência Básica

PO 51. THERAPEUTIC EFFECTS OF NEBULIZATION- BASED DELIVERY OF ANTI-MIR-146A IN EXPERIMENTAL PULMONARY ARTERIAL HYPERTENSION

Joana Santos-Gomes, Pedro Mendes-Ferreira, Rui Adão, Carolina Maia-Rocha, Inês Vasconcelos, Inês Gandra, Pedro Salvador, Adelino Leite-Moreira, Carmen Brás-Silva

Faculdade de Medicina da Universidade do Porto.

Pulmonary arterial hypertension (PAH), is a chronic disorder characterized by excessive pulmonary vascular remodeling, resulting in elevated pulmonary vascular resistance and right ventricle (RV) overload and failure. PAH remains incurable, and new therapeutic approaches are required. The microRNA-146a (miR-146a) promotes vascular smooth muscle cell proliferation and vascular neointimal hyperplasia, both important hallmarks of PAH. This study aimed to investigate the role of miR-146a in the pathophysiology of PAH and in the progression to RV hypertrophy and failure. Male Sprague Dawley rats received a subcutaneous injection of monocrotaline, 60 mg/kg, (MCT group) or vehicle (CTRL group). Fourteen days after the injection, they were treated, by intratracheal nebulization, with an anti-miR-146a (2.5 nmol in 100 μl of sterile water) on three different days: 14, 19, and 23, forming four distinct groups: CTRL-treated; CTRL-untreated, MCT-treated, and MCT-untreated. Twenty-seven days after MCT injection, echocardiographic and invasive hemodynamic evaluations were performed in all animal groups. Compared to MCT-untreated rats, the MCT-treated rats showed decreased

RV hypertrophy, (as measured by the Fulton index), decreased RV end-diastolic diameter/left ventricle end-diastolic diameter (RVEDD/LVEDD) ratio, and decreased RV diastolic pressures. Our findings show that miR-146a pharmacological inhibition by an anti-miR-146a, reduces RV remodeling and improves cardiac function. In this way, miR-146a can represent a promising therapeutic target in PAH.

PO 52. ZNF 259C>G VARIANT RS964184 IS ASSOCIATED WITH CORONARY ARTERY DISEASE AND DYSLIPIDEMIA IN THE YOUNGER POPULATION

M. Raquel Santos[1], Maria Isabel Mendonça[1], Débora Sá[1], Margarida Temtem[1], Ana Célia Sousa[1], Eva Henriques[1], Mariana Rodrigues[1], Sónia Freitas[1], Sofia Borges[1], Graça Guerra[1], Ana Freitas[1], Ilídio Ornelas[1], António Drumond[1], Roberto Palma dos Reis[2]

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

Introduction: GWAS demonstrates that BUD13-ZNF259 rs964184 polymorphism was associated with susceptibility to coronary artery disease (CAD). CAD is a dynamic inflammatory disease caused by atherosclerosis, and BUD13-ZNF259 encodes ZPR1 protein that interacts with tyrosine kinase receptors. Recent research has shown that spleen tyrosine kinase (Syk) interact with ZPR1 at the cellular level, increasing inflammatory response and atherogenesis with plaque development in mice.
Objectives: Evaluate the association of BUD13-ZNF259 rs964184 polymorphism with CAD and dyslipidemia (a critical risk factor to CAD).
Methods: A case-control study with 3,160 individuals (1,723 CAD patients with a mean age of 53.3 ± 7.9 years; 78.7% male and 1437 controls, mean age 52.8 ± 7.8; 76.3% male. Participants were stratified into two different age groups (< 45 and > 55 years). BUD13-ZNF259 rs964184 variant was genotyped and analysed using the dominant model (CG+GG) *vs.* CC. Bivariate analysis and multivariate logistic regression were performed in the two age groups to investigate whether BUD13-ZNF259 rs964184 polymorphism was associated with CAD susceptibility and dyslipidemia.
Results: After bivariate analysis, the group < 45 years, the CG+GG genotype of the BUD13-ZNF259 rs964184 showed association with CAD and dyslipidemia, with an OR = 1.46 (p = 0.036) and OR = 1.85 (p = 0.003), respectively. In the > 55 years group, this genetic model was associated with dyslipidemia with an OR = 1.46 (p = 0.020) but not with CAD. After multivariate logistic regression, the CG+GG genotype was an Independent risk factor for CAD susceptibility only in the younger population (OR = 1.60; p = 0.037).

Independent risk factors for CAD in the young population

Variables	Odds ratio (95% CI)	P-value
Smoking status	5.400 (3.536 – 8.244)	<0.0001
Hypertension	3.340 (2.147 – 5.196)	<0.0001
Diabetes	2.821 (1.237 – 6.433)	0.014
CAD family history	2.312 (1.362 – 3.925)	0.002
Physical inactivity	2.061 (1.352 – 3.144)	0.001
ZNF259 (CG+GG)	1.603 (1.029 – 2.498)	0.037
Apolipoprotein B	1.009 (1.005 – 1.014)	<0.0001
Lipoprotein (a)	1.009 (1.002 – 1.016)	0.010

CAD – Coronary artery disease; CI – Confidence interval. CRP did not remain in the equation. Statistically significant for p<0.05.

Conclusions: BUD13-ZNF259 rs964184 polymorphism is a risk factor for dyslipidemia and CAD onset, only in the young population. The interaction of the ZPR1 with Syk at the cellular level seems to be more relevant in young patients. Our results suggest that the BUD13-ZNF259 rs964184 variant may represent a possible prophylactic and therapeutic target in the future, particularly in young CAD patients.

PO 53. IMPACT OF EXERCISE TRAINING AND CARVEDILOL ON CARDIOVASCULAR PARAMETERS IN DOXORUBICIN TREATED RATS

Ana I. Afonso, Â. Amaro-Leal, F. Machado, I. Rocha, V. Geraldes

Faculdade de Medicina da Universidade de Lisboa.

Some conditions like cancer and its treatment, can have a big impact on cardiovascular health. Drugs like doxorubicin (DOX) are highly effective in cancer treatment but accompanied by dose-dependent side effects, including autonomic and cardiovascular toxicity. Some types of adjuvant therapies, particularly non-pharmacological, such as exercise training (ET), and pharmacological, such β-blockers, are usually combined with chemotherapy in order to maintain physiological homeostasis in cancer patients, improving their autonomic and cardiac functions. In our work, we compared the effectiveness of two approaches individually: pharmacological intervention, using carvedilol (CVD), and a non-pharmacological intervention, ET protocol using treadmill training in an animal model of doxorubicin. Female Wistar rats were divided into 4 groups: Doxorubicin (DOX; ip. cumulative dose 16 mg/kg, 1 time/week, for 4 weeks), DOX with ET (DOX+EX; treadmill, 25 cm/seg for 30 min, 5 times/week), DOX with CVD (DOX+CVD; 10 mg/kg, oral, 5 times/week, for 4 weeks) and controls (CTL; NaCl 0.9%, ip.). At the end of the protocol, animals were anaesthetised and blood pressure (BP), electrocardiogram, heart rate (HR) and respiratory frequency (RF) were recorded. Baroreflex gain, BEI, BRS and chemoreflex sensitivity were calculated and HRV were determined. Our results reveal that DOX treatment triggered hypotension: a significant decrease in systolic BP (CTL: 150 ± 5; DOX: 103 ± 10 mmHg) and mean BP (CTL: 129 ± 3; DOX: 90 ± 10 mmHg) as well as in HR (CTL: 379 ± 54; DOX: 288 ± 53 bpm), compared to the CTL group. During DOX treatment, the ET protocol counteracts some of the adverse effects induced by DOX, normalizing the systolic (122 ± 29 mmHg), mean BP (94 ± 20 mmHg) and HR (350 ± 22 bpm). CVD administration during DOX treatment significantly restored HR close to physiological values (369 ± 16 bpm). DOX treatment led to an increase in baroreflex gain compared to the CTL group. CVD treatment, like the ET effect, decreased baroreflex gain compared to the DOX group (DOX: 4.74 ± 2.8; DOX+EX: 0.50 ± 0.07 and DOX+CVD: 0.55 ± 0.06 bpm/mmHg), also restoring BEI, BRS and SDNN to normal values. No significant changes in chemoreflex sensitivity, RF and frequency domain indices were observed. Overall, the present results suggest that, during DOX therapy, ET has an evident beneficial effect on BP values. However, both ET and CVD are good strategies to prevent baroreflex disfunction and maintain normal HR, thus preserving cardiovascular homeostasis.

PO 54. CUMULATIVE DOXORUBICIN DOSAGE IS A TRIGGERING FACTOR FOR COGNITIVE AND PHYSIOLOGICAL DYSFUNCTION?

Filipa Machado, Ângela Amaro-Leal, Ana I. Afonso, Isabel Rocha, Vera Geraldes

Faculdade de Medicina da Universidade de Lisboa.

Cognitive impairment in oncology (also called chemobrain) and anxiety disorders are widely common complications of cancer therapy with doxorubicin (DOX). They dramatically deteriorate patients' quality of life by interfering with the control of different cognitive domains, changing various aspects of memory, emotion and executive function. Despite the large number of studies addressing chemobrain physiological consequences, is not yet known the individual contribution of DOX treatment and cancer by themselves on the observed effects, since these adverse effects may be caused by cancer itself, cancer therapy, or both. Thus, in order to clarify DOX action on behavioral disturbances upon cumulative treatment, in this preliminary study on a healthy animal model, we determined the extension of doxorubicin effects due to various therapeutic doses on cognitive decline, anxiety, locomotor activity and cardiovascular parameters. For that, adult, normal weight, female Wistar rats were DOX-treated for 4 weeks: LDOX (n = 8; low dose, 2 mg/kg/week), IDOX (n = 8; intermediate dose, 4 mg/kg/week), HDOX (n = 8; high dose, 5 mg/kg/week) and control (n = 5; NaCl 0.9% saline solution; 1 ml/Kg/week). Behavioral tests of anxiety,

locomotion, and exploration - open field test (OFT), elevated plus maze (EPM) and cognition performance (Y-maze) were accomplished. At the end of the protocol, animals were anaesthetized and blood pressure (BP), electrocardiogram, heart rate (HR) and respiratory frequency (RF) were recorded. Overall, our results showed that the three DOX dosages induced an anxiety-like behavior and locomotor activity impairments. Moreover, DOX treatment, independent of the dosage, induced hypolocomotion which was accompanied by hypoactivity. In addition, HDOX dosage caused short-term memory (HDOX: 16.7 ± 6.2 *vs.* CTR: 37.9 ± 3.3%). All these behavioral changes were accompanied by a significant change in physiological parameters, such as hypotension (LDOX: 128 ± 4 mmHg; IDOX: 90 ± 10 mmHg; HDOX: 76 ± 12 mmHg *vs.* CTR: 129 ± 3 mmHg) and bradycardia (LDOX: 381 ± 18 bpm; IDOX: 288 ± 22 bpm; HDOX: 296 ± 35 bpm *vs.* CTR: 379 ± 22 bpm). These findings suggest that the DOX effects on behavioral function are different according to the cumulative dosage, with the highest dosage causing the most deleterious effects on the behavioral and physiological parameters evaluated. Although further studies are needed to assess the effect of cancer itself on the etiology of the behavioral impairment, these results support the hypothesis that doxorubicin itself contributes to the etiology of cognitive symptomatology in humans, also named "chemobrain".

PO 55. PULMONARY EMBOLISM – PLATELET INDICES' IN PATIENTS WITH OR WITHOUT RIGHT VENTRICULAR DILATATION

Simão de Almeida Carvalho[1], Lisa Ferraz[2], Pedro Carvalho[2], Diana Carvalho[2], Adriana Pacheco[2], Andreia Fernandes[2], Ana Briosa[2]

[1]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro. [2]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro (Aveiro).

Introduction: Platelets are essential components of the coagulation cascade, with physiopathologic impact on the development of innumerous thromboembolic diseases, such as pulmonary embolism (PE). The platelet index - *'Platelet Distribution Width'* (PDW) – measures platelets' size variation or anisocytosis. Studies have shown an association between an augmented PDW value and platelet activation, but despite of their routine measurement, their use as a gravity indicator for PE is reduced.
Objectives: Measurement of quantifiable differences between platelet indices at diagnostic time in patients with or without right ventricle dilation.
Methods: Single center cross-sectional study comprising 141 patients admitted to the emergency department due to PE with an echocardiographic evaluation at diagnosis time. Statistical analysis of data was performed using Independent-Samples t Test.
Results: The total population (n = 141) was subdivided in two groups – with - 51.1% - and without right ventricle dilation – 48.9%. There weren´t significant differences between the two groups on gender (p = 0.108), history of previous PE (p = 0.542), Chronic Obstructive Pulmonary Disease (p = 0.091) and intra-hospital death (p = 0.056). On comparison, the patients in the subgroup with right ventricle dilation were older (70.1 *vs.* 63.9 years, p < 0.05), had a higher percentage of positive I-troponin (86.8 *vs.* 38.5%; p < 0.05) and BNP at admission (81.6 *vs.* 47.4%; p < 0.05) and were submitted more frequently to fibrinolytic therapy (22.5 *vs.* 1.4%, p < 0.05). Patients with right ventricle dilation had a higher PDW value (16.2 *vs.* 15.2%; p = 0.026) and lower total platelet count (200.7 *vs.* 226.1 × 10^9/L; p = 0.043).
Conclusions: The study suggests that patients with right ventricle dilation have a higher PDW value and lower total platelet count when in comparison with patients without right ventricle dilation. These findings suggest a possible association between platelet indices and imagiologic gravity indicators on PE.

T-Test

Group Statistics

	Right Ventricle Dilatation	N	Mean	Std. Deviation	Std. Error Mean
Platelets (x 10E9/L)	No	69	226,07	80,271	9,664
	Yes	72	200,68	67,105	7,908
PDW (%)	No	69	15,1986	3,03981	,36595
	Yes	72	16,2181	2,24074	,26407

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Platelets (x 10E9/L)	Equal variances assumed	1,586	,210	2,041	139	,043	25,392	12,440	,796	49,987
	Equal variances not assumed			2,033	132,615	,044	25,392	12,487	,692	50,091
PDW (%)	Equal variances assumed	4,243	,041	-2,274	139	,025	-1,01950	,44843	-1,90613	-,13288
	Equal variances not assumed			-2,259	124,837	,026	-1,01950	,45128	-1,91266	-,12635

PO 55 Figure

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

Sala Jardim de Inverno | Posters (Sessão 2 - Écran 4) - Insuficiência Cardíaca 2 - Índices e Factores de Prognóstico

PO 56. DOES BLOOD UREA NITROGEN-TO-CREATININE RATIO PREDICT OUTCOMES IN DECOMPENSATED HEART FAILURE?

João Borges Rosa, Sofia S. Martinho, José Lopes de Almeida, Joana Guimarães, Diogo de Almeida Fernandes, Eric Alberto Monteiro, Gonçalo Ferraz Costa, Gustavo M. Campos, Ana Rita M. Gomes, Patrícia M. Alves, Manuel Oliveira-Santos, Lino Gonçalves

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

Introduction: Renal dysfunction is common in patients with heart failure. The blood urea nitrogen-to-creatinine ratio (BUN/SCr) increase in the setting of a prerenal stressor as hypoperfusion of the kidneys, as a consequence of neurohormonal activation and it has been proposed as a prognostic marker in the acute setting. We aimed to evaluate whether BUN/SCr predicts mortality outcomes in a large contemporaneous real-world Southern European population with decompensated chronic heart failure.
Methods: We retrospectively studied 1,057 patients with chronic heart failure admitted to our emergency department between November 2016 and December 2017 with acute decompensation. Baseline clinical and

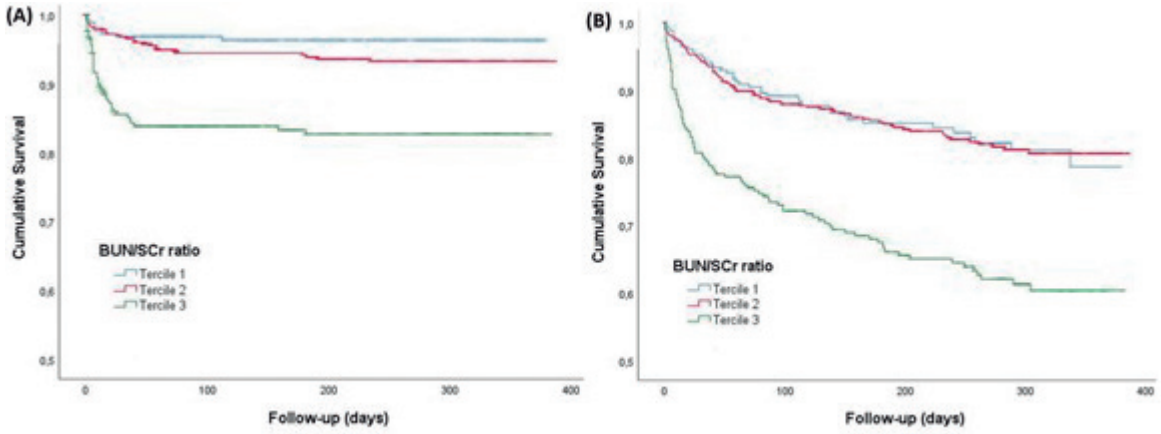


Figure 1. Kaplan-Meier curves for CV (A) and all-cause (B) mortality, according to the BUN/SCr tercile.

PO 56 Figure

analytical data were collected. We excluded patients without BUN or SCr values at admission and those with a glomerular filtration rate (GFR) < 15 mL/min/m² (calculated by the MDRD equation) or on dialysis. The incidence of rehospitalization and cardiovascular (CV) or all-cause death was evaluated through multivariable logistic regression models and by Kaplan-Meyer survival curves.

Results: 1,025 patients were included, median age 80 years (IQR 73-85), 52.4% male (n = 537), mean left ventricle ejection fraction (LVEF) 42.8 ± 12.7%, and mean GFR 57.2 ± 23.9 mL/min/m². Mean BUN/SCr was 24.9 ± 8.2 and mean systolic blood pressure was 139 ± 29 mmHg, both showing negative correlation (r = -0.17, p < 0.001). There was no correlation between BUN/SCr and the length of hospitalization (r = 0.058, p = 0.18). After a median follow-up of 5 months (IQR 3-11 months), cardiovascular mortality and all-cause mortality occurred in 8.0% (n = 82) and 21.6% (n = 221), respectively. Mean BUN/SCr was higher in patients with fatal outcomes both for cardiovascular (31.3 *vs*. 24.3, p < 0.001) and all-cause mortality (28.6 *vs*. 23.8, p < 0.001). BUN/Scr was grouped by terciles: T1 (BUN/SCr < 20.78), T2 (BUN/Scr 20.78-27.15), and T3 (BUN/Scr > 27.15). In the T3 group, the multivariable-adjusted odds ratio (OR) for CV death and all-cause mortality was 5.43 (95%CI 2.20-13.37, p < 0.01) and 2.72 (95%CI 1.66-4.46, p < 0.01), respectively, compared to the T1 group. There were no significant differences between T1 and T2 groups. Kaplan-Meier estimates of CV and all-cause mortality during follow-up according to BUN/SCr tercile are shown in the figure.

Conclusions: BUN/SCr at admission predicts CV and all-cause death in patients with chronic heart failure after an episode of decompensation. We hypothesize that BUN/SCr, as an easy-to-use tool, might help to identify those patients who benefit from tight monitoring both during hospitalization and after discharge.

PO 57. C2HEST SCORE – HEART FAILURE RISK SCORE: PREDICTIVE VALUE FOR ONE-YEAR MORTALITY AND RE-ADMISSION AFTER DISCHARGE

Joana Laranjeira Correia, Inês Pires, João Miguel Santos, Vanda Devesa Neto, Gonçalo Ferreira, José Costa Cabral, António Costa

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: The C_2HEST score has been validated for predicting atrial fibrillation in the general population or post-stroke patients. The C_2HEST score is calculated with the following parameters: coronary artery disease or chronic obstructive pulmonary disease [1 point each]; hypertension [1 point]; elderly [age ≥ 75 years, 2 points]; systolic heart failure [2 points]; thyroid disease [hyperthyroidism, 1 point]). The authors aimed to analyse the predictive value of this score for mortality and readmission 12 months after discharge in hospital admissions due to acute heart failure (HF).

Methods: A retrospective study of patients admitted due to acute HF in the cardiology department of a tertiary centre was performed. The C_2HEST score was determined for all patients. Follow-up started after discharge and ended upon 12 months after study entry, hospital re-hospitalization or death. All subjects were divided into two groups: higher (≥ 5 points) and lower (< 4 points) score. Kaplan-Meier survival curves were obtained to compare 12-month mortality and 12-month hospital re-hospitalization between both groups.

Results: 780 patients were included in the study. 50.5% were female and the mean age was 77 ± 10 years old. The mean Ejection Fraction (EF) was 49.3 ± 16.5% and the mean C_2HEST score was 3.14 ± 1.44. The following Kaplan-Meier survival curves were determined for 12 months mortality - χ^2 6,480 (p = 0.011) and 12 months re-hospitalization - χ^2 0.154 (p = 0.695). The C_2HEST score demonstrated to be an independent variable in predicting the one-year mortality after discharge (HR: 1.297, p = 0.003) after adjusting for other prognostic variables such as age, gender, diabetes mellitus, atrial fibrillation, and hypertension.

Conclusions: In this population, the C_2HEST score proved to be a useful multivariable score model for the one-year mortality after discharge. Thus, C_2HEST score can be a tool in daily practice to identify patients who benefit from an earlier reevaluation and therapeutic optimization. However, these results were not achieved for the one-year re-hospitalization.

PO 58. GWTG-HF SCORE VS AHEAD SCORE: WHICH SCORES BETTER?

Mariana da Silva Santos, Margarida Figueiredo, Sofia B. Paula, Hélder Santos, Inês Almeida, Samuel Almeida, Luís Santos, João Tavares, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

Introduction: The Get With The Guidelines Heart Failure score (GWTG-HF) predicts in-hospital mortality (IHM) in P admitted with AHF. The AHEAD scoring system is a simple tool that estimates short and long-term prognosis of P hospitalized with acute heart failure (AHF). We aimed to validate AHEAD and GWTG-HF scores in a "real world" AHF population as predictors of IHM, post discharge early and late mortality (M) [1-month M (1mM) and 1-year M (1yM)], 1-month readmission (1mRA) and 1-year readmission (1yRA).

Methods: Single-center retrospective study including P admitted AHF between 2010 and 2017. Statistical analysis used chi-square, non-parametric tests, logistic regression analysis and ROC curve analysis.

Results: Among the 300 P admitted with AHF included, mean age was 67.4 ± 12.6 years old, 72.7% were male, 66.9% had hypertension, 41% diabetes and 38% dyslipidaemia. Mean heart rate was 95.5 ± 27.5 bpm, mean systolic blood pressure (SBP) was 131.2 ± 37.0 mmHg, mean urea level at admission was 68.8 ± 40.7 mg/dL, mean sodium level at admission was 137.6 ± 4.7 mmol/L, mean glomerular filtration rate (GFR) was 57.1 ± 23.5 ml/min and 35.3% were

in Killip-Kimball class 4. Mean GWTG-HF was 41.7 ± 9.6 and mean AHEAD was 2.88 ± 1.1. Inotropes' usage was necessary in 32.7% of the P, 11.3% of the P needed non-invasive ventilation, 8% needed invasive ventilation. IHM rate was 5%, 1mM was 8% and 1yM 27%. Logistic regression confirmed that GWTG-HF was predictive of IHM (OR 1.12, p < 0.001, CI 1.05-1.19) and 1mM (OR 1.1, p = 0.001, CI 1.04-1.16) with fair accuracy (area under curve (AUC) 0.774 and p = 0.727, respectively) and 1yM (OR 1.08, p < 0.001, CI 1.04-1.11) with poor accuracy (p = 0.672). On the other hand, AHEAD score was not predictive of IHM (p = 0.063) or 1mM (p = 0.128), but was predictive of 1yM (OR 1.41 p = 0.005, CI 1.11-1.79) with poor accuracy (AUC = 0.604). The authors determined other predictor factors of 1yM (not included on the scores/included in one): lower SBP, higher urea, lower sodium, lower GFR, need of inotropes and KKC 4 (all p < 0.05). At multivariate regression, only inotropes' usage was independently associated with 1yM (p = 0.038, OR 1.9, CI 1.04-3.52).
Conclusions: GWTG-HF score was predictive of IHM and 1mM, with fair accuracy. AHEAD score failed these outcomes. Regarding 1yM, both scores were predictive, but with poor accuracy. When assessing long-term outcomes risk with these scores, other predictor factors should be taken in account.

PO 59. HEMODYNAMIC GAIN INDEX: A NEW PROGNOSTIC MARKER IN HEART FAILURE?

João Borges Rosa, José Lopes de Almeida, Sofia S. Martinho, Joana Guimarães, Diogo de Almeida Fernandes, Eric Alberto Monteiro, Gonçalo Ferraz Costa, Gustavo M. Campos, Ana Rita M. Gomes, James Milner, Manuel Oliveira-Santos, Lino Gonçalves

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

Introduction: Cardiopulmonary exercise testing (CPET) is recommended in patients with heart failure (HF) to optimize exercise prescription and as part of the evaluation for heart transplantation. Hemodynamic gain index (HGI) derived from CPET has been proposed as a new marker of risk stratification in general population cohorts. We aimed to evaluate the prognostic value of HGI in patients with HF.
Methods: We conducted a single-centre study assessing consecutive patients with HF who underwent CPET from 2013 to 2017. HGI was calculated based on heart rate (HR) and systolic blood pressure (SBP): HGI = [(HRpeak × SBPpeak) - (HRrest × SBPrest)]/(HRrest × SBPrest). Classic and recently proposed variables were collected, including peak O2 uptake (pVO2), minute ventilation–CO2 production (VE/VCO2 slope), circulatory power (Cp = pVO2 × peak SBP), and ventilatory power (Vp = peak SBP/(VE/VCO2) slope). The primary outcome was a composite of HF hospitalization, heart transplant, and all-cause mortality.

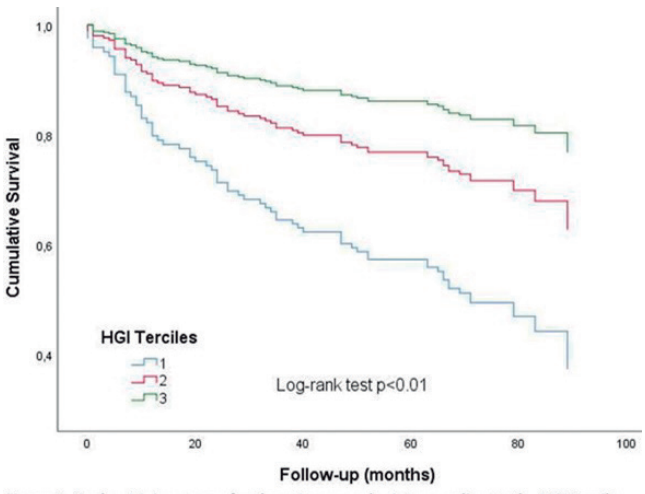


Figure 1. Kaplan-Meier curves for the primary endpoint according to the HGI terciles.

Results: A total of 212 patients (mean age 55.4 ± 10.9, 76.9% male) were included. Most patients had dilated cardiomyopathy (43.9%) followed by ischaemic aetiology (38.7%), with a mean left ventricle ejection fraction of 29 ± 13%. The most used exercise protocol was the modified Naughton (76.6%), followed by the original Naughton (18.7%), and Bruce (4.8%). Mean pVO2 was 16.7 ± 5.9 mL $O2 \cdot kg^{-1} \cdot min^{-1}$ and median VE/VCO2 slope was 37.5 [32.7-44.3]. Mean VP was 3.46 ± 1.31 mmHg while median CP was 1,927 [1,427-2,697] mmHg · min/mL/kg. Mean HGI was 0.90 ± 0.5 bpm/mmHg. Despite weak, there were significant positive correlations between HGI and mean pVO2 (r_s = 0.55, p < 0.01), VP (r = 0.60, p < 0.01), and CP (r_s = 0.68, p < 0.01), but negative correlation between HGI and VE/VCO2 slope (r_s = -0.45, p < 0.01). HGI was grouped by terciles: T1 (< 0.59), T2 (0.59-1.02), and T3 (> 1.02). After a median follow-up of 71 [49-81] months, the primary outcome occurred in 66.0% of patients (rehospitalization, heart transplant, and all-cause death occurred in 56.1%, 25.9%, and 32.5%, respectively). In the T1 group, the multivariable-adjusted odds ratio (OR) for the primary outcome was 3.73 (95%CI 1.97-7.06, p < 0.01) compared to the T3. In the T2 group, the multivariable-adjusted OR for the primary outcome was 0.47 (95%CI 0.27-0.81, p < 0.01) compared to T1. There were no significant differences between T2 and T3 groups. Kaplan-Meier estimates of primary outcome during follow-up according to HGI terciles are shown in the figure.
Conclusions: HGI is inversely associated with the composite of HF hospitalization, heart transplant, and all-cause mortality in patients with heart failure, enhancing the role of CPET in risk stratification.

PO 60. THE HFFI, A NEW FRAILTY INDEX FOR ASSESSING LONG-TERM OUTCOMES IN HEART FAILURE

João Miguel Santos, Vanda Neto, Joana Correia, Inês Pires, Gonçalo Ferreira, Emanuel Correia

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Patients hospitalized due to heart failure (HF) compose a heterogeneous population whose prognosis is difficult to forecast. Frailty is a well-recognized prognostic marker in multiple chronic diseases, including HF; however, frailty evaluation is often subjective and standardized and objective prediction models are lacking. We aimed to evaluate if an objective and simple index – Heart Failure Frailty Index (HFFI)– can predict long-term outcomes in this population.
Methods: A retrospective analysis of 258 patients admitted to a Cardiology ward due to HF was performed. The variables albumin, C-reactive protein levels, age and body mass index (BMI) were selected for frailty assessment. After attributing points for each variable, according to odds ratio on univariate analysis, the HFFI was calculated (range 0-8), resulting from the sum of the points attributed to each variable. Kaplan-Meyer and Cox-regression analysis were performed to evaluate HFFI association with 24-month mortality (24MM) and for the composite endpoint of 24-month rehospitalization or death (24MH).
Results: Mean patient age was 75 (± 11) years; 51% were men. 45.7% had atrial fibrillation, 15.9% had history of acute myocardial infarction, 67.8% had hypertension. Mean LVEF was 47% (± 17). A LVEF< 40% was present in 40% of patients. 24MM was 11.5% and 24 MH was 58%. Patients were considered frail if they had an HFFI ≥ 3. Kaplan-Meier curve analysis revealed a significantly lower median time to 24MM in frail patients, as assessed by HFFI, comparing to non-frail patients (585 ± 33 days *vs.* 697 ± 12 days, mortality rate: 25.4 *vs.* 5.7%, χ^2 = 18.156, p < 0.001). There was also a significantly lower median time to 24MH in frail patients (336 ± 34 days *vs.* 449 ± 24 days, combined endpoint rate: 76.1 *vs.* 50.3%, χ^2 = 10.884, p = 0.001). Cox regression analysis demonstrated that HFFI independently predicts 24MM (HR: 1.364, p = 0.002) and 24MH (HR: 1.106, p = 0.035), even after adjustment for other prognostic markers, such as history of atrial fibrillation, previous myocardial infarction, diabetes and natriuretic peptides plasma level at index event.
Conclusions: HFFI is a simple and objective frailty index correlated with 24MM and 24MH in HF patients, being an independent prognostic marker in this population. Its use may help to identify patients with a high risk of mortality or readmission, in need of specialized care.

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

Sala Jardim de Inverno | Posters (Sessão 2 - Écran 5) - Doença Arterial Pulmonar e Tumores Cardíacos

PO 61. PAPILLARY FIBROELASTOMAS – DIAGNOSTIC CHALLENGES AND CLINICAL AND MORPHOLOGIC FEATURES

Alexandra Castelo, Manuela Silva, António Gonçalves, Luísa Branco, Pedro Coelho, Nuno Banazol, Eugénia Pinto, Vera Ferreira, Pedro Brás, José Fragata, Rui Ferreira

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

Introduction: Papillary fibroelastomas are rare benign primary cardiac tumors that more frequently involve cardiac valves. They are frequently incidentally discovered by echocardiography but may also cause symptoms.
Objectives: The aim of this study was to characterize several features of histologically confirmed fibroelastomas.
Methods: Retrospective analysis of patients with echocardiographic suspicion of fibroelastoma between 2009 and 2020 in a single tertiary center. Echocardiography was compared with histology, and echocardiographic, surgical and pathological information about confirmed fibroelastomas was collected.
Results: 37 patients (P) (54.1% men) with an echocardiographic suspicion and/or histologically confirmed fibroelastoma were included, with a mean age of 58 +- 3 years. Echocardiographic report was analyzed in 34P (91.9%), with 32P (94.1%) reporting a likely fibroelastoma and 2P (5.9%) reporting a non-specified mass. 21P (56.8%) had surgery, with 12P (57.1%) having a surgical suspicion of a fibroelastoma, 2P (9.5%) of a mixoma, 1P (4.8%) of a non-specified mass and 6P (28.6%) with undefined suspicion. Of the 21P who had surgery, 66.7% (14P) had a histologically confirmed fibroelastoma, 1P (4.8%) had a mixoma, and 6P (28.6%) had other diagnoses. From the 14P with histologically confirmed fibroelastoma 64.3% had this suspicion by echocardiography and 35.7% had an echocardiogram reporting a non-specified mass. There was a global concordance between echocardiography and histology in 52.9%. The mean age of confirmed fibroelastoma P was 54 +-5 years, and 50% were men. 7P (50%) were asymptomatic, 2 (14.3%) had a stroke, 2 (14.3%) had syncope, 1 (7.1%) had fatigue, 1 (7.1%) had palpitations and 1P had consciousness alteration. In echocardiography 71.4% had only one mass but 1P had 4 different masses. The tumors had a longer axis between 6 and 25 mm, the majority (57.1%) measuring more than 10 mm. 12P (85.7%) had valvular fibroelastomas, 50% of these in the aortic valve (3 in non-coronary cusp, 1 in right coronary cusp and 2 non-specified) and 50% in the mitral valve (all in sub-valvular apparatus, involving anterior leaflet, tendinous chord or papillary muscle). 1P had a left ventricular fibroelastoma (apical) and 1P had four masses in the left atrium. Macroscopically 4 lesions had a gelatinous consistency, 2 of them were membranous, 2 were elastic, 2 were friable, 1 was villainous and in 3 of them consistency was not described. The majority (57%) was white, 14% was translucent and in the rest the color was not specified. There was no described recurrence after surgery and there were no deaths registered.
Conclusions: In this population there was a reasonable concordance between echocardiography and histology, but in some cases the diagnosis was undefined or wrong. 50% of the patients were asymptomatic and the majority had valvular fibroelastomas, but a few had a different location.

PO 62. CARDIAC MYXOMA EMBOLIC EVENTS: CHARACTERIZATION AND PREDICTORS

André Grazina[1], Bárbara Teixeira[1], Alexandra Castelo[1], Vera Ferreira[1], Pedro Garcia Brás[1], Tânia Branco Mano[1], Ricardo Gil[1], Luísa Moura Branco[1], Ana Galrinho[1], Ana Teresa Timóteo[1], Pedro Rio[1], Eugénia Pinto[2], Pedro Coelho[1], José Fragata[1], Rui Cruz Ferreira[1]

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	%	n		%	n
Mean age (years old)	63.1 ± 12.9 y/o		Mean dimension - longer axis (mm)	36.8 ± 17.4	
Gender (% of female)	75 %	63	Embolic events	22.6%	19
Sporadic type	100%	84	CNS	19.0%	16
Atrial Fibrillation	9.6%	8	Coronary	1.2%	1
Left atrium	88.1%	74	Peripheric/ limbs	2.4%	2
Right atrium	10.7%	9	Renal	1.2%	1
Right ventricle	1.2%	1			

Table 1. Baseline Characteristics and embolic events distribution (CNS – Central Nervous System)

Predictor	OR	95% CI	p-value
AF rhythm	1.01	0.20 – 5.95	0.91
Longer axis >20mm	0.70	0.17 – 3.01	0.64
Longer axis >40mm	0.90	0.29 – 2.77	0.86
Longer axis >60mm	0.61	0.12 – 3.04	0.54
Presence of calcification	2.00	0.44 – 9.08	0.37
Myxoma mobility	0.94	0.28 – 3.19	0.93
Pediculated insertion	0.74	0.24 – 2.32	0.61
Heterogeneous aspect	0.96	0.30 – 3.06	0.96
Irregular borders (papillary, bosselated)	6.78	2.14 – 21.5	0.001

Table 2. Embolic events predictors. (OR – Odds Ratio; 95% CI – 95% Confidence Interval; AF – Atrial Fibrillation)

PO 62 Figure

Introduction: Myxomas are the most common heart tumors. Although, myxomas are often diagnosed incidentally in asymptomatic patients, they are frequently associated with embolic events, becoming an important cause of morbidity and mortality. Whether some myxomas' characteristics predict more embolic risk is not well established.
Objectives: This analysis aims to describe the clinical and echocardiographic data in a long cohort of patients with cardiac myxomas and to establish potential predictors of embolic events int these patients.
Methods: Between 1990 and 2021, 88 patients were diagnosed with cardiac myxoma. 84 were included in this analysis. Baseline characteristics, echocardiographic findings and embolic events were noted retrospectively. An analysis using SPSS statistics software, version 25.0 was performed to establish possible embolic predictors.
Results: 84 patients (mean age 63.1 ± 12.9 years old, 75% female) with cardiac myxoma (sporadic type in 100%) were analyzed (Table 1). The majority were located in the left atrium (88.1%, n = 74), followed by right atrium (10.7%, n = 9) and right ventricle (1.2%, n = 1). The average dimension (longer axis) was 36.8 ± 17.4 mm. 9.6% of the patients (n = 8) had Atrial Fibrillation (AF) rhythm. 22.6% of the patients (n = 19) experienced embolic events, the majority to the central nervous system (19.0%, n = 6), followed by peripheric/limbs (2.4%, n = 2), renal (1.2%, n = 1) and coronary (1.2%, n = 1). The presence of irregular borders (papillary, bosselated) was the only parameter independently associated with increased risk of embolic events by 6 times (OR 6.78, 95% confidence interval of 2.14-21.51, p-value 0.001). Neither the presence of AF, myxoma dimensions, presence of calcifications, pediculated insertion, myxoma mobility or heterogeneous aspect predicted embolic events with statistical significance (Table 2).
Conclusions: Cardiac myxomas are frequently associated with embolic events (22.6% in our population), posing an important cause of morbidity and mortality in these patients. Besides the presence of irregular borders, the other myxoma's characteristics did not consistently predict the occurrence of embolic events. This data supports the well-recognized fact that all cardiac myxomas have the potential to embolic events, and therefore, should be excised, although those with very irregular borders are at much higher risk of embolization.

PO 63. REDUCING THE RISK IN PATIENTS WITH PULMONARY ARTERIAL HYPERTENSION – FROM GUIDELINES TO PRACTICE

Alexandra Briosa, Barbara Ferreira, Mariana Martinho, João Santos, Filipa Ferreira, Sofia Alegria, Debora Repolho, Sofia Alves, Maria Jose Loureiro, Helder Pereira

Hospital Garcia de Orta, EPE

Pulmonary arterial hypertension (PAH) is a progressive and fatal disease. Current guidelines recommend the use of risk stratification model encompassing a range of parameters, allowing patients (pts) to be categorized as low risk (LR), intermediate risk (IR) and high-risk (HR) score. Treatment strategy with pulmonary vasodilator therapy (PVT) in based is risk stratification in order to achieve or maintain LR status
Aim: Determine if pts achieve LR status after PVT initiation based in the actual guidelines and to define its long-term impact.
Methods: We analyzed all pts with PAH submitted to PVT in our center. Risk was assessed at baseline and at FUP (6-12 months after PVT) using COMPERA registry parameters. Survival and clinical worsening-free survival were assessed in each risk group.
Results: 84 pts with PAH, mostly females (71.4%), with a mean age of 47±18y. The majority had congenital heart disease (n=27), 16 pts idiopathic PAH (iPAH), 14 PAH associated with connective tissue disease (CTD), 11 associated with HIV, 6 portal hypertension, 5 heritable PAH, 2 PVOD, 2 mixed disease and 1 drug-associated. At admission, most pts were in WHO class ≥ 3, had a mean 6-minute walking test (6MWT) of 389±120m, median NT-proBNP value of 904 pg/mL, mean cardiac index (CI) of 2,3±0,6 ml/m^2 and mean PAPm of 52±14 mmHg. Most pts were in the IR and HR group (51,3% and 43%). 75% started combination therapy: double therapy in 43% (mainly with sildenafil and bosentan) and triple therapy in 32%. Parenteral prostanoids (PP) were initiated upfront in 26 pts (18 in triple upfront combination therapy).
After 6-12 months, there was a significant improvement in 6MWT (387 vs 422m, p= 0.008), SVO2 (65 vs 70%, p=0.002) and CI (2,15 vs 2,66 l/min/m^2 p< 0.001), as well as a significant reduction in functional class (p< 0.001), PVR (12 vs 8WU, p<0.001), PAPm (50 vs 44 mmHg, p=0.018) and RAP (8 vs 7 mmHg, p=0.036).Most pts were in the LR group (n=30, 48%), but there was 25 pts (40%) in IR and 7 (8,3%) in HR group. 76,1% lowered at least 1 risk group, 28,8% maintained same risk and 5,1% increased risk group. Pts who improved risk were younger (44 vs 53, p=0,04), male sex (83,3 vs 58.1%, p=0,05), and were more frequent in iPAH vs CTD-PAH (82 vs 58,3%). No difference found in the number of vasodilators used (2,11 vs 1,97). All pts that reduced from HR to LR group (20,3%) were on combination PVT including PP.
In a median FUP time of 4 years, 35 pts had ≥1 hospitalization, 29 died and 3 had transplantation. As expected, pts with LR on admission, had more event-free time (Log rank: 10,3, p=0.006). The presence of ≥1 LR criteria after 6-months was also related with increase survival (Log rank: 6,5, p=0.011).
Conclusions: Our study confirms and supports the importance of risk stratification, showing a clear benefit of maintaining pts in the LR possible. Importantly, after initiation PVT as recommended by the guidelines, there is still a high percentage of pts that remain in IR category.

PO 64. DIASTOLIC DISFUNCTION IN PRECAPILLARY PULMONARY HYPERTENSION - LOOKING LEFT TO SEE RIGHT

Sara Couto Pereira, Pedro Silvério António, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Beatriz Garcia, Tatiana Guimarães, Nuno Lousada, Susana Martins, Ana G. Almeida, Fausto J. Pinto, Rui Plácido

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

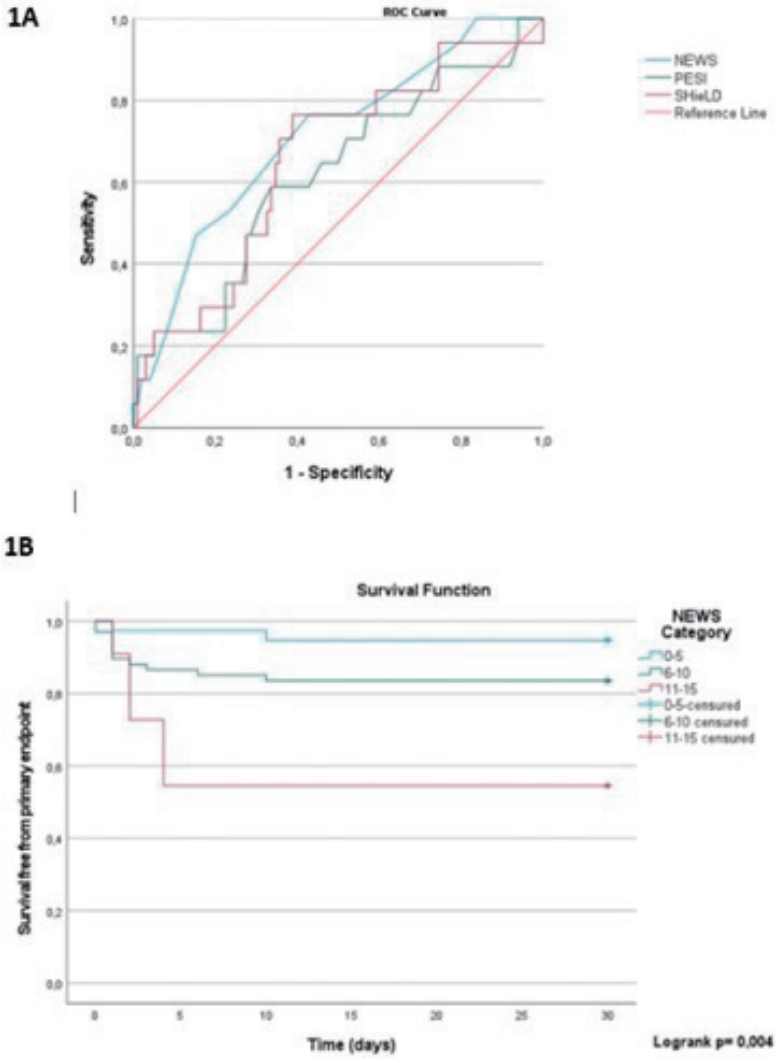
Introduction: Diastolic disfunction is an important marker of prognosis when it comes to left heart disease. However, its role on right heart disease, namely in patients with sole precapillary pulmonary hypertension (PPH) is yet to be acknowledged. We aimed to recognize importance of parameters of diastolic dysfunction on prognosis in a population of patients (pts) with PPH, either with pulmonary arterial hypertension (PAH) or chronic thromboembolic pulmonary hypertension (CTEPH).
Methods: Single centre retrospective study, including pts with PAH and CTEPH. Clinical, laboratory and echocardiographic data were collected at beginning and at latest follow-up.
Results: 108 pts with precapillary hypertension were gathered - divided between PAH (49.1%) and CTEPH (50.9%) – mean age 63.1 ± 23 years, 61% were females. In respect to echo at baseline, mean E/e' showed a positive association with events (p = 0.027, AUC 0.773 [0.578-0.967], p = 0.27) in pts with PAH. Regarding the total population, both mean left atrial volume (p = 0.036) and septal e' (p = 0.031) were associated with events. In fact, a tendency to lower events on follow-up was observed with a septal E/e' below 7. (AUC 0.733 (0.569-0.898), p = 0.014). Septal e' correlated with an increased VD-AD gradient during the follow-up (p = 0.33, r 0.553) and mean E/e' correlated with NTproBNP (p = 0.008, r = 0.426). When analysing echo at latest follow-up, we saw a positive association of tissular velocities and mean E/e' with disease severity - a worse functional class associated with higher mean E/e' (p = 0.016) and lower septal e' (p = 0.002) and RA-RV gradient correlated with mean E/e (p = 0.039), septal e' (p = 0.22) and lateral e' (p = 0.032). Moreover, the grade of diastolic dysfunction observed during follow-up was associated with events (7% without diastolic dysfunction, 22.7% dysfunction type 1 and 45.5% diastolic dysfunction type 2, p = 0.028) and mortality (p = 0.018). Interestingly, this relationship of diastolic dysfunction with events, was seen not only because of PSAP severity on echocardiogram but also with other measures of diastolic dysfunction as noted previously.
Conclusions: Markers of diastolic disfunction and its grade correlate with events during follow-up, and its early quantification may guide clinical and therapeutical management. Although not statistically significant, a mean E/e' cut-off of 7.5 seemed to better predict events at follow-up, and larger studies should try to test this hypothesis.

PO 65. WHAT ARE THE NEWS IN PULMONARY EMBOLISM RISK STRATIFICATION?

João Grade Santos, Rita Calé, Mariana Martinho, Bárbara Ferreira, Diogo Cunha, Alexandra Briosa, Bruno Gonçalves de Sousa, João Leote, Catarina Pestana Santos, Daniela Cruz, Patrícia Araújo, João Santos, Tiago Judas, Filipa Ferreira, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: The patients with Pulmonary Thromboembolism (PE) stratified as intermediate-high risk with the European Society of Cardiology classification represent an heterogenous population, with the majority having a benign outcome however some evolving in clinical deterioration. Several risk scores have been developed to try and refine the population most at risk but they are deemed sub-optimal.
Objectives: Our aim was to assess the capacity of the National Early Warning Score (NEWS) in predicting a composite end-point of 30-days cardiovascular mortality, rescue thombolysis and/or haemodynamic instability, in a population of intermediate-high risk PE, as compared with other risk evaluation scores as the PESI and SHIeLD scores.
Methods: We performed a retrospective analysis between 2014 and 2019 of all patients admitted for intermediate-high risk PE, in a single expert centre. The patients who underwent fibrinolysis as per clinician discretion (without haemodynamically instability or clinical evidence of clinical deterioration) were excluded. Medical records were analysed for clinical data and outcomes. The predictive accuracy of all scores were assessed using the area under curve (AUC) of receiver operating characteristics (ROC) curve. The association between NEWS and composite end-point at 30-days was analyzed using a Cox regression model.
Results: Of the 1132 patients assessed and admitted with PE, 116 patients fulfilled all inclusion criteria and none of the exclusion criteria and were analysed. The mean age was 69 ± 16 years at time of diagnosis with a female preponderance (62.9%). Most patients were treated with anticoagulation (97.4%), 68% with low molecular weight heparin and the remaining with unfractionated heparin. The average NEWS score was 7 ± 3, the average PESI score was 110 ± 34 and the average SHIeLD score was 14 ± 13. A primary composite end-point occurred in 18 patients (15.5%). The NEWS score showed the greatest predictive power for the occurrence of an event (OR 1.35; 95%CI 1.11-1.64, p = 0.003) compared with the SHIeLD score (OR 1.0; 95%CI 1.00-1.07, p = 0.035) and the PESI score (OR 1.02; 95%CI 1.00-1.03, p = 0.03); it also showed a greatest discriminative capacity with the ROC curve analysis (Fig. 1A) demonstrating an AUC of 0.70, *vs.* 0.65 and 0.62 respectively. The survival analysis demonstrated a Hazard Ratio of 1.29 (95%CI 1.10-1.52; p = 0.002) signifying a 29% increased risk of an event per each NEWS class increase, with the Kaplan Meier curves widening significantly in the different terciles of the score (Fig. 1B).
Conclusions: In PE patients with intermediate-high risk the NEWS score demonstrated a greater predictive power and discriminative capacity than other commonly used risk scores. The NEWS score may help to identify patients in this risk category who might benefit from a reperfusion strategy, but larger studies are needed to confirm this hypothesis.



Sexta-feira, 22 Abril de 2022 | 11:00-12:00

Sala Jardim de Inverno | Posters (Sessão 2 - Écran 6) - DAC e Cuidados Intensivos 3 - SCAsST

PO 66. CABG VS PCI FOR DIABETIC PATIENTS WITH NON-ST ELEVATION ACS: IN-HOSPITAL OUTCOMES

Carolina Saleiro[1], Joana M. Ribeiro[2], Diana de Campos[1], João Lopes[1], Ana R. M. Gomes[1], José P. Sousa[1], Alexandrina Siserman[1], Carolina Lourenço[1], Lino Gonçalves[1], em Nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[3]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral.
[2]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.
[3]CNCDC – Centro Nacional de Coleção de Dados em Cardiologia.

Introduction: The role of coronary artery bypass-graft (CABG) *versus* percutaneous coronary intervention (PCI) in diabetes mellitus (DM) patients is well stablished for patients with multivessel chronic coronary artery disease. However, in the context of non-ST elevation acute coronary syndrome (NST-ACS), few data are available comparing both strategies.
Objectives: To assess the prognostic impact of CABG *vs.* PCI in DM patients presenting with NST-ACS on intrahospital outcomes.
Methods: 32,027 ACS patients included in the Portuguese Registry of Acute Coronary Syndromes (2010-2021) were retrospectively assessed. Clinical, laboratorial, and echocardiographic data were evaluated. Diabetic patients presenting with non-ST elevation ACS were screened (n = 6,368). After excluding patients with previous CABG, significant valvular disease, single vessel disease, medically treated only, 1,799 patients were included. Two groups were created based on the revascularization strategy: Group A – CABG (n = 535) and group B – PCI (n = 1,264). The primary endpoint was in-hospital mortality. In-hospital complications were also analysed and compared between groups to better understand the course of hospitalization in both revascularization strategies.
Results: Patients treated with CABG were more likely to be male (73.6 *vs.* 67.3%, p < 0.05) and younger (68 ± 10 *vs.* 69 ± 10 years old, p < 0.05). Also, previous MI (21.6 *vs.* 27.6%, p < 0.05) or PCI (14.9 *vs.* 24.3%, p < 0.001) were less prevalent in CABG group while peripheral artery disease was more prevalent (12.6 *vs.* 9.3%, p < 0.05). Groups were comparable regarding CV risk factors and other past medical history. Also, echocardiographic, and laboratorial data did not differ between groups. The need for IABP, mechanical invasive or non-invasive ventilation, temporary pacemaker or ventricular assistance was similar in both groups. Patients admitted in KK IV class were more likely to receive PCI (0.4 *vs.* 1.8%, p < 0.05), while patients with mechanical complications were more likely to be treated with CABG. Reinfarction was more frequent in the PCI group. In-hospital complications are detailed in table 1. Twenty-one patients died during hospitalization. In-hospital mortality was 1.2% and it did not differ with the revascularization strategy (1.1 *vs.* 1.2%, p = 0.91).
Conclusions: For diabetic patients with NST-ACS and multivessel disease, CABG and PCI have comparable in-hospital mortality.

PO 67. CABG VS PCI FOR DIABETIC PATIENTS WITH NON-ST ELEVATION ACS: ONE-YEAR OUTCOMES

Carolina Saleiro[1], Joana M. Ribeiro[2], Diana de Campos[1], João Lopes[1], Ana Rita M. Gomes[1], José P. Sousa[1], Alexandrina Siserman[1], Carolina Lourenço[1], Lino Gonçalves[1], em Nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas[3]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral.
[2]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.
[3]CNCDC – Centro Nacional de Coleção de Dados em Cardiologia.

Introduction: The role of coronary artery bypass-graft (CABG) *versus* percutaneous coronary intervention (PCI) in diabetes mellitus (DM) patients is well established for patients with multivessel chronic coronary artery disease. In the context of non-ST elevation acute coronary syndrome (NST-ACS), few data are available comparing both strategies.
Objectives: To assess the prognostic impact of CABG *vs.* PCI in DM patients presenting with NST-ACS.
Methods: 32027 ACS patients included in the Portuguese Registry of Acute Coronary Syndromes (2010-2021) were retrospectively assessed. Clinical, laboratorial, and echocardiographic data were evaluated. Diabetic patients presenting with NST-ACS were screened (n = 6 368). After excluding patients with previous CABG, significant valvular disease, single vessel disease, medically treated only, and those without long-term follow-up, 761 patients were included. Two groups were created based on the revascularization strategy: Group A – CABG (n = 248) and group B – PCI (n = 513). The primary endpoint was a composite outcome of one-year mortality or hospitalization for cardiovascular (CV) causes; one-year mortality was assessed separately as a secondary endpoint.
Results: The groups were similar regarding gender, CV risk factors, heart failure (HF) diagnosis or previous MI, and left ventricular (LV) systolic function, but patients treated with CABG were younger (67 ± 9 *vs.* 69 ± 11 years old, p < 0.05). There were no differences in intra-hospital complications. During the 1-year follow-up, the composite endpoint of death or re-hospitalization occurred in 162 patients and CV death occurred in 45 patients. Kaplan-Meyer curves showed that patients in the CABG group had a lower survival free of events (ie. CV hospitalization or death) - 69.9 *vs.* 81.6%, Log Rank p = 0.001 (Fig. 1). The 1-year survival rates in both groups were similar (93.9 *vs.* 93.4%, Log Rank p = 0.741– Fig. 2). After adjustment for age, chronic kidney disease, chronic obstructive pulmonary disease, previous myocardial infarction, HF and LV ejection fraction, PCI almost halved the composite endpoint – HR 0.49 (95%CI 0.35-0.68) when compared to CABG, while all the other variables in the regression model remained significant predictors of the composite endpoint.

	CABG (n=535)	PCI (n=1264)	P
Heart failure, n (%)	108 (20.3%)	207 (16.7%)	0.07
Cardiogenic shock, n (%)	4 (0.8%)	29 (2.3%)	0.02
Mechanical complication, n (%)	3 (0.6%)	0 (0%)	0.03
Cardiac arrest, n (%)	11 (2.1%)	14 (1.1%)	0.12
Stroke, n (%)	4 (0.8%)	11 (0.9%)	1.00
Major bleeding, n (%)	6 (1.1%)	18 (1.4%)	0.59
Re-infarction, n (%)	1 (0.2%)	15 (1.2%)	0.05

Table 1- Intra-hospital complications.

PO 66 Figure

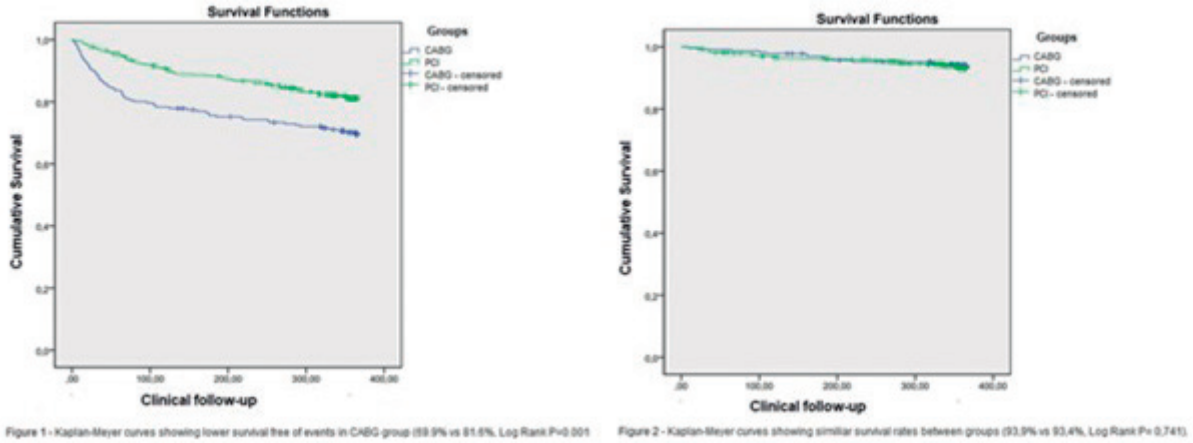


Figure 1 - Kaplan-Meyer curves showing lower survival free of events in CABG group (69.9% vs 81.6%, Log Rank P<0.001

Figure 2 - Kaplan-Meyer curves showing similiar survival rates between groups (93.9% vs 93.4%, Log Rank P= 0.741).

PO 67 Figure

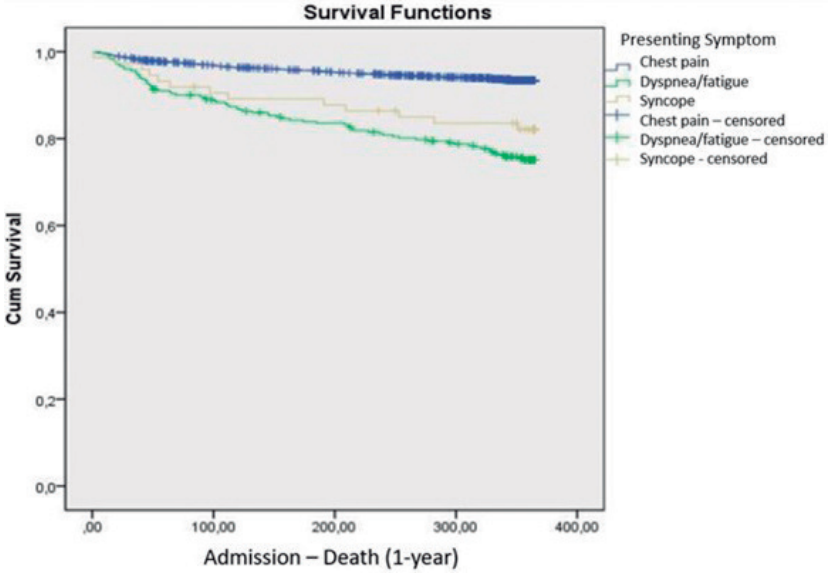
Conclusions: PCI was superior to CABG for diabetic patients presenting with NST-ACS and multivessel CAD in preventing a composite endpoint of one-year death or hospitalization. No differences were observed for one-year mortality.

PO 68. SYMPTOMS AT NSTEMI PRESENTATION: DO PATIENT'S COMPLAINTS PREDICT THE OUTCOME?

Paulo Medeiros, Cátia Oliveira, Carla Pires, Rui Flores, Fernando Mané, Rodrigo Silva, Inês Conde, António Gaspar, Pedro Azevedo, Juliana Martins, em Nome dos Investigadores do Registo Nacional de Síndromes Coronárias Agudas

CNCDC - Centro Nacional de Coleção de Dados em Cardiologia.

Introduction: The most common clinical presentation of non-ST-segment elevation myocardial infarction (NSTEMI) is angina pectoris. However, some groups of patients such as elderly, women and patients with diabetes or chronic renal disease,may have atypical symptoms, like isolated dyspnea or syncope.
Objectives: The aim of this study was to identify the outcomes of NSTEMI patients with different types of presenting symptoms and to verify if these presentations were independent predictors of the studied outcomes.
Methods: We studied patients > 18 year-old admitted with NSTEMI between October 2010 and September 2019. Data was collected from a national multicentric registry. From an initial pool of 13,739 patients, a total of 4726 were included (the main exclusion criterion was lack of follow-up registry). The patients were divided into 3 groups according to the main presentation symptom: group 1 – chest pain; group 2 – dyspnea/fatigue; group 3 – syncope. The primary endpoint was 1-year death from any cause.
Results: The most common presentation sympton was chest pain (91.3%; n = 4313), followed by dyspnea/fatigue (7%; n = 332) and syncope (1.7%; n = 81). Seventy-one percent (n = 3352) of patients were male and 29.1% (n = 1374) female. Mean age was 68 ± 13 years. Patients presenting with dyspnea/fatigue were older (75 ± 11 *vs.* 68 ± 13 [group 1] *vs.* 74 ± 13 [group 3], p < 0.001), more commonly women (41.9 *vs.* 29.1% [group 1] *vs.* 37% [group 3], p < 0.001), with hypertension (89.5 *vs.* 74.8% [group 1] *vs.* 75% [group 3], p < 0.001), diabetes mellitus (54.6 *vs.* 33.7% [group 1] *vs.* 38.3% [group 3], p < 0.001), chronic kidney disease (18.1 *vs.* 6.8% [group 1] *vs.* 11.5% [group 3], p < 0.001, and chronic obstructive pulmonary disease [COPD] (15.5 *vs.* 5.9% [group 1] *vs.* 10.3% [group 3], p < 0.001). They also had worse Killip class at admission (KK> 1 80 *vs.* 9.9% [group 1] *vs.* 23.5% [group 3], p < 0.001). One-year survival rate was lowest patients presenting with dyspnea/fatigue (75.7 *vs.* 93.5% [group 1] *vs.* 92.1 [group 3], p < 0.001) and 1-year free from cardiovascular rehospitalization was also lowest in this group (75.6 *vs.* 85% [group 1] *vs.* 83.3% [group 3], p < 0.001). However, after multivariate analysis, the different presenting symptoms were not significant



PO 68 Figure

independent predictors of the primary endpoint; identified independent predictors included age (HR 3.37, 95%CI 2.111 to 3.815, p < 0.001), COPD (HR 2.508, 95%CI 1.584 to 3.969, p < 0.001), LVEF < 50% (HR 2.350, 95%CI 1.642 to 3.365, p < 0.001), and major bleeding (HR 4.66, 95%CI 2.118 to 10.254, p < 0.001).
Conclusions: This study reveals that patients with dyspnea/fatigue at presentation have an overall worse prognosis than those who present with chest pain or syncope. The former patients were more commonly women, older and had more comorbidities; also, they presented with worse Killip class. However, symptoms themselves were not independent predictors of 1-year mortality.

PO 69. BLEEDING RISK IN PATIENTS WITH NSTEMI: P2Y12 INHIBITORS PRESCRIPTION PATTERNS FROM 2019 TO 2021

Diogo Santos da Cunha, Gonçalo J. Morgado, Mariana Martinho, Bárbara Ferreira, João Grade Santos, Alexandra Briosa, Ana Rita Pereira, Rita Calé, Cristina Martins, Hélder Pereira

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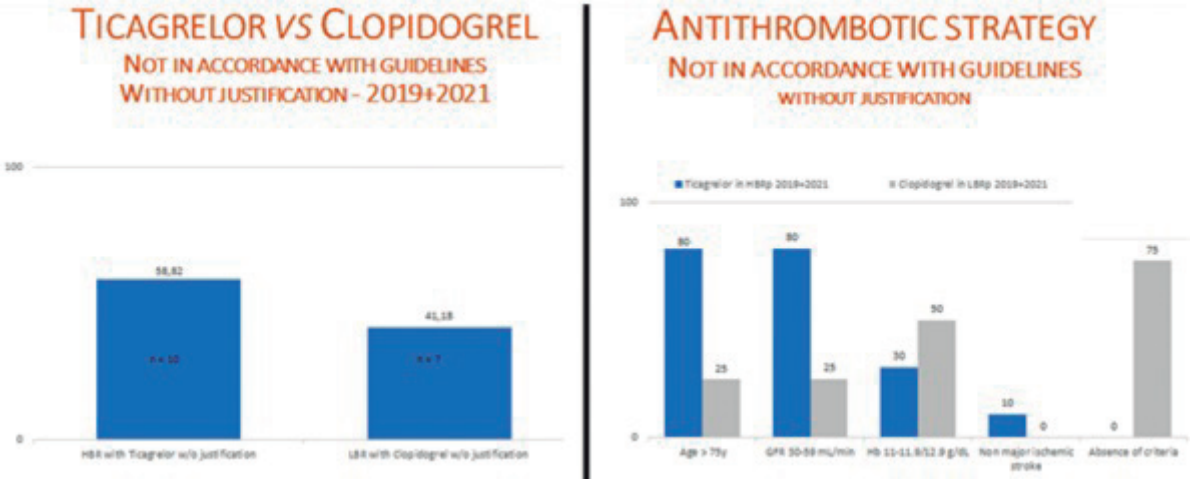
In the *"2020 Acute Coronary Syndromes (ACS) in Patients Presenting without Persistent ST-Segment Elevation Guidelines"* the European Society of Cardiology presented the *Academic Research Consortium for High Bleeding Risk (ARC-HBR) criteria in order to help clinicians* choose between antithrombotic strategies (*clopidogrel* for HBR patients or *ticagrelor* for non-HBR patients, in addition to aspirin). Regarding this fact, we conducted a retrospective study to analyze prescription patterns regarding P2Y12 inhibitors and its accordance to the criteria. We analyzed the ARC-HBR criteria and the antithrombotic strategy chosen at time of discharge for patients with NSTEMI-ACS undergoing PCI in the first six months of 2019 (n_{2019} = 67) and in the same period of 2021 (n_{2021} = 67), after excluding patients with indication for anticoagulation. Among the total of 134 patients, 46 (34.33%) had HBR; among these, 13 (28.26%) received ticagrelor despite guidelines' indications, but no significant difference was identified between the two semesters. On the contrary, 88 patients (65.67%) had low bleeding risk (LBR), 11.36% of which received clopidogrel (10 patients), contradicting the recommendations, again with no difference between 2019 and 2021. The identified reasons not to follow the guidelines were 1) high ischemic risk – either by complex coronary anatomy or infarction under aspirin plus clopidogrel -, regarding ticagrelor in HBR patients; 2) poor adhesion to treatment and 3) low patient income, regarding clopidogrel in LBR patients. Within the group with no identifiable reasons in 2019 and 2021, there were also more HBR patients receiving ticagrelor than LBR patients receiving clopidogrel, which was seen likewise in the semesters separately. Besides, we noted that among the criteria, GRF (80%), age (80%), and hemoglobin (Hb) level (30%) were frequently not regarded by the clinician as justifiable criteria for a less potent therapy. We concluded that 1) clinicians were more permissive when the possibility of giving a high potency P2Y12i was at stake; 2) the pattern of P2Y12i prescription was similar in 2019 and 2021; 3) apart from *Age, GFR, Hb level*, all other criteria seem to be subjectively well identified by professionals, which means the "clinical sense" of hemorrhagic risk was already somewhat accurate; 4) it seems consistent that, whether professionals use their clinical sense or the criteria, a few clinical features *(Age, GFR, Hb level)* are consistently less considered.

PO 70. UTILITY OF THE AGE SHOCK INDEX IN PATIENTS WITH AN ACUTE CORONARY SYNDROME

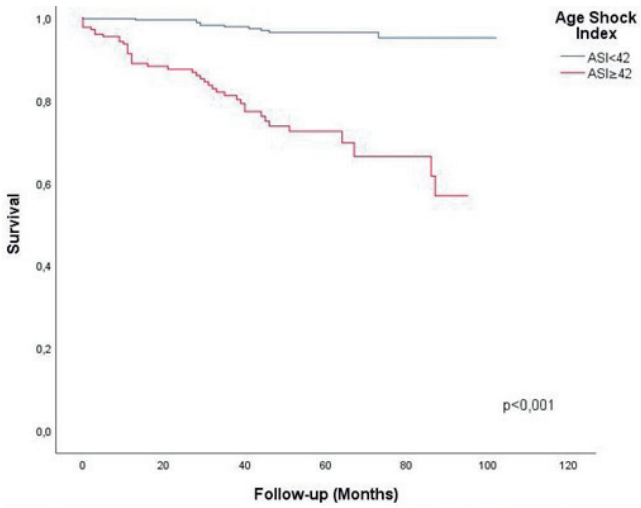
Pedro Rocha Carvalho, José Monteiro, Catarina Carvalho, Marta Bernardo, Paulo Fontes, Ilídio Moreira

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

Introduction: The Shock Index (SI), defined as the ratio of heart rate (HR) to systolic blood pressure (SBP), represents a bedside reflection of the integrated response from the cardiovascular and autonomic systems. It is determined by the heart rate and systolic blood pressure ratio and has been reported to help us predict adverse prognosis in patients with acute coronary syndromes (ACS). However, the prognostic value of the Age Shock Index (ASI), product of the SI multiplied with age, is yet to be determined in ACS patients.
Methods: Retrospective study of patients with ACS periodically included in our center registry between October/2012 and September/2018. Patients were categorized into two groups based on their initial ASI. Optimal shock index cutoff was determined according to ROC curve analysis. Baseline characteristics, management and outcomes were compared between the two groups. The primary outcome was cardiovascular death.
Results: A total of 578 patients were selected, with a mean age of 66.9 ± 13.1 years, 75.2% were male, 42.6% had a ST-elevation myocardial infarction. Based on ROC analysis the optimal ASI cutoff was 42 and, therefore, 69.6% had an ASI < 42 and 30.4% had an ASI ≥ 42. The former group was older (mean age of 74.4 ± 10.0 *vs.* 62.5 ± 12.5 years, p < 0.001), had more comorbidities: arterial hypertension (75.6 *vs.* 58.0%, p = 0.001), diabetes *mellitus* (36.4 *vs.* 27.9%, p = 0.04), peripheral artery disease (2.2 *vs.* 6.3%, p = 0.02), had higher Killip class at admission and worse left ventricular ejection fraction on discharge (45.5 ± 12.2 *vs.* 51.3 ± 10.6, p < 0.001). During a median follow-up of 42 months (IQR: 27-59), 52 patients (9%) died from cardiovascular causes. In a multivariate regression analysis, after adjusting for all the possible confounders, ASI≥ 42 was an independent predictor of cardiovascular death (HR 4.35, 95%CI: 1.87-10.09, p < 0.001).



PO 69 Figure



Conclusions: ASI can identify patients at high risk of cardiovascular death in ACS patients and, combined with its simple use, makes it a practical tool for early risk stratification in these patients.

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

Sala Jardim de Inverno | Posters (Sessão 2 - Écran 7) - Enfermagem e Técnicos

PO 71. THE NURSE-FAMILY INTERACTION OF THE CRITICALLY ILL PERSON IN A CARDIAC INTENSIVE CARE UNIT

Ana Rita Pires Olo Machado[1], Cristina Maria Inocência Imaginário[2], Maria Cristina Quintas Antunes[2]

[1]Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real. [2]Universidade de Trás-os-Montes e Alto Douro.

Introduction: Family members of the critically ill person (CIP) often present with symptoms of anxiety, depression, and post-traumatic stress disorder. This set of long-term changes has been called Post Intensive Care Family Syndrome. Supporting CIP's family minimizes the impact of critical illness on them and prepares them for decision-making and the CIP's need for care.
Methods: To understand the nurses's perception about the practices of positive interaction with CIP family members, at a Cardiac Intensive Care Unit (CICU) of a Hospital Center in northern Portugal, a quantitative, descriptive-correlational, cross-sectional study was carried out. The target population was the 27 nurses working in the unit. The inclusion criteria defined was: working in the CICU during the study. The exclusion criteria was: not completing the entire questionnaire. Twenty-six nurses participated in the study. The data collection instrument was a questionnaire consisting of two parts: i) characterization of the work environment; ii) the Relational Practices of Nurses with the Family at Intensive Care Unit (RPNFICU) – Importance and Frequency Scales. These scales contain 15 items which can be put into 3 dimensions: Welcoming and Information Practices (WIP); Integration Practices in Technical Procedures and Decision-Making Processes (IPTPDMP); and Visit Management Practices (VMP).
Results: On RPNFICU – Importance scale, the practice with the highest percentage of responses as "Totally important" was *"Make yourself available to clarify doubts for family members"* (65.4%; n = 17). On the other hand, the practice *"Allowing shared decision-making with the client's family regarding procedures"* was considered "Not at all important" by (3.8%; n = 1) of the participants. On RPNFICU – Frequency scale, the practice *"Make yourself available to clarify doubts for family members"* was the one that the participants considered implementing "Always" in greater numbers (61.5%; n = 16) and the practice *"Promoting the presence of family members, with the client, during non-invasive procedures (hygiene care, alternating positions, changing clothes)"*, the one more participants reported "Never" to implement (26.9%; n = 7). The WIP and the VMP stood out positively. Lower importance and frequency values were assigned to IPTPDMP.
Conclusions: Participants demonstrated a positive attitude towards the importance of the RPNFICU, however the frequency with which they implement them is moderate.

PO 72. FUNCTIONAL CAPACITY ASSESSMENT OF ISCHEMIC PATIENTS AFTER ACUTE EVENT USING THE 6MWT

Bruno Miguel Delgado, Ana Seixas, Fátima Rodrigues, Fernanda Pereira, Ivo Lopes

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

Introduction: An acute ischemic event causes a functional deterioration even in previously autonomous patients. The determination of functional capacity is relevant to determine health indicators for rehabilitation nursing care, allowing at the same time to determine the patient's functional status throughout their health-disease cycle. The six-minute walking test (6MWT) is widely used in studies involving cardiac patients, however, reference values for ischemic population after immediate clinical stabilization are not known.
Objectives: Determine the functional level of ischemic patients, by gender, after clinical stabilization using the 6MWT.
Methods: Using the 6MWT, the functional capacity of ischemic patients was evaluated at discharge, after clinical stabilization. Patients with acute coronary syndrome with and without ST-segment elevation were included, as well as patients elective for percutaneous coronary intervention. All patients were accompanied by the rehabilitation nursing team. The 6MWT was performed based on the 2016 ATS guidelines and the expected value of the distance covered was determined based on the Enright equation. The sample was divided by gender, taking into account their widely known differences in functional capacity. The profile of cardiovascular risk factors (CRF) was also evaluated.
Results and conclusions: A total of 189 patients were studied (145 male), with a mean age of 58.1 years (men) and 56.6 (women). About 34% of men and 31% of women were admitted with STEMI, with a mean CVRF of 3.2 in men and 3.9 in women. The most prevalent CVRF in females is dyslipidemia and sedentary lifestyle, while in males it is dyslipidemia. A statistically significant difference ($p < 0.00$ in both genders) was found between the value of the 6MWT performed (425.6 meters – males; 340 meters females) compared to the value estimated by the equation (559.9 males; 531.3 female gender). There is a very significant difference between the expected value and the value actually covered in the walking test. It may be pertinent to define reference values for this typology of patients, so that their functional capacity can be properly measured.

PO 73. EGSYS SCORE – A USEFUL PRACTICE TOOL FOR THE PREDICTION OF REFLEX SYNCOPE?

Helena da Fonseca, Catarina de Oliveira, Rita Contins, Sérgio Laranjo, Ana Lousinha, Pedro Silva e Cunha, Mário Oliveira

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

Introduction: Syncope is a frequent clinical event in the general population. Although fear of consequences of cardiac syncope (CS) is real in clinical practice, syncope of non-cardiac etiology (NCS) is much more common and may be lead to injuries and quality-of-life impairment. The EGSYS (Evaluation of Guidelines in SYncope Study) score uses simple variables to predict which patients may have CS or NCS. The EGSYS score is a value

asserted, not only in the diagnosis of syncope etiology, but also in the risk stratification of patients.
Objectives: determine whether the ECGSYS score has accuracy and clinical applicability for identifying patients with reflex syncope (RS).
Methods: retrospective study of all patients undergoing head-up tilt testing (HUT) in our department during the last 12 months due to recurrent syncope. The EGSYS score was calculated, and its sensitivity and specificity determined for the prediction of RS in patients with a score < 3 and ≥ 3.
Results: We performed 184 HUTs. The patients' age was 57.0 ± 15.0 years, with 115 (62.5%) females. The HUT was positive in 84 (45.7%) cases, confirming RS. The EGSYS score was ≥ 3 in 48 (26.1%) patients (average score 3.63) and < 3 in 125 (67.9%) patients (average score 0). CS was confirmed in only 15 (8.2%) patients. An ECGSYS score < 3.0 had a sensitivity of 41% (95%CI), a specificity of 53% (95%CI), and positive and negative predictive values of 25% (95%CI) and 70% (95%CI), respectively, for the prediction of RS.
Conclusions: The EGSYS score is a simple diagnostic tool derived from clinical history findings. In NCS it has a limited usefulness, nonetheless its specificity and negative predictive values may be useful in selecting patients to undergo HUT.

PO 74. EXERCISE TRAINING IN CARDIAC REHABILITATION AND CHANGES IN SELF-REPORTED HEALTH RELATED QUALITY OF LIFE

Ângela Maria Pereira, Sofia Bento, Melanie Lameiras, Carla Hilaire[2], Jorge Dias, Luísa Bento, Susana Almeida

Hospital Garcia de Orta, EPE. [2]Escola Superior de Saúde Egas Moniz.

Introduction: Nowadays evaluating the impact of medical care strategies requires not only physiological parameters assessment, but also requires measurements on patients' quality of life. Health related quality of life represents the patient's own evaluation of the impact of a disease on his/her physical function and well-being. Quality of life outcomes of CR however, have attracted less attention. In this study, the aim was to assess the effects of exercise-based CR in changes in self-reported health related quality of life (HRQoL).
Methods: one hundred and twenty patients with coronary heart disease, 52.9 ± 8.5 years old, concluded a three months CRP with 28.5 ± 15 sessions the aerobic and strength exercise, 3-d.wk-1. The HRQoL was assessed with the MacNew and short form-36 (SF-36) questionnaires. All subjects signed an informed consent.
Results: In HRQoL we found clinically significant increases for all SF-36 dimensions in some domains of SF-36: physical function (69.6 ± 20.1; 85.2 ± 17.8), role physical (68.0 ± 23.1; 83.1 ± 20.6) vitality (56.3 ± 23.3; 67.8 ± 19.5), role emotional (68.3 ± 26.2; 84.3 ± 22.1) and mental health (65.9 ± 23.3; 78.2 ± 19.3) ($p < 0.001$). In MacNew questionnaire we saw significant improvements ($p < 0.05$) in all domains.
Conclusions: These findings indicate an improvement in HRQoL over time among cardiac patients attending the rehabilitation programme, particularly in the domains of physical role and physical function, vitality, and emotional, physical and social well-being, which are a major contribution for maintaining an active life.

PO 75. IMPACT OF A SYNCOPE EDUCATIONAL PREVENTION PROGRAM: A FIRST-YEAR EXPERIENCE

Helena da Fonseca, Rita Contins, Catarina de Oliveira, Sérgio Laranjo, Ana Lousinha, Pedro Silva e Cunha, Mário Oliveira

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

Introduction: Reflex syncope (RS) is a common clinical condition with major impact on patients' quality of life (QOL). The primary treatment is still based on a non-pharmacological approach that includes education measures, lifestyle modification and reassurance, regarding the benign nature of the condition. Intervening to control prodromal symptoms and prevent RS may promote a better QOL of these patients.
Objectives: The aim of this preventive program is to improve QOL in patients (P) with recurrent RS by education, reinforcing syncope prevention measures (Class I ESC Guidelines 2018).
Methods: We applied a specific questionnaire on the Impact of Syncope on Quality of Life (ISQL) to all P referred to our department to perform head-up tilt testing (HUT) from May 2020 to December 2021. After a positive HUT, P received an educational and training program with general measures to avoid syncope recurrence. Three, six and twelve months after HUT, through teleconsultation, a new ISQL application was completed and educational measures sessions repeated. The protocol was in accordance with the Declaration of Helsinki and approved by the local ethics committee.
Results: We studied 163 P (63.8% women, average age of 56.3 years). The maintained adherence to the educational preventive measures was 67%, but significantly higher in the younger group (≤ 40 years old) with the hypotensive phenotype. Syncope recurrence was noticed in 21% (n = 34), with a mean recurrence of 1.5 episodes/year, of which 7% (n = 11) visited the emergency department. The average ISQL at admission on Syncope Unit was 44.9 ± 12.1, and after the program (last follow-up/discharge) was 54.9 ± 6.4 ($p < 0.05$). ISQL showed an increase of 6.3%, justified by complying avoidance triggers such as "being in warm or hot environments" (severity in admission of 6.35 *vs.* discharge 15.87) and "standing up for long periods of time (> 5 min)" (severity in admission 6.35 *vs.* discharge 26.98), which shows the importance of understanding and apply the syncope preventive measures.
Conclusions: A systematic educational program for P with recurrent RS may have potential benefits as a complement in the treatment, with significant improvement in ISQL index.

Sexta-feira, 22 Abril de 2022 | 11:00-12:00

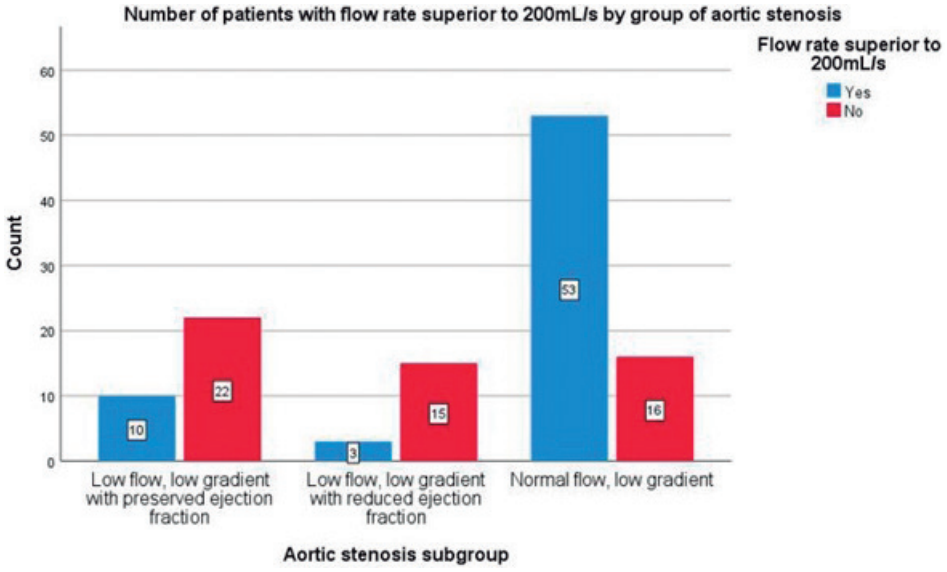
Sala Jardim de Inverno | Posters (Sessão 2 - Écran 8) - Doença Valvular 2 - Foco no Ecocardiograma na Válvula Aórtica

PO 76. IS FLOW BETTER IN ML/M2 OR ML/S - A PRACTICAL REFLECTION ON AORTIC STENOSIS

Francisco Dias Cláudio[1], Mariana Santos[2], Pedro Custódio[3], Bárbara Ferreira[4], Marco Quadrado[4], Ângela Manuel[4], Ana Rita Francisco[4], Bruno Neves[4], Inês Cruz[4], Ana Rita Almeida[4], Paula Fazendas[4], Isabel João[4], Hélder Pereira[4]

[1]Hospital do Espírito Santo, EPE, Évora. [2]Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo. [3]Hospital de Vila Franca de Xira, EPE. [4]Hospital Garcia de Orta, EPE.

Introduction: Severe aortic stenosis is characterized for a high mean gradient (> 40 mmHg) and an aortic valve area (AVA) ≤ 1 cm2. There is a population of patients with discordant findings. These patients present with a lower mean gradient (< 40 mmHg) and area (AVA ≤ 1 cm^2). This states are explained by a low flow (indexed SV ≤ 35 ml/m^2). Some studies demonstrated that a flow rate (determined by dividing SV by ejection time) inferior to 200 mL/s is also associated with poor prognosis. Can this be an alternative in stratifying patients with an AVA ≤ 1 cm^2?
Objectives: This paper aims to compare flow assessment by the conventional way with flow calculated in ml/s in patients with AVA ≤ 1 cm^2.
Methods: We present a retrospective study from all consecutive patients to whom an echocardiogram was performed in our hospital during the years 2017 and 2018 which meet the criteria for low gradient aortic stenosis. Comorbidities were analysed for each subgroup as well as echocardiographic variables to properly characterize aortic stenosis.
Results: A total of 118 patients met the criteria for severe aortic stenosis with a valvular area ≤ 1 cm^2. This population was made up of 18 patients with severe aortic stenosis low flow, low gradient with depressed ejection fraction and 32 patients with preserved ejection fraction. The other 68 patients represented patients with a normal flow, low gradient aortic



PO 76 Figure

stenosis. There is a strong correlation between the variable SVi and Flow Rate ($r = 0,796$, $p < 0,001$). A linear regression shows that the flow rate equivalent to a SVi of 35 mL/m² in our sample is 203 mL/s, near the value of other studies. 10 (31.3%) patients with severe aortic stenosis low flow, low gradient with preserved ejection fraction, 3 (16.7%) patients with severe aortic stenosis low flow, low gradient with depressed ejection fraction and 53 (77.9%) patients with normal flow, low gradient aortic stenosis would have a flow superior to 200 mL/s.

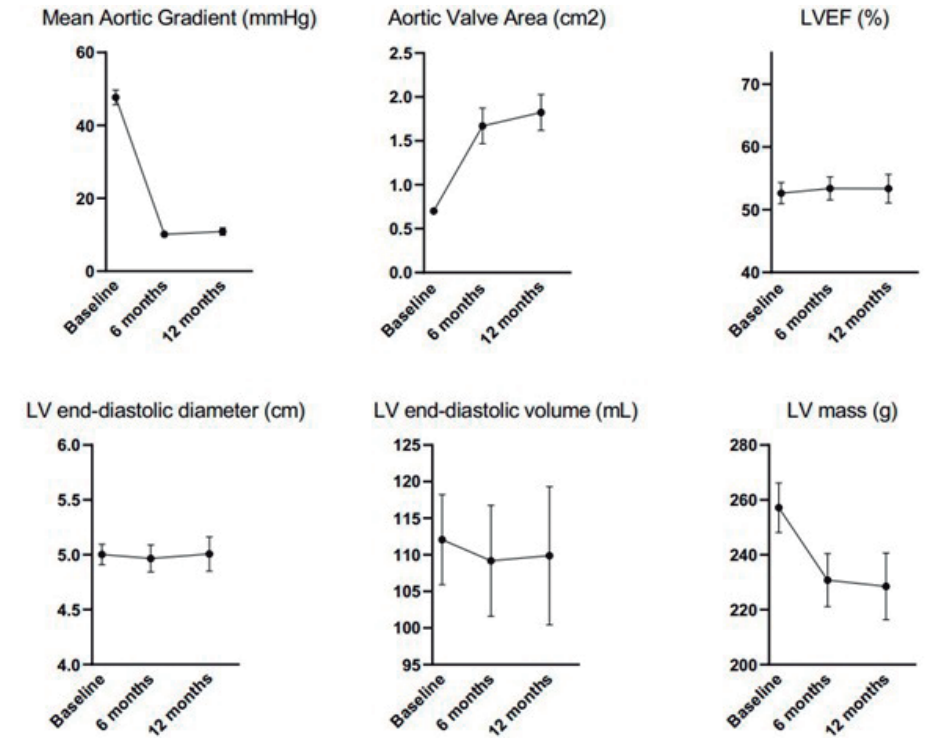
Conclusions: The use of flow rate systematically would downgrade the severity of valvular lesions with possible need for intervention. However, in certain dubious cases its application may identify a subpopulation with need for further study and probable treatment, such as the patients with normal flow, low gradient aortic stenosis. Further studies of this subgroup of patients are warranted to reach any final conclusions.

PO 77. LEFT VENTRICULAR REVERSE REMODELING AFTER TAVR FOR AORTIC STENOSIS

Fábio Sousa Nunes, Rafael Teixeira, Pedro Gonçalves Teixeira, Pedro Ribeiro Queirós, Mariana Ribeiro Silva, Gualter Santos Silva, Diogo Santos Ferreira, Mariana Brandão, Cláudio Espada Guerreiro, Gustavo Pires de Morais, Bruno Melica, Lino Santos, Alberto Rodrigues, Pedro Braga, Ricardo Fontes Carvalho

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

Introduction: The extent of Left Ventricular (LV) reverse remodeling after transcatheter aortic valve replacement (TAVR) for aortic stenosis (AS) reflects the unloading of the LV after the outflow tract obstruction has been resolved.



PO 77 Figure

We aim to assess the extent of LV reverse remodeling after TAVR for severe AS, particularly the time needed for such reverse remodeling to fully develop.
Methods: We selected 134 patients who underwent TAVR at our institution for severe AS between 2007 and 2020 and had preprocedural and postprocedural echocardiograms performed at our institution. Mean values of echocardiographic parameters were predicted based on the LOESS regression. Demographic and clinical data were collected from the electronic health records.
Results: Patients had a mean age of 80 ± 7 years and 55% were male. More than 69% of patients presented with NYHA IV at the procedure. Data regarding echocardiographic variables of interest are presented as mean (95% confidence interval) and are reproduced in the accompanying graphic. Mean Aortic Gradient (mmHg): preprocedural 47.7 (45.7-49.7), at 6 months after TAVR: 10.14 (9.3-10.9) and at 12 months after TAVR: 10.9 (9.9-11.9). Aortic Valve Area (cm^2): preprocedural: 0.70 (0.67-0.73), 6 months: 1.67 (1.47-1.87), 12 months: 1.82 (1.62-2.02). LV mass (g): preprocedural 257.1 (248.1-266.2), 6 months (230.8-221.1), 12 months 228.5 (216.4-240.6). LV ejection fraction (%): preprocedural 52.6 (50.9-54.3), 6 months: 53.4 (51.5-55.2), 12 months 53.3 (51.1-55.6). LV end-diastolic diameter (cm): preprocedural 5.0 (4.9-5.1), 6 months 4.9 (4.8-5.1), 12 months 5.0 (4.9-5.2). LV end-diastolic volume (mL): preprocedural 112.1 (105.9-118.2), 6 months 109.2 (101.6-116.8) and 12 months 109.9 (100.4-119.3). The chief LV alteration after TAVR was on LV mass with the greatest change at the first evaluation and little change thereafter.
Conclusions: This work presents data on the reverse LV remodeling after TAVR for AS. In our sample, reverse remodeling occurred precociously and changed little thereafter.

PO 78. FLOW RATE IN SEVERE AORTIC STENOSIS – A GOOD PROGNOSTIC MARKER FOR PERCUTANEOUS VALVE IMPLANTATION?

Isabel Fernandes[1], Diogo Santos Ferreira[2], Silvia Diaz[1], Cláudio Guerreiro[2], Mariana Brandão[2], Mariana Ribeiro Silva[2], Gualter Silva[2], Pedro Ribeiro Queirós[2], Eulália Pereira[2], Gustavo Pires de Morais[2], Bruno Melica[2], Lino Santos[2], Alberto Rodrigues[2], Pedro Braga[2], Ricardo Fontes-Carvalho[2]

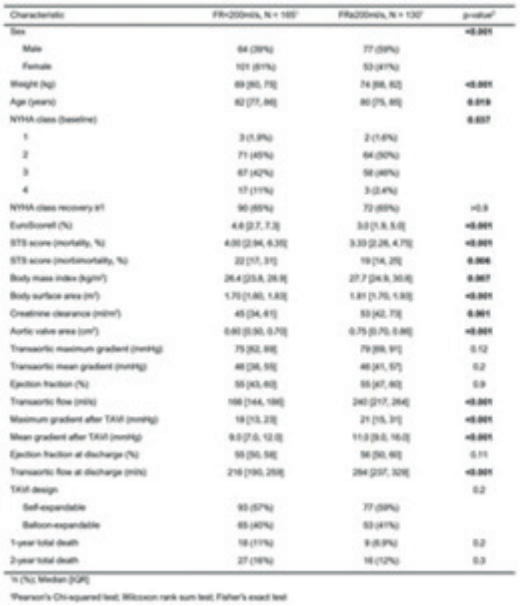
[1]Faculdade de Medicina da Universidade do Porto. [2]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE.

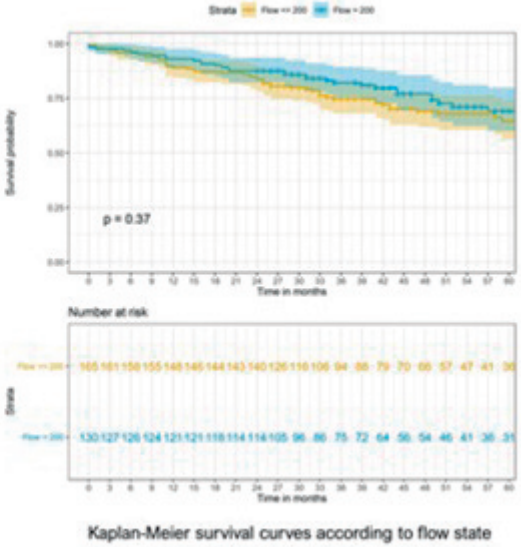
Introduction: The true severity assessment of aortic stenosis (AS) is not infrequently challenging, especially when it is paradoxical in its nature and low-flow states originate low-gradient evaluations. Several markers have been suggested to identify potential causes for discordant values between aortic valve area and mean pressure gradients, including stroke volume index and transaortic flow rate (FR). The latter has been recently proposed as a new prognostic marker for mortality, being low FR associated with worse outcomes, including after aortic valve intervention.
Methods: A single-centre retrospective database of all consecutive Transcatheter Aortic Valve Implantation (TAVI) procedures performed between June 2011 and December 2019 was analyzed. The primary outcome was defined as time to death or last follow-up after the intervention, through Kaplan-Meier survival analysis. Other outcomes were assessed, namely patients' clinical, echocardiographic and analytical characteristics at baseline and during follow-up and its association between FR state, using Pearson's Chi-squared test, Wilcoxon rank sum test and Fisher's exact test, as appropriate. A low FR state was defined as ≤ 200 ml/s in the primary analysis. A $p < 0.05$ was considered statistically significant.
Results: A total of 295 cases had complete echocardiographic data available and were considered in this study (Fig.). There was a higher predominance of female gender among low-FR patients (61% *versus* 41%, p = 0.001), who were older (82- *versus* 80-years-old, p = 0.019), and had a lower body mass index (26.4 *versus* 27.7 kg/m^2, p = 0.007). A low FR state was associated with a statistically significant higher surgical risk estimated through EuroSCORE II, STS mortality and morbimortality. Estimated creatinine clearance was also lower in this subset (45 *versus* 53 ml/m^2 using Cockcroft-Gault Formula, p = 0.001), as well as aortic valve area (0.60 *versus* 0.75 cm^2, $p < 0.001$). However, Kaplan-Meier curves over 5-years did not confirm a statistically significant difference in prognosis after TAVI (p = 0.37). Multiple secondary analysis, using different cut-offs for low-FR state (200-250 ml/ms) also confirmed the same conclusions.
Conclusions: Despite exhibiting pre-intervention characteristics generally associated with worse prognosis after valvular treatment, a low-FR state was not associated with inferior survival outcomes with TAVI in the present analysis. However, these represent exploratory deductions from cases performed in a single-centre.

PO 79. LEFT VENTRICULAR REVERSE REMODELING IN POST OPERATIVE AORTIC STENOSIS PATIENTS: PREVALENCE AND PREDICTOR(S)

Rita Reis Santos[1], João Abecasis[1], Sérgio Maltês[1], Pedro M. Lopes[1], Gustavo Sá Mendes[1], Daniel A. Gomes[1], Sara Guerreiro[1], Pedro Freitas[1], António Ferreira[1], Regina Ribeiras[1], Maria João Andrade[1], Nuno Cardim[2], Victor Gil[3], Miguel Mendes[1], José Pedro Neves[1]

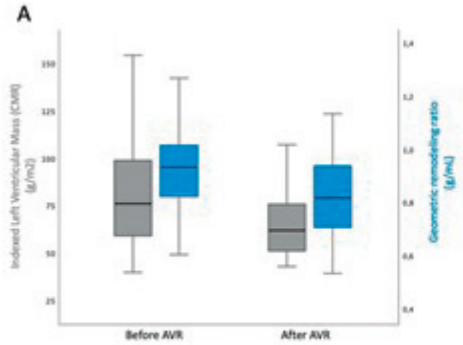
[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School. [3]Hospital da Luz Lisboa.





Kaplan-Meier survival curves according to flow state

PO 78 Figure



B

	RR	No-RR	p-value
Age (years)	72 (68-76)	76 (70–79)	p=0.045
Preoperative AVAi (cm2/m2)	0,40 ± 0,08	0,50 ± 0,09	p<0,001
AVM (mmHg)	61.5 ± 15	48.1 ± 11.9	p=0,001

Figure 1 – A: Box Plot showing Indexed Left ventricular mass and Geometric remodeling ratio before and after surgical aortic valve replacement (AVR). B: Comparative analyses between patients with and without reverse remodeling (RR); AVAi - indexed aortic valve area; AVM – transaortic mean gradient.

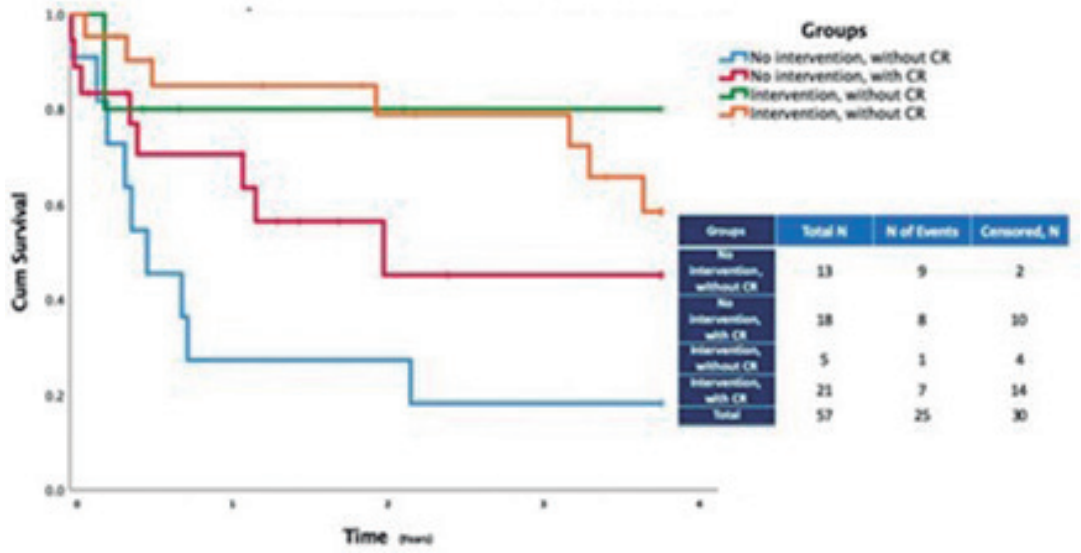
PO 79 Figure

Introduction: In patients with severe aortic stenosis (AS), left ventricular (LV) remodeling is believed to be a compensatory adaptive process which should reverse after aortic valve intervention. However, this is not always the rule and remodeling persistence may negatively impact post-procedural outcomes and survival.
Objectives: To assess the prevalence and predictors of morphological LV reverse remodeling in severe symptomatic AS patients after surgical aortic valve replacement (AVR).
Methods: We prospectively studied 75 patients (72y [68-77y], 45% male) with severe symptomatic AS - mean gradient (AVM): 61 ± 17 mmHg; mean indexed aortic valve area (AVAi) 0.41 ± 0.10 cm^2/m^2 with no previous history of ischemic cardiomyopathy, all with high gradient, 4 with low-flow, 81% with hypertension, 27% with type 2 diabetes mellitus and 35% patients with stage 3 chronic kidney disease: median MDR creat clearance: 70.4 mL/min [40-102]. All patients performed pre-operative cardiac magnetic resonance (CMR) at a mean period of 3.4 months (0-17 months) before AVR and at the 3-6th months after AVR, for LV reverse remodeling assessment. It was defined as at least the occurrence of one of the following: > 15% reduction in LVEDVi; > 15% reduction in LVMi by CMR; > 10% reduction in geometric remodeling ratio. Clinical, AV severity data, preoperative functional LV and tissue characterization data were analyzed at multivariate regression to predict the occurrence of LV reverse remodeling.
Results: Overall, at pre-operative CMR: mean LV indexed mass (LVMi): 82 ± 28.9g/m^2; mean end-diastolic LV indexed volume (LVEDVi): 87.4 ± 26.6 mL/m^2; mean geometric remodeling (LV mass/end-diastolic volume): 0.92 ± 0.2 g/mL. After AVR, at echocardiographic evaluation, no patient had prosthetic obstruction or prosthetic patient mismatch: median LV-Ao gradient 12 mmHg [9.1-14 mmHg]; 5 of them had mild paravalvular regurgitation. LV reverse remodeling occurred in 65 patients (88%) (Fig. 1A) and these were younger, had significantly smaller preoperative AVAi and higher valvular gradients (Fig. 1B). At multivariate analysis, only preoperative AVAi remained an independent predictor (odds ratio 0.85, 95%CI 0.735-0.984, p = 0.029).
Conclusions: In this prospective cohort of patients LV reverse remodeling after surgical AVR was highly frequent, occurring in almost nine out of every ten patients.

PO 80. SHOULD CONTRACTILE RESERVE BE A DECISIVE FACTOR ON SEVERE AORTIC VALVE INTERVENTION?

Catarina Gregório, Sara Couto Pereira, Joana Rigueira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Susana Gonçalves, Daniel Caldeira, Rui Plácido, Fausto J. Pinto, Ana G. Almeida

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



Groups	Total N	N of Events	Censored, N
No intervention, without CR	13	9	2
No intervention, with CR	18	8	10
Intervention, without CR	5	1	4
Intervention, with CR	21	7	14
Total	57	25	30

Figure 1: Impact of contractile reserve on aortic valve intervention.

PO 80 Figure

Introduction: Stress echocardiography (SE) is a key exam for the assessment of the real severity of aortic stenosis (AS) in patients (pts) with left ventricular dysfunction. The presence of contractile reserve (CR) allows the diagnosis of severe AS in low-flow low-gradient (LFLG) pts and may play a role in the decision for aortic valvular intervention (AVI).
Objectives: To evaluate the prognostic value of CR in pts submitted to VI, either surgical (SAVR) or percutaneous (TAVI).
Methods: Retrospective, single-center study of consecutive pts with moderate to severe LFLG AS (mean transvalvular gradient < 40 mmHg, LVEF < 50%, indexed stroke volume (SVi) ≤ 35 mL/m^2 and an aortic valve area (AVA) ≤ 1 cm^2) submitted to SE. Epidemiologic, clinical and echocardiographic data were recorded. Pts were stratified by the presence CR (increase in SVi ≥ 20% during SE) and AVI after SE. All-cause mortality and HF hospitalizations during a pre-determined follow up period (FUP) of 3 years were recorded. Survival analysis was performed using Kaplan-Meier curves.
Results: Between January 2014 and June 2021, 57 pts were submitted to SE (exercise in 22 (38.6%) and dobutamine in 35 (61.4%) pts). 40 (70.2%) pts were males, with a mean age of 75.6 ± 8.5 years. At baseline, 48 (84.2%) pts had hypertension, 42 (73.7%) had dyslipidemia, 28 (49.1%) were diabetic and 28 (49.1%) had coronary arterial disease (CAD). Most of the pts were at NYHA functional class II (34, 59.6%). At SE, CR was present in 39 (68.4%) pts. AVI was performed in 26 (41.3%) pts, 21 of which had CR on SE. Valvular intervention was SAVR for 12 pts and TAVI for 14 pts. During a mean FUP of 3 years, 9 pts in the AVI group and 21 pts in non-AVI group died, respectively. In pts submitted to AVI, survival was independent of the presence of CR (p = 0.916). On another hand, in patients not submitted to AVI the presence of CR was associated with worse prognosis, although not statistically significant (p = 0.122).
Conclusions: In this small single-center study we observed that CR assessment by SE shouldn't define the indication for valvular intervention in patients with severe AS, for it didn't correlate with survival. Larger studies are necessary to confirm these results.

Sexta-feira, 22 Abril de 2022 | 14:30-16:00

Sala Jardim de Inverno | Sessão Especial - Prémio Melhor Poster Eletrónico

PO 241. PREDICTORS OF CARDIOTOXICITY IN PATIENTS WITH BREAST CANCER: A PROSPECTIVE STUDY

Beatriz Valente Silva[1], Andreia Magalhães[1], Miguel Nobre Menezes[1], Nuno Cortez-Dias[1], Paula Costa[1], Mariana Saraiva[2], Fausto J. Pinto[1], Manuela Fiúza[1]

[1]*Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria.* [2]*Hospital Distrital de Santarém, EPE.*

Introduction: Cardiotoxicity (CTX) is a well-established side effect of several antineoplastic drugs. Ejection fraction (EF) is not a good predictor of CTX because it does not detect early myocardial changes. Left ventricular global longitudinal strain (GLS) and biomarkers – both classical (troponin and NTproBNP) and emerging (such as galectin) – have been proposed, but its application remains ill-defined. This study aimed to evaluate predictors of CTX in patients (pts) with breast cancer submitted to chemotherapy (QT) or radiotherapy (RT).
Methods: Prospective single centre study of consecutive female pts with breast cancer and normal EF (≥ 55%) who underwent QT and/or RT. Pts were submitted to a clinical, laboratory and echocardiographic evaluation in baseline and at 1,3,6,9,12 and 24 months of follow-up and in 2021. Pts were included between 2012 and 2017. CTX was defined as a reduction of ≥ 10% in the setting of an EF < 55% (1st endpoint) or as a reduced EF alone (2nd endpoint). MannWhitney and receiver operator curve were used for statistical analysis.
Results: A total of 134 female pts were included (mean age 52 ± 12 years; 27% hypertension, 17% smoking and 15% dyslipidemia). Mean follow-up was 7 ± 2 years. Cancer therapy included anthracycline (84%), cyclophosphamide (94%), paclitaxel (57%), docetaxel (34%) and trastuzumab (34%). The 1st and 2nd endpoints occurred in 5% and 9% of pts, respectively. The reduction of GLS in the 1st month was a predictor of decreased EF (OR 10, 95%CI 1.1-90, p = 0.04). The cutoff value of -19% for GLS showed the best sensibility-specificity ratio. An abnormal GLS (< -19%) at 1st month predicts the long-term reduction in EF (p = 0.014). GLS evaluated at 6 and 9 months was significantly lower in pts who achieved the 1st endpoint (p = 0.011) and predicted CTX (p = 0.048, OR: 1.57; and p = 0.025, OR: 0.19, respectively). NTproBNP at 1st and 6 th months were significantly higher in pts who achieved 1st endpoint (86 *vs.* 323 and 80 *vs.* 328 pg/ml; p = 0.001). Troponin at 1, 3, 6 and 9 months was significantly higher in pts with both 1st and 2nd endpoints (p < 0.001). Pts with reduced EF at follow-up had higher galectin levels at baseline and 1st month (p = 0.043).
Conclusions: GLS abnormalities as early as the 1st month after QT were predictive of CTX. Troponin, NTproBNP and Galectin were also significantly higher, from an early stage, in patients who developed CTX. Our study supports the use of deformation imaging and biomarkers for the early detection of CTX.

PO 242. SHANGHAI SCORING SYSTEM FOR RISK STRATIFICATION IN A PORTUGUESE SAMPLE OF BRUGADA SYNDROME PATIENTS

Ana Filipa Cardoso, Geraldo Dias, Tâmara Pereira, Mariana Tinoco, Sílvia Ribeiro, Lucy Calvo, Marina Fernandes, Víctor Sanfins, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: Risk stratification is a major challenge in Brugada Syndrome (BS). The Shanghai Brugada Scoring System (SBSS) was proposed as a diagnostic and risk stratification tool for these patients (pts). Our aim was to evaluate the predictive power of SBSS for risk stratification in our population.
Methods: Single-center retrospective study of BS pts and SCN5A mutation carriers identified thorough family screening. The SBSS was calculated and pts divided in 3 groups: group 1 if ≤ 3 points; group 2 if 3.5 to 4.5 points; group 3 if ≥ 5 points. Primary endpoint (EP) was a composite of syncope of probable arrhythmic origin, ventricular tachycardia/ventricular fibrillation (VT/VF) and sudden cardiac death (SCD) during the follow-up.
Results: We included 166 (86%) BS pts and 28 (14%) SCN5A pathogenic mutation carriers (59% males, mean age 51 ± 15 years). At diagnosis, 63 (38%) BS pts had a spontaneous type 1 pattern, including 3 (2%) during febrile illness and the remaining 103 (62%) had drug-induced type 1 pattern. They presented with arrhythmic syncope in 29 (17%) cases; nocturnal agonal respiration in 6 (4%) and aborted SCD in 5 (3%). A family history of BS was present in 113 (58%) pts and of sudden cardiac death in 30 (16%) pts. Genetic testing was done in 149 (77%) pts: 21 pts had a pathogenic and 47 a likely pathogenic SCN5A mutation. Programmed ventricular stimulation was performed in 64 (33%) pts and VT/VF was induced in 17 pts. A cardioverter defibrillator was implanted in 45 (23%) pts. After application of the SBSS, 40 (21%) pts were categorized as group 1, 95 (49%) pts as group 2 and 59 (30%) pts as group 3. During a median follow-up of 27 months (IQR 16-38), 7 patients experienced the primary EP (1 arrhythmic syncope, 6 VT/VF). The incidence rate was of 1.52 events per 100 person-years. Of the pts with the primary EP, 4 had a previous aborted SCD and 3 had a previous syncope of suspected arrhythmic origin. The incidence of the primary EP was higher in group 3 (3.49 *vs.* 0 *vs.* 0 events per 100 person-years; log rank = 0.001). The frequency of primary EP rate increased as the SBSS increased (HR: 2.46 per 1-point increase; 95%CI 1.42 to 4.26; p = 0.002). If data was limited to patients without previous SCD, the score lost its predictive power (HR: 2.51 per 1-point increase; 95%CI: 0.98 to 6.46; p = 0.056).

Conclusions: In our population, SBSS was a valuable tool for risk stratification and a cutoff of ≥ 5 points identified pts with the highest risk of events.

PO 243. IS NON-VITAMIN K ORAL ANTICOAGULANTS SAFE IN ADULT CONGENITAL HEART DISEASE

Miguel Martins de Carvalho, Tânia Proença, Ricardo Alves Pinto, Catarina Costa, Filipa Amador, João Calvão, Catarina Marques, André Cabrita, Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Adult with Congenital Heart Disease (CHD) are an increasing population with known high risk for thromboembolic events. Validation scores as CHA2DS2-VASC and HAS-BLED are uncertainty and, differently from patients with acquired heart disease, data is scarce about the use of non-vitamin K oral anticoagulants (NOAC) in this population. Although apparently safe its use remain off-label and more studies are warranted.
Objectives: To evaluate all patients requiring anticoagulation on-NOAC followed in an Adult CHD (ACHD) outpatients clinic and observe its safety and efficacy in thromboembolic prevention during a median follow-up of 60 months.
Results: In our population of 65 patients on NOAC with a mean age of 52 year-old, 66% were female. Most frequent CHD were atrial septal defect (22%) and Tetralogy of Fallot (TOF, 22%), followed by atrioventricular septal defect (16%). Regarding cardiovascular risk factors, 37% had hypertension, 23% had dyslipidemia, 9% had diabetes, 8% were smokers or previous smokers and 23% had obesity. Most patients had normal systolic function; 20% and 12% had respectively systemic and subpulmonic systolic dysfunction. About 63% of patients were in sinus rhythm, 35% in atrial fibrillation or flutter (AF/AFL) and 2% had pace rhythm. About 40% of patients had a CHA2DS2-VASC score ≥ 2 and a median HAS-BLED of 0. The main reason for anticoagulation was AF/AFL in 94% of patients; the remaining had an ischemic stroke (3%), intra-cardiac thrombus (2%) or a deep venous thrombosis (2%). About 69% of patients were medicated with beta blocker, 6% with amiodarone and 5% with another anti-arrhythmic drug. Concerning to NOACs 43% were medicated with apixaban, 29% with rivaroxaban, 22% with edoxaban and 6% with dabigatran. During the median follow-up of 60 months, only 5% had ischaemic complications; 2 patients had an ischemic stroke and 1 an acute myocardial infarct while on rivaroxaban-therapy. No statistically difference was found among the different NOACs (p = 0.55). There were no haemorrhagic complications and one patient died during the follow-up.
Conclusions: Of our population on-NOAC, most had ASD and TOF, and the main reason for anticoagulation was AF/AFL. Most patients were on apixaban. Only 5% of patients developed complications, with no statistically difference between drugs. NOACs seems safe and effective in adult with CHD.

PO 244. PREDICTORS OF PACEMAKER DEPENDENCY AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

João Pedro Reis, Tiago Mendonça, Alexandra Castelo, Inês Rodrigues, António Fiarresga, Rúben Ramos, Mário Oliveira, Duarte Cacela, Rui Ferreira

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

Introduction: Conduction disturbances after transcatheter aortic valve replacement (TAVR) are common with a variable risk of long-term pacemaker dependency (PD), being influenced by patient- and procedure-specific factors. As pacemaker (PM) implantation is associated with potential complications, our aim was to assess predictors of PD requirement after TAVR.
Methods: Retrospective analysis of consecutive patients (P) who underwent TAVR with a self-expanding valve from 2009 to 2020 at our institution. All P had pre-procedural clinical evaluation, cardiac computed tomographic angiography, transthoracic echocardiography and electrocardiography performed. Cumulative percentage of ventricular pacing (%Vp) was determined from stored PM data. P with a PM implanted previous to TAVR were excluded. PM implantation post-TAVR was defined as a device implant performed during hospital stay in the context of TAVR or during the first month after discharge. PD was defined as a%Vp > 80% at one-year follow-up. Multivariate analysis fvor the prediction of PD was done using Cox regression.
Results: A total of 474 P (57% male, age 81.7 ± 6.5 years, left ventricular ejection fraction 51.5 ± 14.6%) were analysed. Mean follow-up was 18.7 months. Mean baseline gradient was 51.7 mmHg with a mean aortic valve area of 0.71 cm^2. One hundred and four P (21.9%) required PM implantation after TAVR, with a mean%Vp of 65.3 ± 43.4%, presenting PD in 60% of the cases at one-year follow-up. A glomerular filtration rate > 60 ml/min (OR 0.87, 95%CI 0.74-0.96, p = 0.021) and mean aortic annulus perimeter (OR 0.89, 95%CI 0.80-0.98, p = 0.029) were independent predictors of a PD < 5%. Arterial hypertension (OR 7.00, 95%CI 1.31-37.40, p = 0.023), baseline right bundle branch block (OR 10.2, 95%CI 1.21-18.45, p = 0.033), and the EUROSCORE II (OR 1.05, 95%CI 1.01-1.10, p = 0.044) were predictors of PD > 80%. Baseline left bundle branch block, implantation depth and aortic valve calcium score were not predictors of PD.
Conclusions: Predictors of PD after TAVR may influence PM implantation, as well as device selection and programming. P with a higher aortic annulus perimeter and preserved kidney function may undergo a more expectant management, as PD rates are low after 1 year follow-up.

PO 245. THE VALUE OF ADMISSION NT-PROBNP IN PROGNOSIS OF PATIENTS HOSPITALIZED WITH COVID-19 AND WITHOUT HISTORY OF HEART FAILURE

Rui Antunes Coelho, Jéni Quintal, Ana Rita Piteira, Joana Silvério Simões, Ricardo Pereira, David Noivo, Ana Reis, António Inácio, José Maria Farinha, Ana Fátima Esteves, António Pinheiro Cumena Candjondjo, Joana Silva Ferreira, Pedro Campos Amador, Rui Caria

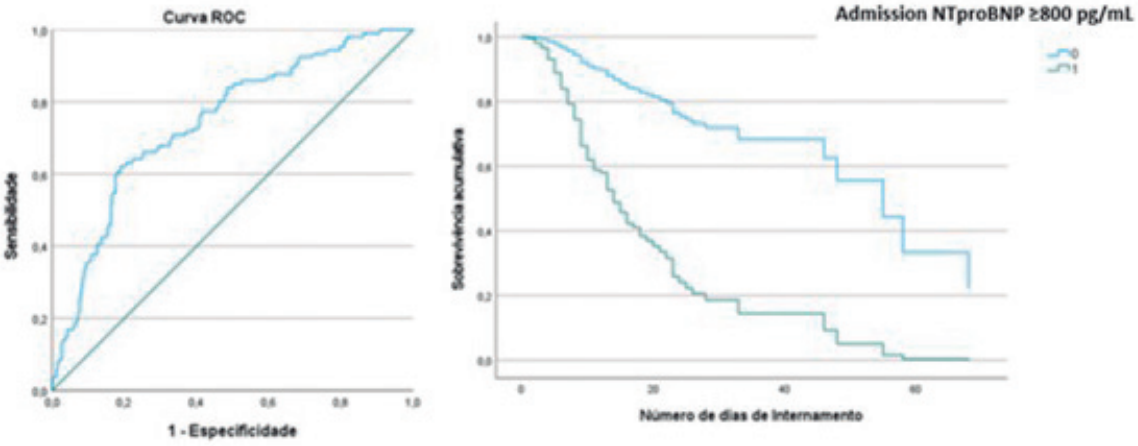
Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Coronavirus disease 2019 (COVID-19) has been associated with significant morbidity, including cardiovascular involvement. Elevation of N-terminal pro-B-type natriuretic peptide (NT-proBNP) was associated with worse prognosis in patients hospitalized with COVID-19. However, the relationship between admission NT-proBNP and prognosis of patients without previous history of heart failure is less established.
Objectives: Evaluate if NTproBNP has a good discriminative power to predict in-hospital mortality in patients without previous history of heart failure hospitalized with COVID-19.
Methods: We performed a retrospective analysis of 819 consecutive patients with COVID-19 admitted in our institution, in the third wave of the pandemic. We excluded patients without previous history of heart failure (n = 130) and patients in which it was not dosed NT-proBNP (n = 253). Receiver operator characteristics (ROC) curve and area under the curve (AUC) were obtained to determine the discriminative power of NT-proBNP as predictor of in-hospital mortality. Optimal cut-point value was obtained (Youden index) and patients were divided according to this value. Comparison between patients with and without NT-proBNP superior than the optimal cut-point was performed and in-hospital survival analysis was executed using a Cox Regression analysis (Fig.).
Results: Optimal cut-point value of NT-proBNP for predicting in-hospital mortality in patients admitted with COVID-19 and without history of heart failure was 800.0 pg/mL (AUC 0.744, p < 0.001, 95%CI 0.691-0.798). The group of patients with NT-proBNP ≥ 800 pg/mL (n = 153; 31%) had a 5-fold increased risk of in-hospital mortality (HR 5.08; 95%CI 3.34-7.73; p < 0.001).
Conclusions: In the group of patients admitted in our institution with COVID-19 and without history of heart failure in the third wave of the pandemic, an admission NT-proBNP ≥ 800 pg/mL was an independent predictor of in-hospital mortality. A careful preventive strategy is needed for these patients.

Patient characteristics	All (n = 436)	NT-proBNP <800 pg/mL (n = 283)	NT-proBNP ≥800 pg/mL (n = 153)	p-value
Age in years, mean ± DP	70 ± 15	64 ± 13	71 ± 10	<0,001
Male gender, n (%)	246 (56,4)	189 (66,8)	57 (37,3)	0,010
In-hospital mortality, n (%)	106 (24,3)	36 (12,7)	70 (45,8)	<0,001
1-month mortality	8 (2,2)	3 (1,2)	5 (4,5)	0,040
6-months mortality	9 (2,5)	6 (6,7)	3 (2,8)	0,795
Days in hospital, median (IQR)	8 (5-14)	10 (6-15)	8 (4-12)	0,077
Admission in ICU, n (%)	44 (10,1)	42 (14,9)	2 (1,3)	<0,001
Hypertension, n (%)	264 (60,6)	185 (56,7)	79 (71,8)	0,005
Diabetes mellitus, n (%)	132 (30,3)	92 (28,3)	79 (71,8)	0.112
Smoking, n (%)	40 (9,2)	38 (11,7)	2 (1,8)	0,002
Obesity, n (%)	85 (19,5)	70 (21,5)	15 (13,6)	0,073
Atrial fibrillation, n (%)	30 (6,9)	14 (4,3)	16 (14,5)	<0,001
Valvular heart disease, n (%)	5 (2,3)	2 (1,2)	3 (6,7)	0,033
Ischemic heart disease, n (%)	24 (5,5)	12 (3,7)	12 (10,9)	0,004
Chronic renal disease, n (%)	23 (5,3)	11 (3,4)	12 (10,9)	0,033
Pulmonary chronic obstructive disease, n (%)	26 (6,0)	16 (4,9)	10 (9,1)	0,109

Tabela 1 - Patients with and without NT-proBNP elevation

Figure 1 – Admission NTproBNP value and in-hospital mortality in patients with COVID-19



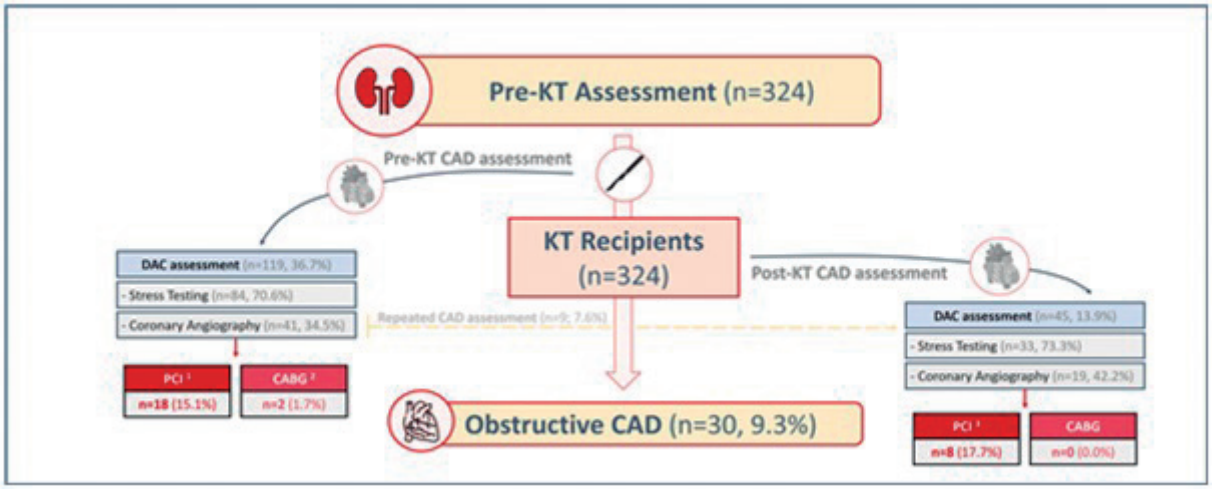
PO 245 Figure

PO 246.CAD IN KIDNEY TRANSPLANT RECIPIENTS: A REAL-WORLD ASSESSMENT PRE-ISCHEMIA-CKD

Bruno Rocha, Rita Amador, Sérgio Maltês, Gonçalo J. l Cunha, Catarina Mateus, Carlos Aguiar, André Weigert, Miguel Mendes

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

Introduction: The ISCHEMIA-CKD trial has shown that an initial invasive strategy, as compared to conservative treatment, did not reduce the risk of death and non-fatal myocardial infarction, nor did it improve quality-of-life in patients with advanced chronic kidney disease (CKD) and coronary artery disease (CAD) with moderate-to-severe ischemia. Similar findings were reported in patients with CKD enlisted for kidney transplantation (KT). We aimed to evaluate screening and treatment CAD strategies in patients who ultimately underwent KT at our center.
Methods: This is a single-center study of consecutive patients who received a KT from 2015 to 2020. Obstructive CAD was defined whenever one of the following criteria was met: lesion with a stenosis > 70% (or > 50%, if left main disease) or CAD requiring revascularization, as per the Heart Team discussion. CAD evaluation refers to non-invasive or invasive coronary angiography and/or stress testing, irrespective of clinical scenario.
Results: A total of 324 patients underwent KT [mean age 55 ± 12 years; 65.1% male; CKD most often due to hypertensive or diabetic nephropathy and polycystic kidney disease – 41.8%; median time from renal replacement therapy (RRT) to KT – 60 (40-88) months]. A flow-chart summarizing CAD diagnosis over time is depicted in the Figure 1. Overall, 119 (36.7%) patients had CAD evaluation prior to KT, of whom 21 underwent myocardial revascularization – 8, 12 and 1 patients with acute coronary syndrome (ACS), chronic coronary syndrome (CCS) and silent ischaemia, respectively. At a median time of 46 (25-66) months after KT, 36 (11.1%) more patients had CAD evaluation, of whom 8 underwent percutaneous myocardial revascularization – 6 and 2 for ACS and CCS, respectively. Those with obstructive CAD were older (64 *vs.* 54 years-old; p < 0.001), with a higher burden of cardiovascular (CV) risk factors (p < 0.001) and more likely to have had a CV death (9.5 *vs.* 1.0%; p = 0.025) or CV hospitalization (38.1 *vs.* 13.4%; p = 0.007). CAD status (revascularized *vs.* non-revascularized)



PO 246 Figure

was not associated with improved major outcomes at follow-up. We found no strong predictors of CAD requiring revascularization post-KT, including time from RRT to KT. There were no patients with refractory angina, left main disease or reduced left ventricular ejection fraction (< 40%) in need of myocardial revascularization over follow-up.
Conclusions: Obstructive CAD was uncommon in our cohort of patients who received a KT, most of whom with asymptomatic or mildly (monthly angina) symptomatic CCS or non-fatal ACS. These findings, together with the most recent evidence, may argue against routine CAD screening in all patients being enlisted for KT. Notwithstanding, randomized evidence is eagerly awaited to further guide treatment decisions in the post-ISCHEMIA-CKD era.

Sábado, 23 Abril de 2022 | 09:00-10:00

Sala Jardim de Inverno | Posters (Sessão 3 - Écran 1) - Cardiopatias Congénitas no Adulto

PO 81. NOAC IN ADULT CONGENITAL HEART DISEASE PATIENTS: A SINGLE-CENTER EXPERIENCE

Bruno Rocha, Sérgio Maltês, Gonçalo Cunha, Mariana Paiva, Catarina Brízido, Carlos Aguiar, Sérgio Madeira, Miguel Mendes

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

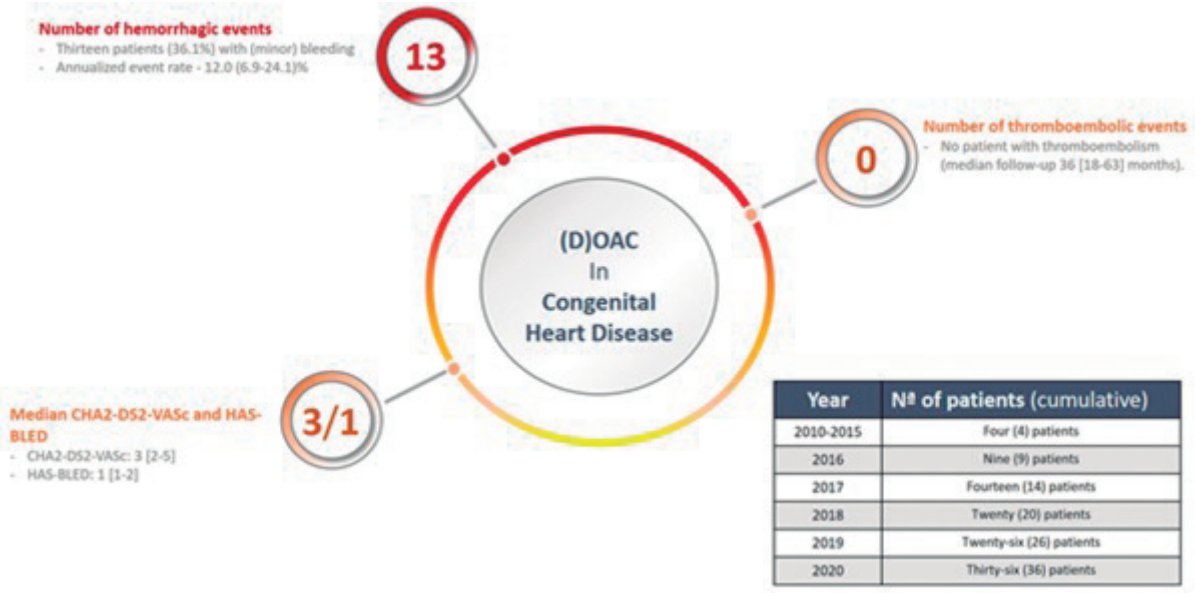
Introduction: Adult Congenital Heart Disease (ACHD) patients at increased risk for thromboembolic events are often treated with oral anticoagulation. While vitamin-K antagonists have been the agent of choice for decades, the use of non-vitamin K oral antagonists (NOAC) is increasing. We aimed to assess the safety and effectiveness of NOAC in ACHD patients at our centre.
Methods: This is a single-centre study enrolling all patients with ACHD treated with a NOAC from inception to November 2021. Data was collected using a standardized questionnaire applied to all patients by means of a telephone visit, in parallel with a detailed retrospective chart review. The endpoints of interest included thromboembolic and haemorrhagic events, defined as per the standardized International Society on Thrombosis and Haemostasis (ISTH) scale.
Results: Overall, 36 ACHD patients were enrolled [mean age 53 ± 15 years; female sex – 66.7%; previous stroke – 33.3%; median HAS-BLED and CHA_2DS_2-VASc score – 1 (1-2) and 3 (2-5), respectively], predominantly with moderate or complex congenital defects (52.7%), of whom 14, 8, 8 and 4 were treated with rivaroxaban, apixaban, edoxaban and dabigatran, respectively. Two-thirds had their first NOAC prescription in the latest 3 years (Fig.). The most common indication for anticoagulation was atrial fibrillation or flutter (77.8%). Over a median time of 36 (18-63) months on NOAC treatment, there were no patients with thromboembolic events, whilst 13 (36.1%) had a haemorrhagic event – annualized event rate of 12.0 (6.9-24.1%). All bleeding events were minor, most often self-limited gingival haemorrhage or epistaxis (n = 7) or menorrhagia (n = 3). Nasal cautery was needed to treat recurrent epistaxis in 3 patients, whilst 3 other required oral iron supplementation. The strongest predictor of any haemorrhage was a prior cardiovascular hospitalization (HR 3.88; p = 0.027).
Conclusions: The use of NOAC in ACHD patients has been increasing in our centre, with encouraging results. The present findings suggest that NOAC are safe and may be effective for thromboembolic event prevention in heterogeneous forms of ACHD.

PO 82. OPTIMIZING ADULT CONGENITAL HEART DISEASE CARE: EXPERIENCE OF AN ORGANIZED PROGRAM IN A REMOTE NON SPECIALIST CENTER

Fabiana Silva Duarte, André Viveiros Monteiro, Emília Santos, M. Inês Barradas, Luís Oliveira, Cátia Serena, António Fontes, Carina Machado, Raquel Dourado, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: The prevalence and long-term survival of patients with adult congenital heart disease (ACHD) is increasing due to advances in medical, surgical and percutaneous interventions. Recent European recommendations suggested stratification of patient care in three levels in which some patients can be followed in non-specialist centers.
Objectives: To assess the experience of an ACHD program in a non-specialist center at an ultra-peripheral region. We analysed the allocated resources, complexity of congenital defects, baseline clinical features and clinical outcomes during the follow-up period.
Methods: Retrospective analysis of consecutive patients with CHD between February 2007 and December 2021, with a median follow-up period of 62 months (IQR 33.5-116.5).
Results: 97 patients were identified, 56.7% female and with a median age of 28 years (IQR 23-36). Patients were referred from paediatric cardiology



PO 81 Figure

(69.1%), general cardiology (14.4%) and general practitioner (9.3%). Mean age at the time of referral was of 20 ± 12 years. There were more patients with moderate (48.5%) or mild congenital disease (35.1%) *vs.* severe defects (13.4%). The two main diagnosis in mild category were repaired atrial septal defects (23.5%) and bicuspid aortic valve (29.4%); in the moderate category, Fallot tetralogy (21.3%) and coarctation of the aorta (21.3%); and in the severe category transposition of the great arteries and pulmonary atresia (both representing 46.2%). No gender-related differences were demonstrated (p = 0.71). A neonatal diagnosis was made in 40.2% and 22 patients (22.7%) were diagnosed at adulthood. A neurodevelopmental disorder was diagnosed in 16 patients, half with Down's syndrome. Fifty-two patients (53.6%) underwent at least one surgical procedure, of which 88.5% during childhood and additional percutaneous intervention was required in 7 patients. During follow-up, 4.1% of patients were at NYHA class III/IV, 10.3% had arrhythmic events and 7.2% were hospitalized for heart failure decompensation. Pregnancy occurred in 17 patients and 2% had a cardiac complication. Three patients had an infective endocarditis (2 with severe defects, p 0.049; r = 0.2). Only 1 patient died of a non cardiac cause.

Conclusions: An organized follow-up of ACDH patients in a non-specialist center is possible for most types of mild and moderate congenital defects with a low rates of adverse outcomes. The increasing number of ACHD patients should encourage more peripheric centers to create ACHD programs in close relation with specialist centers.

PO 83. OLD AGE IN ADULT CONGENITAL HEART DISEASE: A CONTEMPORARY REALITY

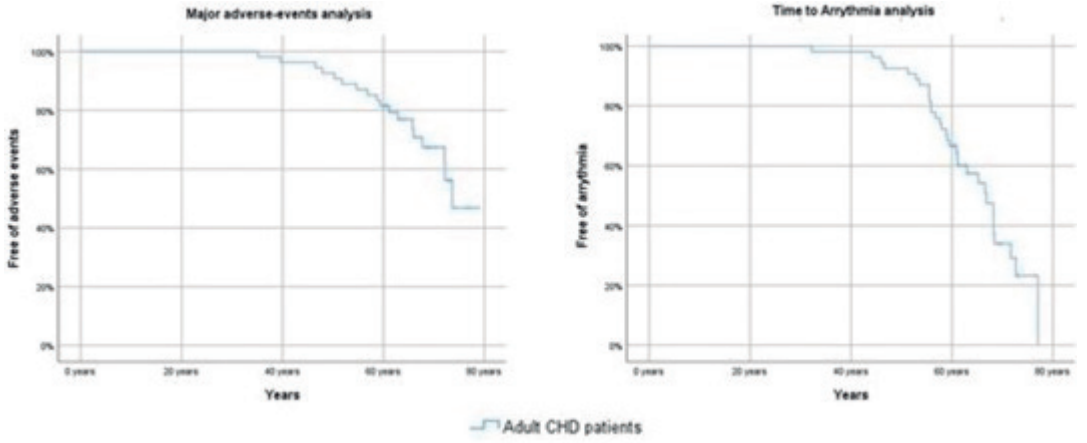
Tânia Proença, Miguel Martins Carvalho, Ricardo Alves Pinto, Filipa Amador, Catarina Costa, João Calvão, Catarina Marques, André Cabrita, Cátia Priscila, Ana Pinho, Luís Santos, Maria Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Congenital Heart Disease (CHD) affects under 1% of newborns and albeit once associated with bad prognosis, nowadays a remarkable increase in their survival was reached. Lifelong surveillance is essential, bringing new challenges as patients getting older.

Objectives: To observe a group of old patients followed in an Adult CHD (ACHD) outpatients clinic, access their comorbidities, cardiac interventions, complications and clinical outcomes.

Methods: We retrospectively analysed a group of old-patients (> 60 year-old) evaluated during the past year in an ACHD outpatient clinic. Clinical



PO 83 Figure

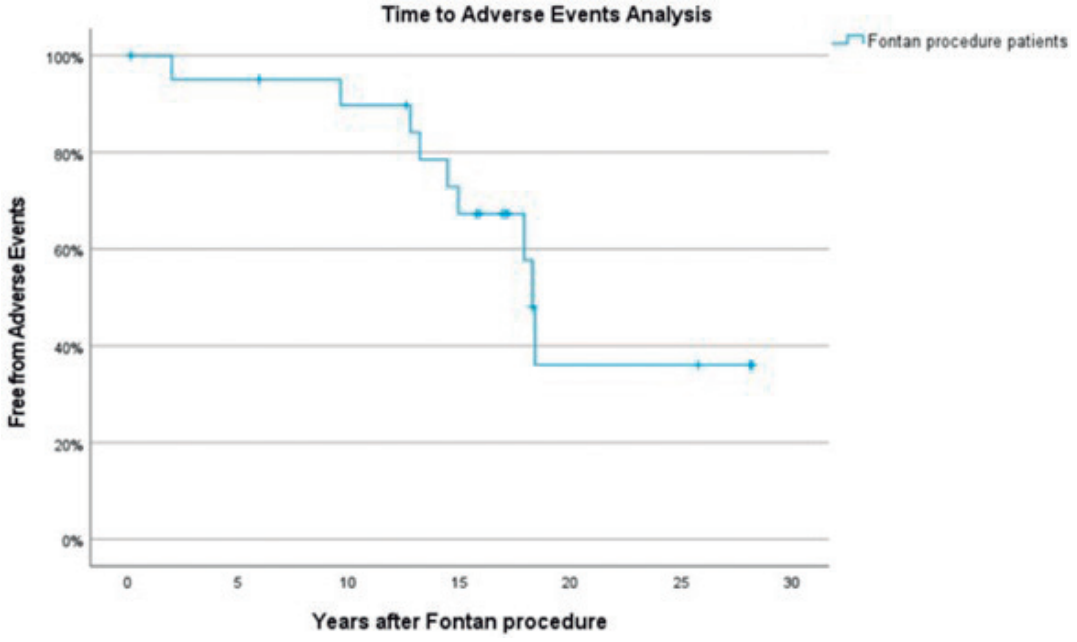
features were collected and time-to-event statistics were analyzed. Major adverse event (AE) was defined as a composite of all-cause death, cardiac re-intervention, ischemic stroke (IS) and acute coronary syndrome (ACS).
Results: A total of 54 patients were included, 69% female with a median age of 68 (61-82) year-old. Most frequent diagnosis were atrial septal defect (ASD, 39%), Tetralogy of Fallot (13%), Ebstein anomaly (11%), and atrioventricular (AV) septal defect (11%). The majority of patients (77%) were submitted to intervention, with a median age of 35 years; 29% had a second intervention during lifetime, about 23 years after first intervention. Concerning clinical data, almost all patients were in NYHA class I or II, only 4% had oxygen saturation under 90%, 26% had pulmonary hypertension and 13% chronic kidney disease. Regarding cardiac function, most had normal systolic function (systemic and subpulmonic ventricular dysfunction was present in 7% of patients). The most frequent dysfunctional valve was subpulmonic AV valve, with 20% presenting moderate to severe regurgitation. During follow-up, 41% remained in sinus rhythm, most with normal AV conduction. 59% of patients developed atrial flutter or fibrillation (AF/AFL), 15% implanted definitive pacemaker and none ICD or CRT was implanted. In time-to-arrhythmia analysis more than 95% and 60% kept outcome-free at 40 and 60 year-old, respectively, but all patients developed arrythmia before complete 80 years. During follow-up, 6% had IS and 2% ACS; time-to-AE analysis showed that 80% were event-free at 60 year-old and even at 80 years almost 50% of patients had no AE. Regarding gender and demographic features, there were no differences comparing patients living in urban *versus* rural neighbourhoods and female *versus* male (Log Rank, p = 0.205 and p = 0.156). Concerning female patients, 19% had a successful pregnancy.
Conclusions: In a cohort of ACHD older than 60 years, the most frequent diagnosis was ASD; most of them had normal systolic function and non-significative valvular disfunction. Most patients remained free of events until 40 years and a significant portion of patients had no AE during lifetime. AF/AFL were the most frequent complication, generally emerged after 40 years and was always present at 80 year-old.

PO 84. LONG-TERM OUTCOME IN FONTAN PROCEDURE PATIENTS: THE DESTINATION THERAPY OR A BRIDGE TO TRANSPLANT?

Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Catarina Costa, Filipa Amador, João Calvão, Catarina Marques, André Cabrita, Maria Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

The Fontan procedure (FP) is considered a palliative surgical technique used for complex congenital heart disease (CHD) patients not suitable for biventricular repair. Currently, these patients' life expectation is extended but they experience high morbidity and mortality risks and their long-term management is challenging. Our aim was to evaluate the morbidity of these patients after a long-term follow-up.We collected a retrospective cohort of patients palliated with FP, that were followed in an adult CHD outpatient clinic born between 1980 and 2001. Clinical and echocardiographic data were collected. A time to adverse event analyses was performed. A total of 26 patients were enrolled, with a median follow-up of 17 years. The median age was 24 (IQR 22-30) year-old, 35% were female. As for the cardiovascular risk factors, none had hypertension or dyslipidaemia, 3.9% had diabetes and 11.5% were smokers or previous smokers. Only 3.9% of patients had chronic kidney disease. Of note, the mean BNP was of 19.4 pg/mL. The main anatomic abnormalities that lead to the FP were single ventricle (53.8%), followed by pulmonary atresia (23.1%), double outlet right ventricle (11.5%), ventricular septal defect (3.9%) and Ebstein anomaly (7.7%). The majority of patients were previously submitted to a shunt (42.3% with a Blalock-Thomas-Taussig and 19.3% with an atrial septostomy); the most prevalent surgical technique was the cavopulmonary connection (69.2% extracardiac, 15.4% intracardiac), followed by the atriopulmonary anastomosis (11.5%). The systemic ventricle was morphologically left in 84.6%. A fenestration or a residual shunt persisted in 30.8%. The mean basal oxygen saturation was of 95%, with 3.9% of patients being cyanotic. The majority of patients were asymptomatic (69.2%), with a normal ventricular function in those with a systemic left-ventricle (91.7% of patients), and a moderately impaired in those with a systemic right-ventricle (50% of patients); more than moderate AV valve regurgitation was present in 7.7%. Pulmonary hypertension was observed in 7.7%. Atrial arrythmias were present in 11.5%. Liver disease affected 50% of patients (1 patient with an hepatocarcinoma) and protein-losing enteropathy was present in 7.7%. One patient was submitted to a re-FP, due to a Fontan circulation obstruction; another patient was submitted to a heart transplant. Regarding the time-to-adverse-events analyses, more than 65% of patients were event-free during the first 15 years of FP. However, after 20 years of FP more than 60% of patients presented with an adverse event. Survival in FP patients has improved and most of them live without significant morbidity for several years. However, after 20 years of the FP, the majority of patients experience adverse events and even death. Heart transplant is a possible solution for these patients and should start to be considered when adverse events arise.



PO 84 Figure

PO 85. ANOMALOUS AORTIC ORIGIN OF THE RIGHT CORONARY ARTERY: SINGLE CENTRE EXPERIENCE

Sara Ranchordás, Paulo Veiga Oliveira, Márcio Madeira, Marta Marques, José Pedro Neves, Miguel Abecasis

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

Introduction: Anomalous aortic origin of the coronary artery (AAOCA) from the opposite sinus is a rare congenital coronary anomaly, which may involve the left or right coronary artery (RCA). Prevalence ranges from 0.1 to 1% in different series. Clinical presentation can vary from asymptomatic to sudden cardiac death. The main objective of this study was to evaluate our centre´s experience of surgery in patients with anomalous aortic origin of the RCA (AAORCA).
Methods: All patients who underwent surgery for AAORCA from January 2016 to may 2021 were included. All cases were AAORCA from the left coronary sinus. A total of 7 patients (5 male, 2 female) were submitted to surgery by the same surgeon. No concomitant procedures were performed. Surgical technique consisted of median sternotomy, establishment of conventional cardiopulmonary bypass and aortic cross clamping with cardioplegic arrest. Transverse aortotomy was made to gain access to the anomalous intramural portion of the right coronary artery. A probe was placed inside the intramural course of the RCA and the intra-aortic roof of the artery was sharply opened throughout the intramural pathway from the origin in left coronary sinus to take-off in right coronary sinus. Edges were tacked down with fine sutures. There was one case with intramural course behind the right-to-left commissure. The commissure was therefore detached and resuspended.
Results: Mean age was 42 years old. All patients were symptomatic: 2 presented with cardiac arrest, 4 with effort angina, and 1 with easy fatigue/effort related dyspnoea. All had an AAORCA with intramural course, a slit like ostium in 2 patients, both of which presented with cardiac arrest during exercise. Mean CPB time was 41.9 (± 7.5; 35-54) minutes and mean aortic cross-clamping time was 28.4 (± 5.9; 22-38) minutes. There were no postoperative complications nor in-hospital mortality, ICU stay was < 48h, and all were discharged home within 7 days after surgery (3-7 days). After a mean follow time of 2.5 years, all patients were alive. One patient had a pacemaker implanted 2 months after surgery due to 2nd grade AV block (Mobitz II), which was not present immediately after surgery. There were no other events during follow up.
Conclusions: ARCA is a rare but potentially fatal condition. Slit like ostium is a particularly high risk characteristic. Unroofing is a simple, safe and effective procedure for ARCA.

Sábado, 23 Abril de 2022 | 09:00-10:00

Sala Jardim de Inverno | Posters (Sessão 3 - Écran 2) - Arritmias 3 - Vários

PO 86. HIS BUNDLE AND LEFT BUNDLE BRANCH PACING: INITIAL EXPERIENCE

Carolina Saleiro[1], Pedro A. Sousa[1], Catarina Nogueira[2], Lídia Mota[2], Cláudia Almeida[1], Gisela Bragança[1], Francisco Paisana[2]

[1]*Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral.*
[2]*Unidade Local de Saúde de Castelo Branco, EPE/Hospital Amato Lusitano.*

Introduction: Right ventricular apical pacing is associated to electric and mechanical desynchrony. Recently, there has been increasing interest in pacing methods that provides physiological stimulation directly activating the conduction system, such as, His bundle pacing (HBP) or left bundle branch pacing (LBBP).
Objectives: To evaluate procedure characteristics, safety, and feasibility of HBP and LBBP.
Methods: Prospective, single-center study evaluating patients that had attempted HBP or LBBP from 07/2020 to 11/2021. Procedure details and pacing parameters were collected.
Results: During the inclusion period, 50 procedures of physiologic pacing were attempted in 46 patients. Acute procedural success was achieved in 96% of the

ACUTE PACING PARAMETERS			
	His bundle pacing (n=24)	**Left bundle branch pacing (n=24)**	**P**
Pacing parameters			
Sensing amplitude, mV	4.1 [3,3-6.6]	7.7 [5.6 – 10.3]	0.002
Pacing threshold, V @ ms	0.9 [0.60-1.68] @ 1	0.73 [0.43-0.95] @ 0.4	0.077#
Pacing impedance, Ω	475 [380-589]	741 [675-855]	<0.001
Paced QRS duration, ms	118 ± 21	129 ± 15	0.048
DISCHARGE PACING PARAMETERS			
	His bundle pacing (n=24)	**Left bundle branch pacing (n=24)**	**P**
Pacing parameters			
Sensing amplitude, mV	4.8 [3.4-9.0]	14.7 [9.2-20]	0.001
Pacing threshold, V @ ms	0.60 [0.25-1.0] @ 1	0.3 [0.25-0.50] @ 0.4	0.023#
Pacing impedance, Ω	390 [323 – 432]	627 [523-646]	<0.001
Paced QRS duration, ms	122 ± 18	122 ± 14	0.946

Table 1- Pacing parameters at implantation and before discharge for His Bundle Pacing and Left Bundle Branch Pacing. # Refers to difference in Voltage.

PO 86 Figure

cases (48/50 procedures [92.3% success for HBP and 100% success for LBBP]). Effective HBP was achieved in 24 procedures (8 selective HBP and 16 non-selective HBP) and effective LBBP in 24. Need for reintervention during the enrolment period (either due to displacement or unsatisfactory threshold rise) occurred in 4 (8.3%) cases at a median time of 2.5 [1.3-3.8] months. Median procedure duration was 93 [74-123] minutes and median fluoroscopy time was 6:09 [3:27-11:07] minutes - no difference between HBP or LBBP (p = 0.36; p = 0.15; respectively). Discharge thresholds were significantly lower in LBBP than in HBP while R wave amplitude was significantly higher in patients receiving LBBP, both at implantation and before discharge. No difference for paced QRS after HBP or LBBP were seen before discharge. Pacing parameters and comparisons between groups are shown in the table. There was no acute adverse event observed. In the subgroup of patients with intraventricular conduction delay (QRS ≥ 120 ms, n = 12), there was a reduction in the QRS duration after pacing (138 ± 16 to 128 ± 20 ms).
Conclusions: This study demonstrates the feasibility and safety of the physiologic pacing.

PO 87. PULMONARY VEIN ISOLATION PLUS CAVOTRICUSPID ISTMUS ABLATION SHOWS NO BENEFIT IN ARRYTHMIA RECURRENCE

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

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

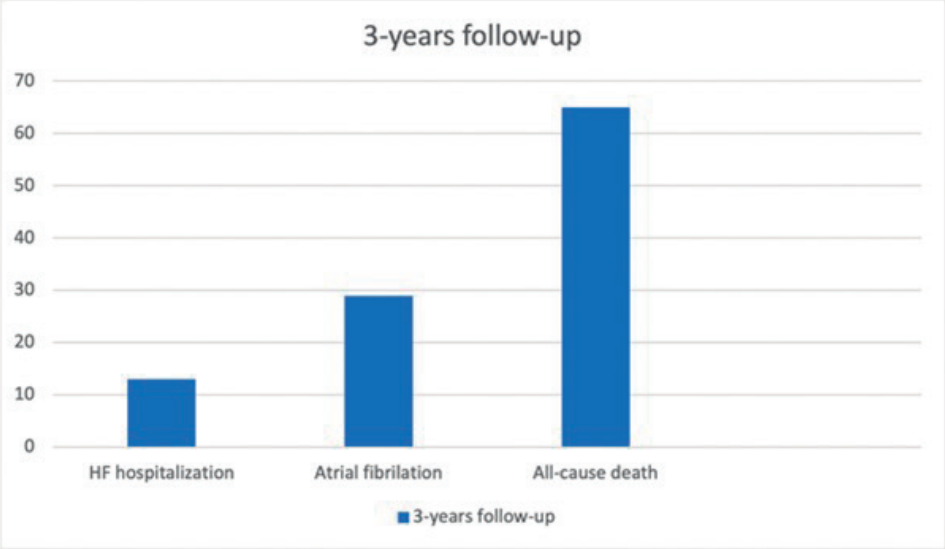
Introduction: Pulmonary vein isolation (PVI) is the mainstay of catheter ablation (CA) for atrial fibrillation (AF). Strategies have been proposed to improve the success rate of CA, such as prophylactic cavotricuspid isthmus (CTI) ablation. Despite some studies providing no, or limited, incremental benefit of CTI ablation in patients with AF, it is still frequently performed worldwide.
Objectives: The aim of this study is to examine whether CTI ablation, combined with PVI, is associated with improvement in recurrence of AF, compared with PVI alone in AF patients with or without atrial flutter (AFL).
Methods: We conducted a retrospective analysis of CA for AF performed at a tertiary center between September 2004 and December 2020. The procedures were divided in two groups: "PVI alone" and "PVI plus CTI ablation". Demographic, clinical, and procedure related data was retrieved. Atrial fibrillation recurrence rate at one year was analyzed for both groups and compared using logistic regression.
Results: A total of 453 procedures were analyzed: PVI alone (n = 378; 83.4%) and PVI with CTI ablation (n = 75; 16.6%). All patients who performed PVI had AF. In the PVI alone group, 12.9% of the patients also had AFL and in the PVI plus CTI ablation, 45.8% had AFL. Mean age was 57.3 ± 12.1 years, with 63.6% male patients. At one year, AF recurrence rate was higher in the combined PVI with CTI ablation group (30.4%; n = 21), compared with the PVI alone group (28.4%; n = 97), with no statistical difference between the two groups (Odds Ratio [OD] 1.10; 95% confidence interval [CI] 0.62-1.94; p = 0.73). In the subgroup analysis, there were no differences between both groups in patients with AF without AFL (OR: 1.9; 95%CI: 0.39-9.36; p = 0.43), and in patients with AF and AFL (OR: 10.0; 95%CI: 0.9-110.3; p = 0.06).
Conclusions: In AF patients, irrespective of the presence of typical AFL, additional CTI ablation, compared with PVI alone, was not associated with improvement in recurrence of AF.

PO 88. USEFULNESS OF THE PHYSIOLOGICAL VDD PACEMAKER IN VELDERLY PATIENTS WITH NORMAL SINUS RHYTHM

Sofia S. Martinho, Maria João Telo, José Paulo Almeida, Natália António, Luís Elvas, Lino Gonçalves

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

Introduction: In frail elderly patients or when atrioventricular block (AVB) is paroxysmal, and pacing anticipated to be infrequent, single chamber pacing (VVI or VDD) may be considered as it carries a lower complication rate compared with DDD devices. For sinus rhythm patients, the single lead VDD, by preserving atrial sensing, is a more physiological mode than VVI devices, with comparable time procedure and complication rates. However, there are few data assessing the performance of VDD pacemakers in elderly patients, with AVB and sinus rhythm. We want to evaluate the 3-years performance of VDD pacemakers (PM) in frailty elder patients with AVB.
Methods: We conducted a retrospective, observational study of 200 elderly (≥ 75 years) patients with AVB and normal sinus rhythm who consecutively implanted VDD PM between 2016 and 2018. Baseline clinical characteristics were analyzed, and a 3-years follow-up was performed: atrial undersensing, atrial fibrillation (AF), heart failure (HF) hospitalization, cardiovascular (CV) and non-CV death.
Results: Mean age was 84 ± 5 years and 55% were female. The study population presented several comorbidities: 74% had atrial hypertension, 49% dyslipidemia, 35% chronic kidney disease and 28% diabetes. After 3-years follow-up most of the patients (90%; n = 162) were still programmed



PO 88 Figure

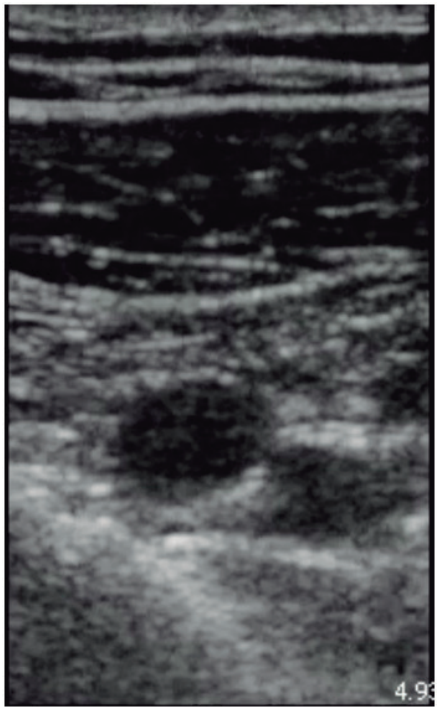
in their original mode with good atrial sensing. Due to permanent AF, 4% (n = 8) patients had been switched to VVIR mode and 5.5% (n = 11) due to P-wave undersensig. 0 ne-third (n = 65) died during follow-up, 89% (n = 58) due to non-CV causes. Low amplitude P-wave (< 0.5 mV) at baseline had a numerical, non-statistically significant association with atrial undersensig and AF at 3-years (p = 0.14 and p = 0.77, respectively). Atrial undersensing during follow-up didn't relate with all-cause death and HF hospitalization (p = 0.58 and p = 0.64, respectively), vbut was associated with atrial fibrillation (12.7 *vs.* 31.6%, p = 0.038).
Conclusions: A significantly larger number of VDD-paced elderly patients maintain their original mode program with good atrial sensing. Moreover, atrial undersensing did not influence mortality or HF hospitalization rate. These results reinforce the benefit of VDD use among frail and elderly patients.

PO 89. ACESSO VENOSO AXILAR PARA IMPLANTAÇÃO DE DISPOSITIVOS DE PACING – EXPERIÊNCIA DE UM CENTRO

Francisco Moscoso Costa, Diogo Cavaco, Sílvia Nunes, Pedro Galvão Santos, Pedro Carmo, Leonor Parreira, Pedro Adragão

Hospital da Luz Lisboa.

Introdução: A cateterização venosa é fundamental para a implantação de elétrodos de estimulação cardíaca. Frequentemente são utilizadas a veia cefálica, que apresenta limitações pelo seu calibre e tortuosidade não facilitando a progressão e implantação de múltiplos elétrodos, e a veia subclávia cuja cateterização está associada ao risco de pneumotórax e por isso desaconselhada pelas últimas orientações da ESC. A cateterização da veia axilar surge como uma alternativa. Neste trabalho descrevemos a experiência de um centro na cateterização seletiva da veia axilar para implantação de elétrodos de estimulação cardíaca.



Métodos e resultados: incluíram-se 103 doentes consecutivos (77 ± 12 anos), admitidos para implantação de *pacemaker* ou desfibrilhador, de 25 de fevereiro de 2020 até 07 de dezembro de 2021. Foram implantados 86 sistemas de *pacing* (71 *pacemaker* dupla câmara, 13 câmara única, 2 CRT-P) e 17 desfibrilhadores (14 CRT-D e 3 convencionais) perfazendo um total de 206 elétrodos implantados. O acesso axilar foi guiado por eco para auxiliar a punção transcutânea sob anestesia local com lidocaína 1%. Foram visualizadas a artéria e veia axilar e verificada a distância à pleura, que foi utilizada como marco de segurança (Fig.). A punção foi então realizada observando a progressão da agulha na imagem do ecógrafo. Nos primeiros 10 casos, não foi possível obter acesso axilar em 3 doentes, sendo utilizada veia cefálica num dos casos e subclávia nos outros 2 casos. Para todos os restantes casos (100 doentes), foi possível obter acesso axilar e implantar os elétrodos sem complicações imediatas. Não registamos nenhum caso de pneumotórax, observamos 2 hematomas da loca em doentes sob hipocoagulação oral, um com necessidade de drenagem. Não se observou nenhum caso de infeção do dispositivo.
Conclusões: Nesta serie de doentes consecutivos submetidos à implantação de dispositivos de *pacemaker*, desfibrilhador e ressincronização, o acesso axilar guiado por eco mostrou ser reprodutível e estar associado a um reduzido número de complicações sendo uma alternativa atrativa à abordagem da subclávia.

PO 90. IMPACT OF THE COVID-19 LOCKDOWN IN EMERGENT PACEMAKER IMPLANTATIONS

Diogo de Almeida Fernandes[1], Rúben Cadete[2], Joana Guimarães[1], Eric Monteiro[1], Gonçalo Costa[1], Natália António[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: COVID-19 was first considered a pandemic on the 11th of March of 2020 by the World Health Organization. Its impact comprised not only the direct consequences of the disease but a decrease in the follow-up and interventions of patients with cardiovascular (CV) disease. In Portugal and the World, the consequences of this complex paradigm shift on emergent pacemaker implantation rates during and after this pandemic is largely unknown.
Objectives: We sought to analyse the impact of COVID-19 pandemic on emergent pacemaker implantation rate and patient profile in a tertiary hospital during the first Portuguese lockdown and subsequent post-lockdown period.
Methods: We retrospectively reviewed the clinical profile of patients who had pacemakers implanted in our hospital in an urgent/emergent setting from March 18, 2020 to May 17, 2020 (lockdown) and May 19 to July 17, 2020 (post-lockdown). This data was then directly compared to the homologous periods from the year before (H1 and H2, respectively).
Results: A total of 180 patients submitted to emergent pacemaker implantation were included. The cohort was comprised of 29 patients who had a pacemaker implanted during lockdown, 60 post-lockdown, 38 in H1 (+31 *vs.* lockdown) and 53 in H2. Average age and gender proportion were similar for all groups. When comparing lockdown and post-lockdown periods, the number of cases significantly increased in the second period (+106.9%) and there was a tendency for a higher number of temporary pacemaker use (3.4 *vs.* 16.7%; p = 0.076). Patients admitted during lockdown were 7.57 times more likely to present with hypotension/shock (odds ratio (OR) 7.57; p = 0.013). Regarding lockdown and its homologous 2019 period, there was a decrease in the number of patients admitted (-23.7%). Again, there was a higher tendency for hypotension on presentation during lockdown (p = 0.054). In comparison to its homologous 2019 period, post-lockdown saw a slight increase in the number of patients (+13.2%) and more patients presented with bradycardia (16.7 *vs.* 3.8%; p = 0.026). Also of note, no patients were admitted to the emergency department during lockdown for anomalies detected on ambulatory tests (Holter, electrocardiogram or implanted loop recorder).
Conclusions: During lockdown, clinical presentation was generally more severe, with a greater number of patients presenting with hypotension/shock. In addition, there appears to be a lockdown effect on emergent bradyarrhtmias admissions in the post-lockdown period with a profound impact: higher admission rates and more severe presentations including a higher need of temporary pacemaker. Patients with symptoms suggestive of bradyarrhythmias should be advised to present promptly regardless of the pandemic.

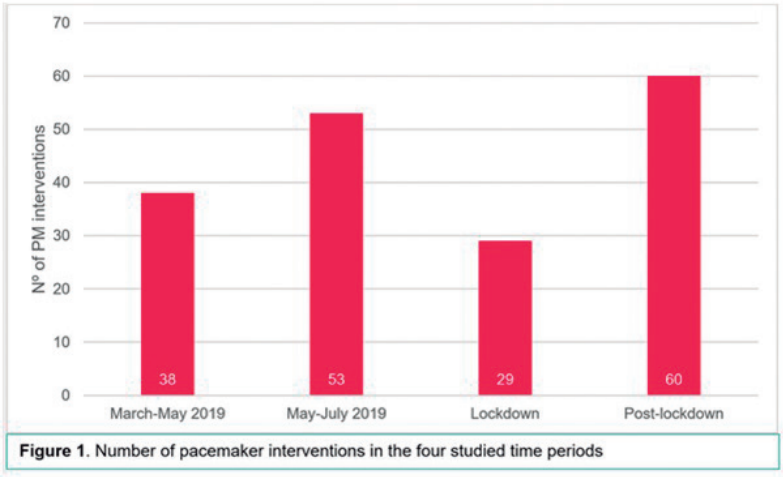


Figure 1. Number of pacemaker interventions in the four studied time periods

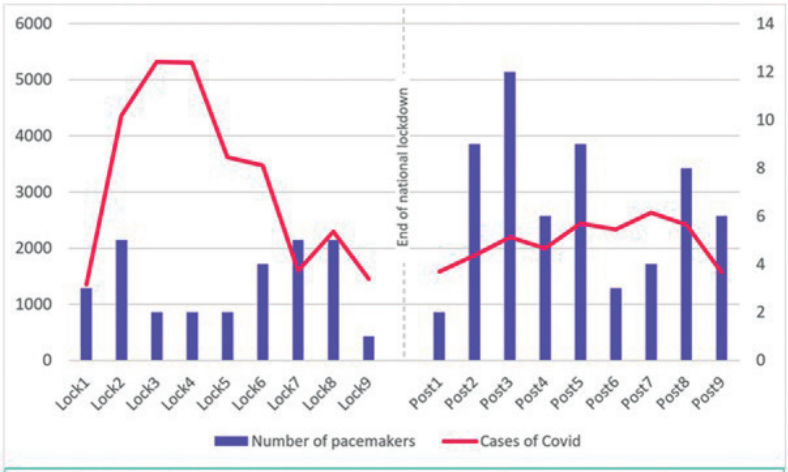


Figure 2. Number of pacemaker interventions per week in our Center and number of new SARS-CoV2 cases per week in Portugal, during the lockdown and post-lockdown periods

PO 90 Figure

Sábado, 23 Abril de 2022 | 09:00-10:00

Sala Jardim de Inverno | Posters (Sessão 3 - Écran 3) - Arritmias 4 - Vários

PO 91. APPLICATION OF SYNCOPE GUIDELINES IN A CENTER WITH A TRAUMA-FOCUSED TRIAGE

Paulo Medeiros, Cátia Oliveira, Carla Pires, Rui Flores, Fernando Mané, Rodrigo Silva, Inês Conde, Carina Arantes, Sónia Magalhães, Adília Rebelo, Sérgia Rocha

Hospital de Braga, EPE.

Introduction: Syncope is a common issue in the emergency department (ED), and many hospitals lack a dedicated syncope unit to observe and evaluate these patients. When attending the ED, patients with syncope or presyncope may be initially referred to medical or surgical (trauma) areas, according to the overall presentation.
Objectives: To understand the differences in the approach and diagnostic workup of syncope and presyncope patients referred to medical *vs.* surgical (trauma) areas.
Methods: Single-center descriptive analysis and comparison of patients that implanted a permanent pacemaker (PM) in 2019 and had at least 1 visit to the ED in the previous year (not including the one that may have triggered the PM implantation). From an initial pool of 398 patients, 88 (22%) were included in the analyzed sample. Patients were divided in two groups: group 1 – medical area; group 2 – surgical area. Clinical history red flags included syncope preceded by palpitations or chest pain, syncope while standing/sitting or syncope without prodromes. Physical examination red flags included hypotension, bradycardia and presence of systolic murmur.
Results: Sixty-six percent (n = 58) of pts were included in group 1 and 34% (n = 30) in group 2. The groups were similar in terms of gender distribution and presence of comorbidities (hypertension, diabetes mellitus, dyslipidemia, smoking and chronic kidney disease). Median observation time in the ED was 5.5 hours (min 0.5 hours, max 24 hours). Thirty-three percent (n = 19) of patients referred to the medical area had at least 1 clinical history red flag *vs.* 57% (n = 17) of those referred to the surgical area, and this different was statically significant (χ^2 (1, N = 88) = 4.67, p = 0.031). The proportion of physical examination red flags was similar between the 2 groups. However, 86% (n = 50) of group 1 patients performed an ECG *vs.* 41% (n = 9) of group 2, with statistical significance (χ^2 (1, N = 88) = 28.27, p < 0.001). Additionally, 34% (n = 20) of group 1 patients were referred to observation by a cardiologist in the ED *vs.* 11% (n = 3) of group 2 pts (χ^2 (1, N = 88) = 6.36, p = 0.012). Finally, 45% (n = 26) of group 1 patients had a scheduled cardiology appointment by discharge, while only 11% of group 2 patients did, with statistical significance (χ^2 (1, N = 88) = 10.85, p = 0.001).
Conclusions: Our results reveal an important issue in syncope and presyncope patients triage at the ED. Considering that all the patients ended up implanting a permanent PM, the proportion of these that were observed by a cardiologist at the ED or were referred to a future appointment was

remarkably low. Also, the approach of patients referred to the surgical area may have been more focused on the trauma itself than on the triggering event, which may explain the low percentage of requested ECGs. Although none of the triage areas had ideal results, surgical area observation was associated with a worse diagnostic workup and referral of syncope patients.

PO 92. LONG-TERM PROGNOSIS IN PATIENTS WITH ATRIOVENTRICULAR BLOCK IN ACUTE CORONARY SYNDROME

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Introduction: The presence of atrioventricular block (AVB) in the setting of an acute coronary syndrome (ACS) can be just an in-hospital complication, without any implication in the long-term prognosis of these patients.
Objectives: Evaluate the long-term impact and prognosis of AVB in ACS patients.
Methods: This is a multicenter retrospective study, based on the Portuguese Registry of ACS between 1/10/2010-3/05/2020. Patients were divided into two groups: A – patients without AVB, and B – patients that presented AVB. Were excluded patients without a previous cardiovascular history or clinical data regarding AVB occurrence. Logistic regression was performed to assess predictors of long-term mortality in patients that had AVB during the ACS.
Results: From 32,157 patients, 23,834 was included, 23,178 in group A (97.4%) and 656 in group B (2.6%). Both groups were similar regarding initial symptons until first medical contact, smoker status, arterial hypertension, diabetes mellitus, peripheral artery disease and chronic kidney disease. Group A had higher body mass index (27.4 ± 4.4 *vs.* 26.9 ± 4.6, p = 0.005), dislipidaemia (59.6 *vs.* 51.4%, p < 0.001), coronary artery disease (18.9 *vs.* 13.0, p < 0.001), heart rate (78 ± 19 *vs.* 65 ± 25, p < 0.001), systolic blood pressure (139 ± 29 *vs.* 119 ± 32, p < 0.001) and left ventricular ejection fraction (LVEF) > 50% (60.1 *vs.* 51.7%, p < 0.001). On the other hand, group B was elderly (66 ± 13 *vs.* 71 ± 13, p < 0.001), female (27.4 *vs.* 32.4%, p < 0.001), previous stroke (6.9 *vs.* 10.9%, p < 0.001), neoplasia (4.9 *vs.* 6.8%, p = 0.031), ST-segment elevation myocardial infarction (46.2 *vs.* 75.4%, p < 0.001), syncope as major symptom (1.3 *vs.* 10.0%, p < 0.001), Killip-Kimball class > I (15.4 *vs.* 31.6%, p < 0.001), multivessel disease (52.1 *vs.* 61.4%, p < 0.001) and major adverse cardiac events (p < 0.001). However, just 8755 had a follow-up at one-year, 8127 in the group A and 628 in the group B. AVB during the ACS was not a predictor of mortality at one year follow-up (p = 0.122). Nonetheless, logistic regression revealed that age > 75 years old (*odds ratio* (OR) 2.44, p < 0.001, confidence interval (CI) 1.87-3.18), chronic kidney disease (OR 1.86, p = 0.002, CI 1.25-2.78), neoplasia (OR 1.80, p = 0.010, CI 1.15-2.81), STEMI (OR 1.58, p = 0.002, CI 1.18-2.11), heart rate at admission > 100 (OR 1.53, p = 0.009, CI 1.11-2.09), Killip-Kimball class > I (OR 1.50, p = 0.009, CI 1.11-2.04), right bundle branch block at admission (OR 1.70, p = 0.004, CI 1.18-2.46), multivessel disease (OR 1.43, p = 0.009, CI 1.09-1.87), left ventricular ejection fraction < 50% (OR 1.86, p < 0.001, CI 1.40-2.49) and cardiogenic shock during the hospitalization for ACS (OR 1.96, p = 0.012, CI 1.16-3.33) were predictors of mortality in patients that presented AVB during the ACS.
Conclusions: AVB during the ACS was not a predictor of long-term mortality.

PO 93. LOWER RATE LIMIT IN CARDIAC RESYNCHRONIZATION THERAPY-DEFIBRILLATORS: IS LOWER BETTER?

M. Inês Barradas, Fabiana Duarte, Luís Resendes de Oliveira, Cátia Serena, António Xavier Fontes, André Viveiros Monteiro, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

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Introduction: There is few data about programmed lower rate limit (LRL) in real world heart failure (HF) patients with cardiac resynchronization therapy-defibrillators (CRT-Ds) and its influence in clinical outcomes. Heart rate score (HRS) is the percentage of all atrial-paced and sensed events in the single tallest 10 beats/min device histogram bin and may indicate impaired heart rate variability.
Objectives: We hypothesized that higher LRL programming is associated with worse clinical outcomes as arrhythmic events and HF decompensations in chronic HF patients with CRT-Ds.
Methods: LRL was evaluated and HRS was calculated from remote monitoring in 126 HF patients with CRT-D. Primary outcome was defined as HF hospitalizations and related admissions to the emergency department and secondary outcome as number of device therapies, sustained ventricular tachycardia (VT) and ventricular fibrillation (VF).
Results: Mean age was 69.03 ± 10.39 years, 81 (64.3%) were males and mean follow-up was 53.72 ± 46.13 months. Mean left ventricular ejection fraction was 30.31 ± 8.33% and 29 (23.0%) were in NYHA III-IV. HF aetiology was idiopathic in 39 (43.3%), ischemic in 32 (25.4%) and alcoholic cardiomyopathy in 8 (6.3%). Thirty-seven (29.4%) patients had atrial fibrillation and 33 (26.2%) coronary disease. LRL ranged from to 40 to 80 bpm and mean LRL was 52.64 ± 9.64 and mean HRS 49.60 ± 23.17%. Programmed LRL was higher in women (p = 0.014), patients with atrial fibrillation (AF) (p = 0.012) and coronary disease (p = 0.015). Higher LRL correlated with HF hospitalizations and related admissions to the emergency department (ED) (r = 0.541, p = 0.001), VT or VF episodes (r = 0.337, p = 0.005) and CRT-D number of therapies (r = 0.342, p = 0.004) and higher HRS (r = 0.547, p<0,05)
Conclusions: Higher LRL programming was associated with higher HRS, HF decompensations with hospitalization or admission to the emergency department, VT or VF episodes and CRT-D therapies in a real world population. More studies are required but lower LRL may be preferred in HF patients.

PO 94. THE APPLICABILITY OF FAINT SCORE IN SYNCOPE STUDY AND PREDICTION OF PACEMAKER IMPLANTATION

Gonçalo R. M Ferreira, Luísa Gonçalves, Inês Pires, João Miguel Santos, Joana Correia, Vanda Neto, João Fiuza, João Corrêa, Gabriela Venade, Bruno Marmelo, Miguel Correia, Júlio Gil Pereira, Luís Santos, António Costa, Costa Cabral

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Introduction: Unexplained syncope is a challenging working diagnosis. Implantable loop recorder (ILR) is useful when syncope is rare, and the FAINT score is a risk stratification tool used to predict adverse cardiac events at 30 days in patients who are admitted with syncope in the emergency department.
objective: To evaluate the applicability of the FAINT score in patients with a syncope working diagnosis and its capacity of identifying those with a higher risk of pacemaker (PM) implantation.
Methods: Selected all patients with an implanted ILR for syncope working diagnosis during 5 consecutive years, in a cardiology department. Patients were selected for ILR implantation after syncope and hospital admission (cardiology ward or emergency department). The FAINT score was calculated (F – history of heart failure, 1 point; A – history of arrhythmia, 1 point; I – abnormal initial electrocardiogram, 1 point; N – elevated natriuretic peptides, 2 points; T – elevated troponin, 1 point). The risk was stratified by FAINT score: high risk ≥ 1 and lower risk = 0. Patients were split into two groups: High-risk FAINT patients (HF) and Low-risk FAINT patients (LF) and were compared, using Pearson's Chi-Square test, Fisher's Exact Test, logistic regression, and odds-ratio chances. Follow-up for up to four years. The primary endpoint was defined as the need for PM implantation during follow-up. Adverse events like ILR complication or death were assessed.
Results: 55 patients were included in the final analysis. 50.9% females (n = 28). Mean age of 59.18 [18-86 years]. HF group in 41.8% (n = 23) and LF group in 58.2% (n = 32). Medium FAINT score of 0.8 [0-5 points]. PM implantation in 27.3% (n = 15) during follow-up. Medium follow-up of 979 [0-1,701 days]. 5.5% (n = 3) of ILR complications. 7.3% of mortality during follow-up. Compared to the LF group, patients in the HF group more frequently had PM implantation (45 *vs.* 18.8%, p = 0.04). Although only 4 patients died during the follow-up, there was a significant difference between groups, as all of the patients who died were in the HF group

(p = 0.03). For each point in the FAINT score, the risk of PM implantation increases 2.09 times (p < 0.01). The odds ratio of PM implantation in the high-risk patient is 3.54 higher (p = 0.04) than that of the low-risk patients. **Conclusions:** Although the FAINT score is currently used to evaluate the short-term risk of adverse cardiac events after syncope, in our study, it proved to be a useful tool for stratifying the risk of PM implantation on the long-term follow-up.

PO 95. SAFETY OF SAME-DAY VS NEXT-DAY DISCHARGE AFTER CIED: A SINGLE-CENTER EXPERIENCE

Pedro Silvério António, Sara Couto Pereira, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Catarina Oliveira, Miguel Raposo, Catarina Gregório, Ana Bernardes, Afonso Nunes-Ferreira, Andreia Magalhães, Luís Carpinteiro, Helena Cristina, Fausto J. Pinto, João de Sousa, Pedro Marques

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Introduction: Despite the increasing number of cardiac implantable electronic devices (CIED) implanted worldwide there is no guideline recommending mandatory overnight hospital stay.
Objectives: To evaluate the safety of Same Day Discharge (SDD) after CIED implantation.
Methods: Retrospective single-center observational study of consecutive patients (pts) admitted in the cardiology department since 2018 for permanent pacemaker (PPMK) or implantable cardioverter defibrillators (ICDs) implantation. Pacemaker-dependent pts and pts with early complications (moderate or severe hematomas pneumothorax, pericardial effusion/cardiac tamponade) were excluded from this study. Safety endpoints were pneumothorax, lead dislodgement, cardiac perforation, pocket hematoma, pocket/device infection and death.
Results: Sixty-nine pts (75 ± 12 yrs, 37.7% female) included in the SDD group were compared to 259 pts (76 ± 11 yrs, 32.4% female) in the next-day discharge (NDD) group. The analysis included 287 PPMK (60 in SDD *vs.* 227 in NDD) and 41 ICD (9 in SDD *vs.* 31 in NDD) patients. Baseline patient profile were similar between the two groups: chronic kidney disease (SDD 13 *vs.* NDD 8%), oral anticoagulation (SDD 39 *vs.* NDD 51%) and venous access (SDD 73 *vs.* NDD 75%); except for atrial fibrillation that was more frequent in the NDD group (54 *vs.* 38%, p = 0.02). Time of fluoroscopy and time of implantation were similar between the two groups. A very low rate of complications was observed in both groups: in 4.3% of pts in SDD group and in 5.1% of pts in NDD group, without statistical significance between the two groups (p = 0.43). Early complications (< 30 days) occurred in 1 (1.4%) pt in the SDD group (haematoma) and in 9 (3.4%) pts in the NDD group (4 haematoma, 3 pocket infection and 2 lead dislodgment), without statistical significance (p = 0.85). After a mean follow-up of 22.5 ± 13 months, late complications (> 30 days) in both groups were similar (p = 0.21) – SDD group had 2 (2.9%) pts with lead dislodgment, which needed surgical revision; NDD group had 3 (1.2%) pts (1 lead endocarditis and 2 lead dislodgment) which need surgical revision.
Conclusions: In our center, SDD for CIED is safe and effective compared to NDD. This can represent a significant cost reduction. Larger prospective trials are needed to further evaluate this issue.

Sábado, 23 Abril de 2022 | 09:00-10:00

Sala Jardim de Inverno | Posters (Sessão 3 - Écran 4) - Insuficiência Cardíaca 3 - Terapêutica Farmacológica

PO 96. LEVOSIMENDAN IN OUTPATIENTS WITH ADVANCED HEART FAILURE: SINGLE-CENTER EXPERIENCE OF 200 INTERMITENT PERFUSIONS

António Valentim Gonçalves, João Reis, Rita Ilhão Moreira, Tiago Pereira-da-Silva, Rui Soares, Ana Teresa Timóteo, Delmira Pombo, Tiago Carvalho, Catarina Correia, Cláudia Santos, Rui Cruz Ferreira

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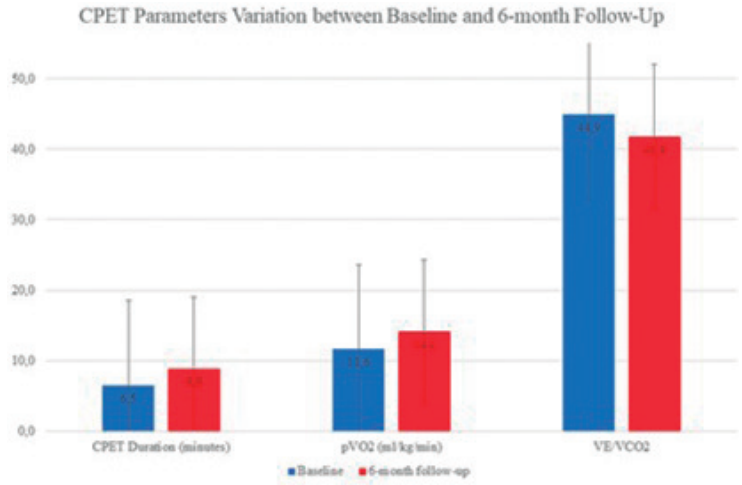
Introduction: Patients with advanced heart failure (AdHF) have a high rate of morbidity and mortality. The use of a 6-hour intermittent outpatient Levosimendan infusion has been proven to give symptomatic relief and lower the rate of HF episodes, allowing patients to be treated without having to be hospitalized. Our aim was to evaluate the safety and efficacy of ambulatory Levosimendan administration in an AdHF population.
Methods: Single center prospective experience of consecutive AdHF referred for intermittent intravenous outpatient administration of Levosimendan, between January 2018 and March 2021. Levosimendan was administered every 2 weeks by a 6-hour intravenous infusion (0.2 ug/kg/min) for 12 weeks (6 cycles) in an ambulatory administration setting with non-invasive monitoring of vital signs. Patients in the active Heart Transplant list continued treatment until a donor was available or a significant clinical improvement made the treatment unnecessary. Patients were deemed eligible if they met all of the following criteria: age> 18 years, LVEF ≤ 35%, NYHA functional class ≥ III and at least one HF hospitalization in the previous 6 months or severe impairment of exercise capacity (peak oxygen consumption (pVO2) ≤ 12 mL/Kg/min). Baseline and follow-up evaluation including clinical assessment, laboratory evaluation, transthoracic echocardiography and cardiopulmonary exercise test (CPET) were collected at baseline and 6 months thereafter (3 months after finishing treatment). The data were compared using the Wilcoxon signed-rank test.
Results: A total of 24 patients (60.8 years, 83% male, mean left ventricular ejection fraction (LVEF) of 24%), with a mean of 1.7 HF hospitalizations in

Complications after CIED					
	Same-day discharge		Next-day discharge		
	n	%	n	%	
1st 24 hours					
Life-thretening arrhytmias (ventricular tachycardia)	0	0	1	0.4	p=NS
First 30 days					
Haematoma	1	1.4	4	1.5	p=NS
Pocket infection	0	0	3	1.2	
Lead dyslodgment	0	0	2	0.8	
Late complications (>30 days)					
Haematoma	0	0	0	0	p=NS
Pocket infection	0	0	0	0	
Lead endocarditis	0	0	1	0.4	
Lead dyslodgment	2	2.9	2	0.8	

PO 95 Figure



PO 96 Figure

the previous 6 months, were included. During the three-year period, 200 treatments were performed with no serious adverse events reported. At 6-month follow-up there was a significant reduction in HF hospitalizations (1.7 ± 0.9 to 0.4 ± 0.7, p < 0.001), NYHA Class IV patients (52% to 13%, p = 0.025) and NTproBNP (8,813 ± 6,101 to 5,005 ± 4,886 pg/mL, p = 0.038). A significant improvement was also noted in pVO2 (12 ± 3 to 14 ± 5 ml/kg/min, p = 0.043) and LVEF (24 ± 6% to 29.7 ± 9%, p = 0.008).
Conclusions: 6- Hour Levosimendan administration in an outpatient setting to AdHF patients is a safe procedure and was associated with a reduction in HF hospitalizations and NT-proBNP levels, as well as an improvement in functional capacity and LVEF during follow-up.

PO 97. SACUBITRIL-VALSARTAN: THE EARLIER, THE BETTER?

Ana Filipa Cardoso, Mariana Tinoco, Geraldo Dias, Bebiana Faria, Tâmara Pereira, Marina Fernandes, Filipa Almeida, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: Sacubitril/valsartan (S/V) is recommended in ambulatory patients (pts) with heart failure with reduced ejection fraction (HFrEF) who remain symptomatic despite optimal treatment. Our aim was to study the impact of timing of initiation of S/V on cardiovascular (CV) outcomes of a HFrEF population.
Methods: Single centre retrospective study that included all HFrEF pts followed at the HF Clinic of the Cardiology Department with at least 1 year of follow-up. Pts diagnosed ≥ 4 years and those not treated with S/V were excluded. Pts were divided into 2 groups: group 1 (G1) if S/V was initiated in the first 6 months from HFrEF diagnosis and group 2 (G2) if S/V initiation occurred more than 6 months from diagnosis.
The primary endpoint was a composite of admission for decompensated HF and CV death during the follow-up.
Results: Of a total of 158 pts, 59 were included (81% males; mean age 63 ± 13 years). Dilated cardiomyopathy (35;59%) and ischemic cardiomyopathy (24;41%) were the most frequent aetiologies. Median time from diagnosis to first HF Clinic visit was 2 (IQR 1-12) months. The majority of pts was on NYHA II functional class (36; 61%) and 41 (69%) had a previous HF admission. Nine (15%) pts were angiotensin-converting enzyme inhibitors or angiotensin-receptor blockers naïve. Twenty-two (37%) pts initiated S/V in the first 6 months from HFrEF diagnosis (G1). Their comorbidity profile and baseline echocardiographic parameters were similar to G2 pts. Median time from HFrEF diagnosis to S/V initiation was 1 month (IQR 0-6) in G1 and 32 months (IQR 17-57) in G2. Both groups had achieved similar median target doses of S/V (p = 0.574), beta-blocker (p = 0.123) and mineralocorticoid therapy (p = 0.159). Median doses of diuretic were lower in G1 (0 mg IQR 0-25 *vs.* 40 mg IQR 0-80, p = 0.008). A revaluation echocardiogram after optimal medical therapy showed a significative higher increase in left ventricle ejection fraction (LVEF) on G1 compared to G2 (25 ± 1% to 41 ± 3 *vs.* 27 ± 1% to 33 ± 2%, p = 0.039). During a median follow-up of 23 months (IQR 9-30) there were 5 hospitalizations for HF, 3 CV deaths and 1 non-CV death. Pts in G1 had a significantly lower incidence of the primary endpoint (0 *vs.* 16 events per 100 person-year; log-rank p = 0.010).
Conclusions: Pts who started S/V in the first 6 months from HFrEF diagnosis had a higher increase in LVEF, less HF hospitalizations and CV deaths. These findings suggest a better overall prognosis in earlier initiation of S/V after HFrEF diagnosis.

PO 98. PREDICTORS OF SACUBITRIL-VALSARTAN TARGET DOSE ACHIEVEMENT IN A REAL-WORLD POPULATION

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Introduction: PARADIGM-HF demonstrated superiority of Sacubitril-Valsartan (SV) over enalapril in patients with heart failure with reduced ejection fraction (HFrEF). However, achievement of target doses (TD) used on clinical trials can be difficult in real world practice.
Objectives: This study assesses the ability to achieve TD and its predictors in a real-world population.
Methods: Retrospective study of patients with HFrEF under SV therapy observed at an HF clinic between Jan 2018 and Jun 2020, with a follow up period until Oct 2021.
Results: A total of 90 patients were included: 80% (72) male, 65 ± 12 years, mostly with dilated cardiomyopathy (46,7%, 42) and ischemic cardiomyopathy (42,2%; 38). On the evaluation before starting SV, mean LVEF was 26.35 ± 7.32%, 50% were in class III-IV; 89% were on ACEI/ARB, 92% on beta-blocker and 92% on MRA; 43.3% had an ICD and 31.1% a CRT-D; Up-titration to TD was achieved in 52 (57.8%) patients. A higher systolic blood pressure (p = 0.008), higher eGFR (p = 0.049), lower NT-PBNP (p = 0.025), higher body mass index (BMI) (p = 0.026) and a higher previous dose of ACEI/ARB (p = 0.013) were associated with achieving TD. On multivariate analyses, BMI was found to be the only independent predictor of achieving TD (p = 0.031). Symptomatic hypotension (66%; 25) was the main impediment to attaining TD, followed by renal deterioration (24%; 9), hyperkalaemia (5%; 2) and itch (5%; 2). Dose reduction was needed in 12.2% (11), being symptomatic hypotension (8, 73%) and hyperkalaemia (3, 27%) the most common reasons. SV discontinuation occurred in 7 (7.8%) patients due to symptomatic hypotension (43%; 3), economic insufficiency (29%; 2), worsening renal function (14%; 1) and itch (14%; 1). Patient assigned to TD, were more often able to reduce dose (p = 0.022) and suspend (p = 0.002) furosemide and more often had an increase in serum creatinine (1.08 *vs.* 1.37 mg/dl; p = 0.014), without leading to hospitalizations or higher risk for hyperkalaemia. Achieve TD was associated with lower major adverse CV events (p = 0.037), lower deaths for

CV causes (p = 0.026), lower hospitalizations for HF (p = 0.033) and lower need of inotropic support (p = 0.047).
Conclusions: Achievement of TD was possible in the majority of the cohort being BMI its strongest predictor. Reduction in diuretic use and dose was possible in a large percentage of the population. Achieve TD had a greater impact on HFrEF prognosis.

PO 99. MAXIMUM DOSE SACUBITRIL/VALSARTAN IN THE ELDERLY PEOPLE WITH HEART FAILURE AND REDUCED EJECTION FRACTION

Eric Alberto 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], João Gameiro[1], André Azul[1], José Sousa[1], Cátia Ferreira[1], Susana Costa[1], Rui Baptista[1], Fátima Franco[1], Marta Madeira[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 current ESC Guidelines, sacubitril/valsartan (SV) is recommended as a replacement for angiotensin-converting-enzyme inhibitors to reduce the risk of heart failure (HF) hospitalization and death. Nevertheless, HF elderly patients are underrepresented in SV HF trials. The aim of this study was to assess the effects of maximum dose SV (97/103 mg twice daily) regarding its efficacy and safety in the elderly patients.
Methods: Retrospective analysis of 91 patients aged ≥ 65 with heart failure and reduced ejection fraction (HFrEF) on maximum dose SV. Serum creatinine and potassium levels as well as systolic blood pressure (SBP) were evaluated at baseline and at 6 months follow-up to assess safety. NYHA class, NT-proBNP and left ventricular ejection fraction (LVEF) were evaluated at baseline and at 6 months follow-up to assess efficacy. Wilcoxon's Signed Rank test was used to test for statistically significant differences.
Results: The median age was 70 [interquartile range (IQR) 67-76] and 82.4% were males. Ischaemic aetiology represented 46.6% of the cases. Regarding comorbidities, 44.4% had atrial fibrillation and 42.2% had diabetes. Beta-blockers and mineralocorticoid receptor antagonists were being used in 97.7 and 93% of the patients, respectively. At baseline, median serum creatinine was 1.13 mg/dL (IQR 0.90-1.49), median serum potassium was 4.4 mg/dL (IQR 4.1-4.9) and median SBP was 124 mmHg (IQR 117-136). Median baseline NYHA class was 2 (IQR 2-3), median NT-proBNP level was 855 mg/dL (IQR 493-2256) and median LVEF was 29% (IQR 23-35). At 6 months follow-up, there was a significant improvement in NYHA class [median 2 (IQR 1-2) *vs.* 2 (IQR 2-3); p < 0.001] and LVEF [median 38% (IQR 30-50) *vs.* 29% (IQR 23-35); p = 0.001] as well as a significant reduction in NT-proBNP levels [median 705 mg/dL (IQR 278-1,836) *vs.* 855 mg/dL (IQR 493-2,256); p = 0.017]. Regarding the safety parameters, no significant differences were observed in serum creatinine levels [median 1.29 mg/dL (IQR 0.96-1.75) *vs.* 1.13 mg/dL (IQR 0.90-1.49); p = 0.144]. There was a statistically significant rise in serum potassium levels [median 4.5 mg/dL (IQR 4.2-4.9) *vs.* 4.4 mg/dL (IQR 4.1-4.9); p = 0.020], but the magnitude of the rise wasn´t clinically concerning. Systolic arterial pressure was significantly reduced [median 113 mmHg (IQR 99-127) *vs.* 124 mmHg (IQR 117-136); p = 0.001], but the final systolic arterial pressure was above the safety margin.
Conclusions: In this senior cohort of HFrEF patients treated with target dose of SV, there was a significant impact on NYHA class, NT-proBNP levels and LVEF. No significant differences were observed in serum creatinine levels. Despite verification of a significant increase in serum potassium and a significant decrease in SBP, these changes weren´t strong enough to raise safety issues. We thereby conclude that SV on maximum dose is safe and effective in the elderly.

PO 100. THE NEED FOR DIURETIC THERAPY IN SPITE OF HEART FAILURE WITH REDUCED EJECTION FRACTION FOUNDATIONAL THERAPY: A NEW MARKER OF ADVERSE PROGNOSIS?

Margarida Martins, João Ribeiro Agostinho, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Beatriz Garcia, Catarina Simões de Oliveira, Rafael Santos, Joana Rigueira, Doroteia Silva, Nuno Lousada, Fausto J. Pinto, Dulce Brito

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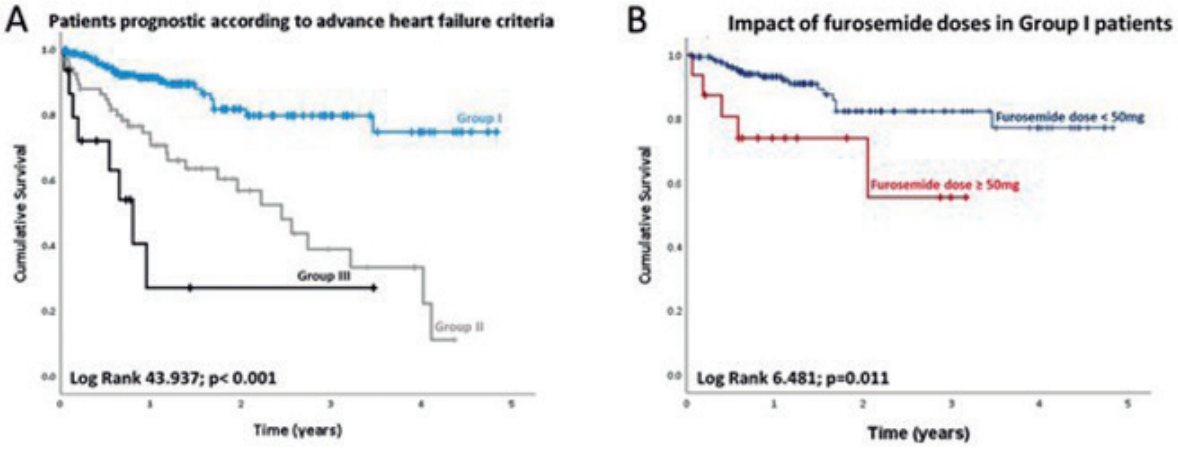
Introduction: The definition of Advanced Heart Failure (AHF) presented in the new heart failure (HF) ESC guidelines (GL) doesn't include the diuretic

	Total	Group I	Group II	Group III	P
Number of patients, *n (%)*	278	193 (69.4%)	69 (24.8%)	16 (5.8%)	
Creatinine, *mg/dL (mean+SD)*	1.41 ± 0.84	1.3±0.84	1.52±0.74	2.23±1	<0.001
NT-proBNP, *pg/mL (mean+SD)*	3385 ± 8701	1645±7243	5578±8028	13618±15673	<0.001
LVEF, *%*	36±11	40 ± 11	26 ± 8	27 ± 11	<0.001
Patients with an HF event, *n (%)*	61 (21.9)	23 (11.9)	30 (43.5)	8 (50)	<0.001
Death, *n (%)*	33 (11.9)	153 (6.7)	16 (23.2)	4 (25)	<0.001
Patients with HF admission, *n (%)*	40 (14.4)	10 (5.2)	22 (31.9)	8 (50)	<0.001
Furosemide equivalent dose, *median*	20mg	0mg	40mg	50mg	<0.001
4 classes of foundational therapy, *n (%)*	128 (46)	92 (47.7%)	30 (43.5%)	6 (37.5%)	0.651



PO 100 Figure

dose criterion. This criterion was only used in the AHA 2013 HF GL, where a dose equivalent to > 160 mg of furosemide was suggested as a marker of risk. However, this criterion was proposed prior to the establishment of HFrEF foundational therapy that includes 3 pharmacological classes with diuretic properties.
Objectives: To evaluate whether diuretic doses may be used as a marker of AHF and to establish a diuretic dose cut-off to stratify HFrEF patients (pts).
Methods: Consecutive pts with chronic HFrEF followed in a tertiary hospital multidisciplinary HF program were included. These pts were divided into 3 groups according to HF severity after therapy optimization: pts that fulfilled criteria for AHF (NYHA class: III-IV; > 1 HF decompensation requiring hospital visit/year; NTproBNP persistently > 3,000 pg/mL; LVEF ≤ 30%) – Group III; pts mainly in NYHA class II that fulfilled all the other AHF criteria – Group II; all other pts – Group I. The median dose of diuretic used in Groups II and III pts (AHF pts) was calculated and its impact on HF related events (worsening heart failure, with or without hospitalizations, or death) on Group I (pts supposedly without AHF) was evaluated by Cox regression and Kaplan-Meyer analysis.
Results: 278 pts were included (mean age: 66 ± 14 years; female: 29.5%). The mean follow-up was 1.4 ± 1.14 years. The most frequent HF etiologies were ischemic heart disease (45.7%) and dilated cardiomyopathy (41.7%). Sixteen (5.8%) pts were included in Group III, 69 (24.8%) in Group II, and 193 (69.4%) in Group I - Table 1.During follow-up, 33 (11.9%) pts died and 61 (21.9%) had a HF event. As expected, HF events were more common in Groups II and III (Fig. 1A). The prescribed median diuretic dose (expressed as furosemide equivalent dose) was 0 mg in Group I, 40 mg in Group II and 50 mg in Group III (p < 0.001).In Group I, 52 (26.9%) pts required at least 40 mg of furosemide and 18 (6.3%) pts at least 50 mg of furosemide. In those pts that needed more than 50 mg of furosemide 10 (62.5%) pts had an HF event during follow-up (HR 3.4; 95%CI 1.2-9.2; p = 0.017) (Fig. 1B).
Conclusions: In this cohort, diuretic doses were a useful marker of AHF. Persistent need of a dose of furosemide ≥ 50 mg may be used to stratify HFrEF pts with uncovered AHF and should prompt a thorough AHF investigation.

Sábado, 23 Abril de 2022 | 09:00-10:00

Sala Jardim de Inverno | Posters (Sessão 3 - Écran 5) - Risco Cardiovascular 1 - Lípidos e Hipertensão Arterial

PO 101. FAMILIAL HYPERCHOLESTEROLEMIA IN ACUTE CORONARY SYNDROME PATIENTS: UNDERDIAGNOSIS IN FEMALE AND IN YOUNG PATIENTS

Pedro Garcia Brás, Guilherme Portugal, Ana Teresa Timóteo, Alexandra Castelo, Vera Ferreira, Rita Teixeira, Sofia Jacinto, Bárbara Teixeira, José Viegas, André Grazina, Rui Cruz Ferreira

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

Introduction: Familial hypercholesterolemia (FH) is often underdiagnosed, particularly in female patients (P), even during hospital admission for acute coronary syndromes (ACS). The aim of this study was to apply the Dutch Lipid Clinic Network (DLCN) Criteria in P admitted for ACS and evaluate gender and age differences.
Methods: Prospective registry of P with ACS admitted to a tertiary center from 2005 to 2019. Data including family history and laboratory tests was analysed for the application of the DLCN criteria and results were stratified according to ACS subtype, gender and age groups (20-39, 40-59, 60-79 and ≥ 80 years [y]). P were followed up for 30 days for hospitalization, recurring ACS and mortality.
Results: 3,811 P were evaluated, mean age 63 ± 13 years, 28% female and mean LDL cholesterol of 125 ± 43 mg/dL. The admission diagnosis was unstable angina (UA) in 5%, non-ST-segment elevation myocardial infarction (NSTEMI) in 27% and ST-segment elevation MI (STEMI) in 68%. Applying the DLCN criteria, 3089 P (81%) had a score of < 3 (unlikely FH), 675P (17.7%) a score of 3 to 5 (possible FH), 41P (1.1%) a score of 6 to 8 (probable FH) and 1P (0.03%) a score of > 8 (definite FH). Stratifying according to ACS type: among UA, 31P (16%) had possible FH and 4P (2.1%) had probable FH. Among NSTEMI, 145P (14.2%) had possible FH, 9P (0.9%) probable FH and 1P (0.03%) definite FH. Finally, among STEMI P, 497P (19.1%) had possible FH and 28P (1.1%) probable FH. Regarding female P, 158P (14.7%) had possible FH and 16P (1.5%) probable FH. Among male P, 517P (18.9%) had possible FH and 25P (0.9%) probable FH (p = 0.016 for interaction). According to age groups, among P aged 20-39 y (136P), 61P (44.9%) had possible FH and 6P (4.4%) had probable FH. Concerning P aged 40-59 y (1766P), 575P (32.6%) had possible FH, 31 P (1.8%) probable FH and 1P (0.1%) definite FH. With regard to P aged 60-80 y (2122P), 80P (3.8%) had possible FH and 4P (0.2%) probable FH. Among P aged ≥ 80 y (1837P), only 9P (0.5%) had possible FH and no P had probable FH. In a 30-day follow-up, there was a hospitalization rate of 3.5% (134P) and recurring ACS in 1.7% (65P), while the all-cause mortality was 2% (78P) and cardiovascular (CV) death was 1.3% (49P). Female P had a significantly lower hospitalization rate (1.8 *vs.* 3.2%, p = 0.003) as well as fewer recurring ACS (0.6 *vs.* 1.7%, p = 0.001). There was no significant gender difference regarding all-cause mortality (female 1.7 *vs.* 1.5%, p = 0.552) or CV death (0.8 *vs.* 1.1%, p = 0.323). The DLCN criteria score was significantly correlated with admission for recurring ACS (OR 1.19 [95%CI 1.04-1.36], p = 0.04).
Conclusions: Application of the DLCN criteria in female P admitted for ACS revealed 158P (14.7%) with possible FH and 16P (1.5%) with probable FH. Regarding younger ACS P (20-39y), 44.9% had criteria for possible FH and 4.4% for probable FH, prompting us to do not overlook these P subgroups in daily practice and routinely assess the likelihood of FH.

PO 102. LDL-CHOLESTEROL LEVELS AFTER ACUTE CORONARY SYNDROME: 24-MONTHS VARIATIONS AND IMPACT ON OUTCOMES

Dias de Frias[1], Cristine Schmidt[2], Mauro Moreira[3], Preza Fernandes[1], Sandra Magalhães[4], Mário Santos[4], Severo Torres[1]

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Introduction: Patients with acute coronary syndrome (ACS) are at very high risk of recurrent cardiovascular (CV) events. Despite the evidence supporting an immediate and intensive lowering of LDL-cholesterol (LDL-C), most of the real-world studies are focus on short-term outcomes.
Objectives: To assess LDL-C levels during the first 24 months post-ACS.
Methods: Single-center, retrospective observational study that included all consecutive post-ACS patients enrolled in a phase 2 cardiac rehabilitation (CR) program in 2017. For this study, patients were divided into two groups according to ESC 2016 guidelines on dyslipidemia. Group 1 (n = 111): patients with LDL-C < 70 mg/dl levels at 3 months post-ACS, and group 2 (n = 87): patients with LDL-C> 70 mg/dl.
Results: Of the 198 patients studied, 82% were male, with a mean age 60.3 ± 10.7 years old and baseline mean LDLv-C 98.6 ± 34.6 mg/dl. The two groups were comparable in comorbidities, ACS presentation, revascularization strategy, LDL-C medication, and CR adherence. Group 1 had lower LDL-C baseline values (89.3 ± 31.8 mg/dl *vs.* 112.9 ± 33.6 mg/dl, p < 0.001) and higher reduction of LDL-C at 3 months (-37.8 ± 33.7 *vs.* -22.5 ± 46.7 mg/dl, p = 0.009). At 12 months, although mean LDL-C in group 1 increased 10.1 mg/dl (95%CI: 1.8 to 13.6 *vs.* 3 months levels), the mean LDL-C remained in optimal values (61.8 ± 19 mg/dl). Conversely, group 2 trended to an LDL reduction of 5.3 mg/dl (95%CI: 2.2 to -13.2, p = 0.158), but the mean LDL-C continued high (85.8 ± 32.6 mg/dl), with 69% of patients still above the LDL threshold of 70 mg/dL *vs.* 30% in group 1. At 24 months, both groups showing similar suboptimal LDL-C levels (71 ± 25.6 *vs.* 73.7 ± 26.6 mg/dl, p = 0.523).

Conclusions: The proportion of post-ACS patients with uncontrolled LDL-C levels is significant and increase over time. Demographic and clinical profile do not explain differences in LDL control. Further studies are needed to understand the causes and implement effective strategies in this high-risk subgroup of patients.

PO 103. HIGH SALT INTAKE IS A RISK FACTOR FOR KIDNEY FAILURE/MICROALBUMINURIA IN HYPERTENSIVE PATIENTS

Ana Célia Sousa[1], Maria Isabel Mendonça[1], Carolina Barros[1], Helena Luís[1], Mariana Gomes[1], Carolina Morna[1], Diogo André[1], Eva Henriques[1], Mariana Rodrigues[1], Sónia Freitas[1], Sofia Borges[1], Marco Ferreira[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: Arterial hypertension (AHT) is one of the main causes of kidney failure (KF), and their coexistence increases the risk of cardiovascular disease. Several studies have associated the excessive salt intake and a higher risk of developing kidney failure, although with unclear results.
Objectives: Evaluate the association between high salt intake and the development of Kidney Failure/Microalbuminuria in patients with AHT.
Methods: A sample of 860 hypertensive patients (mean age of 51.4 ± 8.0 years; 53.3% male) was subject to blood collection for biochemical tests and to 24-hour urinary sodium excretion measurement (related to salt intake). Two groups were constituted: 116 with Kidney Failure/Microalbuminuria (KF/Microalb) and 744 controls. Urinary sodium excretion values were distributed into quartiles and compared between the individuals with and without KF/Microalb. Several factors associated with the development of KF/Microalb were evaluated, namely age, gender, diabetes, control of AHT (controlled or not) and salt intake. Finally, a logistic regression analysis was performed to evaluate which risk factors were independently and significantly associated with KF/Microalb.
Results: High salt intake (4th quartile) is associated with the onset of KF/Microalb (OR = 2.048; 95%CI: 1.356-3.092; p = 0.001) in hypertensive individuals. After multivariate analysis, diabetes (OR = 2.713; 95%CI: 1.751-4.204; p < 0.0001) and high salt intake (OR = 1.685; 95%CI: 1.096-2.591; p = 0.017) were independently and significantly associated with KF/Microalb in our population. Controlled AHT appeared as a protective variable with an OR of 0.438 (95%CI: 0.290-0.660; p < 0.0001).

Independent risk factors for Kidney Failure/Microalbuminuria

Variables	OR (95% CI)	p-value
Diabetes	2.713 (1.751-4.204)	<0.0001
Salt intake (> 4th quartile)	1.685 (1.096-2.591)	0.017
Controlled AHT	0.438 (0.290-0.660)	<0.0001

Age and gender did not remain in the equation;
OR – Odds ratio; CI – Confidence interval. Statistically significant for p<0.05.

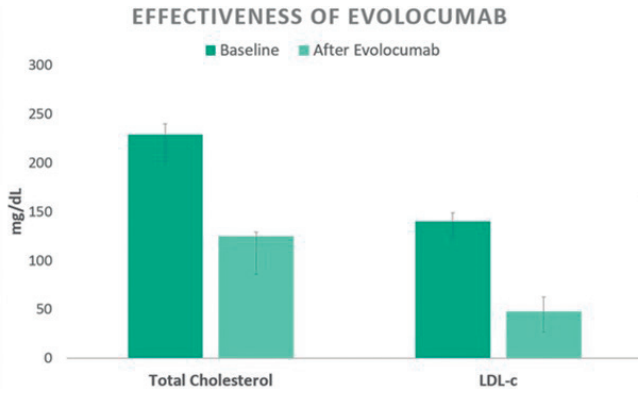
Conclusions: High salt intake is significantly and independently associated with increased risk of KF/Microalb in hypertensive individuals. Lowering salt intake is an important strategy to be instituted in hypertensive patients, in order to delay the evolution to Kidney Failure.

PO 104. REAL-WORLD ASSESSMENT OF IPCSK9 TREATMENT ADHERENCE, EFFECTIVENESS, AND TOLERABILITY: A PRELIMINARY ANALYSIS

Rita R. Amador, Sérgio Maltês, Catarina Oliveira, Ana Rita Bello, Ana Micro, Fátima Falcão, Bruno M. l Rocha, Jorge Ferreira, Miguel Mendes

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

Introduction: High levels of low-density lipoprotein cholesterol (LDL-c) represent a major cardiovascular (CV) risk factor. Evolocumab, a recently approved PCSK9 inhibitor, is an important therapy in patients with high or very high CV risk who do not reach target LDL-c levels despite optimal therapy or who are intolerant to statins. Our goal was to assess real-world early data regarding evolocumab prescription, adherence, tolerability, and effectiveness.
Methods: Single-centre study enrolling consecutive patients prescribed evolocumab. An effectiveness analysis was conducted in patients with cholesterol levels obtained before and one year after PCSK9 inhibitor initiation. Patients undergoing LDL-c apheresis (n = 2) were excluded from the effectiveness analysis. Safety data was obtained through active pharmacovigilance in patients under evolocumab for = 3 months. Adherence to treatment (AT) was assessed using the Medication Possession Ratio (MPR). Those with an MPR = 0.80 were considered adherent to therapy.
Results: A total of 34 patients were referred for evolocumab (mean age 64 ± 9 years; 62% male; 85% with very high and 15% with high CV risk according to the ESC guidelines, 68% with confirmed familial forms of dyslipidaemia). The main prescription reason was inability to achieve an LDL-c < 55 mg/dL in very-high risk or < 70 mg/dL in high-risk patients despite optimal therapy (19 patients, 56%) followed by statin intolerance (15 patients, 44%). Patients who were not intolerant had been prescribed a high-intensity statin and ezetimibe. Four patients had yet to start treatment at the present time. After 12-months of evolocumab, median LDL-c was significantly lower (140 [125-149] *vs.* 48 [27-63] mg/dL, Wilcoxon signed-rank test p = 0.005) as were total cholesterol levels (229 [202-240] *vs.* 125 [86-129] mg/dL, Wilcoxon signed-rank test p = 0.008). During follow-up, 90% of patients had an LDL-c reduction equal to or higher than 50% (mean LDL-c reduction 65 ± 15%) at 12-months and 60% were able to meet the LDL-c target level. Ten patients (44%) had a suspected adverse drug reaction (ADR)-nine with mild ADRs and one with a severe ADR (anaphylaxis). The most frequent ADRs were arthralgia (n = 4), lumbar pain (n = 3) and myalgia (n = 3). AT was evaluated in 21 patients - mean MPR was 0.95 ± 0.11; 19 patients (91%) with an MPR = 0.80. Two patients discontinued evolocumab due to ADRs.



Conclusions: In our real-world early experience regarding evolocumab, drug effectiveness was high and led to significant LDL and total cholesterol reductions. Evolocumab was associated with a high therapy adherence and severe ADR and drug discontinuation were rare.

PO 105. DOES IT MAKE SENSE TO USE QUESTIONNAIRES TO ASSESS THE VVVCARDIOVASCULAR RISK OF HYPERTENSIVE PATIENTS?

Adriana Rei Pacheco[1], Pedro Carvalho[2], Lisa Marques[2], Diana Carvalho[2], Simão Carvalho[2], Mesquita Bastos[2], Ana Briosa[2]

[1]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro. [2]Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro (Aveiro).

Introduction: Obstructive Sleep Apnea (OSA), sedentary lifestyle and cognitive impairment are related to arterial hypertension.
Methods: For 3 months, patients undergoing Arterial Blood Pressure Monitoring (ABPM) were submitted to 3 questionnaires: International Physical Activity Questionnaire (iPAQ), STOP-Bang and Montreal Cognitive Assessment (MoCA), relating to the assessment of, respectively, level of physical activity, risk of OSA and cognitive impairment. 80 patients were included. Exclusion criteria: < 18 years, pregnancy, secondary hypertension, illiteracy and

Correlations	Pearson Correlation	Significance**
	MOCA	
Age	-0.420	0.001
SBPdip	0.342	0.01
Exercise	0.415	0.01
	OSA	
Obesity	0.227	0.05
Exercise	-0.254	0.05
	Associated factors*	
Resistant hypertension	0.256	0.05

Table 1: Pearson correlation with significance in relation to MOCA variable, OSA and associated factors

*high risk of OSA, sedentary lifestyle and lower MOCA score

**p value <0.05

PO 105 Figure

diagnosed OSA. 45 were men (56.3%), mean age 63 ± 14 years, body mass index (BMI) 27.6 ± 4 kg/m². 24-hour ABPM: systolic blood pressure 127.2 mmHg, diastolic blood pressure 75.3 mmHg, systolic blood pressure dipping (SBPd) 10.2 mmHg. MOCA score: 22.3 ± 4.9 points. SAOS score: low risk 16 patients (20.1%), high risk 62 patients (79.9%). Exercise score: 48 active (60%), 10 moderate (12.5%), 9 sedentary. BMI: 24 normal weight (30%), 35 overweight (43.8%), 21 obesity (26.3%). In t-Student analysis, the age of the population with normal MoCA score *vs.* low score was significantly different, respectively, 60.2 ± 12 *vs.* 68.1 ± 15, $p < 0.05$. In cross tabs analysis for non-parametric variables comparing OSA high *vs.* low risk, exercise was significantly lower on high-risk group (t Student 4.5, $p < 0.05$). The other variables with significance observed were those included in the score (age, BMI, neck perimeter).

Results: The table shows Pearson correlation with significance in relation to MoCA score: age (ρ -0.420, $p < 0.001$), SBPdip (ρ 0.342, $p < 0.01$), exercise (ρ 0.415, $p < 0.01$); and Pearson correlation with significance in relation to OSA risk: obesity (ρ 0.227, $p < 0.05$), exercise (ρ -0.254, $p < 0.05$). The presence of these features (high risk of OSA, lower score in MoCA and lower physical activity) simultaneously is associated with a higher prevalence of resistant hypertension (ρ 0.256, $p < 0.05$).

Conclusions: Cognitive impairment is associated with arterial hypertension, on top of age and other risk factors. Systolic blood pressure dipping, a physiological answer, seems to be associated with a better score on MoCA. Exercise seems to benefit mental cognitive status and is associated with a lower OSA risk. Resistant hypertension seems to be associated with worse performance in all of the tests. Approaching the risk factors described may improve prognosis. With the results of this study, the authors decided to implement these surveys in the daily practice of the service.

Sábado, 23 Abril de 2022 | 09:00-10:00

Sala Jardim de Inverno | Posters (Sessão 3 - Écran 6) - DAC e Cuidados Intensivos 4 - Vários

PO 106. PHYSICAL EXERCISE ACTIVITY TRENDS IN ACUTE MYOCARDIAL INFARCTION PATIENTS - WHERE DO WE STAND?

Catarina Amaral Marques[1], André Cabrita[1], Paulo Maia Araújo[1], Tânia Proença[1], Ricardo Alves Pinto[1], Miguel Martins de Carvalho[1], Catarina Martins da Costa[1], Ana Filipa Amador[1], João Calvão[1], Ana Isabel Pinho[1], Cátia Oliveira[1], Luís Daniel Santos[1], Cristina Cruz[1], Filipe Macedo[1]

[1]*Centro Hospitalar Universitário de S. João, EPE.*

Introduction: The benefits of regular physical exercise in high-risk cardiovascular (CV) patients (pts) are widely described. Despite that, sedentarism is a major public health problem and a recognized main cardiovascular risk factor (CVRF).

Methods: In this 6-month prospective study of patients (pts) admitted in a tertiary hospital due to type-1 Acute Myocardial Infarction (AMI), 196 pts were consecutively enrolled between May and October 2021. Data was based on a pts well-structured interview within 48h after admission and review of medical records. Physical activity before admission was assessed using the "Godin-Shephard Leisure-Time Physical Activity Questionnaire". The obtained total weekly leisure activity score (LAS) allowed us to categorize pts as active (A; ≥ 24), moderately active (MA; 14-23) or insufficiently active (IA; < 14) and, therefore, to describe the status of physical activity level in AMI pts.

Results: 79% of pts were male and mean age was 62 years. 97% of all pts presented at least 1 cardiovascular risk factor (CVRF). 65% of all pts were IA, 22% were MA and only 13% were A. Our study showed no differences in exercise level distribution between genders ($p = 0.1$) or age ($p = 0.4$). Significant differences were found in exercise activity regarding some sociodemographic aspects, namely: 1) pts with higher levels of education showed higher levels of physical activity (28%/23%/9%/7% of higher education/3rd cycle/2nd cycle/1stcycle pts were, respectively, active pts; $p = 0.009$), and 2) differences according to marital status (11% of married and none of widowed pts were A *vs.* 33% of single and 26% of divorced pts; $p = 0.04$). Considering pts medical history, no differences were found in level of exercise activity in pts with prior established cardiovascular (CV) disease (65% of pts without previous CV disease were IA *vs.* 64% of pts with previous CV; $p = 0.9$). Regarding AMI outcomes, pts with a worse Killip (K) class presented significantly less exercise activity before admission (14% of pts with K ≥ 2 were MA or A *vs.* 42% of pts with K < 2; $p = 0.009$), as well as more frequent AMI-complications (20% of pts with AMI-complications were MA or A *vs.* 41% of pts without complications; $p = 0.04$).

Conclusions: Considering that nearly half of pts had a prior history of CV disease and approximately all of them presented CVRF, it would be expected that regular physical activity was being performed in this high-risk population. However, our data showed an alarming reality, as these pts were not practicing it as recommended. It is also worth noting the association between pre-admission lower physical activity levels and worse AMI outcomes. The message that stands out of our study is the urgent need to educate our population and, mainly, high-risk CV pts about the importance of maintaining a regular exercise activity routine.

PO 107. DO PATIENTS WITH CARDIOVASCULAR RISK FACTORS REALIZE WHAT IS AT RISK?

André Cabrita, Catarina Amaral Marques, Paulo Maia Araújo, Sofia Torres, Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Catarina Martins da Costa, João Calvão, Ana Filipa Amador, Luís Daniel Santos, Ana Isabel Pinho, Cátia Oliveira, Mariana Vasconcelos, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Cardiovascular risk factors (CVRF) in acute myocardial infarction (AMI) are widely described in literature and disclosed to

general population at school and media campaigns, nonetheless they are underrecognized by patients and often mistreated.
Objectives: To determine patients' perception of their own CVRF and symptoms of AMI.
Methods: We developed a 7-month prospective study, between May and November 2021, including all patients admitted in the Cardiology Department of our institution due to type-1 AMI. All patients' clinical history and health literacy were assessed by a structured questionnaire, within the first 48h of hospital admission.
Results: A total of 194 patients were included in our cohort. Almost all patients (97.4%) presented CVRF, with dyslipidemia as the most prevalent (68.6%). Despite the extremely high prevalence of CVRF, only 103 (53.1%) patients recognized they had CVRF and merely 57 (29.5%) suspected they were suffering initial symptoms of AMI. Only 104 (53.6%) patients activated the emergency medical system. A total of 29 (24.4%) patients drove to the hospital while suffering AMI. Although 117 (60.3%) patients assured knowledge of AMI symptoms, 173 (89.2%) described wrong symptoms of AMI.
Conclusions: In this study, almost half of patients who suffered AMI were not conscious of the risk of the disease. Also, when suffering initial symptoms of AMI, a great proportion did not know how to seek medical assistance adequately. For these reasons, it is mandatory to improve health literacy in our population in order to raise awareness of CVRF, AMI symptoms and how to seek medical assistance adequately.

PO 108. CORONARY RESTENOSIS: SEVENTEEN YEARS SUMMARIZED…

Carla Marques Pires[1], Carlos Galvão Braga[1], Rui Teles[2], Hélder Pereira[3], Rui Ferreira[4], Marco Costa[5], Pedro Canas da Silva[6], Filipe Seixo[7], Pedro Braga[8], Pedro Costa Ferreira[9], Francisco Pereira Machado[10], Luís Bernardes[11], João Costa[12], Eduardo Infante de Oliveira[13], em Nome dos Investigadores do Registo Nacional de Cardiologia de Intervenção[14]

[1]Hospital de Braga, EPE. [2]Centro Hospitalar de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [3]Hospital Garcia de Orta, EPE. [4]Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta. [5]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [6]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [7]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo. [8]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [9]Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio. [10]Hospital da Luz Lisboa. [11]Hospital CUF Tejo. [12]Hospital de Braga. [13]APIC. [14]Sociedade Portuguesa de Cardiologia.

Introduction: Recurrence of symptoms after percutaneous coronary intervention (PCI) could be explained by disease progression, incomplete revascularization, or procedure failure, including coronary restenosis.
Objectives: To characterize the population with coronary restenosis in Portugal and the use of intravascular ultrasound (IVUS) in this population.
Methods: A multicentric retrospective observational study was performed. In this study we characterize the population with repeated PCI due to coronary restenosis in the last 17 years (2002-2018) in Portugal. We also evaluate the tendency, over the years, of repeated PCI due to coronary restenosis and of usage of IVUS as adjuvant tool to diagnose and treat this procedure failure. Lastly, a multivariate analysis was performed to assess if the use of IVUS had impact on follow-up primary endpoint (death/myocardial infarction).
Results This study analyzed 6,494 patients (mean age: 65 years; 79% male gender) with repeated PCI due to coronary restenosis. These patients had a high prevalence of cardiovascular risk factors (75% had arterial hypertension, 69% dyslipidemia, 43% smoking habits and 37% mellitus diabetes) and 9% had chronic kidney disease. Regarding echocardiographic data, to highlight that 15% had an ejection fraction lower than 50%. Additionally, most patients (65%) had multivessel disease, however just 36% underwent complete revascularization. Considering clinical presentation, in 45% of analyzed patients the PCI due to coronary restenosis was performed during acute coronary syndrome (ACS). The present study revealed a progressive increased of PCI due to coronary restenosis in the last 17 years ($p < 0,001$). During this period, there was not a statistically significant increase of use of IVUS as adjuvant tool. IVUS was used, preferentially, in older patients ($p = 0.01$), with higher prevalence of ejection fraction lower than 30% ($p = 0,002$) and less frequently during ACS ($p < 0,001$). Lastly, the use of IVUS in study subjects had no impact on follow-up primary endpoint in multivariate analysis.
Conclusions: This study suggests that PCI due to coronary restenosis has been significantly increasing in the last 17 years. Despite current guidelines, this study did not reveal an increase usage of IVUS neither an improvement of clinical outcomes with this adjuvant tool.

PO 109. DELAY BETWEEN SYMPTOMS ONSET AND SEEKING MEDICAL CARE – DOES INITIAL RHYTHM PLAYS A ROLE?

Sofia B. Paula, Mariana Santos, Hélder Santos, Inês Almeida, Samuel Almeida, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

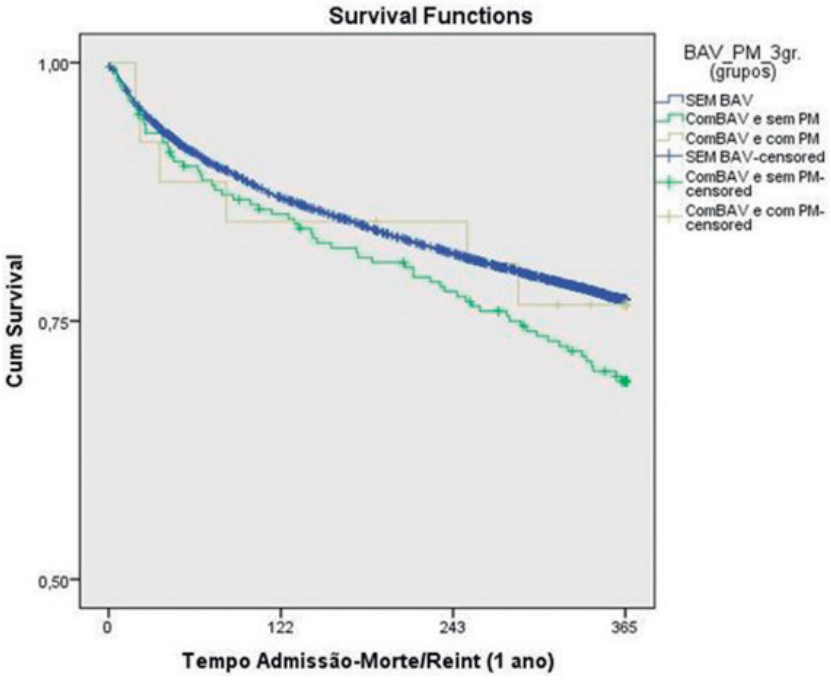
Introduction: Acute coronary syndromes (ACS) and atrial fibrillation (AF) are frequent causes of admissions in a Cardiology Department.
Objectives: Evaluate if the presence of AF or other rhythms had an influence between the onset of symptoms and seeking medical care.
Methods: Multicenter retrospective study, based on the Portuguese Registry of ACS between 1/10/2010-8/01/2019. Patients (P) were divided into three groups (G): GA – P in sinus rhythm; GB – P in AF and GC - other rhythms. P without a previous cardiovascular history or clinical data were excluded. Chi-square test, t-Student test and Mann-Whitney U test were used to compare categorical and continuous variables.
Results: 15,927 P were included, 14,637 in GA (91.9%), 1,049 in GB (6.6%) and 241 in GC (1.5%). Both G were similar regarding dyslipidemia, time between the onset of symptoms and first medical contact, symptoms and admission and between the first medical contact and admission, multivessel disease and culprit lesion in ST-segment elevation myocardial infarction (STEMI). GA exhibited higher rates of STEMI (42.6 *vs.* 33.6 *vs.* 50.6%, $p < 0.001$), systolic blood pressure (sBP) (140 ± 29 *vs.* 135 ± 30 *vs.* 122 ± 34, $p < 0.001$), smoking (31.0 *vs.* 8.7 *vs.* 20.2%, $p < 0.001$) and percutaneous coronary intervention (PCI) (67.8 *vs.* 50.4 *vs.* 67.6%, $p < 0.001$). GC had more P with previous history of neoplasia (4.3 *vs.* 6.4 *vs.* 9.2%, $p < 0.001$) and Killip-Kimball classification > I (12.7 *vs.* 30.5 *vs.* 32.0%, $p < 0.001$). GB was older (65 ± 13 *vs.* 75 ± 10 *vs.* 73 ± 13, $p < 0.001$), more frequently admitted at the emergency room (53.8 *vs.* 62.6 *vs.* 61.3%, $p < 0.001$), higher rates of arterial hypertension (67.1 *vs.* 83.2 *vs.* 79.2%, $p < 0.001$), diabetes mellitus (30.4 *vs.* 36.0 *vs.* 36.9%, $p < 0.001$), stroke (6.7 *vs.* 14.9 *vs.* 11.7%, $p < 0.001$), peripheral artery disease (4.8 *vs.* 8.9 *vs.* 4.6%, $p < 0.001$), chronic kidney disease (4.7 *vs.* 10.5 *vs.* 10.4%, $p < 0.001$), dementia (1.5 *vs.* 4.2 *vs.* 3.1%, $p < 0.001$), heart rate (77 ± 18 *vs.* 91 ± 29 *vs.* 68 ± 30, $p < 0.001$) and left ventricular ejection fraction < 50% (35.3 *vs.* 51.1 *vs.* 43.1%, $p < 0.001$). Regarding *de novo* heart failure (13.0 *vs.* 29.7 *vs.* 26.6%, $p < 0.001$), sustained ventricular tachycardia (1.5 *vs.* 3.1 *vs.* 3.7%, $p < 0.001$), cardiac arrest (2.8 *vs.* 4.9 *vs.* 7.1%, $p < 0.001$), stroke (0.6 *vs.* 1.7 *vs.* 0.4%, $p < 0.001$) and death (2.7 *vs.* 9.0 *vs.* 10.4%, $p < 0.001$) all were higher in GB and GC.
Conclusions: Rhythm at admission did not influence the timing between symptoms onset and seek of medical care but it was associated with worse prognosis and complications.

PO 110. SHOULD WE STAY OR SHOULD WE GO: ASSESSMENT OF THE NEED FOR THE IMPLANTATION OF A DEFINITE PACEMAKER IN A POPULATION OF ACUTE CORONARY SYNDROME THAT EVOLVED IN ADVANCED ATRIOVENTRICULAR BLOCK

João Grade Santos, Ana Catarina Gomes, Bárbara Ferreira, Mariana Martinho, Alexandra Briosa, Ana Rita Pereira, Ana Marques, Gonçalo Morgado, Rita Calé, Cristina Martins, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: The incidence of advanced atrioventricular block (AVB) secondary to acute coronary syndrome (ACS) has been decreasing in the era



PO 110 Figure

of percutaneous revascularization and in most cases is transitory and does not require pacemaker (PM) implantation.
Objectives: Our aim was to assess the characteristics of patients with AVB as a consequence of the ACS and compare those with and without PM implantation, in what regards in-hospital and at 1 year outcomes.
Methods: We performed a retrospective analysis of all patients admitted with AVB secondary to ACS in Portugal between October of 2010 and August of 2021 with data from the Real World Portuguese Registry on Acute Coronary Syndromes (ProACS). Medical records were analysed for demographic, procedural data and outcomes.
Results: Sex hundred and seventy one (671) patients with AVB secondary to ACS were admitted, which corresponded to 2.2% of the total cohort. The mean age was 70 ± 13 with a male preponderance (66%). The ACS was categorized as ST elevation Myocardial Infarction (STEMI) in 76.4%, non- STEMI (NSTEMI) in 22.1%, and unstable angina (UA) in 1.5%. Of the patients admitted with AVB, 8.6% implanted a permanent PM. There was no clinically relevant differences in both groups in what regards to medical priors or medication. Regarding the location of the infarction, an Anterior STEMI was the diagnosis of admission in 36.8% (*vs.* 14.5%; OR 3.45, 95%CI 1.31-9.06, p < 0.05) of patients that implanted a PM, and the left descending artery was more frequently the culprit artery, and an Inferior STEMI was the diagnosis of 63.2% (*vs.* 83.7%; OR 0.31, 95%CI 0.12-0.82, p < 0.05) of patients and a right coronary artery was more frequently the culprit artery. The presence of cardiovascular shock and in-hospital death was significantly more frequent in the group that did not implant a PM (OR 0.40; 95%CI 0.17-0.95, p < 0.05 and OR 0.33; CI 0.12-0.92, p < 0.05 respectively) and the implantation of PM was a negative predictor of in-hospital death (OR 0.28; 95%CI 0.08-0.93, p < 0.05). The follow up at 1 year was performed in two hundred and sixty three (263) patients, 10.6% with an implanted PM. The survival analysis demonstrated increased mortality and a combined end-point of death and readmissions in the population of AVB that did not implant PM compared with a population who did not present with AVB (p < 0.05) with the Kaplan Meier curves widening significantly (Fig.). This difference was not observed compared with an AVB population that implanted PM.
Conclusions: In patients with AVB secondary to ACS, the implantation of a PM might have been withheld in more severe patients, accounting for the increased mortality observed, and this population has worse outcomes at 1 year, leaving open to the hypothesis if either due to a more severe clinical status or the recurrence of AVB.

Sábado, 23 Abril de 2022 | 09:00-10:00

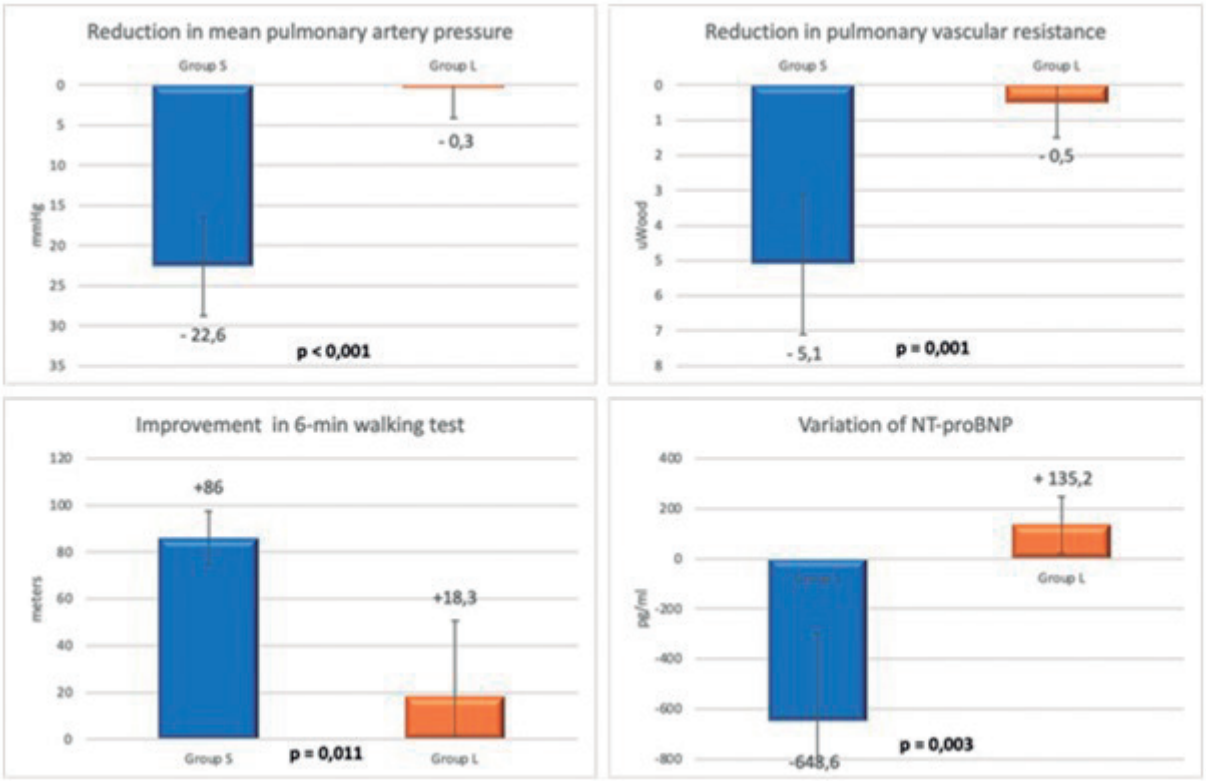
Sala Jardim de Inverno | Posters (Sessão 3 - Écran 7) - Intervenção Coronária e Estrutural 1 - Vários

PO 111. BALLOON PULMONARY ANGIOPLASTY IN CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION: WHO BENEFITS THE MOST?

Rita Calé, Filipa Ferreira, Ana Rita Pereira, Sofia Alegria, Mariana Martinho, Débora Repolho, Pedro Santos, Sílvia Vitorino, Maria José Loureiro, Hélder Pereira

Hospital Garcia de Orta, EPE.

Introduction: Balloon pulmonary angioplasty (BPA) is an alternative therapy in patients (pts) with inoperable chronic thromboembolic pulmonary hypertension (CTEPH) or residual/recurrent pulmonary hypertension (PH) after surgery. It is unclear who are the best candidates for this technique.
Methods: Prospective single-centre study that included all CTEPH pts submitted to BPA from 2017 to 2020. Efficacy and safety of BPA were compared in two groups: those with severe hemodynamics meaning mean pulmonary artery pressure (mPAP) above 40 mmHg before the first session of BPA (Group S; 5 patients; 34 procedures) and a group with less severe hemodynamics (Group L; 6 patients, 31 procedures). Clinical assessment including WHO functional class, plasma biomarkers, 6-minute walking test (6MWT) and right heart catheterization were performed at baseline and 6-months after the last BPA session.
Results: Pts in group S were more severe at the baseline: 100% under pulmonary vasodilator therapy with a median of 3 drugs *vs.* 83.3% under a median of 1 drug (p = 0.061); 80% on long-term oxygen therapy *vs.* 0 (p = 0.015) and more severe WHO functional class (I/II/III/IV: 0/1/4/0 *vs.* 0/6/0/0, p = 0.015). There was a slight increase in the number of BPA sessions per pt (6.8 ± 0.8 *vs.* 5.2 ± 1.5, p = 0.056) and in the number of treated segments in group S (11.6 ± 2.2 *vs.* 10.0 ± 1.0, p = 0.085). The



PO 111 Figure

magnitude of clinical benefit of BPA is significantly higher in group S with more decrease in mPAP, pulmonary vascular resistance and NT-proBNP and more improvement in 6MWT (Figure 1). However, there was no significant difference in WHO functional class at follow-up between groups (I/II/III/IV: 4/1/0/0 in group S *vs.* 6/0/0/0 in group L, p = 0.455). Minor complications occurred in 25%, and lung injury in 3.1% of the procedures, with no differences between groups. No pts required mechanical ventilation or extracorporeal membrane oxygenation, and there were no procedural deaths. With a mean follow-up of 36 ± 12 months, there was one non-cardiovascular death in group L.

Conclusions: The magnitude of clinical benefit of BPA is significantly higher in more severe pts, without further complications. However, functional class improve in both groups, suggesting that in pts with less severely impaired hemodynamics, the efficacy of BPA should probably not be measured in terms of hemodynamics at rest, but rather by exercise parameters such as cardiopulmonary exercise testing or even exercise right heart catheterization.

PO 112. RESIDUAL SYNTAX SCORE IN TAVR PATIENTS

Pedro Custódio[1], Sérgio Madeira[2], Rui Teles[2], Manuel Almeida[2], Miguel Mendes[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Prior to transcatheter aortic valve replacement (TAVR), studies reported the inaccuracy to clinically predict the presence and severity of coronary artery disease (CAD) in severe aortic stenosis(SAS) based on symptoms. In the TAVR era, especially for patients with high surgical risk, bypassing the opportunity to do a simultaneous percutaneous intervention in the presence of CAD seems more acceptable than to lose the opportunity to perform a single surgery in patients awaiting surgical valve correction. Recent reports have advocated the feasibility of coronary angiography (CA) after TAVR. Despite this, patients proposed to TAVR routinely perform a CA prior to the procedure.

Objectives: To assess the impact of Residual SYNTAX score (RSs) in 2-year mortality of patients undergoing TAVR.

Methods: Single center retrospective study from a prospectively collected institutional registry (VCROSS). Patients that underwent TAVR between January 2009 and December 2018-517. Patients who underwent pre TAVR CA in the context of acute coronary syndrome or at other institution were excluded (n = 138). Obstructive CAD was defined as stenosis > 50% in a major epicardial vessels (> 2.5 mm) and SYNTAX score (Ss) was calculated according to recommended guidelines RSs was calculated by subtracting the points of the treated lesions from the initial Ss. We defined a cut-off point for RSS I < 7 as a reasonable revascularization. Univariate analysis was performed to assess: - 1) differences between patients with or without CAD and between those with significant CAD who have or have not undergone PCI; - 2) variables associated with 2-year mortality. Binary logistic regression was performed to identify independent predictors of 2-year mortality, accounting the differences and variables present in point 1) and 2).

Results: A total of 379 patients were included, 54.8% male with an average age of 83.1 YO (SD - 6.3), mean Ss was 8.02 and mean RSs was 6.22. 55 patients (14.5%) presented with normal coronary arteries, 120 (31.6%) with non-obstructive CAD and 204 (53.8%) with obstructive CAD. Out of the latter, 110(29%) underwent PCI, based on the amenability to intervention. Statistically significant differences were found between obstructive CAD *vs.* non-obstructive patients in terms of gender, previous history of percutaneous coronary interventions (PCI) and coronary artery bypass grafting (CABG). In the subgroup population with obstructive CAD, no statistically significant differences were found in the PCI *vs.* non-PCI group, apart from previous history of ICP and CABG. Diabetes mellitus, previous history of PCI and ejection fraction < 50% had a negative impact in the 2-year survival of the studied population. The RSs showed no statistically significant impact in this outcome, neither showed having a RSs < 7 (Table).

Conclusions: Neither the RSs nor having RSs< 7 in patients referred to TAVR showed an impact the 2 year mortality.

	B	SE	Wald	df	Sig.
Previous ICP	1,371	,636	4,643	1	,031
Previous CABG	-1,391	,727	3,661	1	,056
Diabetes Mellitus	1,101	,427	6,648	1	,010
Diseased Coronaries Left Untreated	-,289	,346	,696	1	,404
Residual Syntax Score	,004	,035	,014	1	,906
Ejection Fraction < 50%	,460	,433	1,128	1	,028
Gender	,129	,432	,089	1	,765
Pre-TAVI ICP	-1,308	,730	3,210	1	,073
Residual Syntax Score >7	1,120	,677	2,739	1	,098

PO 112 Figure

PO 113. SMALL-BORE ASPIRATION THROMBECTOMY VERSUS CATHETER-DIRECTED THROMBOLYSIS IN INTERMEDIATE-HIGH RISK ACUTE PULMONARY EMBOLISM

Mariana Martinho, Rita Calé, Ana Rita Pereira, Filipa Ferreira, Sofia Alegria, Gonçalo Morgado, Cristina Martins, Melanie Ferreira, Ana Gomes, Tiago Judas, Filipe Gonzalez, Corinna Lohmann, Débora Repolho, Pedro Santos, Ernesto Pereira, Maria José Loureiro, Hélder Pereira

Hospital Garcia de Orta, EPE

Introduction: Systemic fibrinolysis failed to prove benefit in intermediate-high risk pulmonary embolism (IHRPE), mainly due to major bleeding complications. As 10% of IHRPE patients (pts) have a higher clinical risk and evolve with haemodynamic (HD) deterioration, percutaneous therapies are emerging as potential treatment options for these pts. Two possible strategies are catheter-directed thrombolysis (CDT) and mechanical thrombectomy (MT), but there is a lack of level I evidence for the safety and effectiveness for both of these interventions in IHRPE pts.
Purpose: This study aims to compare the efficacy and safety of 2 catheter-directed therapies in IHRPE.
Methods: Retrospective single-centre study of consecutive IHRPE pts since 2018 treated with percutaneous therapies. CDT was delivered by a 5Fr Cragg-McNamara device (1 mg/h of alteplase) and MT was performed with the Indigo MT system (Penumbra 8Fr). Exclusion criteria were HD instability at admission and the use of other reperfusion devices. Clinical success at 48h was defined as survival to hospital discharge and 1 of the following: HD stabilization; oxygenation improvement; decrease in pulmonary hypertension, right heart strain, or both. MACE during follow-up (FUP) was defined as a composite endpoint of cardiovascular mortality, PE recurrence, chronic thromboembolic pulmonary hypertension and heart failure hospitalization. Safety endpoint was defined as major bleeding (BARC^{3}3).
Results: Of a total of 25 pts, 60% (15pts) were submitted to MT and 40% (10pts) to CDT. The groups had a similar mean age (68.6±15.6 vs 62.7±16.4, p=0.381), Charlson Comorbidity Index (4.2±1.9 vs 2.9±2.0 points, p=0.121) and PESI score (103.2±40.6 vs 119.8±46.2, p=0.410). 80% submitted to CDT received 20mg of alteplase, 1pt 10mg unilaterally and 1pt 50mg due to HD deterioration after the procedure. MT was associated with increased fluoroscopy time (43.0±19.1 vs 10.1±6.2 min, p<0.001) and procedure time (115±63 vs 45±18 min, p=0.009). Clinical success at 48h was similar (80% in MT vs 90% in CDT; p=0.626). Table 1 shows clinical outcomes regarding each method. Severe adverse events related with the technique happened in 2pts in MT (1 death during the procedure, 1 macroembolization during device progression) and 1pt in CDT group evolved with HD deterioration. Haemoglobin fall was significantly higher in MT group (1.8±1.3 vs 0.7±0.8 g/dL, p=0.018), but BARC^{3}3 and transfusion rates did not differ. In-hospital mortality was 8% (only 2 pts in the MT group, p=0.229). Mean FUP was 229±147days, with MT group having significantly higher MACE (40% vs 0%, p=0.051).
Conclusions: Despite the similar clinical efficacy at short-term for MT and CDT, relevant adverse events related to the procedure seemed higher in MT group. Larger studies are needed to compare the safety of these techniques. CDT was also less time consuming for catheterization laboratories.

PO 114. RADIATION IN THE CATH LAB: ARE PATIENTS REALLY SAFE?

Hugo Alex Costa, Teresa Faria da Mota, Raquel Fernandes, Miguel Espirito Santo, Hugo Palmeiro, Jimmy Martins, Daniela Carvalho, João Bispo, João Guedes, Hugo Vinhas, Ilídio Jesus

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

Introduction: Fluoroscopically guided interventional procedures have established new standarts in the clinical management of many diseases, and

Outcomes	Global	MT group	CDT group	p-value
Clinical Success at 48 hours (n,%)	**21 (84%)**	**12 (80%)**	**9 (90%)**	**0.626**
Shock index (mean±SD)	0.77±0.16	0.82±0.18	0.70±0.12	0.065
Aminergic support (n,%)	4 (16.0%)	1 (6.7%)	1 (10%)	1.000
PaO2/FiO2 (median; Q25-Q75)	296.4 (219.0-371.4)	287.1 (228.8-380.4)	303.0 (191.0-338.0)	0.680
Adverse events at 48h				
BARC≥3 hemorrhage (n,%)	2(9.1%)	2(14.3%)	0 (0.0%)	0.515
Procedure related events (n,%)	3(12.0%)	2(13.3%)	1(10.0%)	0.802
In-hospital mortality (n,%)	2 (8.0%)	2 (13.3%)	0 (0.0%)	0.500
MACE at follow-up (n,%)	**6 (24.0%)**	**6 (40.0%)**	**0 (0.0%)**	**0.051**

PO 113 Figure

interventional cardiology has benefit with the advent of technology. Despite the benefits, the treatment of more complex coronary artery disease (CAD) may entail longer procedural times which translate to higher radiation exposure.
Objectives: Population characterization. To determine the radiation doses of patients who underwent PCI of complex CAD and set the diagnostic reference level (DRL) for this procedure in our Cath Lab, helping us to improve safe radiation practices.
Methods: Retrospective study between 2019/2020, composed of n = 289 patients that were submitted to complex PCI. DRLs were assessed as the round value of the 75th percentile (3rd quartile) of the distribution of the median dose values (air kerma-area product (KAP) and cumulative air kerma at the patient entrance reference point ($K_{a,r}$)), and effective dose (ED) defined as ED = 0.18 × KAP.
Results: A total of 297 patients were identified, with a mean age of 67.50 ± 11.26 years, 61.6% were female and 18.9% had obesity. 84.2% had multivessel disease, chronic total occlusions (CTO) in 59.6% and left main coronary artery disease (LMCA) in 40.4% of patients. Radial artery was the prefered access in 85.2% of cases. Total median percutaneous coronary Intervention (PCI) time was 119 mins with 34.6 mins of fluoroscopy time (FT) and 228.5 ml of contrast volume (CV) used. The median $K_{a,r}$ was 2,064 mGy, KAP 112.15 Gy.Cm^2 and ED 20.68 mSv. A significant higher median PCI times, CV and radiation doses was seen in CTO patients. DRLs were access, with $K_{a,r}$ 3,219 mGy and KAP 173.24 Gy.Cm^2.

Table 1: Radiation Doses and Respective Times and Contrast Volumes During Complex Percutaneous Coronary Intervention

	Total	CTO	LMCA	DRL (3rd quartile)
		Median values		
PCI time (mins)	119	125	105	-
Fluoroscopy time (mins)	34,60	34,45	35	-
Air Kerma (mGy)	2064	2090	2055	**3219**
KAP (Gy.Cm^2)	112,15	120,74	100,89	**173,24**
Effective dose (mSv)	20,68	21,76	18,82	-
Contrast volume (ml)	228,50	249	217	-

CTO – Chronic Total Occlusion; DRL – Diagnostic Reference Level; KAP – Kerma Area Product; LMCA – Left Main Coronary Artery; PCI – Percutaneous Coronary Intervention.

Conclusions: Local DRL for complex PCI was obtained, with $K_{a,r}$ 3,219 mGy and KAP 173.24 Gy.Cm^2. We report a higher local DRLs compared to European registers, although data are scarce in complex PCI. These results are important to adapt radiation strategies that allow us to reduce exposure to patients and operators.

PO 115. CONTRAST-INDUCED NEPHROPATHY FOLLOWING PCI: CAN WE CALCULATE A SAFE CONTRAST VOLUME?

Hugo Alex Costa, Miguel Espirito Santo, Teresa Faria da Mota, Raquel Fernandes, Mónica Silva, Daniela Carvalho, João Bispo, João Guedes, Hugo Palmeiro, Hugo Vinhas, Ilídio Jesus

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

Introduction: Acute kidney injury (AKI) due to contrast induced nephropathy (CIN) is a common complication after percutaneous coronary intervention (PCI) in patients with acute coronary syndrome (ACS), and is associated with prolonged hospitalizations and elevated cardio and renovascular morbidity. Scientific evidence demonstrates that the mean volume of contrast (VolC) and ratio with creatinine clearance (CrCl) (VolC/CrCl) are independent predictors of CIN, but the accepted optimal value remains controversial.
Objectives: Population characterization. To evaluate whether the calculation of VolC using the VolC/ClCr ratio < 3.7 used in our Cath lab during PCI of ACS allows preventing the development of AKI by CIN, and whether the development of early *vs.* late AKI influences outcomes.
Methods: Retrospective study between 2017/2020, composed of n = 378 patients who suffered ACS. Descriptve analysis was carried out regarding the demographic and clinical characteristics of the patients. Chi-Square test was used for categorical variables and the T-Student test for numerical variables, with a significance level of 95%.
Results: A total of 378 patients were identified, with a mean age of 64.5 ± 11.2 years, 78.6% were male. 60.1% had hypertension, 48.4% dyslipidemia, 24.3% diabetes, 2.6% chronic renal failure (CRF) and 1.6% heart failure. Of these, 12.7% developed AKI (< 24h in 1.9 *vs.* ≥ 24h in 10.8%). Independent prognostic factors for development of AKI were smokers (AKI ≥ 24h 7 (4.8%) *vs.* AKI < 24h 2 (1.4%), p = 0.001), diabetes (AKI ≥ 24h 17 (19%) *vs.* AKI < 24h 2 (2.2%), p = 0.007), CRF (AKI ≥ 24h 6 (60%) *vs.* AKI < 24h 1 (10%), p = 0.001), CrCl (AKI ≥ 24h 65.8 ± 27.1, p = 0.001), ratio VolC/CrCl (AKI ≥ 24h 3.3 ± 2.5, p = 0.001) and LVEF (AKI ≥ 24h 51.4 ± 9.7, p = 0.001). Mortality affected 4.2% of the patients, and was more frequent in AKI subjects (AKI ≥ 24h 7 (70%) *vs.* AKI< 24h 1 (10%), p = 0.001). Using a ratio < 3.7 allowed to prevent AK< 24h but not AKI ≥ 24h (AKI < 24h ratio< 3.7 = 3 (1%) *vs.* ratio ≥ 3.7 = 9 (4.1%), p = 0.001) (AKI ≥ 24 ratio< 3.7 = 30 (25%) *vs.* ratio ≥ 3.7 = 11 (9.7%), p = 0.001). A ratio < 2.0 allowed to prevent both early and late AKI (AKI< 24h ratio< 2.0 = 0 (0%) *vs.* ratio≥ 2.0 = 7 (4.5%), p = 0.001) (AKI ≥ 24 ratio< 2.0 = 11 (5.6%) *vs.* ratio ≥ 2.0 = 30 (19.1%), p = 0.001).
Conclusions: In patients submitted to ACS PCI, the development of AKI increases mortality, especial if AKI emerge after 24h. We report a more suitable ratio VolC/ClCr < 2.0, that allow us to calculate a safe VolC that will help to prevent both early and late AKI in selected patients with ACS.

Sábado, 23 Abril de 2022 | 09:00-10:00

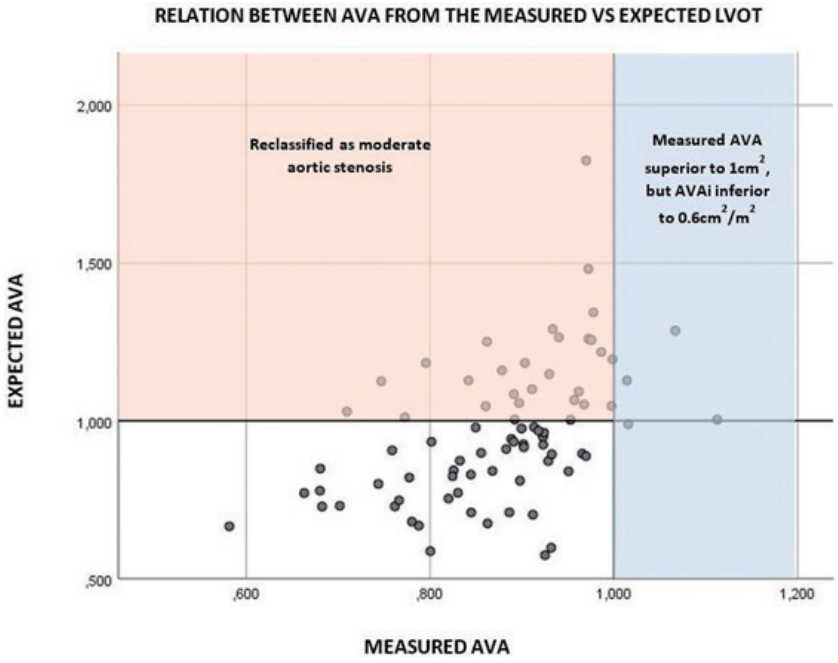
Sala Jardim de Inverno | Posters (Sessão 3 - Écran 8) - Doença Valvular 3 - Válvula Aórtica

PO 116. NORMAL FLOW, LOW GRADIENT AORTIC STENOSIS - IS LVOT THE DETERMINANT?

Francisco Dias Cláudio[1], Mariana Santos[2], Pedro Custódio[3], Bârbara Ferreira[4], Marco Quadrado[4], Ângela Manuel[4], Ana Rita Francisco[4], Bruno Neves[4], Inês Cruz[4], Ana Rita Almeida[4], Paula Fazendas[4], Isabel João[4], Hélder Pereira[4]

[1]Hospital do Espirito Santo, EPE, Évora. [2]Centro Hospitalar Barreiro/ Montijo, EPE/Hospital do Montijo. [3]Hospital de Vila Franca de Xira, EPE. [4]Hospital Garcia de Orta, EPE.

Introduction: Severe aortic stenosis is characterized for a high mean gradient (> 40 mmHg) and an aortic valve area (AVA) ≤ 1 cm^2. These patients present with a lower mean gradient (< 40 mmHg) and area (AVA ≤ 1 cm^2). However, the treatment strategies focus on the population with a reduced indexed stroke volume (≤ 35 mL/m^2). There is less clarity concerning those with a normal stroke volume. An important determinant of the area and stroke volume is the LVOT diameter, which may have a significant impact in the classification of the severity. There is some literature supporting an expected diameter according to the body surface area.
Objectives: This paper aims to analyse the population with normal flow, low gradient aortic stenosis, as well as compare the impact of the expected LVOT diameter in the classification of patients.
Methods: We present a retrospective study from all consecutive patients to whom an echocardiogram was performed in our hospital during the years 2017 and 2018 which meet the criteria for low gradient aortic stenosis. Comorbidities were analysed as well as echocardiographic variables to properly characterize aortic stenosis.



PO 116 Figure

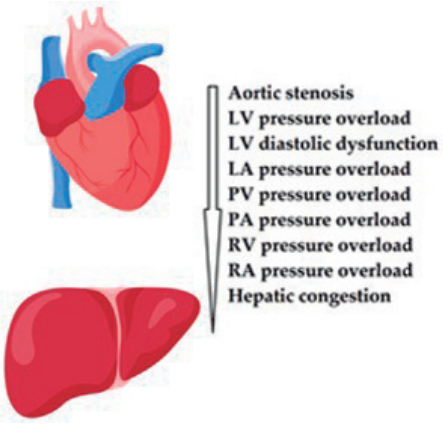
Results: A total of 79 patients met the criteria for normal flow, low gradient aortic stenosis with a valvular area ≤ 1 cm^2. Mean age was 79.5 ± 8.6 years-old and 38% was male. The mean LVOT diameter was 2.11 ± 0.18 cm which correlated to a mean AVA of 0.88 ± 0.10 cm^2. Should the LVOT diameter align with the expected diameter according to the formula [(5,7 × BSA +12,1)/10], the mean LVOT diameter would be 2.18 ± 0.11 cm, which correlated to a mean AVA of 0.96 ± 0.22 cm^2. This represents a statistically significant difference in the value, with the expected diameter being 0.075 cm higher than the measured (p = 0.002), which translates in a statistically significant higher AVA (+0.085, p < 0,001). With the above data, 31 (38.8%) patients would have been reclassified as moderate aortic stenosis, according to the recalculated AVA alone. Taking into account the indexed AVA, only 22 (27.8%) patients would be reclassified. 8 other patients (10.1%) would have been reclassified as low flow, low gradient aortic stenosis as the recalculated stroke volume would be lower than 35 mL/m^2.
Conclusions: This paper reminded us of the importance of an appropriately measured LVOT diameter, and the potential impact in reclassification of valvular heart disease. This is more important when the classification may alter our conduct. Other imaging techniques, such as transoesophageal echocardiogram or CT scan, may obviate the squared error of the LVOT measurement as well as account for the geometry of the LVOT, especially in dubious cases.

PO 117. AORTIC STENOSIS - THE LUNG IS OFTEN OVERLOADED, BUT WHAT ABOUT THE LIVER?

José Lopes de Almeida, João Rosa, Gustavo Santos, João Ferreira, Valdirene Gonçalves, Maria Ferreira, Sofia Martinho, Lino Gonçalves

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

Introduction: Degenerative aortic stenosis (AS) is the most common acquired valvular heart disease in Western countries with a prevalence of up to 5% of individuals aged > 80 years. Congestive hepatopathy describes the manifestations of chronic, passive congestion of the liver in the setting of heart failure or other cardiac defects that result in elevation of the central venous pressure. While the association and implications of pulmonary hypertension (PH) in AS are well established, little is known about the prognostic value of systemic congestion and its consequences, namely congestive hepatopathy. We aimed to clarify the prognostic value of congestive hepatopathy in patients with AS.
Methods: We retrospectively evaluated patients diagnosed with severe AS for the first time at our echocardiography laboratory. Patients with known liver disease or alcohol use were excluded from the study. Patients were considered as having congestive hepatopathy if they had abnormal values of liver function tests previously described as being associated with chronic heart failure (gamma-glutamyl transpeptidase (GGT) > 40U/L, alkaline phosphatase (ALP) > 150 U/L or Total Bilirrubin (BrB) > 1.2 mg/dL). Primary outcome was defined by the occurrence of all-cause mortality during follow-up.
Results: A total of 333 patients were included in the analysis, with a median follow-up time of 50 months. 66% of the patients underwent surgical aortic valve replacement (SAVR) alone, 6.5% underwent SAVR combined with aortic root replacement, 19.5% underwent SARV combined with coronary artery bypass graft (CABG) and 7% underwent transcutaneous aortic valve replacement (TAVR). Primary endpoint occurred in 104 patients. Patients with hepatopathy (n = 104) were more frequently males (69 *vs.* 48%, p < 0.001), had higher creatinine values (1.52 *vs.* 1.15 mg/dl, p = 0.006) and higher pulmonary systolic pressure values (41.6 *vs.* 33.1 mmHg, p = 0.002). Survival was lower at 1 year (p = 0.003), 3 years (p = 0.013) and 5 years (p = 0.046).



Conclusions: In patients with a first diagnosis of severe AS, abnormal liver function tests (GGT, ALT, BrB) are associated with PH and worse long term prognosis.

PO 118. AORTIC VALVE CALCIUM SCORE AND PERI-PROTHESIS LEAKS AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION: IS THERE A HINT?

Ana Filipa Amador, Catarina Martins da Costa,, João Calvão, Ricardo Alves Pinto, Miguel Martins Carvalho, Tânia Proença, Catarina Amaral Marques, André Cabrita, Pedro Grilo Diogo, Carlos Xavier Resende, Cátia Oliveira, Ana Isabel Pinho, Luís Daniel Santos, Carla Margarida Sousa, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Aortic valvular calcium score (AVCS) measured by tomography scans is useful in the evaluation of aortic stenosis (AS) severity in patients for whom echocardiography is not conclusive. For high-risk patients with symptomatic severe AS, transcatheter aortic valve implantation (TAVI) is an established procedure of treatment. The burden of aortic valve calcification has been associated with some TAVI related complications. Peri-prothesis leaks (PPL) are an important complication that may compromise TAVI net results.
Objectives: To access if there is an association between aortic valve calcium score and moderate to severe (mod-sev) peri-prothesis leaks immediately and 6 months after TAVI.
Methods: We performed a single-center, retrospective cohort study including patients who underwent TAVI with a preoperative standardized TS with AVCS available. Clinical and echocardiographic data were collected previously to TAVI (pre-TAVI) and at 6 months follow up (6M-FUP).
Results: A total of 187 patients were included, with 54% female and a mean age of 79.4 ± 9.0 years old. Most patients had tricuspid aortic valve (95.7%). Regarding prosthesis type, 73.3% had new generation prosthesis and the main valve used was the CoreValve Evolut Pro (33.7%). 38.5% patients underwent balloon valve pre-dilation before implantation. The mean AVCS was 2,851 ± 1,524 AU (Agaston Units). Comparing AVCS with the presence or absence of moderate to severe peri-prothesis leaks, no statistically significant difference was found immediately (no *vs.* mod-sev leak, AS: 2,758 ± 2,308 *vs.* 3,621 ± 1,376, p = 0.13) and 6 months after the procedure (no *vs.* mod-sev leak, AS: 2,892 ± 2,366 *vs.* 3,621 ± 1,424, p = 0.15). Considering earlier (Portico, CoreValve Evolut R) *vs.* newer valves (CoreValve Evolut Pro; Edward Sapiens 3; Accurate Neo), there was no statistically significant difference relating AVCS and PPL; however, in patients who had newer valves there was a trend to higher AVCS and moderate to severe leaks, both on the immediate (no *vs.* mod-sev leak, AS: 2,777 ± 2,507 *vs.* 3,601 ± 1,385, p = 0.07) and at 6 months (no *vs.* mod-sev leak, AS: 2,782 ± 2,506 *vs.* 3,984 ± 1,138, p = 0.06). No statistically significant difference was found when comparing pre-ballooning dilatation.
Conclusions: Aortic calcium measured by Agatston score did not show an association with new moderate to severe peri-valvular leaks after TAVI. Nevertheless, it seems to be a trend for higher AS and moderate to severe peri-prothesis leaks when newer valves are implanted.

PO 119. TAVI – MULTIDIMENSIONAL EARLY BENEFITS ON ELDERLY PATIENTS

Ana Beatriz Garcia, Nelson Cunha, Sara Couto Pereira, Pedro Silvério António, Pedro Alves da Silva, Joana Brito, Beatriz Valente Silva, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Abrantes, João Fonseca, Catarina Gregório, Inês Ricardo, Fausto J. Pinto, Ana Abreu

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

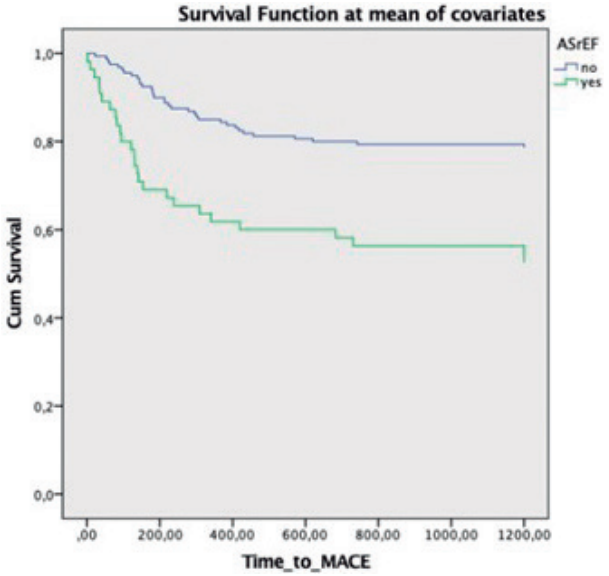
Introduction: Aortic stenosis is the most common valvular heart disease in Europe and in symptomatic patients, when untreated presents a high rate of morbidity and mortality. Its prevalence is estimated to grow even more, given the aging of the population. Transcatheter aortic valve implantation (TAVI) emerged as a safe and efficient procedure in patients with high or prohibitive surgical risk or in older patients, who are much often frailty, with impaired cognitive function and have poor quality of life.
Objectives: To assess the acute benefits (in 1 moth) of TAVI on cognitive function, anxiety and depression and independence in activities of daily living.
Methods: Single center prospective study of patients submitted to TAVi between April 2021 and September 2021. Patients were evaluated at baseline (before TAVI) and one month after the procedure. To assess cognitive function, anxiety and depression and independence in activities of daily living we used the Mini Mental State Examination (MMSE), Hospital Anxiety and Depression Scale (HADS); Katz Index of Independence in Activities of Daily Living; and Lawton-Brody Instrumental Activities of Daily Living Scale, respectively. Paired sample t-test and Wilcoxon test were used to statistical analysis.
Results: We included 20 patients, with a mean age of 85 ± 5.86 years, 40% (8) male. 19 patients undergone TAVI due severe native aortic stenosis and 1 due to bioprosthetic aortic valve dysfunction. The vascular access site was transfemoral in 19 patients and transapical in 1 patient. The median MMSE results were higher 1 month after TAVI (21.3 *vs.* 23.5, p = 0.012), essentially due to a better results in the temporal orientation and evocation domains (p = 0.011 and p = 0.022, respectively). Patients experienced lower levels of anxiety and depression after TAVI, mean score 5.4 *vs.* 3.9 (p = NS) and 7 *vs.* 4.25 (p = 0.002) respectively for anxiety and depression, as assessed by HADS scale. No statistical difference was observed on the results of basal and post TAVI evaluation of Katz and Lawton-Brody scales.
Conclusions: In an elderly population, TAVI appears to have an early and beneficial effect (in 1 moth) on cognitive function and depression, but no benefits were observed on independence in activities of daily living.

PO 120. PREVALENCE, MANAGEMENT, AND PROGNOSIS OF PATIENTS WITH SEVERE AORTIC STENOSIS AND REDUCED EJECTION FRACTION

Inês Fialho, Carolina Pereira Mateus, Mariana Passos, Joana Lima Lopes, João Baltazar Ferreira, David Roque, Márcio Madeira, Daniel Faria, João Bicho Augusto, Miguel Santos, Sérgio Bravo Baptista, Pedro Farto e Abreu, Carlos Morais, José Neves

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

Introduction: Reduced left ventricular ejection fraction (LVEF) is a known undesirable consequence of pressure overload in the natural history of aortic stenosis (AS).
Objectives: To evaluate the management and prognosis of patients with severe AS according to LVEF.



Methods: Prospective registry of consecutive patients discussed in the Heart Team meeting of a single center between January 2018 and June 2021. Patients with severe AS were included. For each patient demographics, blood tests results, echocardiogram, treatment decision, and MACEs (a composite of death, heart failure hospitalization, non-fatal acute myocardial infarction

and non-fatal stroke) until aortic valve replacement (AVR, surgical or transcatheter) were recorded (median follow-up time 187 days [IQR 59-352].
Results: 235 patients were included, 48.1% males (n = 113), mean age of 76.7 ± 10.7 years. LVEF was reduced (< 50%) in 25.1% (n = 59). Patients with reduced EF (ASrEF) presented higher EuroSCORE II levels (median 5.28% [interquartile range 3.27-9.02] *vs.* 2.8% [1.8-4.7], p < 0.001) compared with AS with preserved EF (ASpEF). The Heart Team decided for AVR in 90.0% (n = 53) of ASrEF and 96.0% (n = 169) of ASpEF patients. Transcatheter AVR was the most common intervention in ASrEF (52.5%, n = 31) and surgical AVR the most frequent in ASpEF (54.0%, n = 95). Conservative management was decided for 10% (n = 6) of ASrEF and 4% (n = 7) of ASpEF patients. ASrEF patients waited less time for AVR [71 (26-230) *vs.* 187 (81-352) days, p = 0.003]. While waiting for AVR, the ASrEF group presented significantly more MACE (Mantel-cox log rank p = 0.035, Fig.). The early post-operative mortality (first 7 days after surgery) was not different between groups (0 *vs.* 0.6%, p = 0.893). Sixty three percent of ASrEF patients improved LVEF after AVR.
Conclusions: ASrEF patients present less time to MACE and more cardiovascular events while they wait for AVR. After AVR, most ASrEF patients improves LVEF without an increase in early post-operative mortality. These data suggest that this vulnerable subgroup of AS patients benefit from AVR and as such should be prioritized in the AVR (surgical or transcatheter) waiting lists.

Sábado, 23 Abril de 2022 | 17:00-18:00

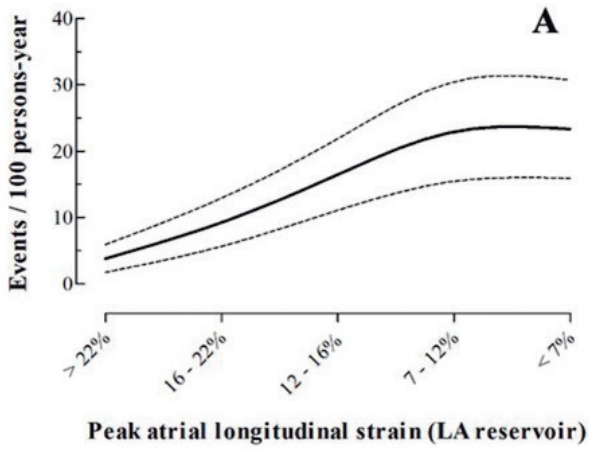
Sala Jardim de Inverno | Posters (Sessão 4 - Écran 1) - Imagem 2 - Ecocardiografia 1

PO 121. PROGNOSTIC SIGNIFICANCE OF PEAK ATRIAL LONGITUDINAL STRAIN IN PATIENTS WITH FUNCTIONAL MITRAL REGURGITATION

Daniel A. Gomes, Pedro M. Lopes, Pedro Freitas, Francisco Albuquerque, Eduarda Horta, Carla Reis, Sara Guerreiro, João Abecasis, Marisa Trabulo, António M. Ferreira, Jorge Ferreira, Regina Ribeiras, Miguel Mendes, Maria João Andrade

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

Introduction: Chronic mitral regurgitation has been shown to promote left atrial (LA) dysfunction and remodeling. However, the significance of LA dysfunction in this setting has not been fully investigated. The aim of our study was to assess the prognostic impact of peak atrial longitudinal strain (PALS), a surrogate of LA function, in a cohort of patients with left ventricular systolic dysfunction and functional mitral regurgitation (FMR).
Methods: Patients with at least mild FMR and reduced left ventricular ejection fraction (LVEF < 50%) under optimized medical therapy who underwent transthoracic echocardiography between 2010 and 2018 were retrospectively identified at a single-centre. FMR grading was undertaken according to the new 2021 European Society of Cardiology (ESC) guidelines for the management of valvular heart disease. PALS was assessed by 2D speckle tracking in apical 4-chamber view (as per European Association of Cardiovascular Imaging current recommendations). Cox proportional hazards regression was applied for univariable and multivariable analysis to investigate the association between clinical and echocardiographic parameters, namely PALS, and all-cause mortality.
Results: A total of 307 patients (median age 70 years, 77% male) were included. Median LVEF was 35% (IQR: 27-40%) and median mitral regurgitant volume was 25 mL (IQR: 14-34 mL). According to the new ESC 2021 valvular guidelines, 32 patients had severe FMR (10%). During a median follow-up of 3.5 years (IQR 1.4-6.6), 148 patients died. Median PALS was 14% (IQR 8-20%). The unadjusted mortality incidence per 100 persons-years increased with progressively lower values of PALS (figure 1A). On ROC curve analysis, the best PALS cut-off value associated with mortality was < 15%. Kaplan-Meier survival curves according to FMR severity and PALS > or < 15% are depicted in figure 1B. PALS remained independently associated with all-cause mortality on multivariable analysis (adjusted hazard ratio [aHR]: 0.94; 95%CI: 0.90-0.98; p = 0.004) even after adjustment for several (n = 14) clinical and echocardiographic confounders.



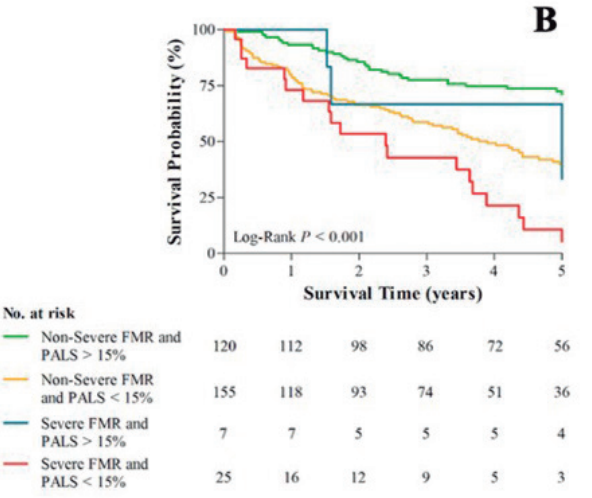


Figure 1

Conclusions: In a cohort of patients with reduced LVEF and functional mitral regurgitation, peak atrial longitudinal strain was associated with all-cause mortality.

PO 122. IDENTIFICATION OF HIGH-RISK PATIENTS WITH NON-ST SEGMENT ELEVATION ACUTE CORONARY SYNDROMES USING STRAIN ANALYSIS

Diana Decampos, João Lopes, Carolina Saleiro, José Pedro Sousa, Ana Rita M. Gomes, Rogério Teixeira, Ana Botelho, Lino Gonçalves

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

Introduction: Patients with acute coronary occlusion may lack typical signs of myocardial infarction in the electrocardiogram. Our aim was to evaluate

global longitudinal strain (GLS) in patients with left anterior descending coronary artery (LAD) significant stenosis (> 90%).
Methods: In a retrospective study, consecutive patients admitted for an non-ST-elevation acute coronary syndrome (NSTE-ACS) were categorized into two groups: (1) those with LAD > 90% stenosis and (2) those without. Those in group 2 had either significant or non-significant coronary artery disease in other territories. Two-dimensional speckle tracking was performed using a semi-automatic algorithm (EchoPac, GE Healthcare). Longitudinal strain curves were generated in an 18-segment model. The association between GLS as predictor of an acute LAD lesion was assessed by linear regression models. Receiver operating characteristic (ROC) curves were used to analyze the ability of GLS to predict significant LAD stenosis.
Results: A total of106 patients aged 57 ± 12 years and 78.2% male were enrolled. A significant LAD stenosis was present in 31.8% of the patients. About half (45.3%) had previous history of CAD and only 17% had previous heart failure. Patients had a mean left ventricular ejection fraction of 49.4 ± 9.8% and an average LV-GLS of -16 ± 4%. LV-GLS was significantly lower in patients with an acute lesion of the LAD (-14.8 ± 3.7 *vs.* -16.7 ± 4%, p = 0.035). A LV-GLS > -15.1% yielded an area under the curve (AUC) of 0.64 (95%CI 0.53 to 0.74) for predicting LAD lesion > 90%. Both GLS-2C and apical GLS were independent predictors of obstructive LAD lesion by multivariate logistic regression. ROC analysis demonstrated that a GLS-2C > -17% exhibited a good ability to identify patients with significant LAD lesion (AUC 0.67, 95% 0.56-0.77, sensitivity of 78% and a specificity of 52%). An apical GLS > -12.5% yielded a sensitivity of 50% and a specificity of 98% for predicting a significant LAD stenosis (AUC of 0.75, 95%CI 0.64 to 0.84). These associations were independent of the site of LAD occlusion.
Conclusions: In NSTE-ACS patients, GLS analysis detected LAD lesion > 90%. Patients with GLS-2C > 17% and apical GLS > -12.5% have a high probability of having an obstructive LAD lesion. This study warrants further research exploring LV-GLS as a tool in the early risk assessment in patients with an ACS.

PO 123. QUANTITATIVE LONGITUDINAL PEAK SYSTOLIC STRAIN IN THE DETECTION OF LEFT VENTRICULAR WALL MOTION ABNORMALITIES: AN ANALYSIS OF OUR DAILY ECHOCARDIOGRAPHIC PRACTICE

Diana Decampos, Carolina Saleiro, Ana Botelho, Rogério Teixeira, Ana Rita M. Gomes, João Lopes, Lino Gonçalves

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

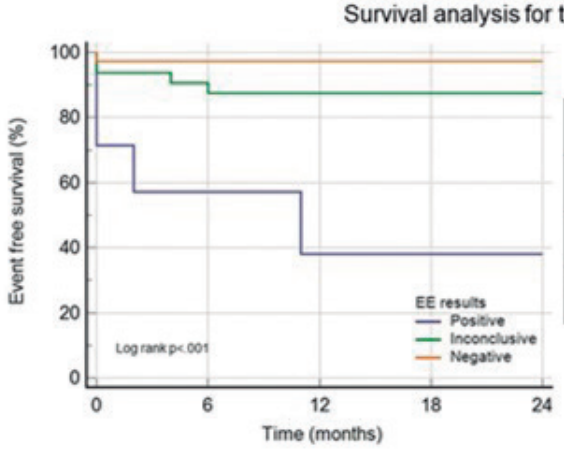
Introduction: Regional wall motion abnormalities (RWMA) of the left ventricle (LV) are an important indicator of disease. Two-dimensional speckle-tracking echocardiography (2D-STE), which is less operator-dependent, has been proposed for this purpose. We aimed to assess if RMWA were correlated with segmental longitudinal peak systolic strain (LPSS) values in patients with coronary artery disease.
Methods: A total of 106 consecutive patients (78.2% male) aged 57 ± 12 years clinically evaluated for an non-ST segment elevation acute coronary syndrome were studied. RWMA were assessed by trained personnel and wall motion score index (WMSI) was calculated. Segmental LPSS values were categorized has normal/mildly (≥ -12.6%), moderately (-8.1 and -12.5%) and severely (≤ -8.0%) reduced. Global longitudinal strain (GLS) was averaged from three standard longitudinal views. Linear regression analysis was used to estimate the relation between WMSI and average GLS. Pearson correlations were used to estimate the correlation between qualitative assessment of RMWA and segmental LPSS.
Results: A total of 1,216 segments were successfully tracked (average LPSS -15.71 ± 4.03%). WMSI showed a significant correlation with GLS with a coefficient of determination of 0.49 and a beta coefficient of 0.704 (p = 0.000). On naked eye evaluation, of 1,309 segments, 80.2%, 14.3%, and 5.5% segments were diagnosed as normal, hypokinesis, and akinesis, respectively. On strain analysis, of the 1216 tracked segments, 77.2% had normal/mildly, 13.5% had moderately and 9.3% had severely reduced strain values. Level of agreement between segmental motion classification and segmental LPSS values was moderate to strong in basal (r = 0.24-0.55, p < 0.05), mid (r = 0.39-0.66, p < 0.01) and apical levels (r = 0.45-0.64, p < 0.01).
Conclusions: Qualitative assessment of RWMA had significant moderate-to-strong correlation with LPSS, suggesting that segmental LPSS values may help to differentiate between normal and abnormal left ventricular segments at basal, mid and apical levels. Segmental LPSS assessment can be a useful tool for training residents.

PO 124. PROGNOSTIC VALUE OF EXERCISE STRESS ECHOCARDIOGRAPHY IN PATIENTS WITH KNOWN CORONARY ARTERY DISEASE

Ana Filipa Cardoso, Mário Rui Lourenço, Geraldo Dias, Tâmara Pereira, Mariana Tinoco, Marina Fernandes, Olga Azevedo, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: Exercise stress echocardiography (EE) is a useful method for diagnosis and risk stratification in patients (pts) with suspected coronary artery disease (CAD). Pts with known CAD carry a high risk of events. Our aim was to assess the utility of ESE in predicting outcomes in this population.
Methods: Single center retrospective study of consecutive patients with known CAD who performed an ESE between 2018 and 2019. The primary endpoint was a composite of admission for acute coronary syndrome



	Unadjusted HR	95%CI	Log rank p
Exercise time (min)	0.77	0.61-0.98	.036
METs achieved	0.73	0.55-0.95	.020
Untreated significant coronary lesion(s)	5.10	1.35-19.24	<.016

PO 124 Figure

(ACS), coronary revascularization and cardiovascular death during the follow-up.
Results: A total of 76 pts were included (mean age 59 ± 9 years; 87% male). Fifty-nine pts (78%) had history of ACS, 51 (67%) pts of percutaneous coronary intervention (PCI) and 14 (18%) pts of coronary artery bypass graft. The majority of pts had 2 or more vessel disease (42 pts; 55%). The main reason for performing EE was new onset of chest pain (38 pts; 50%) followed by functional assessment of coronary stenoses after incomplete revascularization (29 pts; 38%). The majority of pts had a preserved left ventricular ejection fraction (67; 88%). The exam was performed under beta-blocker effect in 35 (46%) pts. The results of EE were positive for myocardial ischemia in 7 (9%) pts, negative in 37 (49%) pts and inconclusive in 32 (42%) pts. Mean exercise time was 8 ± 3 minutes and mean METS achieved were 9.4 ± 2.6. ST-segment depression fulfilling electrocardiographic criteria for ischemia occurred in 17 (22%) pts. Eleven (14%) pts complained of chest pain during the exam. During a median follow up of 22 months (IQR 15-26), the primary endpoint occurred in 9 pts (admission for ACS in 5 pts; revascularization for chronic coronary syndrome in 4 pts). No cardiovascular death occurred. The positive predictive value of EE was 57.1% and the negative predictive value (NPV) was 97.3%. In a survival analysis, the predictors of the primary endpoint were lower exercise time, lower METs achieved, untreated moderate coronary lesions and a positive EE (table 1). After adjustment in a multivariate analysis, a positive EE was an independent predictor of the primary endpoint (HR 4.6, 95%CI: 1.1-16.7, p = 0.044).
Conclusions: In our study population, EE had a high NPV in pts with known CAD. A positive EE was an independent predictor of future cardiovascular events.

PO 125. MITRAL REGURGITATION ON LOW-FLOW LOW-GRADIENT SEVERE AORTIC STENOSIS AND PRESERVED EJECTION FRACTION

João Baltazar Ferreira, Mariana Passos, Joana Lima Lopes, Carolina Pereira Mateus, Inês Fialho, Marco Beringuilho, António Freitas, Carlos Morais

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

Introduction: According to current guidelines, given a patient whose echocardiographic aortic stenosis evaluation is low-gradient (aortic valve maximum velocity < 4 m/s and/or aortic valve mean gradient < 40 mmHg), low-flow (stroke volume (SV) < 35 mL/min/m^2), with estimated aortic valve area (AVA) < 1 cm^2 and preserved left ventricle function (ejection fraction (EF) ≥ 50%), an integrated approach for assessment of aortic stenosis severity is proposed. We aimed to investigate whether mitral regurgitation can play a role in those cases, possibly being responsible for low antegrade systolic flow.
Methods: Retrospective analysis of 121 consecutive transthoracic echocardiograms (TTEs) of patient with severe aortic stenosis, with AVA < 1.0 cm^2 as assessed by continuity equation. Patients with low ejection fraction (< 50%) were excluded. A total of 84 patients were included (females 53.6%, mean age 79.1 ± 10 years). Antegrade stroke volume was assessed by Doppler at the left ventricle outflow tract (LVOT). Then, comparisons were made for the prevalence of more than mild mitral regurgitation among patients with both low-gradient and low-flow and the other patients.
Results: 15 patients had both low-gradient, low-flow and preserved ejection fraction. There was a significant association regarding the presence of more than mild mitral regurgitation among those patients (p = 0.028, OR = 4.7, 95%CI 1.1-20.1). In those patients, it was also observed a higher prevalence of atrial fibrillation (p = 0.03, OR = 6.9, 95%CI 1.74-27.1), lower longitudinal systolic function of right ventricle as measured by TAPSE (16.6 *vs.* 21.5 mm, p = 0.028), and a tendency towards higher left atrial volume (113 *vs.* 87 mL, p = 0.06).
Conclusions: Given the findings that the prevalence of more than mild mitral regurgitation is higher in patients with severe aortic stenosis as assessed by AVA with both low-gradient, low-flow and preserved ejection fraction, these results suggests that the presence of more than mild mitral regurgitation should be considered on the approach of aortic stenosis classification of these patients.

Sábado, 23 Abril de 2022 | 17:00-18:00

Sala Jardim de Inverno | Posters (Sessão 4 - Écran 2) - Doenças do Miocárdio e Pericárdio 1

PO 126. RELATIVE APICAL LONGITUDINAL STRAIN – A POWERFUL TOOL TO PREDICT LONG-TERM OUTCOMES IN TRANSTHYRETIN AMYLOID CARDIOMYOPATHY PATIENTS

Tâmara Pereira, Geraldo Dias, Ana Filipa Cardoso, Mariana Tinoco, Olga Azevedo, Francisco Ferreira, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: Cardiac amyloidosis (CA) is frequently misdiagnosed as sarcomeric hypertrophic cardiomyopathy or other causes of left ventricular (LV) hypertrophy. The apical sparing pattern of LV global longitudinal strain (GLS) is frequently associated with CA and increased relative apical longitudinal strain (RALS) has been associated with worse outcomes in CA. We aimed to assess the prognostic role of RALS on long-term outcomes in wild-type transthyretin amyloid cardiomyopathy (ATTR-CM) patients.
Methods: This is a retrospective single-center study including all patients with the diagnosis of wild-type ATTR-CM between January 2014 and May 2021. A diagnosis of ATTR-CM was defined according to AHA criteria. The primary endpoint was hospitalization due to heart failure (HF). Echocardiographic data were compared between patients reaching and not reaching the primary endpoint. GLS was obtained by 2D-speckle tracking echocardiography and RALS was calculated according to the formula: Average longitudinal strain in the apical LV segments/Sum of the average longitudinal strain in the basal and mid LV segments.
Results: 60 patients with ATTR-CM were included (mean age 86 ± 5 years, 68.3% males, 56,7% atrial fibrillation, baseline LV ejection fraction (LVEF) 53% ± 14). Mean follow-up was 30 ± 23 months. The primary endpoint occurred in 30 patients (50%). The mean time to the first HF admission was 20 months. Patients reaching the primary endpoint had lower LVEF (47% ± 13 *vs.* 59% ± 12, p < 0.001), worse GLS (-9,2% ± 2,7 *vs.* 13,9% ± 3,4, p < 0.001) and higher RALS (1,7 ± 0,7 *vs.* 1,0 ± 0,1, p < 0.001) and LVEF/GLS ratio (5.5 ± 1.5 *vs.* 4.4 ± 1.2, p = 0.035). Kaplan-Meier curves showed that HF hospitalization-free survival was lower in patients with reduced LVEF (34 ± 5 *vs.* 66 ± 7 months, p = 0.006), GLS< -12% (28 ± 4 *vs.* 55 ± 10 months, p = 0.040) and increased RALS (25 ± 4 *vs.* 66 ± 9 months, p = 0.003). In Cox regression analysis, reduced LVEF and increased RALS remained independent predictors of the primary endpoint (HR 2.5, 95%CI 1,1-6,0, p = 0.045; HR 6,5 95%CI 1.8-24.1, p = 0.005, respectively).
Conclusions: Reduced LVEF and increased RALS were independent predictors of the occurrence of hospitalization due to HF. This study highlights the prognostic importance of the apical sparing pattern and RALS as an indirect measure of amyloid myocardial infiltration.

PO 127. CHRONOTROPIC INCOMPETENCE AND ITS RELATION TO EXERCISE CAPACITY IN HYPERTROPHIC CARDIOMYOPATHY

Isabel Gonçalves Machado Cardoso, Pedro Brás, Sílvia Aguiar Rosa, Pedro Rio, José Miguel Viegas, André Grazina, Alexandra Castelo, Bárbara Teixeira, Sofia Silva, Mafalda Selas, Filipa Silva, Rui Cruz Ferreira

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

Introduction: Compromised functional capacity is common in hypertrophic cardiomyopathy (HCM) patients (pts). Chronotropic incompetence is one of the proposed mechanisms underlying decreased functional capacity.
Objectives: To study the prevalence of chronotropic incompetence and its relation to exercise capacity in pts with HCM.

CPET data	
pVO2, ml/kg/min	21.01 (6.08)
% of max predicted VO2	87 (21.7)
VE/VCO2 slope	29 (5.3)
Time to AT, min	6 (6.0)
VO2 in AT, ml/Kg/min	14.27 (3.5)
Optimal point of ventilation	24 (4.48)
RER	1.03 (0.09)
Time of exercise, min	12.4 (4.3)

PO 127 Figure

Methods: Cardiopulmonary exercise testing was performed in 73 pts with HCM prospectively seen at an outpatient cardiomyopathy clinic. Pts with left ventricular ejection fraction < 50% were excluded. Chronotropic incompetence was defined has the inability to achieve 80% or more of the predicted maximal heart rate response.
Results: Of 73 pts with HCM (mean age 57 ± 14 years, 41 males), 41 pts (57%) were in New York Heart Association (NYHA) functional class I, 26 (36%) in class II and 6 (7.5%) in class III. Obstructive HCM was present in 49 (69%). Chronotropic incompetence was present in 55% of pts. Treatment with β-blockers (p = 0.019), female gender (p = 0.035) and average mitral annulus ratio of peak early mitral inflow velocity (E) to early diastolic mitral annular velocity (e') (E/e' ratio) (p = 0.008) were related to chronotropic incompetence. No association was found between the presence of left ventricular outflow tract obstruction (LVOTO) and chronotropic incompetence. Regarding cardiopulmonary exercise test parameters (Table), pts with chronotropic incompetence had lower peak oxygen consumption (peak VO2) (18.4 ± 5.3 *vs*. 23.8 ± 6.7, p < 0.0001).
Conclusions: Diminished heart rate response to exercise is common in HCM pts and it relates to impaired functional capacity.

PO 128. COMPARISON OF LEFT VENTRICULAR STRAIN OBTAIN BY CARDIAC MAGNETIC RESONANCE 3D FEATURE TRACKING AND 3D SPECKLE TRACKING ECHOCARDIOGRAPHY, IN HYPERTROPHIC CARDIOMYOPATHY

Isabel Gonçalves Machado Cardoso[1], Pedro Brás[1], Sílvia Aguiar Rosa[1], Luísa Moura Branco[1], Ana Galrinho[1], Boban Thomas[2], Ricardo Pereira[2], Gonçalo Branco[2], António Fiarresga[1], Rui Cruz Ferreira[1]

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Introduction: The heterogeneous left ventricular (LV) hypertrophy and interstitial fibrosis that characterizes hypertrophic cardiomyopathy (HCM) leads to variability in regional and global systolic deformation parameters. Cardiac magnetic resonance (CMR) feature tracking (FT) with steady-state free precession (SSFP) is considered analogous to echocardiographic speckle tracking (EST), although less widely used.
Objectives: To evaluate LV strain parameters in HCM patients (pts) by CMRFT and their relation with strain measures obtained by 3D speckle tracking echocardiography (3DSTE).
Methods: Sixty-seven HCM pts prospectively seen, underwent both 3D CMRFT and 3DSTE studies, with measures of global longitudinal, circumferential and radial systolic strains (GLS, GCS, GRS). Pts with LV ejection fraction < 50% were excluded. Strain measures were compared using one-way repeated analysis of variance (ANOVA). A linear regression analysis was used to assess the correlation of variation of strain between the two modalities.
Results: The table shows the clinical characteristics of the study participants and imaging findings. The mean GLS values assessed by 3DEST was significantly higher than by CMRFT (p = 0.035). The average GRS was highest in 3DEST (p = 0.005). There was a significant correlation between GRS obtained by 3DSTE and CMRFT (r2 = 0.1). No significant difference in average GCS assessed by the two methods was found (p = 0.22), although a correlation between both couldn't be demonstrated.
Conclusions: Although no significant difference was found between GCS values obtained by 3DSTE and CMRFT, no correlation was found between the two. A significant correlation between GRS obtained by the two methods was found (r2 = 0.1). Our study suggests that global strain values obtained by CMRFT and 3DEST cannot be used interchangeably in patients with HCM. However further larger studies are needed to clarify these findings.

PO 129. CORONARY FLOW VELOCITY RESERVE IN HYPERTROPHIC CARDIOMYOPATHY: RELATION WITH NONUNIFORM MYOCARDIAL HYPERTROPHY

Isabel Gonçalves Machado Cardoso[1], Pedro Brás[1], Sílvia Aguiar Rosa[1], Luísa Moura Branco[1], Ana Galrinho[1], António Fiarresga[1], Luís Rocha Lopes[2], Mafalda Selas[1], Filipa Silva[1], Miguel Mota Carmo[1], Rui Cruz Ferreira[1]

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Introduction: Reduction in coronary flow velocity reserve (CFVR) is a recognised feature in patients with hypertrophic cardiomyopathy (HCM). We investigated the hypothesis of differing CFVR of coronary arteries perfusing ventricular segments with nonuniform myocardial hypertrophy, by assessing the relative CFVR.
Objectives: To evaluate the impact of maximal wall thickness (MWT) in CFVR of the left anterior descendent artery (LAD), posterior descending artery (PD) and relative CFVR.

CPET data	
pVO2, ml/kg/min	21.01 (6.08)
% of max predicted VO2	87 (21.7)
VE/VCO2 slope	29 (5.3)
Time to AT, min	6 (6.0)
VO2 in AT, ml/Kg/min	14.27 (3.5)
Optimal point of ventilation	24 (4.48)
RER	1.03 (0.09)
Time of exercise, min	12.4 (4.3)

PO 128 Figure

	n=67
Clinical Characteristics	
Male gender, n (%)	41 (61)
Age (years), mean (SD)	57 (14)
Hypertension, n (%)	34 (51)
Diabetes, n (%)	10 (15)
Dyslipidaemia, n (%)	28 (42)
Current smoker, n (%)	9 (13)
Nonobstructive HCM, n (%)	46 (69)
NYHA I, n (%)	38 (57)
NYHA II-III, n (%)	29 (43)
Angina, n (%)	23 (34)
CFVR data	
Mean LAD CFVR (SD)	1,8 (0.53)
Mean PD CFVR (SD)	1,7 (0.55)
Mean relative CFR LAD/PD (SD)	1,11 (0.34)
Echocardiographic findings	
Maximal wall thickness (MWT) (SD)	20.4 (4.1)

PO 129 Figure

Methods: Sixty-seven HCM pts, prospectively seen at the outpatient cardiomyopathy clinic underwent transthoracic echocardiogram with assessment of CFVR of the LAD and of the PD by pulsed-wave Doppler, in basal conditions and during hyperaemia. Relative CFVR was calculated as the ratio between absolute CFVR of the LAD and absolute CFVR of the PD (LAD CFVR/PD CFVR). MWT was determined in parasternal short axis views. CFVR was analysed according to the location of MWT. The relationship between these variables and CFVR was determined using Mann-Whitney U test analysis.
Results: The table shows the clinical and echocardiographic data of the study participants. The mean relative CFVR was 1.11 (0.34). In the segments with MWT supplied by the LAD the mean relative CFVR was 1.8 (0.53). In the segments with MWT supplied by the PD the mean relative CFVR was 1.7 (0.55). 75% of pts with segments with MWT in dependence of the PD had relative CFVR > 1 and 32% with MWT supplied by the LAD had CFVR < 1. There was a significant correlation between relative CFVR and the location of MWT segments (p = 0.01). In the segments with MWT supplied by the PD the CFVR of the PD is substantially lower than the CFVR of the LAD, accordingly relative CFVR was higher in pts with MWT in segments in dependence of the PD artery (p = 0.01).
Conclusions: Regional distribution of hypertrophy results in regional impairment of coronary flow. CFVR was predominantly diminished in the artery supplying the MWT segments.

PO 130. SIGNALLING AMYLOIDOSIS DIAGNOSIS WITH RED FLAGS

Catarina Gregório, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, João Santos Fonseca, Miguel Azaredo Raposo, Ana Abrantes, Fausto J. Pinto, Dulce Brito

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

Introduction: Cardiac amyloidosis (CA) is an increasingly recognized aetiology of heart failure, resulting from deposition of different types of amyloid fibrils in cardiac tissue. It manifests as a restrictive cardiomyopathy leading to progressive heart failure associated with reduced survival. Recently, red flags for CA diagnosis as well as a diagnostic score have been stated in a consensus issued by the European Society of Cardiology.
Objectives: We aimed to assess the sensitivity of different red flags and of a diagnostic score in a real-world population.
Methods: Single-center retrospective study undertook in a tertiary hospital with patients diagnosed with CA. Demographic, clinical, laboratory, ECG, 2D echocardiography and DPD scintigraphy data were collected at baseline in all pts. These data encompassed several ESC guidelines red flags (except for CMR) and allowed the calculation of ESC Consensus' score (left ventricle wall thickness > 12 mm plus one other red flag criteria). Statistical analysis was conducted using descriptive statistic in IBM SPSS 26®.
Results: We gathered a population of 84 pts, 24 with wild type transthyretin CA (wtATTR-CA), 18 with light-chain CA (AL-CA) and 42 with hereditary transthyretin CA (hATTR-CA). Mean age was 69.4 ± 11 years and 66% pts were male. We analysed the prevalence of clinical, electrocardiographic, laboratorial and echocardiographic red flags in our population: 35.7% had hypotension, 15.4% presented with low voltage QRS in ECG, 5.3% had pseudo-infarct ECG pattern and 3.6% presented with AV conduction delay. Regarding laboratorial characteristics, 4.2% had NTproBNP levels above 3,000 ug/mL and 8.2% presented with persistent high levels of troponin above 70 pg/L. On echocardiogram evaluation, 5.5% had pericardial effusion, 6.5% displayed apical sparing on longitudinal strain analysis, and 92.3% showed granular sparkling pattern – the red flag with the highest sensitivity (Table). Consensus score was calculated for each one of the patients and a positive value (defined by the presence of left ventricular wall thickness > 12 mm and at least one other red flag) showed a sensitivity of 88.1%.

Cardiac amyloidosis red-flags	Sensitivity
Hypotension or normotensive if previously hypertensive	35,7%
Pericardial effusion	5.5%
NTproBNP >3000ug/mL	4.2%
Troponin>70ug/L	70pg/L
Reduced longitudinal strain with apical sparing	6,5%
Granular sparkling pattern	92.3%
Decreased ECG voltage to mass ratio	15,4%
Pseudo Q waves on ECG	41,8%
AV conduction disease	3.6%

Table 1: Sensitivity of the different red-flags in cardiac amyloidosis.

Conclusions: In a real-world population with CA, a screening tool as proposed by the ESC Consensus, showed a good sensitivity for the diagnosis. Given the increasing awareness of this disease, the application of this score and the recognition of red flags is of the most importance for diagnosis and for an adequate therapeutic management.

Sábado, 23 Abril de 2022 | 17:00-18:00

Sala Jardim de Inverno | Posters (Sessão 4 - Écran 3) - Exercício e Reabilitação Cardíaca 1 - Foco nos Programas de Reabilitação

PO 131. OUTCOMES OF PATIENTS ENROLLED IN A PHASE 2 CARDIAC REHABILITATION PROGRAM ACCORDING TO ACUTE CORONARY SYNDROME

Dias de Frias[1], Mauro Moreira[2], Cristine Schmidt[3], Preza Fernandes[1], Sandra Magalhães[4], Mário Santos[4], Severo Torres[1]

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Introduction: Cardiac rehabilitation (CR) is a class 1 recommendation in the management of patients with acute coronary syndrome (ACS), namely ST-elevation myocardial infarction (STEMI) and non-ST acute coronary syndrome (NST-ACS). Reported mortality and recurrent cardiovascular (CV) events are still unacceptably high in these patients.
Objectives: To assess CV outcomes of patients enrolled in a CR program and its association with ACS presentation.
Methods: Single-center, retrospective observational study that included all consecutive post-ACS patients enrolled in a phase 2 CR program in 2017. Group 1 were patients with STEMI; group 2 were patients with NST-ACS. Major adverse cardiovascular events (MACE) were defined as a composite of death, non-fatal ACS, non-fatal stroke, and unplanned revascularization.
Results: Of the 202 ACS patients who attended the CR program in 2017, 4 were excluded due to missing data. Of the 198 patients analyzed (age 60.3 ± 10.7 years, 82% male), 101 patients had a STEMI and 97 NST-ACS. STEMI patients were significantly younger (57 ± 9.5 *vs.* 63 ± 10, p < 0.001), with fewer CV risk factors (diabetes 16 *vs.* 32%, p = 0.008; hypertension 51 *vs.* 72%, p = 0.002; obesity 17 *vs.* 31%, p = 0.020; dyslipidemia 54 *vs.* 77%, p < 0.001), except for active smoking (53 *vs.* 29%, p = 0.001), and were less likely to have previous history of coronary artery disease (9 *vs.* 31%, p < 0.001). During the 3-month CR program, both groups achieved significant reduction in body mass index, LDL-Cholesterol, functional capacity, and smoking cessation rates. At 3-, 12-, and 24-months evaluation, both groups showed no differences in risk factor management, nor differences in lipid-lowering therapy, namely percentage of high-intensity statin and ezetimibe use. STEMI patients were treated more frequently with ticagrelor (86 *vs.* 67%, p = 0.001) at baseline. MACE occurrence was significantly lower in STEMI patients (11 *vs.* 28%, p = 0.003), driven mainly by recurrent ACS (4 *vs.* 15%, p = 0.006).
Conclusions: In our study, NST-ACS patients had significantly higher CV disease burden and worse outcomes at 24-month follow-up. Despite the heightened CV risk in this group, secondary prevention treatment intensity was similar in both groups.

PO 132. CARDIAC REHABILITATION AFTER ELECTIVE HEART SURGERY: A VALVULAR SURGERY FOCUSED COMPARISON TO CORONARY ARTERY BYPASS GRAFTING

Geraldo Dias[1], Sandra Magalhães[2], Mário Santos[2], Ana Barreira[2], Preza Fernades[2], Severo Torres[2]

[1]Hospital da Senhora da Oliveira, EPE - Guimarães. [2]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António.

Introduction: Cardiac rehabilitation (CR) after heart surgery is widely recommended and its benefits are well described for patients after coronary artery bypass graft (CABG) surgery. However, these benefits are not so well established for patients following heart valve (HV) surgery.
Objectives: We aimed (1) to assess if patients submitted to elective HV surgery improved their functional capacity after completing a supervised CR phase II program, and (2) to compare this response between those who underwent CABG surgery and combined HV and CABG surgery.
Methods: Retrospective study including consecutive patients that completed an exercise-based CR program from January 2012 to December 2019 in one center, admitted in the program after elective HV surgery, elective CABG surgery or elective combined HV and CABG surgery. Demographic, anthropometric and clinical variables were collected. Baseline and post-CR exercise test (ET) duration and maximum metabolic equivalents (MET) were compared between groups. Statistical analysis was performed using SPSS v20.0.
Results: A total of 106 patients were included, divided into three groups: HV (N = 19), HV+CABG (N = 14) and CABG (N = 73). Among valvular patients (HV and HV+CABG groups), the aortic valve was the most frequently implicated (78.8%), followed by combined aortic and mitral (12.1%) and mitral valve (9.1%). Among patients that had elective CABG surgery (CABG and HV+CABG), the majority had three vessel disease (61.3%), followed by two (26.7%) and one (12.0%) vessel disease. HV group presented a greater proportion of females (42.1%) than HV+CABG (21.4%) and CABG (11.0%) groups. Left ventricle systolic function, obesity and diabetes mellitus prevalence was similar among groups. Hypertension, dyslipidemia and smoking history were significantly more common in CABG and HV+CABG groups than in HV only group, and atrial fibrillation was more prevalent in the latter. When comparing pre and post-CR ET, patients increased 83.0 (IQR = 99.0) seconds in ET duration and 1.3 (IQR = 1.5) MET. Baseline, post-CR, and the variation of ET parameters were similar between groups. Self-reported physical activity, type or position of prosthetic valve didn't relate to improvements in ET parameters.
Conclusions: This study demonstrates that patients submitted to elective HV and/or CABG surgery have comparable improvements in functional capacity after a CR phase II program. This improvement seems to be independent of the existence of coronary artery disease, the type or position of the prosthetic valve, and self-reported physical activity.

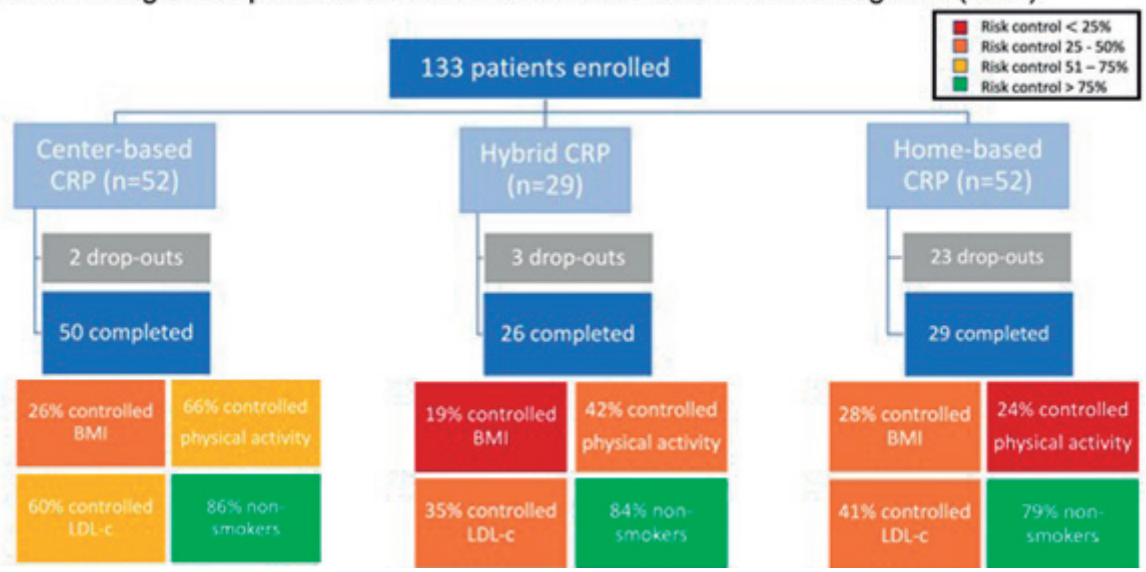
PO 133. THE RISE OF THE DIGITAL ERA IN CARDIAC REHABILITATION: CAN IT KEEP UP WITH THE PRESENTIAL MODEL?

Mariana Sousa Paiva, Rita Reis Santos, Sara Guerreiro, Gonçalo l. Cunha, Daniela Gomes, Rita Amador, Rita Lima, Rita Bello, Sofia Santos, Mónica Neto, Maria la Salete Pinto, Luís Moreno, Anaí Durazzo, Miguel Mendes

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

Introduction: The pandemic raised interest in digital methods to manage and prevent cardiovascular diseases. Thus, cardiac rehabilitation programs (CRP) were adapted, with a marked increase in the delivery of home-based programs. The aim of this study was to evaluate and compare the center-based (CB), hybrid (HyB) and home-based (HB) CRPs developed in our center.
Methods: Single center cohort study of consecutive patients that accepted to join a two-month CRP from April 2019 to September 2021. The CB-CRP, as standard of care, involved 20 supervised exercise sessions, the HyB-CRP included a 2-week program (6 sessions) at the hospital, followed by digital follow-up and counselling, and the HB-CRP was exclusively based on digital platforms and regular phone consultations. Data on medical history, lifestyle, and blood analyses, before and after the program, were collected from electronic charts. All CV risk factor control goals were defined accordingly to the ESC guidelines.
Results: In total, 133 patients were enrolled, but only 105 completed the program, as 23 patients dropped out from the HB-CRP, 3 from the HyB-CRP and 2 from the CB-CRP (Fig.). The mean age was 60 ± 11 years, 71% were male, the majority (88%) was referenced after an acute coronary syndrome and 72% had preserved left ventricular ejection fraction. Baseline risk factors were similar between the 3 groups: systolic blood pressure (SBP) (mean 118 ± 16 mmHg) was controlled, but BMI (median 27 (IQR: 24-31) kg/

Figure 1 – Diagram of patient distribution on Cardiac Rehabilitation Programs (CRP)



PO 133 Figure

m^2), LDL-C values (median 61 (IQR: 47-83) mg/dL) and physical activity (69% of inactive patients) were uncontrolled. Also, there were 18% of active smokers. At the 2-month follow-up, LDL-c values (median 56 (IQR: 44-73) mg/dL), percentage of inactive patients (49%) and active smokers (16%) dropped, while median BMI stood at the same level (27 (IQR: 24-31) kg/m^2). Compared with the standard of care, the digital programs yielded worse results: the HyB-CRP in terms of LDL-C values control (35 *vs.* 60%, p = 0.04) and the HB-CRP in terms of percentage of inactive patients (76 *vs.* 34%, p = 0.004). However, for BMI, SBP and smoke cessation, the results were similar between the 3 groups.

Conclusions: Overall, our programs had a positive impact on risk factor control. However, patients in the digital programs are a challenge for the CRP team, since they are more likely to drop out, less willing to engage healthy behaviors and showed lower CV risk factors control. A stronger approach must be attended to ameliorate the outcomes in the hybrid and home-based programs.

PO 134. SHORTER CARDIAC REHABILITATION PROGRAMS: TAKING TIME IS TAKING EFFECTIVENESS?

Ana Abrantes, Pedro Alves da Silva, Pedro Silvério António, Sara Couto Pereira, Beatriz Valente Silva, Joana Brito, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Beatriz Garcia, João Santos Fonseca, Catarina Gregório, Miguel Azaredo Raposo, Nelson Cunha, Inês Ricardo, Ana Abreu

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

Introduction: Due to the covid-19 outbreak, cardiac rehabilitation programs (CRP) underwent most needed adaptations to stay operative. To face all the requests and guarantee sanitary measures we reduced the duration of the program from about 12 weeks to about 8 weeks, so we could have smaller groups but still respond to all patients who had been referred. However, it is still unclear whether less hours of contact and exercise sessions can achieve the same results as traditional CRP.

Objectives: To analyse the effectiveness of shorter duration CRP on risk factor control after the program conclusion.

Methods: Observational single center study including two groups of patients who underwent CRP: one group who had been in 12 weeks-CRP before the pandemic sprout and another group enrolled in an 8-week program after April 2021. Albeit differences in their duration, both CRP had the same structure: observation by cardiologist, physiatrist, specialist nurse, exercise/aerobic and strength exercices) and educational sessions, as well as nutrition and psychologist consultation.

Results: A total of 114 pts were analysed (mean age 62.4 ± 11.6 years, 85.1% men, 86% with ischemic heart disease). Main comorbidities were hypertension (68.4%), dyslipidemia (70%) and diabetes (30.7%). 78 pts completed a longer programme with 12 weeks duration while 36 underwent a shorter CRP with 8 weeks. There were no statistically significant differences between both groups in regard to population demographics, aetiology, LVEF and co-morbidities. After CRP, there was significant improvement in risk factor control (mainly lipidic profile and weight) and echocardiographic parameters in both groups. We noted an important reduction in LDL levels (85 ± 42.6 mg/dL before CRP and 67.68 ± 28.45 mg/dL after), approaching the guideline recommended levels (< 55 mg/dL): 29.8% before *vs.* 42.6% after (p = 0.079), with no difference between the two groups (p = 0.65). Significant improvement of LVEF was also observed (53% to 57%, p < 0.001) without difference between the two groups (p = 0.112).

Conclusions: Shorter duration CRP showed similar results concerning risk factor control and echocardiographic LVEF, proving they can be an effective alternative when needed.

PO 135. CARDIAC REHABILITATION PROGRAMS: DOES SHORTER COURSE TRANSLATE INTO LESS EXERCISE CAPACITY?

Miguel Azaredo Raposo, Pedro Alves da Silva, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Catarina Simões de Oliveira, Ana Margarida Martins, Nelson Cunha, Inês Aguiar Ricardo, Fausto J. Pinto, Ana Abreu

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

Introduction: In face of pandemic imposed restrictions, cardiac rehabilitation programs (CRP) faced new challenges in the past 2 years. Diverse strategies were applied, using tele-rehabilitation and hybrid solutions. Good results were attained, as several studies have shown. Other centers opted for reducing the duration of sessions and programs. In our center, we adapted the CRP duration from 12 weeks to 8 weeks, so we could have smaller, safer groups and still admit all patients who had been referred.

It is still unclear whether less hours of contact and shorter exercise sessions can achieve the same results as traditional CRP.
Objectives: To analyse the effectiveness of shorter duration CRP on exercise tolerance and functional class after concluding the program.
Methods: Observational single center study including two groups of patients who underwent CRP: one group who had been in 12 week CRP before the imposed lockdown and another group enrolled in an 8-week program after April 2021. Albeit differences in their duration, both CRP had the same structure: observation by cardiologist, physiatrist, specialist nurse, exercise (aerobic and strength exercises) and educational sessions, as well as nutrition and psychologist consultation.
Results: A total of 114 pts were analysed (mean age 62.4 ± 11.6 years, 85.1% male, 86% with ischemic heart disease). Main comorbidities were hypertension (68.4%), dyslipidemia (70%) and diabetes (30.7%). 78 pts completed a longer programme with 12 weeks duration while 36 underwent a shorter CRP with 8 weeks. There were no statistically significant differences between both groups regarding population demographics, aetiology, LVEF and co-morbidities. Exercise tolerance improved similarly in both groups, assessed by the time of exercise stress test: we registered a global increase of 65 ± 1.38s after CRP, with no difference between the two groups (p = 0.157). Similarly, there were no differences in hypertensive responses during exercise. In line with the observed results in exercise tolerance, we noted an improvement in NYHA class before and after CRP in both groups, with no statistical differences between them.
Conclusions: Shorter duration CRP showed no significantly different results concerning exercise tolerance improvement and functional class. These findings suggest its use might be an alternative in some settings, as lack of resources or the current pandemic.

Sábado, 23 Abril de 2022 | 17:00-18:00

Sala Jardim de Inverno | Posters (Sessão 4 - Écran 4) - Insuficiência Cardíaca 4 - Vários 2

PO 136. PATIENTS ADMITTED WITH ACUTE HEART FAILURE AT AN INTENSIVE CARE DEPARTMENT - COMPARISON BETWEEN THE CLINICAL PROFILES OF PATIENTS WITH PRESERVED VS. REDUCED LEFT VENTRICULAR EJECTION FRACTION

Ana Rita Moura[1], Marta Reina-Couto[2], Roberto Roncon de Albuquerque[2], José Artur Paiva[2]

[1]Hospital Distrital de Santarém, EPE. [2]Centro Hospitalar Universitário de S. João, EPE.

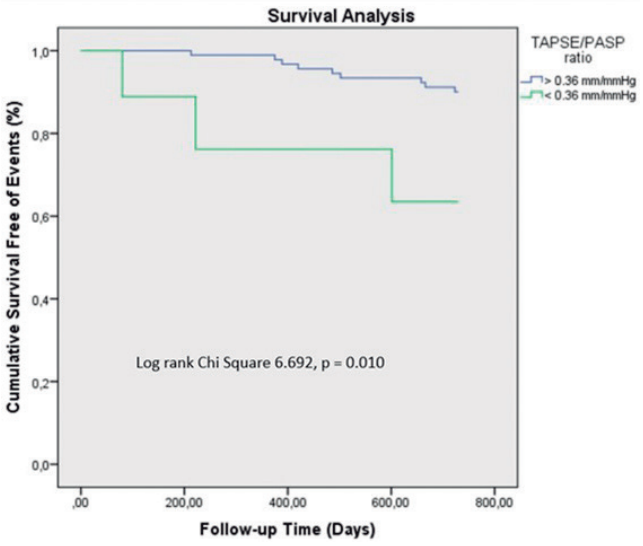
Introduction: Heart failure (HF) is one of the major contemporary clinical challenges. Its prognosis is worse in the presence of exacerbations that require intensive care. Data regarding characterization and prognosis of critical acute heart failure (AHF) in the contemporary era is lacking.
Objectives: Describe and compare the clinical profile of patients with preserved *vs.* reduced left ventricular ejection fraction (LVEF) admitted with AHF to a general Intensive Care Unit (ICU) at a tertiary center.
Methods: Retrospective study of patients admitted at an ICU with the diagnosis of AHF between January and December of 2018 in a tertiary care hospital. Patients were dichotomized according to LVEF at discharge (preserved - ≥ 50% or reduced - < 50%) and compared regarding clinical data, *triggers* and in-hospital and long-term prognosis.
Results: 239 patients were included, mostly men (60.7%), with a mean age of 69.5 ± 14.8 years old. Patients admitted with preserved LVEF (28.9%; n = 69) were a minority. This group was significantly older (73.7 *vs.* 66.2 years; p = 0.001) and had a higher prevalence of female gender (59.4 *vs.* 32.5%; p < 0.001). There was no difference in the prevalence of the majority of previous co-morbidities. Mean maximum brain natriuretic peptide was similar (1,365 *vs.* 1,418 pg/mL, p = 0.82). Although acute coronary syndrome was the most prevalent *trigger* in both groups, it assumed a lighter representativity in the preserved LVEF patients (21.7 *vs.* 46.3%); instead, pulmonary embolism (14.5 *vs.* 1.6%) and infection (18.8 *vs.* 13.8%) assumed more relevant roles in this subgroup. Regarding clinical status, patients with preserved LVEF had a lower probability of low peripheral perfusion status at admission (p < 0.001) that was reflected in a lesser use of aminergic support (21.7 *vs.* 52.8%, p < 0.001) and mechanical circulatory support (used in 2 cases of high-risk pulmonary embolism). Patients with preserved LVEF also had a significantly lower in-hospital death (7.2 *vs.* 20.3%; p = 0.02). There wasn´t a difference in the duration of mean hospital stay (5.25 *vs.* 6.5 days; p = 0.20), nor in the probability of death (p = 0.98) or new HF hospitalization within 12 months after discharge (p = 0.44).
Conclusions: this registry shows that only a minority of patients admitted with AHF at an ICU has preserved LVEF. As compared with HF patients with reduced LVEF, these individuals are more likely to be older, women, to have pulmonary embolism as a *trigger*; and to exhibit less severe clinical status and a better short-term prognosis. However, there weren´t significant differences in terms of mortality and rehospitalization for AHF at 12 months. These findings demonstrate the relatively poor prognostic value of LVEF in this context in terms of long-term prognosis prediction and emphasizes the need of continued monitoring of these patients.

PO 137. EVALUATION OF RV-ARTERIAL COUPLING IN ADVANCED HEART FAILURE

João Pedro Reis, Pedro Brás, Vera Ferreira, António Gonçalves, Tiago Pereira da Silva, Ana Timóteo, Ana Galrinho, Rui Ferreira

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

Introduction: Echocardiographically determined TAPSE/PASP is a noninvasive measure of RV-arterial coupling. TAPSE/PASP ratio is a potent independent predictor of precapillary PH and prognosis in heart failure and pulmonary arterial hypertension, with a prognostic cutoff value of 0.36 mm/mmHg.



Objectives: To assess the prognostic impact of TAPSE/PASP in a population of advanced HF patients.
Methods: Prospective evaluation of adult patients with advanced HFrEF referred to our Institution for evaluation with HF team and possible indication for urgent heart transplantation (HT) or MCS. Patients were

followed up for 2 years for the primary endpoint of cardiac death and HT. Echocardiographically determined TAPSE/PASP ratio was used to assess RV-arterial coupling and a survival analysis was performed to evaluate the prognostic impact of the suggested cutoff of 0.36 mm/mmHg.
Results: A total of 450 HFrEF patients with a mean age of 56 ± 12 years, of which 80% are male, and with a mean LVEF of 29 ± 4%, mean TAPSE of 19 ± 3 mm and PASP of 38 ± 11 mmHg. The mean TAPSE/PASP was 0.80 ± 0.28. Fifty-four patients (12%) met the primary endpoint. Patients with RV-arterial uncoupling (TAPSE/PASp < 0.36 mm/mmHg) were more likely to have a non-ischaemic etiology for HF (66.7 *vs.* 40%, p = 0.047), had a lower prevalence of diabetes (53.3 *vs.* 77.9%, p = 0.041), a higher prevalence of moderate-to-severe mitral regurgitation (33.3 *vs.* 13.0%, p = 0.035), a lower LVEF (26.2 ± 6.1 *vs.* 29.9 ± 5.9, p = 0.038), a higher prevalence of RV dysfunction (73.3 *vs.* 26.7%, p < 0.001) and worse cardiopulmonary fitness (pVO_2: 12.7 ± 5.1 *vs.* 15.8 ± 6.0 ml/kg/min, p = 0.047; VE/VCO_2 slope: 49.5 ± 17.2 *vs.* 37.6 ± 9.7, p < 0.001; cardiorespiratory optimal point: 36.9 ± 11.3 *vs.* 29.0 ± 6.4, p < 0.001). More patients in the group of TAPSE/PASp < 0.36 mm/mmHg met the primary endpoint (33.3 *vs.* 9.6%, p = 0.034) and more patients underwent urgent HT (13.3 *vs.* 1.4%, p = 0.44). RV-arterial coupling was associated with a lower survival free of events during follow-up (log-rank p = 0.010).
Conclusions: RV-arterial coupling predicts a worse prognosis in advanced HF patients, with those below a cutoff of 0.36 mm/mmHg having lower survival. This variable may improve risk stratification in this setting.

PO 138. RESPONSE AND LONG-TERM OUTCOMES WITH RESYNCHRONIZATION THERAPY: DOES HEART FAILURE ETIOLOGY MATTER?

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

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

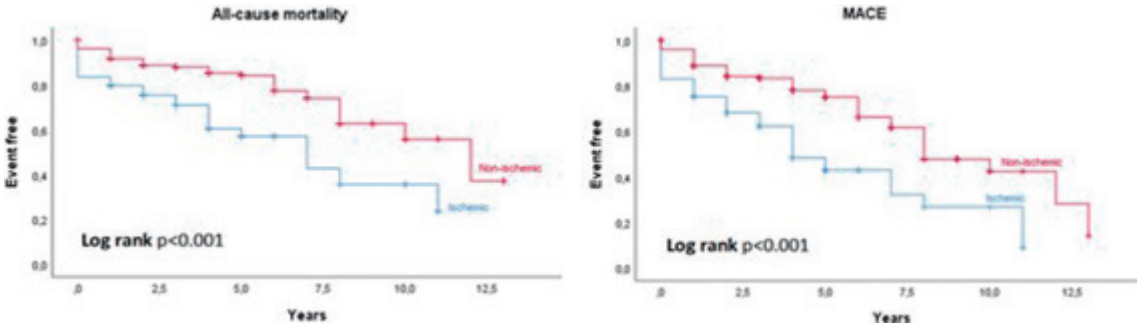
Introduction: Resynchronization therapy (CRT) reduces mortality across all etiologies of heart failure (HF). Reverse left ventricular (LV) remodelling has been reported to occur more often in non-ischemic patients (pts).
Objectives: To compare response and outcomes after CRT in non-ischemic (NIHF) and ischemic (IHF) HF pts.
Methods: Single-center retrospective study of consecutive patients submitted to CRT implantation (2007-2018). Major adverse cardiac events (MACE) included HF hospitalization or all-cause mortality (ACM). Clinical response was defined as New York Heart Association (NYHA) class improvement without MACE in the 1st year of follow-up (FU). Echocardiographic (echo) response implied left ventricle end-systolic volume reduction of > 15% at 1-year. LV ejection fraction [LVEF] ≥ 50% during 1st year of FU defined superresponse. Survival analysis with Kaplan-Meier method and Log-rank test was performed to compare outcomes. Multivariate analysis was performed to assess if HF etiology predicted response to CRT.
Results: 295 pts (mean age 67 ± 11 years, 91.5% left bundle branch block, baseline QRS 171 ± 22 ms) were included. Pts in NIHF group (n = 208, 72.5%) were more often female (35.6 *vs.* 15.6%, p < 0.001), tended to be younger (67 *vs.* 70 years, p = 0.05), had more valve disease (36.7 *vs.* 23.6%, p = 0.037) and kidney disease (32.9 *vs.* 18.5%, p = 0.015). In NIHF pts, right ventricular dysfunction (tricuspid annular plane systolic excursion < 17 mm) was less common (25.6 *vs.* 47.1%, p = 0.039). Addition of defibrillator was identical (53.8 *vs.* 55.7%, p = 0.882). NYHA class improvement (79.4 *vs.* 78.4%, p = 0.987) and echo response (71.2 *vs.* 74.4%, p = 0.860) were similar. NIHF pts were more often superresponders (25.7 *vs.* 9.5%, p = 0.006), with greater improvement in LVEF (Δ 11.6 *vs.* 7.6%, p < 0.001). Clinical response was more frequent in NIHF pts (66.3 *vs.* 50.6%, p = 0.023). After multivariate analysis, HF etiology was not predictive of clinical (p = 0.960) or echo response (p = 0.075). During a mean FU of 3.8 years, occurrence of MACE (*Log rank* test, p < 0.001) and ACM (*Log rank* test, p < 0.001) were lower in NIHF [Fig.]. Ventricular arrythmias (6.4 *vs.* 7.5%, p = 0.993) or appropriate defibrillator therapies (5.3 *vs.* 7.5%, p = 0.743) did not differ.
Conclusions: In this cohort, consisting mostly of pts with LBBB and QRS ≥ 150 ms, HF etiology did not predict clinical or echo response to CRT. Still, NIHF pts showed a greater extent of LV remodelling. Lower MACE and ACM rates were also observed in non-ischemic pts.

PO 139. PROGNOSTIC IMPACT OF RIGHT VENTRICULAR FUNCTION IN ADVANCED HEART FAILURE

Ana Rita Teixeira, João Ferreira Reis, António Valentim Gonçalves, Rita Ilhão Moreira, Tiago Pereira da Silva, Ana Teresa Timóteo, Bárbara Lacerda Teixeira, Sofia Jacinto, Rui Cruz Ferreira

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

Introduction: In patients with heart failure with reduced ejection fraction (HFrEF), the presence of coexistent right ventricular (RV) systolic dysfunction is associated with a worse functional capacity and outcome. However, the measurement of RV function is often overshadowed by its left counterpart.
Objectives: To assess the prognostic impact of RV dysfunction in a population of advanced HF patients.
Methods: Prospective evaluation of adult patients with advanced HFrEF were referred to our Institution for evaluation with HF team and possible indication for urgent heart transplantation (HT) or MCS. Patients were followed up for 1 year for the primary endpoint of cardiac death and HT. RV systolic dysfunction was defined by a tricuspid annular plane systolic excursion (TAPSE) < 17 mm and/or fractional area change (FAC) < 35%. A survival analysis was performed to evaluate the prognostic impact of RV dysfunction and survival curves were compared using the log-rank test.
Results: A total of 450 HFrEF patients (mean age of 56 ± 12 years, 80% male, mean LVEF of 29 ± 4%, mean TAPSE of 19 ± 3 mm and FAC of 37 ± 6%), of which 30.4% had RV dysfunction. Thirty patients (6.7%) met the primary endpoint. Patients with RV dysfunction had a higher NT-proBNP value (3278.9 ± 296.7 pg/mL, p = 0.005) and a lower LVEF (26.7 ± 6.4 *vs.* 31.4 ± 5.1, p < 0.001), as well as worse cardiopulmonary fitness (CPET duration: 7.2 ± 3.8 *vs.* 8.6 ± 4.1, p = 0.019; pVO_2: 13.6 ± 4.9 *vs.* 16.2 ± 6.1 ml/kg/min, p = 0.006;



PO 138 Figure

VE/VCO_2 slope: 41.8 ± 11.9 *vs.* 37.0 ± 10.6, p = 0.015; cardiorespiratory optimal point: 33.0 ± 8.9 *vs.* 28.4 ± 6.2, p < 0.001). RV dysfunction was associated with a lower survival free of events during the first follow-up year (log-rank p = 0.046).
Conclusions: RV is associated with a poor outcome in advanced HF patients, and it may improve risk stratification in this population.

PO 140. FUNCTIONAL MITRAL REGURGITATION IN ADVANCED HEART FAILURE

Bárbara Lacerda Teixeira, João Ferreira Reis, António Gonçalves, Rita Ilhão Moreira, Tiago Pereira Silva, Ana Teresa Timóteo, Pedro Rio, Pedro Brás, Vera Ferreira, Alexandra Castelo, Ana Sofia Jacinto, Ana Rita Teixeira, Tânia Branco Mano, Rui Cruz Ferreira

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

Introduction: Moderate-to-severe functional mitral regurgitation (fMR) is present in about one-third of patients with heart failure (HF) with reduced left ventricular (LV) ejection fraction (HFrEF) and contributes to progression of the symptoms of HF and is an independent predictor of worse clinical outcomes.
Objectives: To characterize the population of advanced HF patients with severe FMR in a tertiary center and assess its prognostic impact.
Methods: Prospective evaluation of adult patients with advanced HFrEF were referred to a single tertiary center for evaluation with HF team and possible indication for urgent heart transplantation (HT) or mechanical circulatory support (MCS). Patients were followed up for 1 year for the primary endpoint of cardiac death and HT. Severe FMR was defined by an EROA ≥ 20 mm^2 and/or a regurgitant volume (RVol) ≥ 30 mL either taken from TTE or TOE. A survival analysis was performed to evaluate the prognostic impact of fMR and survival curves were compared using the log-rank test.
Results: A total of 450 HFrEF patients (mean age of 56 ± 12 years, 80% male, mean LVEF of 29 ± 4%) of which 14.4% had severe fMR, with a mean EROA of 29.2 ± 3.1 mm^2 and a mean RVol of 43.6 ± 4.7 mL. Thirty patients (6.7%) met the primary endpoint. Patients with severe fMR were more likely to be female (69.2 *vs.* 81.5%, p = 0.026) and to have atrial fibrillation (27.0 *vs.* 14.1%, p = 0.028), had a higher NT-proBNP value (3,625.8 ± 496.9 *vs.* 1,940 ± 212.4 pg/mL, p = 0.001), a lower LVEF (25.9 ± 6.8 *vs.* 29.0 ± 6.7, p = 0.001), more dilated LV (LV end-diastolic diameter: 72.8 ± 13.3 *vs.* 66.9 ± 9.0 p = 0.036), a lower HFSS value (8.1 ± 1.0 *vs.* 8.6 ± 1.0). There was no difference regarding HF etiology, NYHA class or cardiopulmonary fitness (pVO_2: 16.6 ± 5.6 *vs.* 16.5 ± 6.3 ml/kg/min, p = 0.19; VE/VCO_2 slope: 35.4 ± 9.9 *vs.* 34.0 ± 9.7, p = 0.328). EROA was an independent predictor of the primary outcome (OR 1.23, 95%CI 1.08-1.54, p = 0.039). Patients with severe fMR had a lower survival free of events during the first follow-up year (log-rank p = 0.012) (Fig.).
Conclusions: Severe fMR is a common complication of HF, and is more prevalent as disease progresses. Increasing severity of fMR is associated with a stepwise increase in mortality. Severe fMR is an independent predictor of poor prognosis.

Sábado, 23 Abril de 2022 | 17:00-18:00

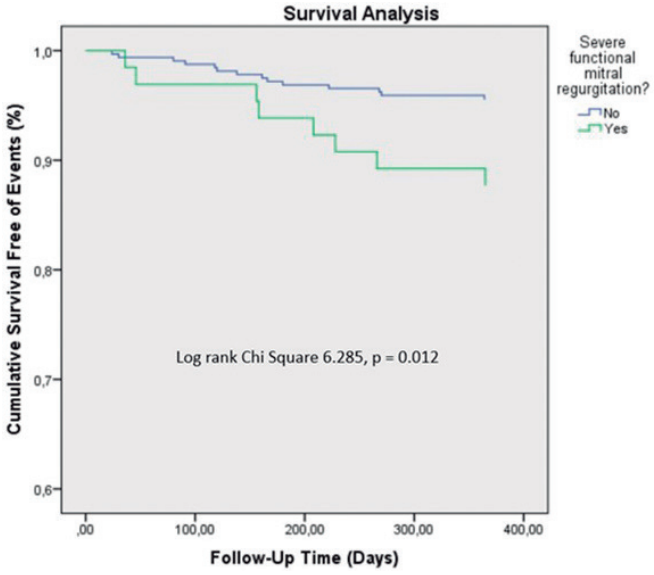
Sala Jardim de Inverno | Posters (Sessão 4 - Écran 5) - Risco Cardiovascular 2

PO 141. CARDIOVASCULAR OUTCOMES ACCORDING TO RISK CATEGORY: RESULTS OF A RETROSPECTIVE DATABASE STUDY

Cristina Gavina[1], Daniel Seabra[1], Marta Afonso-Silva[2], Diana Grangeia[2], Francisco Araújo[3], Tiago Taveira-Gomes[4]

[1]Unidade Local de Saúde de Matosinhos, EPE/Hospital Pedro Hispano. [2]Novartis Farma - Produtos Farmacêuticos SA, Porto Salvo. [3]Hospital dos Lusíadas - Lisboa. [4]Departmento de Medicina da Comunidade, Informação e Decisão em Saúde, Faculdade de Medicina, Universidade do Porto.

Introduction: This study aims to analyze the 10-year risk of death or hospitalization for atherosclerotic cardiovascular disease (ASCVD) by cardiovascular (CV) risk level.
Methods: Retrospective population-based study using data from a Local Health Unit in Portugal. New patients in each CV risk category (defined according to the ESC/EAS 2019 guidelines) and ≥ 1 General Practice appointment in the three years prior to the date of inclusion (date of entry into the respective risk category) were analyzed. This analysis focused on the composite endpoint of 10-year risk of death (from any cause) or ASCVD hospitalization, by CV risk level. Death and hospitalization data were obtained from the corresponding ICD-9-CM and ICD-10-CM codes. Cox regression, sex- and age-adjusted, clustered per patient was used.



PO 140 Figure

Results: The total cohort consisted of 78,459 patients (low risk = 32.6%, intermediate = 28.8%, high = 21.6%, very high = 17.0%). Sociodemographic and clinical characteristics by CV risk, at the time of entry into the risk category, are depicted in the table. The 10-year risk of death or hospitalization for ASCVD was 1.7 times higher in intermediate-risk patients (HR = 1.7; 95%CI: 1.6-1.9), 2.7 times higher in high-risk (HR = 2.7; 95%CI: 2.5-2.9) and 5.3 times higher in very high-risk (HR = 5.3; 95%CI: 4.9-5.7) compared to patients with low risk.

Conclusions: This real-world evidence show an increased risk of death or ASCVD hospitalization in patients in higher CV risk categories, independently of sex and age, reinforcing the need of more effective disease management as patients' CV risk increases. This corroborates the recommendations put forward by the ESC guidelines.

Table 1 – Sociodemographic and clinical characteristics by CV risk, at the time of entry into the risk category

	Low risk	Intermediate risk	High risk	Very high risk
Age, years (median (IQR))	33.0 (18.0)	57.0 (11.0)	65.0 (16.0)	70.0 (18.0)
Males (%)	41.3	45.7	49.3	55.0
Most common comorbidities (%)				
Hypercholesterolemia	10.8	49.2	56.9	57.2
Hypertension	1.7	20.0	27.6	47.3
Type II DM	0.5	5.0	25.3	49.2
CKD	0	0	19.1	28.2
Intermediate CV risk criteria (%)				
SCORE [1, 5[%	-	97.0	-	-
Healthy T2DM	-	3.0	-	-
Young T1DM	-	0	-	-
High CV risk criteria (%)				
GFR 30-60%	-	-	19.1	-
Unhealthy T2D	-	-	24.9	-
HTN G3	-	-	1.9	-
High TC	-	-	3.7	-
Familial Hypercholesterolemia	-	-	0.5	-
High LDL-C	-	-	18.3	-
SCORE [5, 10[%	-	-	37.2	-
Very high CV risk criteria (%)				
Severe Kidney Function	-	-	-	12.3
ASCVD	-	-	-	23.0
Damaged DM	-	-	-	20.1
T2D and 3+ Major Risk Factors	-	-	-	24.4
Unhealthy FH	-	-	-	3.0
SCORE > 10%	-	-	-	21.5
Long T1DM	-	-	-	0
Risk enhancers AHA 18 (%)				
Early Heart Disease	0	0	0	2.1
LDL-C [160, 190[, mg/dL	1.8	13.3	7.7	10.3
HDL-C [190, 220[, mg/dL	1.4	12.0	10.5	10.3
Metabolic Syndrome	32.0	91.8	93.5	95.9
eGFR [15, 60] mL/min	0	0	19.1	26.6
Menopause < 40y	0	0	0	0
Preeclampsia	0	0	0.1	0.1
Hypertriglyceridemia, Primary	1.0	4.2	6.0	8.4
Lipid lowering treatment (LLT) (%)				
Any LLT	5.2	38.7	43.6	57.1
Low intensity statin	0.5	4.5	5.5	6.9
Moderate intensity statin	3.9	30.9	34.5	45.8
High intensity statin	0.1	0.8	0.8	1.5
Ezetimibe	0.2	1.8	2.0	3.0
Fibrates	1.2	6.3	7.4	10.7
Lipid panel (mean (SD))				
LDL-C, mg/dL	116.8 (43.0)	127.0 (45.0)	136.0 (70.7)	125.0 (48.0)
HDL-C, mg/dL	44.0 (15.0)	48.0 (16.5)	48.0 (17.0)	45.0 (16.0)
non HDL-C, mg/dL	140.0 (49.0)	152.3 (51.7)	161.0 (69.0)	154.0 (51.0)
TC, mg/dL	185.1 (50.0)	202.0 (55.0)	211.0 (69.0)	201.6 (53.0)
TG, mg/dL2	98.0 (70.0)	108.0 (69.0)	119.0 (79.0)	121.0 (80.0)

PO 141 Figure

PO 142. DO ATHEROSCLEROTIC EVENTS CHANGE LIPID LOWERING THERAPY USE IN CLINICAL PRACTICE?THE ANSWER WITH RWE

Daniel Seabra[1], Cristina Gavina[1], Francisco Araújo[2], Marta Afonso-Silva[3], Diana Grangeia[3], Tiago Taveira-Gomes[4]

[1]Unidade Local de Saúde de Matosinhos, EPE/Hospital Pedro Hispano. [2]Hospital dos Lusíadas, Lisboa. [3]Novartis Farma - Produtos Farmacêuticos SA, Porto Salvo. [4]Departmento de Medicina da Comunidade, Informação e Decisão em Saúde, Faculdade de Medicina, Universidade do Porto.

Introduction: Acute atherosclerotic cardiovascular events (ASCV) significantly increase risk of its recurrence and should prompt lipid

	Myocardial Infarction	Peripheral Artery Disease	Ischemic Stroke	Recurrent events <2y
n	1817	762	5251	2807
Age, years (median (IQR))	66.0 (20.0)	71.0 (18.0)	71.0 (20.0)	70.0 (21.0)
Males (%)	64.2	62.9	43.4	53.3
LLT medication 1y pre-event (%)				
Low intensity statin	6.3	6.6	6.1	7.5
Moderate intensity statin	58.1	50.9	42.9	67.1
High intensity statin	3.3	4.9	1.9	4.8
High intensity statin+ezetimibe	0.3	0.8	0.3	0.4
Moderate intensity statin+ezetimibe	1.4	2.0	1.1	2.2
Low intensity statin + ezetimibe	1.0	1.6	0.9	1.25
Ezetimibe	1.7	2.1	1.1	2.3
Fibrates	5.2	6.8	3.7	5.2
PCSK9 inhibitors	0.0	0.0	0.0	0.0
Other	0.1	0.4	0.0	0.1
LLT medication 1y post-event (%)				
Low intensity statin	9.2	7.0	8.4	7.0
Moderate intensity statin	82.2	63.4	60.7	70.6
High intensity statin	18.1	10.8	7.6	12.3
High intensity statin+ezetimibe	2.6	1.3	1.1	1.9
Moderate intensity statin+ezetimibe	7.1	5.0	3.2	5.2
Low intensity statin + ezetimibe	2.8	2.4	1.8	2.2
Ezetimibe	7.9	4.9	3.7	5.8
Fibrates	8.7	7.6	6.1	6.1
PCSK9 inhibitors	0.0	0.0	0.0	0.0
Other	0.6	0.7	0.1	0.3
LLT switches post-event (%)				
LLT Step up	19.1	9.9	9.8	11.0
LLT Step down	18.7	10.1	9.3	12.3
≥ 50% LDL-C reduction 1y post-event (%)	25.9	32.5	22.1	17.4
LDL-C 1y post-event (mg/dl)	100.0	105.0	107.0	102.0
Control LDL-C ESC 2019 pre-event (%)	2.8	4.1	2.1	3.4
Control LDL-C ESC 2016 pre-event (%)	8.6	11.3	6.7	10.2
Control LDL-C ESC 2019 3M post-event (%)	3.7	4.7	3.0	4.1
Control LDL-C 2016 3M post-event (%)	11.8	13.8	9.3	12.3
Control LDL-C ESC 2019 1y post-event (%)	4.9	4.7	3.3	4.4
Control LDL-C ESC 2016 1y post-event (%)	15.9	13.1	10.3	14.4

lowering therapy (LLT) intensification towards more ambitious targets. This study aims to analyze LLT changes after an ASCV and respective LDL-C control.

Methods: Retrospective population-based study from a region of Northern Portugal. Population was composed of patients with ≥ 1 General Practice appointment in the three years prior to the index date. We created incident cohorts for Myocardial Infarction (MI), Peripheral Artery Disease (PAD), Ischemic stroke (IS), Recurrent ASCV (2+ events at most 2 years apart). We performed descriptive analysis of the cohorts at baseline (pre-event) and reported LDL-C control and LLT switches at discharge time (post-event) and at 1-year follow-up.

Results: Moderate intensity statins monotherapy is the most used LLT before and after ASCV. After ASCV hospitalization, LLT is upscaled in 19.1% of MI patients, in 9.9% of PAD, in 9.8% of IS and in 11.0% of recurrent events patients. LDL-C mean absolute value 1-year after the ASCV is 100 mg/dl, 105 mg/dl, 107 mg/dl and 102 mg/dl for patients with MI, PAD, IS, and recurrent events, respectively. LDL-C target values are achieved in < 5% of the patients (Table).

Conclusions: These real-world data show that LLT is not adequately adjusted for goals after an acute cardiovascular event, which may explain the low rate of patients with LDL-C at the therapeutic target recommended in the Guidelines. There is a need to optimize LLT in clinical practice in order to reduce ASCV and mortality.

PO 143. URIC ACID AS A RISK FACTOR FOR CARDIOVASCULAR DISEASE AND MORTALITY

M. Raquel Santos[1], Maria Isabel Mendonça[1], Margarida Temtem[1], Débora Sá[1], Ana Célia Sousa[1], Sónia Freitas[1], Eva Henriques[1], Mariana Rodrigues[1], Sofia Borges[1], Ilídio Ornelas[1], António Drumond[1], Roberto Palma dos Reis[2]

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

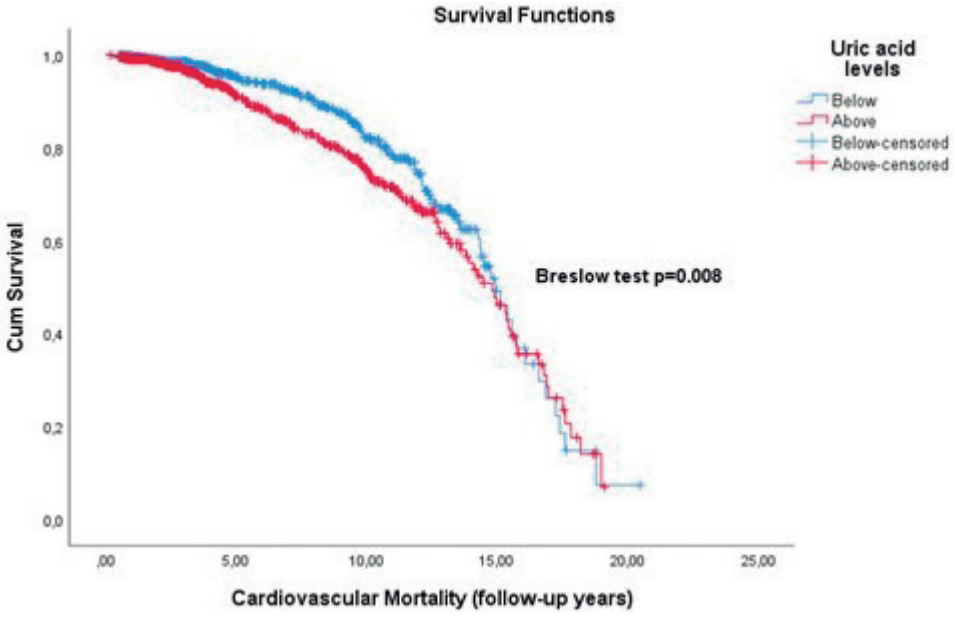
Introduction: Several studies show a central role for high uric acid (UA) levels in several conditions as diabetes, hypertension, dyslipidemia, kidney failure, coronary artery disease (CAD), and cardiovascular (CV) mortality. Most guidelines recommend treating symptomatic patients even with a stabilized plasmatic level of ≤ 6 mg/dL. Treatment of asymptomatic patients remains hotly debated.
Objectives: To estimate whether high UA levels were an independent risk factor to CAD in general or within specific sub-groups: diabetes, hypertension, dyslipidemia and kidney failure and to evaluate their association with CV mortality at the follow-up.
Methods: We performed a case-control study with 3,160 participants (1,723 patients and 1,437 controls), evaluating whether the UA levels (> median) were a risk factor to CAD as well as to the specific sub-groups diabetes, hypertension, dyslipidemia and kidney failure, using bivariate and multivariate analyses. After, we managed a prospective study with 1,723 coronary patients followed a mean of 4.9 ± 3.4 years. Using Cox analysis, we estimated whether the UA high levels were a risk factor for CAD and CVD mortality and assessed the statistical difference in survival for two UA groups (above and below the median) with the Kaplan-Meier survival analysis.
Results: The median value was 6.01 mg/dL, and values above the median were considered as having hyperuricemia. Although there was a significant predisposition for CAD with values > 6 mg/dL in bivariate analyses, this was not maintained after multivariate analysis, except in the diabetic subgroup. In the Cox analyze, the UA > 6.01 had a hazard ratio (HR) of 1.4 (p = 0.020) for CV mortality and 1.9 (p < 0.0001) for diabetes. Kaplan Meier showed that patients below the median had better survival at the follow-up end (p = 0.008).
Conclusions: High UA levels were an independent predictor of cardiovascular mortality in our work. This risk factor showed independent CAD risk only in diabetic patients. This point may allow identifying patient's sets that are likely to benefit from long-term uric acid-lowering therapies.

PO 144. IMPORTANCE OF A GENETIC SCORE IN ASSESSING THE RISK OF ARTERIAL STIFFNESS

Ana Célia Sousa[1], Maria Isabel Mendonça[1], André Ferreira[1], Diogo André[1], Fabiana Gouveia[1], Jéssica Chaves[1], Mariana Rodrigues[1], Sofia Borges[1], Eva Henriques[1], Sónia Freitas[1], Ana Isabel Freitas[1], Maria João Oliveira[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: Arterial stiffness is a risk factor for cardiovascular disease and can be assessed by the gold standard technique carotid-femoral pulse wave velocity (PWV). Several factors have been previously described as associated with increased arterial stiffness, including genetic factors, but sometimes results are unclear.
Objectives: Create a score with pathophysiologically associated genes to determine the risk of increased arterial stiffness.
Methods: In a sample of 1,712 individuals, we evaluated the arterial stiffness through cfPWV determination by the Complior method. Population was stratified into two groups: 171 cases with PWV≥ 10m/s (mean age 56.70 ± 8.43; 60.8% male) and 1,541 controls with PWV < 10m/s (mean age 50.39 ± 7.53; 49.9% male). All collected blood for biochemical and genetic analysis. Fourteen genetic variants were selected: those of the renin-angiotensin-aldosterone system (AGT rs4762, AGT rs699, ACE rs4340, ACE rs4343, AGT1R rs5186, CYP11B2 rs1799998); those for sodium and water balance (SCNN1G rs5718 and ADD1 rs4961); those for the Sympathetic Adrenergic System (ADRβ1 rs1801253 and ADRβ2 rs1042713) as well as other genes that act in other systems such as CYP17A1 rs11191548, ATP2B1 rs2681472, SLC4A2 rs2303934 and GNβ3 rs5443. Odds ratio (OR) was calculated for each variant and a multiplicative genetic risk score (mGRS) was calculated. This score was divided into tertiles, with the 1st tertile as the reference class and we compared the 3rd with the 1st tertile in relation to PWV increase.
Results: The highest tertile of genetic score presented an increased PWV risk with an OR of 2.186 (1.462-3.270) compared to the 1st tertile, with statistical significance (p < 0.0001) (Table).
Conclusions: The results of this study show that the mGRS, based on pathophysiological genetic markers, were associated with higher PWV values. This score can be very useful in predicting the arterial stiffness increase and, consequently, the cardiovascular risk in general population.



PO 143 Figure

mGRS	Cases PWV ≥10	Controls PWV <10	OR (CI 95%)	p-value
1st Tertile	39 (33.1%)	531 (51.9%)	2.186 (1.462-3.270)	*<0.0001*
3rd Tertile	79 (66.9%)	492 (48.1%)		

mGRS – multiplicative Genetic Risk Score; PWV – Pulse Wave Velocity;
OR – Odds ratio; CI – Confidence interval. Statistically significant for p<0.05

PO 144 Figure

PO 145. ANTITHROMBOTIC STRATEGIES AFTER LAA OCCLUSION - IS THERE A WINNING STRATEGY?

Ana Beatriz Garcia, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Abrantes, João Fonseca, Miguel Azaredo Raposo, Ana Rita Francisco, João Silva Marques, Miguel Nobre Menezes, Fausto J. Pinto, Pedro Cardoso

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Introduction: Left atrial appendage occlusion (LAAO) is an alternative for patients (pts) with atrial fibrillation at risk of stroke or embolic events, especially those with hemorrhagic events under anticoagulation therapy or at high bleeding risk. There are several antithrombotic strategies (ATS) after LAAO depending on the reason leading to the procedure and the patient's bleeding risk, but no consensual strategy.
Objectives: To compare different antithrombotic strategies after LAAO during a 12-year period.
Methods: Single center registry of pts who underwent LAAO. We gathered clinical and procedural characteristics, CHA_2Ds_2VASc and HASBLED scores and antithrombotic therapy. Bleeding events were categorized according to the VARC-3 criteria (minor < 2, major ≥ 2). Differences in stroke or embolic events were assessed. Different ATS were compared: dual antiplatelet therapy (DAT) for 3 or 6 months; single antiplatelet therapy (SAT); oral anticoagulation (OAC); and OAC for 45 days followed by DAT or SAT (a group excluded for its small size and heterogeneity). Efficacy and safety endpoints were defined as embolic events and major bleeding according to HAS-BLED criteria, respectively. For statistical analysis Chi-Square testing and Kaplan-Meier survival curves were used.
Results: A total 139 pts underwent LAAO (mean age 74 ± 8 years, 60.4% male) followed by 4.1 ± 2.8-years.Mean CHADsVASc and HASBLED score was 4.2 ± 1.3 and 3.4 ± 0.9, respectively. Regarding different ATS after LAAO, 4 major groups (92.1% of all pts) were compared: DAT for 3 (16%) or 6 months (51%) followed by SAT up to 12 months or longer; OAC (19%); SAT (6.1%). Safety endpoint was verified in 13% of pts. Comparing the different ATS, bleeding events were observed in 8.4% pts under DAT (2.3 *vs.* 6.1% pts with DAT for 3 *vs.* 6 months), 3.8% anticoagulated and 0.8% treated with SAT. Comparing the ATS, there were no significant statistical differences in bleeding events (p = 0.354), as well as in major and minor bleeding (p = 0.258). No differences concerning hemorrhagic events were seen between 3 and 6 months DAT. Efficacy endpoint occurred in 2.35% of pts. Regarding the different ATS, embolic events were observed in 1.57% pts under DAT for 6 months and 0.78% under SAT. There were no significant statistical differences (p = 0.3) between ATS.
Conclusions: No single antithrombotic strategy following LAAO proved to be superior for either efficacy or safety. A tailored regimen should be sought out for each patient.

Sábado, 23 Abril de 2022 | 17:00-18:00

Sala Jardim de Inverno | Posters (Sessão 4 - Écran 6) - DAC e Cuidados Intensivos 5 - EAMcST

PO 146. THE IMPACT OF OUTPATIENT EMERGENCY MEDICAL SYSTEM IN STEMI PATIENTS UNDERGOING PRIMARY ANGIOPLASTY: A SINGLE-CENTRE EXPERIENCE

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Introduction: In ST-segment elevation myocardial infarction (STEMI), emergency medical system delays importantly affect outcomes. The place of first medical contact may affect the time to reperfusion and consequently affect outcomes, as the most direct transfer to the catheterization laboratory is warranted.

Median (IQR)	Survivors	Nonsurvivors	p
	1-year		
Total ischaemic time	*217 (186)*	*290 (221)*	<0.01
First medical contact to reperfusion	*120 (77)*	*140 (98)*	<0.01
	In-hospital		
Total ischaemic time	*220 (186)*	*300 (245)*	<0.01
First medical contact to reperfusion	*121 (79)*	*154 (99)*	<0.01

PO 146 Figure

Objectives: The authors aimed to retrospectively describe the association between place of first medical contact and STEMI patient's care standards and outcomes.
Methods: Characteristics and outcomes of 1205 consecutive STEMI patients treated in a PCI-centre were collected. Outpatient emergency medical system (EMS) was provided by different vehicles of the Portuguese National Institute of Medical Emergency. Other patients were first observed in primary care centres or in hospitals (PCC/H). Time delays, in-hospital and one-year all-cause mortality were assessed.
Results: A total of 281 patients (23%) were first observed by the EMS and 924 patients (77%) were first observed in PCC/H. Of those first observed in PCC/H, 258 patients (28%) were admitted in the PCI centre. Baseline characteristics were well-balanced between groups, including the percentage of patients that presented in cardiogenic shock (EMS: 6 *vs.* PCC/H: 5%; p = 0.43). Median total ischaemic time was significantly lower in patients first observed by EMS when compared to patients admitted in PCC/H (182 min *vs.* 246 min, respectively. p < 0.01). Median emergency system dependent time to reperfusion (i.e. first-medical contact to reperfusion) was significantly lower after first contact with EMS instead of direct PCC/H contact (105 min *vs.* 130 min, respectively. p < 0.01). In patients admitted directly in the PCI-centre, median time from first-medical contact to reperfusion was significantly lower than in those first contacted by the EMS (76 min *vs.* 105 min; respectively. p < 0.01). However, the total ischaemic time did not differ between the two groups (EMS 182 min *vs.* PCC/H: 195 min; p = 0.64). First medical contact in a hospital without catheterization laboratory was a strong predictor of time of first-medical contact to artery opening of > 120 min (odds ratio 6.09 95%CI [4.74-7.82]; p < 0.001). The authors observed no association between place of first medical contact and in-hospital mortality (EMS: 5 *vs.* PCC/H 5%, p = 0.94) or 1-year mortality (EMS: 9 *vs.* PCC/H 10%, p = 0.50). Nonetheless, the observed time intervals for nonsurvivors were significantly longer than in survivors (table) and time of first-medical contact to artery opening of > 120 min was a strong predictor of in-hospital (odds ratio 2.51 95%CI [1.42-4.46]; p < 0.01) and 1 year mortality (odds ratio 2.31 95%CI [1.55-3.44]; p < 0.01).
Conclusions: In a contemporary well-organized emergency network, STEMI patients should be first observed by the EMS as it leads to shorter delays treatment. However, less than one-third of the patients with STEMI is first contacted by the EMS.

PO 147. AT THE OUTER EDGE OF STEMI TIME: EVEN AFTER 12 HOURS, THE CLOCK KEEPS TICKING

Mariana Martinho[1], Rita Calé[1], Sara Nabais[2], Alexandra Briosa[1], Ernesto Pereira[1], Ana Rita Pereira[1], Alexandra Briosa[1], João Grade Santos[1], Bárbara Ferreira[1], Diogo Santos Cunha[1], Pedro Santos[1], Sílvia Vitorino[1], Cátia Eusébio[1], Gonçalo Morgado[1], Cristina Martins[1], Hélder Pereira[1]

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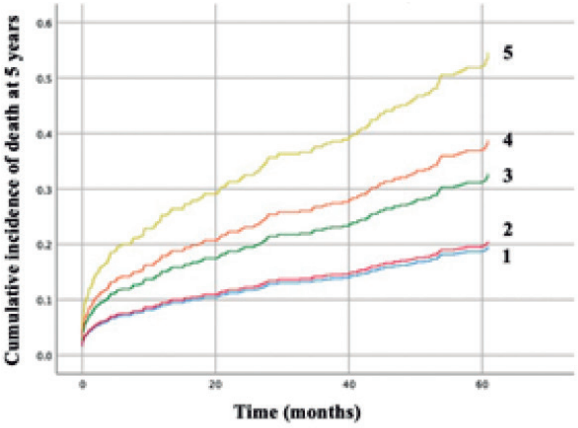
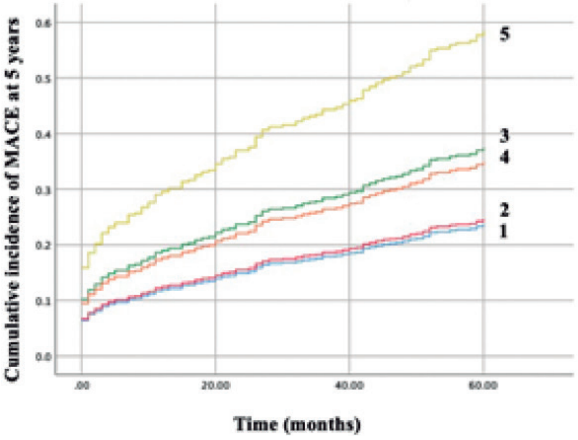
Introduction: Although primary percutaneous coronary intervention (pPCI) is not a class I recommendation in all patients (pts) presenting within 12 to 48h of symptom onset (late ST-segment Elevation Myocardial Infarction, STEMI), there is increasing evidence supporting its routine use in this population. Data on long-term clinical outcomes is sparse.
Objective: To evaluate long-term MACE in late-STEMI pts submitted to pPCI and compare with clinical outcomes of early reperfusion groups.
Methods: Retrospective analysis of consecutive pts submitted to pPCI due to STEMI between 2010 and 2015 in a pPCI centre. Included pts were stratified in 5 groups according to symptom-to-balloon time (SBT): <3h; 3-6h; 6-12h; 12-24h; 24-48h. Of a total of 903pts, 19pts were excluded due to SBT >48h. Long-term events were established as 5y mortality and 5y-MACE (a composite endpoint of death, re-infarction, heart failure hospital admission



SBT groups	5y-Mortality		HR	95%CI	P-value
	No (n,%)	Yes (n,%)			
(1) <3h	341 (83.0%)	70 (17.0%)			
(2) 3-6h	176 (81.9%)	39 (18.1%)	1.05	0.71-1.55	0.822
(3) 6-12h	103 (72.5%)	39 (27.5%)	1.67	1.23-2.47	0.011
(4) 12-24h	48 (67.6%)	23 (32.4%)	1.98	1.23-3.17	0.005
(5) 24-48h	17 (60.7%)	11 (39.3%)	2.78	1.47-5.25	0.002

$\chi^2(4)=19.43$; p=0.001



SBT groups	5y-MACE		HR	95%CI	P-value
	No (n,%)	Yes (n,%)			
(1) <3h	327 (79.8%)	83 (20.2%)			
(2) 3-6h	169 (78.6%)	46 (21.4%)	1.04	0.73-1.49	0.830
(3) 6-12h	99 (69.2%)	44 (30.8%)	1.59	1.10-2.29	0.013
(4) 12-24h	50 (70.4%)	21 (29.6%)	1.48	0.92-2.38	0.111
(5) 24-48h	16 (57.1%)	12 (49.2%)	2.48	1.35-4.54	0.003

$\chi^2(4)=14.26$; p=0.007

PO 147 Figure

and ischemic stroke). The cumulative incidence of long-term outcomes was calculated by the Cox regression analysis and presented according to the Kaplan-Meier method.
Results: Of the 884pts included in the study, stratification according to SBT was: pPCI<3h (47.4%), pPCI 3-6h (24.9%), pPCI 6-12h (16.5%), pPCI 12-24h (8.0%), and pPCI 24-48h (3.2%). These groups showed no significant difference in terms of demographic characteristics (age, CV risk factors, previous coronary disease or heart failure), clinical severity (systolic arterial pressure, Killip-Kimball class, left ventricle ejection fraction) and angiography findings (multivessel disease, complete revascularization and PCI success). After a median follow-up of 76(56;98) months, 5-year mortality was 20.6% (182pts) and 5-year MACE was 23.3% (206pts). MACE was associated with increased median SBT: 5.0(2.0;9.0) hours vs 4.0 (2.0;6.5) hours, p<0.001. Of the MACE components, the only that showed a significant association with higher median SBT was mortality: 5.0(2.0;10.0) hours vs 4.0(2.0;6.0), p<0.001. Differences in long-term outcomes were significant when considering SBT stratified by revascularization time (figure 1).
Conclusions: As expected, there is a clinical benefit of early reperfusion for long-term cardiovascular events. Within the late-STEMI group, there seems to be a clear distinction between pPCI<24h and >24h, although the clinical benefit of pPCI timing most probably acts a continuum.

PO 148.STEMI TREATMENT IN REMOTE LOCATIONS: AN UNCOMMON REALITY

M. Inês Barradas, Fabiana Duarte, Luís Resendes de Oliveira, Cátia Serena, António Xavier Fontes, André Viveiros Monteiro, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: In remote locations, lack of specialized medical facilities, long distance transfer and emergency medical system organization remains a challenge and fibrinolysis is necessary to achieve revascularization in optimal timing in ST-elevation myocardial infarction (STEMI) patients. Our angioplasty center is the only one located in a remote region composed of several locations, some of which do not have hospital facilities and only have small family health care units.
Objectives: To evaluate the reality and outcomes of our interventional angioplasty center and compare cardiovascular outcomes between STEMI patients from the central hospital and remote locations.
Methods: We retrospectively enorolled 121 consecutive patients with STEMI admitted to our center during one year. Patients from the locality where the center is situated underwent primary percutaneous coronary intervention (PCI) (group 1, n = 75) and patients from remote locations underwent fibrinolysis followed by transference to our center with facilitated or rescue PCI (group 2, n = 41). A subanalysis of the far remote locations was performed. Primary outcome was defined as cardiovascular (CV) death or re-infarction at 2 years and secondary outcome as intrahospital haemorrhagic complications.
Results: Mean age was 58.27 ± 12.67 years, 84.3% were males and mean follow up was 30.75 ± 6.44 months. Sixty-seven patients (55.4%) were active smokers, 53 (43.8%) had dyslipidaemia, 24 (19.8%) obesity, 22 (18.2%) previous acute coronary syndrome and 22 (18.2%) diabetes. Troponin I peak was 126.35 ± 150.73 ug/L and 16 (13.2%) were in Killip Class III/IV. Infarct-related artery was the left anterior descending artery in 57 (47.1%) and multivessel disease was present in 48 (39.6%). In group 1 reperfusion after PCI was achieved in 92.0%. In group 2, 68.3% met criteria for reperfusion after fibrinolysis and 22.0% after rescue PCI. Mean time from fibrinolysis to PCI was 654 ± 869 minutes. Rates of successful revascularization did not differ between groups, as well as complete patency of the culprit-vessel defined as thrombolysis in myocardial infarction (TIMI) flow 3 (91.9 *vs*. 88.9% and 89.2 *vs*. 94.4% respectively for group 1 and 2). CV death at two years occurred in 4 (3.3%) patients and re-infarction in 12 (9.9%), similar between groups (3 (4.0%) *vs*. 1 (2.5%) and 7 (9.3%) *vs*. 5 (12.2%) respectively) as well as minor (2 (2.7%) *vs*. 1 (2.4%)) and major (7 (9.3%) *vs*. 4 (9.8%)) haemorrhagic complications. Twenty-two (18.2%) patients were from far remote locations without hospital facilities and when comparing these patients with the others there was also no difference in primary outcome.
Conclusions: Even in remote locations, an organized STEMI network with attempted fibrinolytic treatment and coordinated transference to a PCI center can provide successful revascularization with CV outcomes similar to those submitted to primary PCI.

PO 149. THE OBESITY PARADOX IN ACUTE ST-ELEVATED MYOCARDIAL INFARCTION

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Introduction: It is proposed that among patients with certain chronic diseases (including chronic kidney disease, chronic heart failure, or chronic obstructive pulmonary disease), those with overweight or obesity are associated with survival advantages. These paradoxical findings are known as the "obesity paradox". This phenomenon has also been described in patients with coronary artery disease.
Objectives: The objective of this study is to evaluate the impact of obesity on the presentation, treatment and prognosis of patients hospitalized for ST-elevated Myocardial Infarction (STEMI).
Methods: A retrospective study of patients admitted with a STEMI in the cardiology department of a tertiary centre was performed. Clinical, analytical, angiographic and sonographic parameters were evaluated on admission, as well as at 12-month follow-up. The patients were then divided into 2 groups: group A (GA) obese with a body mass index (BMI) ≥ 30 kg/m^2 and group B (GB) non-obese with a BMI < 30 kg/m^2. SPSS statistical analysis was applied, with a $p < 0.05$ considered to be significant.
Results: A total of 651 patients were evaluated, 73.9% male, age 66 ± 13 years, of which 18.7% were obese. No statistical difference was observed when comparing genders. However, when comparing ages, obese patients were predominantly younger (mean age 61.3 ± 12.8 years in GA *vs*. 67.41 ± 13.4 years in GB, $p < 0.001$). Comparing GA and GB, there was a higher rate of hypertension (72.1 *vs*. 55.8%, $p = 0.001$), dyslipidemia (48.4 *vs*. 39.6%, $p = 0.048$), diabetes mellitus (36.1 *vs*. 19.1%, $p < 0.001$) and obstructive lung disease (11.1 *vs*. 4.5%, $p = 0.017$) in the first group. No statistical differences were found when evaluating previous medication and therapy instituted during hospitalization. Statistical differences were observed when comparing hemoglobin levels (mean 14.7 ± 1.8 g/dl *vs*. 14.1 ± 1.8 g/dl, $p < 0.001$) and triglycerides (152 ± 99.8 mg/dl *vs*. 126 ± 99.3 mg/dl, $p = 0.014$), being higher in GA, while HDL cholesterol levels (38 ± 10.9 mg/dL *vs*. 41 ± 11.0 mg/dL $p = 0.045$) were lower in GA. There was a higher left ventricular ejection fraction (LVEF) in the obese group (58 ± 10.9 *vs*. 52 ± 12.2%, $p < 0.001$). No difference in in-hospital mortality rate (8.2 *vs*. 9.0%, $p = 0.470$) was observed. There was lower mortality in obese patients after 1 year of follow-up (1.0 *vs*. 5.4%, Kaplan-Meier log-rank 0.030). After multivariate analysis, it appears that differences in mortality are dependent on LVEF.
Conclusions: Evidence suggests that obesity is closely related to cardiovascular disease. However, the Obesity Paradox has been described in many diseases, including coronary heart disease. In this study population, although obesity is significantly associated with other cardiovascular risk factors, it seems to act as a protective factor in STEMI patients. This is confirmed with a lower mortality rate after 1-year follow-up.

PO 150. IS SYMPTOMS-BALLOON-TIME A BETTER PROGNOSTIC PREDICTOR?

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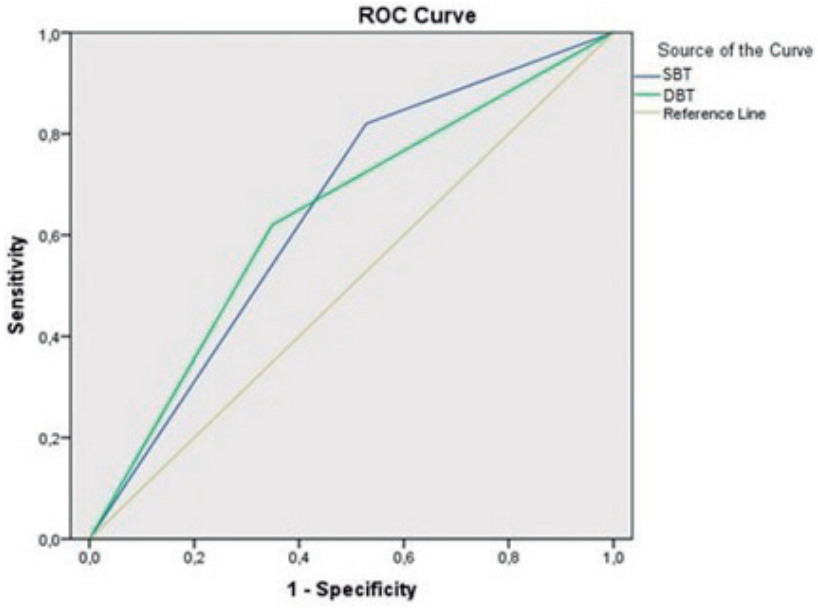
Introduction: There is a strong association between prompt primary PCI as measured by the door to balloon time and improved patients (pts) outcomes.



PO 150 Figure

However ischemia starts even before symptoms. In ST elevation acute myocardial infarction (STEMI), time is crucial, and earlier treatment offers a better prognosis.
Objectives: Evaluate if symptom-to-balloon-time (SBT) is a better outcome predictor than door-to-balloon-time (DBT) in pts with STEMI.
Methods: From a national multicenter registry, we evaluated pts with STEMI who performed emergent coronariography accordingly with DBT > or ≤ 120 min and SBT> or ≤ 240 min. We then evaluated pts who had in-hospital mechanical complications, defined as ventricular wall or interventricular septum rupture, or severe acute mitral regurgitation, due to papillary muscles involvement. We analyzed clinical characteristics, coronary anatomy and intervention. We performed multivariate analysis to assess the impact of DBT and SBT in in-hospital mechanical complications, and their discrimination power in predicting in-hospital mechanical complications, using the area under the ROC curve (AUC) method.
Results: From the 6,461 pts who performed emergent coronariography due to STEMI, DBT was > 120 min in 2,279 and SBT was > 240 min in 3,406. Both DBT > 120 and SBT > 240 min were associated with higher IMC (0.5 *vs.* 1.5%, p < 0.001 and 0.3 *vs.* 1.2%, p < 0.001). Mechanical complications occurred in 50 pts (77% male, 63 ± 13 years old). Those with IMC were older (63 ± 13 years old *vs.* 71 ± 13 years old, p < 0.001) and more often female (23 *vs.* 45%, p < 0.001). No difference was found in comorbidities, STEMI localization nor coronary anatomy. Higher creatinine (0.9 (0.8; 1.1) mg/dL *vs.* 1.1 (0.8;1.5) mg/dL, p < 0.001) and glicemia (134 mg/dL (111;175) *vs.* 154 mg/dL (123;209), p = 0.005) values at admission were present in those who had in-hospital mechanical complications. Left ventricular ejection fraction was lower in pts who had IMC (50 ± 12% *vs.* 44 ± 9, p = 0.012). After multivariate analysis, we found that SBT> 240 min and PBT > 120 min are IMC independent predictors (respectively, OR 2.980; 95%CI [1.370-6.485], p = 0.006, and OR 2.025; 95%CI [1.093-3.753], p = 0.025). For the cutt-off value of 240 min for SBT (sensitivity of 82% and specificity of 52%), and 120 min for DBT (sensitivity of 62% and specificity of 65%), to predict in-hospital mechanical complications, we found that SBT is a better predictor of in-hospital mechanical complications than DBT (AUC 0.646; 95%CI [0.578-0.714], p < 0.001, and AUC 0.636; 95%CI [0.558-0.714], p = 0.001) (Fig.).
Conclusions: Patients who had in-hospital mechanical complications were older and were more often of female gender. These also presented with higher creatinine and glicemia values and lower left ventricular ejection fraction. We found that symptom-to-balloon-time is a better in-hospital mechanical complication predictor than door-to-balloon-time.

Sábado, 23 Abril de 2022 | 17:00-18:00

Sala Jardim de Inverno | Posters (Sessão 4 - Écran 7) - Intervenção Cardíaca Coronária e Estrutural 2 - Foco na Doença Estrutural Não Valvular

PO 151. PERCUTANEOUS PATENT FORAMEN OVALE CLOSURE: 18 YEARS' EXPERIENCE IN A TERTIARY CENTRE

Carolina Saleiro, Sara Matos, Telma Alves, Diana de Campos, Manuel Oliveira-Santos, Fernando Silva, Gustavo Santo, João Sargento Freitas, Luís Paiva, Marco Costa, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Geral.

Introduction: Patent foramen ovale (PFO) is implicated in several medical conditions. Percutaneous closure is the standard therapy when a high risk PFO is considered to have an important pathogenic role.
Objectives: To assess the feasibility and safety of PFO percutaneous closure.
Methods: 336 consecutive patients who underwent PFO closure between 06/2003 and 11/2021 were included in the analysis. Demographic, imagological, and procedural data were collected. Short-term follow-up was done during hospitalization and long-term at 12 [6-29] months.
Results: Mean age was 47 ± 11 years old, with 55.7% female patients. Comorbidity with CV risk factors was low: 27% HTN, 25.9% dyslipidaemia; 16.3% overweight/obesity; 15.7% active smoking; 6.2% DM and 6.5% SOAS. Comorbidity with headache was present in almost a quarter. 4.5% of the patients had history of venous embolism and 16.1% confirmed prothrombotic state. The main indication for closure was previous stroke/transitory ischemic attack (91.1%). Mean RopE Score was 6.8 ± 1.6; mean PFO risk characteristics was 4 ± 2 (aneurismatic septum 41.8%, moderate shunt 14.5%; severe shunt 68.5%; septum hypermobility 41.1%; long tunnel 73.6%; Chiari web 0.9%; large PFO 62.3%). Amplatzer device was employed more frequently (70.6%) followed by Premere (14.8%). The procedure was guided both by fluoroscopy and intracardiac echocardiography. Mean fluoroscopy time was 7.4 ± 4.6 minutes and effective radiation dosage 172 ± 182 mGy. Procedural complication rate was 1.2%: 1 patient had device embolization resolved percutaneously; 3 patients had vascular complications (1 treated conservatively; 1 fistula treated percutaneously and 1 pseudoaneurysm

with need for surgery). No perforations, device thrombosis or periprocedural deaths were reported. Periprocedural atrial arrythmias occurred in 0.7% of the patients. One-month after the procedure, peri device shunt was present in 3.6% of the cases, six-month evaluation with agitated saline showed patent shunt in 7.7% that decreased to 3.6% at one-year. During long-term follow-up, 1.2% of the patients had atrial fibrillation; stroke recurrence rate was 1.5% and all-cause mortality was 1.5%.
Conclusions: Our centre experience shows that percutaneous PFO closure is safe and feasible with a minimal rate of periprocedural complication. Stroke recurrence and atrial fibrillation rates were low during the follow-up.

PO 152. PERMANENT PACEMAKER IMPLANTATION AFTER ALCOHOLIC SEPTAL ABLATION: LONG-TERM OUTCOMES

André Grazina, Sílvia Aguiar Rosa, António Fiarresga, Pedro Garcia Brás, Vera Ferreira, Isabel Cardoso, José Miguel Viegas, Ruben Ramos, Lídia de Sousa, Mário Oliveira, Duarte Cacela, Rui Cruz Ferreira

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

Introduction: Patients with hypertrophic obstructive cardiomyopathy (HOCM) that remain symptomatic despite optimized medical therapy are often submitted to alcohol septal ablation (ASA). One of the most frequent complications is the complete hear block (CHB), requiring permanent pacemaker (PPM) in variable rates, up to 20% of the patients. The long-term impact of PPM implantation in these patients remains unclear.
Objectives: This study aims to evaluate the long-term pacemaker dependency in patients with PPM after ASA and to assess the long-term impact of PPM in these patients.
Methods: In a tertiary center, patients who underwent ASA were retrospectively analyzed. Patients with previous PPM or implantable cardio-defibrillator were excluded. The groups with and without PPM implantation after ASA were compared regarding baseline characteristics, procedure data and outcomes. In the group who implanted PPM, the long-term pacing rates were evaluated.
Results: Between 2009 and 2020, 109 patients underwent ASA. 97 patients were included in this analysis (68% female, mean age 65.2 years-old). 16 patients (16.5%) required PPM implantation for CHB. In those, no vascular access, pacemaker pocket or pulmonary parenchyma complications were noted. The baseline characteristics regarding comorbidities, symptoms, echocardiographic and electrocardiographic findings were identical in the two groups, with statistically significant differences in the mean age (70.6 y/o in the PPM group *vs.* 64.1y/o) and in the beta-blocker therapy rates previously to the intervention (56% in the PPM group *versus* 84%). Procedure-related data showed higher creatine kinase (CK) peaks in the PPM group (1,692 U/L *vs.* 1,243 U/L, p 0.05), without significant differences in the alcohol dose (2.1 ml in both groups, p 0.33). In the PPM group, the mean pacing rates at 1 month, 1 year and 2 years were 66.6 ± 38.0, 50.4 ± 44.1 and 50.8 ± 42.5, respectively, with 2 patients (12.5%) having 1-5% pacing and none having pacing < 1% at 2 years. In the group without PPM, 5 patients (6.2%) required posteriorly PPM implantation during the follow-up. There were no statistically significant differences in the two groups regarding in-hospital mortality, 1 year mortality or 1 year re-hospitalization. Despite a lower mean follow-up period in the PPM group (2.3 ± 1.5 years *vs.* 3.5 ± 2.2 years, p 0.05), there were no differences in the groups regarding all-cause mortality, cardiac cause mortality and all-cause re-hospitalization, with a statistical tendency to a lower cardiac cause re-hospitalization in the PPM group (19 *vs.* 43%, p 0.07).
Conclusions: The registered pacing rates show that all devices were adequately implanted. The long-term impact analysis suggests that the outcomes in patients who implant PPM after ASA are non-inferior to those who do not, with a tendency to reduce the re-hospitalizations for cardiac causes.

	No PM (n=81)	Implanted PM (n=16)	p-value
Pacing rates (%)			
1 month after implantation		66.6 ± 38.0%	
1 year after implantation		50.4 ± 44.1%	
2 years after implantation		50.8 ± 42.5%	
Pacing 1 – 5%		12.5% (n=2)	
Pacing <1%		0% (n=0)	
Outcomes			
PM implantation after discharge	6.2% (n=5)		
In-hospital mortality	0% (n=0)	0% (n=0)	---
1 year mortality	1% (n=1)	0% (n=0)	*p* 0.66
1 year re-hospitalization	23% (n=17)	13% (n=2)	*p* 0.34
Mean follow-up period	3.5 ± 2.2	2.3 ± 1.5	*p* 0.05
All-cause mortality	7% (n=6)	0% (n=0)	*p* 0.26
Cardiac cause mortality	2% (n=2)	0% (n=0)	*p* 0.53
All cause re-hospitalization	43% (n=35)	19% (n=3)	*p* 0.07
Cardiac cause re-hospitalization	23% (n=17)	13% (n=2)	*p* 0.34

Table 1. Long-term pacing rates, mortality and re-hospitalization (PM – Pacemaker)

PO 152 Figure

PO 153. LEFT ATRIAL APPENDAGE OCCLUSION IN PATIENTS WITH CHRONIC KIDNEY DISEASE OR CANCER: AN INTELLIGENT CHOICE?

Ana Margarida Martins, Pedro Silvério António, Sara Couto Pereira, Pedro Alves da Silva, Beatriz Valente Silva, Joana Brito, Catarina Oliveira, Ana Beatriz Garcia, Catarina Gregório, João Santos Fonseca, Ana Rita Francisco, João Silva Marques, Miguel Nobre Menezes, Fausto J. Pinto, Pedro Cardoso

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Introduction: Role of oral anticoagulation (OAC) is well established in preventing stroke and embolic events. However, evidence regarding OAC in this setting is limited in cancer patients (pts). Pts with chronic kidney disease (CKD) are also challenging and evidence is limited for those with CrCl < 30 mL/min, as major clinical trials excluded them. Left atrial appendage occlusion (LAAO) emerged as an alternative to OAC in pts where it may be challenging and thus might represent a good option. However, data regarding LAAO for such cases is also scarce.

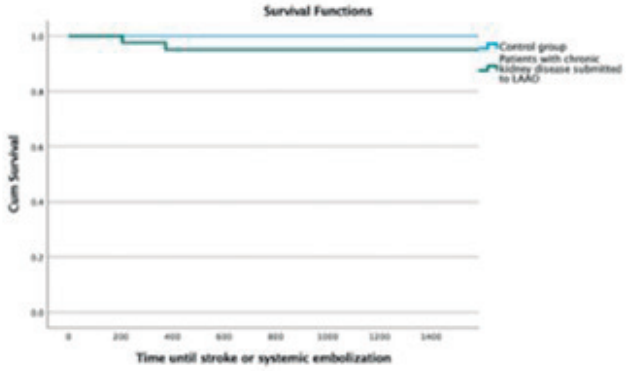

Figure 1: Cumulative survival comparison between patients with CKD and control

Objectives: To evaluate LAAO safety and effectiveness in cancer and CKD pts during a 12-year period.
Methods: From a general cohort pts who underwent LAAO, two subgroups were analysed: (1) pts with history of current or past cancer; (2) CKD, defined as CrCl ≤ 60 ml/min. Pts with CrCl < 30 mL/min were also analyzed. Clinical and demographic characteristics, CHADsVASc and HASBLED score, procedure characteristics, complications and antithrombotic therapy were gathered. Efficacy endpoint was defined as stroke or embolic event and safety endpoint as major bleeding according to HAS-BLED criteria. For statistical analysis, we used Chi-Square test and Kaplan-Meier survival curves.

Results: A total of 139 procedures (59.6% male, mean age 74 ± 8 yrs) were analysed. Mean CHA_2Ds_2VASc and HAS-BLED score was 4.2 ± 1.3 and 3.4 ± 0.9, respectively. CKD was present in 38.8% of pts. The efficacy endpoint occurred more frequently than in non-CKD pts, but the difference was not statistically significant (5.5 *vs.* 1.3%, p = 0.103; Log Rank 2.655). Considering those with CrCl < 30 mL/min (7.9% of the total population), there were also no significant differences when compared to the remaining population regarding the efficacy endpoint (3.1 *vs*. 0%, p = 0.598; Log Rank 0.278). Regarding safety endpoint, there were also no differences between CKD pts and the remainder population (14.8 *vs.* 14.3%, p = p = 0.933). 18.7% had cancer, with hematologic (26%), gastrointestinal (26%) and prostatic (17.4%) accounting for the most common primary tumor locations. There was no statistically significant difference between groups, both regarding efficacy (cancer 0%, control 1.3%, p = 0.342) and safety endpoints (cancer 21.7%, control 14.3%, p = 0.373).
Conclusions: LAAO was an effective and safe strategy in CKD (including those with severe CKD) or cancer populations. Considering the added problems and limited evidence regarding OAC in these pts, LAAO may be considered in such cases.

PO 154. LEFT ATRIAL APPENDAGE OCCLUSION IS AN EFFECTIVE AND SAFE STRATEGY FOR LONG TERM PREVENTION OF STROKE OR SYSTEMIC EMBOLISM

Catarina Simões de Oliveira, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Beatriz Garcia, Ana Margarida Martins, Miguel Azaredo Raposo, Ana Abrantes, Ana Rita Francisco, João Silva Marques, Miguel Nobre Menezes, Fausto J. Pinto, Pedro Cardoso

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

Introduction: Oral anticoagulation (OAC), with either vitamin K antagonists or direct oral anticoagulant agents, has been the mainstay for cardioembolic stroke prevention in atrial fibrillation. Since left atrial appendage (LAA) is the major source of embolism in these patients (pts), mechanical approaches in this setting have been developed, with particular relevance for those with contraindications to OAC or with recurrent events.
Objectives: To describe LAA occlusion (LAAO) safety and effectiveness, using a single center registry during a 12-year period.
Methods: Single center registry of 139 pts submitted to LAAO during a 12-year period. We gathered clinical characteristics, CHADsVASc and HASBLED score, procedure characteristics, complications and ACO therapy. Efficacy endpoint was defined as stroke or embolic event. Safety endpoint was major bleeding according to HAS-BLED criteria. Results were assessed by plotting actual events *versus* expected events according to the risk scores, using Kaplan-Meier curves for analysis.
Results: 139 pts underwent LAAO. 130 Watchman® devices were implanted (22 were WatchmanFlex®). Remaining devices were 5 ACP Amulet® and

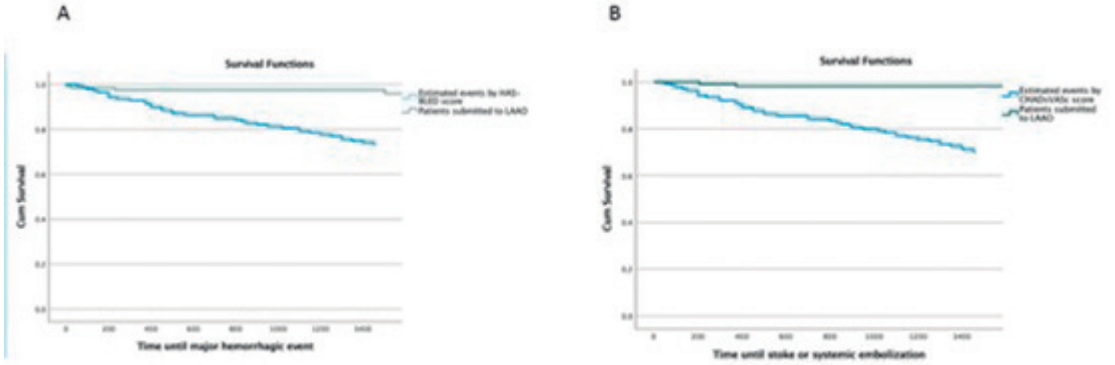

Figure 1: A - Diferences in major hemorragic events between patients submited to LAAO and estimated events by HAS-BLED score; B - Diferences in thrombotic events between patients submited to LAAO and estimated events by CHAD2VASc score

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4 Cardiac Plug®. Majority (60.4%) of pts were male, mean age of 74 ± 8 years. Regarding procedural complications, there were 3 cases of cardiac tamponade in the early stages of the program, all successfully resolved with percutaneous pericardiocentesis. During a mean follow-up period of 4.1 ± 2.8 years, 4 strokes and 1 additional embolic event (mesenteric ischemia) occurred. There were 58 deaths, 3 from cardiovascular causes. Mean CHA2Ds2VASc score was 4.2 ± 1.3, which would theoretically correspond to 41 embolic events (25 strokes) during follow-up. Therefore, a statistically significant reduction in events (5 *vs.* 41, log rank 25.006, p < 0.001) was registered, with a relative risk reduction (RRR) of 88%, which is at least not inferior to the expected effect of OAC. As for hemorrhagic risk, 20 hemorrhagic events (6 major bleeding) were registered. Mean HAS-BLED score was 3.4 ± 0.9, which would correspond to 37 major bleeding events. Once again, a statistically significant reduction in events (37 vs6, LogRank 19.728, p < 0.001), after LAAO, was noted in our study (85% RRR).
Conclusions: LAAO was a safe procedure, with major positive impact in embolic risk reduction, sustained over a long follow-up period. A great number of expected hemorrhagic events were averted by avoiding OAC in selected pts at high risk of bleeding.

PO 155. IS REAL WORLD PATENT FORAMEN OVALE CLOSURE A SAFE AND EFFECTIVE STRATEGY?

Pedro S. Morais, Miguel Nobre Menezes, Ana Rita Francisco, Eduardo Infante Oliveira, Cláudia Jorge, Pedro P Cardoso, Fausto J. Pinto

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

Introduction: Patent foramen ovale (PFO) is a very common and benign finding in the adult population. However, it can enable paradoxical embolism and associates with stroke and systemic embolism (SE). Randomized clinical trials have shown that PFO closure (PFOC) in cryptogenic stroke (CS) patients (pts) associates with lower rates of recurrent stroke and real-world confirmation of this strategy safety and efficacy is lacking.
Objectives: To ascertain the real-world PFOC safety and effectiveness in different clinical settings, with a particular focus on CS.
Methods: Single center registry of 142 pts subjected to PFOC in the 2012-2020 period. Patient clinical profile, RoPE score and procedural aspects were gathered using the institution registry. Complications and clinical recurrence during follow-up (FU) were evaluated using the national health database. Procedural safety was evaluated in terms of vascular access complication, cardiac tamponade and infection. Long term safety was evaluated in terms of bleeding event requiring medical attention during FU. Efficacy was evaluated for the recurrence of transient ischemic attack or stroke (TIAS), systemic embolism (SE) and platypnea-orthodoxia (PO). TIAS recurrence was compared with the expected event rate calculated by the RoPE score.
Results: PFOC was performed on 142 pts using Amplatzer PFO Ocluder®, Hyperion PFOO® and Amplatzer Cribiform Ocluder®. The sizes used were 25 (67%), 35 (14%), 24 (11%), 30 (6%) and 18 mm (2%). Average procedure and fluoroscopy time was 52 and 12 minutes. 51.4% of pts were female. Mean age of 51 ± 13 years. There were very few procedural complications, with only 1 case of cardiac tamponade treated with immediate pericardiocentesis. There were no cases of vascular complication or infection. During a mean follow-up period of 3.2 ± 2 years, only 2 pts had bleeding events requiring medical attention (1 epistaxis and 1 menorrhagia), both after the 6 month period of dual anti-platelet therapy used in 86% of pts. Only 2 pts died during FU, both from metastasized cancer and with no cardiovascular event associated. From the 137 pts treated for TIAS or SE, none had SE, 3 had TIA and 3 had CS from which, 1 was a lung cancer patient with Factor V Leiden thrombophilia recently vaccinated for COVID-19, 1 had a large aortic valve fibroelastoma and the last had a transesophageal echocardiogram failing to show agitated saline passage to the left circulation. From the 5 pts treated for PO, none had further positional dyspnea episodes. Mean RoPE score was 5.4 ± 1.4, predicting from 15.4 to 26.2 embolic events in the study follow-up period, contrasting with the 6 events registered after PFOC, that were in their most part non-PFO related.
Conclusions: During a prolonged follow-up, PFOC proved to be a very safe procedure that allows for significant embolic risk reduction, as well as a valid treatment for platypnea-orthodoxia syndrome.

Sábado, 23 Abril de 2022 | 17:00-18:00

Sala Jardim de Inverno | Posters (Sessão 4 - Écran 8) - Doença Arterial Pulmonar - Foco na Embolia Pulmonar

PO 156. PULMONARY THROMBOEMBOLISM: IS B-TYPE NATRIURETIC PEPTIDE AN EARLIER RISK MARKER?

Lisa Maria Ferraz, Simão Carvalho, Adriana Pacheco, Diana Carvalho, Pedro Carvalho, Ana Faustino, Andreia Fernandes, Ana Neves

Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro.

Introduction: Cardiac troponin I provide prognosis information in patients (P) with acute pulmonary embolism (PE), however the role of B-type natriuretic peptide (BNP) to guide treatment decisions is still uncertain.
Objectives: To evaluate the prognostic impact of BNP elevation in P with PE.
Methods: Retrospective study of 237 consecutive adult P admitted with PE since January 1, 2015 and December 31, 2020: 59.9% (n = 142) women, 69.4 ± 1.1 years. Demographics, risk factors, clinical and laboratorial parameters, transthoracic echocardiogram variables and complications during hospitalization were evaluated. PE severity and risk of early death (PESR) was defined according to the 2019 European Society of Cardiology Guidelines on PE.
Results: At admission, 48.6% of P had BNP elevation and 26.6% had troponin I elevation. All P with troponin I elevation at admission, had also BNP elevation. 5.5% of P with BNP elevation and no troponin I elevation at admission had troponin I elevation 2 ± 3 days later. PESR was classified as intermediate-high in 21.5% and high in 5.7% of P. During hospitalization occurred 20 (8.4%) in-hospital deaths and 18 P (17.6%) undergo fibrinolysis due to hemodynamic instability. On univariate analysis, BNP elevation at admission was predictor of high or intermediate-high PESR (89.2 *vs.* 35.9%; p = 0.04), fibrinolysis (81.8 *vs.* 45.6%; p = 0.02) and in-hospital mortality (92.6 *vs.* 42.9%; p < 0.001). On multivariate analysis, elevated BNP at admission was an independent predictor of in-hospital mortality (OR 1.6; 95%CI 0.31-0.83; p < 0.001). There was a trend for BNP value at admission being predictor of fibrinolysis (438 ± 76 *vs.* 305 ± 69 pg/mL, p = 0.06), without association with high or intermediate-high PESR (571 ± 121 *vs.* 480 ± 101 pg/mL, p = 0.25) or in-hospital mortality (893 ± 245 *vs.* 577 ± 70 pg/mL; p = 0.15). Maximum BNP value during hospitalization was predictor of fibrinolysis (669 ± 104 *vs.* 410 ± 94 pg/mL, p = 0.038) and showed a trend for association with high or intermediate-high PESR (661 ± 157 *vs.* 460 ± 106 pg/mL, p = 0.052) and in-hospital mortality (1,256 ± 290 *vs.* 661 ± 92 pg/mL, p = 0.056).
Conclusions: BNP elevation at admission is associated with greater risk of in-hospital mortality and is present earlier than other well-established risk-markers, suggesting that the elevation of this biomarker, more than the value itself, could be used to refine the currently used scheme for risk stratification of early death.

PO 157. ELECTROCARDIOGRAPHIC SCORE IN PREDICTING DIAGNOSIS AND SEVERITY OF PULMONARY EMBOLISM

Margarida Martins, Beatriz Valente Silva, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Pedro Alves da Silva, Catarina Simões de Oliveira, Ana Beatriz Garcia, Ana Abrantes, Miguel Azaredo Raposo, Miguel Nobre Menezes, Lourenço Garcia, Cláudia Jorge, Nuno Cortez-Dias, Fausto J. Pinto

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

Introduction: Pulmonary embolism (PE) is associated with morbidity and mortality. Immediate recognition of this condition is critical to commencement of early and appropriate therapy which could be lifesaving.

Particularly in patients with suspected PE in which computed tomography pulmonary angiography (CTPA) is not promptly available or is contra-indicated, an electrocardiographic (ECG) score could serve as a ubiquitously available test to raise suspicion of PE. This study aimed to evaluate the diagnostic value of an ECG score for PE diagnosis.
Methods: Retrospective study of consecutive patients who performed CTPA in Emergency Department due to PE suspicion. All ECG were scored according to the previous published Daniel's ECG score, by an investigator blinded for the CTPA result.

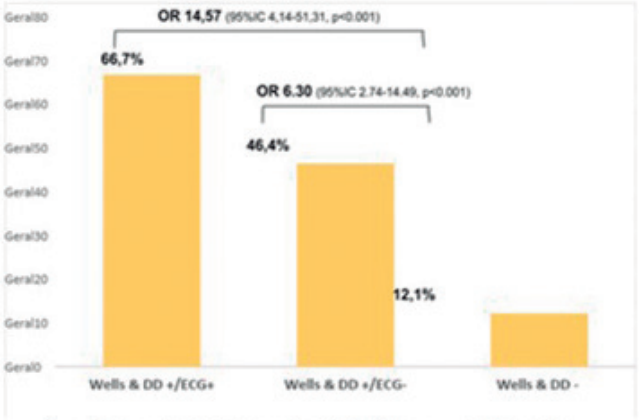

Figure 1: Diagnostic accuracy according to DD, Wells score and ECG variables

Results: The most common ECG findings in patients with PE were incomplete right-brand bock (48%), T wave inversion in DIII (48%), sinus tachycardia (41%) and Q wave in DII (31%). The S1Q3T3 sign was documented in 20% of patients, The ECG score was significantly higher in patients with PE compared to those without PE (5.06 *vs.* 3.70, p = 0.005). ECG score showed moderate accuracy to detect PE (AUC: 0.60; 95%CI: 0.53-0.67; p = 0.004), but it is of a particular value because of very high specificity: an ECG score > 12 identified PE with a specificity of 96% (95%CI 91.93-98.38). The ECG score significantly increased the diagnostic accuracy of the diagnostic algorithm based on pretest clinical probability evaluated by Wells score combined with D-Dimer measurement (Wells & DD). In comparison to patients in which clinical pretest probability combined with D-dimer measurement considers PE excluded (Wells & ECG -), PE was 6.3 times more frequent in patients with Wells & DD +/ECG- (95% 2.7-14.5) and 14.6 times more prevalent in the ones with Wells & DD +/ECG+ (95%CI: 4.1-51.3; p < 0.001) (Fig.).
Conclusions: In patients with clinical suspicion of PE, an ECG score (Daniel's score) > 12 predicts PE with 96% specificity and could be used to increase the suspicion and define therapeutic strategy in patients in whom CTPA could not be immediately performed or is contra-indicated.

PO 158. COMPARISON OF DIFFERENT DIAGNOSTIC MODELS PERFORMANCE IN PATIENTS WITH COVID-19 AND PULMONARY EMBOLISM

João Santos Fonseca, Beatriz Valente Silva, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Carlos Mendonça, Luísa Urbano, Tiago Rodrigues, Cláudia Jorge, Rui Plácido, Fausto J. Pinto

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

Introduction: Pulmonary embolism (PE) is a common complication of SARS-CoV-2 infection. Several diagnostic prediction rules based on pretest probability and D-dimer have been validated in non-COVID patients, but it remains unclear whether they can be safely applied in COVID-19 patients.
Objectives: We aimed to compare the diagnostic accuracy of the standard approach based on Wells and Geneva scores combined with a standard D-dimer cut-off of 500 ng/ml with three alternative strategies (age-adjusted, YEARS and PEGeD algorithms) in COVID-19 patients.
Methods: This retrospective study included all COVID-19 patients admitted to the Emergency Department (ED) who underwent computed tomography pulmonary angiography (CTPA) due to PE suspicion. The diagnostic prediction rules for PE were compared between patients with and without PE.
Results: We included 300 patients and PE was confirmed in 15%. No differences were found regarding comorbidities, traditional risk factors for PE and signs and symptoms between patients with and without PE. Wells and Geneva scores showed no predictive value for PE occurrence, whether a standard or an age-adjusted cut-off was considered. YEARS and PEGeD algorithms were

	Wells score + DD threshold of 500 ng/mL	Geneva score + DD threshold of 500 ng/mL	Wells score + age-adjusted DD cut-off	Geneva score + age-adjusted DD cut-off	YEARS algorithm	PEGeD algorithm
Sensitivity, %	**95.65** [85.16-99.47]	**95.65** [85.16-99.47]	**89.13** [76.43-96.38]	**89.13** [76.43-96.38]	**86.96** [73.74-95.06]	**84.78** [71.13-93.66]
Specificity, %	**8.27** [5.19-12.36]	**8.27** [5.19-12.36]	**15.35** [11.15-20.39]	**15.35** [11.15-20.39]	**31.10** [25.46-37.19]	**31.23** [25.57-37.33]
Positive predictive value, %	**15.88** [11.79-20.73]	**15.88** [11.79-20.73]	**16.02** [11.74-21.09]	**16.02** [11.74-21.09]	**18.60** [13.64-24.46]	**18.31** [13.36-24.17]
Negative predictive value, %	**91.30** [71.96-98.93]	**91.30** [71.96-98.93]	**88.64** [75.44-96.21]	**88.64** [75.44-96.21]	**92.94** [85.27-97.37]	**91.86** [83.95-96.66]
Positive likelihood ratio	**1.04** [0.97-1.12]	**1.04** [0.97-1.12]	**1.05** [0.94-1.18]	**1.05** [0.94-1.18]	**1.26** [1.10-1.45]	**1.23** [1.06-1.43]
Negative likelihood ratio	**0.53** [0.13-2.17]	**0.53** [0.13-2.17]	**0.71** [0.29-1.70]	**0.71** [0.29-1.70]	**0.42** [0.19-0.90]	**0.49** [0.24-0.99]
Diagnostic odds ratio	**1.98** [0.45-8.76]	**1.98** [0.45-8.76]	**1.49** [0.55-4.00]	**1.49** [0.55-4.00]	**3.01** [1.23-7.39]	**2.53** [1.08-5.90]
AUC	**0.520** [0.431-0.608]	**0.520** [0.431-0.608]	**0.521** [0.432-0.610]	**0.521** [0.432-0.610]	**0.589** [0.506-0.672]	**0.580** [0.496-0.664]
Correctly avoided CTPA, n	**21**	**21**	**39**	**39**	**79**	**79**
Missed PE diagnosis, n	**2**	**2**	**5**	**5**	**6**	**7**

Table 1. Diagnostic accuracy of Wells and Geneva scores combined with a fixed and an age-adjusted cut-off, YEARS algorithm and PEGeD algorithm to predict pulmonary embolism in COVID-19 patients. Abbreviations: DD, D-dimer; AUC, area under the curve.

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associated with increased specificity (19% CTPA reduction) but raising non-diagnosed PE. Despite elevated values in all patients, those with PE had higher D-dimer levels. However, incrementing thresholds to select patients for CTPA was also associated with a substantial decrease in sensitivity.
Conclusions: None of the diagnostic prediction rules are reliable predictors of PE in COVID-19. Our data favour the use of a D-dimer threshold of 500 ng/ml, considering that higher thresholds increase specificity but limits this strategy as a screening test.

PO 159. AGE-DEPENDENCE PERFORMANCE OF DIAGNOSTIC PREDICTION RULES FOR PULMONARY EMBOLISM

Pedro Alves da Silva, Beatriz Valente Silva, Carlos Mendonça, Luísa Urbano, Tiago Rodrigues, Cláudia Jorge, Rui Plácido, Joana Brito, Pedro Silvério António, Sara Couto Pereira, Fausto J. Pinto

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

Introduction: Ruling out pulmonary embolism (PE) through a combination of clinical assessment and D-dimer is crucial to avoid excessive computed tomography pulmonary angiography (CTPA). We aimed to compare the diagnostic accuracy of the standard approach based on Wells and Geneva scores combined with a standard D-dimer cut-off (500 ng/mL), with three alternative strategies (age-adjusted, YEARS and PEGeD algorithms) in patients admitted to the Emergency Department (ED) due to PE suspicion.
Methods: Consecutive outpatients admitted to the ED who underwent CTPA due to PE suspicion were retrospectively evaluated. Sensitivity, specificity, positive and negative predictive values, likelihood ratios and diagnostic odds ratio were calculated and compared among the different diagnostic prediction rules.
Results: We included 1,402 patients (mean age 69 ± 18.32 years, 54% female), and PE was confirmed in 25% of them. Using an age-adjusted strategy increased specificity compared to the standard approach ($p < 0.001$), with a non-significant decrease in sensitivity only in patients over the age of 70. YEARS and PEGeD algorithms, despite the most specific of all prediction rules for all spectrum of ages, were associated with a significant decrease in sensitivity ($p < 0.001$) compared to the standard and age-adjusted approaches, particularly in patients under 60 years (sensitivity of 81% in patients aged between 51 and 60 years).
Conclusions: Compared to the standard approach, all algorithms were associated with increased specificity. The age-adjusted strategy was the only one that was not associated with a significant decrease in sensitivity compared to the standard approach, allowing to reduce CTPA requests safely.

PO 160. ECHOCARDIOGRAPHIC DATA IN ACUTE PULMONARY EMBOLISM – WHAT IS THE PROGNOSTIC VALUE IN THE REAL WORLD?

Fabiana Silva Duarte, M. Inês Barradas, Luís Oliveira, Cátia Serena, António Fontes, André Viveiros Monteiro, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Echocardiographic evaluation performed on admission after the diagnosis of pulmonary embolism is used for risk stratification in these patients. The individual prognostic value of the echocardiographic parameters and its association with the clinical data is still being studied.
Objectives: To determine the impact of echocardiographic parameters (TAPSE, PSAP e TAPSE/PSAP), as well as its association with the clinical evaluation in the patient's prognosis.
Methods: Single centre retrospective study, evaluating 131 patients admitted by acute pulmonary embolism between January 2017 and December 2020. Mean age was 67.6 ± 15.3 years, 38 patients were male (29.0%). The patients were stratified according to the European Cardiology Association

A

Age group	Wells score + DD threshold of 500 ng/mL	Geneva score + DD threshold of 500 ng/mL	Wells score + age-adjusted DD cut-off	Geneva score + age-adjusted DD cut-off	YEARS algorithm	PEGeD algorithm
≤ 50 (n=233)	87.72 (76.32-94.92)	87.72 (76.32-94.92)	87.72 (76.32-94.92)	87.72 (76.32-94.92)	82.09 (70.80-90.39)	77.61 (65.78-86.89)
51-60 (n=153)	94.59 (81.81-99.34)	94.59 (81.81-99.34)	94.59 (81.81-99.34)	94.59 (81.81-99.34)	81.08 (64.84-92.04)	81.08 (64.84-92.04)
61-70 (n=227)	96.15 (86.79-99.53)	96.15 (86.79-99.53)	96.15 (86.79-99.53)	96.15 (86.79-99.53)	96.15 (86.79-99.53)	96.15 (86.79-99.53)
71-80 (n=323)	98.77 (93.31-99.97)	98.77 (93.31-99.97)	95.06 (87.84-98.64)	95.06 (87.84-98.64)	93.83 (86.18-97.97)	93.83 (86.18-97.97)
> 80 (n=466)	97.41 (92.63-99.46)	97.41 (92.63-99.46)	94.83 (89.08-98.08)	94.83 (89.08-98.08)	92.24 (85.78-96.39)	92.24 (85.78-96.39)

B

Age group	Wells score + DD threshold of 500 ng/mL	Geneva score + DD threshold of 500 ng/mL	Wells score + age-adjusted DD cut-off	Geneva score + age-adjusted DD cut-off	YEARS algorithm	PEGeD algorithm
≤ 50 (n=233)	30.12 (23.25-37.71)	30.12 (23.25-37.71)	30.12 (23.25-37.71)	30.12 (23.25-37.71)	50.60 (42.75-58.44)	52.41 (44.53-60.20)
51-60 (n=153)	22.41 (15.19-31.09)	22.41 (15.19-31.09)	29.31 (21.23-38.48)	29.31 (21.23-38.48)	44.83 (35.59-54.34)	45.69 (36.41-55.19)
61-70 (n=227)	17.14 (11.88-23.56)	16.57 (11.39-22.92)	29.14 (22.53-36.48)	28.57 (22.01-35.88)	37.71 (30.51-45.34)	40.00 (32.68-47.66)
71-80 (n=323)	10.74 (7.14-15.34)	9.92 (6.46-14.40)	20.66 (15.74-26.32)	19.83 (15.00-25.42)	26.45 (21.00-32.48)	28.51 (22.91-34.65)
> 80 (n=466)	8.29 (5.62-11.68)	8.29 (5.62-11.68)	16.68 (13.09-21.20)	16.68 (13.09-21.20)	20.29 (16.20-24.89)	20.86 (16.72-25.50)

Table 1: A - Sensitivity (%, 95% CI) of different diagnostic prediction rules grouped by age. B- Specificity (%, 95% CI) of the different diagnostic prediction rules grouped by age. Abbreviations: DD, D-dimer.

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(ESC) early mortality risk classification in high or intermediate-high risk (group A) and low or intermediate low risk (group B). The correlation with echocardiographic parameters was evaluated. In-hospital mortality at 30 days and 1 year was determined.
Results: Group A included 27 patients (20.6%) and group B 104 patients (79.4%), with no difference regarding demographic and clinic characteristics between both groups. In group A the mean PSAP was 49.4 ± 22.8 mmHg, TAPSE 14.7 ± 5.2 mm and TAPSE/PSAP 0.3. In group B the mean PSAP was 34.6 ± 16.8 mmHg, TAPSE 20.9 ± 4.5 mm and TAPSE/PSAP 0.7. The ROC analysis shows PSAP has good discriminative power for risk stratification (AUC 0.716; p 0.017 95%CI 0.56-0.87), with a cutoff point at 35 mmHg. The TAPSE/PSAP ratio has an excellent discriminative power (AUC 0.873, p value 0.001, 95%CI 0.767-0.978), with a cutoff point of 0.3. In-hospital mortality was 8.4% (11 patients), 30-day mortality was 12.2% (16 patients) and 1-year mortality was 19.8% (26 patients). There was no difference regarding mortality between groups A and B. Comparing PSAP and TAPSE/PSAP ≤ 0.3, only the latter was correlated with mortality at 1 year (p 0.021). The addition of TAPSE/PSAP ≤ 0.3 to ESC classification for each group had a significant impact on mortality at 1 year (p 0.004).
Conclusions: The addition of TAPSE/PSAP ≤ 0.3 to risk scores in groups A and B confers relevant prognostic information on long term mortality.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 1) - DAC e Cuidados Intensivos 6 - MINOCA, Género e Idade

PO 161. CHARACTERIZATION OF RISK FACTORS AND MORTALITY IN YOUNG PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

João Borges Rosa, Sofia S. Martinho, José Lopes de Almeida, Gustavo M. Campos, João André Ferreira, S. Monteiro, F. Gonçalves, P. Monteiro, R. Baptista, Manuel Oliveira-Santos, Lino Gonçalves

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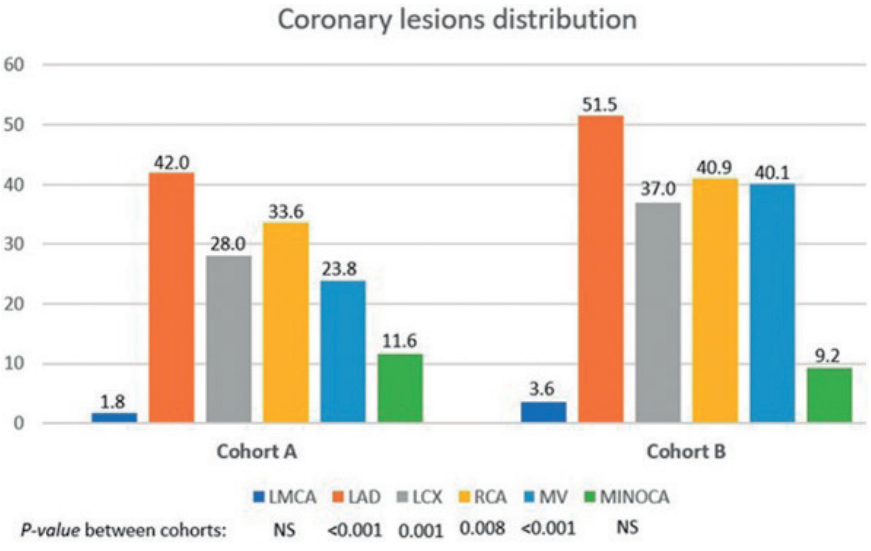
Introduction: The incidence of acute myocardial infarction (AMI) among young patients is increasing. Recently, in two cohorts of type 1 AMI from the United States of America, the YOUNG-MI Registry reported that patients under 40 years had similar risk profiles and outcomes compared to those aged 41 to 50 at the time of the event. We aimed to evaluate cardiovascular risk factors and mortality outcomes in two age cohorts from a southern European population.
Methods: We retrospectively evaluated 4,758 patients admitted to our coronary intensive care unit between 2004 and 2017 with a diagnosis of non-ST-elevation myocardial infarction (NSTEMI) or ST-elevation myocardial infarction (STEMI). We only included patients < 60 years old in two subgroups: cohort A (< 50 years) and cohort B (50-60 years). Clinical and all-cause mortality data were collected. T-tests and Pearson's chi-squared tests were used for group comparison, while survival analysis was performed using Kaplan-Meier curves and multivariable Cox regression.
Results: We selected 1,233 patients with mean age 50.5 ± 6.5 years, 82.2% male, and 53% diagnosed with STEMI. Cohort B had higher rates of hypertension (59.8 *vs.* 42.9%, p < 0.001), diabetes (41.8 *vs.* 28.9%, p < 0.001), and dyslipidemia (59.4 *vs.* 46.4%, p < 0.001). However, cohort A had higher rates of familial premature coronary artery disease (20.9 *vs.* 13.2%, p < 0.001) and smoking habits (54.4 *vs.* 40.0%, p < 0.001). Cohort A had lower all-cause mortality rates at the index hospitalization (1.3 *vs.* 3.2%, p = 0.045), 6-months (2.9 vs.5.4, p = 0.038), 1-year (3.1 *vs.* 6.3%, p = 0.014), and 3-years (3.6 *vs.* 8.4, p = 0.001). After multivariable adjustment, we found no relationship between age cohorts and all-cause mortality for any follow-up timing: HR 1.57 (95%CI 0.56-4.37), 1.37 (95%CI 0.50-3.74), and 0.92 (95%CI 0.35-2.39) at 6-months, 1-year, and 3-years, respectively. Regarding coronary angiography (Fig.), cohort B had higher rates of obstructive disease in each epicardial artery, except for left main involvement (3.6 *vs.* 1.8%, p = 0.072). Also, the rate of non-obstructive disease was similar between groups (9.2 *vs.* 11.6%, p = 0.165).
Conclusions: Among patients who suffer AMI, those under 50 years old have a clearly different risk profile, compared to those patients between 50 and 60 years. Despite lower rates of death in younger patients, after multivariable adjustments there is no significant difference in all-cause mortality.

PO 162. GENDER DISPARITIES IN ACUTE MYOCARDIAL INFARCTION - STILL AN UNSOLVED PUZZLING ISSUE

Catarina Amaral Marques, André Cabrita, Paulo Maia Araújo, Tânia Proença, Ricardo Pinto, Miguel Carvalho, Catarina Costa, Filipa Amador, João Calvão, Ana Pinho, Cátia Santos, Luís Santos, Cristina Cruz, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Gender differences in acute myocardial infarction (AMI) have been widely described, namely longer time delays, less access to revascularization and worse outcomes for women (W).



PO 161 Figure

GENDER	PATIENT DELAY*1	EMERGENCY MEDICAL SERVICE DELAY*2	TIME TO FIRST MEDICAL CONTACT*3	TIME FROM STEMI DIAGNOSIS TO WIRE-CROSSING*4
Man	92±286	20±19	105±288	114±98
Women	120±180	22±15	147±161	179±111

Figure 1 – Acute Myocardial Infarction (AMI) related time delays presented by gender.
All times are expressed in minutes and as median ± Interquartile Range (IQR). Non-parametric tests were used for statistical analysis.
No significant differences between genders were identified (*1: p=0,5; *2: p=0,2; *3: p=0,5; *4: p=0,2).

PO 162 Figure

Objectives: To characterize current gender differences regarding presentation, time delays, treatment and outcomes in AMI, as well as explore gender influence in patients (pts) behavior and knowledge about AMI.
Methods: In this 6-month prospective study of pts admitted in a tertiary hospital due to type-1 AMI, 196 pts were consecutively enrolled between May and October 2021. Data was based on a pts well-structured interview within 48h after admission and review of medical records.
Results: A total of 42W (21%) were included. Non-ST/ST Segment Elevation Myocardial Infarction (NSTEMI/STEMI) proportion was similar between genders (49%/51%, respectively, and considering all pts), as well as age distribution (overall mean of 62 ± 13 years). More men (M) had a previous history of AMI (23 *vs.* 10%; p = 0.05) and of percutaneous revascularization (17 *vs.* 5%; p = 0.05). At least 1 cardiovascular risk factor (CVRF) was equally identified (W: 95%; M: 98%). Typical chest pain was reported similarly (W: 95%; M: 94%), as well as pain intensity (0-10 scale): 75%W and 71%M with chest pain intensity equal or greater than 6. W presented more associated symptoms (79 *vs.* 60%; p = 0.02). Coronary angiography (W: 100%; M: 97%) and revascularization (W: 78%; M: 80%) were equally performed. AMI-complications were more frequent in W (43 *vs.* 23%; p = 0.009), with a trend to have more often cardiogenic shock (14 *vs.* 5%; p = 0.08), and significantly more reinfarction (12 *vs.* 2%; p = 0.01) and atrial fibrillation (17 *vs.* 5%; p = 0.02). In-hospital mortality was, however, not significantly different (W: 5%; M: 2%; p = 0.3). W had a longer hospital stay (W: 7 ± 7 days (d); M: 5 ± 4 d; p = 0.03). No significant differences were found regarding time delays (Table). Curious differences were detected in pts behavior and knowledge about AMI: W were less confident about their knowledge of AMI symptoms (45 *vs.* 65%; p = 0.02), although it didn't translate into differences in perceiving their symptoms as AMI (W: 21%; M: 32%). W were more prudent, being less likely to drive with chest pain (5 *vs.* 18%; p = 0.04).
Conclusions: Our study shows no significant gender differences in time delays or access to myocardial revascularization. Although our data suggest an increased awareness and improved care of W with AMI, W still presented worse outcomes. It would be of extreme importance to better represent W data in AMI studies and guidelines to improve their outcomes.

PO 163. MACE IN MYOCARDIAL INFARCTION WITH NON-OBSTRUCTIVE CORONARY ARTERIES: PREDICTORS AND PROGNOSIS

Mariana da Silva Santos, Sofia B. Paula, Hélder Santos, Inês Almeida, Samuel Almeida, João Tavares, Luís Santos, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

Introduction: Up to 15% of patients admitted with suspected acute myocardial infarction (AMI) have no significant lesions on coronary angiography (> 50%) (MINOCA). MINOCA is not a benign disease. We aimed to evaluate predictors and prognosis of major adverse cardiac events (MACE) in the setting of MINOCA.
Methods: Based on a multicenter retrospective study, data collected from admissions between 2013 and 2020. Patients (P) were divided in 2 groups (G): GA – P without MACE; GB - P with MACE. MACE included in-hospital death, stroke, heart failure and re-infarction.
Results: MACE occurred in 90 (7.6%) out of 1098 P with MINOCA. There were no differences between G regarding gender (p = 0.851). GB pts were older (72 ± 10 *vs.* 65 ± 13, p < 0.001), had higher rates of arterial hypertension (86.0 *vs.* 68.2%, p < 0.001), diabetes (47.0 *vs.* 26.6%, p = 0.003), previous heart failure history (16.4 *vs.* 5.9%, p = 0.002), kidney dysfunction (18.8 *vs.* 4.5%, p < 0.001), dementia (8.2 *vs.* 0.5%, p < 0.001) and past bleeding events (8.2 *vs.* 0.7%, p < 0.001). GA had higher rates of smoking habits (22.7 *vs.* 4.8%, p < 0.001). GB had higher heart rate at admission (91 ± 24 *vs.* 75 ± 17, p < 0.001), higher rates of hypotension (systolic arterial pressure < 90 mmHg) (4.4 *vs.* 0.8%, p = 0.0.26), and higher rates of KK> 1 (64.3 *vs.* 5.9%, p < 0.001), atrial fibrillation (22.0 *vs.* 8.0%, p < 0.001) and left branch bundle block (LBBB) (7.3 *vs.* 1.4%, p = 0.014). GB presented higher rates of kidney dysfunction (creatinine > 2.0 mg/dL) (19.4 *vs.* 4.5%, p < 0.001), lower haemoglobin levels (12.9 ± 2 *vs.* 13.7 ± 1.8, p < 0.001), higher BNP levels (BNP > 400 pg/ml) (100 *vs.* 17.4%, p < 0.001), and higher rates of left ventricle systolic dysfunction (LVEF < 50%) (51.0 *vs.* 17.4%, p < 0.001). GB patients were treated with diuretics during hospital stay more often (74.5 *vs.* 14.3%, p < 0.001). GB had longer hospital stay (10 *vs.* 5, p < 0,001). KK > 1 (p < 0.001, OR 16.3, CI 5.5-48.5), past bleeding events (p = 0.024, OR 13.90, CI 1.4-122.2), hypotension (p = 0.045, OR 22.1, CI 1.06-458.9) and diuretics usage (p0.001, OR 16.3, CI 5.5-48.5) were independently associated with MACE. Survival analysis confirmed GA had better prognosis regarding 1 year mortality compared to GB (p < 0.001), however there were no differences regarding readmissions for cardiovascular cause (p = 0.318).
Conclusions: MACE in the setting of MINOCA are associated with poorer prognosis. Several features may help predict the MACE occurrence during hospitalizations, allowing an earlier treatment.

PO 164. DISCRIMINATORY CAPACITY OF ACTION-ICU ACCORDING TO AGE - A SCORE FOR ALL?

Mariana da Silva Santos, Sofia B. Paula, Hélder Santos, Margarida Figueiredo, Inês Almeida, Samuel Almeida, João Tavares, Luís Santos, Lurdes Almeida

Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

Introduction: Risk stratification at admission is essential to define prognosis in patients (P) with non-ST elevation myocardial infarction (NSTEMI). The ACTION-ICU score quantifies the risk of initially stable patients with NSTEMI developing a complication requiring ICU care. It uses 9 variables, including age at a 70 years old cut off. We aimed to validate ACTION-ICU score in our NSTEMI population and compare its predictive accuracy in P older and younger than 70 years old.
Methods: Single-center retrospective study including P admitted in the Cardiology department with ACS between 2016 and 2019. We compared 2 groups (G): A - < 70 years old; B - ≥ 70 years old. Complications requiring ICU care (CICU) were defined as subsequent development of cardiac arrest, heart failure, high-grade atrioventricular block, respiratory failure, stroke, or in-hospital death.
Results: Among the 422 P admitted with NSTEMI included, mean age was 68.4 ± 12.3 years old and 62.7% were male. GA had more males (69.8 *vs.* 54.9%, p < 0.001), lower rates of dyslipidaemia (49.3 *vs.* 58.5%, p = 0.048) and lower mean ACTION-ICU score (4.95 *vs.* 6.09, p = 0.003). The G were similar regarding other cardiovascular risk factors ad past history events, namely myocardial infarction, revascularization, heart failure, stroke and chronic kidney disease. The G were also similar regarding Killip-Kimball

class, rhythm and haemodynamic conditions at admission, kidney function at admission, in-hospital usage of drugs and CICU. In NSTEMI general population, ACTION-ICU score was predictive of CICU (p < 0.001, odds ratio (OR) 1.4, confidence interval (CI) 1.17-1.62) with fair accuracy (AUC 0.747), but was not predictive of 1-year mortality (1yM) (p = 0.185) or 1-year readmission (1yRA) (p = 0.140). In GA, ACTION-ICU score was predictive of CICU (p = 0.025, OR 1.3, CI 1.04-1.71) with fair accuracy (AUC 0.719) and of 1yM (p = 0.027, OR 1.3, CI 1.03-1.74) with poor accuracy (AUC 0.585). The score was not predictive of 1yRA (p = 0.237). In GB, ACTION-ICU score was predictive of CICU (p = 0.002, OR 1.4, CI 1.14-1.80) with good accuracy (AUC 0.786), but was not predictive of 1yM (p = 0.736) or 1yRA (p = 0.076).
Conclusions: In our center, ACTION-ICU score performed slightly better in older people in predicting CICU. In younger patients ACTION-ICU score may have an additional value at predicting long-term outcomes, namely 1yM. More studies are needed to validate ACTION-ICU score as a long-term prognostic tool.

PO 165. FINDING TAKOTSUBO CARDIOMYPATHY ON CARDIAC MAGNETIC RESONANCE

Rita Caldeira da Rocha, Bruno Piçarra, Miguel Carias,
Francisco Dias Cláudio, Ana Rita Santos, Renato Fernandes, Manuel Trinca

Hospital do Espírito Santo, EPE, Évora.

Introduction: Takotsubo Cardiomyopathy (TCM) is a reversible pathology with clinical features practically indistinguishable from other cardiomyopathies. Cardiac magnetic resonance (CMR) is uniquely suited in differentiating TCM from other forms of acute ventricular dysfunction, and in identifying potential complications of TCM.
Objectives: The aim is to characterize the features of TCM,as well as to evaluate diagnostic and prognostic impact of CMR in these patients.
Methods: A 7-years prospective study, which included all patients of a center proposed to CMR with presumptive diagnosis of MINOCA based on clinical characteristics, such as acute chest pain,troponin raise, ECG presentation, echo and coronariography results, such as absence of angiographically significant coronary disease (luminal stenosis < 50%). Comparison was made with TCM definitive one after CMR. We followed a protocol to evaluate TCM patients' left and right ventricles (LV; RV) anatomically and functionally, and search for late gadolinium enhancement (LGE).
Results: A total of 93 patients were evaluated, of which 16 had the final diagnosis of Takotsubo Cardiomyopathy. Stress-cardiomyopathy patients were female, with mean age of 69 ± 14 years old. At admission, 75% had ST segment elevation, so emergent coronariography was performed. The median highest troponin I was 2,235 [1,30-4,27] ng/mL. On CMR, 81%presented with preserved ejection fraction (mean LVEF 59% ± 10%). Regional contractility abnormalities were described in 19%, being hypokinesia in all mid and apical segments in 2, and diffuse in 1. Mean LV end diastolic indexed volume (EDIV) was 72 ± 23 mL/m^2, with 2 patients with dilation (LVEDIV 120 ± 7 mL/m^2). RV EIV were normal. LV dysfunction (mean LVEF 32 ± 2%) and RV dysfunction (mean RV EF 42 ± 4%) was present in 2 cases each, with one with biventricular EF depression. Mild pericardial effusion was found in 38%, mild mitral regurgitation in 8 patients and moderate in 1.A possible complication was registered: LV outflow tract protomesossystolic acceleration with mild anterior leaflet prolapse, yet without SAM. No LV thrombus was identified.LGE was observed in 2 patients: one on the apex, on the other one the pattern was intramyocardial on mid segment of inferior septum. After CMR was performed, 25% of cases had their presumptive diagnosis of TCM confirmed. On the other 75%, initial diagnosis was changed due to CMR features, and consequently so patients' management: in 50% and 17% of patients the presumptive diagnoses were respectively reperfunded STEMI and NSTEMI. In 33% the initial diagnosis was myocarditis.
Conclusions: CMR provides a noninvasive and multidimensional assessment for evaluation of Takotsubo cardiomyopathy. In our population, performing CMR allowed initial diagnosis modification in 3/4 of the cases and identification of a complication, both with important therapeutic and prognostic implications.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 2) - Arritmias 5 - Foco na Insuficiência Cardíaca

PO 166. EFFECT OF SACUBITRIL/VALSARTAN ON VENTRICULAR ARRHYTHMIA BURDEN IN HEART FAILURE WITH REDUCED EJECTION FRACTION

Paulo Medeiros, Cláudia Coelho, Cátia Oliveira, Sérgia Rocha

Hospital de Braga, EPE.

Introduction: Sacubitril/Valsartan, an angiotensin receptor-neprilysin inhibitor (ARNI) is currently one the first-line drugs for prognosis improvement in heart failure with reduced ejection fraction (HFrEF). Antiarrhythmic properties of Sacubitril/Valsartan have been suggested. However, limited and conflicting evidence existed regarding this topic.
Objectives: To evaluate the effect of Sacubitril/Valsartan on the incidence of ventricular arrhythmias in HFrEF patients.
Methods: Single-centre, observational and retrospective study. Inclusion criteria: left ventricle ejection fraction (LVEF) ≤ 40%; NYHA class ≥ II, optimal medical therapy (excluding ARNI) for at least 12 months with subsequent ACEi/ARB replacement with ARNI; carriers of implantable cardioverter defibrillator (ICD) or cardiac resynchronization therapy (CRT). Exclusion criteria were NYHA class IV and implantation of ICD/CRT after the introduction of ARNI. Primary outcome was ventricular arrhythmic burden (including appropriate shocks, sustained ventricular tachycardia (VT) and ventricular fibrillation (VF)) pre and post ARNI. Secondary outcomes included change in NYHA class, NT-proBNP, LV end diastolic diameter (LVEDD) and LVEF. Data on arrhythmic episodes was obtained from device interrogation.
Results: Fifty-four patients met the inclusion criteria. Mean age was 69.5 years and 74% (n = 40) were male. HFrEF had ischemic aetiology in 59%. All

Event	12 months prior to ARNI		12 months after ARNI		*McNemar test*	*Effect Size*
	n	*%*	*n*	*%*	*p-value*	*Cohen G*
Appropriate Device Shock	**8**	**18,0**	**1**	**2,0**	**0,016***	**0,50**
Ventricular fibrillation	6	13,0	2	4,0	0,289	0,25
Sustained VT	9	20,0	6	13,0	0,549	0,15
Non-sustained VT	14	31,0	11	25,0	0,549	0,15

PO 166 Figure

NOVARTIS | Reimagining Medicine

CPC 2022
CONGRESSO PORTUGUÊS DE CARDIOLOGIA

CPC 2022
Centro de Congressos do Algarve

SESSÕES PATROCINADAS NOVARTIS

22.04.2022

13:00h - 14:00h
Sala Aquarius

Moving beyond in CV risk reduction - Lp(a) the novel target to lower CV risk

Chairman:
Lino M. Gonçalves
Cardiologist

M.D., M.Sc., PhD, F.E.S.C.
Head of Cardiology Department at Coimbra Hospital and University Centre (CHUC).

Speaker:
Brian A. Ference
Cardiologist

M.D., M.Phil., M.Sc., F.A.C.C., F.E.S.C.
Professor and Director of Research in Translational Therapeutics and Executive Director, Centre for Naturally Randomized Trials - University of Cambridge.

23.04.2022

10:30h - 11:30h
Sala Fénix I

2022: ARNI ou IECA na IC-FEr?

Moderador:
Pedro Pinto
Jornalista

Speaker:
Dulce Brito
Cardiologista

M.D., PhD, F.E.S.C.
Centro Hospitalar Universitário Lisboa Norte; CCUL, Faculdade de Medicina, Universidade de Lisboa.

Speaker:
José Silva Cardoso
Cardiologista

M.D., PhD, F.E.S.C.
Centro Hospitalar Universitário São João, Porto; FMUP, Faculdade de Medicina, Universidade do Porto; Investigador CINTESIS, Centro de Investigação em Tecnologias e Serviços de Saúde.

24.04.2022

10:00h - 11:00h
Sala Pégaso

Elevar a fasquia da gestão das dislipidemias em Portugal: juntos, pelos doentes com DCVA

Moderadora:
Cristina Gavina
Cardiologista

M.D., PhD, F.E.S.C., F.A.C.C.
ULS Matosinhos, Faculdade de Medicina Universidade do Porto.

Speaker:
Ricardo Fontes - Carvalho
Cardiologista

M.D., PhD, F.E.S.C., F.A.C.C.
Centro Hospitalar Vila Nova de Gaia/Espinho, Faculdade de Medicina Universidade do Porto.

Speaker:
José Pedro Antunes
Medicina Geral e Familiar

M.D., PhD student
USF ARTE NOVA, ACeS Baixo Vouga, ARS Centro Universidade Aveiro.

Speaker:
Miguel Gouveia
Economista da Saúde

M.Sc., PhD
Catolica Lisbon School of Business and Economics Universidade Católica Portuguesa.

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the patients were on ACEi/ARB and beta-blockers, 94% on stable doses of diuretics and 72% on mineralocorticoid receptor antagonist. Comparison of the 12 months prior to the 12 months after Sacubitril/Valsartan initiation: The number of patients experiencing appropriate shocks was significantly lower after ARNI initiation (2 *vs.* 18%; p = 0.016). The total number of VT and VF episodes was lower after the initiation of the drug, but this difference was not statistically significant (4 *vs.* 13% for VF; p = 0.289; 13 *vs.* 20% for VT; p = 0.549). NYHA class significantly improved after initiation of Sacubitril/Valsartan (pre ARNI: class I 0%; class II 77%; class III 23%; post ARNI: class I 14%; class II 80%; class III 6%; p = 0,001). However, no significant differences were observed in LVEF (mean 30 *vs.* 28%; p = 0.315), LVEDD (mean 66 *vs.* 65 mm; p = 0.549) or NT-proBNP (mean 775 *vs.* 1,128 pg/mL; p = 0.858).
Conclusions: Sacubitril/Valsartan seems to reduce the risk of arrhythmic events requiring appropriate shock therapy (even without a significant change in echocardiographic LV remodelling parameters). The sample size is an important limitation of this study. Prospective and larger studies are needed to better address this question.

PO 167. TELEMONITORING IN HEART FAILURE MANAGEMENT – THE EXPERIENCE OF A REMOTE CENTER

M. Inês Barradas, Fabiana Duarte, Luís Resendes de Oliveira, Cátia Serena, António Xavier Fontes, André Viveiros Monteiro, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Remote patient monitoring (RPM) is a new standard of care in Heart failure (HF) patients with cardiac implantable electronic devices (CIEDs) but its impact in clinical outcomes is still uncertain. In remote locations, HF management is even more challenging and RPM may be an important tool in identifying earlier signs of HF decompensation.
Objectives: To assess the impact of RPM in clinical outcomes, compared to usual standard of care in chronic HF patients with CIEDs and to access the accuracy of multisensor device-based algorithms in a remote center.
Methods: We retrospectively evaluated consecutive patients with HF and CIEDs admitted to our center, through clinical assessments and continuous RPM when available (two different telemonitoring systems were used). Two groups were defined: standard of care plus RPM (group 1) and usual standard of care (group 2). Primary outcome was defined as cardiovascular (CV) death and secondary outcome as HF hospitalizations. A subanalysis of patients with RPM and active multisensor algorithm was also performed.
Results: From 243 patients with HF and CIEDs, RPM was active in 145 (59.7%) patients (group 1) *vs.* usual standard of care in 98 (40.3%) (group 2). Mean age was 66.95 ± 11.848 years, 73.5% were males and follow-up was 52.34 ± 44.05 months. 126 (51.9%) patients had implantable cardiac resynchronization therapy (CRT) defibrillator (CRT-D), 96 (39.5%) transvenous implantable cardioverter defibrillator (ICD) and 21 (8.6%) CRT pacemaker (CRT-P). The aetiology of HF was ischemic in 43.7% and idiopathic in 37.7%, mean left ventricular ejection fraction was 34.33 ± 19.98% and there were 1.12 ± 1.98 HF hospitalizations per patient. Patients in group 1 were younger (65.16 ± 12.57 *vs.* 69.85 ± 10.00 years, p = 0.010) and had fewer HF hospitalizations compared to usual standard of care patients (group 2) (0.70 ± 0.17 *vs.* 1.67 ± 0.39; p = 0.021). CV death occurred in 12 (4.9%) patients in total and was significantly lower in group 1 (2 (13.8%) *vs.* 10 (10.2%), p = 0.001). From the patients with RPM, 31 (25.6%) had active multisensory device-based algorithm from two different telemonitoring systems and from these, 72 alerts were identified. Each patient had 2.41 ± 2.557 alerts with mean duration of 34.52 ± 29.791 days each. The number of HF alerts and total alert days correlated with the number of FV or TV (r = 0.487, p = 0.007 and r = 0.548, p = 0.002, respectively for number of alerts and total alert days) and HF hospitalizations (r = 0.505, p = 0.032 and r = 0.493, p = 0.037, respectively).
Conclusions: In remote locations, the integration of RPM in clinical practice, was associated with reduced CV death. The use of specialized multisensory device-based algorithms in an organized network may help identify patients with higher arrhythmic risk and recognise earlier signs of HF decompensation, reducing the need for HF hospitalizations.

PO 168. THE EFFECTS OF SACUBITRIL-VALSARTAN ON ICD INDICATION IN PATIENTS WITH HEART FAILURE

Mariana Tinoco, Ana Filipa Cardoso, Geraldo Dias, Tâmara Pereira, Bebiana Faria, Filipa Almeida, Sérgio Leite, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: The use of an implantable cardioverter-defibrillator (ICD) to avoid sudden cardiac death is indicated in patients with symptomatic heart failure (HF) and LVEF ≤ 35% after ≥ 3 months of optimal medical therapy (OMT). Sacubitril-Valsartan (SV) has showed to reduce morbidity and mortality compared to ACEI, due to positive effects on cardiac remodelling.
Objectives: We sought to assess the impact of SV on ICD indication in patients with HF with reduced ejection fraction (HFrEF).
Methods: Retrospective study of patients with HFrEF and a previously implanted ICD who started therapy with SV on top of OMT, observed at an HF clinic between Jan 2018 and Jun 2020, with a follow up period until Oct 2021. Patients treated with SV pre-implantation were excluded.
Results: A total of 28 ICD carriers were included: 65.7 ± 8.7 years; 24 (85.7%) male; mean LVEF at baseline 26.8 ± 7.3%; Over a median follow-up of 9 [5-22] months, SV induced a significant decrease in LV end-diastolic volume index (169 mL/m² *vs.* 93 mL/m²; p = 0.003) and in LV end-systolic volume index (124 mL/m² *vs.* 65 mL/m²; p = 0.001), nonetheless it resulted in a non-significant increase in LVEF (28.5 *vs.* 32.3%). In 21.6% (6) of patients previously implanted with an ICD, LVEF improved to > 35% at follow-up, therefore they did not meet anymore eligibility criteria. At follow up: 8 (28.6%) were in NYHA class I, of which 50% achieved a LVEF > 35%; The remaining 18 (64.2%) were in NYHA class II-III and 2 (7.1%) were in NYHA class IV. Among patients deemed not more eligible for ICD, 50% (3) achieved the target dose of SV, 50% (3) were in NYHA class I and 50% (3) were in NYHA class II-III. One (17%) patient died for an unknown reason. HF hospitalization occurred in 4 (67%), of which 2 (33%) needed inotropic support and 1 (17%) was rehospitalised for HF. One (17%) patient had a ventricular tachycardia and consequently an appropriate ICD shock.
Conclusions: Our findings suggest that in HFrEF, SV may provide favourable effects on LV function and HF symptoms and after a period of therapy some patients may no longer meet the criteria for prophylactic ICD implantation. ICD implantation has a high economic cost, and it is not devoid of serious harm. Consequently, SV treatment may definitely turn out to be cost-effective *versus* ICD implantation. This paradigm opens an entirely new approach to prevent sudden death in HFrEF patients.

PO 169. VENTRICULAR TACHYCARDIA ABLATION IN NON-ISCHEMIC CARDIOMYOPATHY

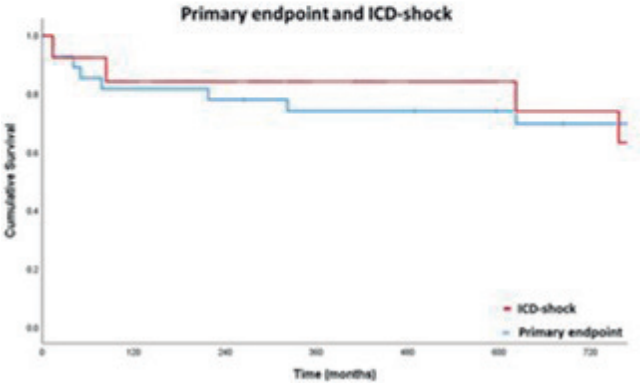
Joana Brito, Pedro Silvério António, Sara Couto Pereira, Beatriz Valente Silva, Pedro Alves da Silva, Ana Margarida Martins, Catarina Simões de Oliveira, Afonso Nunes Ferreira, Gustavo Lima Silva, Patrícia Teixeira, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Non-ischemic cardiomyopathies (NICM) is a heterogeneous group of diseases of the myocardium, which ventricular dilatation, systolic impairment or hypertrophy can occur. Most frequent etiologies described in studies are dilated idiopathic cardiomyopathy (DCM) 55-66% and arrhythmogenic right ventricular cardiomyopathy (ARVC) 5-13%. Radiofrequency catheter ablation (RCA) is being increasingly performed as adjunctive treatment to implantable cardioverter-defibrillator (ICD) in NICM patients (pts) and refractory ventricular tachycardia (VT). Despite, some recent studies shown that RCA in NICM patients have similar VT recurrence and death results compare to Ischemic cardiomyopathy (ICM), the best approach is not well establish.
Objectives: To report the safety and the long-term outcome after a single RCA procedure for VT in pts with NICM using a high-density substrate-based approach.

Methods: We conducted a prospective, observational, single-centre and single-arm study involving pts with NICM, referred for RCA procedure for VT using high-density mapping catheters. Procedural endpoints were VT noninducibility and local abnormal ventricular activities (LAVAs). Intraprocedural complications were analysed. Primary end-point was a composite of all-cause mortality, recurrence of VT and heart transplantation. Secondary end-point was survival free from appropriate ICD shocks.
Results: A total of 27 pts were included (92.6% males, mean age 60.6 ± 12, mean LVEF 34.8% ± 12.3%, mean NTproBNP 3,400 ± 3,700) and 78% with ICD and/or CRT-D. Major cardiovascular risk factors were HTN (37%) and smoker or ex-smoker (44.4%). The most prevalent etiology was DCM (67%). The epicardial access was the most common approach in 16 patients (59.3%). LAVAs were identified in all patients and sustained monomorphic VT was induced in 83%. LAVAs elimination and noninducibility were achieved in 85.2% and 60%, respectively. The overall complication rate was 14.7% and procedure-related death occurred in one case (3.7%). The commonest complications were pericardial effusion 7.4%, phrenic lesion in 3.7% and cardiogenic shock in 3.7%. After a mean follow-up of 28.7 ± 19.1 months, 10 (37%) pts died, 9 (34%) had cardiovascular admissions, 3 patients underwent cardiac transplant. A total of 7 (26%) pts received an appropriate shock of which 3 with arrhythmic storm and were referred to redo procedure. Freedom from the primary end-point was 56% and 50% pts at 1-year and 2-year, respectively, and freedom from appropriate ICD-shock was 91% and 81% at 1 and 2 years.

Etiology	N	%
DCM	18	67%
ARVC	2	7.3%
Miocarditis	6	22%
Sarcoidosis	1	3.7%



Conclusions: RCA of VT using a high-density mapping substrate-based approach is safety and effective by reducing the ICD shocks. According to the worst prognosis of this population, the results of RCA in mortality and heart transplantation are moderate. Larger studies are needed to evaluate the results of RCA in NICM pts.

PO 170. PRIMARY PREVENTION IMPLANTATION OF CARDIOVERTER DEFIBRILLATORS IN TRULY ASYMPTOMATIC PATIENTS – SHOULD WE RETHINK CURRENT RECOMMENDATIONS?

Fabiana Silva Duarte, M. Inês Barradas, André Viveiros Monteiro, Luís Oliveira, Cátia Serena, António Fontes, Carina Machado, Raquel Dourado, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Implantable cardioverter defibrillator (ICD) implantation is recommended as primary prevention in symptomatic heart failure (HF) patients with reduced ejection fraction. However, there are conflicting data regarding the real benefit of prophylactic ICD treatment in New York Heart Association (NYHA) class I patients in which the eligibility remains ambiguous and based on the physicians' judgement and patients preference.
Objectives: To determine the clinical impact of ICD therapy in primary prevention and assessed differences in patients with NYHA I *vs.* other classes.
Methods: Retrospective single center cohort study including HF patients undergoing prophylactic ICD implantation. We divided patients according to their NYHA class and analyse cardiovascular death, all-cause mortality, arrhythmic events, appropriate device therapy (ADT) and hospitalizations due to HF decompensation.
Results: Seventy-six HF patients were accessed between April 2007 and January 2021, during a follow-up period of 49 ± 43.6 months. Mean age was 61.2 ± 9.7 years, 66 (86.8%) patients were male. At baseline, 29 (34.5%) were in NYHA I (Group 1), 34 (40.5%) in NYHA II (Group 2) and 12 (14.3%) in NYHA III/IV (Group 3). Fifty-one (67%) of all patients had ischemic etiology. No particular differences in baseline characteristics between groups were seen. Overall 7.9% of patients had significant ventricular arrhythmias (sustained ventricular tachycardia and/or ventricular fibrillation) and 39.5% had hospital admissions by HF decompensation. All-cause mortality were seen in 10.5% and cardiovascular death in 6.6%. During follow-up Group 1 had more non-sustained ventricular tachycardia (28.9 *vs.* 13.2 *vs.* 10.5%, p = 0.034) and appropriate ICD therapy (18.8 *vs.* 11.6 *vs.* 1.4%, p = 0.027). At multivariable analysis, obesity and atrial fibrillation were a significant predictors of ventricular arrhythmias but not NYHA class.
Conclusions: Heart failure patients with a reduced ejection fraction, even if asymptomatic, are at increased risk of significant arrhythmic events, and should therefore be considered for prophylactic ICD implantation. Future studies focusing in asymptomatic HF patients are needed to evaluate the value of ICD therapy in the modern era.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 3) - Doenças do Miocárdio e Pericárdio 2

PO 171. PREDICTORS OF IN-HOSPITAL LEFT VENTRICLE FUNCTION RECOVERY IN TAKOTSUBO SYNDROME

Geraldo Dias, Ana Filipa Cardoso, Tâmara Pereira, Mariana Tinoco, Filipa Almeida, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: Left ventricular (LV) disfunction in Takotsubo Syndrome (TS) is usually temporary, and a full recovery is expected over time. Nevertheless, some patients are discharged from the hospital without a full recovery of LV systolic function. In this study, we sought to evaluate the in-hospital LV systolic function recovery, and investigate its clinical predictors.
Methods: We performed a retrospective study including patients diagnosed with TS in a single center from January 2018 to December 2020. Clinical, electrocardiographic, laboratory, and echocardiographic data were analyzed. Full recovery was considered when a preserved LV systolic function was documented within the time of hospital stay.
Results: A total of 38 patients were included, of whom 29 (76.3%) were female. The median age was 68.5 (IQR = 17.0) years. Twenty-two patients (57.9%) had full LV systolic function recovery before discharge, while 14 (36.8%) presented mild LV dysfunction and 2 (5.3%) moderate LV dysfunction. When comparing the 22 patients that experienced full recovery with the remaining 16, there were no significant differences considering age (71 IQR = 21 *vs.* 68.5 IQR = 17 years, respectively), gender distribution (77.3 *vs.* 75.0% females), prevalence of cardiovascular risk factors, atrial fibrillation or psychiatric disorders. Hospital stay median duration was comparable in

both groups (6, IQR = 5 *vs*. 6.5, IQR = 5 days). Similarly, no difference was found in laboratory values of troponin I, B type natriuretic peptide or C reactive protein. More patients in the residual dysfunction group presented an identifiable trigger (81.2 *vs*. 21.1%; p = 0.006) and newly developed conduction abnormalities (25.0 *vs*. 0.0%, p = 0.025). On the other hand, more patients in the group that experienced full recovery presented with severe dysfunction at admission (63.8 *vs*. 18.8%, p = 0.006), syncope (31.8 *vs*. 0.0%, p = 0.014) and T wave inversion in V5-V6 (100.0 *vs*. 71.4%, p = 0.017).
Conclusions: Our data suggests that a greater LV systolic dysfunction at presentation might predict a more complete recovery of LV function during hospital stay, and that gender differences aren't present between the groups. This is in contrast to some studies that report LV dysfunction and the male gender as negative factors for early recovery. Additionally, in this study, the presence of a trigger and newly developed conduction abnormalities were negatively associated to LV recovery.

PO 172. TAKOTSUBO SYNDROME: TEN-YEAR EXPERIENCE FROM A SINGLE CENTER

Carla Marques Pires, Barbára Pontes, Paulo Medeiros, Rui Flores, Fernando Mané, Cátia Oliveira, Rodrigo Silva, Inês Conde, António Gaspar, Pedro Azevedo, Miguel Alvares Pereira, Carlos Galvão Braga, Nuno Antunes, Jorge Marques

Hospital de Braga, EPE.

Introduction: Takotsubo Syndrome (TS) is characterized by a transient left ventricular dysfunction and remains a challenging and often misdiagnosed disorder. Previously, TS has been considered a benign disease, although current knowledge challenges this assumption.
Objectives: To characterize the population admitted with TS and to assess the predictors of worst in-hospital outcomes.
Methods: We performed a retrospective observational cohort study including 176 patients (pts) with the presumptive diagnosis of TS admitted at a single center over a 10-year period with at least one-year follow-up. 46 pts were excluded because TS was not confirmed. By multivariate analysis, we evaluate the predictors of admission Killip ≥ III and in-hospital complications (a composite of all-cause of death, ventricular arrhythmias/cardiac arrest, new-onset atrial fibrillation, atrioventricular block, mechanical complications, left ventricle thrombus and major bleeding).
Results: The study population consisted of 130 pts (90% female, mean age 66 years), of whom 89% had at least one Cardiovascular risk factor and 36% had psychiatric disorders. The trigger event was emotional stress in 36%, physical stress in 19% and unidentifiable in 45%. The median ejection fraction (EF) at admission was 38%; 82% of TS pts displayed an apical ballooning (AB) pattern (Typical TS). Regarding clinical presentation, 12% had Killip ≥ III at admission. Over time, there was a trend to a increase in the number of pts diagnosed with atypical TS, although this was not statistically significant. Patients with atypical TS were younger (60 ± 14 *vs*. 67 ± 11, p = 0.009) and had higher admission EF (45% ± 8 *vs*. 38% ± 9, p = 0.006). The trigger event and the level of PNBP were similar across different variants. A significant increase use of CMR was observed over the years (p = 0.001). During hospitalization, 98.5% of pts were treated with at least one disease modifying drug, around 19.2% of pts had at least 1 in-hospital complication and 1.5% died. In the multivariate analysis, left ventricular systolic dysfunction at admission (OR = 3.2, p = 0.019) and higher grades of mitral regurgitation (OR = 2.2, p = 0.02) were independent predictors of Killip ≥ III at admission. Additionally, history of atrial fibrillation (OR = 17.1, p = 0.002), maximum Killip class during hospitalization (OR = 3, p < 0.001) and the in-hospital usage of beta-blockers (OR = 0.2, p = 0.03) were independent predictors of in-hospital complications. During follow-up, 1.5% of pts had recurrence and 11.5% died.
Conclusions: Despite increased awareness TS is still poorly recognized, namely atypical variants which were younger and with higher admission EF. TS is not as benign as initial though and the independent predictors of in-hospital complications were previous atrial fibrillation and maximum Killip class. In-hospital usage of beta-blockers had a protective effect.

PO 173. TRANSTHYRETIN AMYLOID CARDIOMYOPATHY (ATTR-CM): A POTENTIAL ROLE FOR CARDIOPULMONARY EXERCISE TESTING

Rita R. Amador, Mariana Paiva, Gonçalo Cunha, Pedro Lopes, Sérgio Maltês, Catarina Oliveira, Sofia Augusto, Catarina Brízido, Christopher Strong, Anaí Durazzo, Carlos Aguiar, Bruno M. I. Rocha, Miguel Mendes

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

Introduction: Risk stratification tools used in heart failure (HF) patients are useful yet understudied in specific aetiologies. We aimed to evaluate the feasibility and safety of cardiopulmonary exercise testing (CPET) in a cohort of patients with Amyloid Transthyretin Cardiomyopathy (ATTR-CM).
Methods: This is a single-centre study of patients diagnosed with ATTR-CM followed in our dedicated rare disease program who underwent CPET since November 2020. As per site protocol, ATTR-CM was confirmed according to the algorithm of Gilmore and colleagues. Patients performed CPET on a treadmill using an exercise protocol with progressive increase in workload, as tolerated. The test was considered maximal if a respiratory exchange ratio (RER) ≥ 1.05 was obtained.
Results: Overall, we identified 60 patients with ATTR-CM, of whom 23 underwent CPET (mean age 82 ± 6 years; all male with symptomatic HF). The reasons for non-referral included death (n = 14), frailty (n = 13) and recent diagnosis with ongoing investigation (n = 10). Most patients (n = 22) performed CPET with either one of two HF-adapted exercise protocols arranged by our exercise physiology team. Mean RER was 1.05 ± 0.09, with a maximal CPET in 15 (65%) patients. Out of the group who did not achieve an RER > 1.05 (n = 8), all patients stopped the test due to fatigue. Mean peak oxygen consumption (pVO2) was 14.6 ± 3.7 mL/Kg/min. Ventilatory thresholds - VT1 and VT2 were

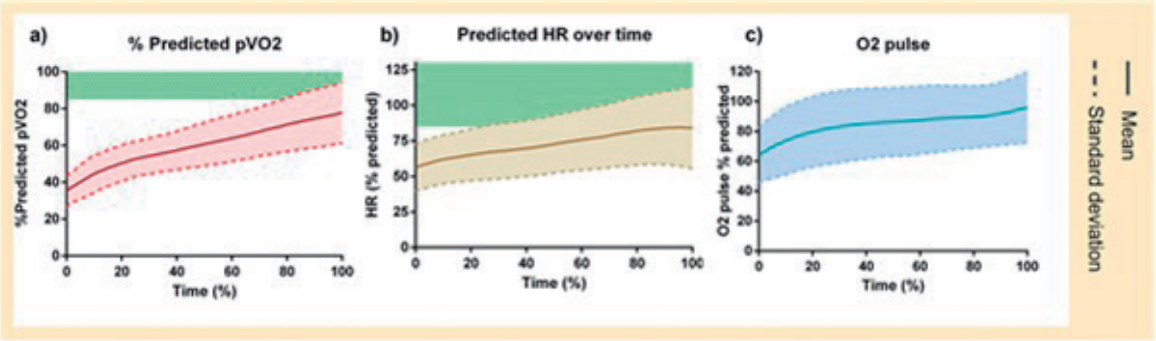


Figure 1 – Graphic representation of a "typical" CPET of an ATTR-CM patient using the mean and standard deviation of the percentage of the maximal predicted peak O2 consumption (pVO2) (a), Heart Rate (HR) (b) and O2 pulse (c)

PO 173 Figure

identified in 21 (87%) and 10 (43%) patients, respectively. Median VE/VCO2 slope was 41 (36-47). Overall, 15 (65%) had exercise ventilatory oscillations. The graphical CPET of the cohort is shown in the figure. The strongest correlations were noted between the percentage of predicted pVO2 (r = 0.493; p = 0.027) with left ventricular ejection fraction and between VE/VCO2 slope and the interventricular septum thickness (r = 0.486; p = 0.035). There were no life-threatening events nor malignant arrhythmias reported.
Conclusions: This pilot study shows CPET to be feasible and well-tolerated in a small subset of patients with ATTR-CM and symptomatic HF. HF-adapted protocols allowed a maximal effort in more than half of the cohort, in parallel with the attainment of submaximal parameters. Whether CPET has prognostic value in ATTR-CM is worth being further assessed.

PO 174. TRANSTHYRETIN CARDIAC AMYLOIDOSIS DUE TO RARE MUTATIONS IN PORTUGUESE PATIENTS

Catarina Martins da Costa, Ana Filipa Amador, João Calvão, Tânia Proença, Miguel Carvalho, Ricardo Alves Pinto, Catarina Amaral Marques, André Cabrita, Raquel Mota Garcia, Isabel Tavares, Goreti Moreira, Teresa Pinho, Susana Fernandes, Elisabete Martins, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Transthyretin amyloidosis (ATTR amyloidosis) is a heterogeneous disorder and a frequent cause of cardiac amyloidosis. The hereditary form is associated with more than 100 different transthyretin (TTR) genetic variants. In Portugal, the Val50Met mutation is particularly frequent and associated with an early neurologic phenotype. Another mutation, the ATTR Val122Ile variant, is predominantly associated with severe cardiomyopathy and is a well-known cause of cardiac amyloidosis between African-American patients frequently described in US cohorts. So far, very few cases of this mutation have been reported in Caucasian patients including Portuguese patients.
Objectives: We aimed to study patients with hereditary cardiac ATTR amyloidosis in our center. Clinical data were retrospectively obtained from electronic records.
Results: We identified 4 patients (72 years old mean age; 3 men) with cardiac amyloidosis, 3 with the Val122Ile variant and 1 with His4Ile (individual characteristics are described in the table). All patients were Caucasian. Patients 1 to 3 presented a variant in exon 4 (the most commonly affected exon). All imaging data including bone cardiac scintigraphy (CS), were in accordance with ATTR amyloidosis diagnosis. They presented with congestive heart failure or syncope. It took on average 2 years from diagnosis to the first heart failure hospitalization. Patient 3 died with advanced heart failure after being considered no candidate for heart transplantation. Interestingly enough this patient carries the Val122Ile variant in homozigoty. Patient 4 was exceptional since she presented a *new* variant in exon 1. She was in NYHA I and had no hospitalization during follow-up. Echocardiogram showed left ventricular hypertrophy and the CS a Perugini score of 0. Cardiac magnetic resonance was suggestive of infiltrative cardiomyopathy and the myocardium biopsy confirmed amyloidosis. She had particularly exuberant hepatic amyloidosis. The family screening revealed that patient 1's 47 years old son, with hypertension, carries the Val122Ile variant. At the time of diagnosis, he was asymptomatic; transthoracic echocardiogram showed basal interventricular septum moderate hypertrophy (15 mm) and the Perugini score was 0. Patient 2 has 1 daughter, who was negative for TTR gene variants, and one son who refused to perform family screening.
Conclusions: Four cases with rare ATTR variants (Val122Ile and His4Ile) were identified in our center, and the family screening allowed the diagnosis of 2 asymptomatic carriers. This study reinforces the importance of the genetic test in patients with cardiac ATTR amyloidosis. Larger studies are needed to evaluate the prevalence of non Val50Met ATTR mutations in Portuguese patients with (cardiac) amyloidosis.

PO 175. SPONGY MYOCARDIUM OR LEFT VENTRICULAR NONCOMPACTION: WHICH FACTORS IMPACT PROGNOSIS?

José Miguel Viegas, Sílvia Aguiar Rosa, Pedro Brás, Isabel Cardoso, Pedro Rio, Ana Teresa Timóteo, Ana Galrinho, Luísa Moura Branco, Rui Cruz Ferreira

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

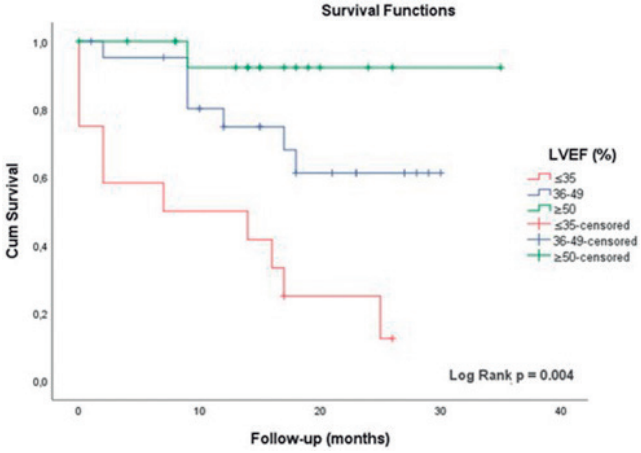
Introduction: The presence of prominent left ventricular (LV) trabeculation fulfilling noncompaction cardiomyopathy (LVNC) criteria on routine echocardiogram is frequently encountered; however the prognostic significance of these findings remains uncertain.
Objectives: To identify clinical and echocardiographic features associated with adverse clinical events in patients (P) with LVNC phenotype.
Methods: Retrospective analysis of all P satisfying LVNC criteria assessed by Chin and Jenni methods between January 2018 and June 2020 in a single tertiary care centre. Endpoint was composite of cardiovascular death, heart failure hospitalization, ventricular arrythmias and nonfatal stroke. Several possible prognostic factors were evaluated by Cox regression.

Table 1. Patient's individual characteristics.

	Patient 1	Patient 2	Patient 3	Patient 4
Diagnoses' age	73	69	66	78
Variant	Val122Ile	Val122Ile	Val122Ile	His4Ile
Genotype	Heterozigoty	Heterozigoty	Homozigoty	Heterozigoty
Perugini visual score	3	3	3	0*
Other organ dysfunction	Sensitive Polyneuropahy; CKD, 3a	-	Polyneuropahy; CKD, IV Liver dysfunction	Liver
Cardiac presentation	Congestive heart failure	Hyperthrophic cardiomiopathy	Congestive heart failure	Light dyspnea
Time to first event (year)	2	3	1	0
Rhythm disturbance	Advanced AVB	Advanced AVB	-	-
Treatment	Tafamidis	Waiting for tafamidis approval	Palliative (died during follow-up)	No

PO 174 Figure

Results: 32P, 75% male, mean age 45 ± 18 years. 21P (66%) had associated heart conditions, mainly dilated cardiomyopathy (10P), followed by ischemic, congenital and valvular heart disease. 2P were in postpartum period and 1P was an athlete. Family history of cardiomyopathy was present in 6P (19%). Genetic testing performed in 8P demonstrated variants in TTN (3P), MYH6, MYH7, PNPLA2, RBM20, and DSP genes. Mean NYHA classification was 1.9 ± 0.8, with 31% in NYHA I. Regarding echocardiographic parameters, LV end-diastolic and end-systolic volume index (LVESVI) were 84 (41) and 51 (37) ml/m², respectively, LV ejection fraction (LVEF) 39 ± 12%, global longitudinal strain (GLS) -11 ± 5%, and pulmonary artery systolic pressure (PASP) 39 ± 13 mmHg. Mean number of affected segments 6.4 ± 1.8, with hypertrabeculation most noticeable in apical and lateral segments. Over a mean follow-up of 18 ± 8 months, survival free of composite endpoint was 50%. In unadjusted Cox regression, hypertension (p = 0.034), chronic kidney disease (p = 0.048), NYHA class (p < 0.001), LVESVI (p = 0.042), LVEF (p = 0.002), GLS (p = 0.022) and PASP (p = 0.017) were associated with increased incidence of events. ECG parameters, laboratory markers, RV function, number of affected segments and extension of noncompacted layer did not significantly influence outcomes. After covariate adjustment, NYHA class (HR: 3.203, 95%CI: 1.212-7.128, p = 0.016) and LVEF (HR: 0.910, 95%CI: 0.825-0.953, p = 0.035) (Fig.) remained independent predictors of adverse events.



Conclusions: P satisfying criteria for LVNC had heterogeneous clinical and morphological characteristics. NYHA class and LVEF were associated with worse outcomes. The number of affected segments and extension of noncompacted layer were not related with the prognosis.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 4) - Insuficiência Cardíaca 5 - Marcadores Serológicos

PO 176. HYPERKALEMIA AND HEART FAILURE WITH REDUCED EJECTION FRACTION: PREVALENCE AND PROGNOSTIC IMPACT ON A PORTUGUESE POPULATION

Marta Azevedo Ferreira[1], Sara Gonçalves[2], Tatiana Duarte[2], Ana Sousa[2], Crisálida Ferreira[2], Joana Ferreira[2], Joana Simões[2], Rui Caria[2]

[1]Hospital Beatriz Ângelo. [2]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Hyperkalemia (hyperK) is a frequent complication in patients (pts) with heart failure (HF). This complication leads to discontinuation or reduction of disease modifying therapy (DMT) exposing the pts to a higher cardiovascular risk. However, data regarding prevalence and clinical impact of hyperK in Portuguese pts with heart failure with reduced ejection fraction (HFrEF) are scarce.
Objectives: To evaluate the prevalence and prognostic impact of hyperK in pts with HFrEF.
Methods: We evaluated 103 consecutive pts with HFrEF admitted in a Heart Failure clinic in 2019. The population was characterized according to baseline and therapeutic characteristics. The prevalence of hyperK - defined as serum potassium (K+) > 5.0 mEq/L - was determined. The population was divided in two groups according to the presence or absence of hyperK. The groups were compared regarding basal characteristics. The need to reduction/discontinuation of DMT was determined. The impact of hiperK on the risk of HF hospitalization and mortality at 1 year was evaluated. Pts with a follow up < 3 months were excluded. Mean follow up was 18 3 months.
Results: We studied 103 pts (76.7% male, mean age 65.2 years ± 11.5). Mean left ventricular ejection fraction (LVEF) was 29.9 ± 8.8%, 57% (n = 59) had ischemic etiology, 88.3% (n = 91) had hypertension; 37.9% (n = 39) had Diabetes Mellitus (DM) and 63% (n = 65) had chronic kidney disease (CKD), with a mean estimated glomerular filtration rate (eGFR) of 69.5 ml/min/1.73 m². At the last follow-up pts were under angiotensin receptor neprilysin inhibitor (ARNI) in 64.1% (n = 66), mineralocorticoid receptor antagonist (MRA) in 70.9% (n = 73), angiotensin converting enzyme inhibitors (ACEi)/ angiotensin receptor blockers (ARBs) in 30.1% (n = 31), sodium-glucose cotransporter 2 inhibitors (SGLT2i) in 63.1% (n = 65) and β-blockers in 96.1% (n = 99) of the cases. HyperK was present in 61.2% (n = 63) of the pts. Pts with hyperK were older (62 ± 11 *vs.* 67 ± 11 years, p = 0.047) and had lower eGFR (74 ml/min/1.72 m² *vs.* 52 ml/min/1.72 m², p < 0.001). MRA were reduced in 10% (n = 6) of the pts and suspended in 23% (n = 14). ARNI were reduced in 1.6% (n = 1) of the hiperK pts and suspended in 5% (n = 3) and ACEi/ARA were suspended in 3% (n = 2). HyperK > 5.5 mEq/L (n = 33) was associated with higher rates of hospitalization (27.7 *vs.* 11.4% p = 0.043). Nevertheless, in multivariate analysis hiperK was not an independent predictor of HF hospitalization or mortality.
Conclusions: HyperK is frequent in pts with HF and limits the use of drugs with prognostic benefit. The prevalence of hyperK was high in this population. Although it frequently led to DMT reduction/suspension, hyperK was not associated with an independent increased risk of hospitalization or mortality in this population.

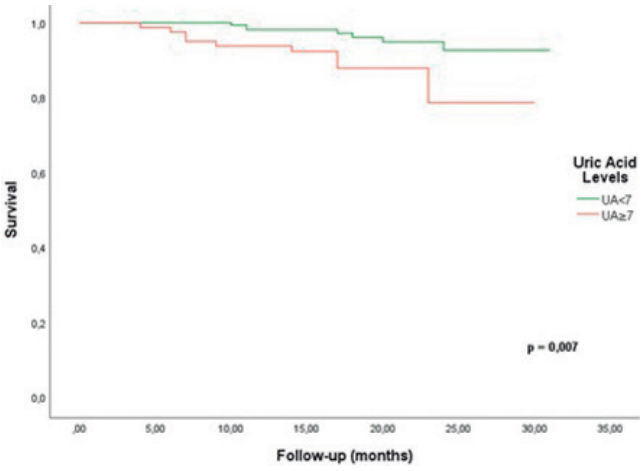
PO 177. SERUM URIC ACID LEVELS PROGNOSTIC VALUE IN CHRONIC HEART FAILURE PATIENTS WITH REDUCED EJECTION FRACTION

Pedro Rocha Carvalho, José Monteiro, Catarina Carvalho, Marta Bernardo, Ana Baptista, Rita Godinho, Miguel Moz, Paulo Fontes, Ilídio Moreira

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

Introduction: The relationship between serum uric acid (UA) and cardiovascular disease has been a matter of debate over the last years. Increased levels of UA may be either a marker of poor prognosis, which could be used in conjunction with other risk factors, or an active player in the pathogenesis of heart failure (HF) and thereby representing a novel and attractive therapeutic target.
Objectives: To study the prognostic impact of high levels of UA in patients with HF with reduced ejection fraction (HFrEF).
Methods: Retrospective study of consecutive patients admitted to a single heart failure outpatient clinic from February/2018 to December/2020, with an initial left ventricular ejection fraction (LVEF) < 50%. The primary outcome was cardiovascular mortality.
Results: A total of 267 patients were selected, with a mean age of 71.1 ± 11.1 years old, 69.0% were males and 40.0% had ischemic cardiomyopathy. In the initial evaluation, 31.5% had UA levels ≥ 7 mg/dl. These patients were mostly man (83.7 *vs.* 62.6%, p < 0.001) and had higher diuretic doses (30.2 *vs.* 20.2%, p = 0.071), but had less arterial systemic hypertension (61.4 *vs.* 72.8%, p = 0.041). Both groups had similar age (70.9 ± 11.8 *vs.* 71.4 ± 10.6 years, p = 0.727) and LVEF (30.1 ± 10.1 *vs.* 31.2 ± 7.7%, p = 0.323). Incidence of diabetes *mellitus* (35.1 *vs.* 34.1%, p = 0.868), active or previous smoking history (11.7 *vs.* 7.0%, p = 0.456 and 24.7 *vs.* 24.9%, p = 0.456, respectively),

functional NYHA class ≥ 2 (93.8 *vs.* 94.1%, p = 0.207), chronic kidney disease (15.4 *vs.* 11.0%, p = 0.327) and allopurinol prescription (21.2 *vs.* 14.0%, p = 0.151) were also comparable between both groups. During a median follow-up of 17 months (IQR 14-31), 17 patients (6.4%) experienced the primary outcome. After adjusting for sex, arterial hypertension and diuretic doses, UA levels ≥ 7 mg/dl on the first evaluation were an independent predictor of cardiovascular death in HFrEF (HR 2.73, 95%CI: 1.01-7.42).



Conclusions: In our heart failure outpatient clinic, patients with HFrEF with UA levels ≥ 7 mg/dl on the first evaluation had a higher risk of cardiovascular death. Larger randomized controlled trials are needed to predict the real significance and the eventual benefit of a new treatment approach for these patients.

PO 178. IRON STATUS VARIATION IN ACUTE HEART FAILURE: A PROSPECTIVE STUDY - RELEASE OF PRELIMINARY DATA

Gonçalo Durão-Carvalho, André Maia, Margarida Pimentel Nunes, Ana Lopes dos Santos, Anabela de Carvalho, Hugo Raposo Inácio, Joana Gamelas de Carvalho, Bruno Rocha, Gonçalo Cunha, Joana Duarte, Catarina Rodrigues, Célia Henriques, Inês Fornelos Araújo, Cândida Fonseca

Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de S. Francisco Xavier.

Iron deficiency (ID) is a frequent comorbidity in Heart Failure (HF) with symptomatic and prognostic impact and can be assessed through biomarkers, such as ferritin and transferrin saturation (TSAT). Due to the proinflammatory state characteristic of HF, ferritin cutoffs used to define ID are higher (absolute ID [AID] < 100 ng/mL or functional ID [FID] 100-299 ng/mL and TSAT < 20%) than in other conditions. In acute and frequently congestive HF, the optimal timing for biomarkers assessment and ID correction is not known. To address this gap in evidence, we performed a pilot study aiming to compare the Iron Status (IS) of patients at admission and at hospital discharge. The preliminary results are shown. A prospective observational study of patients admitted to an HF unit between August-October 2018 and June-November 2021 was done. Their IS at admission and discharge (after decongestion) was compared. Out of 98 eligible patients, we excluded those without the complete blood workup (n = 27), those who received ferric carboxymaltose (FCM) (n = 13) or blood transfusions (n = 8) between admission and discharge workup, those who died (n = 5), disease states which might influence IS or hemoglobin level (2 with an active infection at discharge, 1 with polycythemia), or therapy with oral iron before admission (n = 1). Regarding the included patients, 44% were women, median age was 76 years [63.5; 82] and median length of hospital stay was 7 days [5; 12]. Left ventricle ejection fraction was reduced in 46%, preserved in 44%, improved in 5% and mildly reduced in 5%. Comparing IS at admission and discharge, absence of ID was verified in 44 *vs.* 68% of patients, FID in 39 *vs.* 20%, and AID in 17 *vs.* 12%. Specifically, 26 patients (64%) maintained their IS; 9 (22%) with FID and 3 (7%) with AID were no longer iron deficient; 2 (5%) without ID developed FID; one patient (2%) changed from FID to AID. Comparing median admission and discharge values, hemoglobin was 12.6 g/dL (*vs.* 12.5 g/dL, Δ = 0), ferritin was 237 ng/mL (*vs.* 268 ng/mL, Δ = +9), TSAT 18% (*vs.* 24%, Δ = +5, Wilcoxon Signed Rank Test p = 0.001). In addition, the median accumulated fluid balance was -820 mL [-4,650; 707.5], and median ΔNT-proBNP was -2,049 pg/mL [-6,275; -290]. The transition from hypervolemia to euvolemia appears to parallel an improvement in IS. Thus, the decision to prescribe FCM could be deferred until patient iron status is reevaluated at discharge, in order to avoid unnecessary administrations.

PO 179. HIGH PREVALENCE OF POLYCYTHEMIA IN HEART FAILURE PATIENTS

Joana Silva Ferreira, Sara Gonçalves, José Maria Farinha, Ana Esteves, António Pinheiro, Rui Coelho, Rui Caria

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Introduction: Secondary polycythemia is associated with states of oxygen rarefaction such as altitude and lung disease. Heart failure (HF), similarly to lung disease, can be associated with periods of hypoxemia. However, the prevalence of polycythemia in HF patients has not yet been reported.
Objectives: To assess the prevalence of polycythemia in patients hospitalized for heart failure, whether it persists after hospital discharge and potential risk factors for this anomaly.

	Persistent polycythemia (N=10)	No or transitory polycythemia (n=91)	p
Patient characteristics and comorbidities			
Age	51 (46—60)	69 (60-76)	**<0.001**
Male	9 (90%)	62 (68%)	0.274
Preserved ejection fraction	0	22 (24%)	0.112
Ejection fraction	29 (24-36%)	30 (24-42%)	0.285
Smoking (current or past history)	7 (70%)	3 (30%)	**0.048**
Chronic obstructive pulmonary disease	0	10 (11%)	0.592
Sleep apnea	3 (30%)	10 (11%)	0.118
Multivariate analysis			
Age			**0.010**
Smoking			0.080
Ejection fraction (%)			0.977
Creatinine (mg/dL)			0.825

PO 179 Figure

Methods: We conducted an observational study including all consecutive patients (with no exclusion criteria) admitted in the Cardiology ward for HF between August 2018 and November 2021, which we compared with a control group of non-HF hospital admissions. Polycythemia was defined, according to the World Health Organization criteria, as hematocrit (Htc) > 49% or hemoglobin (Hb) > 16.5 g/dL in males and Htc > 48% or Hb > 16 g/dL in females. Patients (pts) who presented Hb or Htc values compatible with polycythemia in more than one assessment were then divided into two groups – "persistent polycythemia (PP)" and "transitory polycythemia" – according to whether the elevated Htc/Hb persisted or resolved after hospital discharge, respectively.
Results: We studied 101 pts admitted for HF (70% male with a median age of 68 years) with a median ejection fraction (EF) of 30%. 10% of patients in the HF group had chronic obstructive pulmonary disease and 13% had sleep apnea. The control group consisted of 101 pts, mostly admitted for acute coronary syndrome (67%) and dysrhythmias (20%). Apart from the higher prevalence of non-preserved ejection fraction in the HF group (78 *vs.* 26%, p < 0.001) and the higher prevalence of dyslipidemia in the non-HF group (62 *vs.* 45%, p = 0.014), there were no other significant differences in demographics and comorbidities between two groups. The prevalence of polycythemia in pts hospitalized for HF was 21%, from which approximately half persisted after discharge, a prevalence much higher to the one observed in the control group (10 *vs.* 2%, p = 0.007). Within the HF group, pts with PP were younger and were more often smokers. Prevalence of COPD and sleep apnea did not significantly differ. On multivariate analysis, age was the only independent predictor of PP.
Conclusions: This study reports a 10% prevalence of persistent polycythemia in patients with HF. To our knowledge, this is the first study to report this high prevalence of polycythemia in HF patients, which is much higher than the one observed in non-HF patients and comparable with its reported prevalence in COPD patients. We speculate that a response to chronic or repeated episodes of hypoxemia might promote erythropoietin (EPO) production and consequently result in a secondary polycythemia. Further studies with a larger sample (and dosing of EPO) are necessary to confirm this prevalence and establish the prognostic implications of PP.

PO 180. PLASMA VOLUME VARIATION AND GLOMERULAR FILTRATION RATE IN HEART FAILURE ADMISSIONS

Carolina Pereira Mateus, Mariana Passos, Inês Fialho, Joana Lima Lopes, Marco Beringuilho, João Baltazar Ferreira, David Roque

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

Introduction: The use of diuretics as management of Acute Heart Failure (AHF) is part of our daily routines. A known side effect of overly vascular volume depletion is worsening of renal function, which can also lead to activation of Renin-Angiotensin-Aldosterone System (RAAS), perpetuating the maladaptive pathophysiological mechanisms. The goal of this study was to assess the correlation between vascular volume contraction after diuretic usage, and glomerular filtration rate (GFR) in patients admitted for AHF.
Methods: Single center, retrospective study involving 258 consecutive patients admitted a district hospital's Emergency Department in a period of 6 consecutive months (median age of 74.3 ± 17.3 years, 54.3% female). Patients included exhibited AHF, defined as ≥ 2 clinical signs of Heart Failure, and were treated with diuretics. Differences between discharge and admission laboratory values for Haematocrit (ΔHtc), Haemoglobin (ΔHb), Sodium (ΔNa) and GFR (ΔGFR), using the Modification of Diet in Renal Disease (MDRD), were calculated. Weight difference was not taken into consideration because of inconsistent data. The relative change in plasma volume (PV) from admission until discharge was estimated using the formula: {([Hb admission/Hb discharge] × [(100-Htc discharge)/(100-Htc admission)])-1} × 100.
Results: From a total of 258 patients admitted with AHF, 11,6% were excluded for lacking laboratory assessment at admission or discharge, as well as patients suffering from documented bleeding or blood transfusions during the hospital stay. After furosemide treatment (mean of the maximum dosage was 69.3 ± 17.3 mg), PV increased in 61% (n = 139) and decreased in 39% (n = 89). Two groups were established, according to the mean percentage of PV (2.5%): Group 1 (G1), with preserved volume [%PV > 2.5% (varying between > 2.5% and 44%, n = 101] and Group 2 (G2), with non-preserved volume [%PV < 2.5% (varying between -13.8% and < 1.5%, n = 127]. ΔNa did not exhibit significant statistical differences between both groups (mean 0.73 ± 3.52 in G1 *vs.* 1.52 ± 4.56mEq in G2, p = 0.396). Patients from G2 had significantly less positive variations in ΔHb (mean of -1.34 ± 0.78 in G1 *vs.* 0.57 ± 1.01 g/dL in G2, p = < 0.001) and in ΔHtc (mean of -4.66 ± 2.69% in G1 *vs.* 2.21 ± 3.23% in G2, p = < 0.001). Also, patients in G2, with the greater PV contraction are those who have the lowest GFR during hospital stay (mean of 49.7 ± 25.9 in G1 *vs.* 41.8 ± 19.8 ml/min/1.73m^2 in G2, p = 0.045).
Conclusions: This study was able to find a correlation between the percentage of variation in plasma volume and the nadir of GFR in patients with AHF under diuretic treatment. Hb and Htc levels revealed as useful tools to assess congestion and volume contraction. Sequence calculation of PV variation may be an additional measure to be taken into consideration to avoid over-using diuretics and reduce the incidence of worsening renal function during hospital admission.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 5) - Exercício e Reabilitação Cardíaca 2

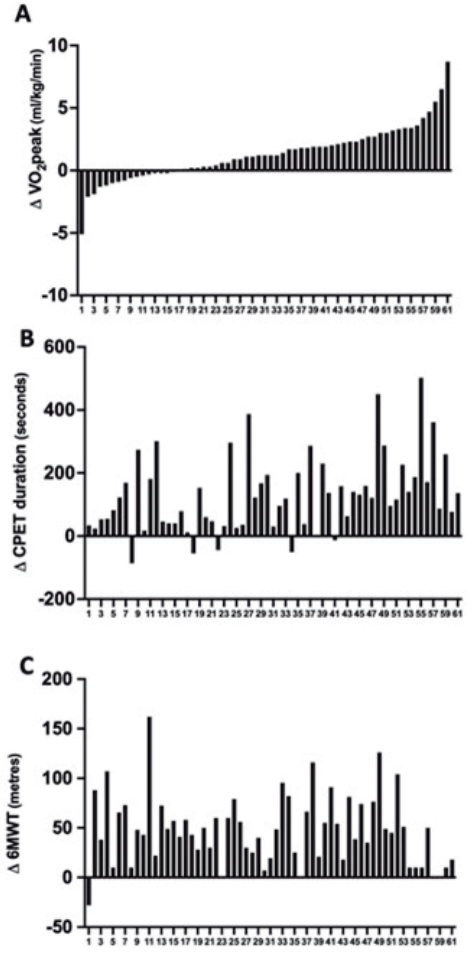
PO 181. EXERCISE TRAINING IMPROVES CARDIORESPIRATORY FITNESS IN HEART FAILURE PATIENTS: A LOOK BEYOND PEAK OXYGEN CONSUMPTION

Cristine Schmidt[1], Priscilla Gois Basílio[2], Maria Isilda Oliveira[2], Inês Lopes[3], Sandra Magalhães[4], Preza Fernandes[4], Rita Pinto[1], Fernando Ribeiro[5], Mário Santos[4]

[1]Faculdade de Medicina da Universidade do Porto. [2]CIAFEL, Faculdade de Desporto da Universidade do Porto. [3]Instituto de Ciências Biomédicas Abel Salazar. [4]Centro Hospitalar Universitário do Porto, EPE/Hospital Geral de Santo António. [5]Instituto de Biomedicina, Escola Superior de Saúde, Universidade de Aveiro.

Introduction: Exercise-based cardiac rehabilitation (ExCR) is an essential component in the treatment of heart failure (HF), as it improves functional capacity and quality of life, and reduces hospitalization rates. Cardiorespiratory fitness (CRF), as assessed by peak oxygen consumption (VO_2 peak) at a cardiopulmonary exercise test (CPET), is commonly used to assess the efficacy of ExCR because it is independently associated with all-cause mortality and HF hospitalization. To date, it remains poorly understood whether HF patients who do not show improvements on VO_2 peak after an ExCR program exhibit a concordant response in relation to other submaximal CRF parameters.
Objectives: To study the impact of an ExCR program on VO_2 peak, duration of the effort, and the distance walked in the six-minute walking test (6MWT) in HF patients.
Methods: This is a retrospective study that evaluated consecutive HF patients who attended and completed a phase-2 ExCR program between September 2019 to November 2021. The ExCR program consisted of a 12-week combined exercise program (60-80% of VO_2 peak), 2 training sessions/week, for a total of 24 sessions. All patients performed a CPET and the 6MWT before and after the ExCR program.
Results: Sixty patients (81%) who had an attended rate for at least 80% of exercise sessions were included in the study (65% males; age: 63 ± 12y; LVEF: 36 ± 11%). Overall, VO_2 peak improved by 1.31 ml/kg/min (95%CI: 0.7 to 1.8; p < 0.001), the duration of the CPET improved in 2.11 minutes (95%CI: 1.40 to 2.42; p < 0.001) and the distance at the 6MWT increased 48 meters (95%CI: 38 to 57; p < 0.001). VO_2 peak did not improve (a variation less than +10% of baseline) in 57% of patients. From those, 88% improved the duration of the test (> 10s). The 8% of patients that did not improve these 2 parameters, all had improved the walked distance in the 6MWT (+30m).

Figure 1: Response to different cardiorespiratory fitness parameters after an exercise-based cardiac rehabilitation program. A: Δ peak oxygen consumption; B: Δ duration of exercise test; C: Δ distance at the six-minute walking test.



PO 181 Figure

Conclusions: Our results suggest that the assessment of submaximal physiological variables beyond VO_2 peak can provide a more comprehensive understanding of the impact of ExCR programs in HF patients. Further studies are needed to assess the prognostic significance of these submaximal variables.

PO 182. VALUE OF CARDIOPULMONARY EXERCISE TEST SUBMAXIMAL PARAMETERS IN THE ASSESSMENT OF AORTIC STENOSIS PATIENTS

Rita Reis Santos, Mariana Paiva, Daniel a. Gomes, João Presume, Maria João Andrade, Luís Raposo, Anaí Durazzo, Luís Moreno, Miguel Mendes

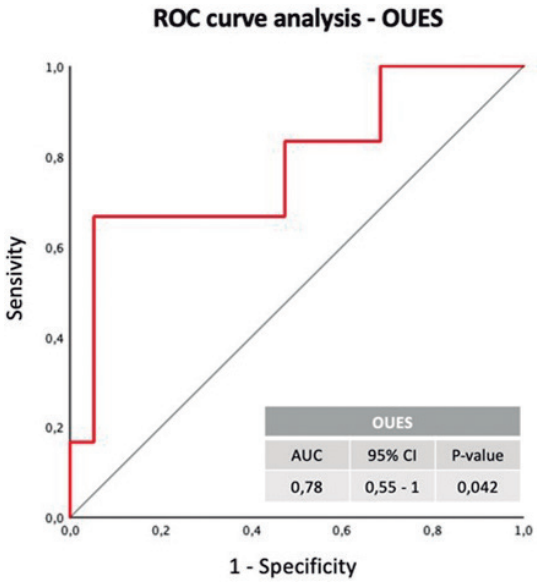
Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Exercise test is recommended for risk stratification of asymptomatic patients with severe aortic stenosis (AS), although a significant number of patients can't perform a maximal exercise test, increasing the potential value of sub-maximal parameters for the assessment of these patients.

Objectives: To assess which parameters could be useful for risk stratification in case of a submaximal Cardiopulmonary Exercise Testing (CPET) in asymptomatic patients with severe AS.

Methods: Retrospective evaluation of adult patients with asymptomatic severe AS, in a single center, who underwent CPET between December 2016 and November 2021. All patients underwent a treadmill CPET using an exercise protocol with progressive increase in workload. Patients were divided in group A (maximal CPET) or group B, respectively, if respiratory exchange ratio (RER) was > 1.10 at peak exercise or below this value. Known parameters accessed in a submaximal CPET were evaluated: mean minute ventilation/carbon dioxide production slope (VE/VCO2), VO2 value in first ventilatory threshold (VT1), peak circulatory power, and oxygen uptake efficiency slope (OUES).

Results: CPET was performed in 25 patients with severe asymptomatic AS (80 years ± 7 years, 56% male), median AVA was 0.86 cm^2 [IQR 0.65-0.95 cm^2] and transaortic pressure gradient was 46 mmHg [IQR 41-55 mmHg]. The most used protocol was a ramp slope. Nineteen patients (76%) didn´t reach a RER> 1.10 (group B) due to respiratory (26%) or peripheral limitation (53%). Comparing both groups, group B patients showed a shorter duration of exercise of (8 ± 3 min *vs.* 9 ± 4 min, p = 0.422), and a lowest mean peak VO2 (16.3 ± 3.6 *vs.* 20.5 ± 6.9 ml/kg/min, p = 0.207). In our population, bivariate analyses demonstrated that OUES was the only submaximal parameter that could discriminate both groups: Group B patients had the lowest values (1.53 [IQR 1.47-1.70] *vs.* 1.94 [IQR 1.56-2.11], p = 0.042). ROC curve analysis of OUES values revealed an AUC of 0.78 (p = 0.042) for maximal CPET prediction. The cut-off point with most sensitivity (S) and specificity (E) obtained using the Youden index (0.62) was 1.9 (S ≈ 67%; E ≈ 95%) (Fig.).



Conclusions: In our cohort of asymptomatic AS patients, even with submaximal CPET, OUES accurately identify patients with higher degrees of functional limitation. Whether OUES is useful as prognostic marker to the workflow treatment of AS it's worth to be assessed prospectively.

PO 183. CARDIAC OPTIMAL POINT: IDENTIFYING HIGH RISK PATIENTS FOR AN OPTIMAL APPROACH

Pedro Alves da Silva, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Beatriz Valente Silva, Ana Margarida Martins, Ana Beatriz Garcia, Catarina Simões de Oliveira, João Santos Fonseca, Inês Aguiar-Ricardo, Nelson Cunha, Rita Pinto, Fausto J. Pinto, Ana Abreu

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

Introduction: In recent years it has been proposed the concept of cardiorrespiratory optimal point (COP) to best characterize populations who underwent cardiac rehabilitation programmes (CRP). The COP is defined as the minimum ratio between ventilation and oxygen consumption (VE/VO2) obtained during the cardiopulmonary exercise test (CPET) and it has been suggested that COP values > 30 conveyed worse prognosis.
Objectives: To validate OP as a predictor of events and its correlation with exercise activity and quality of life on the long term.
Methods: Single center observational study of patients enrolled on CRP - from February 2018 to May 2019 – who did CPET as part of routine evaluation. COP was defined as the lowest point of VE/VO2 ratio. Clinical and laboratorial characteristics were obtained at admission and discharge of CRP. Exercise practice was accessed using IPAQ questionnaire and quality of life was assessed based on a validated inquire - Kansas City Cardiomyopathy Questionnaire (KCCQ-23) – both by phone interview.
Results: A total of 78 patients (mean age 63.2 ± 11.6, 84.6% male) were evaluated and followed for a mean follow-up of 2.68 ± 0.53 years. Main aetiology was ischemic heart disease (86%), followed by dilated cardiomyopathy (5.1%) and valvular heart disease (2.6%). A COP value below 30 correlated with a worse global score in KCC-23 ($r = 0.283$, $p = 0.47$), and in particular domains such as frequency and severity of symptoms (r 0.335, $p = 0.046$; and $r = 0.4$, $p = 0.16$, respectively), quality of life ($r = 0.293$, $p = 0.039$) and social limitation ($r = 0.5$, $p = 0.001$,). COP also correlated with VO2 peak in basal CPET ($r = 0.450$, $p < 0.001$,) and on follow-up CPET ($r = 0.303$, $p = 0.39$). COP failed to predict events or levels of exercise activity on the long term, as evaluated by the IPAQ score. However, COP> 30 did seem to correlate with a higher mortality rate on the follow-up although such trend was not statistically significant (possibly due to short follow-up time and sample size).
Conclusions: COP values > 30 identified patients with worse prognosis, predicting worse quality of life and higher mortality. Although it did not seem to be a good predictor of exercise adherence after CRP.

PO 184. VERY ACUTE BENEFITS ON PHYSICAL PERFORMANCE IN ELDERLY PATIENTS WHO UNDERGONE TAVI

Catarina Gregório, Nelson Cunha, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, João Santos Fonseca, Miguel Azaredo Raposo, Ana Abrantes, Inês Ricardo, Ana Abreu

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

Introduction: Transcatheter aortic valve implantation (TAVI) emerged as a safe and efficient procedure in patients with high or prohibitive surgical risk or in older patients. The prevalence of severe aortic stenosis is growing up, given de aging of population. These patients are much often frailty and experience low levels of physical activity and functional capacity as a result of their aortic valve disease and comorbidities. When untreated severe aortic stenosis has a poor prognosis so it is of utmost importance to restore the normal hemodynamic condition and consequently to improve functional capacity.
Objectives: To assess the acute benefits (in 1 moth) of TAVI on functional capacity and physical performance.
Methods: Single center prospective study of patients submitted to TAVI between April 2021 and September 2021. Patients were evaluated at baseline (before TAVI) and one month after the procedure. To assess physical activity and functional capacity it was used the International Physical Activity Questionnaire (IPAQ) and the short physical performance battery (SPPB) which is a group of measures that combines the results of the gait speed (two timed trials of a 4-m walk – fastest recorded), chair stand (time to raise for a chair 5 times) and balance tests (ability to stand for 10 seconds with feet in 3 different positions). Additionally, patients were submitted to handgrip strength test. Paired sample t-test and Wilcoxon test were used to statistical analysis.
Results: We included 20 patients, with a mean age of 85 ± 5.86 years, 40% (8) male. 19 patients undergone TAVI due severe native aortic stenosis and 1 due to bioprosthetic aortic valve dysfunction. The vascular access site was transfemoral in 19 patients and transapical in 1 patient. No patient had vigorous physical activity either before or after TAVI, but the daily sitting time was lower after the procedure (mean time: 634 *versus* 570 minutes), however not statistically significant. Regarding the results of SPPB patients experience improvements in balance ($p = 0.035$) and chair stand (time to raise for a chair 5 times: 19.04 *vs.* 17.05 seconds), $p = 0.01$. Patients tended to be faster in 4m velocity test, however with no statistical difference (8.49 *vs.* 6.6 seconds). No statistical differences were also observed in handgrip strength test.
Conclusions: In an elderly population, TAVI appears to have an early and beneficial effect (in 1 moth) on some domains oh physical activity and functional capacity.

PO 185. TREADMILL TESTING AND PROGNOSIS: ARE WE LOOKING AT THE RIGHT THINGS?

Rafaela Gonçalves Lopes, Inês Oliveira, Isabel Cruz, Bruno Bragança, Joel Ponte Monteiro, Alexandra Castro, Conceição Queirós, Paula Pinto, Aurora Andrade

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

Introduction: Patients with known coronary artery disease (CAD) are frequently re-evaluated with treadmill stress-testing (TT). Typical parameters for decision making are ST-T changes, symptoms, and stress-test positivity. However the long-term prognostic value of such parameters is unclear.

Objectives: To identify TT parameters associated with all-cause mortality.
Methods: We performed a retrospective analyze of a cohort of 497 consecutive patients with known CAD, who underwent Bruce protocol treadmill testing (TT) between 2009-2010, followed during 9.7 ± 2.7 years. We analyzed known cardiovascular risk factors and the available parameters of TT, and their correlation with the occurrence of all-cause mortality during the follow-up.
Results: During the follow-up period 73 deaths occurred, of these 22 were cardiovascular (CV) deaths (15%). In survival analyses, ST-T changes (p = 0.55), symptoms (p = 0.59), and test positivity (p = 0.618) were not associated with death. Age (68.1 ± 10.7 *vs.* 73.9 ± 11.4, p < 0.01), heart rate (HR) at peak of effort (134.9 ± 19.1 *vs.* 123.7 ± 23.4, p < 0.01), metabolic equivalent of task (MET) (9.1 ± 1.8 *vs.* 7.89 ± 1.76, p < 0.01), double product at peak (22,724.3 ± 5,049.3 *vs.* 20,830 ± 5,760.6, p = 0.03), variation of heart rate from peak to rest (63 ± 18 *vs.* 51 ± 22, p < 0.01) and variation of heart rate from rest to recovery (14.9 ± 16.3 *vs.* 9.4 ± 7.7, p = 0.03) were statistically correlated with all-cause mortality.
Conclusions: This work shows that the most commonly valued treadmill stress testing parameters might not be relevant prognostic markers in patients with known CAD. On the other hand, the underappreciated simple parameters might predict all-cause mortality in this group of patients.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 6) - DAC e Cuidados Intensivos 7 - Marcadores de Risco e Prognóstico

PO 186. CHRONOTROPIC INCOMPETENCE- STILL A SUITABLE INDICATOR?

Isabel Martins da Cruz, Inês Oliveira, Bruno Bragança, Rafaela Lopes, Rui Pontes dos Santos, Conceição Queirós, Aurora Andrade

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

Introduction: Chronotropic incompetence (CI) is defined as the incapacity to increase heart rate in response to increased activity. It is common in patients (pts) with cardiovascular disease; however, its importance is often undervalued in clinical practice.
Objectives: Evaluate the prognostic value of CI in pts with known coronary artery disease (CAD) who performed Bruce protocol treadmill testing.
Methods: Unicentric, retrospective analysis of consecutive pts with known CAD who underwent Bruce protocol treadmill testing between 2009 and 2014. Chronotropic index (ChI) was calculated according to the following formula: (peak heart rate-resting heart rate)/(220-age-resting heart rate). CI was generally defined as ChI< 80% (or < 62% to pts prescribed with beta-blockers). Pts were divided in two groups- G1: CI and G2: normal chronotropic response. Events were defined as: all-cause mortality, cardiovascular mortality, *de novo* heart failure, CAD progression, myocardial infarction and stroke.
Results: A total of 471 pts were included (87.3% male, mean age 69 ± 9.8 years). Mean follow-up was 9.7 years. The groups were similar regarding sex (p = 0.157), age (p = 0.057), body mass index (p = 0.172), diabetes (p = 0.110), arterial hypertension (p = 0.782), dyslipidemia (p = 0.549), myocardial infarction (p = 0.487) and left ventricle ejection fraction (p = 0.656). CI was identified in 129 pts (27.4%). Comparing G1 *vs.* G2, no differences were found related to all-cause mortality (18.6 *vs.* 11.7%, p = 0.051), *de novo* heart failure (10.9 *vs.* 9.6%, p = 0.698), CAD progression (31.8 *vs.* 26.3%, p = 0.238), myocardial infarction (34.1 *vs.* 32.2%, p = 0.688) and stroke (9.3 *vs.* 8.8%, p = 0.857). However, statistically significant differences were found regarding cardiovascular deaths (7.0 *vs.* 2.6%, p = 0.028).
Conclusions: CI is a simple and easily available parameter that shows a clear association with cardiovascular death in a long term follow-up of consecutive pts with known CAD. Even though cardiovascular death was the only endpoint with a statistically significant difference between the groups, G1 presented a higher absolute rate of pts in all endpoints.

PO 187. ACUTE KIDNEY INJURY ON ADMISSION FOR ACUTE CORONARY SYNDROME AS A PREDICTOR OF 1-YEAR MORTALITY

Miguel Carias de Sousa[1], Bruno Piçarra[1], Ana Rita Santos[1], Rita Rocha[1], Mafalda Carrington[1], Francisco Cláudio[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 - Centro Nacional de Coleção de Dados em Cardiologia.

Introduction: The approach of patients admitted for acute coronary syndrome (ACS) is a challenge due to the high complications that can occur. This can affect the prognosis in these patients. Acute kidney injury (AKI) is often observed by external damage or decreased peripheral perfusion conditioned by the patient's hemodynamic status.
Objectives: To evaluate the AKI as a predictor of in-hospital and 1-year mortality in patients with ACS.
Methods: A 3-year retrospective study was performed, including patients from a National Multicenter Registry with ACS. A linear regression analysis and a Cox regression survival analysis were performed, with in-hospital mortality and 1-year mortality as endpoints respectively. The sample was divided into two groups: with and without AKI. An increase in creatinine of 0.3 mg/dL and > 50% compared to baseline value was defined as AKI. The population was also characterized according to demographic data, cardiovascular risk factors (CVRF), days of hospitalization and in-hospital complications (reinfarction, major hemorrhage, stroke, heart failure, atrioventricular block, atrial fibrillation and sustained ventricular tachycardia). Thus, the mortality of patients with ACS with and without AKI was compared.
Results: 5,275 patients were enrolled and 294 met the mortality endpoints (5.6%). The population consisted of 72.4% of male elements and 27.6% of female elements, with an average age of 66 ± 13 years. Regarding CVRF, 70.0% had arterial hypertension, 60.0% dyslipidemia, 29.7% Diabetes mellitus and 27.8% were smokers. A Linear regression analysis revealed that elements with AKI had higher in-hospital mortality than those without [b = 0.891; p = 0.002; OR 2.437 (CI: 1.392-4.269)]. In addition, these elements had a greater number of major bleeding events during the inpatient regime (3.0 *vs.* 1.1%; p < 0.001) and longer hospital stays (8.3 days *vs.* 4.7 days; p < 0.001). The other associations were not statistically significant. According to a survival analysis using a Cox regression, elements with AKI had an in-hospital and 1-year mortality 1.813 times higher compared to those without AKI [b = 0.595; p = 0.001; HR 1.813 (CI: 1.262-2.605)].
Conclusions: In ACS, the risk of in-hospital and 1-year death in patients with AKI is 81.3% higher compared to those without. Thus, we conclude that AKI entails a high-risk profile in patients with ACS, so its identification and approach is extremely important and could change the prognosis in these patients.

PO 188. MODIFIED M-CHA2DS2-VASC SCORE PREDICTS MORTALITY AT EMERGENCY DEPARTMENT ADMISSION IN COVID-19 PATIENTS

Ana Beatriz Garcia, Beatriz Valente Silva, Sara Couto Pereira, Pedro Silvério António, Pedro Alves da Silva, Joana Brito, Catarina Simões de Oliveira, Ana Margarida Martins, Catarina Gregório, Ana Abrantes, Miguel Azaredo Raposo, Carlos Mendonça, Luísa Urbano, Tiago Rodrigues, Cláudia Jorge, Rui Plácido, Fausto J. Pinto

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

Introduction: Many risk factors comprising the CHA2DS2VASc score are recognized as risk factors for venous thromboembolism and mortality in COVID-19 patients. A modified CHA2DS2VASc score (M-CHA2D2VASc), created

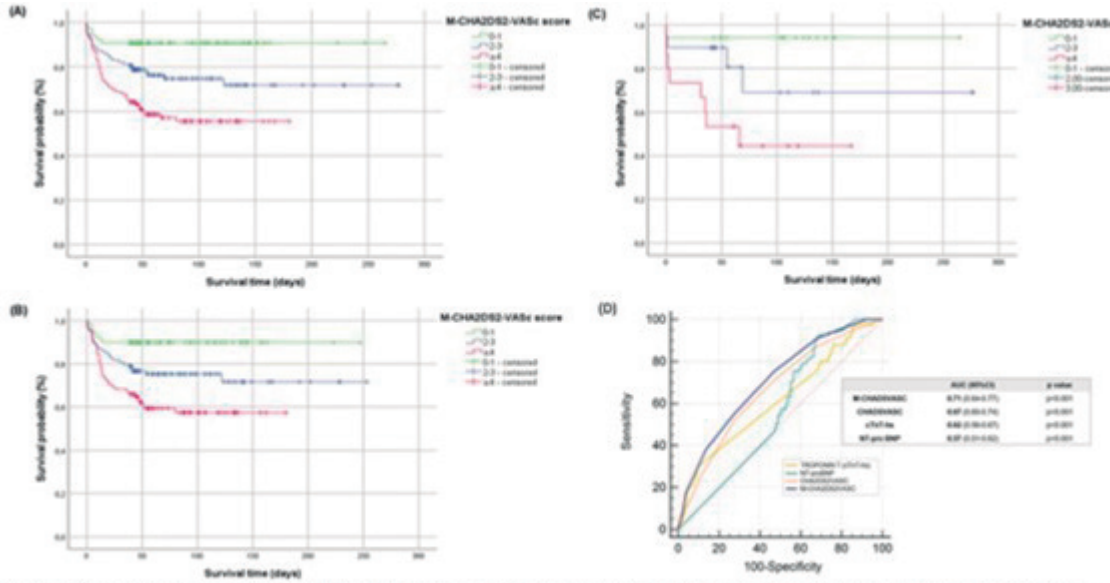


Fig. 1 Kaplan-Meier survival analysis stratified by terciles of M-CHADsVASc score: low-risk (0-1 points), intermidiate risk (0-2points), and high risk (≥4). (A) All cohort (n=300); log-Rank p<0.001; (B) Hospitalized patients (n=249); log-Rank p<0.001; (C) Discharged patients from emergency department (n=51); log-Rank p=0.007. (D) ROC analysis comparing the predictive ccuracy of M-CHADsVASc, CHADsVASc, high-sensitive troponin (cTnT-hs) and N-terminal prohormone BNP (NTproBNP).

PO 188 Figure

by changing gender criteria from female to male, has been proposed to predict in-hospital mortality in COVID-19 patients.

Objectives: To evaluate the prognostic value of M-CHA2D2VASc to predict pulmonary embolism (PE) and short-term mortality in COVID-19 patients admitted to the Emergency Department (ED).

Methods: Retrospective study of consecutive patients admitted to the ED who underwent computed tomography pulmonary angiography due to clinical worsening. Patients were stratified into three M-CHA2DS2VASc risk categories: low (0-1 points), intermediate (2-3 points) and high risk (≥ 4 points).

Results: We included 300 patients (median age 71 years, 59% male). The PE incidence was 15%, and no difference was found in PE incidence according to M-CHA2DS2VASc categories (p = 0.531). The overall mortality was 27% (median follow-up: 56 days). M-CHA2DS2VASc was higher in non-survivors than in survivors [4 (IQR 3-5) *vs*. 2 (IQR 1-4), respectively, p < 0.001). M-CHA2DS2VASc was identified as an independent predictor of mortality in a multivariate logistic regression analysis (OR 1.406, p = 0.007). Kaplan-Meier showed that M-CHA2DS2VASc was associated with short-term mortality (log-rank test < 0.001): the survival rate was 92%, 80% and 63% in the lower, intermediate and higher risk groups. The prognostic value of M-CHA2DS2VASc was maintained whether the patients were hospitalized or discharged from ED (log-rank test p < 0.001 and p = 0.007, respectively).

Conclusions: M-CHA2DS2VASC might be a simple score to predict short-term mortality in COVID-19 patients admitted to the ED.

PO 189. C-REACTIVE PROTEIN AS A PROGNOSTIC MARKER IN MYOCARDIAL INFARCTION WITH NON-OBSTRUCTIVE CORONARY ARTERIES

Eric Alberto 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], João Gameiro[1], André Azul[1], José Sousa[1], Cátia Ferreira[1], Rui Baptista[1], Pedro Monteiro[1], Sílvia Monteiro[1], Francisco Gonçalves[1], Marta Madeira[1], Lino Gonçalves[1]

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Introduction: The prognosis of patients with myocardial infarction with non-obstructive coronary arteries (MINOCA) is worse than that of the general population. Nevertheless, the predictors for a worse outcome in patients with MINOCA are not fully determined. The aim of this study was to evaluate the prognostic value of C-Reactive Protein (CRP) in MINOCA patients.

Methods: Retrospective analysis of 706 consecutively admitted patients due to acute myocardial infarction (AMI), in whom coronary angiography revealed absence of obstructive coronary artery disease (≥ 50% stenosis). CRP levels were measured at admission. Demographic characteristics, symptoms at presentation, past medical history, laboratory characteristics and medication at discharge were examined. The primary endpoint analysed was all-cause mortality at 5 years. Possible predictors of the endpoint were assessed by Cox regression models. When statistically significant values were found in univariable analysis, multivariate analysis was used to determine whether CRP was an independent predictor of the outcome.

Results: In the studied sample, 55% of the patients were male. Median age was 64 [interquartile range (IQR) 55-72] and median body mass index was 27.3 kg/m^2 (IQR 24.6-30.1). Regarding past medical history, 76.5% were hypertensive, 77.8% were dyslipidemic, 12.6% were smokers, 37.4% were diabetic and 59.3% had a previous history of angina. At presentation, 94.8% were in Killip 1, 3.8% were in Killip 2, 1% were in Killip 3 and 0.4% were in Killip 4. At admission, median CRP was 0.38 mg/dL (IQR 0.14-0.81), median Troponin I was 0.09 ng/ml (IQR 0.04-1.65), median creatinine was 0.85 mg/dL (IQR 0.73-1), median low density lipoprotein cholesterol (LDL-C) was 121.5 mg/dL (IQR 97.5-146), median haemoglobin was 13.6 g/dL (IQR 12.5-14.6) and median left ventricular ejection fraction (LVEF) was 58% (IQR 50-60). At discharge, 74.2% had a beta-blocker prescribed, 88.4% had a renin-angiotensin system inhibitor (RASi) prescribed, 98.2% had a statin prescribed and 76.5% had aspirin prescribed. All-cause mortality at 5 years was 8.5%. In univariable analysis, CRP was significantly associated with the endpoint [hazard ratio (HR) 1.138 per 1 mg/dL increase, 95%CI 1.090-1.188, p < 0.001], as was age, diabetes, Killip class, troponin I, creatinine, LDL-C, haemoglobin, LVEF and absence of prescription of RASi. In multivariate analysis, CRP remained significantly associated with the endpoint (HR 1.141, 95%CI 1.087-1.199, p < 0.001), as did age, creatinine and absence of prescription of RASi.

Conclusions: CRP at admission seems to be an independent predictor of all-cause mortality at the 5-year mark. This could indicate that inflammation has an important role in the pathophysiology and prognosis of MINOCA patients. It would be interesting to investigate if targeting inflammation would improve the long-term prognosis of these patients.

PO 190. PERFORMANCE OF DIFFERENT HIGH SENSITIVITY CARDIAC TROPONIN ASSAYS IN PATIENTS WITH SUSPECTED ACUTE CORONARY SYNDROME

Gustavo M. Campos, Ana Vera Marinho, Luís Leite, André Azul, Cátia Ferreira, Sofia Martinho, José Paulo Almeida, João Rosa, Rita Gomes, Patricia Alves, Rui Batista, João Pego, Isabel Fonseca, Fernando Rodrigues, Francisco Gonçalves, Lino Gonçalves

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

Introduction: High-sensitivity cardiac troponin (hs-cTn) is increasingly used in the assessment of cardiovascular (CV) risk in the emergency department (ED). Although guidelines recommend the use of 99th centile as the diagnostic threshold for myocardial infarction (MI), there is less consensus on the optimal troponin threshold to rule-out patients with low risk of CV events with a single measurement.

Objectives: We aimed to compare prognostic accuracy of three high-sensitivity troponin assays in a large cohort of patients admitted in ED.
Methods: Prospective cohort study enrolling all consecutive patients admitted to the ED of a tertiary hospital with suspected MI. Triple testing included Abbott Architect hs Troponin, Roche Elecsys hsTroponin T and Siemens Dimension EXL Troponin. The predefined combined endpoint included MI, unscheduled coronary revascularization and CV mortality.
Results: A total of 548 patients (mean age of age 67 ± 19 years) were included. During a mean follow-up of 34 ± 10 months, the incidence of primary endpoint was 12.6%. With only one measurement, the Roche Elecsys assay had the highest accuracy (AUC: 0.84, 95%CI: 0.75-0.93). The negative predictive values for undetectable values of troponin in Abbott Architect and Roche Elecsys assays were: 100.0% (95%CI: 90.0-100.0%) and 99.2 (95%CI: 97.2-100.0%), respectively. Using an optimized risk stratification threshold of 5 ng/L in Abbott Architect, compared with the limit of < 2 ng/L, identifies twice more low risk patients.
Conclusions: Both hs-cTn assays have excellent accuracy in the evaluation of suspected ACS, but a higher threshold can optimize the selection of patients that can be safely discharged with a single measurement.

Baseline Characteristics	Total (n=548)
Age (years)	66.5 ± 18.7
Male gender	275 (50.2%)
Symptoms	
- Chest pain	199 (36.3%)
- Dyspnea	93 (17.0%)
- Nausea	65 (11.9%)
- Dizziness	59 (10.8%)
- Syncope	47 (8.6%)
- Palpitations	36 (6.6%)
Past medical history:	
- Hypertension	349 (63.7%)
- Diabetes	129 (23.5%)
- Dyslipidaemia	217 (39.6%)
- Active smoker	21 (3.8%)
- Ex-smoker	20 (3.6%)
- Peripheral arterial disease	22 (4.0%)
- Advanced chronic kidney disease	21 (3.8%)
- Previous HF admission	21 (3.8%)
- Atrial fibrillation/flutter	83 (15.1%)
- Previous stroke	50 (9.1%)
- Previous venous thromboembolism	14 (2.6%)
Known coronary artery disease:	63 (11.5%)
- History of AMI	57 (10.4%)
- Previous PCI	25 (4.6%)
- Previous CABG	5 (0.9%)
Previous medication:	
- Single antiplatelet	139 (25.4%)
- Dual antiplatelet	14 (2.6%)
- Anticoagulation	91 (16.6%)
- Statin	180 (32.8%)
- Nitrates	20 (3.6%)
- Beta-blockers	141 (25.7%)
- ACE-I/ARB	244 (44.5%)
- Diuretics	156 (28.5%)
- Insuline	39 (7.1%)
- Dialysis	5 (1.1%)
GRACE score	118 ± 38

Table 1.

Final diagnosis (most frequent)	Total (n=548)
Acute myocardial infarction	43 (7.8%)
- Type 1 MI ○ ST-elevation MI	25 4.6%) 9 (1.6%)
- Type 2 MI	17 (3.1%)
- Type 4MI	1 (0.2%)
Respiratory infection	40 (7.3%)
Heart failure	34 (6.2%)
Tachiarrhythmia	39 (5.3%)
Stroke / Transient Ischemic Attack	23(4.2%)
Hypertensive crisis	17 (3.1%)
Acute gastroenteritis	13 (2.4%)
Other	75 (13.7%)

Table 2.

Clinical endpoints	Total (n=548)
Type 1 MI	29 (5.3%)
Unscheduled revascularization	21 (3.8%)
Admission for decompensated HF	39 (7.1%)
CV mortality	139 (25.4%)
Global mortality	61 (11.1%)
Combined enpoints:	
MI + Revasc + HF + Global death	178 (32.5%)
MI + Revasc + HF + CV death	69 (12.6%)
AMI + Revasc + CV death	51 (69.3%)

Table 3.

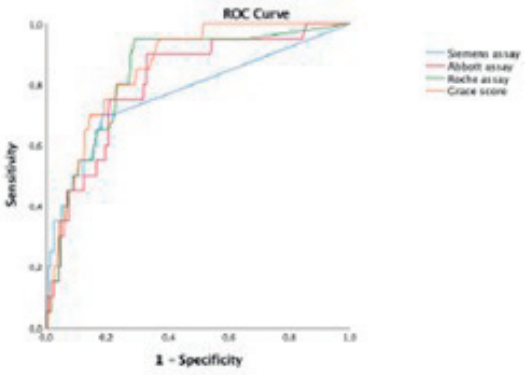

Figure 1.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 7) - Intervenção Cardíaca Coronária e Estrutural 3 - Foco na Válvula Aórtica

PO 191. IMPACT OF THE USE OF CUSP OVERLAP PROJECTION TECHNIQUE IN THE INCIDENCE OF POST-TAVR PERMANENT PACEMAKER IMPLANTATION WITH SELF-EXPANDING VALVES

Ana Rita Moura[1], Alberto Rodrigues[2], Pedro Braga[3], Cláudio Guerreiro[3], Gustavo Pires de Morais[3], Lino Santos[3], Bruno Melica[3], Ricardo Fontes-Carvalho[3]

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Introduction: Current rates of new Permanent Pacemaker (PPM) Implantations in the context of Transcatheter Aortic Valve Replacement (TAVR) range from 2-36% and that necessity is related to worse prognosis. The use of self-expanding valves and a lower valve implantation depth are two factors associated with an increased risk of conduction disturbances post-TAVR. Theoretically, cusp overlap implantation technique has the potential to enable a higher valve deployment by eliminating parallax of the delivery catheter.
Objectives: To compare the in-hospital incidence of PPM post-TARV using self-expandable valve according to the fluoroscopic guidance technique.
Methods: Retrospective, single-centre study, with evaluation of patients consecutively submitted to TAVR with self-expanding CoreValve™ between July 2020 and July 2021 dichotomized according to the use of cusp overlap implantation technique for fluoroscopic valve implantation guidance.
Results: 97 patients were included, predominantly women (55.7%), with a mean age of 78.6 ± 8.1 years old, with severe aortic stenosis of the native valve being the most common indication for TAVI (86.6%). Cusp overlap view technique was applied in 50.5% of the patients (n = 49). Frailty and co-morbidities were the most common cause for surgical refusal (54.6%). There was a significantly higher percentage of previous medication with β-blockers in the group of patients in whom was used the standard fluoroscopic technique (43.8 *vs.* 20.8%, p = 0.02); there were no other relevant differences related to the baseline characteristics. First degree atrioventricular block was present in 20.8% and complete right bundle block in 13.0% of the patients. Incidence of in-hospital post-TAVR PPM implantation wasn't significantly different between the two cohorts of patients (cusp overlap *vs.* standard approach: 22.4 *vs.* 25%, p = 0.77) (78.3% implanted in the context of complete heart block). Likewise, there were similar proportions of in-hospital new-onset of complete left bundle branch block (27.5 *vs.* 33.3%, p = 0.95), volume of contrast used (145.4 ± 41.6 mL *vs.* 148.7 ± 76.7 mL, p = 0.25), fluoroscopy time (16.6 ± 10.1 min *vs.* 19.5 ± 10.8 min, p = 0.54) and radiation dose (561.9 ± 426.8 mGy *vs.* 815.1 ± 537.8 mGy, p = 0.07).
Conclusions: This study shows that using the cusp overlap view for self-expanding valve implantation does not seem to achieve a significant reduction in in-hospital PPM implantation rate in comparison with the traditional 3 cusp co-planar fluoroscopic view. A larger and probably randomized clinical trial is needed to confirm these results.

PO 192. PREDICTORS OF FUNCTIONAL RECOVERY AFTER PERCUTANEOUS AORTIC VALVE IMPLANTATION – DATA FROM 459 CASES

Diogo Santos Ferreira[1], Isabel Fernandes[2], Silva Diaz[2], Cláudio Guerreiro[1], Mariana Brandão[1], Mariana Ribeiro Silva[1], Gualter Silva[1], Pedro Ribeiro Queirós[1], Eulália Pereira[1], Gustavo Pires de 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: Aortic valve stenosis is now the most common primary valve lesion requiring intervention and is frequently associated with heart failure symptoms, which can be easily assessed through New York Heart Association (NYHA) classification. Transcatheter Aortic Valve Implantation (TAVI) is an

Table 1 – Predictors of NYHA recovery ≥1 class after TAVI.

Characteristic	NYHA non-responders N = 145[1]	NYHA responders N = 314[1]	p-value[2]
Sex			**0.009**
Male	56 (39%)	163 (52%)	
Female	88 (61%)	150 (48%)	
Age (years)	82 [77, 85]	81 [75, 85]	0.3
Body mass index (kg/m²)	26.9 [24.6, 30.3]	27.0 [24.1, 29.7]	0.9
NYHA class (baseline)			**<0.001**
1	7 (4.8%)	0 (0%)	
2	112 (77%)	83 (26%)	
3	26 (18%)	192 (61%)	
4	0 (0%)	39 (12%)	
EuroScore II (%)	3.9 [1.9, 5.4]	4.2 [2.7, 6.7]	**0.002**
STS score (mortality, %)	3.35 [2.46, 5.46]	4.01 [2.76, 6.04]	0.055
STS score (morbimortality, %)	20 [15, 26]	21 [16, 29]	0.10
COPD	36 (25%)	47 (15%)	**0.010**
Previous CABG	10 (6.9%)	50 (16%)	**0.008**
Anemia	50 (39%)	127 (40%)	0.2
Atrial fibrillation	41 (28%)	106 (34%)	0.2
Aortic valve area (cm²)	0.70 [0.60, 0.80]	0.70 [0.50, 0.80]	>0.9
Transaortic maximum gradient (mmHg)	78 [66, 96]	76 [64, 93]	0.5
Transaortic mean gradient (mmHg)	48 [41, 60]	46 [40, 57]	0.4
Moderate-to-severe aortic insufficiency	46 (17%)	12 (16%)	>0.9
Ejection fraction (%)	57 [52, 62]	55 [42, 59]	**<0.001**
Reduced ejection fraction (≤40%)	8 (10%)	39 (22%)	**0.029**
Stroke volume (ml)	72 [59, 89]	72 [57, 89]	0.9
TAVI design			0.13
Self-expandable	88 (61%)	174 (56%)	
Balloon-expandable	51 (35%)	133 (43%)	
Maximum gradient after TAVI (mmHg)	18 [13, 25]	19 [14, 25]	0.6
Mean gradient after TAVI (mmHg)	10.0 [7.0, 14.0]	10.0 [7.6, 13.0]	0.6
Ejection fraction at discharge (%)	56 [52, 60]	55 [47, 59]	0.064
Transaortic flow at discharge (ml/s)	252 [213, 302]	246 [204, 294]	0.4
Stroke volume at discharge (ml)	72 [61, 83]	66 [56, 83]	0.054
Estimated creatinine clearance (ml/min²)	50 [37, 66]	49 [38, 66]	>0.9
Pacemaker implantation	23 (16%)	44 (14%)	0.6

[1]n (%); Median [IQR]
[2]Pearson's Chi-squared test; Wilcoxon rank sum test; Fisher's exact test

Table 2 – Predictors of NYHA recovery ≥2 classes after TAVI.

Characteristic	NYHA recovery <2 N = 371[1]	NYHA recovery ≥2 N = 88[1]	p-value[2]
Sex			0.063
Male	169 (46%)	50 (57%)	
Female	200 (54%)	38 (43%)	
Age (years)	82 [76, 85]	79 [74, 83]	**0.002**
NYHA class (baseline)			**<0.001**
1	7 (1.9%)	0 (0%)	
2	195 (53%)	0 (0%)	
3	160 (43%)	58 (66%)	
4	9 (2.4%)	30 (34%)	
EuroScore II (%)	3.9 [2.2, 5.8]	5.0 [3.6, 9.6]	**<0.001**
STS score (mortality, %)	3.70 [2.56, 5.42]	4.90 [2.94, 7.37]	**<0.001**
STS score (morbimortality, %)	20 [15, 26]	26 [19, 35]	**<0.001**
Arterial Hypertension	272 (83%)	68 (85%)	0.6
Diabetes mellitus	132 (36%)	49 (55%)	**0.001**
Dyslipidemia	231 (70%)	65 (81%)	**0.048**
COPD	73 (20%)	10 (11%)	0.066
Ejection fraction (%)	55 [46, 60]	55 [40, 57]	0.078
Reduced ejection fraction (≤40%)	32 (16%)	15 (27%)	0.056
Ejection fraction at discharge (%)	55 [50, 59]	54 [43, 58]	**0.047**
Serum creatinine (mg/dl)	1.02 [0.85, 1.33]	1.12 [0.93, 1.51]	**0.035**
Creatinine clearance (ml/min²)	49 [37, 66]	50 [39, 65]	>0.9

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increasingly attractive solution for its treatment as a less-invasive approach, especially in a higher surgical risk subgroup of patients. However, not all patients exhibit a symptomatic improvement after the procedure.
Methods: A single-centre retrospective database of all consecutive TAVI procedures performed between March 2012 and December 2019 was analyzed. The primary outcome was defined as a reduction of NYHA class of at least 1 point over the six months after treatment, and the secondary outcome considered a reduction of at least 2 classes. Clinical, echocardiographic and blood-analysis data previous to TAVI were explored as potential predictors of good NYHA response, using Pearson's Chi-squared test, Wilcoxon rank sum test and Fisher's exact test, as appropriate. A $p < 0.05$ was considered statistically significant.
Results: A total of 459 cases had full information regarding NYHA status both prior and 6 months after TAVI (Fig.). 68% patients improved at least one NYHA class, with a less predominance of female patients on NYHA responders (48% *vs.* 61%, p = 0.009). Patients with a higher estimated surgical risk tended to exhibit a better symptomatic response after the procedure (p = 0.002 for EuroSCORE II, p = 0.055 and p = 0.10 for STS mortality and morbimortality, respectively). Fewer patients suffered from chronic obstructive pulmonary disease (COPD) in the NYHA-responders subgroup (15% *vs.* 25%, p = 0.01). Ejection fraction (EF) was slightly lower among the patients who recovered at least one functional class (55 *vs.* 57%, p < 0.001), and there was a higher predominance of patients with reduced EF (≤ 40%, 22% *vs.* 10%, p = 0.028). 19% of patients improved at least 2 functional classes, and these tended to be also younger (78- *vs.* 82-years-old, p = 0.002), more frequently diabetic and dyslipidemic and with higher basal serum creatinine, despite no differences in estimated creatinine clearance.
Conclusions: According to the present study, only about two-thirds of patients improved their NYHA class after TAVI. Basal characteristics portraying a higher periprocedural risk are associated with symptomatic improvement over follow-up, thus demanding a more careful risk-benefit consideration. The identification of accurate predictors of clinical response to treatment might better guide patient selection and expectations regarding TAVI for severe aortic stenosis.

PO 193. BLEEDING AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION – WHAT ARE THE OUTCOMES AND HOW CAN WE PREDICT IT

Alexandra Castelo, André Grazina, Tiago Mendonça, Inês Rodrigues, Vera Ferreira, Pedro Brás, Sofia Jacinto, António Fiarresga, Ruben Ramos, Duarte Cacela, Rui Ferreira

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

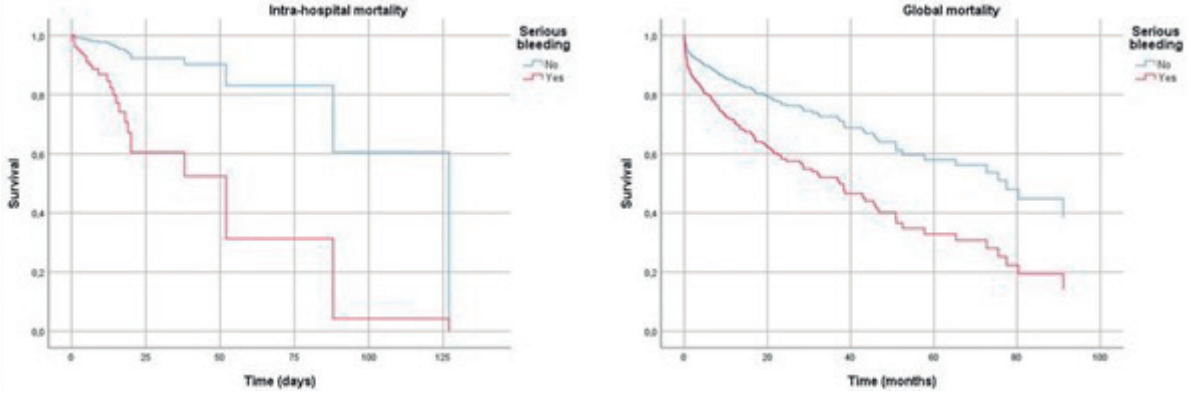
Introduction: Bleeding is a known complication after transcatheter aortic valve implantation (TAVI), but there is a paucity of information about bleeding predictors and related outcomes.
Objectives: To identify post-TAVI bleeding predictors and evaluate related outcomes.
Methods: Retrospective analysis of consecutive patients (P) submitted to TAVI between 2009 and 2020 in a tertiary center. Baseline characteristics, procedural information, bleeding after TAVI and outcomes were collected.
Results: A total of 517P (56.3% female) were included, with a mean age of 82 ± 6 years. 112P (21.6%) had a hemorrhagic complication after the procedure (10% minor, 5.8% major and 5.8% life-threatening, according to VARC 2 classification). Patients with serious bleeding (major or life-threatening) had more global, intra-hospital and 30 day mortality (45.8 *vs.* 23.1%, p < 0.0001; 28.3 *vs.* 2.6%, p < 0.0001; 28.3 *vs.* 3.7%, p < 0.0001), global and 30 day cardiovascular mortality (32.2 *vs.* 7.3%, p < 0.0001 and 28.3 *vs.* 2.2%, p < 0.0001), higher global hospital stay (24 days *vs.* 15 days, p < 0.0001), intensive care unit stay (7 days *vs.* 4 days, p = 0.001) and post TAVI hospital stay (18 days *vs.* 10 days, p < 0.0001), lower minimum hemoglobin level (7.7 g/L *vs.* 9.9 g/L, p < 0.0001) and higher maximum creatinine level (2.4 mg/dL *vs.* 1.6 mg/dL, p < 0.0001) and were more frequently in NYHA class III or IV at 30 days (11.4 *vs.* 3.8%, p < 0.0001). When other predictors of these outcomes are included in multivariable analysis, serious bleeding is still an independent predictor of intra-hospital and 30 days mortality (p = 0.004 and p = 0.014), global and 30 days cardiovascular mortality (p < 0.0001 and p = 0.001), post TAVI hospital stay (p = 0.002), minimum hemoglobin level (p < 0.0001) and 30 days NYHA III or IV (p = 0.018). Considering baseline characteristics, patients with serious bleeding had worse vascular accesses (24 *vs.* 8.3%, p < 0.0001), more frequently previous coronary angioplasty (33.3 *vs.* 20.2%, p = 0.021), peripheral artery disease (25 *vs.* 14.9%, p = 0.046), chronic kidney disease (65 *vs.* 48.7%, p = 0.017) and higher STS score (7.4 *vs.* 5.8%, p = 0.013). They also had more frequently major vascular complications (40 *vs.* 1.3%, p < 0.0001). There were no differences according to transfemoral *vs.* non transfemoral route (11.5 *vs.* 11.1%, p = 0.943). In a multivariable analysis, considering these differences, worse vascular accesses (p = 0.049, OR = 2.68), chronic kidney disease (p = 0.007, OR = 3.14) and major vascular complication (p < 0.0001, OR = 73.96) were the independent predictors.
Conclusions: Hemorrhage is a relatively common complication after TAVI, and when serious is associated with a significant worst prognosis. There are some clinical characteristics that are associated with a higher risk which should be considered when treating these patients, for an earlier detection in case of its occurrence.

PO 194. IS ILIOFEMORAL CALCIUM VOLUME ASSOCIATED WITH VASCULAR AND BLEEDING COMPLICATIONS AFTER TAVI?

Mariana Ribeiro Silva[1], Joana Oliveira[2], Inês Rodrigues[2], Cláudio Guerreiro[1], Wilson Ferreira[1], Nuno Ferreira[1], Gustavo Pires Morais[1], Bruno Melica[1], Lino Santos[1], 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: Pre-procedural iliofemoral computed tomography angiography (CTA) study and the use of ultrasound guidance for femoral artery puncture



PO 193 Figure

can reduce vascular (VC) and bleeding (BC) access site complications after transfemoral (TF) TAVI. However, is yet to be proven that CTA-derived iliofemoral calcium volume is associated with VC and BC following TF TAVI.
Objectives: To assess the impact of iliofemoral calcium volume and distribution, as evaluated by CTA, in VC and BC after TF TAVI.
Methods: Patients (pts) who underwent TF TAVI between January and December 2017 (fluoroscopy-guided access) and between June 2018 and May 2019 (echo-guided access) were included. All pts underwent iliofemoral CTA prior to the procedure and classical CTA-derived data and iliofemoral calcium volume ipsilateral to the puncture site were collected to evaluate its impact on VC and BC, which were defined by Valve Academic Research Consortium 2 criteria.
Results: We included 221 pts, 51.6% female, mean age 80.4 ± 7.8 years and median STS mortality risk score of 3.9% (IQR 2.6-6.1). Right TF access was obtained in 84.2%; 47.5% fluoroscopy and 52.5% echo-guided access, with a sheath size > 14Fr in 43%. VC occurred in 49 pts (22.2%) (18.6% minor, 3.6% major) and BC in 36 pts (16.3%) (13.6% minor, 2.2% major, 0.5% life-threatening). There was a significant lower prevalence of VC (16.4 *vs.* 28.6%, p = 0.029) and BC (8.6 *vs.* 24.8%, p = 0.001) in the echo-guided group. Iliofemoral CTA qualitative assessment of calcium quantity, distribution (anterior *vs.* posterior) and tortuosity was not different between pts with or without VC or BC. Univariate analysis showed that external iliac artery (EIA) and common femoral artery (CFA) luminal minimal diameter and area, CFA maximal luminal diameter were significantly smaller in pts with VC and BC (p < 0.05 for all). Sheath to external iliac artery ratio (SEIAR) and sheath to femoral artery ratio (SFAR) were higher in pts with VC and BC (p < 0.05 for all). There were no significant differences in CTA-derived total Iliofemoral calcium volume, EIA and CFA calcium volume between pts with or without VC and BC (p> 0.05 for all).
Conclusions: Echo-guided access reduced TAVI-related VC and BC. In this study, iliofemoral calcium volume was not associated with VC and BC after TAVI, while other classical CTA-derived factors such as SEIAR, SFAR, EIA and CFA minimal diameter and area were, and should be systematically assessed during pre-procedural CTA to reduce these events.

PO 195. CONTEMPORARY MANAGEMENT AND OUTCOMES OF PATIENTS WITH VASCULAR COMPLICATIONS DURING TRANSFEMORAL TAVI

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

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

Introduction: Vascular complications (VC) after transcatheter aortic valve implantation (TAVI) are associated with increased mortality and morbidity. The aim of this study was to report the incidence, management, and impact on outcomes of VC in patients undergoing transfemoral TAVI.
Methods: Observational single center study from a prospective registry including 668 consecutive patients who underwent transfemoral TAVI between January 2016 and December 2020 (median age = 84 [IQR 81-87], 26.7% male; median EuroSCORE II of 4.11% [IQR 3.11-6.18]). Vascular complications were defined according to Valve Academic Research Consortium-3 criteria. VC endovascular treatment success was defined as residual stenosis < 30%, absence of blood extravasation assessed by fluoroscopy and no need for surgical or endovascular intervention at 30 days.
Results: Overall, 99/668 patients (14.8%) experienced at least one VC (105 in total), including 60/668 patients (9.0%) experiencing at least a major VC. VCs included 25/105 (23.8%) acute iliofemoral bleeding, 22/105 (21.0%) femoral artery occlusions, 50/105 (47.6%) retroperitoneal hematoma/ilioinguinal hematoma and 8/105 (7.6%) femoral pseudoaneurysms. Endovascular treatment during the index procedure was performed in 47/105 (44.8%) patients and successful in most (93.6%) cases. Management strategy according to VC type and VC severity are presented in the table. Primary surgical repair was necessary in 3/47 patients (6.4%), for iliofemoral bleeding control in all cases. Patients with major VC had higher 30-day and 1-year mortality rates (OR [95%CI]: 15.2 [5.42-42.4], p < 0.001; 3.3 [1.68-6.3], p < 0.001, respectively).

Vascular complication severity
Major complications (N, %) - 67
Iliofemoral bleeding – 17/67 (25.4%)
Femoral stenosis/occlusion – 4/67 (6.0%)
Femoral pseudoaneurysm – 7/67 (10.4%)
Retroperitoneal/ Inguinal hematoma – 39 (58.2%)
Minor complications (N, %) – 38
Ileofemoral bleeding – 8/38 (21.1%)
Femoral stenosis /occlusion – 18/38 (47.3%)
Femoral pseudoaneurysm – 1/38 (2.6%)
Retroperitoneal/ Inguinal hematoma – 11/38 (23.9%)
Management Strategy according to vascular complication type
Endovascular therapy (N,%)
Ileofemoral bleeding – 25
Covered stent – 17/25 (68.0%)
Prolonged baloon inflation – 8/25 (68.0%)
Bailout surgery – 3/25 (12.0%)
Femoral stenosis/Occlusion - 22
Balloon angioplasty – 20/22 (90.1%)
Covered stent - 3/22 (13.6%) *
No endovascular treatment (N, %)
Retroperitoneal/ilioinguinal hematoma - 50
Conservative management - 50/50 (100%)
Femoral pseudoaneurysm - 8
Conservative management – 6/8 (75.0%)
Thrombin injection – 2/8 (25.0%)

* One covered stent for bailout management of post-balloon angioplasty bleeding

Conclusions: Major vascular complications following transfemoral-TAVI are frequent, impact prognosis and occur in nearly 1 out of 10 patients (9.0%). When needed, percutaneous techniques are successful in most cases. Strategies to mitigate this serious event should be implemented.

Domingo, 24 Abril de 2022 | 12:30-13:30

Sala Jardim de Inverno | Posters (Sessão 5 - Écran 8) - Doença Valvular 4 - Foco na Endocardite

PO 196. ENDOCARDITIS IN-HOSPITAL MORTALITY: WHAT CAN WE EXPECT?

Catarina Simões de Oliveira, Sara Couto Pereira, Pedro Silvério António, Joana Brito, Pedro Alves da Silva, Beatriz Valente Silva, Ana Beatriz Garcia, Ana Margarida Martins, Miguel Azaredo Raposo, Catarina Gregório, João Santos Fonseca, Ana Abrantes, Pedro Carrilho Ferreira, Fausto J. Pinto

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

Introduction: Infective endocarditis (IE) is a deadly disease. Despite diagnostic and therapeutic advances, it remains a challenging illness, with

high mortality and serious complications. Early identification of high-risk patients could promote the best therapeutic strategy and improve outcomes.
Objectives: To evaluate predictors of in-hospital mortality in patients with IE.
Methods: Single centre observational study of 219 patients with IE established by Duke modified criteria and 2015 ESC modified criteria, admitted to a tertiary hospital between 2010 and 2020. Clinical and demographic characteristics, laboratorial and microbiological results and echocardiographic features at baseline were analyzed. Chi-square and Mann-Whitney tests, Cox-regression for multivariate analysis and Kaplan-Meier to assess survival were used.
Results: In-hospital death occurred in 25% of pts (n = 54). Mean age was 69.3 ± 15.7-years and 63% were man. Arterial hypertension (57%), diabetes (24.1%), cancer (13%) and immunosuppression (13%) were the main co-morbidities. 37% had an acquired valvular disease (33.3% with prosthetic valve). Most common etiologic agents were *S. aureus* (24%) and *Enterococcus* spp (24%). Regarding in-hospital complications 24.1% of pts needed mechanical ventilation and renal replacement therapy and 29.6% evolved to sepsis. Considering local complications, 16.7% had valvular abscess, 5.5% prothesis disfunction and 5.5% cardiac fistula, with a positive correlation of abscess and cardiac fistula with in-hospital mortality (p = 0.027 and p = 0.002, respectively). On univariate analysis, we observed a positive correlation of in-hospital mortality with presence of prosthetic valve (p = 0.010), NTproBNP > 2,000 pg/mL (p < 0.001) as well as evidence of vegetations in the first echocardiographic evaluation (p = 0.026) and immunosuppression (p = 0.004). At diagnosis or during hospitalization, 22.2% of pts had cerebral embolization, which also correlated with mortality (p = 0.011). On multivariate analysis, immunosuppression (95%CI 1.261-8.687) cardiac fistula (95%CI 1.074-20.796) and cardiogenic shock (95%CI 1.154-5.190) were independent predictors of mortality.
Conclusions: In our cohort, mortality was as high as 25% and NTproBNP and vegetation at echo were associated with an unfavorable outcome. Immunosuppression, cardiac fistula and cardiogenic shock were independent predictors of death.

PO 197. INFECTIVE ENDOCARDITIS: EXPERIENCE OF THE LAST 20 YEARS

Catarina Ribeiro Carvalho, José João Monteiro, Pedro Rocha Carvalho, Marta Bernardo, Ana Baptista, José Ilídio Moreira

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

Introduction: Infective endocarditis (IE) as an important rate of in-hospital complications and mortality. However, there is a paucity of randomized controlled trials to guide clinical practice. In that way, characterization of this population is relevant to improve our understanding and thus the management of IE.
Methods: This was a retrospective study that included all patients hospitalized in a single centre with diagnosis of IE, between January 2000 and December 2020.
Results: A total of 161 patients were selected. Patients were predominantly males (65.8%), with a mean age of 66.4 ± 16.4 years. Diagnosis was based mainly on the following Modified Duke Criteria: echocardiographic major criteria (91.7%), fever (82.1%) and blood cultures positive for IE (49.3%), allowing a definite diagnosis in 59.0% of the patients. Most patients had some predisposing factor for IE, predominantly valvular disease. Native valve IE was more frequent than prosthetic or device IE (67.8%, 16.1% and 16.1%, respectively), involving predominantly mitral and aortic valves (35.6% and 30.0%, respectively). The most commonly identified microorganisms were Staphylococcus (28.8%) and Streptococcus (28.5%). In 27.5% of the patients, blood cultures were sterile. The most used antibiotics were vancomycin followed by beta-lactams and aminoglycosides, with a medium duration of therapy of 33.9 ± 22.5 days. Embolic complications occurred in 31.3% of the patients, most frequently cerebral (16.4%) and splenic embolic events (10.3%). Furthermore, 43.4% of the patients developed acute renal failure, 33.3% acute heart failure and 13.8% septic shock. Echocardiography revealed perivalvular complications in 26.1% of the patients, namely fistulae in 18.5%, abscess in 13.2% and pseudoaneurysm in 11.3%. Although 48.6% of the patients had indication for surgery, only 37.2% were submitted to this procedure during admission, after 22.0 (IQR 14.0-50.5) days of admission. The main reason for surgery was locally uncontrolled infection in 29.2%, followed by heart failure (20.0%) and prevention of embolic events (18.1%). Device extraction was performed in 70.4% of the 26 patients presenting with electrocatheter involvement. In-hospital mortality reached 16.8%, occurring on average 35.0 ± 17.5 days after admission. The average length of stay was 44.5 ± 22.8 days.
Conclusions: this single centre study illustrates the burden of IE, with prolonged hospitalizations and high rates of complications and in-hospital mortality.

PO 198. INFECTIVE ENDOCARDITIS: HAS ITS PROGNOSIS CHANGED 5 YEARS AFTER THE NEW ESC GUIDELINES?

Catarina Ribeiro Carvalho, José João Monteiro, Pedro Rocha Carvalho, Marta Bernardo, Ana Baptista, José Ilídio Moreira

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

Introduction: In 2015, new European Society of Cardiology (ESC) guidelines for the management of infective endocarditis (IE) were published, mainly updating antibiotic and surgical recommendations for these patients.
Objectives: To analyse the impact of the implementation of 2015 ESC guidelines on clinical outcomes of IE patients.
Methods: Retrospective study including all IE patients hospitalized in a single centre, between January 2000 and December 2020. Patients were categorized into two groups based on admission date: before (group A) and after 2015 (group B). Baseline and clinical characteristics, and outcomes were compared between the two groups.
Results: A total of 161 patients were selected, 65.8% were males, with a mean age of 69.0 ± 16.4 years. After 2015, 65 patients (40.4%) were hospitalized.

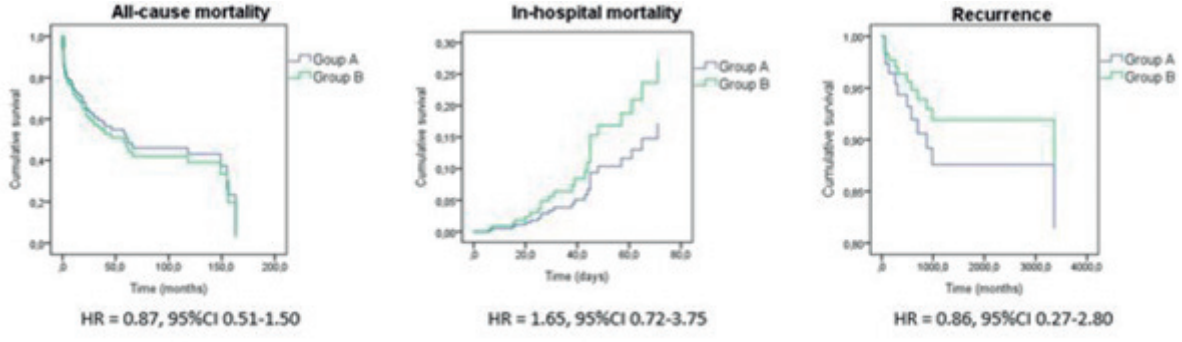


Figure 1. Multivariate regression analysis, after adjusting for all the confounders, there were no significant differences between groups regarding all-cause mortality during follow-up, in-hospital mortality or infective endocarditis recurrence.

PO 198 Figure

There were no significant differences between groups concerning age or comorbidities. Regarding major diagnostic criteria, group B had less positive blood cultures (35.2 *vs.* 64.8%, p = 0.018). Prosthetic valve IE was more frequent (65.4 *vs.* 34.6%, p = 0.005), with less native valve involvement (35.1 *vs.* 64.9%, p = 0.044). There was a greater proportion of aortic valve involvement (50.7 *vs.* 49.3%, p = 0.024). After 2015, a reduction on *Streptococcus* IE was observed (13.8 *vs.* 37.5%, p = 0.001), as well as a trend to more frequent *Staphylococcus* (33.8 *vs.* 25.0%) and *Enterococcus* IE (12.3 *vs.* 5.2%). Perivalvular complications were more commonly diagnosed after 2015 (67.6 *vs.* 32.4%, p = 0.002), namely intracardiac fistulae (66.7 *vs.* 33.3%, p = 0.037) and pseudoaneurysms (71.4 *vs.* 28.6%, p = 0.042). There were no significant differences regarding embolic complications, acute heart failure or septic shock during hospitalization. Also, average hospitalization length remained similar (45.8 ± 22.4 *vs.* 43.7 ± 23.1 days). Antibiotic choices didn't significantly differ, however duration of therapy was longer after 2015 [34.0 (IQR 27.5-46.0) *vs.* 30.0 (IQR 21.0-42.0) days, p = 0.043]. The proportion of patients with urgent surgical indication and the surgical timing remained similar [group A: 22.0 (IQR 14.0-55.0) *vs.* group B: 24.0 (IQR 14.0-38.0) days]. The median follow-up duration was 20.0 (IQR 3.0-46.5) months. In a multivariate regression analysis, after adjusting for all the possible confounders, there were no significant differences between groups regarding in-hospital mortality (HR = 1.65, 95%CI 0.72-3.75), all-cause mortality during follow-up (HR = 0.87, 95%CI 0.51-1.50) or infective endocarditis recurrence (HR = 0.86, 95%CI 0.27-2.80).
Conclusions: This study suggests that, albeit a tendency to potentially more severe causative agents and more frequent diagnosis of perivalvular complications, there was no significant improvement of in-hospital mortality, all-cause mortality during follow-up or endocarditis recurrence 5 years after the publication of ESC guidelines.

PO 199. PREDICTORS OF IN-HOSPITAL MORTALITY IN INFECTIOUS ENDOCARDITIS

Catarina Ribeiro Carvalho, José João Monteiro, Pedro Rocha Carvalho, Marta Catarina Bernardo, Ana Baptista, José Ilídio Moreira

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

Introduction: Infectious endocarditis has a high rate of in-hospital mortality, ranging between 15 and 30%. Still, there is a paucity of studies on the assessment of short-term prognosis in these patients.
Objectives: to determine predictors of in-hospital mortality in patients with infective endocarditis.
Methods: This was a retrospective study that included all patients hospitalized in a single centre with the diagnosis of infective endocarditis, between 2000 and 2020. The relationship between clinical, laboratory and echocardiographic variables and in-hospital mortality was evaluated.
Results: A total of 161 patients were selected, 65.8% were males, with a mean age of 66.4 ± 16.4 years. The in-hospital mortality rate was 16.8%, occurring on average after 35.0 ± 17.5 days of hospitalization. The average length of stay was 44.5 ± 22.8 days. Age > 70 years was associated with higher mortality rate (p = 0.021). There were no other significant differences between groups regarding clinical variables and comorbidities. Although not statistically significant, in-hospital mortality group had higher mean ejection fraction (57.2 ± 2.7 *vs.* 54.6 ± 12.9%). Laboratory parameters associated with mortality included isolation of Staphylococcus (p = 0.019) or Enterococcus (p = 0.045) in blood cultures. Though the classification of endocarditis (in native *vs.* prosthesis valve) did not differ between groups, the presence of perivalvular complications on echocardiography (p = 0.042) namely pseudoaneurysm (p = 0.003), were more frequent in the group with higher mortality rate. There were 70 patients with indication for urgent surgery, namely for locally uncontrolled infection in 29.2%, heart failure (20.0%) and prevention of embolic events (18.1%). The existence of urgent surgical indication (p = 0.009) was associated with higher mortality, and surgery during hospitalization was associated with lower mortality (p = 0.011). In a multivariate regression analysis, after adjusting for all the possible confounders, the independent predictors of in-hospital mortality were the previous history of heart failure (HR = 3.29, 95%CI 1.41-7.66), chronic liver disease (HR = 4.33, 95%CI 1.23-15.30) and evolution with septic shock (HR = 6.87, 95%CI 2.89-16.39).
Conclusions: The present study confirms the high mortality rate of patients with infective endocarditis, highlighting the importance of patient baseline characteristics and comorbidities, as it identified as independent predictors of in-hospital mortality the previous history of heart failure, chronic liver disease and evolution with septic shock.

PO 200. PREDICTORS OF RECURRENCE IN INFECTIOUS ENDOCARDITIS

Catarina Ribeiro Carvalho, José João Monteiro, Pedro Rocha Carvalho, Marta Catarina Bernardo, Ana Baptista, José Ilídio Moreira

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

Introduction: Infectious endocarditis (IE) has a high recurrence rate, ranging between 2 and 6%. However, there is a paucity of studies related to the identification of recurrence predictors.
Objectives: To determine predictors of recurrence in patients with IE.
Methods: This was a retrospective study that included all patients hospitalized in a single centre with diagnosis of IE, between 2000 and

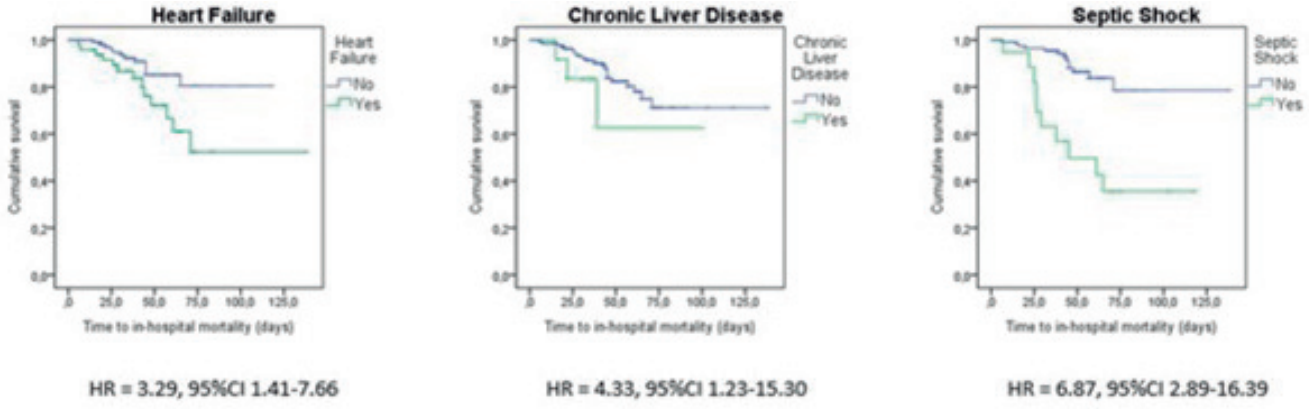


Figure 1. Multivariate regression analysis, after adjusting for all the confounders, the independent predictors of in-hospital mortality were previous history of heart failure, chronic liver disease and evolution with septic shock.

PO 199 Figure

2020. The relationship between clinical, laboratory and echocardiographic variables and the recurrence of IE was evaluated at a mean follow-up of 37.4 ± 46.0 months.
Results: A total of 157 patients were selected, 66.2% were males, with a mean age of 66.6 ± 16.3 years. IE recurrence rate was 8.9%, occurring on average 37.2 ± 47.4 months after discharge. Recurrent IE involved predominantly prosthetic valve implanted in the previous IE episode (50.0%), followed by native valve (21.4%) and previous prosthetic valve (21.4%). Most frequent agents included *Streptococcus* (42.9%), *Staphylococcus* (14.3%), *Enterococcus* (14.3%) and fungi (14.3%). In a multivariate regression analysis, after adjusting for all the possible confounders, the only significant independent predictors of recurrence were previous history of chronic liver disease (HR = 4.34, 95%CI 1.01-18.69) or chronic kidney disease in peritoneal dialysis program (HR = 23.02, 95%CI 2.67-198.14) and the isolation of fungi in blood cultures (HR = 10.54, 95%CI 1.82-61.19).
Conclusions: The present study demonstrated a significant rate of IE recurrence and highlighted the importance of comorbidities on the recurrence risk, namely when involving invasive techniques, as it identified as independent predictors for recurrence the previous history of chronic liver disease or chronic kidney disease in a peritoneal dialysis program, and the isolation of fungi in blood cultures. These high-risk patients might benefit from antibiotic prophylaxis.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 1) - Imagem 3 - RM Cardíaca e Cardiologia Nuclear

PO 201. MYOCARDIAL INFARCTION IN THE ABSENCE OF OBSTRUCTIVE CORONARY ARTERY DISEASE - CARDIAC MAGNETIC RESONANCE USE IN IDENTIFYING THE UNDERLYING CAUSES

Miguel Martins de Carvalho, Ricardo Alves Pinto, Tânia Proença, Pedro Grilo Diogo, Carlos Xavier Resende, Ana Filipa Amador, Catarina Martins da Costa, João Calvão, Sofia Cardoso Torres, André Cabrita, Catarina Amaral Marques, Mariana Vasconcelos, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

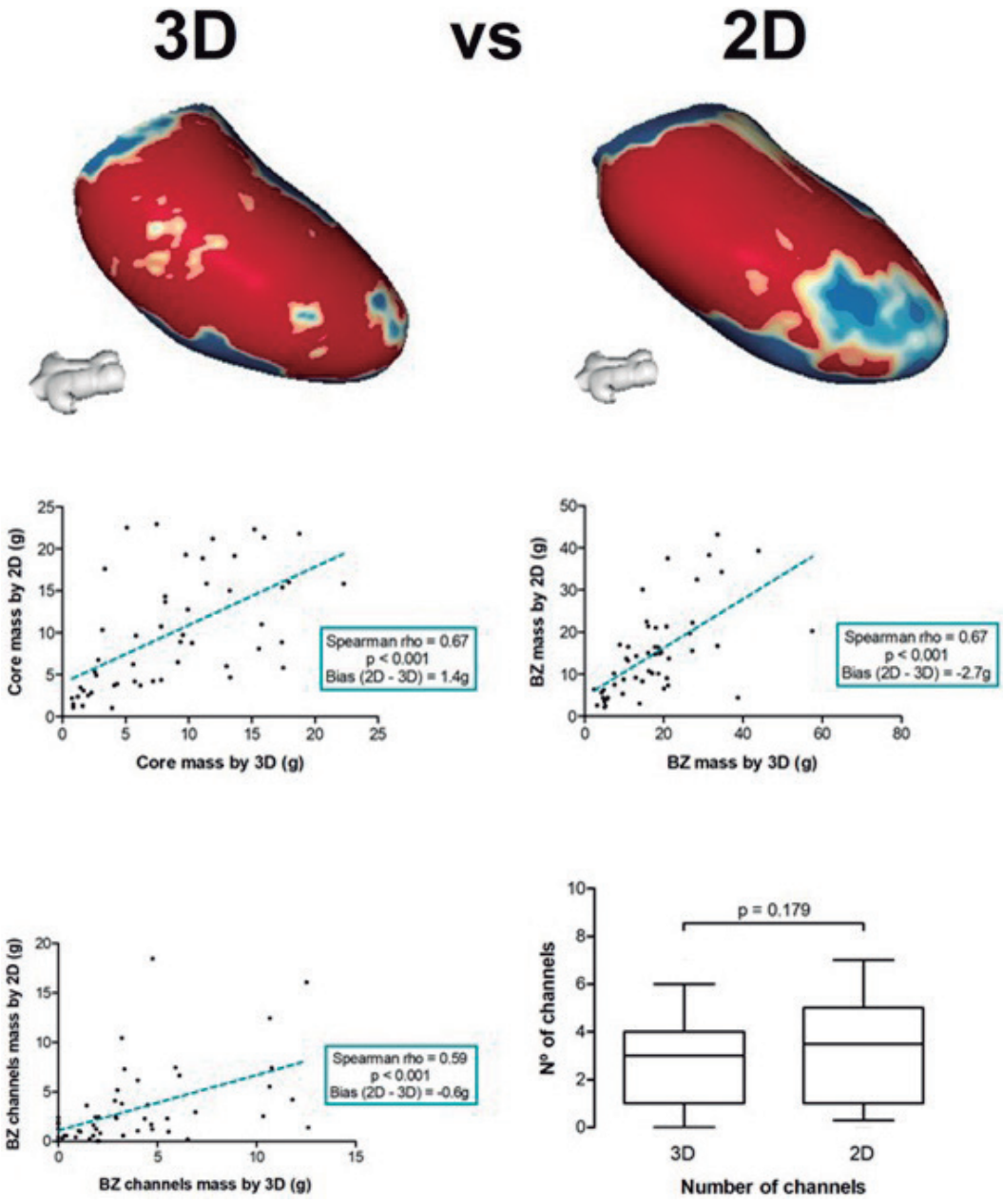
Introduction: Myocardial Infarction in the Absence of Obstructive Coronary Artery Disease (MINOCA) is a clinical entity that occurs in up to 15% of all acute coronary syndromes (ACS). It is a "working diagnosis", as it is constituted by several etiologies.
Objectives: To identify the utility of CMR in determining the etiological diagnosis of MINOCA events, with potential impact in the therapeutic management of these patients.
Methods: Patients with MINOCA who were admitted to the Cardiology department at a tertiary center, between 2015 and 2020, were included. MINOCA was defined as an ACS with non-obstructive (< 50%) coronary artery disease and no other clinically specific cause, in accordance with definition adopted in the 2020 ESC Guidelines for the management of ACS in patients presenting without persistent ST-segment elevation. Patients who did not had a coronary exam (either CT or invasive angiogram) or a CMR were excluded. All CMR exams were performed in a 3 Tesla equipment using a comprehensive protocol (cine, T2-weighted, and late gadolinium sequences). Clinical, electrocardiographic, echocardiographic and CMR data were collected.
Results: In a population of 29 patients, the mean age was 55 ± 17 years-old at the time of the cardiac event, 51.7% were male. Concerning to cardiovascular risk factors, 58.6% of patients had dyslipidaemia, 51.7% had hypertension, 13.7% were diabetic, 41.4% were smokers or previous smokers and 31.0% had obesity. Atrial fibrillation was present in 3.4% of patients. As for the EKG patterns, 41.4% of the patients had ventricular repolarization changes, 13.8% had a transitory ST elevation pattern, 6.9% had a complete left bundle branch block and 37.9% had a normal EKG; most of the ischemic EKG alterations were on the anterior wall (66.7%). The median high sensitivity I troponin levels were 1,877.5 (IQR 225.3-5,985.8) ng/L. The majority of patients (58.6%) had echocardiographic wall motion abnormalities; of those, the most common (41.1%) were on the left anterior descendent artery territory. CMR (performed at a median of 5 days from presentation) was able to identify the cause for the troponin rise in 58.6% of the cases; late gadolinium enhancement and oedema were present in 41.4% and 62.1% of patients, respectively. The mean left ventricle ejection fraction (EF) was 57.7 ± 8.5% and the mean right ventricle EF was 61.5 ± 6.1%. An ischemic pattern was present in 29.4% of the total population. In 17.6% of the patients findings were consistent with Takotsubo syndrome and in 29.4% with myocarditis.
Conclusions: CMR established the etiological cause in 58.6% of the cases, with potential implications in medical therapy. These findings highlight the importance of CMR in MINOCA diagnosis and the potential improvement in patient care with multi-modality imaging.

PO 202. QUANTITATIVE COMPARISON BETWEEN 2D *VERSUS* 3D LATE GADOLINIUM ENHANCEMENT FOR MYOCARDIAL SCAR CHARACTERIZATION – POSSIBLE IMPLICATION FOR INTERVENTION GUIDANCE AND ARRHYTHMOGENIC RISK ASSESSMENT

Pedro Freitas, Sofia Mancelos, Pedro Lopes, Sérgio Maltés, Daniel Nascimento Matos, João Carmo, Salomé Carvalho, João Abecasis, Sara Guerreiro, Francisco Costa, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Pedro Adragão, António Miguel Ferreira

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

Introduction: The characterization of myocardial scar tissue using late gadolinium enhancement (LGE) is a promising technique for refining the risk stratification of life-threatening arrhythmias and for planning interventions such as VT ablation.
Objectives: The purpose of this study was to assess the impact of using a 2D-*vs.* 3D-LGE acquisition for the characterization of scar and arrhythmogenic substrate in patients with previous myocardial infarction.
Methods: Patients with chronic myocardial infarction who underwent CMR for clinical proposes were included. Two LGE-sequences [1) breath-hold 2D-phase-sensitive inversion recovery; and 2) free-breathing 3D-inversion recovery with respiratory gating] were acquired 10 and 20 minutes after injection of 0.15 mmol/kg gadolinium, respectively. Patients were excluded if the 3D dataset was considered of poor/intermediate quality by two expert readers, and if the 2D dataset presented significant misalignment between slices. Scar characterization was performed in both 2D- and 3D-LGE datasets using ADAS 3D software and included core mass, borderzone (BZ) mass, BZ channels (BZC) and BZC mass.
Results: 133 patients with chronic myocardial infarction and with 2D- and 3D-LGE acquisitions were identified. The quality of the 3D-LGE dataset was poor in 18 patients (14%), intermediate in 40 patients (30%) and good in 75 patients (56%). Among these, 23 (31%) presented significant misalignment in the 2D dataset, precluding imaging processing. A final population of 52 chronic myocardial infarction patients – representing 52 pairs of 2D- and 3D-LGE datasets – was analyzed (mean age 62 ± 11; 83% male; mean LVEF 40% ± 15%). Core infarct mass, BZ mass, and BZC mass using 2D- and 3D-LGE showed moderate correlation (Spearman rho values 0.59-0.67, $p < 0.001$), with small systematic biases - Figure. BZ channels were detected in 44 patients (85%) by 3D-LGE and in 47 patients (90%) by 2D-LGE. Overall, the number of detected BZ channels was similar between 2D and 3D-LGE (BZ channels: 3 [IQR 1-4] *vs.* 3 [IQR 1-4], $p = 0.179$).
Conclusions: Scar tissue characterization parameters with 2D- and 3D seem to be moderately correlated, but not interchangeable since significant differences in individual terms are frequently found. The clinical significance of these differences remains to be established.



PO 202 Figure

PO 203. LEFT VENTRICULAR MECHANICS IN PATIENTS WITH LEFT BUNDLE BRANCH BLOCK ASSESSED BY CARDIAC MAGNETIC RESONANCE - INFLUENCE OF ETIOLOGY AND PRESENCE OF FIBROSIS

Mariana da Silva Santos[1], Marina Santos[2], Sara Guerreiro[3], Daniel Gomes[3], Bruno Rocha[3], Gonçalo Cunha[3], Pedro Freitas[3], João Abecasis[3], Ana Santos[3], Carla Saraiva[3], Miguel Mendes[3], António Ferreira[3]

[1]Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo. [2]Hospital Dr. Nélio Mendonça. [3]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction: Cardiovascular magnetic resonance (CMR) is the gold standard to evaluate myocardial structure and function, and recent advances have allowed the assessment of myocardial deformation by feature tracking CMR (FT-CMR). Our aim is to evaluate the impact of left bundle branch block (LBBB) on left ventricle (LV) function and mechanics as measured by FT-CMR in patients with non-ischemic cardiomyopathy (NICM) *vs.* ischemic cardiomyopathy (ICM).

Methods: Single center registry including LBBB pts referred to CMR to assess structural cause of LV dysfunction from 2015 to 2021. LBBB was defined according to Strauss criteria as strict LBBB and non-strict LBBB. Myocardial mechanics including longitudinal (GLS), circumferential (GCS) and radial (GRS) global strain were assessed using a semi-automated FT-CMR (Circle CVI42®). Late gadolinium enhancement (LGE) pattern was used to distinguish ICM and NICM (NICM-LGE). Patients with no LGE were classified as having isolated LBBB-related septal dyssynchrony (LBBB-SD).

Results: We included 104 LBBB patients (53% male; mean age 66 ± 12 years; mean QRS 153 ± 18 ms and mean LV ejection fraction (LVEF) was 35 ± 12%). Compared with NICM, those with ICM were more often male (73.1 *vs.* 46.2%, p = 0.015), and had lower LVEF (31 ± 8 *vs.* 36 ± 12%, p = 0.023), lower absolute global strain values (p = 0.012 for GLS, p = 0.007 for GCS and p = 0.003 for GRS), and shorter septal-lateral delay (183 ± 109 *vs.* 241 ± 108 ms, p = 0.021). Among LBBB-SD patients, all myocardial strain components were significantly less impaired in comparison with ICM patients (GLS: -9.5 ± 3.1 *vs.* -7.0 ± 3.2,

Table: Overall patients' characteristics and comparison between groups

	All (n=104)	ICM (n=26)	NICM-LGE (n=29)	LBBB-SD (n=49)	p-value	p-value 1 vs 2	p-value 1 vs 3	p-value 2 vs 3
QRS duration	153±18	140±20	157±22	154±13	0.232	0.265	0.868	1.000
iLVEDV*	132±43	135±33	151±50	119±40	0.006	0.468	0.372	**0.005**
iLVESV*	89±43	93±27	111±53	74±37	<0.001	0.321	0.136	**<0.001**
LVEF	35±12	31±8	30±14	39±10	<0.001	1.000	**0.006**	**0.002**
GLS	-8.4±3.5	-7.0±3.2	-7.9±3.8	-9.5±3.1	0.006	0.878	**0.007**	0.137
GRS	14.5±7.1	11.8±4.1	12.5±8.3	17.1±7.1	0.001	1.000	**0.004**	**0.012**
GCS	-10.1±3.9	-8.7±2.5	-8.7±4.6	-11.7±3.5	<0.001	1.000	**0.003**	**0.003**
Septal-lateral delay	229±119	190±133	215±114	256±108	0.044	1.000	0.052	0.344

*iLVEDV – indexed LV end-diastolic volume; iLVESV – indexed end-systolic volume

PO 203 Figure

p = 0.007; GRS: 17.1 ± 6.8 *vs.* 11.8 ± 4.1, p = 0.004; GCS: -11.7 ± 3.5 *vs.* -8.7 ± 2.5, p = 0.003) but this difference was not detected between NICM-LGE and ICM. Furthermore, in LBBB-SD group, LV dimensions were smaller and LVEF higher than NICM-LGE (Table). LGE was found in 53% of patients and all types of global strain values were lower in this group (p < 0.05 for all). Within NICM, LGE was mainly distributed as an intramural pattern (n = 22; 69%) and more often located in the ventricular septum (n = 23; 72%).
Conclusions: Among LBBB patients, myocardial strain analyzed by FT-CMR was independently associated with LV remodeling. LBBB patients with NICM without LGE seem to present a distinct phenotype in terms of LV mechanics, characterized by less severe compromise of LVEF and strain parameters.

PO 204. VENTRICULAR ARRHYTHMIA IN PATIENTS WITH NORMAL ECHOCARDIOGRAPHY – CAN CARDIOVASCULAR MAGNETIC RESONANCE ENHANCE THE DIAGNOSIS OF STRUCTURAL HEART DISEASE?

Catarina Martins da Costa, João Calvão, Ana Filipa Amador, Ricardo Alves Pinto, Catarina Amaral Marques, André Cabrita, Ana Isabel Pinho, Luís Daniel Santos, Cátia Oliveira, António J. Madureira, Gonçalo Pestana, Ana Lebreiro, Luis Adão, Teresa Pinho, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Ventricular arrhythmias (VA) include a broad spectrum ranging from premature ventricular beats (VPBs) to ventricular fibrillation (VF) and account for approximately 50% of all cardiovascular deaths. Echocardiography is commonly used to identify structural heart disease (SHD), the most frequent substrate of VA. Cardiovascular magnetic resonance (CMR) is recommended to complement echocardiography when image quality is suboptimal.
Objectives: This retrospective study sought to determine whether CMR may identify SHD in patients (pts) with VA, who had normal baseline ECG and whose echocardiogram, with adequate technical conditions, ruled out pathological findings.
Methods: We included consecutive pts followed in the arrythmia outpatient clinic of one tertiary center from June 2014 to June 2021 for significant VA. This was categorized as > 1,000 but < 10,000 VPBs/24 h; ≥ 10,000 VPBs/24 h; nonsustained ventricular tachycardia (NSVT), sustained VT, or a history of resuscitated cardiac arrest, and no pathological findings at echocardiography, requiring a clinically indicated CMR. The primary endpoint was detection of SHD on CMR.
Results: A total of 75 pts were included. Fifty-nine pts had no SHD (mean age 45 ± 15 years old) and 16 pts presented signs of SHD (mean age 53 ± 15 years old). All pts performed CMR, and the table shows pts' baseline characteristics, VA diagnosis and CMR measurements. Definite SHD was diagnosed in 8 patients (11%): ischemic cardiopathy (three pts), myocarditis (1 pt), hypertrophic cardiomyopathy (1 pt), right ventricle arrhythmogenic disease (1 pt), non-compaction cardiomyopathy (1 pt); 1 patient presented higher myocardial T2 signal and was later diagnosed with sarcoidosis. Furthermore, abnormal findings not specific for a definite SHD diagnosis were found in 8 additional pts (10%) who showed unspecific intra-myocardium enhancement.

Table 1. Patients' characteristics and CMR measurements, N (%)	No SHD (N=59)	SHD (N=13)
Cardiovascular risk factors		
Male	27 (46)	13 (81)
Arterial hypertension	13 (22)	7 (44)
Dyslipidemia	12 (20)	5 (31)
Diabetes Mellitus	5 (9)	1 (6)
Smoking history	10 (17)	3 (23)
Family history of sudden death	1 (2)	1 (6)
Diagnosis		
EVB	32 (54)	9 (56)
VT	16 (27)	6 (37)
NSVT	5 (8)	-
VF	6 (10)	1 (6)
CMR measurements		
LVEF (%)	61±4	57±11
LVEDV (ml)	139±41	164±37
index (ml/m²)	77±22	85±19
LVESV (ml)	54±19	70±28
index (ml/m²)	30±9	36±15
LVSV (ml)	86±22	93±17
index (ml/m²)	47±12	48±7
Cardiac index (L/min/m²)	3±1	3±1
LV mass (g)	103±35	119±20
index (g/m²)	59±15	61±8
RVEF	60±7	61±7
RVEDV	129±41	148±38
index (ml/m²)	71±21	76±17
RVESV	53±21	57±20
index (ml/m²)	30±10	29±10
Late gadolinium enhancement	-	13

CMR - Cardiovascular magnetic resonance; EBP – ectopic ventricular beat; LV – left ventricle; LVEDV - left ventricle end-diastolic volume; LVEF - left ventricle ejection fraction; LVESV - left ventricle end systolic volume, LVSV – left ventricle stroke volume; NSVT – non sustained ventricular tachycardia; RVEDV - right ventricle end diastolic volume; RVEF – right ventricle ejection fraction; RVESV – right ventricle end systolic volume; SHD - structural heart disease; VF – ventricular fibrillation; VT – ventricular tachycardia

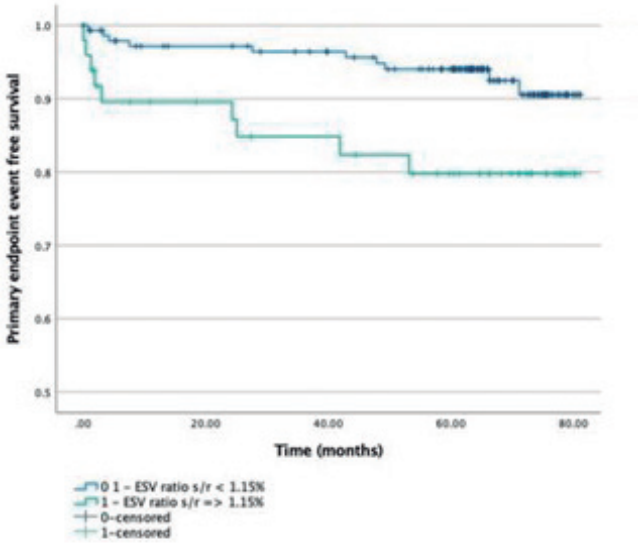
Conclusions: CMR imaging identified SHD in about 20% of patients with normal ECG and echocardiogram. Among patients with a definite SHD diagnosis, ischemic cardiopathy was the most common finding, unlike previous studies showing myocarditis as the main cause. This finding may be related to the older age of SHD group. In conclusion, CMR allowed diagnosis of clinically relevant SHD even when echocardiography excluded it.

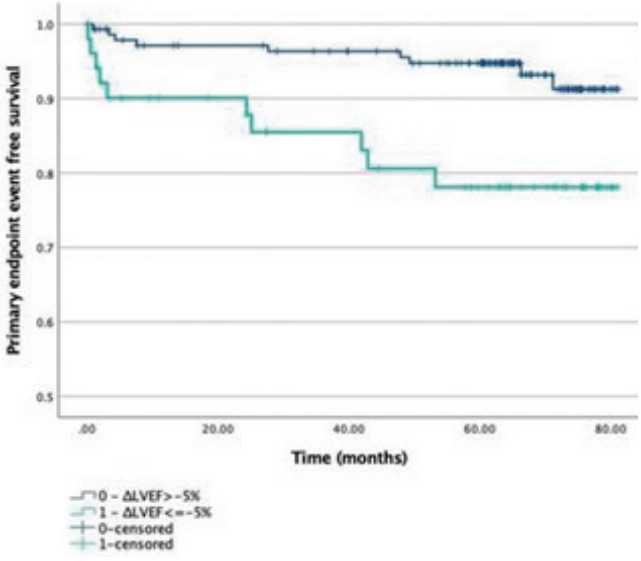
PO 205. SEEING BEYOND PERFUSION - IS THERE A ROLE FOR OTHER HIGH-RISK ISCHEMIA MARKERS IN PATIENTS WITH NORMAL PERFUSION ON SPECT MYOCARDIAL PERFUSION IMAGING?

Paulo Medeiros[1], Bárbara Pereira[2], Paula Soeiro[2], Jorge Rodrigues[1], Victor Alves[2]

[1]Hospital de Braga, EPE. [2]Centro Hospitalar Universitário de S. João, EPE.

Introduction: Single-photon emission computed tomography myocardial perfusion imaging (SPECT-MPI) is a useful non-invasive test for the diagnosis of obstructive coronary artery disease (CAD). The incidence of significant CAD in patients with normal perfusion studies is < 1%/year. Other high-risk markers include decrease of left ventricle ejection fraction (LVEF) on stress study compared to rest or transient ischemic dilation (TID), but the impact of these markers in patients with normal perfusion is unknown.





Objectives: To evaluate the incidence of significant CAD in patients with high-risk markers of ischemia despite a normal perfusion study.
Methods: Single-center, observational, retrospective, and longitudinal study. Inclusion criteria were age ≥ 18 years, availability of both rest and stress SPECT-MPI studies, normal perfusion (defined by visual assessment and as a Summed Stress Score (SSS) < 4) and gated-study for LVEF and volume analysis. Exclusion criteria were known CAD, non-ischemic cardiomyopathy, and congenital heart disease. Defined high-risk markers: LVEF reduction ≥ 5% on stress *vs.* rest study; TID (defined as a stress/rest volume ratio ≥ 1.15. Primary endpoint was the identification of significant CAD (stenosis > 70% on an epicardial coronary artery or > 50% on the left main artery) on invasive coronary angiography.
Results: A total of 197 patients met the inclusion criteria. Mean age was 63.4 years and 40.6% (n = 80) of patients were male. Regarding background, 75.6% of patients had hypertension, 54.3% dyslipidemia, 26.9% diabetes mellitus, 14.2% chronic kidney disease. Twenty-six percent of patients had a LVEF reduction > 5% on stress study; 24.9% had a stress/rest end-systolic volume ratio > 1.15; 7.1% had a stress/rest mean volume ratio > 1.15; 7.1% had a stress/rest end-diastolic volume ratio > 1.15. Time-to-primary endpoint was significantly lower in patients with LVEF reduction > 5% on stress (67.99 *vs.* 77.56 months, 95%CI: 60.49-75.49; p = 0.003) and on patients with stress/rest end-systolic volume ratio > 1.15 (68.39 *vs.* 77.3 months, 95%CI: 60.69-76.10; p = 0.013).
Conclusions: In patients with normal perfusion on SPECT-MPI, the incidence of significant CAD was significantly higher in those with LVEF reduction ≥ 5% on stress study and in those with a stress/rest end-systolic volume ratio ≥ 1.15. These markers may be of clinical relevance in the follow-up of patients with suspected CAD.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 2) - Arrítmias 6 - Arrítmias Ventriculares 2

PO 206. LONG-TERM IMPACT OF ACTIVATION CIRCUIT-BASED VENTRICULAR TACHYCARDIA ABLATION ON VENTRICULAR ARRHYTHMIA BURDEN

Francisco Barbas de Albuquerque, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Ana Sofia Delgado, Margarida Paulo, Tiago Rosa, Manuel Brás, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: Ventricular arrhythmias (VA) are a major cause of morbidity and mortality in heart failure patients. Ventricular tachycardia (VT) ablation is an established treatment for the reduction of recurrent implantable cardioverter-defibrillator (ICD) therapies in this population. In patients with substrate-related VT, mapping of the entire tachycardia circuit, when feasible, may allow for more accurate targeting of the clinical VT.
Objectives: To assess the long-term impact of catheter ablation based on activation mapping of substrate-related VT on VA burden.
Methods: Consecutive patients submitted to VT ablation between January 2013 and October 2021 were included. A comprehensive review of clinical records and device monitoring was performed to assess VA burden, defined as all ICD therapies and clinically documented VTs, before and after ablation. The primary outcome was reduction in the overall burden of VA after ablation. The impact of ablation on VA burden was assessed by fixed-effects Poisson regression; comparison at fixed time intervals was performed with a paired-sample Wilcoxon signed-rank test (STATA 12, JASP).
Results: A total of 134 VT ablation procedures were performed during the study period. Of these, there were 21 procedures where complete mapping of the VT activation circuit was achieved, corresponding to 18 patients. Mean age was 56.7 years, 88% male sex, mean left ventricular ejection fraction 39 ± 13%, BNP 540 ± 627 pg/mL. Etiology was ischemic in 44%, non-ischemic dilated cardiomyopathy in 39%, arrhythmogenic right ventricular dysplasia in 11% and hypertrophic cardiomyopathy in 6%. Mechanical support was *in situ* in 3 patients (two with temporary VA ECMO and one with LVAD as destination therapy); all but one patient had an ICD. Procedural duration was 209 ± 61 minutes. One patient developed complete AV block; no other

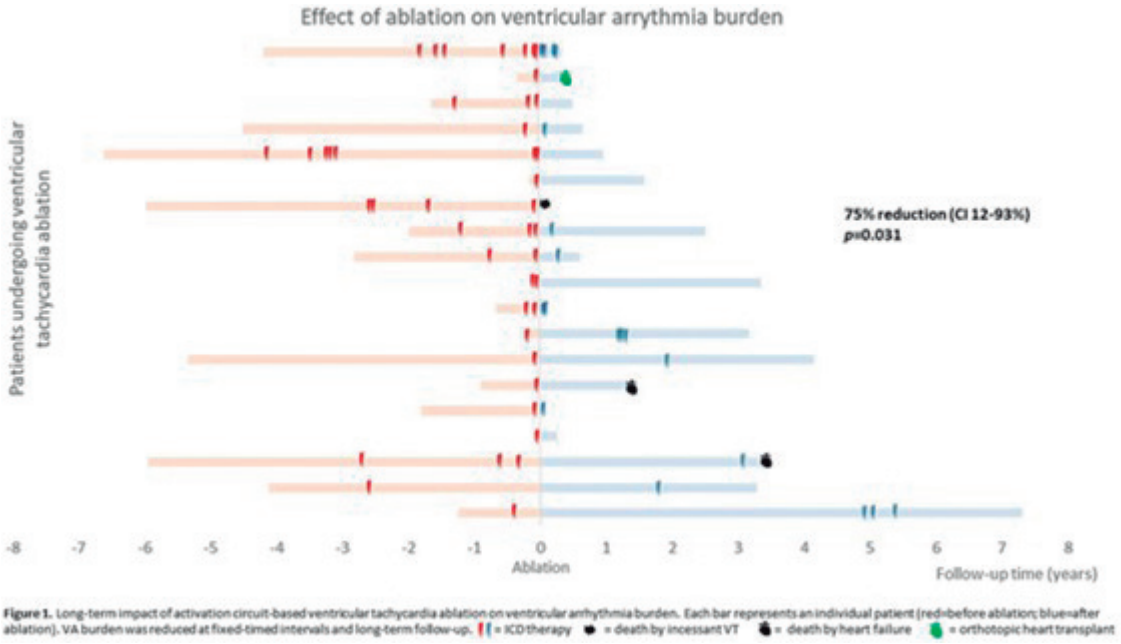


Figure 1. Long-term impact of activation circuit-based ventricular tachycardia ablation on ventricular arrhythmia burden. Each bar represents an individual patient (red=before ablation; blue=after ablation). VA burden was reduced at fixed-timed intervals and long-term follow-up. = ICD therapy = death by incessant VT = death by heart failure = orthotopic heart transplant

PO 206 Figure

peri-procedural complications were observed. During follow-up two patients died due to heart failure, one patient died from refractory cardiogenic shock with refractory incessant VT and one patient underwent orthotopic heart transplant. The mean follow-up time after ablation was 2.2 ± 1.9 years. A significant reduction in VA burden was observed (Fig.) at 3 months (92.5% reduction, p = 0.002) and 6 months after ablation (83.3% reduction, p = 0.041). After fixed-effects Poisson regression, there was an estimated long-term reduction of 75% (CI 12-93%, p = 0.031) of VA burden after VT circuit ablation.

Conclusions: Targeted circuit ablation is feasible in a subset of patients referred to VT ablation and leads to a significant sustained decrease in VA burden and device therapies.

PO 207. FOLLOW-UP OF SUSTAINED VENTRICULAR TACHYCARDIA IN ACUTE CORONARY SYNDROMES

Hélder Santos, Mariana Santos, Sofia B. Paula, Inês Almeida, Samuel Almeida, Lurdes Almeida

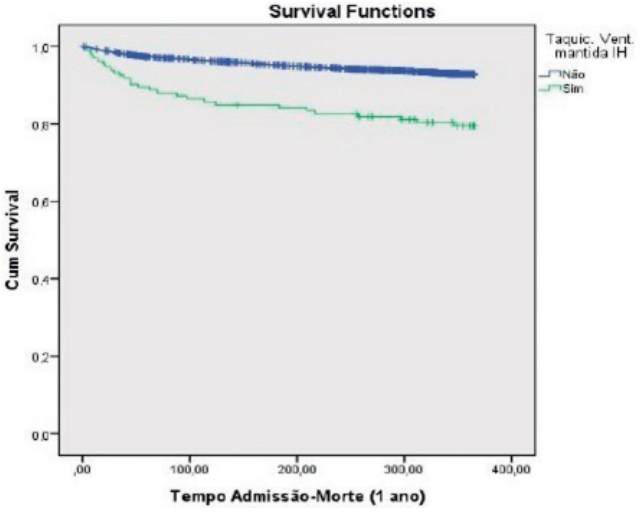
Centro Hospitalar Barreiro/Montijo, EPE/Hospital do Montijo.

Introduction: Sustained ventricular tachycardia (VT) is a dangerous but frequent situation associated with the onset of Acute Coronary Syndrome (ACS). It is related to the worst short-term prognosis, however, the long-term prognosis of VT in the ACS is not clarified.

Objectives: Evaluate if the presence of VT in ACS is a predictor of long-term mortality.

Methods: Multicenter retrospective study, based on the Portuguese Registry of ACS between 1/10/2010-4/09/2019. Patients were divided in two groups: A – patients without VT, and B – patients that presented VT on the hospitalization. VT was defined as a register or more of the VT with at least 30 seconds. Logistic regression was performed to assess predictors of mortality at one year of follow-up.

Results: 25,725 patients were included, yet just 9,686 had a 1-year follow-up, with 9,543 in group A (98.5%) and 143 in group B (1.5%). Both groups were similar regarding gender, age, cardiovascular risk factors, previous ACS therapy, cholesterol, creatinine and hemoglobin at admission, multivessel disease and revascularization rates. Group A had higher time since the onset of symptoms until the medical assistance (371 ± 163 *vs.* 278 ± 115, p = 0.003), chest pain (91.8 *vs.* 72.7%, p < 0.001), HbA1c (6.7 ± 1.8 *vs.* 5.3 ± 0.5, p = 0.008), radial access (81.7 *vs.* 55.8%, p < 0.001) and left ventricular ejection fraction (LVEF) > 50% (68.6 *vs.* 36.7%, p < 0.001). On the other hand, group B exhibited higher rates of direct cardiac unit admission (22.6 *vs.* 37.6%, p = 0.022), previous heart failure (6.2 *vs.* 12.0%, p = 0.005), STEMI (40.2 *vs.* 65.7%, p < 0.001), admission heart rate (77 ± 19 *vs.* 84 ± 33, p = 0.025), admission systolic blood pressure (SBP) (141 ± 29 *vs.* 127 ± 34, p < 0.001), Killip-Kimball classification > I (KK > I) (13.5 *vs.* 32.9%, p < 0.001), atrial fibrillation at admission (AF) (7.1 *vs.* 14.1%, p = 0.001), admission glycemia (155 ± 79 *vs.* 176 ± 87, p = 0.002), BNP (360 ± 589 *vs.* 598 ± 612, p < 0.001), hybrid revascularization strategy (0.7 *vs.* 3.3%, p = 0.011), in-hospital time (5 ± 4 *vs.* 10 ± 7, p < 0.001) and major adverse cardiac events (all p < 0.001). Mortality rates significantly increase at one year of follow-up, with a Kaplan-Meier test of p < 0.001 (Fig.), however readmission for all causes (p = 0.873) and cardiovascular readmission (p = 0.792) at one year were similar between the groups. Logistic regression revealed that VT was not a predictor of mortality at one-year follow-up (p = 0.117). Also logistic regression revealed that age > 75 years (*odds ratio* (OR) 2.53, p < 0.001, confidence interval (CI) 2.04-3.14), SBP (OR 1.85, p = 0.004, CI 1.21-2.81), KK> I (OR 1.51, p < 0.001, CI 1.21-1.89), AF (OR 1.32, p = 0.0033, CI 1.02-1.70), LVEF< 40% (OR 1.89, p < 0.003, CI 1.51-2.34) and mechanical complication (OR 7.79, p < 0.001, CI 2.84-21.37) were predictors of mortality at one-year follow-up in ACS patients.



Conclusions: VT during the admission for ACS was not a predictor of mortality at one-year follow-up.

PO 208. EFFICACY OF MEXILETINE IN THE TREATMENT F PATIENTS WITH RECURRENT VENTRICULAR ARRHYTHMIAS IN LONG-TERM FOLLOW-UP

Gonçalo Lopes da Cunha, Sérgio Maltês, Miguel Mendes, Pedro Adragão

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

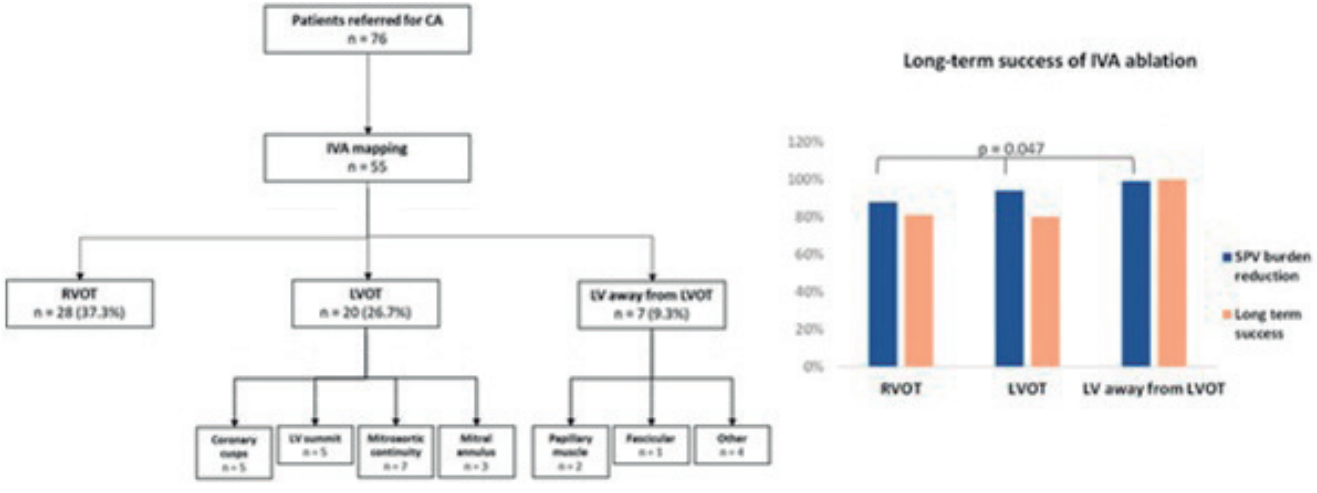
Introduction: Several studies report a significant reduction in arrhythmic burden in patients with recurrent ventricular arrythmias treated with mexiletine during a midterm follow-up (1 to 3 years). However, the number and distribution of arrhythmic events along time is not constant, possibly leading to under or overestimation of the effect of anti-arrhythmic drugs in shorter follow-ups. This study sought to evaluate the efficacy of mexiletine in suppression of ventricular arrhythmias in long term follow-up.
Methods: This was a single centre, retrospective study enrolling patients who were prescribed mexiletine for treatment of recurrent ventricular arrhythmias. In order to evaluate efficacy, patients were only included if they were on mexiletine for more than 12 months. Follow-up was done through electronic records and telephonic questioning when appropriate. The events occurring during the mexiletine treatment period were compared with those observed in a matched duration interval before the initiation of therapy. We collected all the episodes of electric storm and isolated defibrillator shocks (i.e. defibrillator shocks administered outside the electric storm episodes).
Results: Overall, 22 patients were included (86% male, mean age at initiation of mexiletine of 68 ± 7 years). Of these 64% had previous myocardial infarction and 68% had at least one ventricular tachycardia (VT) ablation. All patients had an implanted defibrillator. Mean mexiletine dosage was 419 ± 157 mg. In 5 (20%) patients mexiletine was withdrawn (2 after successful VT ablation, 1 due to heart transplantation, 1 due to pro-arrythmia and 1 due to heart failure). During a median follow up of 53 (28 to 97) months, there were 9 episodes of electric storm (ES) and 39 episodes of isolated electrical cardioversions (EC).There was no significant decrease in the total number of ES or EC after the beginning of mexiletine therapy (p = 0.204 and p = 0.144, respectively).
Conclusions: We found that there was no significant decrease in the number of ventricular arrhythmias during a long term follow up. In this challenging subset of patients, medical therapy has very limited efficacy, leading to the need for further developments in VT ablation technique.

PO 209. IDIOPATHIC VENTRICULAR ARRHYTHMIA ABLATION - A CENTER EXPERIENCE

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

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

Introduction: Idiopathic ventricular arrhythmia (IVA) is defined as ventricular tachycardia (VT) and premature ventricular beats (PVC) in the absence of structural heart disease or in whom site of origin is independent from structural abnormalities. Generally, IVA are associated with good long-term prognosis. Catheter ablation (CA) is the treatment of choice in highly symptomatic PVC, induced tachycardiomyopathy or PVC with malignant presentation.
Objectives: To describe a population referred for IVA CA and the efficacy and safety of IVA CA.
Methods: Consecutive patients (pts) referred for IVA CA from January 2015 to June 2021 were included. All pts were telemonitored and submitted to CA if there was a documentation of frequent spontaneous PVC, if PVC were induced by effort or isoprenaline or previously documented VT. Baseline and follow-up clinical, laboratory and intraprocedural data were collected. Acute procedural success was defined as procedural complete suppression of IVA. Long-term success was defined as either a reduction of 80% of PVC burden or absence of VT recurrence.
Results: 75 pts were included (mean 51 ± 16 age, 51.3% male). Mean LVEF was 50.53 ± 19.5% and 17% had Heart Failure. Frequent PVC (23.2 ± 14%) was the main reason for CA referral (57.3%), followed by nonsustained (33.3%) and sustained VT (9.3%). Palpitations were the most frequent symptom (61.3%), although 14.7% presented with syncope or hemodynamic compromise. In 55 pts (73.3%) IVA mapping was feasible and were submitted to ablation. Acute success was observed in 48 patients (87.2%). The distribution of site of origin was the followaing: RVOT in 37.3%, LVOT in 26.7% and away from the LVOT in 9.3% (Fig. 1). Procedure complications occurred in 9 (12%) pts, the most common being pericardial effusion resolved with pericardial drainage. In 2 patients transient vasopressor support was required. Long-term success was observed in 40 (83.3%) pts independent from the site of origin. The mean PVC burden reduction was 91 ± 14%, with significant differences among the sites of origin, slightly inferior in RVOT (88%, p = 0.047) (Fig. 2). Two pts underwent redo procedures. Successful CA allowed a follow-up free from antiarrhythmic drug in 41 patients (85.4 *vs.* 52%, p = 0.002).
Conclusions: In our cohort a significant percentage of IVA had a site of origin in the LVOT or LV. Idiopathic VT ablation is a safe procedure with a significant long-term impact free from IVA and antiarrhythmic drug.



PO 209 Figure

PO 210. VENTRICULAR TACHYCARDIA ABLATION IN PATIENTS WITH ISCHAEMIC AND NON-ISCHAEMIC CARDIOMYOPATHY

Pedro Silvério António, Joana Brito, Sara Couto Pereira, Pedro Alves da Silva, Beatriz Valente Silva, Catarina Oliveira, Beatriz Garcia, Margarida Martins, Miguel Raposo, Afonso Nunes-Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Ventricular tachycardia (VT) is frequently in the setting of structural heart disease – ischaemic cardiomyopathy (ICM) or non-ischaemic cardiomyopathy (NICM). Radiofrequency catheter ablation (RCA) is an effective treatment for VT in ICM, but the results in NICM patients are not so satisfactory, and studies comparing efficacy are limited.
Objectives: To report the description and long-term outcome after a single RCA procedure for VT in patients with ICM and NICM using a high-density substrate-based approach.
Methods: We conducted a prospective, observational, single-centre and single-arm study involving patients with ICM and NICM, referred for RCA procedure for VT using high-density mapping catheters. Procedural endpoints were VT noninducibility and abolition of local abnormal ventricular activities (LAVAs). Primary end-point was a composite of all-cause mortality, recurrence of VT and heart failure hospitalization. Secondary end-point was survival-free from appropriate ICD shocks.
Results: We included 102 patients (94.1% males, mean age 67 ± 11, mean follow-up of 2.6 ± 1.7 years), 73.5% had ischemic aetiology and 26.5% NICM. Patients had a mean LVEF 33.9% ± 11.3% and 50% were in NYHA II class. Baseline characteristics were similar between two groups, except that NICM patients were younger (mean age 61 ± 12 *vs.* 69 ± 9, p = 0.001) and ICM patients had more hypertension, smoking habits (p = 0.001) and chronic kidney disease (58.8 ml/min *vs.* 71.7 ml/min, p = 0.039). At time of ablation 47% patients presented with arrhythmic storm and 62% with ICD-shock. LAVAs were identified in all patients and sustained monomorphic VT was inducible in 41%. LAVAs elimination and noninducibility were achieved in 93.8% and 60%, respectively in ICM and NICM. At 1-year 55% were free from the primary composite end-point irrespective of aetiology (ICM 60 *vs.* NICM 43%) and 33% at 2-year (ICM 36 *vs.* NICM 29%), p = 0.135. Freedom from appropriate ICD shocks was 91% at 1-year (91% ICM *vs.* 92% NICM) and 86% at 2-year (85.5% ICM *vs.* 86% NICM), p = 0.358. Overall survival was 86% and 83% at 1 and 2 years, respectively.
Conclusions: In patients submitted to RCA of VT using a high-density mapping substrate-based approach the long-term success rate was similar in both ICM and NICM, namely in long-term freedom from ICD shocks or cardiovascular hospitalizations.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 3) - Arritmias 7 - Fibrilhação Auricular 2

PO 211. INITIAL EXPERIENCE OF ATRIAL FIBRILLATION CATHETER ABLATION IN A LOW-VOLUME CENTER: CRYOABLATION VS RADIOFREQUENCY

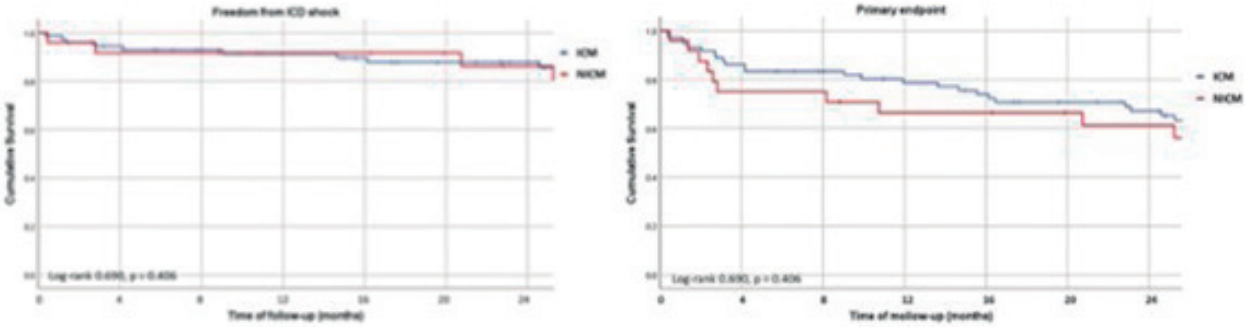
Pedro Campos Amador, Leonor Parreira, Rui Antunes Coelho, Dinis Mesquita, Rita Marinheiro, Alexandra Gonçalves, Duarte Chambel, Maria João Lopes, Tânia Teixeira, Pedro Contreiras, Dina Ferreira, Rui Caria

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

Introduction: Atrial fibrillation (AF) catheter ablation is increasingly being performed worldwide, nevertheless there are concerns of lower success rates and higher complications of AF ablations performed in low-volume centers. Cryoablation (CRYO) is accepted as a technique with a faster learning curve, so usually suggested as the procedure of choice for those centers. Thus, we sought to evaluate the safety and efficacy of AF catheter ablation during the learning curve for the two different technologies: radiofrequency (RF) and CRYO in a low-volume center.
Methods and results: We studied the first 25 patients with paroxysmal AF that underwent catheter ablation with each technique at our center. We evaluated the procedure time, fluoroscopy time, major complications and outcomes. Primary outcome was AF recurrence rate. Secondary outcomes included periprocedural complications, hospitalization for symptomatic tachy-arrhythmias post-ablation and number of repeat ablations. Mean age of our cohort was 64.0 ± 9.1 years, of which 22 (44%) were males. Baseline characteristics of both groups were not significantly different (Table). Procedure times were significantly longer for RF (193.8 ± 48.7 min *vs.* 120.8 ± 17.6 min, p < 0.001; Fig. 1A) and fluoroscopy times were also longer (20.5 ± 5.8 min *vs.* x ± 15.1 ± 3.8 min, p = 0.02, Fig. 1B). Survival free from AF was not significantly different between the 2 groups (HR 0.47; 95%CI 0.14-1.61, p = 0.231) (Fig. 1C). There were no significant differences in secondary outcomes.
Conclusions: Starting of AF ablation at low volume centers is feasible with comparable efficacy and safety outcomes to high-volume centers using contemporary ablation technologies. In our group of patients procedure and fluoroscopy times with RF were longer but both techniques achieved comparable results.

	12 months		24 months		p*
	Ischemic	Non-ischemic	Ischemic	Non-ischemic	
Primary end-point	60%	43%	36%	29%	0.135
Freedom from schock	91%	92%	85.5%	86%	0.358
Survival	91.5%	83.5%	86%	79%	0.418
Freedom from cardiovascular hospitalization	87%	75%	72%	75%	0.653

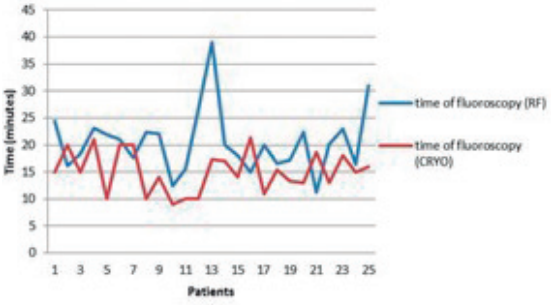
* Total follow-up



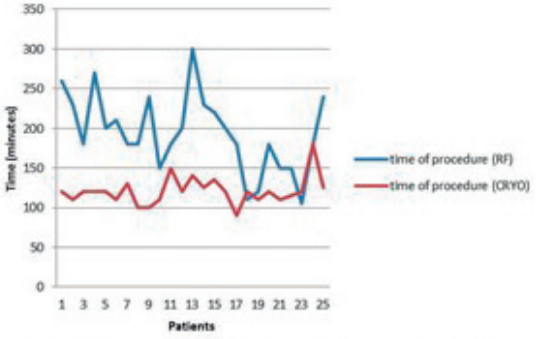
PO 210 Figure

	RF (n=25)	CRYO (n=25)	p
Age, y	64.3 ± 9.8	63.7 ± 8.5	0.942
Men	11 (44%)	12 (48%)	0.777
Weight, kg	78.1 ± 13.2	77.2 ± 13.5	0.931
Hypertension	15 (60%)	12 (48%)	0.395
Diabetes	3 (12%)	2 (8%)	0.637
Previous Stroke	2 (8%)	2 (8%)	1.000
Sleep apnea	6 (24%)	5 (20%)	0.732
Creatitine clearance < 60 ml/min	2 (8%)	2 (8%)	1.000
Antiarrhythmic drugs	20 (80%)	19 (76%)	0.732
CHA_2DS_2-VASc score ≥ 2	15 (60%)	14 (56%)	0.774
Left atrial volume (ml/m2)	36.8 ± 10.0	41.8 ± 8.1	0.107

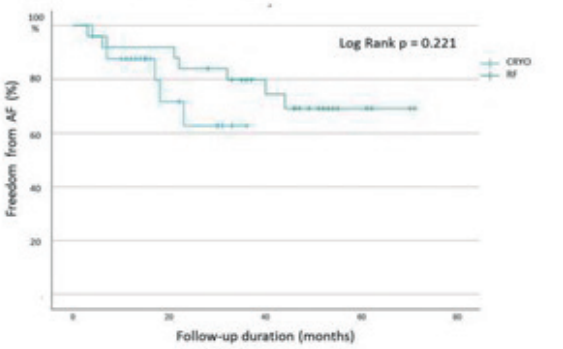
Table 1. Baseline characteristics



Graph 1B . Fluoroscopy times for RF and CRYO procedures (first 25 patients with paroxysmal AF)



Graph 1A . Procedure times for RF and CRYO procedures (first 25 patients with paroxysmal AF)



Graph 1C . Kaplan–Meier survival curve—proportion of patients free of AF during the follow up

PO 211 Figure

PO 212. IMPACT OF INDUCED ATRIAL FIBRILLATION DURING ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA ABLATION

Ana Raquel Carvalho Santos, Ana Lousinha, Madalena Coutinho Cruz, Guilherme Portugal, Paulo Osório, Bruno Valente, Pedro Silva Cunha, Sérgio Laranjo, Margarida Paulo, Manuel Brás, Ana Sofia Delgado, Tiago Rosa, Helena Fonseca, Mário Martins Oliveira, Rui Cruz Ferreira

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

Introduction: Ablation is the treatment of choice for atrioventricular nodal reentrant tachycardia (AVNRT). Atrial fibrillation (AF) can incidentally occur during this procedure, labeling these patients (P) as susceptible for AF in the future. Our aim was to assess the presence of new onset AF in P who presented this arrhythmia during the electrophysiological study (EPS).
Methods: We retrospectively analyzed 580 P that underwent AVNRT ablation between November 2008 and August 2020. Patients with previous AF were excluded. After having AF induced during the EPS, 62 P were identified as susceptible for developing AF. Data were collected by contacting P and consulting medical records.
Results: The studied population had 64.5% (n = 40) females, 35.5% (n = 22) males, with ages between 15 and 81 years old (median 52.3, mean 50.1). At ablation date, 33.9% (n = 21) had hypertension, 3.2% (n = 2) diabetes, 6.5% (n = 4) chronic kidney disease, 3.2% (n = 2) obstructive sleep apnea, 6.5% (n = 4) coronary artery disease and 6.5% (n = 4) structural heart disease. Previously to ablation, 46.8% (n = 29) were on beta-blocker, 1.6% (n = 1) on amiodarone and 3.2% (n = 2) on flecainide. When admitted to the procedure, 98.4% (n = 61) were in sinus rhythm and 1.6% (n = 1) had a pacemaker. "Slow-fast" was the most common AVNRT type (96.8%). During the EPS, other arrhythmias were induced: in 12.9% (n = 8) atrial flutter and in 9.7% (n = 6) atrial tachycardia. After AF induction, 12.9% (n = 8) needed electrical cardioversion and 3.2% (n = 2) needed both electrical and pharmacological. At the time of ablation, transient complete atrioventricular block was noted in 6.5% (n = 4) P. When contacted, 100% (n = 62) had 1 year of follow-up, 69.4% (n = 43) 5 years and 25.8% (n = 16) 10 years, with a mean follow-up of 6.6 years. It was not possible to contact 12.9% (n = 8) of the P, of those, 6.5% (n = 4) died and 6.5% (n = 4) did not reply. Recurrence of AVNRT was documented in 6.4% (n = 4) P and all underwent a successful second ablation. Almost one third, 32.3% (n = 20), were symptomatic, mainly with palpitations, and 27.4% (n = 17) maintained follow up with a Cardiologist. New-onset AF was documented in 1 P only (1.6%), diagnosed 9 years after the procedure.
Conclusions: In our cohort, the induction of AF during EPS did not translate into clinical AF during follow-up. Whether this is a nonspecific finding related to catheter manipulation or pacing maneuvers on pharmacological provocation deserves further investigation.

PO 213. SCREENING STRATEGIES FOR ATRIAL FIBRILLATION IN THE ELDERLY POPULATION: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

Rafael Whitfield

Faculdade de Medicina da Universidade de Lisboa.

Opportunistic screening is currently recommended for patients aged 65 years and older to detect atrial fibrillation (AF). However, this has recently been called into question by two studies that report that opportunistic screening is no more effective than usual care. Furthermore, there seems to be no consensus on the most effective screening strategy. Thus, we aimed to compare efficacy outcomes of different AF detection strategies using the methodology of systematic review with network meta-analysis. An electronic database search of MEDLINE, Cochrane Central Register of Controlled Trials (CENTRAL), and EMBASE was performed. We included randomised clinical trials (RCTs) or cluster RCTs that employed systematic or opportunistic screening in populations age ≥ 65 years against usual practice without AF screening. The outcome was the incidence of previously undiagnosed AF. The risk of bias of the included studies was assessed using Cochrane Risk of Bias Tool. We performed a random-effects pairwise meta-analysis and network meta-analysis within a frequentist framework R, for the outcome

reported both in an intention to screen (ITS) analysis and in an as-screened (AS) analysis. We reported the results as relative risk (RR) with 95% confidence intervals (CI). We assessed the confidence in the evidence using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework. Ten studies were included, enrolling 94378 participants. Overall quality of evidence was low due to risk of bias. Pooled effect sizes from both network meta-analysis performed suggested that systematic screening was effective for detecting AF when compared with usual care (ITS: RR 2.12; 95%CI 1.41 to 3.16) (AS: RR 3.12; 95%CI 1.81 to 5.36) and opportunistic screening (ITS: RR 1.80; 95%CI 1.21 to 2.68) (AS: RR 2.18; 95%CI 1.31 to 3.63) but no significant difference was found between opportunistic screening and usual care (ITS: RR 1.18; 95%CI 0.82 to 1.69) (AS: RR 1.43; 95%CI 0.89 to 2.30). Systematic screening was the most effective strategy for detecting AF in individuals aged 65 years or older without a known previous diagnosis. Opportunistic screening was no more effective than usual care, but the results were weakened by a low quality of evidence and imprecision in the results.

PO 214. VITAMIN-K ANTAGONISTS *VERSUS* NON-VITAMIN K ORAL ANTICOAGULANTS IN ELDERLY PATIENTS WITH SEVERE AORTIC STENOSIS AND ATRIAL FIBRILLATION

João Calvão, Ana Filipa Amador, Catarina Martins da Costa, Carlos Xavier Resende, Pedro Grilo Diogo, Tânia Proença, Ricardo Alves Pinto, Miguel Martins de Carvalho, André Cabrita, Catarina Amaral Marques, Cátia Oliveira, Luís Daniel Santos, Mariana Vasconcelos, João Freitas, Filipe Macedo

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Data comparing Non-vitamin K oral anticoagulants (NOAC) to Vitamin-K antagonists (VKA) in patients with severe aortic stenosis (AS) and atrial fibrillation (AF) are limited. Guideline recommendations on the use of NOAC in these patients are based on studies including a low number of patients with severe AS. Elderly patients with AS represent a particular subgroup with high thromboembolic and hemorrhagic risk.
Objectives: To compare the effect of NOAC *versus* VKA on the presence of left atrial appendage (LAA) thrombus among elderly patients with AF and severe AS.
Methods: In this retrospective study, we identified 315 patients ≥ 70 years with severe aortic stenosis who were proposed for transcatheter aortic valve implantation (TAVI) in our center between January 2014 and December 2019. Among this cohort, 79 (25.1%) patients had history of AF. We analyzed the association between the type of anticoagulation used (NOAC *versus* VKA) and the presence of LAA thrombus in the preprocedural cardiac computed tomography scan.
Results: Of the 79 patients included, 40 (50.6%) were anticoagulated with VKA and 39 (49.4%) with NOAC. The prevalence of LAA thrombus was similar in both groups (37.5% in the VKA group and 41.0% in the NOAC group, p = 0.75), as was the incidence of ischemic stroke (5.0 *vs.* 5.2%, p = 0.51) and death (2.6 *vs.* 2.6%, p = 0.75) during hospitalization. At 1-year follow-up, the cumulative incidence of ischemic stroke was 11.1% among the population studied (8.5% and 14.7% in the VKA and NOAC group, respectively; p = 0.48).
Conclusions: Elderly patients with severe AS and AF who are proposed for TAVI have a high prevalence of LAA thrombus despite anticoagulation. No significant difference in this prevalence was seen in patients anticoagulated with VKA or NOAC. These patients have a similar high incidence of ischemic stroke at 1 year. Further studies are needed in order to better characterize the safety and efficacy of NOAC in this patient population.

PO 215. RESPIRATORY DISTURBANCE INDEX AS A PREDICTOR OF ATRIAL FIBRILLATION

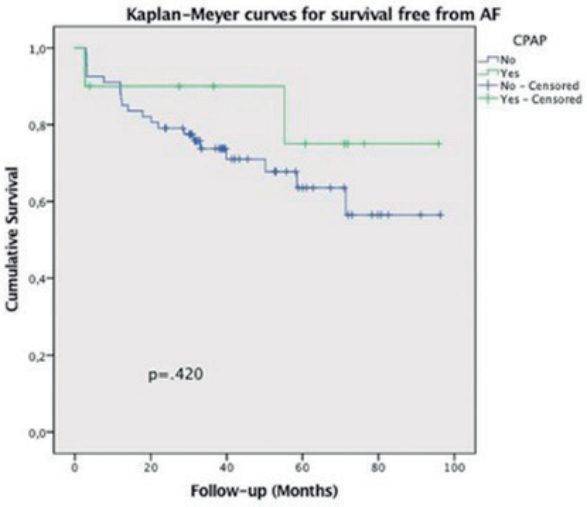
Diana Vale Carvalho, Pedro Carvalho, Lisa Ferraz, Adriana Rei Pacheco, Simão Carvalho, Raquel Ferreira, Andreia Fernandes, Pedro Cardoso, Ana Briosa

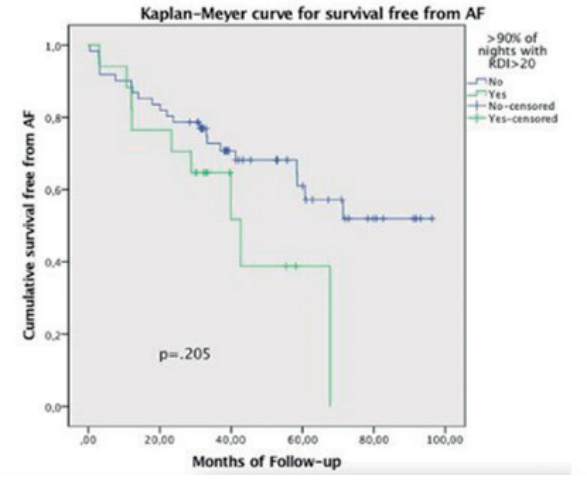
Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro.

Introduction: Obstructive sleep apnea (OSA) is a risk factor for development of atrial fibrillation (AF). Recent pacemakers have specific algorithms for detecting of OSA based on impedance measurement.

Objectives: The aim was to determine the burden of AF in patients with high respiratory disturbance index (RDI). It was also intended to determine if the onset of continuous positive airway pressure (CPAP) reduced the AF burden.
Methods: Retrospective observational study carried out through the analysis of the patient records. It included patients with pacemakers evaluated in an outpatient clinic during the first 8 months of 2018. All had the RDI algorithm. AF burden was assessed according to automatic mode switch (AMS) duration. The percentage of nights with an RDI > 20/h was analysed to assess the risk of OSA.

Risk Factors/comorbidities	Prevalence
Arterial hypertension	83.3% (n=90)
Dyslipidemia	68.5% (n=74)
Smoking History	11.1% (n=12)
Diabetes Mellitus	37.0% (n=40)
Obesity	31.5% (n=34)
Previous obstructive sleep apnea	4.6% (n=5)
Chronic kidney disease	23.1% (n=25)
Heart Failure	13.9% (n=15)
Chronic obstructive	4.6% (n=5)
Ischemic heart disease	11.1% (n=12)
Cerebrovascular disease	7.4% (n=8)





Results: 108 patients were included (mean age = 70.3 ± 9.0 years; 56.5% men). The most prevalent indication for cardiac pacing was atrioventricular

node dysfunction (59.3%). The average percentage of nights with an RDI > 20/h was 44.2%. The average follow-up (FU) period was 4.1 years. Of all cardiovascular risk factors, diabetes mellitus was the only one associated with a higher incidence of AF at FU (p = 0.044). Considering just the patients with an RDI > 20/h in more than 20% of nights (RDI20%), male gender was associated with higher rate of major adverse cardiovascular events [(acute myocardial infarction, stroke, acute heart failure and death) (p = 0.019)]. Considering patients with AF prior to pacemaker implantation (n = 34), 76% of patients had an RDI > 20/h in more than 20% of nights (mean of 58.1%). 23 of these patients had long standing persistent AF at the end of FU (*vs.* 17 at the beginnig of FU). Considering patients who developed AF after pacemaker implantation (n = 24), 58% of patients had an RDI > 20/h in more than 20% of nights (mean of 45.3%). Most patients had paroxismal AF (83%). Patients with prior paroxysmal AF or those who developed AF during FU (n = 37) had a higher burden of AF at the end of FU when they had RDI > 20/h in more than 50% of nights (mean burden of 24.66 *vs.* 14.69%, p = 0.005). There was no statistically significant correlation between the percentage of nights with RDI > 20/h and the Apnea Hypopnea Index (AHI) value. Patients who underwent polysomnography (n = 30) had a mean AHI of 16/h (which corresponds to moderately severe OSA). 63% of patients who were referred from the pacemaker consultation to pneumology and performed polysomnography started CPAP. CPAP use was not associated with a statistically significant reduction in any endpoints or AF burden.

Conclusions: There is a progression of AF in patients with RDI> 20/h in a significant percentage of nights, with a greater burden of AF at the end of follow-up. OSA is probably an underdiagnosed and undertreated disease. Therefore, continuous monitoring of RDI> 20/h can lead to early diagnosis and treatment of OSA.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 4) - Insuficiência Cardíaca 6 - Inibidores SGLT1

PO 216. DAPAGLIFLOZIN IN HEART FAILURE WITH REDUCED EJECTION FRACTION: A RANDOMIZED CONTROLLED TRIAL

João Pedro Reis

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

Introduction: Sodium-glucose co-transporter 2 inhibitors (iSGLT2) have shown to reduce morbidity and mortality in Heart Failure (HF) with reduced Ejection Fraction patients – HfrEF. Our aim was to evaluate the safety and efficacy of Dapagliflozin in non-diabetic HF outpatients in a real-world setting.

Methods: Adult HF patients (Ps) were randomized 1:1 to receive dapagliflozin 10 mg or placebo. All patients had a LVEF < 50%, were in NYHA class II-III and under guideline-recommended OMT for the previous 3 months, including a BB, ARNI/ACEi and MRA. They were excluded if they had a previous history of diabetes mellitus or a GFR ≤ 30 ml/min. Study protocol included an initial evaluation with clinical assessment, laboratorial data, transthoracic echocardiography and CPET. All Ps were followed-up for 6 months and the aforementioned evaluation was then repeated. The variation of several clinical parameters was compared between groups.

Results: A total of 40 Ps were included (mean age 61 ± 13 years, 82.5% male, mean LVEF 34 ± 5%, 70% with ischemic etiology and mean $HbA1_c$ 5.8 ± 0.3%). In the 20 Ps randomized to dapagliflozin, no major safety events were recorded and the reported compliance was 100%. There were no significant differences between groups regarding baseline clinical and demographic characteristics. Ps in the dapagliflozin group presented a greater reduction of NT-proBNP levels compared to controls (-217.56 ± 35.30 *vs.* 650.28 ± 127.23 pg/mL, p = 0.007) despite similar adjustments in diuretic dosages in both groups during follow-up. Ps in the dapagliflozin group experienced a greater improvement in global longitudinal strain – GLS (-2.2 ± 2.6 *vs.* +1.6 ± 2.3%, p = 0.001) but not LVEF improvement (p = 0.510). Dapagliflozin was associated with a greater improvement in parameters of LV-filling pressure: LA indexed volume (-6.9 ± 6.2 mL/m² *vs.* 6.2 ± 9.2 mL/m², p < 0.001), PASP (-5.9 ± 8.7 mmHg *vs.* 9.6 ± 6.5 mmHg, p < 0.001) and medium E/e' (-1.4 ± 2.6 *vs.* 1.5 ± 4.3, p = 0.026). There was greater improvement in pVO_2 in the dapagliflozin group: 3.09 ± 3.81 *vs.* 0.11 ± 3.29 mL/kg/min, p = 0.030. No statistically significant difference in HF events was found: 9.5 *vs.* 5.3%, p = 0.609. In the dapagliflozin group, there was a greater reduction in the number of Ps in NYHA class III: 26.3 *vs.* 0%, p = 0.004.

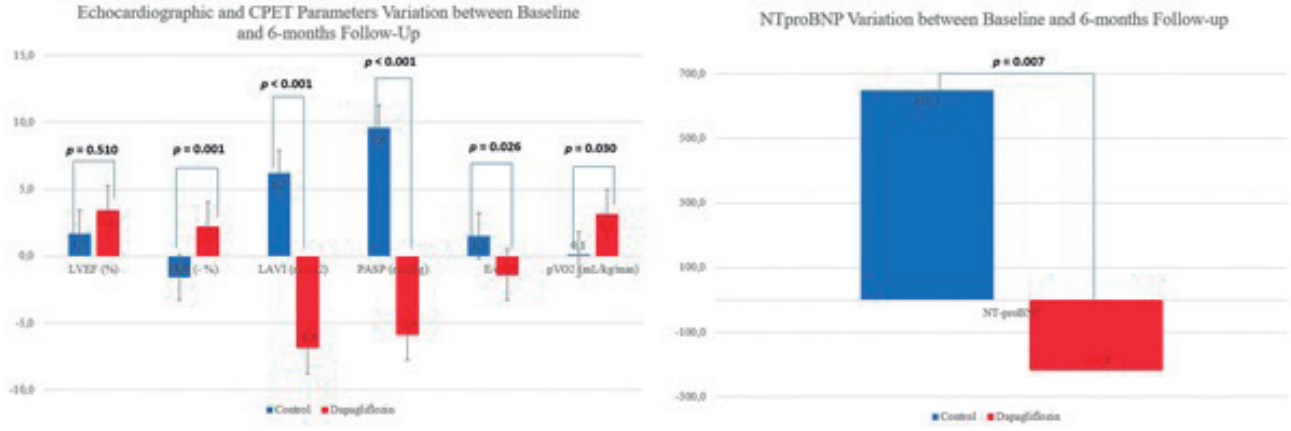
Conclusions: Dapagliflozin use was safe and associated with a significant reduction in NT-proBNP levels and an improvement in GLS and cardiopulmonary fitness at 6-months follow-up in non-diabetic HFrEF Ps.

PO 217. IMPACT OF SGLT2 INHIBITORS ON CARDIOVASCULAR OUTCOMES IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION

Mariana Tinoco, Ana Filipa Cardoso, Geraldo Dias, Tâmara Pereira, Bebiana Faria, Filipa Almeida, Sérgio Leite, António Lourenço

Hospital da Senhora da Oliveira, EPE - Guimarães.

Introduction: DAPA-HF and EMPEROR-Reduced trials showed that SGLT2 inhibitors (SGLT2i) reduced primary outcome events (CV death or hospitalization for HF) in patients with HF with reduced ejection fraction (HFrEF). However, neither trial was powered to assess effects on CV death or all-cause death.



PO 216 Figure

Objectives: This study aims to compare the effect of SGLT2i *vs.* a control group without SGLT2i on CV outcomes in a real-world population.
Methods: We performed a retrospective study of patients with HFrEF observed at an HF clinic between Jan 2018 and Jun 2020, with a follow up (FUP) period until Oct 2021. One-to-one propensity score matching was used.
Results: A total of 211 HFrEF patients were included, of which 78 (37%) were medicated with SGLT2i. The final propensity-matched cohort included 58 pairs treated with SGLT2i *vs.* a control group. Mean age was 65.9 ± 12.1 and 80.2% (93) were male. A total of 42.2% (49) of patients were treated with ACEI/ARB, 52.6% (61) with sacubitril-valsartan, 94% (109) with beta-blockers and 86.2% (100) with mineralocorticoid receptor antagonists. A total of 40.5% (47) of patients had an ICD and 29.3% (34) had a CRT-D. During a median FUP of 32.5 months (IQR 21-49), primary outcome events were lower in the SLGT2i group (16 patients; 27.6%) than in the control group (24 patients; 41.4%), however it was statistically non-significant (p = 0.075). Hospitalizations for heart failure occurred in 15 (25.9%) patients in the SGLT2i group and in 17 (29.3%) patients in the control group (p = 0.678). Death from CV causes occurred in 2 patients (3.4%) in the SGTL2i group and in 9 patients (15.5%) in the control group (HR 0.210; 95%CI 0.045-0.971; p = 0.046); 3 patients (5.2%) and 20 patients (34.5%), respectively, died from any cause (HR 0.143; 95%CI 0.042-0.480; p = 0.002). The effect of SLTG2i on all-cause mortality and CV mortality was consistent in patients regardless of the presence or absence of diabetes. Disease-free survival was higher in the group treated with SGLT2i (1015 *vs.* 878 days) but it was not statistically significant.
Conclusions: These results are different from clinical trials which demonstrated a reduction in HF hospitalizations but not in CV mortality. In this real-world population, those in SGLT2i group had a lower risk of CV and non-CV death, time to first hospitalization tended to be longer, with fewer hospitalizations for HF (although not statistically significant which may be due to the number of the sample and the FUP time).

PO 218. SGLT2 INHIBITORS IN HEART FAILURE WITH REDUCED EJECTION FRACTION: THEIR BIOLOGICAL PROPERTIES GOES WELL BEYOND A SMART DIURETIC EFFECT

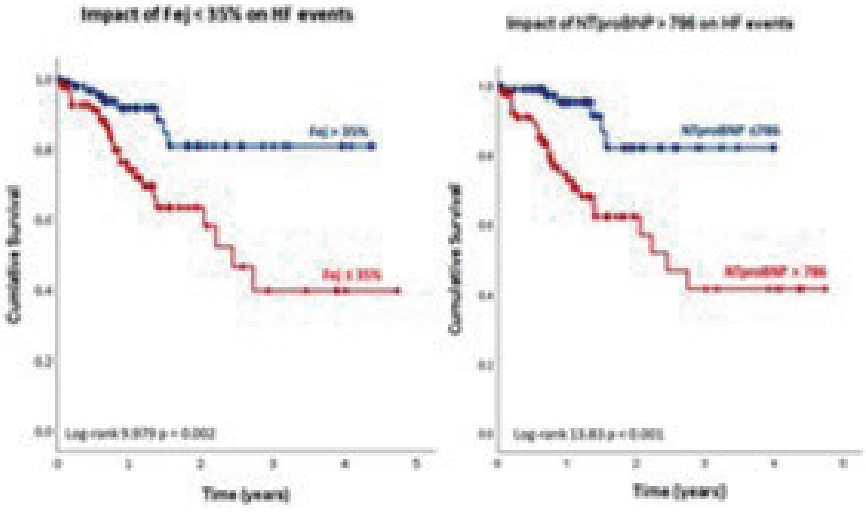
Pedro Alves da Silva, João R. Agostinho, Sara Couto Pereira, Pedro Silvério António, Rafael Santos, Joana Brito, Beatriz Valente Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, Joana Rigueira, Doroteia Silva, Nuno Lousada, Fausto J. Pinto, Dulce Brito

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

Introduction: Latest ESC heart failure (HF) guidelines added SGLT2i to the foundational therapy of chronic HFrEF, based on trials that showed that SGLT2i on top of standard care led to a reduction on HF hospitalizations and cardiovascular mortality. However, pathophysiological mechanisms responsible for these benefits are still a matter of debate, as some authors postulate that its diuretic properties have a central role and others emphasize its metabolic effects that could lead to reverse cardiac remodelling.
Objectives: To compare echo and laboratorial surrogates of diuresis and cardiac remodelling before and after SGLT2i initiation as a mean to hypothesize which mechanism predominantly leads to HF events reduction.
Methods: Single-center, retrospective study of pts with HFrEF followed in a HF unit in a tertiary center. Data regarding epidemiologic, clinical and echo parameters were recorded before and after SGLT2i initiation. Surrogate markers of diuresis and cardiac remodeling variation and its impact were evaluated using Wilcoxon Test, Cox Regression and Kaplan-Meier analysis.
Results: We included 176 pts with HFrEF started on SGLT2i. Mean age was 66.5 ± 12 years, 70.5% male. Most had ischemic (51.1%) or dilated cardiomyopathy (38.6%) with mean left ventricular ejection fraction (LVEF) of 31 ± 9.7%. 89% were in NYHA class I or II, and mean NTproBNP was 2,737 ± 4,008 pg/mL. After

	Before SGLT2i	After SGLT2i	p-value
Weight	80.4±17.8	81±16.8	0.985
Hematocrit	41.3±5.3	41.5+-5.3	0.210
Haemoglobin	13.7±1.8	13.9±1.6	0.026
NTproBNP	2737±4008	2258±3304	<0.001
Creatinine	1.48±3.28	1.29±0.5	0.125
Sodium	140±3.4	136±2.3	0.412
Ejection Fraction	31±9.7	34.1±11.2	0.001
E/e'	14.4±8.6	11.7±5.6	0.017

Table 1 - Clinical and laboratorial characteristics before and after iSGLT2 introduction



PO 218 Figure

a mean follow-up (FUP) of 1.38 ± 1.59 years we saw no statistical difference between characteristics often used as surrogates for diuresis, namely weight, hematocrit, creatinine or sodium (p = NS) (Table). Interestingly, we did find a significant difference concerning LVEF (31 ± 9,7 *vs.* 34,1 ± 11,2%; p = 0.001), NTproBNP (2,737 ± 4,008 pg/mL *vs.* 2,258 ± 5,204 pg/mL; p < 0.001) and filling pressures evaluated by mean E/e' (14.4 ± 8.6 *vs.* 11.7 ± 5.6; p = 0.017). During FUP, 11.4% pts were hospitalized, 9.7% had outpatient treated HF decompensations and 1.1% died. Lower LVEF < 35% and higher NTproBNP (> 786 pg/mL) correlated with events (HR 3.197, 95%CI 1.492-6.850, p = 0.003; HR 4.631, 95%CI 1.905-11.263, p = 0.001) in contrast to hematocrit or Hb levels (p = NS). No impact was estimated with mean E/e'.
Conclusions: These data support the hypothesis that iSGLT2 effects go beyond its diuretic properties and extend to anti-remodeling processes, as noted by differences in NTproBNP, LVEF and diastolic function. Such processes have significant impact on prognosis and events during FUP, reinforcing the importance of the new foundational therapy.

PO 219. SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITORS: THE GLUE FOR HEART FAILURE WITH REDUCED EJECTION FRACTION FOUNDATIONAL THERAPY

Sara Couto Pereira, João R. Agostinho, Pedro Silvério António, Joana Brito, Pedro Alves da Silva, Beatriz Garcia, Ana Margarina Martins, Catarina Oliveira, Joana Rigueira, Rafael Santos, Nuno Lousada, Doroteia Silva, Fausto J. Pinto, Dulce Brito

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

Introduction: Hyperkaliemia is one of the major limiting factors for foundational therapy (FT) uptitration in heart failure with reduced ejection fraction (HFrEF) patients (pts). However, according to EMPEROR-Reduced Trial subanalysis, SGLT2 inhibitors (SGLT2i) may have an impact on reducing hyperkaliemia, allowing the introduction and maintenance of sacubitril/valsartan (ARNI) and mineralocorticoid receptor antagonists (MRA).
Objectives: To evaluate the impact of SGLT2i on potassium levels (K) and, consequently, on FT introduction and uptitration in HFrEF pts.
Methods: Single-center, retrospective study of HFrEF pts followed in a tertiary center HF clinic. Epidemiologic, clinical and echocardiographic data were recorded before and after SGLT2i initiation. The population was divided in 2 groups: pts treated with SGLT2i – SGLT2i group; and pts not treated with SGLT2i – control group. Hypokalemia was defined as K< 3.5 mmol/L, hyperkalemia as K> 5.1 mmol/L and severe hyperkalemia as K> 5.9 mmol/L. Both groups were compared using Chi-square and Mann-Whitney tests.
Results: 275 pts were included, 176 (74%) in the SGLT2i group and 99 (36%) in the control group. The mean age was 66 ± 14 years and 195 (70.7%) pts were males. Most pts had ischemic heart disease (45.7%) or dilated cardiomyopathy (41.7%) and were at NYHA functional class II (58.3%) or III (33%). Pre-SGLT2i initiation clinical, laboratorial and therapeutic data are available in the table. There were no statistically significant differences between the two groups, apart from diabetes, that was more frequent in the SGLT2i group (p < 0.001). After a mean follow-up period of 47 ± 96 months, no statistically significant differences between the 2 groups regarding K, creatinine, eGFR and urea were observed (p = NS). In SGLT2i group there were no cases of hypokalemia (*vs.* 4 cases in the control group; p = 0.007); There were less cases of hyperkalemia in the SGLT2i group (42 (23.9%) *versus* 35 (35.4%) cases in control group (p = 0.036)). Two cases of severe hyperkalemia (1.1 *vs.* 2%; p = NS) were reported in both groups. This difference in K may help to explain the higher prescription rate of ARNI (79 *vs.* 38.4%; p < 0.001) and MRA (90.3 *vs.* 76.8%; p = 0.002) in the SGLT2i group and also by its higher doses (p < 0.001 and p = 0.004, respectively) (Figs.). Doses of diuretics and B-blocker were similar in both groups (p = NS).
Conclusions: This study suggests that introduction and uptitration of ARNI and MRA may be facilitated by concomitant administration of SGLT2i due to its effect in serum potassium levels.

PO 220. DAPAGLIFOZIN IN THE REAL WORLD – WHAT IS THE IMPACT ON HEART FAILURE WITH REDUCED EJECTION FRACTION ALREADY UNDER OPTIMIZED THERAPY?

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

Introduction: Heart failure with reduced ejection fraction (HFrEF) has a high worldwide prevalence and considerable morbidity and mortality, even

Baseline characteristics			
	iSGLT$_2$ group (n=176)	Control group (n=99)	
Age (years)	65.5±13	67.5±16	p=NS
Male	123	72	p=NS
LVEF (%)	27.7±7.7	28.2±7.2	p=NS
Ischaemic cardiomyopathy	90 (51%)	36 (36.4%)	p=0.042
Dilated cardiomyopathy	68 (38.6%)	46 (46.5%)	p=0.042
Diuretic	128 (72.7%)	67 (67.7%)	p=NS
Hypertension	105 (59.7%)	57 (57.6%)	p=NS
Basal creatinine (mg/mL)	1.25±0.8	1.43±1	p=NS
eGFR (mL/Kg/1.73m^2)	69.9±24	63.6±27	p=NS
K$^+$ (mmol/L)	4.5±0.6	4.5±0.6	p=NS
NT-proBNP (pg/mL)	3864±5854	5072.5±13819	p=NS
NYHA functional class			
I	13 (7.4%)	7 (7.1%)	
II	106 (60.2%)	54 (54.5%)	p=NS
III	55 (31.3%)	36 (36.4%)	
IV	2 (1.1%)	2 (2%)	
Baseline therapy			
B-blocker	160 (91%)	92 (93%)	p=NS
iECA/ARA	113 (64%)	73 (73.7%)	p=NS
ARNI	51 (29%)	16 (16.2%)	p=NS
ARM	126 (71.6%)	65 (65.7%)	p=NS
Diuretic	128 (72.7%)	67 (67.7%)	p=NS

Table 1 – Baseline characteristics of the patients with HFrEF before iSGLT$_2$ initiation

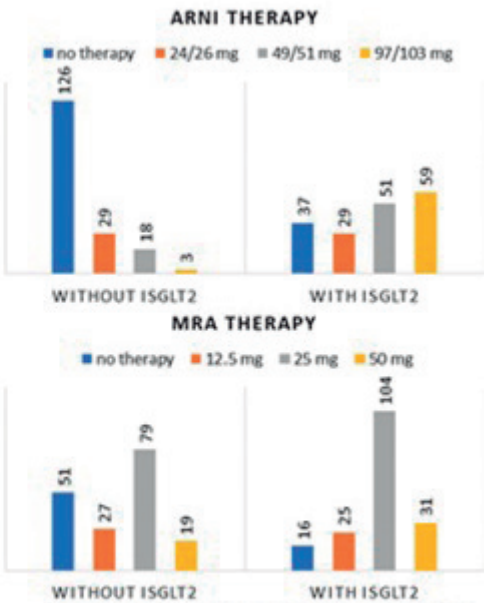


Figure 1 and 2 – ARNI and MRA therapy before and after iSGLT$_2$ initiation

PO 219 Figure

under optimized therapy. Dapaglifozin, one of the lastet drugs approved for its therapy, was associated with a significative reduction of cardiovascular death and hospitalization for HF (DAPA-HF trial).
Objectives: To evaluate the real-world impact of the introduction of dapaglifozin in patients (pts) with HFrEF already under optimized therapy.
Methods: A retrospective cohort study was conducted, including pts followed for HF in a district hospital, with LVEF ≤ 40% under optimized therapy that received dapaglifozin. The outcomes evaluated were NYHA functional class, renal clearance, NT-proBNP, LVEF, adverse events, hospitalization for decompensated HF and mortality during the 1-year follow-up.
Results: In a sample of 73 pts (72.6% male; mean age 66.3 ± 12.1 years; 68.5% in NYHA II), 79.5% were treated with neprisilin inhibitor, 95.9% with beta-blocker and 82.2% with mineralocorticoid receptor antagonists. One month after starting dapaglifozin, there was no statistically significant reduction in NT-proBNP (1516 (IQR 4,348.0) *vs.* 1,326.5 (IQR 3,858.0) pg/mL, p = 0.506), with 32.9% (n = 24) with a reduction > 15% in this parameter. NYHA class has improved or sustained in 82.3% patients (p = 0.072). There was a slight improvement in ejection fraction (26.0 (IQR 15.8) *vs.* 27.5 (IQR 20.3)%, p = 0.456), however without statistically significance. Only 5 patients (6.8%) were hospitalized for HF and 14 (19.2%) needed diuretic therapy adjustment. There was a mortality of 2.7% (n = 2). There were 3 cases of pruritus and 2 cases of genitourinary tract infection. There was a slight worsening of renal clearance (65.6 ± 24.1 *vs.* 60.9 ± 24.6 ml/min/1.73 m^2; p = 0.001), however only 1 patient had a reduction > 50% in the estimated GFR, like DAPA-HF trial (1.4 *vs.* 1.2%). There was no need to discontinue the drug or hospitalization for adverse effects.
Conclusions: Dapaglifozin in pts with optimized therapy, even if clinically stable, showed clinical and functional improvement, associated with a good safety profile. The similarity of the good results in the real world to the DAPA-HF trial highlights the importance of new therapies and the fight against therapeutic inertia.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 5) - Imagem 4 - Ecocardiografia 2

PO 221. CAN WE COUNT ON ECHOCARDIOGRAPHY TO IDENTIFY DIFFERENT TYPES OF CARDIAC AMYLOIDOSIS?

Miguel Azaredo Raposo, Pedro Silvério António, Sara Couto Pereira, Joana Brito, Beatriz Valente Silva, Pedro Alves da Silva, Ana Beatriz Garcia, Ana Margarida Martins, Catarina Simões de Oliveira, João Santos Fonseca, Catarina Gregório, Ana Abrantes, João Agostinho, Fausto J. Pinto, Dulce Brito

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

Introduction: Cardiac amyloidosis (CA) is a heterogeneous disease with diverse phenotypes. Most cases are caused by one of two misfolded proteins: immunoglobulin light-chain (AL) or amyloid transthyretin (ATTR). Target therapies may influence ATTR amyloidosis prognosis and so an early diagnosis is critical. Selected echocardiographic parameters have been suggested to distinguish AL-CA from ATTR-CA.
Objectives: To compare the diagnostic accuracy of various conventional and deformation echo parameters in differentiating AL-CA from ATTR-CA.
Methods: Single-center retrospective study in a reference center of hereditary ATTR-CA patients (pts) with cardiac amyloidosis. At baseline, laboratory, electrocardiography (ECG), 2D echocardiography and DPD-scintigraphy were performed in all pts. Some pts performed cardiac magnetic resonance imaging. Quantifiable conventional morphological and functional parameters along with strain analyses of left and right ventricle were analyzed.
Results: We included 84 pts with CA, 18 pts with AL-CA and 66 pts with ATTR-CA - 24 with hereditary (h) ATTR-CA and 42 ATTR-wt CA. ATTR pts were 65 ± 9 year-old and 83.3% were male while AL pts 71 ± 12 year-old and 61.1% were male. Pts with ATTR-wt CA presented more LV hypertrophy, predominantly of IVS (17.6 ± 2.9 mm *vs.* 15.3 ± 3.9 mm h-ATTR-CA *vs.* 15.6 ± 2.9 mm AL-CA), reduced LVEF (46 ± 16%vs59 ± 8% in h-ATTR-CA *vs.* 55 ± 10% in AL-CA) and more RV hypertrophy (5.7 ± 3.3 mm *vs.* 5 ± 2.1 mm in h-ATTR-CA *vs.* 4.4 ± 2.7 mm in AL-CA), with no statistically significant differences. When comparing only ATTR amyloidosis types, pts with ATTR-wt CA had higher grade of LV hypertrophy, reduced biventricular function (LVEF, TAPSE) and higher grades of LV diastolic dysfunction, with statistically significance (Table 1). Moreover, pts with ATTR-CA tend to present with pericardial effusion at diagnosis (p = 0.44). Strain analysis was reduced in all pts, with statistically differences between ATTR-wt CA pts and hATTR-CA (LV GLS: 9.5 ± 4.3 *vs.* 13.9% ± 3.1, p < 0.001; RV 4 chamber strain: 11 ± 3.8%vs15.9% ± 4.3, p = 0.001), but with no differences between AL-CA and ATTR-CA (Table 2). Other echocardiographic variables were very similar between different types.

A

Echocardiogram	ATTR-wt (n=24)	hATTR (n=42)	P
IVS (mm)	17.6±2.9	15.3±3.9	0.008
Posterior wall (mm)	15.9±3.3	13.2±2.9	0.002
LVEF (%)	46±16	59±8	0.003
TAPSE (mm)	16.6±3.2	19.6±3.2	0.005
LV GLS (%)	9.5±4.3	13.9±3.2	<0.001
RV 4C strain (%)	11±3.8	15.9±4.3	0.001
Grade 3 Diastolic disfunction (%)	85.7	41.7	0.001

B

Echocardiogram	ATTR (n=66)	AL (n=18)	P
IVS (mm)	16.1±3.7	15.6±2.7	NS
Posterior wall (mm)	14.1±3.3	14.6±2.7	NS
LVEF (%)	54±13	55±10	NS
TAPSE (mm)	18.5±3.5	17.4±5.8	NS
LV GLS (%)	12.5±4.1	13.0±5.9	NS
RV 4C strain (%)	14.5±4.7	15.2±6.0	NS
Grade 3 Diastolic disfunction (%)	69.7	72.2	NS

Table 1: (A) Echocardiographic evaluation ATTR-wt vs hATTR. (B) Echocardiographic evaluation ATTR vs AL.

Conclusions: Our study showed that in pts with CA, cardiac involvement could be more expressive in ATTR-wt, which probably relates to late diagnosis and absence of modifier therapeutic in these pts when compared to h-ATTR. Despite that, no echo parameters were able to accurately differentiate between h-ATTR and AL-CA.

PO 222. AN ECHOCARDIOGRAPHIC INSIGHT ON POST-COVID-19 SYMPTOMS

Rui Files Flores, Olga Pires, Joana Alves, Nuno Salomé, Fernando Mané, Paulo Medeiros, Carla Pires, Rodrigo Silva, Vítor Hugo Pereira

Hospital de Braga, EPE.

Introduction: Since the first cases described in China in late 2019, Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) infection became worldwide spread in just a few months, instigating fear and anxiety, menacing international borders, and raising awareness on health implications, such as cardiovascular disease. Studies using magnetic resonance imaging show the presence of myocardial edema and right ventricular dysfunction during and shortly after a SARS-CoV-2 infection. Whether this cardiac involvement could have any long-term implications is yet unknown. Our main objective is to describe the echocardiographic findings of patients with previous SARS-CoV-2 infection.

Methods: A single-center prospective study was conducted. Patients who tested positive for SARS-CoV-2 were selected and submitted to a transthoracic echocardiogram 6 months after infection. A complete echocardiographic assessment, including tissue doppler, E/E' ratio and ventricular longitudinal strain, was performed. Data was sorted by admission in intensive care units.
Results: A total of 88 patients were enrolled. Mean values and respective standard deviation were as follows: left ventricular ejection fraction 60.8 ± 5.9%; left ventricular longitudinal strain - 17.9 ± 3.6%; tricuspid annular plane systolic excursion 22.1 ± 3.6 mm; longitudinal strain of the free wall of the right ventricle – 19.0 ± 6.0%. We found no statistically significant differences between the subgroup of patients admitted to the intensive care unit and the remainder in relation to any of the echocardiographic parameters that were evaluated.
Conclusions: Six months after a SARS-CoV-2 infection, echocardiographic findings showed globally preserved left and right ventricular systolic function. Despite being associated with worse acute prognosis, long-term implications of myocardial involvement are still unclear. According to our data, this acute myocardial injury does not appear to be related to long-term impaired ventricular function; for instance, long-term symptoms may be related to pulmonary, less likely cardiac, involvement. Overall, further studies are needed to clarify the cause of these patients' symptoms and to access the impact on long-term events.

PO 223. CLINICAL AND ECHOCARDIOGRAPHIC FEATURES OF PLATYPNEA-ORTHODEOXIA SYNDROME: A SINGLE-CENTRE EXPERIENCE

Inês Fialho, Mariana Passos, Joana Lima Lopes, Carolina Mateus, Marco Beringuilho, João Baltazar Ferreira, Hilaryano Ferreira, José Morais, António Freitas, Carlos Morais

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

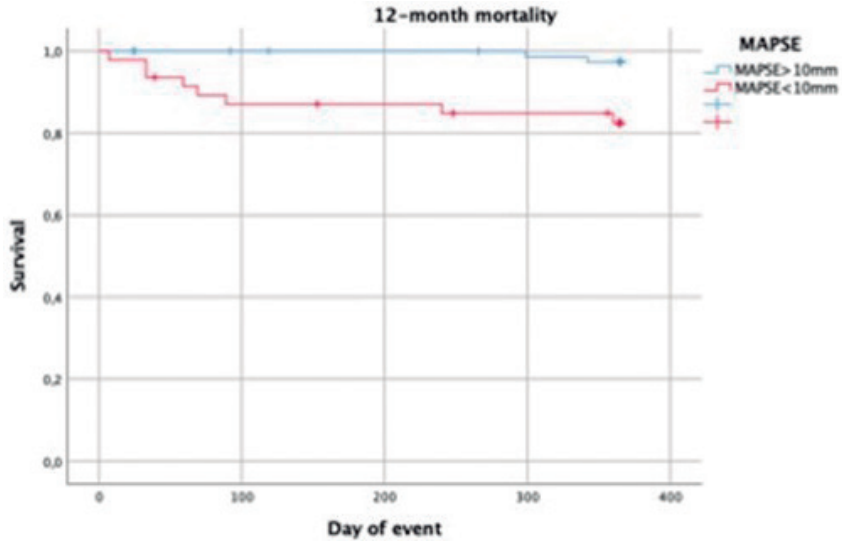
Introduction: Platypnea-orthodeoxia syndrome (POS) is an uncommon condition characterized by dyspnoea and hypoxemia in the upright position that improves with recumbency. Echocardiography (TTE) is the cornerstone for POS diagnosis.
Objectives: To evaluate the clinical characteristics of patients presenting with POS.
Methods: We performed a single-centre retrospective analysis of patients diagnosed with POS between January 2015 and June 2021. Clinical presentation, blood tests, TTE information, and patent foramen ovale (PFO) closure procedure details were recorded.
Results: Seven patients were included, 86% female (n = 6), median age 78 (72-85) years. The median age was 78 (72-85) years. The most prevalent cardiovascular risk factors were arterial hypertension (100%, n = 7) and overweight/obesity (85.7%, n = 6). Two patients (28.6%) had chronic pulmonary disease. The most common symptom was fatigue and exercise intolerance (n = 5, 71.4%) and the most frequent sign was persistent hypoxemia (n = 7, 100%), although 28.6% (n = 2) patients did not present the typical positional changes in peripheral oxygen saturation. Haemoglobin levels [14.1 (13.3-15.2) g/dL] were normal and NTproBNP levels [656 (287-1,196) ng/dL] were slightly elevated. Right ventricle (RV) morphology and function were normal in 86% (n = 6), low probability of pulmonary hypertension was found in 86% (n = 6), and exuberant Eustachian valve was observed in 14% (n = 1). All patients presented atrial septal hypermobility, 86% (n = 6) with atrial septal aneurysm criteria. PFO was found in 86% (n = 6) and ostium secundum ASD in 14% (n = 1). POS precipitating factors were aortic root dilation (29%; n = 2), chest trauma (14%; n = 1), right hip arthroplasty (14%; n = 1), atrial septal stretching regarding RV volume overload (14%; n = 1). The underlying mechanism was unknown in 29% (n = 2). ASD closure was performed in 57% (n = 4) of patients with clinical improvement in all. No acute complications were found, except for paroxysmal atrial fibrillation (14%; n = 1).
Conclusions: POS diagnosis depends on high clinical suspicion: the most common manifestations are fatigue and persistent hypoxemia. Typical positional changes in oxygen saturation could be absent. Polycythaemia, RV dilation, and pulmonary hypertension are not common.

PO 224. PROGNOSTIC VALUE OF MITRAL ANNULAR PLANE SYSTOLIC EXCURSION IN PATIENTS WITH ACUTE CORONARY SYNDROME AND PRESERVED EJECTION FRACTION

Vanda Devesa Neto, João Miguel Santos, Joana Laranjeira Correia, Inês Costa Silva, Inês Pires, Gonçalo Ferreira, Luís Ferreira Santos

Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio.

Introduction: Mitral annular plane systolic excursion (MAPSE) is a quick and reliable echocardiographic tool for assessing longitudinal left ventricular (LV) systolic function. Also, MAPSE correlates with LV longitudinal strain but is less dependent on the quality of echocardiographic images.
Objectives: Identify the association between average MAPSE (aMAPSE) and 12-month mortality and hospitalizations (12MM and 12MH) in patients with ACS and preserved ejection fraction (EF).
Methods: Retrospective analysis of 127 patients admitted in a cardiology department with ACS and preserved ejection fraction (LV ejection fraction



PO 224 Figure

> 40%). Echocardiography was performed in all patients, and anterior, lateral, inferior, and septal MAPSE were recorded. Then average MAPSE (aMAPSE) was calculated, and 10 mm was assumed as the cut-off value for population division. Mann-Whitney U was performed for univariate analysis, and Cox-regression analysis was used to assess independent risk factors. Kaplan-Meier survival plot was used to evaluate the predictive power of aMAPSE on 12MM and 12MH.
Results: Mean age was 63.7 ± 14.2 years; 81% were men. 54% had diagnosis of ST-segment elevation. Mean LV ejection fraction (LVEF) was 55.1 ± 9%, 28% had LVEF < 50%. Mean wall motion score index was 1.25 ± 0.24. Mean TAPSE was 20.2 ± 3.8 mm. Mean aMAPSE was 10.4 ± 2.2 mm. 37% (n = 47) had aMAPSE < 10 mm. 12MM and 12MH were 7.5% and 15%, respectively. When stratified by non-reduced or reduced aMAPSE, there were significantly differences in age (60.2 ± 14.2 *vs.* 69.6 ± 12.1; p < 0.01), FEVE (57.2 ± 8.3 *vs.* 51.4 ± 9.0; p < 0.01) and global longitudinal strain (15.9 ± 3.2 *vs.* 11.7 ± 3.3; p < 0.01). In survival analysis, aMAPSE < 10 mm was significantly associated with superior 12MM (10 *vs.* 6%; p < 0.01, χ^2 6.8) and superior 12MH (6 *vs.* 2%; p < 0.01; χ^2 8.9). Cox regression analysis demonstrated that aMAPSE < 10 mm independently predicts 12-MH (OR: 4.7) even after adjustment for other prognostic markers, such as sex, diagnosis of ST-elevation segment elevation, and history of ischemic heart disease.
Conclusions: Previous history of aMAPSE < 10 mm is associated with higher 12 month-mortality and hospitalizations in patients with ACS and preserved EF. Its use may identify patients with an increased risk of re-admission and mortality, needing specialized care and a closer follow-up.

PO 225. LONG TERM LEFT VENTRICULAR IMPAIRMENT AFTER SARS-CoV-2 INFECTION

Catarina Simões de Oliveira, Joana Brito, Pedro Silvério António, Pedro Simões Morais, Sara Couto Pereira, Pedro Alves da Silva, Beatriz Valente Silva, Ana Margarida Martins, Ana Beatriz Garcia, Ana Abrantes, Miguel Azaredo Raposo, Joana Rigueira, Rui Plácido, Fausto J. Pinto, Ana G. Almeida

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

Introduction: The impact of acute infection by SARS-CoV-2 on the cardiovascular (CV) system has been previously reported, with a higher propensity in patients (pts) with more serious pattern of disease and pro-inflammatory status. Nevertheless, the long-term burden of COVID-19 on the CV system is still unknown.
Objectives: To evaluate the long-term impact of COVID-19 on left ventricular function in pts with severe clinical presentation requiring intensive care hospitalization.
Methods: This was a single-center observational, prospective study which included pts admitted to the Intensive Care Unit (ICU) due to COVID-19 infection from January to November 2020 who accepted to perform a post-discharge clinical evaluation. For the global longitudinal strain (GLS) analysis all pts with significant wall motion abnormalities and valvular heart disease were excluded. Statistical analysis was performed with Mann-Whitney and a safety cut-off was established with ROC curve analysis.
Results: A total of 43 pts were included (mean age 64 ± 12, 67.4% males). During SARS-CoV-2 infection 49% presented with severe ARDS and 51% with moderate, 35% required invasive mechanical ventilation, 14% noninvasive mechanical ventilation and 52%with high nasal flow cannula. On the follow-up fatigue was the most reported symptom (52% pts) and the majority did not present other signs or symptoms suggestive of heart failure; the mean NT-proBNP was 49 ± 389 pg/dL. The standard ECG and echocardiogram did not show significant differences with a mean LVEF of 58 ± 7.8 and mean TAPSE of 21 ± 4. The GLS analysis was performed in 28 pts and a significant reduction was objected suggesting subclinical left ventricular dysfunction in this subset of pts (mean GLS of -17.14 ± 2.36 for a reference cut-off of -18%, t(27) = -1.928, p = 0.06) Maximum CPR values during ICU did not correlate either with the extent of disease evolvement in CT or ARDS severity. Nevertheless, maximum CPR correlated significantly with GLS reduction (R = 0.44, p = 0.019). A CPR value higher than 30 mg/dL had 100% specificity for GLS reduction and a cut-off of 14 gm/dL reported a sensitivity of 65% and specificity of 75% for reduction in GLS.
Conclusions: In our study, we reported subclinical impairment in left ventricular function detected with GLS after serious infection with SARS-CoV-2. The detected myocardial dysfunction correlated significantly with higher CPR values. Therefore, pts with higher inflammatory response should undergo a cardiologic evaluation.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 6) - Doença Cardiovascular em Populações Especiais 2 - Covid 19

PO 226. PREDICTORS OF DYSRHYTHMIAS IN COVID-19 INTENSIVE CARE PATIENTS AND IMPACT ON IN-HOSPITAL MORTALITY

Diogo de Almeida Fernandes, Joana Guimarães, Patrícia Costa, Eric Monteiro, Gonçalo Costa, Natália António, Paulo Martins, Lino Gonçalves

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

Introduction: The COVID-19 pandemic has had a dramatic impact on clinical practice, amounting to more emergency department and intensive care unit (ICU) admissions. Due to their frequent multiple comorbidities, management in the ICU is challenging. Early studies suggest that cardiac injury is frequent in hospitalized patients with COVID-19, and it is plausible that these patients have a higher risk of cardiac dysrhythmias.
Objectives: To determine the prevalence of dysrhythmias in ICU patients with COVID-19 pneumonia, identify major predictors and determine the impact on in-hospital mortality.
Methods: A retrospective study of 98 consecutive patients with COVID-19 Pneumonia admitted to the ICU of a tertiary hospital in 2020. The main outcome was dysrhythmias (including significant bradycardia, high/slow ventricular rate or new-onset atrial fibrillation (AF) or atrial flutter, other supraventricular tachycardias, ventricular tachycardia and ventricular fibrillation). Significant bradycardia was defined as heart rate lower than 40 or need of treatment. Sociodemographic variables and clinical data were retrieved for each patient, severity scores at admission (Apache II, SOFA and SAPS II), number of days on mechanical ventilation or high-flow oxygen and placement on Venovenous Extracorporeal Membrane Oxygenation (ECMO) or prone position were recorded. Statistical comparison was made between groups, including logistic regression adjusting for confounding variables.
Results: The most frequent arrhythmia was significant sinus bradycardia (28, 28.5%) followed by high ventricular rate AF (14, 14.2%). Patients who had dysrhythmias were older (66.24 ± 10.13 *vs.* 60.85 ± 12.69 years, p 0.024), more severe (SAPS II score 42.55 ± 11.08 *vs.* 35.98 ± 11.26, p 0.006), had more atrial fibrillation (AF) (p 0.022), had higher maximum C-reactive protein (mCRP) (6.56 ± 2.68 *vs.* 6.24 *vs.* 2.86, p 0.009), were mechanically ventilated for a longer time (15.64 ± 13.18 *vs.* 8.92 ± 8.85 days, p 0.004), had longer intubation time (14.52 ± 9.39 *vs.* 8.70 ± 8.21 days, p 0.002) and had higher usage of dexamethasone (p 0.042) and prone position (p 0.016). When adjusted for confounding variables, prone was the most significant predictor (OR 2.80; 95%CI 1.20-6.52) followed by use of dexamethasone (OR 2.484; 95%CI 1.02-6.05). Days intubated, days on mechanical ventilation, age, mCRP and SAPS II on admission were also predictors of dysrhythmia. Regarding mortality, patients with arrhythmic events had a tendency for greater in-hospital death (OR 2.44; 95%CI 0.95-6.31; p 0.065).

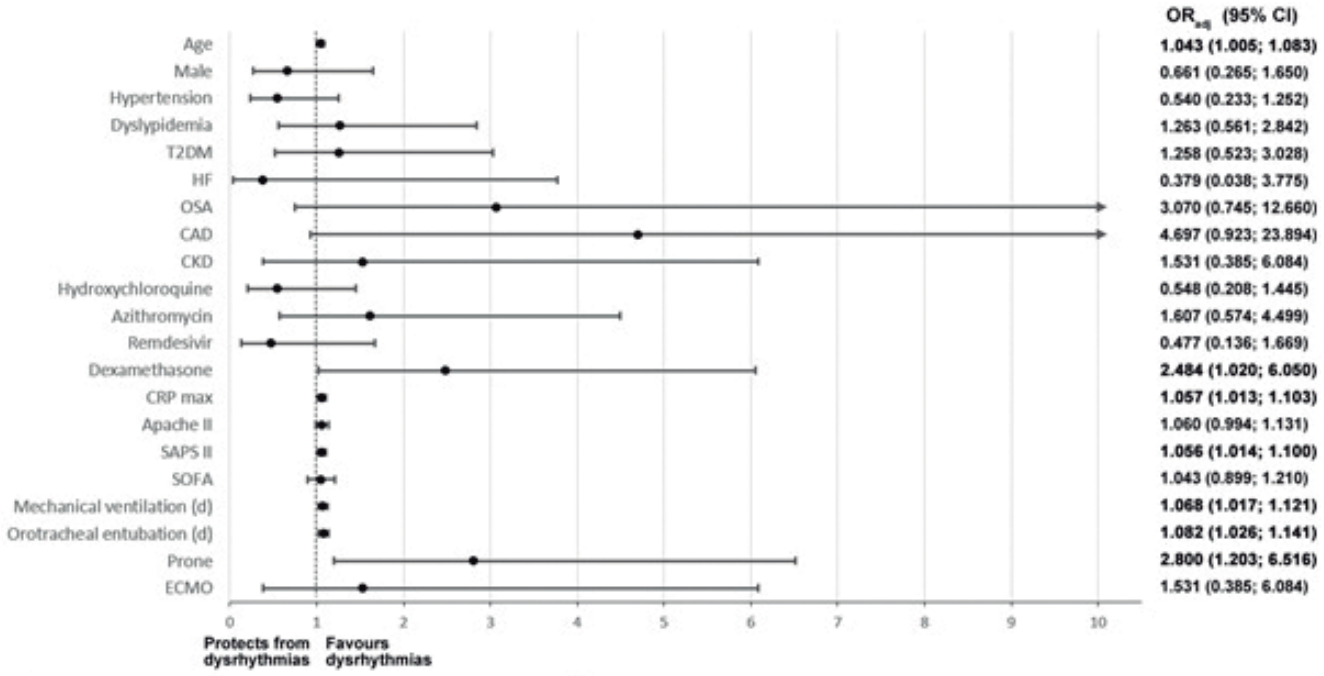


Fig. 1 - Forest plot of primary outcome according to the different variables

PO 226 Figure

Conclusions: COVID-19 ICU patients are a subset of patients at risk of cardiac arrhythmias. Use of prone position was the main contributor to these events, but clinical history, severity and treatment may also play an important role. Efforts must be made to optimize ventilatory support and treatment in order to reduce the risk of dysrhythmias.

PO 227. MYOCARDITIS AND PERICARDITIS FOLLOWING COVID-19 VACCINATION IN ADOLESCENTS

João Oliveira Dias, Joana Marinho, Fernanda Rodrigues, António Pires

Centro Hospitalar e Universitário de Coimbra, EPE/Hospital Pediátrico de Coimbra.

Introduction: In adolescents, myocarditis and pericarditis are known, rare complications, of COVID-19 mRNA vaccines, affecting mostly males. The pathophysiological mechanisms remain unclear, but most cases have a mild acute clinical course. However, the long-term effects are still uncertain. In Portugal, COVID-19 vaccination in adolescents started in mid-August 2021 for the over 16-year-old and in late August for the over 12-year-old groups. Within 3 months, 87% of this population was inoculated (data: Direção Geral da Saúde). In this report we aim to characterize the adolescent population with COVID-19 vaccine related myocarditis (C-VAM) in a single tertiary referral centre in Portugal.
Results: A total of 6 cases of myocarditis were reported and are currently being followed-up, 5 males, with a median age of 15.5 years [13-17]. All patients received the Pfizer-BioNTech COVID vaccine, and all but one had C-VAM following the second dose given 3 weeks after the first. The median onset of symptoms was 2 days [1-4] following vaccine administration. Two of these patients also had pericarditis. All common causes of myocarditis/pericarditis were excluded, including ongoing COVID-19 infection. None met diagnostic criteria for multisystem inflammatory syndrome in children (MIS-C). All patients presented with precordial pain and two with fever. Mean peak troponin I levels were 6,586 ng/L [1,219-16,290 ng/L]. Echocardiographic changes were present in 3 (50%) of the patients, two presenting with mild systolic dysfunction and one with mild pericardial effusion. All changes resolved within 7 days of admission. Patients with isolated myocarditis were managed with ibuprofen, and those with associated pericarditis were also given colchicine. Mean hospital stay was 5.7 days (range 5-7 days). Cardiac magnetic resonance imaging (C-MRI) was performed within 1 month of presentation and findings were normal in all but one patient, who had hyperintense signal in T2-weighted images, showing myocardial edema. As of the time of submission, 5 of the 6 patients had undergone 24h Holter monitoring, with one patient having ST-T changes in the left precordial leads. This patient had a recurrent episode of myopericarditis 3 weeks post discharge. Only one patient underwent a treadmill exercise test, which was normal.
Conclusions: Patients with C-VAM had a mostly favorable early clinical evolution. However, continued clinical monitoring is recommended due to the uncertain pathophysiology and long-term outcomes.

PO 228. THROMBOEMBOLIC EVENTS IN THE FOLLOW UP OF COVID-19 PATIENTS

Margarida G. Figueiredo, Hélder Santos, Mariana Santos, Sofia B. Paula, Inês Almeida, Hugo Miranda, Samuel Almeida, João Tavares, Luís Santos, Boban Thomas, Filomena Caetano, Lurdes Almeida

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

Introduction: The severe acute respiratory syndrome in SARS-CoV-2 patients and the resultant coronavirus disease are accountable for the present pandemic status. Hospitalization patients with SARS-CoV-2 have been linked to an increased incidence of thromboembolic phenomena, particularly in critical care patients. The potential higher risk of thromboembolic events post discharged remains controversial.
Objectives: Review the evidence regarding the occurrence of thromboembolic events during the follow-up of SARS-CoV-2 patients.
Methods: A systemic research on MEDLINE and PUBMED with two the following terms "COVID-19", "SARS-CoV-2", "thromboembolic events", "embolism", "thromboembolic" and "venous thromboembolism". A total of 56 results were identified. However, after excluding just abstract and repeated papers, just 41 manuscripts were analyzed. From there, just 5 papers were selected since are the only ones that described thromboembolic events after the discharge in SARS-CoV-2 patients. The 5 papers presented

different and irregular follow-up periods after a discharged and reported diverse types of thromboembolic events.
Results: Five studies were selected, including a total of 3,691 patients. The studies were performed with different objectives and goals, as well, did not differentiate between the clinical severity of the disease. Mean age 56.32 years old, 55.78% were male, 12.41% were admitted to intensive care units and with a median follow up of 38.63 days. The rates of thromboembolic events in SARS-CoV-2 patients after the hospitalization discharge was 3.28% (121 events in 3,691 patients, reported in the 5 studies). Rates of documented acute pulmonary embolism 0.003% (10 events in 3,569 patients, reported in the 3 studies), 0.001% of documented venous thromboembolism (5 events in 3,495 patients, reported in the 3 studies), 0.006% of documented ischemic stroke (1 event in 163 patients, reported in the 1st study), 1.23% of other documented tromboembolic events, like a cardiac thrombus or thrombosed arteriovenous fistula, (2 events in 163 patients, reported in the 1study). Major hemorrhagic events in SARS-CoV-2 patients during the follow up were 2.38% (6 events in 252 patients, reported in the 2 studies). Were register 2.87% deaths during the follow up period in SARS-CoV-2 patients (52 events in 1814 patients, reported in the 4 studies), nevertheless, the death etiology was unknown.
Conclusions: The rates of thromboembolic events in SARS-CoV-2 patients are similar to the general population. Curiously, mortality rates in SARS-CoV-2 patients during just approximately one month of follow up was significantly higher in this population, suggesting a worst prognosis and more complications in this group. Further analysis and data are essential for a conclusion.

PO 229. COMPARISON OF 5 ACUTE PULMONARY EMBOLISM MORTALITY RISK SCORES IN PATIENTS WITH COVID-19

Tiago Graça Rodrigues[1], Beatriz Valente Silva[1], Rui Plácido[1], Carlos Mendonça[2], Luísa Urbano[2], Joana Rigueira[1], Ana G. Almeida[1], Fausto J. Pinto[1]

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Objectives: Pulmonary embolism (PE) is a common complication of SARS-CoV-2 infection. We aimed to explore the short-term outcomes among patients with acute PE and COVID-19 and to further determine and compare the performance of the different prognostic scores (PESI, sPESI, BOVA, FAST and ESC scores) for risk-stratification in this scenario.
Methods: Retrospective single-centre study of 85 patients with SARS-CoV-2 infection and PE admitted to the Emergency Department (ED). The diagnostic accuracy of each above-mentioned prognostic score was calculated post hoc, and their discriminative power was evaluated through an AUC curve.
Results: Among the 85 patients, all-cause death occurred within 7 days for 6 patients (7.1%) and within 30 days for 14 patients (16.5%). Despite being older and having a higher percentage of altered mental status on presentation, non-survivors patients did not differ from survivors regarding comorbidities, traditional risk factors for venous thromboembolism and signs and symptoms at the ED presentation. Each risk stratification tool had modest discriminative power for 7-day mortality (AUC range, 0.601-0.730) with slightly lower discrimination for 30-day mortality (AUC range, 0.543-0.638) (Fig.). The pair-wise comparison of ROC curves showed that PESI had better predictive value for short-term mortality than ESC score (z test = 3.92, p = 0.001) and sPESI (z test = 2.43, p = 0.015); there is no significant difference between PESI and BOVA score (z test = 1.05, p = 0.295) and FAST score (z test = 0.986, p = 0.324).
Conclusions: The most common risk-stratification tools for PE had modest discriminative power to predict short-term mortality in patients with acute PE and COVID-19.

PO 230. IS STANDARD CARDIAC EVALUATION ENOUGH FOR COVID-19 PATIENTS WITH SEVERE DISEASE?

Miguel Azaredo Raposo, Joana Brito, Sara Couto Pereira, Beatriz Valente Silva, Pedro Silvério António, Ana Margarida Martins, Catarina Simões de Oliveira, Ana Abrantes, Catarina Gregório, João Santos Fonseca, Ana Beatriz Garcia, Fausto J. Pinto, Ana G. Almeida

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Introduction: Acute infection by SARS-COV2 has been broadly associated with cardiovascular disease. An increased burden is seen in patients (pts) with severe lung disease and pro-inflammatory status. The cardiac long-term impact of COVID-19 is still unclear.
Objectives: To evaluate the long-term impact of COVID-19 on patients admitted to the intensive care unit (ICU).
Methods: This was a single-center, observational and prospective study which included (pts) requiring admission to the ICU due to COVID-19 from January to November 2020 who accepted to submit to pos-discharge clinical evaluation. Severe disease was defined as the necessity of invasive mechanical ventilation and either severe ARDS or involvement > 75% of lung parenchyma in CT scan. Statistical analysis was performed with Mann-Whitney and Chi-square.
Results: A total of 43 pts (mean age 64 ± 12, 67.4% males) were included. During ICU admission 49% presented with severe ARDS, 51% with moderate

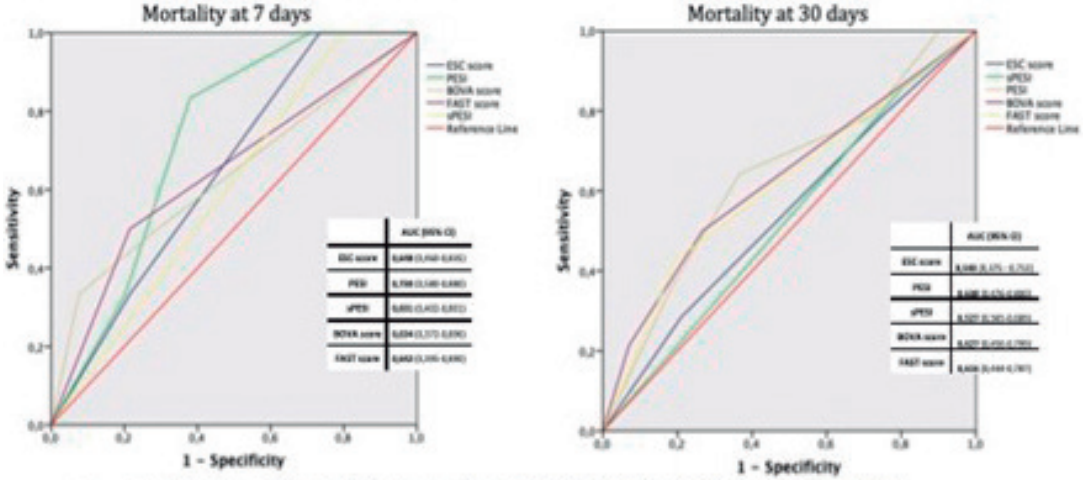

Figure 1 - **analysis comparing the predictive accuracy for mortality at 7 and 30 days of ESC score, PESI, sPESI, BOVA and FAST score**. Abbreviations: AUC = area under the curve; CI = confidence interval.

PO 229 Figure

A TERAPÊUTICA CENTRADA NA PESSOA

PRAVAFENIX®

PRAVASTATINA 40 MG + FENOFIBRATO 160 MG

Dislipidemia Mista

ROVEZIX®

ROSUVASTATINA + EZETIMIBA

Hipercolesterolémia Primária
Doença Coronária
SCA

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Pravafenix 40 mg/160 mg cápsulas **COMPOSIÇÃO QUALITATIVA E QUANTITATIVA** Cada cápsula contém 40 mg de pravastatina sódica e 160 mg de fenofibrato. Excipiente com efeito conhecido: Cada cápsula contém 19 mg de lactose **FORMA FARMACÊUTICA** Cápsula com corpo verde-claro e tampa cor de azeitona, contendo uma massa cerosa bege esbranquiçada e um comprimido. **INDICAÇÕES TERAPÊUTICAS** Pravafenix é indicado, enquanto complemento a tratamento dietético e outros tratamentos não farmacológicos (ex.: exercício, redução do peso), para o tratamento de hiperlipidemia mista em doentes adultos com alto risco cardiovascular para reduzir os triglicéridos e aumentar o colesterol HDL quando os níveis de colesterol LDL estão adequadamente controlados devido ao tratamento com 40 mg de pravastatina em monoterapia. **POSOLOGIA E MODO DE ADMINISTRAÇÃO** Antes de iniciar o tratamento com Pravafenix, as causas secundárias da dislipidemia combinada devem ser excluídas e os doentes devem ser colocados sob uma dieta padrão para a redução do colesterol e dos triglicéridos, que deve ser continuada durante o tratamento. Posologia A dose recomendada é de uma cápsula por dia. As restrições dietéticas implementadas antes da terapêutica devem ser continuadas. A resposta à terapêutica deve ser monitorizada por determinação dos valores dos lípidos séricos. É habitual observar-se uma redução rápida dos níveis de lípidos séricos após o tratamento com Pravafenix. Porém, este deve ser suspenso no caso de não se obter uma resposta adequada no prazo de três meses. Populações especiais: Doentes idosos (≥ 65 anos de idade)- O início do tratamento deve ser decidido após a avaliação da função renal. Os dados de segurança disponíveis relativos à utilização de Pravafenix em doentes com >75 anos de idade são limitados e devem ser tomadas precauções. Compromisso renal - Contraindicado em doentes com compromisso renal moderado a grave (definido como depuração da creatinina < 60 ml/min.) Não deverão ser necessárias quaisquer alterações à posologia em doentes com compromisso renal ligeiro. Afeção hepática - Não recomendado em doentes com afeção hepática moderada e contraindicado em doentes com afeção hepática grave. Não são necessários ajustes de posologia em doentes com afeção hepática ligeira. População pediátrica (< 18 anos de idade) - Não existe utilização relevante de Pravafenix na população pediátrica (< 18 anos) para indicação de dislipidemia mista. Modo de administração: Via oral. Dose recomendada: uma cápsula por dia tomada ao jantar. Pravafenix deve ser tomado com alimentos. **CONTRAINDICAÇÕES** - Hipersensibilidade às substâncias ativas ou a qualquer um dos excipientes. - Afeção hepática grave, incluindo cirrose biliar ou doença hepática ativa, incluindo aumentos persistentes não explicáveis dos testes da função hepática (incluindo aumento das transaminases séricas) superiores a três vezes o limite superior do normal (LSN). - Crianças e adolescentes (idade inferior a 18 anos). - Compromisso renal moderado a grave (definido como uma depuração estimada da creatinina < 60 ml/min). - Fotoalergia ou reação fototóxica conhecida durante o tratamento com fibratos ou cetoprofeno. Doença da vesícula biliar. - Pancreatite crónica ou aguda, excetuando pancreatite aguda devido a hipertrigliceridemia grave. Gravidez e amamentação. - História pessoal de miopatia e/ou rabdomiólise com estatinas e/ou fibratos ou aumento confirmado da creatina fosfoquinase (CK) superior a cinco vezes o limite superior do normal (LSN) no tratamento prévio com estatina. **ADVERTÊNCIAS E PRECAUÇÕES ESPECIAIS DE UTILIZAÇÃO** As propriedades farmacocinéticas de Pravafenix não são completamente idênticas às da administração concomitante das monoterapias existentes, quando tomado com uma refeição rica em gordura ou em jejum. Os doentes não devem mudar de uma administração conjunta livre da preparação de fenofibrato e pravastatina para Pravafenix. A pravastatina não deve ser coadministrada por via sistémica com o ácido fusídico. Foram notificados casos de rabdomiólise (incluindo alguns casos fatais) em doentes que receberam esta associação. Em doentes cuja utilização do ácido fusídico por via sistémica é considerada essencial, o tratamento com estatinas deverá ser interrompido durante o tempo de tratamento com o ácido fusídico. A terapia com estatinas pode ser reintroduzida sete dias após a última dose de ácido fusídico. Em circunstâncias excecionais, em que é necessária a administração por via sistémica prolongada de ácido fusídico, por exemplo, para o tratamento de infeções graves, a necessidade de coadministração de pravastatina e ácido fusídico só deve ser considerada caso a caso e sob supervisão médica. A monitorização de rotina da CK é sistematicamente recomendada todos os 3 meses, durante os primeiros 12 meses da terapêutica de associação e, depois desse período inicial, deve ser deixada à consideração do médico. Afeções hepatobiliares - Recomenda-se a monitorização dos níveis das transaminases todos os 3 meses, durante os 12 primeiros meses de tratamento e, depois desse período inicial, a mesma deve ser deixada à consideração do médico. Colelitíase - O fenofibrato pode aumentar a excreção do colesterol pela bílis, causando potencialmente colelitíase. No caso de suspeita de colelitíase, estão indicados exames à vesícula biliar. Pravafenix deve ser suspenso se forem encontrados cálculos biliares. Acontecimentos venotromboembólicos: Deverá ter-se precaução nos doentes com história de embolia pulmonar. Este medicamento contém lactose. Os doentes com problemas hereditários raros de intolerância à galactose, deficiência de lactase de Lapp, ou má absorção de glucose-galactose não devem tomar este medicamento. **INTERAÇÕES MEDICAMENTOSAS E OUTRAS FORMAS DE INTERAÇÃO** Não foram realizados estudos formais de interação para Pravafenix; contudo, a utilização concomitante das substâncias ativas em doentes em estudos clínicos não resultou em quaisquer interações inesperadas. **EFEITOS INDESEJÁVEIS** Resumo do perfil de segurança: As reações adversas mais frequentemente reportadas durante a terapia com Pravafenix são aumento das transaminases e distúrbios gastrointestinais. Em ensaios clínicos, mais de 1.566 doentes receberam Pravafenix. No geral, as reações adversas foram ligeiras e transitórias. As frequências das reações adversas são classificadas de acordo com o seguinte: muito frequentes (≥ 1/10), frequentes (≥ 1/100 a < 1/10), pouco frequentes (≥ 1/1000 a < 1/100), raras (≥ 1/10 000 a < 1/1000), muito raras (< 1/10 000). Doenças gastrointestinais frequentes: Distensão abdominal, dor abdominal, dor abdominal superior, obstipação, diarreia, boca seca, dispepsia, eructação, flatulência, náuseas, desconforto abdominal, vómitos. Afeções hepatobiliares frequentes: Aumento das transaminases. Observaram-se aumentos clinicamente importantes da creatina fosfoquinase (CK ≥ 5 vezes o LSN, < 10 vezes o LSN sem sintomas musculares) em 0,38 % dos doentes tratados com Pravafenix. Observou-se um aumento clinicamente importante (CK ≥ 10 vezes o LSN sem sintomas musculares) em 0,06 % dos doentes tratados com Pravafenix. Reações hepáticas: Observaram-se aumentos clinicamente importantes das transaminases séricas (ALT e/ou AST ≥ 5 vezes o LSN) em 0,38 % dos doentes tratados com Pravafenix. As seguintes reações adversas foram notificadas com algumas estatinas: - Pesadelos - Perda de memória - Depressão - Casos excecionais de doença pulmonar intersticial, sobretudo com a terapêutica a longo prazo. - Diabetes Mellitus: a frequência dependerá da existência ou ausência de fatores de risco (glucose em jejum ≥ 5,6 mmol/L, IMC (índice de massa corporal) > 30 kg/m2, triglicéridos aumentados, historial de hipertensão) Notificação de suspeitas de reações adversas A notificação de suspeitas de reações adversas após a autorização do medicamento é importante, uma vez que permite uma monitorização contínua da relação benefício-risco do medicamento. Pede-se aos profissionais de saúde que notifiquem quaisquer suspeitas de reações adversas diretamente ao INFARMED, I.P.: INFARMED, I.P. -Direção de Gestão do Risco de Medicamentos - Parque da Saúde de Lisboa, Av. Brasil 53, 1749-004 Lisboa. Tel: +351 21 798 71 40 Fax: + 351 21 798 73 97 Sítio da internet: http://extranet.infarmed.pt/page.seram.frontoffice.seramhomepage E-mail: farmacovigilancia@infarmed.pt **DATA DA REVISÃO DO TEXTO:** Maio 2020. Informação pormenorizada sobre este medicamento está disponível na Internet no site da Agência Europeia de Medicamentos http://www.ema.europa.eu. Para mais informações deverá contactar o titular da autorização de introdução no mercado. MSRM. Medicamento comparticipado escalão C.

Rovezix, 5 mg + 10 mg, cápsulas. Rovezix, 10 mg + 10 mg, cápsulas. Rovezix, 20 mg + 10 mg, cápsulas
COMPOSIÇÃO QUALITATIVA E QUANTITATIVA Cada cápsula contém 5 mg de rosuvastatina (sob a forma de rosuvastatina cálcica) e 10 mg de ezetimiba. Cada cápsula contém 10 mg de rosuvastatina (sob a forma de rosuvastatina cálcica) e 10 mg de ezetimiba. Cada cápsula contém 20 mg de rosuvastatina (sob a forma de rosuvastatina cálcica) e 10 mg de ezetimiba. **FORMA FARMACÊUTICA** Cápsula dura de gelatina com cabeça e corpo laranja contendo 1 comprimido revestido por película redondo de cor rosa e 2 comprimidos redondos de cor branca. Cápsula dura de gelatina com cabeça e corpo amarelo contendo 2 comprimidos revestidos por película redondos de cor rosa e 2 comprimidos redondos de cor branca. Cápsula dura de gelatina com cabeça verde e corpo branco contendo 4 comprimidos revestidos por película redondos de cor rosa e 2 comprimidos redondos de cor branca. **INDICAÇÕES TERAPÊUTICAS Hipercolesterolemia primária:** Rovezix está indicado como adjuvante da dieta para o tratamento de hipercolesterolemia primária (heterozigótica familiar e não familiar) 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. **Prevenção de eventos cardiovasculares:** Rovezix está indicado na redução do risco de eventos cardiovasculares como terapêutica de substituição em doentes com doença coronária (DC) e história de síndrome coronária aguda (SCA), que estão adequadamente controlados com as substâncias individuais administradas concomitantemente na mesma dose que na combinação de dose fixa, mas enquanto medicamentos separados. **POSOLOGIA E MODO DE ADMINISTRAÇÃO** Posologia: Antes do início do tratamento, o doente deverá estar a fazer uma dieta hipolipemiante apropriada e deverá continuar essa mesma dieta durante o tratamento com Rovezix. A dose diária recomendada é de uma cápsula da dosagem indicada, com ou sem alimentos. Rovezix não é adequado para terapêutica inicial. O início do tratamento ou ajuste posológico, se necessário, devem ser apenas efetuados através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível considerar a mudança para a combinação de dose fixa na dosagem apropriada. *População pediátrica* A segurança e eficácia de Rovezix em crianças com idade inferior a 18 anos não foram ainda estabelecidas. *Utilização em idosos* Recomenda-se uma dose inicial de 5 mg de rosuvastatina em doentes com idade > 70 anos. *Compromisso renal* Não é necessário ajuste posológico em doentes com compromisso renal ligeiro a moderado. *Compromisso hepático* Não é necessário qualquer ajuste posológico em doentes com compromisso hepático moderado (pontuação entre 5 e 6 na escala de Child-Pugh). Modo de administração: Via oral. Rovezix deve ser tomado todos os dias à mesma hora, com ou sem alimentos. A cápsula deve ser engolida inteira com um copo de água. **CONTRAINDICAÇÕES** Rovezix está contraindicado: - em doentes com hipersensibilidade às substâncias ativas ou a qualquer um dos excipientes; em doentes com doença hepática ativa incluindo elevações persistentes e inexplicáveis das transaminases séricas e qualquer elevação das transaminases séricas excedendo 3 vezes o limite superior da normalidade (LSN); durante a gravidez e amamentação e em mulheres 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 e em doentes tratados concomitantemente com ciclosporina. **ADVERTÊNCIAS E PRECAUÇÕES ESPECIAIS DE UTILIZAÇÃO** Antes do tratamento: Rovezix, tal como com os outros inibidores da redutase da HMGCoA, deverá ser prescrito com precaução em doentes com fatores predisponentes para miopatia/rabdomiólise. Tais fatores incluem: compromisso renal; hipotiroidismo; antecedentes pessoais ou familiares de perturbações musculares hereditárias; antecedentes pessoais de toxicidade muscular com outro inibidor da redutase da HMGCoA ou fibrato; alcoolismo; idade > 70 anos; situações em que possa ocorrer um aumento dos níveis plasmáticos; uso concomitante de fibratos. Nestes doentes deverá ser avaliado o risco do tratamento relativamente aos possíveis benefícios, sendo recomendada uma monitorização clínica. Se os níveis basais de CK forem significativamente elevados (> 5xLSN), o tratamento não deverá ser iniciado. Durante o tratamento: Os doentes devem ser advertidos a notificar imediatamente dor muscular, astenia ou cãibras inexplicáveis, particularmente se associados a mal-estar ou febre. Deve determinar-se os níveis de CK nestes doentes. A terapêutica deve ser interrompida se os níveis de CK estiverem significativamente elevados (> 5xLSN) ou se os sintomas musculares forem graves e causarem desconforto diário (mesmo com níveis de CK ≤ 5xLSN). Se os sintomas desaparecerem e os níveis de CK regressarem ao normal, deverá considerar-se a reintrodução de Rovezix ou um inibidor alternativo da redutase da HMG-CoA na dose mais baixa e com uma monitorização apertada. A monitorização de rotina dos níveis de CK em doentes assintomáticos não se justifica. **EFEITOS INDESEJÁVEIS** Reações adversas baseadas em dados de estudos clínicos e experiência pós-comercialização estão descritas a seguir por classes de sistema de orgãos: Doenças endócrinas: Diabetes mellitus. Doenças do sistema nervoso: Cefaleias, tonturas. Doenças gastrointestinais: Obstipação, náuseas, dor abdominal, flatulência e diarreia. Afeções dos tecidos cutâneos e subcutâneos: Prurido, erupção cutânea e urticária. Afeções musculosqueléticas e dos tecidos conjuntivos: Mialgia. Perturbações gerais e alterações no local de administração: Astenia. Tal como se verifica com outros inibidores da redutase da HMG-CoA, a incidência de reações adversas medicamentosas tende a ser dose-dependente. Notificação de suspeitas de reações adversas: A notificação de suspeitas de reações adversas após a autorização do medicamento é importante, uma vez que permite uma monitorização contínua da relação benefício-risco o medicamento. Pede-se aos profissionais de saúde que notifiquem quaisquer suspeitas de reações adversas diretamente ao INFARMED, I.P.: Sítio da internet: http://www.infarmed.pt/web/infarmed/submissaoram (preferencialmente) ou através dos seguintes contactos: Direção de Gestão do Risco de Medicamentos - Parque da Saúde de Lisboa, Av. Brasil 53, 1749-004 Lisboa. Tel: +351 21 798 73 73 Linha do Medicamento: 800222444 (gratuita) E-mail: farmacovigilancia@infarmed.pt **DATA DA REVISÃO DO TEXTO:** Março 2021. Para mais informações deverá contactar o Titular da Autorização de Introdução no Mercado. MSRM. Medicamento comparticipado escalão C.

c-HDL: colesterol HDL; **c-LDL:** colesterol LDL; **SCA:** síndrome coronária aguda.

TROPR211A1CG (MAR/2021), revalidado anualmente.

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and a minimum P/F ratio of 100 ± 40. The mean troponin levels were 37 ± 43 pg/mL. Concerning acute disease complications, segmental pulmonary embolism (PE) was documented in 21% with no detection of central PE, acute kidney injury in 39.5% and shock in 14% pts. Follow-up evaluation was performed 189 ± 83 days after discharge. All pts were in sinus rhythm except for one, who had prior atrial fibrillation diagnosis. With standard echocardiogram, no significant biventricular dysfunction was reported (mean LVEF 58 ± 7.8 and mean TAPSE 21 ± 4), a median elevation of E/e' was reported as 10.3 ± 4.8 and diastolic dysfunction was present in 35% pts. Fatigue was the most frequently reported symptom (52% pts) and no association was found with NT-proBNP elevation, LVEF reduction, diastolic dysfunction, echocardiographic probability of pulmonary hypertension, RV systolic dysfunction or dilation. Likewise, fatigue on follow-up did not correlate with the highest troponin T levels, disease severity or complications during acute disease. Pts that reported fatigue had a significantly lower 6-min walking test performance (526 ± 115 *vs.* 432 ± 170 p = 0.016).
Conclusions: This study suggests that the most frequent sequela for severe COVID-19 survivors is fatigue, confirmed by a 6-min walking test. The lack of correlation between fatigue and standard echocardiographic or NT-proBNP suggests either a non-cardiac mechanism for post-COVID-19 fatigue or a lack of sensitivity for these parameters in diagnosing post-COVID-19 cardiac disease.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 7) - Intervenção Coronária e Estrutural 4 - Doença coronária

PO 231. LEFT MAIN ARTERY LESIONS- THE ROLE OF IVUS AND CORONARY PHYSIOLOGY

Rita Caldeira da Rocha, Diogo Brás, Francisco Dias Cláudio, Miguel Carias, António Almeida, Ângela Bento, David Neves, Renato Fernandes, Sandra Nunes, Tânia Emerenciano, Marisa Serrano, Manuel Trinca, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

Introduction: LMA lesions have a major impact on patients' prognosis. Consequently, their additional characterization using image or physiology evaluation (PE) is extremely important. However, with PE little information is given about plaque morphology or stability. Imaging lacks data about physiological impact of anatomically significant lesions.
Objectives: The aim of this study is to determine the prevalence and impact of treatment decision failure of ambiguous LMA lesions assessed by physiology evaluation and/or IVUS.
Methods: Retrospective study, including all consecutive patients who performed PE (iFR, RFR or FFR, and, when clinically necessary, iFR followed by FFR) and/or IVUS (Volcano™) of LMA lesion in our center between June 2010 and December 2020, with clinical follow-up. The primary endpoint of this follow-up was defined as clinically-driven target lesion (TL) revascularization (TLR), TL was defined as the treated segment, when treated (due to positive PE/IVUS), or the evaluated segment, when deferred (negative PE/IVUS). Additionally, acute coronary syndrome (ACS) was sought after.
Results: A total of 140 LMA evaluations of 125 patients were analyzed during a median follow-up of 63 [37-97] months, minimum of 12 months and maximum of 140 months. Male patients accounted for 67%, with a mean age of 67 ± 10 years old. Hypertension was present in 91%, diabetes and prior coronary artery disease in 40% each and smoking habits in 46%. Lesion characterization by imaging technique was performed in 83 and PE in 57 cases (39 rest evaluations and 26 stress exams). Image and functional tests were performed in 14 patients. The initial treatment plan was changed in 25% of the patients due to IVUS and in 32% with PE. The decision of revascularization was made using both techniques in 4 cases, and of differing intervention in 10, of whom 2 presented with TLR. Therapy decision based on IVUS was changed due to PE in 5 cases, the opposite happened in just 1 patient. In only 1 case PE wasn't measured, due to technical problems, which weren't reported with IVUS. No clinical complications were reported. Primary endpoint was achieved in 4%, with 4 cases with IVUS evaluations and in 3 with PE, not having a statistical difference. Globally, ACS was found in 10% of patients after a median follow-up of 24 [19;43] months.
Conclusions: LMA revascularization decision based on IVUS and/or physiology evaluation proved to be useful, changing the initial treatment strategy in almost a third of the cases, and safe (target lesion revascularization of 4%).

PO 232. PERCUTANEOUS CORONARY INTERVENTION IN ELDERLY PATIENTS WITH CHRONIC KIDNEY DISEASE AND NON-ST SEGMENT ELEVATION ACUTE CORONARY SYNDROME - IS IT WORTH IT?

Alexandra Briosa, Rita Cale, Mariana Martinho, João Santos, Barbara Ferreira, Diogo Cunha, Ana Rita Pereira, Ana Marques, Sofia Alegria, Daniel Sebaiti, Ana Catarina Gomes, Gonçalo Morgado, Cristina Martins, Helder Pereira

[1]Hospital Garcia de Orta, EPE

Introduction: The ESC guidelines recommend appropriate revascularization in patients (pts) with chronic kidney disease (CKD) irrespective of age. However, elderly pts are usually underrepresented in the available data on percutaneous coronary intervention (PCI). The decision on whether to perform PCI in elderly pts with CKD and acute coronary syndrome is usually at the discretion of the cardiology team.
Aim*:* Evaluate the impact of PCI vs conservative approach (CA) in elderly pts with CKD enrolled in the Portuguese National Registry of Acute Coronary Syndromes, admitted with unstable angina(UA) and non-ST segment elevation myocardial infarction (NSTEMI). Determine impact of CKD in in-hospital and long-term outcomes, including MACE (myocardial infarction, stroke and death).
Method*:* Included elderly pts (> 80 years) admitted with UA and NSTEMI, from 2010 until today. The pts were divided in 3 groups: Group 1 - eGFR ≥ 60 ml/min/1.73m^2; Group 2- between 30 and 59 ml/min/1.73m^2 and Group 3 - < 30 ml/min/1.73m^2. Pts with STEMI and cardiogenic shock were excluded.
Results: A total of 2443 pts, of which 921 (37,7%) were submitted to PCI. 50.2% of pts were from group 1, 38.5% from group 2 and 11.3% from group 3. Regarding overall population, pts submitted to PCI were mainly male (60,4%) with mean age of 84±3 years. They had previous history of PCI (21,6% vs 15,1% p<0.001), less history of heart failure (HF), stroke or dementia (8,5% vs 16,5%; 8,1 vs 13.3% and 2,1 vs 5,9%, p<0.001 respectively). At presentation they had more angina (88,8% vs 81,2% p<0.001), lower NT-proBNP levels (387 vs 561 p< 0.001) and were more frequently in KK class I (75,6% vs 70,2% p=0.004). Concerning outcomes, they developed less HF (21% vs 27%, p<0.001) and less MACE (5,7% vs 9,1% p=0.003). Pts in the group 3 were less submitted to PCI (27,5% vs 38,2% vs 39,6% p< 0.001) and had more MACE and death when comparing to group 2 and 1 (16,1% vs 8,7% vs 5,3% and 10,5% vs 5,5% vs 2,6% p<0.001 respectively).
Comparing PCI vs CA, there was no difference in intrahospitalar outcomes between both strategies in group 3. The same was not true for pts in groups 1 and 2, in which PCI seemed to favor overall outcomes (p=0.001 and p=0.015).
Predictors of intrahospitalar death were: age (OR 1.068 p=0.010), dementia (OR 2,376 p=0.015), KK class > 1 (OR 2,243, p<0.001), atrial fibrilhation (OR 1.605, p= 0.046), PCI (OR 0.309, p<0.001), eGFR <30 (OR 3.51, p<0.001) and PCI in pts with eGFR <30 (OR 2.923, p=0.019).
Interestingly, survival analysis showed that pts submitted to PCI in all 3 groups had a longer 1- year survival (p<0.001, p<0.001 and p< 0.004).
Conclusions: The decision of performing PCI in elderly pts with CKD should be individualized, considering its beneficial risks. In our study, more specifically in group 3, the performance of PCI is associated with a higher in-hospital mortality, however, after surviving hospitalization, these pts seem to have a benefit in 1 year survival.

PO 233.PCI OF CHRONIC TOTAL OCCLUSIONS: WHAT IS THE CLINICAL BENEFIT AND IMPACT ON QUALITY OF LIFE?

Hugo Alex Costa, Raquel Fernandes, Teresa Faria da Mota, Miguel Espirito Santo, Jimmy Martins, Hugo Palmeiro, Daniela Carvalho, João Bispo, João Guedes, Hugo Vinhas, Ilídio Jesus

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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. The recommendations of international cardiology societies consider the treatment of CTO by percutaneous coronary intervention (PCI) in selected patients, but this technique is not yet widely used in this context.

Objectives: To evaluate the clinical and quality of life impact of patients undergoing PCI-CTO, including angina, heart failure (HF), acute myocardial infarction (AMI), mortality and improved quality of life (QoL) after the procedure.

Methods: Retrospective study for biennium 2019/2020, composed of n = 177 patients undergoing PCI-CTO. A descriptive and comparative analysis of the sample regarding the demographic and clinical characteristics of patients was performed, to whom a quality of life questionnaire (WHOQOL-Brief) was applied. The descriptive analysis was based on means and standard deviations and on the analysis of statistical tests, t-Student and Mann-Whitney were performed according to the parametric and non-parametric context, respectively.

Results: A total of 177 patients were identified, with a mean age of 65.7 ± 11.2 years, 51.5% female. 75% of patients showed high blood pressure, 39% diabetes and 80.5% NSTEMI. At 30 days after PCI only 21% of patients had symptoms (angina or HF), with clinical improvement at 180 days to 10% symptomatic.

Table 1: Patients Characterization: Epidemiological, Clinical Factors and Outcomes.

(n.%)	População geral (177, 100%)	Masculino (86, 48,5%)	Feminino (91, 51,5%)	P Valor
Características Sociodemográficas				
Idade *(anos, média ± desvio-padrão)*	65,7 ± 11,2	65,2 ± 10	65,7 ± 12,1	0,762[1]
Fatores de Risco Cardiovasculares				
Tabagismo				0,359[3]
Fumador	49/177 (28%)	23/49 (47%)	26/49 (53%)	
Não Fumador	75/177 (42%)	33/75 (44%)	42/75 (56%)	
Ex fumador	53/177 (30%)	30/53 (57%)	23/53 (43%)	
Hipertensão Arterial	132/177 (75,0%)	66/132 (50%)	66/132 (50%)	0,520[3]
Diabetes Mellitus	70/177 (39%)	34/70 (49%)	36/70 (51%)	0,997[3]
Dislipidémia	129/177 (73%)	62/ 129 (48%)	67/129 (52%)	0,819[3]
Obesidade	32/176 (18%)	18/32 (56%)	14/32 (44%)	0,319[3]
Antecedentes cardiovasculares				
EAMeSST	62/177 (80,5%)	38/62 (61%)	24/62 (39%)	**0,013[3]**
EAMeSST	36/177 (20%)	19/36 (53%)	17/36 (47%)	0,573[3]
CABG (Cirurgia Revascularização Coronária)	16/177 (9%)	9/16 (56%)	7/16 (44%)	0,520[3]
Insuficiência Cardíaca	27/177 (15%)	11/27 (41%)	16/27 (59%)	0,376[3]
Fibrilhação Auricular	22/177 (12%)	9/22 (41 %)	13/22 (59%)	0,441[3]
Doença Renal Crónica	14/177 (8%)	8/14 (57%)	6/14 (43%)	0,505[3]
Doença Pulmonar	10/177 (6%)	4/10 (40%)	6/10 (60%)	0,576[3]
Acidente Vascular Cerebral	8/177 (4,5%)	4/8 (50%)	4/8 (50%)	0,935[3]
OutCome Clínico — 30 Dias				
Sintomatologia				0,529[3]
Não	134/177 (76%)	61/134 (45,5%)	73/134 (54,5%)	
Sim	37/177 (21%)	19/37 (51%)	18/37 (49%)	
Angor	17/177 (10%)	9/17 (53%)	8/17 (47%)	**0,032[3]**
Insuficiência Cardíaca	21/177 (12%)	10/21 (48%)	11/21 (52%)	**0,037[3]**
OutCome Clínico — 180 Dias				
Sintomatologia				0,842[3]
Não	133/177 (75%)	67/133 (50%)	66/133 (50%)	
Sim	17/177 (10%)	9/17 (53%)	8/17 (47%)	
Angor	10/177 (6%)	5/10 (50%)	5/10 (50%)	0,427[3]
Insuficiência Cardíaca	8/177 (4,5%)	4/8 (50%)	4/8 (50%)	0,427[3]
Eventos Finais — 180 Dias				
Enfarte Agudo do Miocárdio	3/177 (2%)	1\3 (33%)	2/3 (66%)	0,227[3]
Morte	10/177 (6%)	8/10 (80%)	2/10 (20%)	**0,045[3]**
Bioquímica				
Creatinina *(mg/dl, ± desvio-padrão)*	1,14± 1,08	1,22±1,41	1,06±0,55	0,657[2]
Taxa de Filtração Glomerular *(%, ± desvio-padrão)*	76± 26,4	76,4±25	75,6±28	0,864[2]
Ecocardiograma				
FEVE *(em percentagem, média ± desvio-padrão)*				
Antes	47±9,9	47,8±8,8	46,22±10,9	0,483[2]
Após	51/9,5	51,7±8,9	51,6±8,9	0,841[2]

(n.%)	30 dias Sem Sintomas	30 dias Com Sintomas	P Valor	180 dias Sem Sintomas	180 dias Com Sintomas	P Valor	Eventos Finais Sem eventos	Eventos Finais Com Evento	P Valor
	134/171 (78%)	37/171 (22%)		133/150 (89%)	17/150 (11%)		141/153 (92%)	12/153 (8%)	
Ecocardiograma									
FEVE *(em percentagem, média ± desvio-padrão)*									
Antes	48,05±9,43	45,33±11,09	**0,044[2]**	47±9,4	46,8±13,1	0,903[2]	47,6±9,5	39,5±10,2	**0,009[2]**
Após	52,43±9,05	47,33±10,32	**0,036[2]**	52±9,6	43,3±7,8	**0,029[2]**	52±9,3	44,4±12	**0,035[2]**
Qualidade de Vida									
Domínio Física	81,5±14,9	76±17,1	0,170[2]	80,5±15	75±18,9	0,108[2]	79,7±15,5	0 (sem resposta)	NA
Domínio Psicológico	75,2±15,9	66,2±16,9	0,025[2]	73,4±15,8	70±14,3	0,724[2]	72,8±14,6	0 (sem resposta)	NA
Domínio Social	74,1±11	69,2±20,3	0,681[2]	72,7±14,3	74,2±10,8	0,605[2]	72,8±13,9	0 (sem resposta)	NA
Domínio Ambiental	81,9±11,7	77,2±15,7	0,309[2]	81,2±11,8	77,5±10,9	0,547[2]	80,7±12,9	0 (sem resposta)	NA

[1]Teste T-Student; [2]Teste Mann Whitney; [3]Teste Qui-Quadrado de Pearson;

Regarding QoL, an average score of 4.3 (maximum of 5) was obtained for the 2 questions that independently assess the patient's perception of their QoL after the procedure. High levels of scores were also obtained by domains (QoL > 70%), with marked improvement in the Physical, Environmental and Psychological domains, becoming more evident in the latter at 30 days after the procedure in patients who remained asymptomatic (75.2%, p = 0.023). This benefit was accompanied by improvement in left ventricular function (LVEF), being more evident in asymptomatic patients and without events after procedure. Mortality and AMI occurred in 6% and 2%, respectively.
Conclusions: The majority of patients had clinical benefit and expressed improvement in QoL after undergoing PCI-CTO, which was accompanied by improvement in LVEF, reinforcing the usefulness of the technique and the approach of this type of lesions in selected patients.

PO 234. PCI OF LEFT MAIN CORONARY ARTERY: REAL LIFE VS CLINICAL TRIALS OUTCOME RESULTS

Hugo Alex Costa, Miguel Espirito Santo, Raquel Fernandes, Teresa Faria da Mota, Hugo Palmeiro, Daniela Carvalho, João Bispo, João Guedes, Hugo Vinhas, Ilídio Jesus

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

Introduction: The treatment of choice of left main coronary artery (LMCA) disease has been subject to intense debate and investigation in the last decade. Although it is not the standard of care, PCI of LMCA has been increasing. It is important to compare real life outcome results with those described in clinical trials, justifying the use of this technique.
Objectives: Population characterization. Try to identify prognostic factors and outcomes of LMCA PCI comparing with those described in recent clinical trials.
Methods: Retrospective study between 2019/2020, composed of n = 120 patients that were submitted to LMCA PCI. Descriptve analysis was carried out regarding the demographic and clinical characteristics of the patients. Chi-Square test was used for categorical variables and the T-Student test for numerical variables, with a significance level of 95%, and the results were compared with 3 clinical trial data.
Results: A total of 120 patients were identified, with a mean age of 70.5 ± 10.8 years, 76.7% were male. 81.7% had multivessel disease, with LMCA plus 1 artery in 54.1% (anterior descendig artery most frequent (31.7%)). Compared to reference trials, besides being older, they also had more comorbidities like hypertension (75%), previous myocardial infarction (50.9%), chronic renal failure (CRF) (8.3% - p = 0.019), lower left ejection fraction (49.5 ± 11.1) and presented more often with acute coronary syndrome (72.5%). Heart failure (3.4% - p = 0.02) and CRF were independent prognostic factors. In general, they were less fit for surgery (EURO score 4.0 ± 3.8) and presented with more complex coronary anatomy (SYNTAX score 27.3 ± 12.2). At 2 years, outcomes of death (10.0%), myocardial infarction (MI) (8.8%) or ischemia-driven revascularization (IDR) (1.8%) were similar to EXCEL and NOBLE trials at 2 years, and higher compared to PRECOMBAT trial, probably because this included younger patients with less comorbidities and better left ventricular function. The use of intravascular ultrasound in our sample was low (18.3%).
Conclusions: After 2 years follow up, we report outcomes of mortality, MI and IDR of patients submitted to LMCA PCI similar to the 3 biggest trials in the field. It is important to highlight that our pool of patients presented with worse overall general status, reinforcing the usefulness of this technique in selected cases.

PO 235. STENT STRATEGIES IN DISTAL LEFT MAIN LESIONS: THE SIMPLER, THE BETTER?

Gustavo M. Campos, Luís Leite, Manuel Oliveira Santos, Luis Paiva, Elizabete Jorge, Joana Silva, Vítor Matos, Hilário Oliveira, Marco Costa, Lino Gonçalves

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

Introduction: Although percutaneous coronary intervention (PCI) for ostial or midshaft lesions in left main (LM) disease has shown similar results as compared with coronary artery bypass grafting (CABG), distal LM bifurcations are associated with an increase in procedural complexity and higher rates

Table 1. Baseline clinical and angiographic characteristics

	All patients (n = 106)	Provisional Stenting (n = 57)	Two-stenting Strategy (n = 49)	p value
Age – yr	74 [66-82]	72 [67-81]	75 [65-84]	0.912
Male sex	79 (74.5)	46 (80.7)	33 (67.3)	0.125
Clinical characteristics				
Hypertension	91/105 (86.7)	49/56 (87.5)	42 (85.7)	1.000
Diabetes mellitus	57/105 (54.3)	25/56 (44.6)	32 (65.3)	**0.049**
Insulin treated diabetes	17/105 (16.2)	9/56 (16.1)	8 (16.3)	1.000
Dyslipidemia	99/105 (94.3)	54/56 (96.4)	45 (91.8)	0.414
Smoking history	31/91 (34.1)	16/47 (34.0)	15/44 (34.1)	0.147
Body mass index	27.7 [25.7-32.2]	27.2 [25.9-29.7]	29.3 [25.5-32.8]	0.453
Atrial fibrillation	20/104 (19.2)	11/55 (20.0)	9/49 (18.4)	1.000
Valvular heart disease				
Chronic kidney disease	24/103 (23.3)	15/54 (27.8)	9/49 (18.4)	0.351
LVEF (> 50%)	45/90 (50.0)	20/47 (42.6)	25/43 (58.1)	0.205
Angiographic characteristics				
SYNTAX score	29.6 ± 10.0	29.6 ± 10.6	29.6 ± 10.6	0.976
Low (score ≤ 22)	27/104 (26.0)	15/55 (27.3)	12 (24.5)	
Intermediate (score 23-32)	41/104 (39.4)	23/55 (41.8)	18 (36.7)	
High (score ≥ 33)	36/104 (34.6)	17/55 (30.9)	19 (38.8)	
Intravascular imaging use	29 (27.4)	13 (22.8)	16 (32.7)	0.282
Calcium technique				0.277
Rotablator	8 (7.5)	6 (10.5)	2 (4.1)	
Cutting-ballon	4 (3.8)	1 (1.8)	3 (6.1)	
Cumulative incidence of adverse events at follow up				
TLF *	19/88 (21.6)	10/46 (21.7)	9/42 (21.4)	1.000
TLR	7/106 (6.6)	2/57 (3.5)	5/49 (10.2)	0.245
Myocardial infarction	8/85 (9.4)	4/44 (9.1)	4/41 (9.8)	1.000
Stroke/TIA	1/71 (1.4)	1/33 (3.0)	0	0.465
All-cause death	43/102 (42.2)	28/56 (50.0)	15/46 (32.6)	0.107
Cardiac death	9/104 (7.7)	6/57 (10.5)	2/47 (4.3)	0.289

Values are expressed as mean ± SD, median [IQ], or numbers/total (%)
LVEF, left ventricular ejection fraction; TLR, Target Lesion Revascularization; TLF, Target Lesion Failure

* Primary endpoint, defined as a composite of cardiac death, myocardial infarction, and TLR

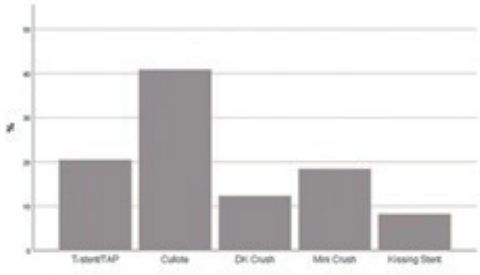

Figure 1. Frequencies of two-stent techniques.

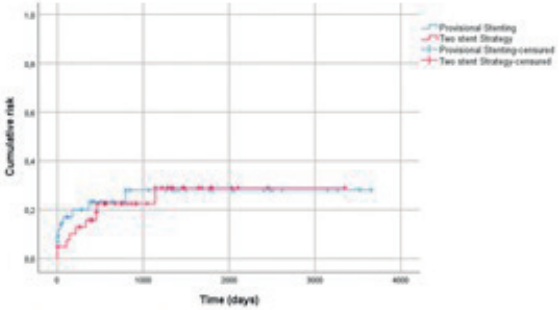

Figure 2. Cumulative risk for primary composite endpoint (target lesion failure) according to the stent strategy.

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of target lesion revascularization. Several studies have investigated the optimal stenting strategy in patients with coronary bifurcation lesions and showed no benefit for the systematic two-stent approach in comparison with provisional stenting. This is reflected in the current guidelines that recommend provisional stenting of the side branch as the preferred approach for most bifurcation lesions. However, there is still debate about the optimal strategy according to lesion location.

Objectives: This analysis aimed to compare the clinical outcomes of distal LM bifurcation PCI using a provisional strategy *versus* a two-stent strategy.

Methods: Retrospective, observational study including patients submitted to LM bifurcation (Medina 1,1,1) PCI between January 2010 and December 2019. Data was collected from the emergency department and hospitalization registries. Patients were divided according to the stenting approach. We made a global analysis including baseline clinical and angiographic data. The primary endpoint was target lesion failure (TLF), defined as the composite of myocardial infarction, cardiac death, and target lesion revascularization (TLR). Secondary endpoints included the individual components.

Results: A total of 106 patients were included (median age 74 [66-82], 79 (74.5%) males, 57 (53.8%) submitted to provisional stenting and 49 (46.2%) to a two-stent technique. Baseline characteristics were well matched (Table). The mean SYNTAX score was 29.6 ± 10.0 and LM stenosis grade was ≥ 70% in all lesions. Median follow-up was 26.6 [12.0-48.6] months. No differences were found regarding the primary endpoint (TLF in provisional stenting was 21.7 *vs.* 21.4%, HR 2,432; 95% confidence interval, 0.472-12,450; p = 0.233). Although target lesion revascularization within the LM complex was numerically higher in the two-stent group (10.2 *vs.* 3.5%, p = 0.245); the opposite was found in cardiac death (provisional group 10.5 *vs.* 4.3%, p = 0.289).

Conclusions: Besides being a "simpler" technique, provisional stenting had no significant differences in outcomes compared to two-stent techniques. Without further evidence, revascularization strategies should primarily rely on operator expertise.

Domingo, 24 Abril de 2022 | 16:00-17:00

Sala Jardim de Inverno | Posters (Sessão 6 - Écran 8) - Intervenção Coronária e Estrutural 5 - Intervenção Valvular

PO 236. TRANS-SUBCLAVIAN TRANSCATHETER AORTIC VALVE IMPLANTATION: THE SECOND-LINE ACCESS

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Introduction: Transfemoral (TF) access is widely accepted as the preferential route for transcatheter aortic valve implantation (TAVI). However, in some patients this is not possible because of severe peripheral artery disease of the aorto-iliac-femoral axis. In such cases trans-subclavian (TS) access TAVI is an option.

Objectives: This analysis aims to describe the initial experience of TS TAVI in a tertiary center, regarding technique safety and outcomes.

Methods: Retrospective descriptive analysis of the patients submitted to TS TAVI in a single center. Baseline characteristics, procedure data and 1-year outcomes were noted according to the Valve Academic Research Consortium-2 (VARC-2).

	%	n		%	n
Mean age	79.0 ± 8.0 y/o		CKD (KDIGO stage ≥ 3)	70%	14
Gender (% of male)	65 %	13	CKD w/ haemodialysis	5%	1
Coronary artery disease	55%	11	Previous Pacemaker	15%	3
Previous MI	25%	5	Euroscore II	7.45 ± 5.53	
Previous CABG	10%	2	STS score	5.48 ± 3.36	
Atrial Fibrillation	45%	9	NYHA class	3.0 ± 0.7	
Previous stroke	10%	2	Aortic mean gradient	47.3 ± 13.6	
Symptomatic PAD	65%	13	LVEF < 50%	30%	6
Diabetes Mellitus	30%	6	LVEF < 40%	25%	5

Table 1. Baseline Characteristics (MI- Myocardial Infarction; CABG – Coronary Artery Bypass Graft; PAD – Peripheral Artery Disease; CKD – Chronic Kidney Disease; KDIGO – Kidney Disease: Improving Global Outcomes; STS – Society of Thoracic Surgeons; NYHA – New York Heart Association; LVEF – Left Ventricle Ejection Fraction)

	%	n		%	n
Technical Success	90%	18	1-year Pacemaker implantation	35%	7
In-hospital mortality	15%	3	1-year MI	0%	0
Major vascular complications	10%	2	1-year Prosthetic dysfunction	0%	0
1-year mortality	30%	6	1-year Prosthetic endocarditis	0%	0
1-year stroke	10%	2	1-year Prosthetic thrombosis	0%	0
1-year major bleeding	15%	3	3 months NYHA class	1.3 ± 0.6	

Table 2. Procedure data and Outcomes (MI – Myocardial Infraction; NYHA – New York Heart Association)

PO 236 Figure

Results: During the study period, 535 TAVI procedures were performed including 20 patients (mean age 79.0 ± 8.0 y/o, 80% male) who underwent TS TAVI (70% with surgical access, 30% with percutaneous). Regarding the latter baseline characteristics (Table), it was noted a mean Euroscore II and STS scores of 7.45 and 5.48, respectively, obstructive coronary artery disease in 55% (previous myocardial infarction in 25%, previous CABG in 10%), symptomatic peripheral artery disease in 65%, previous stroke in 10%, significative renal dysfunction (GFR < 60 ml/min/m^2) in 70% and high frailty scores. Basal NYHA class was 3.0 ± 0.7. VARC-2 procedure success rate was 90% (one intra-procedural death after left ventricle perforation and one patient with post-procedural moderate periprosthetic regurgitation) *versus* 92.4% in the TF population. In-hospital mortality was 15% (one intra-procedural death, one due to cardiac tamponade 3 days after TAVI and another death due to a hypoxemic respiratory infection 7 days after TAVI). One-year mortality rate was 30% which compares unfavorably with the 16.1% one-year mortality in the TF TAVI population. These other 3 patients died with a severe SARS-CoV2 infection, an acute renal failure and a mesenteric ischemia, respectively. Two minor, non-disabling strokes were noted during hospitalization (10% *versus* 5.3% in the TF population) and none after discharge in the first year. No other major vascular or access related complications were noted (10% *versus* 5.5% in the TF group). No peri-procedure or first year myocardial infarctions occurred (0.2% in the TF population). Seven patients required permanent pacemaker implantation after TAVI (37% *versus* 21.5% in TF population), all during hospitalization. No prosthetic dysfunction, endocarditis or thrombosis occurred in the first year. There was significant symptomatic improvement at one-year follow-up (mean NYHA class of 1.3 *vs.* 3.0 preprocedural).
Conclusions: This analysis describes *real-world* and initial experience with TS TAVI in high and very high-risk patients, regarding the technique safety and outcomes. In selected patients with high-risk femoral access, trans-subclavian TAVI may be a reasonable alternative.

PO 237. PERCUTANEOUS TRICUSPID VALVE INTERVENTION – EARLY EXPERIENCE IN A SINGLE CENTRE

Alexandra Castelo, Duarte Cacela, Ruben Ramos, António Fiarresga, Luísa Branco, Ana Galrinho, Pedro Brás, Vera Ferreira, Isabel Cardoso, Ana Rita Teixeira, Rui Ferreira

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Introduction: Tricuspid valve pathology is associated with significant morbidity and mortality and surgical approach is not always an option. New percutaneous interventions are being developed to treat these patients.
Objectives: To describe our early experience and results with percutaneous tricuspid valve intervention.
Methods: Retrospective analysis of patients (P) submitted to percutaneous tricuspid intervention between 2018 and 2021 in a tertiary center. Baseline and procedural characteristics and outcomes were collected.
Results: 8P (62.5% female) were included, mean age 73 ± 10 years. All P had comorbidities (hypertension 75%, dyslipidemia 62.5%, previous stroke 37.5%, atrial fibrillation 100%). 5P had previous valvular surgery (1 with tricuspid intervention with a bioprosthesis). A device was implanted in 6P (5 pacemakers and 1 defibrillator). All P were taking diuretics (8P furosemide, mean dose 85 mg, 4P spironolactone, mean dose 25 mg, 1P metolazone 5 mg) and all of them were under oral anticoagulation. 8P were in NYHA class 2 or 3, 7P had peripheral edema, 3P had ascites and 3P had previous hospital admissions for heart failure. On echocardiography 6P had right ventricle dilation, mean TAPSE was 17 mm and PASP 51 mmHg. 1P had tricuspid bioprosthesis disfunction, with mean gradient 13 mmHg and moderate insufficiency. All other patients had severe or torrential tricuspid insufficiency (6 due to annulus dilation and 1 lead induced). Mean euroscore II was 6.5 ± 5.9%. 4P were submitted to TricValve® implantation (1 with an inferior vena cava valve that tilted into the right atrium, with paravalvular leak). 3P were submitted to clip implantation (1 with Mitraclip® and 2 with Triclip®), one with 2 clips implanted and the other two with one clip, all with a reduction of ≥ 2 grades of tricuspid insufficiency. One P was submitted to valve-in-valve implantation, with an end result without any residual insufficiency and a mean gradient of 3.6 mmHg. All the procedures were done under general anesthesia, with intraprocedural transesophageal echocardiography. A femoral vein route was used in all P, with one access complication (arterio-venous fistula, with surgical correction). After the procedures 1P died during the hospital stay (late tamponade and, weeks later, multi organ failure) and 1P died 4 months later, with septic shock. There were no other complications related to the procedures. There were no hospital admissions for heart failure. Excluding the patient with early complications, all patients had ≥ 1 NYHA class improvement, peripheral edema and ascites resolution and diuretic dose reduction during at least 1 month follow up.
Conclusions: Tricuspid valve pathology is associated with high morbidity and patients are frequently considered inoperable. Percutaneous interventions in selected patients are feasible and associated with few complications and significant clinical improvement.

PO 238. CLINICAL OUTCOMES OF TRANSCATHETER AORTIC VALVE IMPLANTATION IN YOUNGER PATIENTS

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Introduction: Currently, the European Society of Cardiology recommends TAVI for patients older than 75 years as a result of trials that demonstrate a non-inferiority in relation to SAVR. TAVI is also performed in younger patients, particularly in those unsuitable for surgery. However, the clinical outcomes in this subgroup of patients are still scarce. Concerns in relation about valve durability and pacemaker implantation acquire even more importance in younger patients.
Objectives: The aim of the study was to describe the characteristics and the outcomes of TAVI in patients < 75 years old.
Methods: Retrospective analysis of patients who underwent TAVI (n = 846) in a single centre between August 2007 and December 2020. All patients were stratified by age (</> 75 years) and baseline characteristics, complications of procedure and mortality were compared between the two groups.
Results: Overall, 173 (20.4%) patients were < 75 years; the mean age was 68.7 ± 6.8 years. The younger patients were more often male (64.7 *vs.* 45.5%, p < 0.001), had higher prevalence of diabetes (52.3 *vs.* 35.3%, p < 0.001), lung disease (30.7 *vs.* 20.2%, p = 0.017) and previous cardiac surgery (31.7 *vs.* 16.3%, p < 0.001), had lower mean LV ejection fraction (46.8 ± 13.4 *vs.* 52.3 ± 11.5%, p < 0.001) and STS score (4.2 ± 4.4 *vs.* 5.4 ± 3.7) and had lower prevalence of atrial fibrillation (23.7 *vs.* 34.0%, p = 0.010). Regarding post-procedure complications, younger patients had lower incidence of acute kidney injury (11.0 *vs.* 18.3%, p = 0.027). There were no differences in rates of permanent pacemaker implantation, vascular complications and cerebral events. 30-day mortality was similar between two groups (5.7 *vs.* 7.2%, p = 0.730) and 1-year mortality was non-significant lower in younger patients (7.5 *vs.* 11.4%, p = 0.092).
Conclusions: Use of TAVI in younger patients will continue to increase. Our study showed that although patients were clinically different, the outcomes were similar between younger and older TAVI patients. Dedicated trials of TAVI/SAVR in younger patients are needed to guide decisions concerning expansion of TAVI indications.

PO 239. EARLY AORTIC VALVE REPLACEMENT IN ASYMPTOMATIC SEVERE AORTIC STENOSIS WITH PRESERVED EJECTION FRACTION

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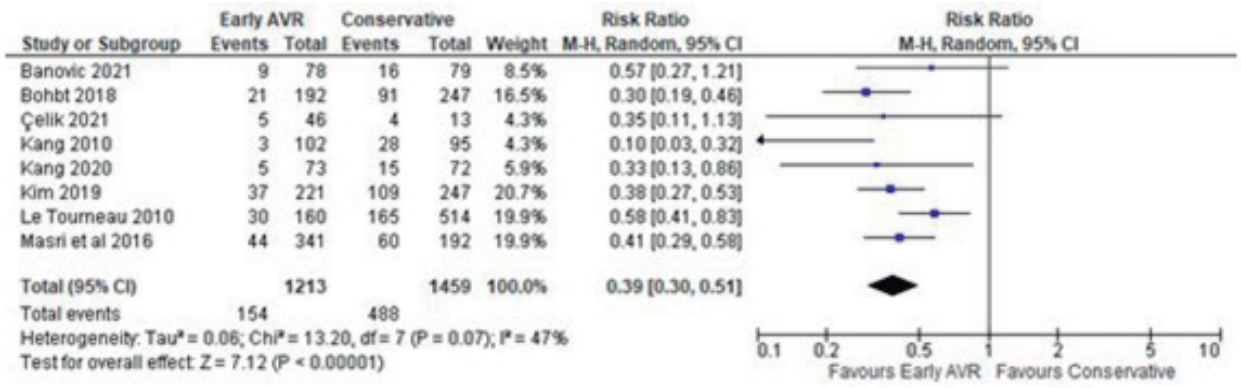
Introduction: Aortic stenosis (AS) is the most common valvular disease in developed countries. Specific timing of intervention for asymptomatic



PO 239 Figure

patients with severe aortic stenosis and preserved ejection fraction remains controversial.

Objectives: To compare the outcomes of early aortic valve replacement (AVR) *versus* watchful waiting (WW) in asymptomatic AS patients with preserved ejection.

Methods: We systematically searched PubMed, Embase and Cochrane databases, in November 2021, for both interventional or observational studies comparing early-AVR with WW in the treatment of asymptomatic severe AS with preserved ejection fraction criteria. Random-effects meta-analysis was performed.

Results: Eight studies were included in which two were randomized clinical trials. A total of 2672 patients were included, providing a 642 pooled death events (327 in early-AVR and 941 in watchful waiting). In our meta-analysis, early-AVR revealed a significant lower all-cause mortality (pooled OR, 0.39; 95%CI [0.30, 0.51], $p < 0.01$; $I^2 = 47\%$). Additionally, the early-AVR group presented a lower rate of cardiovascular mortality (pooled OR, 0.33; 95%CI [0.19, 0.56], $p < 0.01$; $I^2 = 64\%$). Both strategies had similar rate of stroke (pooled OR, 1.30; 95%CI [0.39, 4.27], $p = 0.67$; $I^2 = 0\%$) and myocardial infarction (pooled OR, 0.49; 95%CI [0.14, 1.78], $p = 0.28$; $I^2 = 0\%$). Heart Failure hospitalizations presented a lower trend early-AVR group (pooled OR, 0.22; 95%CI [0.05, 1.08], $p = 0.36$; $I^2 = 36\%$).

Conclusions: Our pooled data suggests that early-AVR strategy is preferable for asymptomatic severe AS patients with preserved ejection fraction.

PO 240. BIVALVE: PROCEDURAL AND MID-TERM RESULTS IN PATIENTS WITH AORTIC STENOSIS TREATED WITH IMPLANTATION OF 2 (IN-SERIES) PROSTHESES IN A SINGLE PROCEDURE

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Introduction: Despite the increasing experience in transcatheter aortic valve implantation (TAVI), valve mispositioning still occurs. This study sought to report the incidence, management as well as post-procedural and mid-term outcomes of patients in which a second "in-series" prosthesis was implanted during the same intervention.

Methods: Single-center retrospective analysis on prospectively collected data of all consecutive patients who underwent a second "in-series" prosthesis implantation during a single TAVI procedure, between january 2015 and november 2021. Clinical and echocardiographic characteristics were recorded at baseline and after successful TAVI. Procedural, immediate post-procedural as well as mid-term follow-up data were collected for analysis.

Case #	Reasons for 2nd valve implantation	Size of Second Valve Deployed During the Index Procedure, mm	Position of Embolized Valve	NYHA Functional Class (Follow-up)
1	Valve embolization	29	Ascending aorta	Dead
2	Valve embolization	25	Ascending aorta	II
3	Low implantation with severe aortic regurgitation	23	Ascending aorta	I
4	Valve embolization	23	Ascending aorta	II
5	Left main occlusion	29	Ascending aorta	I
6	Valve embolization	29	Aortic arch	II
7	Valve embolization	23	Descending aorta	II
8	Valve embolization	29	Ascending aorta	II
9	Valve embolization	23	Aortic arch	I

PO 240 Figure

Results: A total of 887 TAVI procedures were performed during the study period. A second "in-series" prosthesis implantation was necessary in 9 cases (1,0%) due to valve malpositioning (Table): 7 - valve embolization; 1 - left main occlusion; 1 - low implantation with severe aortic regurgitation. All implantations of the second device were successful. Overall, 6 patients had peri-procedural events: 1 patient died the day after procedure due to intestinal ischemia; 2 patients implanted permanent pacemaker; 2 patients had a minor vascular complication of the main access - pseudoaneurysm; 1 patient had type 5 myocardial infarction. During a median follow-up of 31 months, all survivors (n = 8) remained clinically stable and the extra-anatomically placed prosthesis (ascending aorta, n = 6; aortic arch, n = 2, descending aorta = 1) was not associated with clinical events.

Conclusions: The need for a second "in-series" prosthesis implantation during a single procedure is an extremely rare event. Mid-term clinical outcomes were favorable, even though periprocedural complications are common in this bailout scenario.

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