ISSN 0970-2551
www.revportcardiol.org

Portuguese Journal of Cardiology

Revista Portuguesa de Cardiologia

Volume 45 Supplement 2
Monthly Publication
April 2026

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Official Journal of the
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IMPACT FACTOR 2024: 1.6
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Portuguese Journal of Cardiology

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Congresso Português de Cardiologia 2026

Dear colleagues and friends,

On behalf of the Organizing Committee, it is my great pleasure to welcome you to the Portuguese Congress of Cardiology. Once again, we gather for what has become the central meeting point of cardiovascular medicine in our country—a place where knowledge, experience, innovation, and shared purpose converge. For more than 50 years, this congress has established itself as the crossroads of Portuguese cardiovascular care, bringing together clinicians, researchers, allied health professionals, and policymakers, united by a common commitment: improving the lives of our patients.

This year's theme, "From Evidence to Action," reflects both an aspiration and a responsibility. Studies suggest that, on average, it takes 17 years for a medical discovery to become routine clinical practice — 17 years that patients cannot afford to wait. Closing this gap is one of the defining challenges of modern medicine, and it is a challenge that extends well beyond the adoption of new drugs or cutting-edge therapies. Often, the greatest gains in patient outcomes come not from new discoveries, but from making better, more consistent use of what we already know. Our goal is that each participant leaves this congress not only enriched with new knowledge, but motivated and empowered to act — whether by implementing an underused guideline, rethinking a care pathway, or embracing an innovation that has yet to reach their institution.

The Portuguese Congress of Cardiology is more than a scientific meeting. Throughout the year, many of us work inevitably in silos — embedded in our "subspecialties", attending niche meetings, focused on the depth of our own fields. This is necessary, but it is not enough. This Congress is the place to step back and zoom out: to discover what colleagues in other centers and other areas of cardiology are doing, to be surprised by approaches we had not considered, and to find in that breadth new inspiration for our own work. It is a forum where different perspectives meet, where ideas are challenged and refined, and where collaborations are born — creating a unique environment for dialogue and exchange that is an essential condition for innovation and the continuous improvement of care. The discussions held here and the partnerships established will shape how we practice medicine in the years ahead.

Thank you for being part of this congress and for contributing, through your presence and participation, to strengthening the community that drives cardiovascular medicine forward in our country. May this meeting serve as a source of inspiration, collaboration, and commitment to making a lasting difference.

Welcome to the Portuguese Congress of Cardiology.

António Miguel Ferreira
President of the 2026 Portuguese Congress of Cardiology

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AGRADECIMENTO AOS REVISORES

A Comissão Organizadora do CPC 2026 agradece aos Colegas abaixo indicados, que colaboraram, na sua qualidade de revisores, na apreciação das comunicações submetidas ao Congresso Português de Cardiologia 2026:

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Tiago Adrega
Tiago Dias
Tiago Godinho Teixeira
Tiago Pinto Pereira da Silva
Tiago Nolasco
Tiago Rito
Tiago Rodrigues
Vanda Neto
Vasco Alves Dias
Vera Vaz Ferreira
Victor M. Gil
Victor Manuel Sanfins
Vítor Hugo Pereira
Vítor Paulo Martins

ROSUMIBE

Rosuvastatina + Ezetimiba

A ASSOCIAÇÃO QUE FAZ A DIFERENÇA

TODAS AS DOSAGENS COMPARTICIPADAS

UMA MARCA PORTUGUESA

Azevedos

INFORMAÇÕES ESSENCIAIS COMPATÍVEIS COM O RCM Nome do medicamento: Rosumibe 5 mg + 10 mg, 10 mg + 10 mg, 20 mg + 10 mg, 40 mg + 10 mg comprimidos revestidos por película. **Composição qualitativa e quantitativa:** Rosumibe 40 mg + 10 mg: Cada comprimido contém 40 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. Rosumibe 20 mg + 10 mg: Cada comprimido contém 20 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. Rosumibe 10 mg + 10 mg: Cada comprimido contém 10 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. Rosumibe 5 mg + 10 mg: Cada comprimido contém 5 mg de rosuvastatina (na forma de sal cálcico) e 10 mg de ezetimiba. **Forma farmacêutica:** Comprimido revestido por película. **Indicações terapêuticas:** Adjuvante da dieta para o tratamento de hipercolesterolemia primária como terapêutica de substituição em doentes adultos adequadamente controlados com as substâncias individuais administradas concomitantemente na mesma dose que na combinação de dose fixa, mas enquanto medicamentos separados. Redução do risco de eventos cardiovasculares como terapêutica de substituição em doentes com doença coronária (DC) e história de síndrome coronária aguda (SCA), que estão adequadamente controlados com as substâncias individuais administradas concomitantemente na mesma dose que na combinação de dose fixa, mas enquanto medicamentos separados. **Posologia e modo de administração:** A dose diária recomendada é de um comprimido da dosagem indicada, com ou sem alimentos. Rosumibe não é adequado para terapêutica inicial. A iniciação do tratamento ou ajuste posológico, se necessário, deve ser apenas efetuada através da administração dos componentes em monoterapia e, após a determinação da posologia apropriada, é possível considerar a mudança para a combinação de dose fixa na dosagem apropriada. **Contraindicações:** Hipersensibilidade às substância ativas ou a qualquer um dos excipientes; em doentes com doença hepática ativa incluindo elevações persistentes e inexplicáveis das transaminases séricas e qualquer elevação das transaminases séricas excedendo 3 vezes o limite superior da normalidade (LSN); durante a gravidez e amamentação e em mulheres com potencial para engravidar que não adotam medidas contracetivas apropriadas; em doentes com compromisso renal grave (depuração da creatinina <30 ml/min); em doentes com miopatia.; em doentes tratados concomitantemente com ciclosporina. Rosumibe 40 mg + 10 mg está contraindicado em doentes com fatores predisponentes para miopatia/rabdomiólise. **Efeitos indesejáveis: Rosuvastatina:** Frequentes: Diabetes mellitus; Cefaleia; Tonturas; Obstipação; Náuseas; Dor abdominal; Mialgia; Astenia; Pouco frequentes: Prurido; Erupção cutânea; Urticária; Raros: Trombocitopenia; Reações de hipersensibilidade incluindo angioedema; Pancreatite; Transaminases hepáticas aumentadas; Miopatia (incluindo miosite); Rabdomiólise; Muito raros: Polineuropatia; Perda de memória; Icterícia; Hepatite; Artralgia; Hematúria; Ginecomastia; Desconhecido: Depressão; Neuropatia periférica; Alterações do sono (incluindo insónia e pesadelos); Tosse; Dispneia; Diarreia; Síndrome de Stevens-Johnson; Reação medicamentosa com eosinofilia e sintomas sistémicos (DRESS); Miopatia necrosante imunomediada; Afeções dos tendões, por vezes complicadas devido a rutura; Edema. **Ezetimibe:** Frequentes: Dor abdominal; Diarreia; Flatulência; Fadiga; Pouco frequentes: Apetite diminuído; Afrontamentos; Hipertensão; Tosse; Dispepsia; Afeção de refluxo gastroesofágico; Náuseas; Artralgia; Espasmos musculares; Dor cervical; Dor torácica; Dor; Aumento de ALT e/ou AST; Aumento da CPK no sangue; Aumento da gama glutamiltransferase; Teste anormal da função hepática; Desconhecido: Trombocitopénia; Hipersensibilidade (incluindo erupção cutânea, urticária, anafilaxia e angioedemea); Depressão; Tonturas; Parestesia; Miastenia grave; Miastenia ocular; Dispneia; Pancreatite; Obstipação; Hepatite; Colelitíase; Colecistite; Eritema multiforme; Artralgia; Mialgia; Miopatia/rabdomiólise; Astenia. **Rosumibe:** Frequentes: Cefaleia; Mialgia; Aumento de ALT e/ou AST; Pouco frequentes: Parestesia; Boca seca; Gastrite; Prurido; Erupção cutânea; Urticária; Dorsalgia; Fraqueza muscular; Dores nas extremidades; Astenia; Edema periférico. **Data de revisão do texto:** 05/2023. **Medicamento Sujeito a Receita Médica.** Escalão C de comparticipação – 37% (dosagens 5 mg + 10 mg, 10 mg + 10 mg, 20 mg + 10 mg, 40 mg + 10 mg). Para mais informações deverá contactar o titular de AIM. **Laboratórios Azevedos – Indústria Farmacêutica, S.A.** Estrada da Quinta, 148, Manique de Baixo, 2645-436 Alcabideche Contribuinte Nº 507474287 | www.grupoazevedos.com | 2603PEROS004

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COMUNICAÇÕES ORAIS (CO)

Congresso Português de Cardiologia 2026 (CPC2026)

24 a 26 de Abril de 2026

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

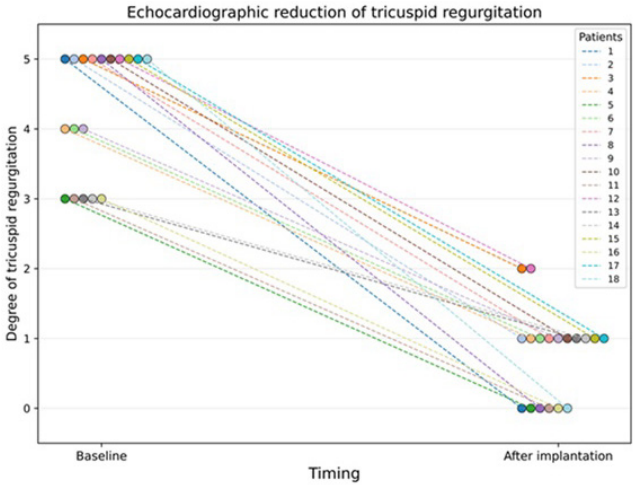
Espaço Ágora | Sessão de Comunicações Orais 01 - Dentro do Laboratório de Hemodinâmica: estratégias contemporâneas e resultados na vida real

CO 13. EARLY PORTUGUESE EXPERIENCE WITH THE EVOQUE TRICUSPID VALVE: PROCEDURAL AND EARLY OUTCOMES

Ana L. Silva, Tatiana Pereira dos Santos, Gonçalo Ferraz Costa, Ana Botelho, José Luís Martins, Manuel Santos, Luís Paiva, Marco Costa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Transcatheter tricuspid valve replacement (TTVR) has emerged as a promising option for severe symptomatic tricuspid regurgitation (TR), but real-world data outside pivotal trials are still limited.
Objectives: To evaluate procedural and 30-day outcomes of the EVOQUE system implantation in a real-world Portuguese cohort.
Methods: Retrospective, single-center study including consecutive patients undergoing TTVR with the EVOQUE valve (Edwards Lifesciences), between October 2024 and October 2025. Baseline characteristics, procedural metrics, and early clinical outcomes were collected.
Results: Eighteen patients were included (median age 79.5 [IQR 10.0] years; 44.4% male). TR was severe in 27.8%, massive in 16.7%, and torrential in 55.6%. TR etiology was mixed primary/functional in 44.4%, followed by atrial/ventricular functional TR in 38.9%. Degenerative disease (5 cases), valve prolapse (2), and electrocatheter impingement (2) were the most frequent primary causes. Mean TRISCORE was 3.3 ± 1.9, and 94.4% were in NYHA II-III. Median NT-proBNP was 1,801.5 pg/mL (IQR 3,084.8). Atrial fibrillation was present in 94.5%, and 16.7% had a previous pacemaker.
Baseline right ventricle (RV) function included mean fractional area change (FAC) 39.8 ± 7.0%, TAPSE 17.8 ± 4.1 mm, RV strain −19.3 ± 3.5%, and TAPSE/sPAP 0.44 ± 0.12. Right heart catheterization was performed in 94.4%, revealing pulmonary hypertension in 12 patients (27.8% precapillary, 22.2% postcapillary, 16.7% combined). Mean pulmonary artery pressure was 23.6 ± 6.3 mmHg and PCWP 15.6 ± 5.7 mmHg. Median procedural duration was 112.5 minutes (IQR 33.8). The 52-mm valve was the most used (38.9%). TR reduction was achieved in all patients: none/trace in 33.3%, mild in 55.6%, and moderate in 11.1%. Mean transprosthetic gradient was 3.2 ± 1.1 mmHg. Post-operative worsening of RV function was observed: RV strain −12.4 ± 3.7% ($p < 0.001$), TAPSE 10.9 ± 3.9 mm ($p < 0.001$), and FAC 25.4 ± 7.6% ($p < 0.001$). Procedural complications included one cardiac tamponade and one acute heart failure requiring inotropes. No in-hospital mortality occurred. Median hospitalization was 4.5 days (IQR 2.3). At 30 days, two patients required pacemaker implantation for complete heart block (2/15 patients, 13.3%), two were rehospitalized for heart failure (11.1%), one had a transient ischemic attack, and one was hospitalized for access-site hematoma.



Conclusions: Our center experience aligns with TRISCEND-II, supporting the safety and efficacy of EVOQUE TTVR in real-world practice. Notably, the pacemaker implantation rate was substantially lower than the 24.7% reported in TRISCEND-II. These findings reinforce the expanding role of TTVR as a viable therapeutic option for severe symptomatic TR.

CO 14. SAFETY AND DIAGNOSTIC YIELD OF ENDOMYOCARDIAL BIOPSY: A SINGLE-CENTRE EXPERIENCE

Mafalda Oliveira Griné[1], Gonçalo Abel[2], Tânia Camacho[2], Fátima Saraiva[3], João Borges-Rosa[1], Manuel Oliveira-Santos[1], Vítor Matos[1], Marco Costa[1], Lino Gonçalves[1]

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra. [3]ULS Região de Leiria/Hospital de Santo André.

Introduction: Endomyocardial biopsy (EMB) remains the reference standard for diagnosing myocardial disorders and monitoring cardiac allograft

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rejection, yet its clinical value must be continually weighed against procedural risks. Contemporary data from large, real-world cohorts are limited. We sought to evaluate the diagnostic yield, procedural success, and safety profile of EMB at our centre over the last two decades.

Methods: We retrospectively reviewed all EMBs performed between November 2003 and August 2025. Demographic and clinical characteristics, procedural details, and histopathological results were extracted from electronic health records. Procedures with insufficient documentation were excluded. Procedural success was defined as completion of EMB via the intended access route with adequate sample number and quality. Diagnostic yield was defined as the proportion of procedures yielding a clinically meaningful diagnosis.

Results: A total of 3,303 EMBs yielding 6,544 specimens (mean 2 fragments/procedure) were analysed. The predominant indication was cardiac allograft rejection surveillance (n = 3,252; 98%). Transfemoral access was used in 97% of procedures. Procedural failure was rare (32 cases; 0.97%), most commonly due to retrieval of fibrous tissue, likely representing prior biopsy scarring (valvular tissue, fat and thrombi were less frequent). Among EMBs performed for rejection surveillance, 99% were diagnostic (90% grade 0R; 8% grade 1R; 2% grade 2R; 0.47% grade 3R, ISHLT 2005 criteria). Of the 50 EMBs performed for non-transplant related indications, 36 (72%) yielded an etiologic diagnosis. Complications were infrequent (29 events; 0.88%) and predominantly minor: vasovagal episodes (n = 4), access-site hematomas (n = 2) and one femoral pseudoaneurysm successfully treated with thrombin injection. Arrhythmic complications included atrial fibrillation (n = 1), atrial flutter requiring cardioversion (n = 1), transient AV conduction disturbances (n = 3) and one episode of ventricular tachycardia promptly treated with propranolol. Fourteen small coronary artery fistulas were identified, none requiring intervention. Two cases of cardiac perforation with tamponade required drainage, both with full recovery. No other major complications such as severe valvular injury, stroke, pneumothorax, venous thromboembolism, major bleeding or death were observed.

Conclusions: In this large, single-centre cohort, EMB demonstrated a high procedural success rate and a low rate of complications. These findings support EMB as a safe and valuable tool, particularly for guiding postoperative management of heart transplant recipients. In our cohort, the rejection rate was low, with most EMBs classified as grade 0R according to ISHLT 2005 criteria.

CO 15. SAFETY AND EFFICACY OF DRUG-ELUTING BALLOONS IN LARGE CORONARY VESSELS: A LESION-LEVEL ANALYSIS OF REAL-WORLD PCI PRACTICE

Lucas Hamann, Daniel Faria, Sofia Andraz, Joana Guerreiro Pereira, Hugo Costa, Pedro de Azevedo, João Moura Guedes, João Bispo, Carolina Vaz, Jorge Mimoso, Hugo Vinhas

ULS Algarve/Hospital de Faro.

Introduction: Drug-coated balloons (DCB) are established therapy for coronary in-stent restenosis and are increasingly used in small-vessel disease, where they showed non-inferiority to DES in randomized trials such as BASKET-SMALL 2. Current ESC and international consensus documents primarily frame DCB as a strategy for ISR and *de novo* small vessels (< 2.75-3.0 mm), with much less evidence in larger reference diameters. Concerns persist that using large-diameter DCBs may lead to suboptimal drug transfer and higher bailout DES rates. We therefore evaluated the safety of DCB ≥ 3.0 mm in routine practice.

Methods: We conducted a retrospective single-centre analysis of 398 consecutive patients (mean age 67.1 ± 12.6 years, 83.2% male), from 2023-2024, treated with DEB, yielding 518 DEB-treated lesions, with a 1-year follow-up. Lesions were stratified by mean DCB diameter: < 3.0 mm (n = 358) vs. ≥ 3.0 mm (n = 160). The primary endpoint was bailout DES during the index procedure (Rescue DES). Secondary endpoints were lesion-level TLF, TLR, non-TLR revascularization and all-cause death. Univariate comparisons were followed by penalized multivariable logistic regression including vessel territory, *de novo* vs. ISR, bifurcation, lesion preparation (NC, cutting, scoring, IVL balloons), intravascular imaging and procedural complications (dissection, perforation, rupture, no-reflow).

Results: Rescue DES occurred in 35 lesions (6.8% overall): 22/358 (6.1%) with DCB < 3.0 mm vs. 13/160 (8.1%) with DCB ≥ 3.0 mm (crude OR 1.35; p = 0.45). Rates of TLF, TLR, non-TLR and mortality were low in both groups (e.g. TLF 2.5% vs. 3.1%; all-cause death 3.1% vs. 3.8%; all p > 0.7). In the multivariable ridge model, use of DCB ≥ 3.0 mm was not independently associated with Rescue DES (adjusted OR 0.92; 95%CI 0.15-5.58; p = 0.93), whereas procedural complications remained the main driver of bailout.

Table 2. Univariate Outcomes

Outcome	n <3mm	Events <3mm	Rate <3mm (%)	n ≥3mm	Events ≥3mm	Rate ≥3mm (%)	OR (≥3 vs <3)	p-value
Rescue_DES	358	22	6.15	160	13	8.12	1.35	0.449
TLF_1_0	358	9	2.51	160	5	3.12	1.25	0.771
TLR_1_0	358	3	0.84	160	1	0.62	0.74	1.000
Non_TLR_1_0	358	59	16.48	160	21	13.12	0.77	0.359
CV_death	358	6	1.68	160	4	2.50	1.50	0.507
All_Cause_death	358	11	3.07	158	6	3.80	1.25	0.789

Table 3. Multivariable Logistic Regression (Rescue DES)

Predictor	OR	95% CI	p
DEB_large	0.92	0.15 – 5.58	0.928
Bifurcation	0.39	0.11 – 1.40	0.150
De_novo_lesion	3.45	0.40 – 29.95	0.261
Stent_restenosis	0.23	0.03 – 2.09	0.194
NC_balloon	1.18	0.02 – 85.34	0.940
NC_balloon_mean_diameter	6.04	1.25 – 29.25	0.026
Cutting_balloon	1.32	0.22 – 8.01	0.762
Scoring_balloon	1.00	0.17 – 5.87	1.000
IVL_balloon	1.14	0.45 – 2.88	0.788
IVUS	0.27	0.06 – 1.17	0.081
OCT	1.02	0.09 – 11.85	0.989
Number_of_DCB	1.13	0.47 – 2.75	0.779
DCB_mean_lenght	0.95	0.87 – 1.03	0.226
Dissection	211.03	54.46 – 817.81	<0.0001
No_reflow	200.64	15.75 – 2555.40	<0.0001
Perforation	0.86	0.01 – 78.12	0.949
Rupture	4.21	0.05 – 333.89	0.519

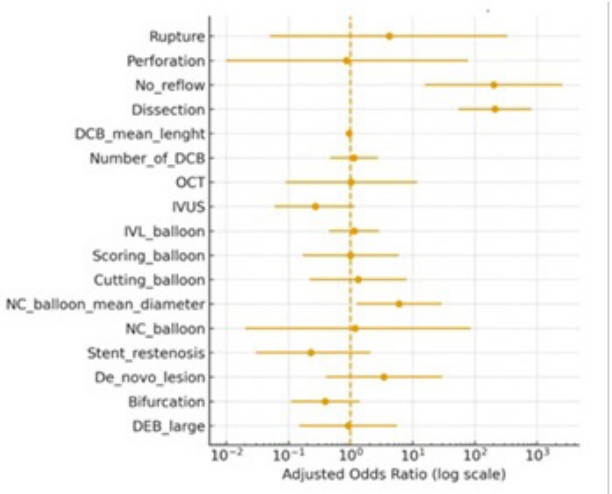


Figura 1 - Multivariable para Rescue DES

Conclusions: In this real-world lesion-level cohort, larger-diameter DCBs (≥ 3.0 mm) were not associated with higher bailout DES rates or worse lesion-level outcomes compared with DCBs < 3.0 mm. Although DCB therapy is traditionally considered a small-vessel strategy, our data suggest that, with meticulous lesion preparation and careful case selection, extending DCB use to larger epicardial vessels appears procedurally and clinically safe. These findings complement existing RCT and consensus data and support further prospective evaluation of DCB-only strategies beyond classic small-vessel indication.

CO 16. SEALING THE DEAL - PERCLOSE® + ANGIO-SEAL® VS. MANTA® FOR LARGE-BORE FEMORAL CLOSURE IN TAVI

Catarina Sena Silva, Marta Vilela, Daniel Inácio Cazeiro, João Cravo, Diogo Ferreira, João Fernandes Pedro, Cláudia Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Cardoso, Fausto J. Pinto, Pedro Carrilho Ferreira

Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Effective closure of large-bore femoral arterial access is essential during transfemoral transcatheter aortic valve implantation (TAVI), in order to avoid significant vascular and bleeding complications. Multiple studies and meta-analyses have suggested that Perclose® –used alone or in combination with Angio-Seal®– may offer advantages over alternative closure devices.
Objectives: To compare bleeding and vascular outcomes following the use of a hybrid strategy (Perclose® + Angio-Seal®) vs. MANTA® in patients undergoing transfemoral TAVI.
Methods: We conducted a retrospective, single-center analysis of patients who underwent TAVI between November 2022 and September 2025. Baseline and procedural characteristics, as well as in-hospital complications were retrieved from clinical records. Events were adjudicated using Valve Academic Research Consortium 3 (VARC-3) criteria. Predictors of bleeding and vascular outcomes were examined using univariate and multivariable logistic regression.
Results: A total of 346 patients were included (median age 83 years; 54% women), of which 163 were submitted to closure with MANTA® and 183 with a hybrid strategy. Baseline characteristics were broadly comparable between groups, apart from a higher proportion of women (p = 0.016) and slightly greater creatinine clearance (56 vs. 51 mL/min/1.73 m^2) in the hybrid strategy cohort. Bleeding events occurred in 40 procedures (12%) and were predominantly classified as VARC-3 type 1 (80%). Overall bleeding rates did not differ significantly between strategies; however, there was a trend to more VARC-3 type 2/3 bleeding among patients treated with MANTA® (1 vs. 7 events; p = 0.051; OR 9.00, 95%CI 0.99-81.93). Vascular complications were observed in 33 procedures (10%) and were mostly minor (82%). Patients receiving MANTA® experienced a significantly higher risk of vascular events overall (OR 3.99, 95%CI 1.75-9.13), with a higher number of major complications (5 vs. 1, p = NS). In multivariable analysis, MANTA remained an independent predictor of vascular complications (OR 4.10, 95%CI 1.75-9.62; p < 0.001), together with periprocedural use of ≥ 2 antithrombotic drugs (OR 5.84, 95%CI 2.29-14.88, p < 0.001).
Conclusions: In this contemporary cohort, the Perclose®+Angio-Seal® strategy was associated with a significantly lower risk of vascular complications and a trend to lower risk of clinically relevant (VARC-3 type 2/3) bleeding compared with MANTA®. These findings reinforce growing evidence that Perclose®-based closure may provide a safer large-bore access management approach in patients undergoing transfemoral TAVI.

CO 17. PRIMARY ANGIOPLASTY IN PORTUGAL UNDER THE STENT FOR LIFE/STENT SAVE A LIFE INITIATIVE: WHERE DO WE STAND?

Cristina Dantas Martins[1], Hélder Pereira[1], Ernesto Pereira[1], Rita Calé[1], Rafael Maniés Pereira[2], João Brum Silveira[3]

[1]ULS Almada-Seixal/Hospital Garcia de Orta. [2]Faculdade de Medicina da Universidade de Lisboa. [3]ULS Santo António/Hospital de Santo António.

Introduction: The Stent for Life/Stent Save a Life (SFL/SSL) programme, launched in 2011, aimed to reduce delays in ST-elevation myocardial infarction (STEMI) treatment and increase access to primary percutaneous coronary intervention (PPCI). *Momento 25* provides a new national assessment of the Portuguese PPCI network. This study compares key performance indicators from 2011-2025, identifies opportunities for improvement and highlights the importance of continuous monitoring of reperfusion times, including critical intervals, operational targets and regional variations.
Methods: Data from Moments 0-6 (M6, n = 1,652) and Moment 25 (M25, n = 249) were analysed. Variables included patient delay (symptom-to-FMC), system delay (FMC-to-reperfusion), FMC-to-ECG, type of first medical contact (INEM vs. self-transport), compliance with guideline targets (ECG ≤ 10 min; door-to-balloon ≤ 60 min; FMC-to-balloon ≤ 90 min; symptom-to-balloon ≤ 120 min) and initial admission to centres with and without PPCI.
Results: No significant differences were found for patient or system delay. Overall compliance with guideline-recommended timings also showed no significant changes, although Moment 25 recorded the highest door-to-balloon performance (59.6%). INEM activation increased steadily across study periods, from 35.2% in Moment 0 to 49.4% in Moment 25 (p < 0.001). Significant differences in target compliance were observed between patients with and without INEM activation (Table 1). A marked reduction in initial admission to non-PPCI hospitals was noted, from 54.5% in Moment 0 to 28.9% in Moment 25 (p < 0.001). Regional disparities persisted, with presentation to non-PPCI centres ranging from 36.5% in Lisbon and Tagus Valley to 54.3% in Alentejo.
Conclusions: Throughout the SFL/SSL initiative, sustained growth in INEM activation was observed, accompanied by improved network efficiency, reflected in higher proportions of patients reperfused within ≤ 90 min, and reduced admission to hospitals without interventional cardiology. However, significant delays and regional inequalities persist, compromising equitable

Predictors of vascular complications

	Univariable OR	95% CI	p-value	Multivariable OR	95% CI	p-value
MANTA® device (Vs. AngioSeal® + Perclose®)	**3.992**	**1.746–9.126**	**0.001**	**4.102**	**1.750–9.617**	**0.001**
Female sex	1.353	0.650–2.816	0.419	–	–	–
Age (years)	1.023	0.956–1.095	0.510	–	–	–
Body mass index (kg/m²)	0.998	0.925–1.078	0.967	–	–	–
Arterial hypertension	2.150	0.494–9.346	0.307	–	–	–
Diabetes	0.758	0.355–1.618	0.474	–	–	–
Dyslipidemia	1.254	0.498–3.161	0.631	–	–	–
Smoking history	2.131	0.861–5.270	0.102	2.226	0.860–5.764	0.099
Atrial fibrillation	0.690	0.233–2.045	0.503	–	–	–
Creatinine clearance (mL/min/1.73m²)	0.999	0.982–1.016	0.906	–	–	–
Valve size (mm)	1.048	0.935–1.176	0.420	–	–	–
Femoral access caliber (Fr)	1.141	0.913–1.426	0.246	–	–	–
Baseline hemoglobin (g/dL)	0.920	0.743–1.139	0.444	–	–	–
Use of ≥2 antithrombotic drugs	**5.196**	**2.145–12.589**	**<0.001**	**5.842**	**2.294–14.879**	**<0.001**

Figure CO 16

Table 1 – Significance Differences by INEM Activation

Association tests between INEM activation and meeting targets

Target Time	With INEM %	Without INEM (%)	Difference	Test	Staistic	p-value
ECG ≤ 10 min after FMC	48.9%	33.1%	+15.8%	Chi-square	39.470	< 0.001
Reperfusion ≤ 60 min after admission	54.3%	53.4%	+0.9%	Chi-square	0.089	0.7657
Reperfusion ≤ 90 min after FMC	28.2%	19.3%	+8.9%	Chi-square	15.061	< 0.001
Reperfusion ≤ 120 min after symptom onset	11.2%	4.7%	+6.6%	Chi-square	21.998	< 0.001

Figure CO 17

access to PPCI. Strengthening cardiovascular emergency literacy, encouraging early INEM activation and reorganising regional networks are essential to improve and consolidate the gains achieved.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Palco Training Village | Sessão de Comunicações Orais 02 - Perspetivas translacionais na Insuficiência Cardíaca: dos modelos experimentais ao prognóstico clínico

CO 18. KETONES: A NEW HOPE FOR HEART FAILURE WITH PRESERVED EJECTION FRACTION (HFPEF)

Alexandre Gonçalves[1], Inês N. Alves[1], Cláudia Mendes[1], Daniela Miranda[1], João Almeida-Coelho[1], Diana Martins[1], Sandra Marisa Oliveira[1], José Sereno[2], Maria João Ferreira[2], Adelino F. Leite-Moreira[1], Vasco Sequeira[3], Inês Falcão-Pires[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]Faculdade de Medicina da Universidade de Coimbra. [3]Universitätsklinikum Würzburg.

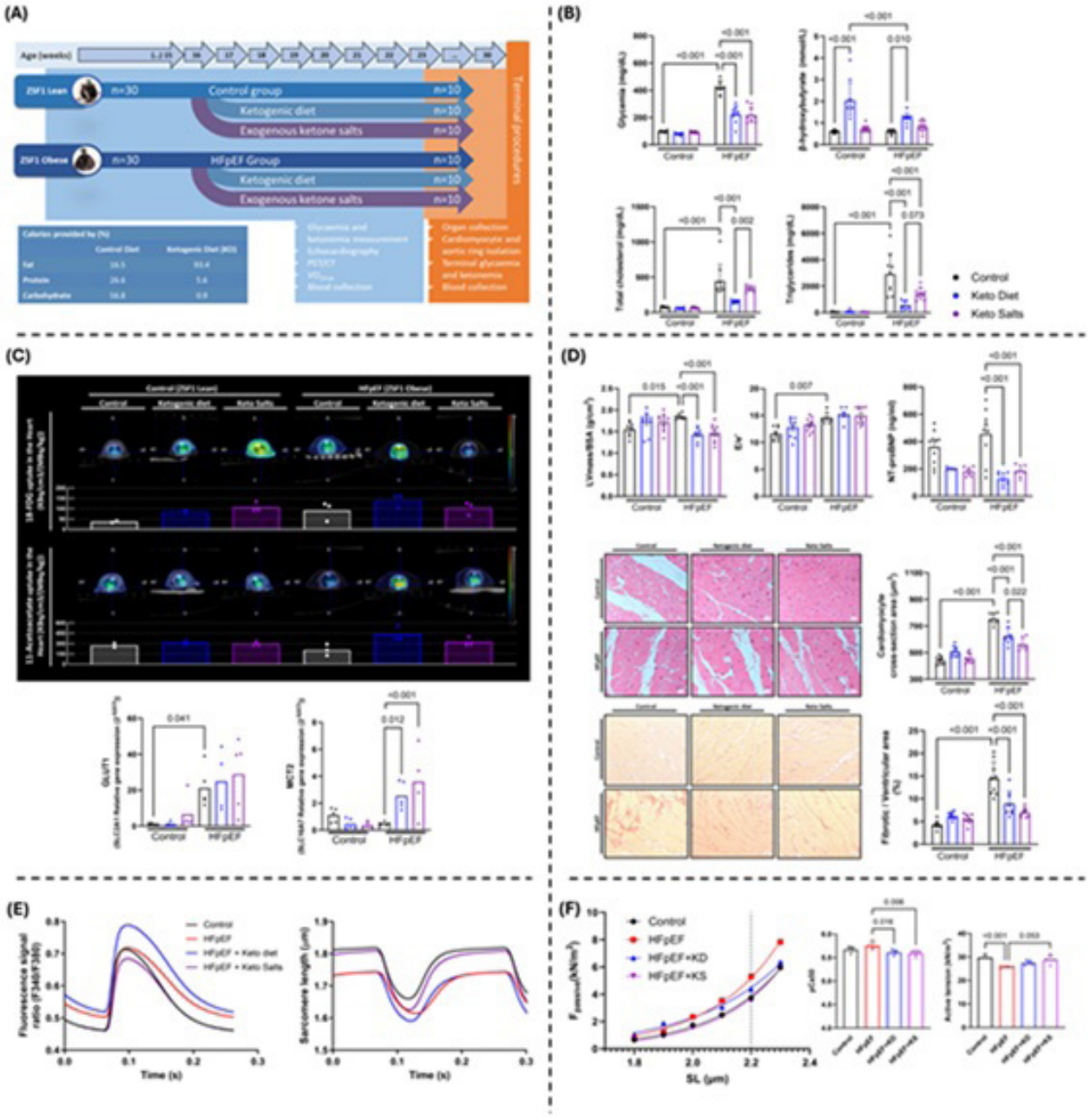
Introduction: Heart failure with preserved ejection fraction (HFpEF) presents a major therapeutic challenge that remains with limited therapeutic options. While ketones have shown beneficial effects on myocardial function in other cardiac pathologies, their impact on HFpEF pathophysiology remains to be elucidated. Beyond their metabolic role, ketones act as signalling molecules, capable of modulating inflammation, cardiac hypertrophy, and fibrosis. This study seeks to assess the efficacy of ketone elevation as a strategy for the management of HFpEF.
Methods: At 16-week-old, when ZSF1 Obese rats already exhibit clear signs of HFpEF, we randomly assigned them to three subgroups: (1) control diet (CT), (2) ketogenic diet (KD), or (3) control diet with added exogenous ketone salts (KS) in their drinking water for 10 weeks (Figure 1A). During the weeks leading to the terminal procedures, the groups were subjected to echocardiography, PET/CT imaging for [11C]-Acetoacetate and [18F]-Fluorodeoxyglucose (FDG) and blood collection. At the terminal procedures, tissue samples were collected for biochemical work and histology. Hearts were perfused in order to isolate left ventricular cardiomyocytes for intact studies, while frozen left ventricular samples were used for permeabilized cardiomyocyte analysis.
Results: We found that both KD and KS ameliorated the HFpEF phenotype by lowering glycaemia and lipid profiles (Figure 1B), modulating energy metabolism (Figure 1C), improving structural echocardiographic parameters, cardiac stress biomarkers, and reducing HFpEF-related fibrosis and hypertrophy, without impacting in vivo diastolic function (Figure 1D). Nevertheless, ex vivo cardiomyocyte preparations shown improved Ca2+ handling and myofilament relaxation, suggesting benefits at the cellular level (Figure 1E). Both groups decreased myofilament Ca2+-sensitivity and normalized active and passive tension, especially KS (Figure 1F), in line with the reversed resting sarcomere length from intact unloaded tests (Figure 1E). Acute organotypic experiments suggested that these effects are driven by epigenetic modulation rather than solely by enhanced energetics.
Conclusions: These results suggest that providing ketone through diet or supplements could be a valuable strategy to complement HFpEF treatment. Given the well-known challenges of implementing dietary changes, exogenous ketone salts offer a more practical and effective alternative to achieve these benefits.

CO 19. KETONES STRIKE BACK ON THE FAILING RIGHT VENTRICLE

Alexandre Gonçalves[1], Inês N. Alves[1], Cláudia Mendes[1], Daniela Miranda-Silva[1], Diana Martins[1], Panagiotis Peppas[1], Carolina Silva[1], Isabel Miranda[1], Henrique Girao[2], Adelino Leite-Moreira[1], Vasco Sequeira[3], Inês Falcão-Pires[1]

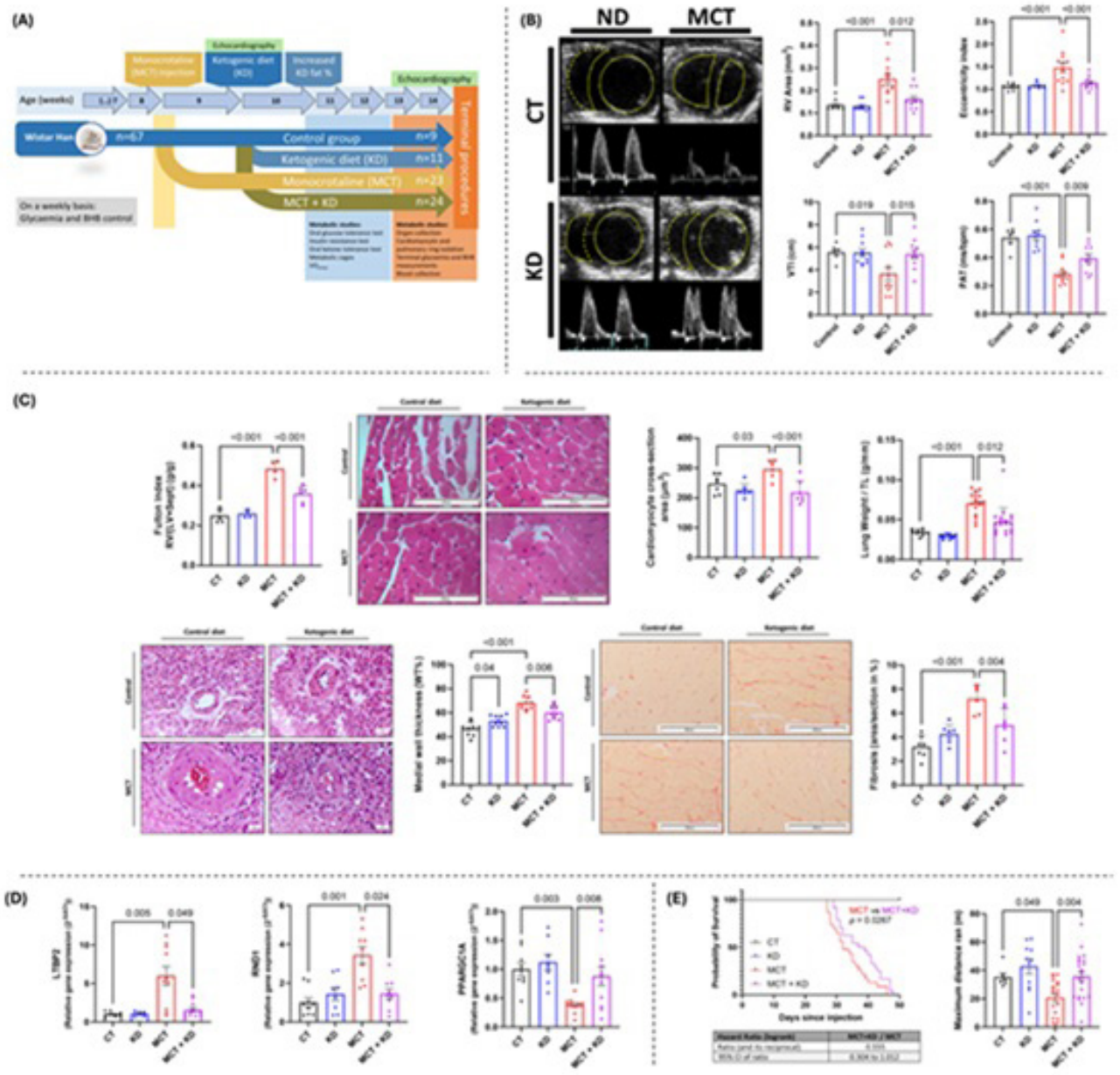
[1]Faculdade de Medicina da Universidade do Porto. [2]Faculdade de Medicina da Universidade de Coimbra. [3]Universitätsklinikum Würzburg.

Introduction: Pulmonary hypertension (PH) is a progressive condition characterized by elevated pulmonary arterial pressure, which increases the workload on the right ventricle (RV), often leading to RV hypertrophy, right heart failure, and ultimately decreased survival. This study examines the effects of a ketogenic diet (KD) on cardiac remodelling and function in a monocrotaline (MCT)-induced rat model of PH.
Methods: One week after MCT injection, Wistar Han rats were assigned to either a standard diet or KD, with dietary fat gradually increased following a one-week adaptation period (Figure 1A). During the weeks leading to the terminal procedures, the groups were subjected to echocardiography, metabolic, VO2max and endurance tests and blood collection. At the terminal procedures, tissue samples were collected for biochemical work and histology. Hearts were perfused in order to isolate left ventricular cardiomyocytes for intact studies.
Results: KD markedly improved RV remodeling and function, demonstrated by decreased RV area and eccentricity index paired with increased cardiac output (VTI) and reduced pulmonary arterial pressure (PAT) (Figure 1B). This improved remodeling was confirmed by a reduction in Fulton's index, RV hypertrophy, lung congestion, pulmonary artery thickness and RV fibrosis (Figure 1C). These effects were associated with normalised levels of Rho family GTPase 1 (RND1) and latent transforming growth factor beta-binding protein 2 (LTBP2) (Figure 1D). Together, these effects contributed towards a significant delay in mortality and improved maximum exercise capacity, the main outcomes of this study (Figure 1E). However, improvements in cardiac function did not extend to single-cell studies, where KD failed to reverse MCT-induced defects in excitation-contraction coupling. Restoration of RV PPARGC1A levels in MCT-KD rats suggests enhanced mitochondrial function, despite persistent bioenergetic deficits.



Abstract Figure 1. (A) Study timeline. The ZSF1 Lean (n=30) and Obese (n=30) rats were each randomly split into three cohorts: to remain on a control diet (CT), to change to a ketogenic diet (KD), or continue on the control diet with the addition of exogenous ketone salt (β-hydroxybutyrate) in their drinking water (KS). **(B) Key metabolic changes at 24 weeks.** Glycaemia, total cholesterol and triglycerides were increased in the serum of the HFpEF group. KD and KS reduced hyperglycaemia and triglyceride levels in HFpEF, but only KD reduced total cholesterol levels. Only the KD significantly increased β-hydroxybutyrate (BHB). **(C) Representative images of longitudinal merged PET/CT imaging** and respective quantitative data expressed as standardized uptake values (SUVs) of activity observed on normalized injected dose (KBq/cm^3/(MBq/kg)). KD and KS enhanced ketone uptake in HFpEF rats. **Left ventricular relative gene expression of the main glucose, ketone and fatty acid transporters.** Relative mRNA expression levels in left ventricular samples for GLUT1, Glucose Transporter 1; MCT2, Monocarboxylate transporter 2. **(D) Echocardiographic parameters and Plasma biomarkers assessed in control and HFpEF rats under ketogenic diet and ketone salt treatments. .** Left ventricular (LV) mass; E/e' ratio; NT-proBNP, N-terminal pro-brain natriuretic peptide; **and Histological assessment of left ventricular myocardium sections.** Representative histological sections of myocardium stained with Haematoxylin-eosin (40x magnification) and Sirius-red stained (200x magnification) of myocardium and respective graphical and statistical analysis. Both KD and KS reduce HFpEF-related increase in hypertrophy and fibrosis. **(E) Effects of KD and KS on excitation-contraction coupling in intact cardiomyocytes.** Average Ca^{2+} transients and sarcomere length traces at 5 Hz stimulation. Experimental conditions were matched to the donor animals' glycaemia and BHB levels. The HFpEF-related impaired single cardiomyocyte contraction profile was almost reversed in cells from KS treated rats. KD did improve contractile and relaxation times but did not revert the reduction in unloaded baseline sarcomere length associated to increased rigidity. **(F) Effects of KD and KS on Ca^{2+}-sensitivity, active and passive tension.** HFpEF cells displayed increased passive tension at 2.2µm that was reduced in KS. Myofilament Ca^{2+} sensitivity was reduced with both therapies but only KD returned the impaired maximal active tension back to CT levels. Graphical data representation is presented as the mean ± standard deviation (SD).

Figure CO 18



Abstract Figure 1. (A) Study timeline. Wistar Han (n=67) rats were randomly assigned to receive a monocrotaline (MCT) injection or vehicle (CT) and further randomly split into two cohorts, to remain on a control diet (ND), or change to a ketogenic diet (KD). **(B) Representative images and echocardiographic parameters.** RVArea, right ventricular are; Eccentricity index; VTI, velocity time integral; PAT, pulmonary acceleration time; **(C) Morphometric and histological characterization of pulmonary and right ventricular remodelling.** Fulton index was calculated as the weight of the right ventricle divided by the sum of the left ventricle and septum. Representative histological sections of myocardium and lung stained with Haematoxylin-eosin (40x magnification) to assess hypertrophy and respective analysis. Lung weight normalized to tibia length. Sirius-red stained (200x magnification) of myocardium and respective graphical and statistical analysis. **(D) Right ventricular relative gene expression for remodelling and metabolism-associated genes.** RND1, rho family GTPase 1; LTBP2, latent transforming growth factor beta-binding protein 2; PPARGC1A, pparg coactivator 1 alpha; **(E) KD impact on main outcomes, survival and exercise capacity.** Graphical data representation is presented as the mean ± standard deviation (SD).

Figure CO 19

Conclusions: Overall, these findings indicate that KD may offer a promising adjuvant therapeutic strategy in PH by improving RV function, reducing adverse remodeling, and favourably modulating cardiac metabolism.

CO 20. UROCORTIN-2 AND PATIENT PROGNOSIS IN HFPEF: INSIGHTS FROM A PROSPECTIVE COHORT

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Introduction: With an increased understanding of the pathophysiology of heart failure (HF), numerous molecules have emerged as potential prognostic biomarkers. While circulating urocortin levels are typically low in healthy individuals, serum urocortin-2 (UCN2) levels are elevated in HF patients with reduced ejection fraction, as well as in those with hypertension, and are positively correlated with left ventricular hypertrophy. These findings suggest that serum UCN2 concentration may serve as a valuable biomarker in heart failure with preserved ejection fraction (HFpEF).
Objectives: This study aims to investigate whether circulating UCN2 levels may serve as indicators of the severity and prognosis of HFpEF and if they provide additional prognostic value compared to brain natriuretic peptide (BNP).
Methods: UCN2 serum levels were analyzed using an enzyme-linked immunosorbent assay in 86 serum samples from patients with chronic HFpEF from a prospective cohort study (NETDiamond). A Multivariate Cox regression analysis was performed for the evaluation of UCN2 in the prediction of all-cause mortality, cardiovascular death and HF hospitalization. Spearman correlation tests were performed to determine UCN2 association with clinical and echocardiographical variables.
Results: Survival analysis revealed a significant association between UCN2 levels and all-cause mortality (HR = 1.32, p = 0.009), cardiovascular death (HR = 1.54, p = 0.007) and HF hospitalization (HR = 1.26, p = 0.029). Additionally, UCN2 was found to be an independent predictor (HR = 1.39, p = 0.006) of all-cause mortality in a model adjusted for age, sex, ejection fraction and BNP. Spearman correlation analysis revealed no significant associations between UCN2 levels and clinical or echocardiographical parameters. The presence of major comorbidities, including hypertension, diabetes, dyslipidemia and atrial fibrillation does not appear to significantly affect UCN2 levels.
Conclusions: In patients with HFpEF, it was observed that UCN2 is significantly associated with patient outcomes, providing prognostic information independent of age, sex, ejection fraction, and BNP levels. The absence of significant correlation with echocardiographic variables and BNP suggests that UCN2 reflects a distinct pathophysiological pathway, potentially related to neurohormonal stress or inflammatory response.

CO 21. SIZE DOES MATTER: A SIMPLE SWINE MODEL OF CHRONIC PULMONARY HYPERTENSION

Liliana Moreira-Costa[1], André Leite-Moreira[1], Rui Adão[1], Isabel Miranda[1], Rui Cerqueira[1], Frédéric Perros[2], Adelino F. Leite-Moreira[1], André P. Lourenço[1], Pedro Mendes-Ferreira[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]Laboratoire CarMeN, UMR INSERM U1060/INRA U1397, University of Lyon, Université Claude Bernard Lyon 1, Pierre-Bénite.

Introduction: There is a need for large animal models of pulmonary hypertension (PH) that allow application of new therapies in a translational setting.
Objectives: To develop a simple large animal model of PH with right ventricular (RV) failure, mimicking chronic thromboembolic PH (CTEPH). Previous attempts have used short suture segments, microspheres and pharmacological interventions.
Methods: 2-month-old pigs were used. Right heart catheterization (RHC) was performed, and a sheath was advanced into the left or right PA and a pressure transducer was placed at its tip. Long silk sutures were injected into the selected PA, while continuously recording pressures. Embolization was stopped when mean PAP ≥ 40 mmHg, or occlusion of the selected branch. The procedure was repeated for 3 weeks, with a 4 weeks follow-up. Echocardiographic and hemodynamic analysis was performed and samples were collected.
Results: Embolization led to an increase in mPA pressure and reduction in cardiac output. RHC showed severe PH development (mPAP = 49 ± 5 mmHg). A significant portion of both right and left lower lobes were obstructed. Significant RV hypertrophy and failure (lower TAPSE and EF) were observed. Adverse remodelling markers (MYH7/MYH6, NPPB and TNFA) were upregulated, while ATP2A2 was down-regulated. Isolated skinned RV cardiomyocyte analysis showed significantly increased passive stiffness. Vascular remodeling was observed in distal arteries of the right upper lung lobe subjected to high flow/high shear stress.
Conclusions: We created a model of chronic PH by injecting long sutures into the pulmonary circulation, without the need for additional hits, which may be valuable for preclinical research.

CO 22. BIOCHEMICAL AND STRUCTURAL RECOVERY IN HFREF: PATHOPHYSIOLOGICAL DISTINCTIONS AND PROGNOSTIC CONTRIBUTIONS

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

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Introduction and objectives: Reverse remodelling in HFrEF involves both biochemical improvements, reflecting neuro-hormonal inhibition, and structural changes in ventricular function, yet their relative and independent prognostic roles are unclear. This study evaluated baseline characteristics across recovery phenotypes during medical therapy (GDMT) optimization and assessed the prognostic impact of biochemical versus structural recovery.
Methods: We retrospectively analyzed 270 HFrEF patients followed for 3 years after GDMT optimization. Patients were categorized into three mutually exclusive groups according to predefined criteria: biochemical recovery only (≥ 50% NT-proBNP reduction *and* follow-up NT-proBNP < 1,000 pg/mL, without LVEF improvement), LVEF recovery (> 10% absolute increase *and* follow-up LVEF > 40%, irrespective of NT-proBNP changes) and no recovery (neither criterion fulfilled). Baseline characteristics were compared using ANOVA or χ^2 tests. Kaplan-Meier curves assessed 3-year HF event-free survival. Prognostic effects were quantified using univariable and multivariable Cox regression, and incremental value was evaluated by changes in chi-square model.
Results: Baseline characteristics were similar across groups. Only sex distribution and eGFR differed between groups. Three-year event-free survival varied markedly across phenotypes (log-rank p < 0.001). In univariable Cox regression, LVEF recovery was associated with a significantly lower risk of HF events (HR 0.288, 95%CI 0.154-0.538; p < 0.001), and biochemical recovery conferred a similarly strong protective effect (HR 0.244, 95%CI 0.112-0.532; p < 0.001). When both domains were included simultaneously, biochemical recovery remained independently associated with prognosis (HR 0.309, 95%CI 0.145-0.659; p = 0.002), whereas LVEF recovery lost significance (HR 0.437, 95%CI 0.190-1.008; p = 0.052). Biochemical recovery provided significant incremental prognostic information beyond LVEF recovery ($\Delta\chi^2$ = 22.4; p < 0.001), whereas LVEF recovery added no meaningful improvement over biochemical recovery ($\Delta\chi^2$ = 3.77; p = 0.052).
Conclusions: Biochemical reverse remodelling emerged as the only independent predictor of outcomes. Interestingly, these findings indicate that neuro-hormonal inhibition, and maybe, appropriate decongestion – captured biochemically– is the primary driver of prognostic benefit after GDMT optimization, whereas structural recovery appears later and may be partially mediated by upstream neuro-hormonal improvement.

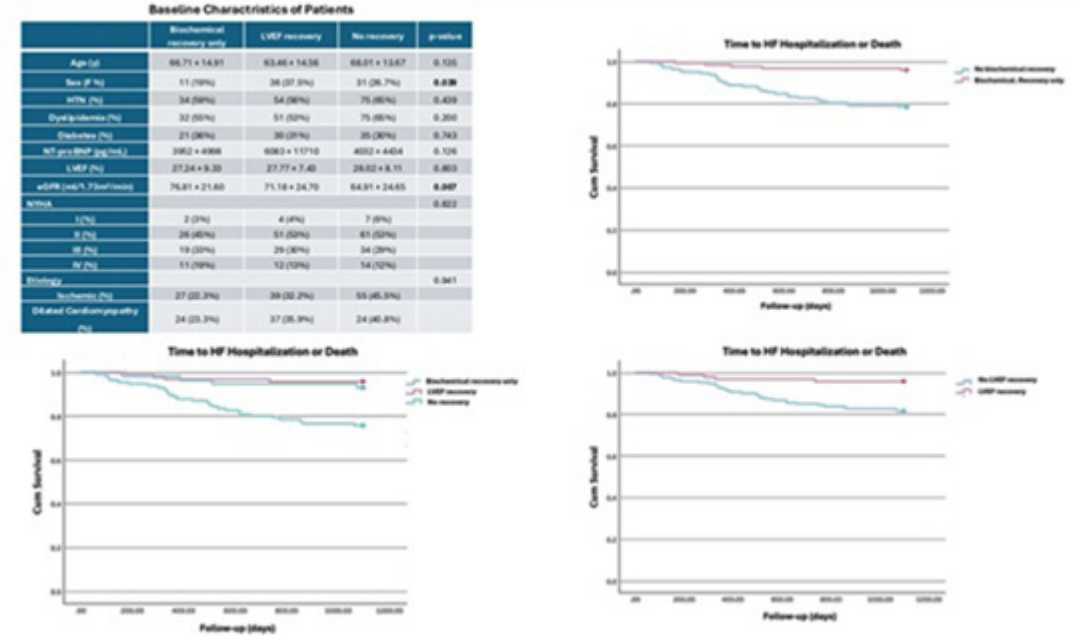

Figure CO 22

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Sala Arquivo | Sessão de Comunicações Orais 03 - Intervenções avançadas na doença vascular pulmonar e em complicações de dispositivos

CO 23. CORONARY SINUS LEAD EXTRACTION: HIGHER COMPLICATION RISK OR CLINICAL MISCONCEPTION?

Raquel França Moreira, Leonor Magalhães, Margarida Figueiredo, Guilherme Portugal, Paulo Osório, Sofia Jacinto, Madalena Cruz, Ana Lousinha, Pedro Silva Cunha, Rui Ferreira, Bruno Valente, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Cardiac device extraction has grown dramatically in recent years and is likely to continue expanding. Each case has its own technical challenges and specificities; however, coronary sinus lead extraction has always inspired particular respect and fear among physicians, due to the risk of adhesions that may lead to coronary venous tears and potentially life-threatening complications. This study aimed to compare lead extraction outcomes and procedural characteristics between Cardiac Resynchronization Therapy (CRT) and non-CRT devices in a tertiary center.

Methods: A retrospective analysis was conducted on 282 consecutive lead extractions between 2013 and 2024 (60 CRT; 222 non-CRT). Clinical records were reviewed. Two groups were compared: CRT extractions and non-CRT extractions (without a coronary sinus lead). The statistical analysis comprised chi-square tests and comparisons of proportions and means, with a significance level set at $p < 0.05$.

Results: Baseline age and cardiovascular risk factors were comparable, but sex distribution differed significantly ($p = 0.016$), with a higher proportion of women in the CRT group (40% vs. 24.3%). CRT patients showed significantly higher rates of heart failure NYHA classification > 2 (58.3% vs. 28.8%; $p < 0.001$), dilated cardiomyopathy (65% vs. 5.9%; $p < 0.001$), and reduced ejection fraction (< 50% in 68.3% vs. 17.1%; $p < 0.001$) (Table 1). There were no significant differences in major extraction indication (infectious vs. non-infectious), or previous extraction attempts. CRT patients had a greater number of leads removed (median 3 vs. 2; $p < 0.001$) and extraction techniques did not differ significantly between the two groups ($p = 0.052$), both being submitted more often to the PISA technique (73.3% CRT; 84.2% non-CRT) compared to simple traction (26.7% CRT; 15.8% non-CRT), even though lead dwell time was longer among CRT cases (median 84 vs. 108 months; $p = 0.002$) (Table 2). Overall clinical and radiological success rates were similar, as well as procedure-related major or minor complications and all-cause mortality (Table 3).

		CRT (n = 60)	Non-CRT (n = 222)	p value
Age in years | Median (IQR)		69 (18)	75 (23)	0.101
Sex | n (%)				**0.016**
	Male	36 (60)	168 (75.7)	
	Female	24 (40)	54 (24.3)	
Cardiovascular risk factors | n (%)				
	Hypertension	32 (53.3)	119 (53.6)	0.97
	Diabete Mellitus	17 (28.3)	68 (30.6)	0.731
Previous Cardiac Disease | n (%)				
	Heart Failure	35 (58.3)	64 (28.8)	**< 0.001**
	Dilated cardiomyopathy	39 (65)	13 (5.9)	**< 0.001**
	Hypertrophic cardiomyopathy	0	5 (2.3)	0.588
	Coronary artery disease	13 (21.7)	33 (14.9)	0.206
	Valvular disease	11 (18.3)	34 (15.3)	0.571
CKD (eGFR <60ml/min) | n (%)		23 (38.3)	65 (29.3)	0.179
LVEF in % | Median (IQR)		35 (25)	55 (10)	**< 0.001**
LVEF <50% | n (%)		41 (68.3)	38 (17.1)	**< 0.001**
	Missing	53 (23.9)	12 (20)	
Previou LE attempts* | n (%)		7 (11.7)	14 (6.3)	0.161
	Missing	9 (15)	29 (13.1)	

Table 1 – Sample characterization. IQR - Interquartile Range; CKD – Chronic kidney disease; LVEF – Left ventricular ejection fraction; LE – Lead Extraction.

	CRT (n = 60)	Non-CRT (n = 222)	p value
Main indication for extraction | n (%)			0.099
Infection	40 (66.7)	176 (79.3)	
Non infeccious (*)	20 (33.3)	46 (20.7)	
Number of extracted leads | Median (IQR)	3 (1)	2 (1)	**< 0.001**
Extraction procedure | n (%)			0.052
Simple traction	16 (26.7)	35 (15.8)	
PISA technique	44 (73.3)	187 (84.2)	
3 ou more extracted leads | n (%)	42 (70)	9 (4.1)	**< 0.001**
Lead dwell time in months | Median (IQR)	60 (84)	108 (96)	**0.002**

Table 2 – Extraction analysis. *Disfunction, upgrade or occlusion.

	CRT (n = 60)	Non-CRT (n = 222)	p value
Clinical success | n (%)	59 (98.3)	216 (97.3)	1
Radiologic sucess | n (%)	55 (91.7)	205 (92.3)	0.792
Procedure-related complications | n (%)			
Major complications	3 (5)	8 (3.6)	0.212
Minor complication	4 (6.7)	20 (9)	0.085
Missing	1 (1.7)	3 (1.4)	
Total All-cause mortality | n (%)	11 (18.3)	55 (24.8)	0.519
In-hospital	5 (8.3)	8 (3.6)	0.334
During the 1st year	1 (1.7)	17 (7.7)	0.229

Table 3 – Procedure success, complications and mortality.

Conclusions: Coronary sinus lead extraction in CRT devices achieved comparable clinical and radiological success rates, complication rates, and all-cause mortality to those observed in non-CRT systems. These findings suggest that coronary sinus lead extraction is feasible and safe, with similar technical challenges to non-coronary lead extraction.

CO 24. EFFECT OF REMOTE MONITORING ON HEART FAILURE HOSPITALIZATIONS AND CARDIOVASCULAR MORTALITY IN CIED RECIPIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Remote monitoring (RM) of cardiac implantable electronic devices (CIEDs) has emerged as a promising strategy to improve clinical outcomes in patients with heart failure (HF), primarily by enabling early detection of physiological deterioration and arrhythmic events. However, the magnitude of its impact on HF hospitalizations and cardiovascular (CV) mortality remains variable across individual randomized trials. This meta-analysis aimed to evaluate the effect of RM compared with usual care (UC) on HF-related and mortality outcomes in patients with CIEDs.
Methods: A systematic search of PubMed, Embase, and the Cochrane Library was conducted to identify randomized controlled trials (RCT) published between January 2019 and June 2025. Eligible studies compared RM with UC in adult CIED recipients and reported HF hospitalization or CV mortality data. Extracted variables included sample size, baseline characteristics, follow-up duration, and event counts in RM and UC groups. A fixed-effects Mantel-Haenszel model was used given the absence of statistical heterogeneity across studies.
Results: A total of 4 RCT comprising 2,383 patients were included (1,268 assigned to RM and 1,115 to UC). Across trials, patients had advanced HF with mean left ventricular ejection fraction between 26.5% and 30%, predominantly male (79-90%), and with follow-up ranging from 1 to 24 months. RM was associated with a statistically significant reduction in HF hospitalizations compared with UC (odds ratio [OR] 0.77; 95% confidence interval [CI] 0.63-0.94; p = 0.009), with no evidence of heterogeneity (I^2 = 0%). Overall, 249 HF hospitalizations occurred in the RM group versus 298 in the UC group. In contrast, RM did not reduce cardiovascular mortality, with a pooled odds ratio of 0.92 (95%CI 0.58-1.44; p = 0.71) and no heterogeneity across studies (I^2 = 0%).
Conclusions: In summary, RM in patients with CIEDs significantly reduces HF hospitalizations but does not confer a measurable reduction in short-term CV mortality. These findings indicate that RM primarily mitigates HF decompensation rather than altering mortality trajectories, underscoring the need for longer follow-up and more standardized RM intervention pathways.

CO 25. YEAR AFTER YEAR, MILESTONE AFTER MILESTONE - GROWING EXPERTISE IN A SINGLE-CENTER PULMONARY ENDARTERECTOMY PROGRAM

João Reis Sabido[1], Daniel Inácio Cazeiro[1], Tatiana Guimarães[1], Manuel Abecassis[2], Tiago Velho[3], Ricardo Ferreira[3], Nuno Lousada[1], David Jenkins[4], Ângelo Nobre[3], Fausto J. Pinto[1], Rui Plácido[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Anestesiology, Hospital de Santa Maria (ULSSM). [3]Department of Cardiothoracic Surgery, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [4]Cardiothoracic Surgery Department, Royal Papworth Hospital, Cambridge.

Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH) is a potentially curable form of pulmonary hypertension when operability is established. Following the establishment of a national pulmonary endarterectomy (PEA) program, in collaboration with an international reference center, we report the extended experience and follow-up (FUP) outcomes of the first 14 consecutive patients (pts) treated at our institution.
Methods: Single-center, prospective, observational study of all consecutive pts selected for PEA after multidisciplinary evaluation in a dedicated CTEPH program. Surgical technique was standardized - all procedures were performed by the same operative team under deep hypothermic circulatory arrest. Clinical, echocardiographic and hemodynamic (HD) data were collected at baseline and FUP. In-hospital, early and late postoperative complications and mortality were analyzed.

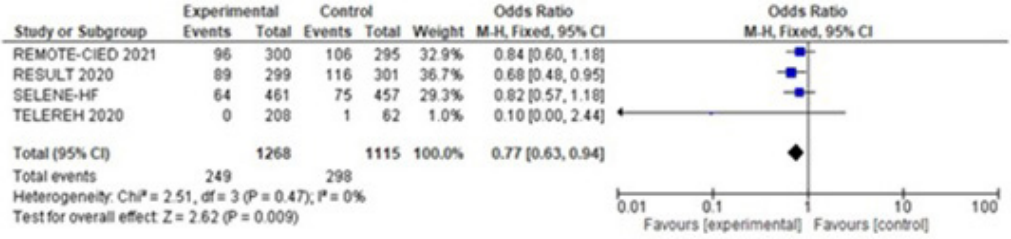

Figure 1- Hospitalizations for decompensated heart failure.

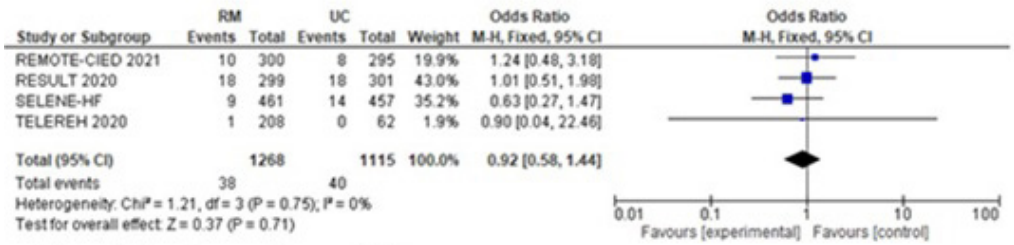

Figure 2- Cardiovascular mortality.

Figure CO 24

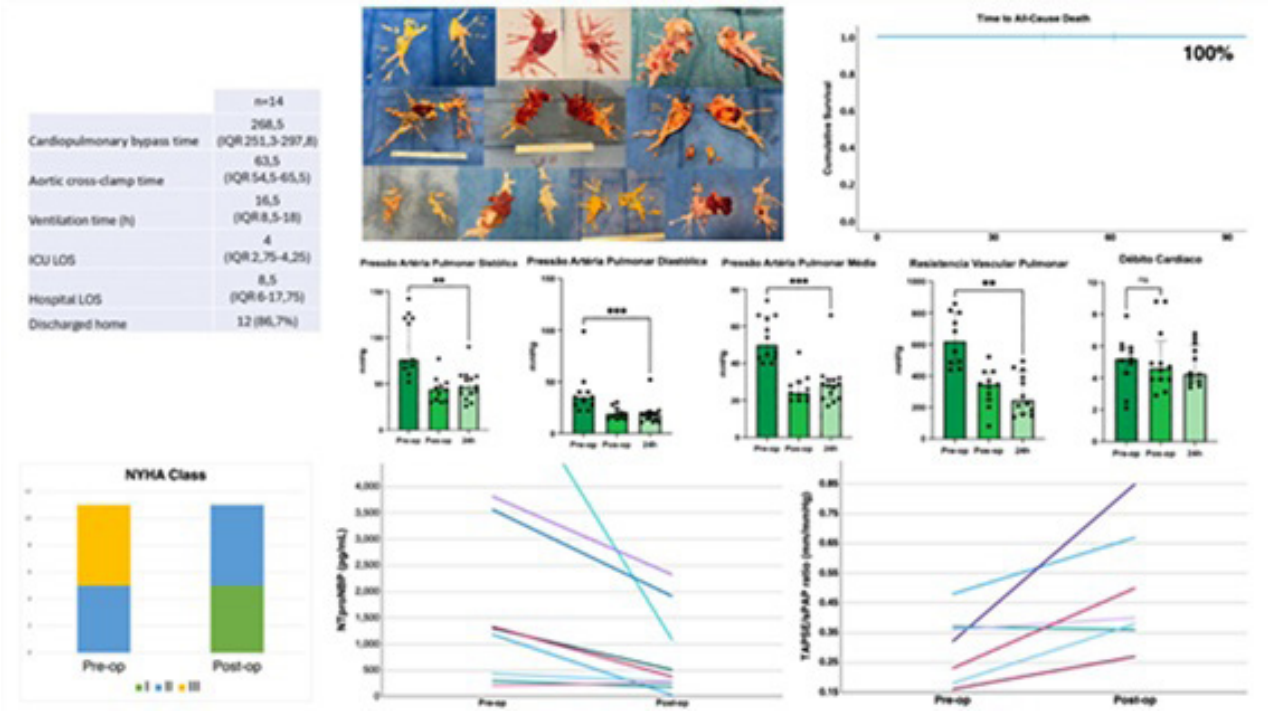

Figure CO 25

Results: Fourteen pts underwent PEA (64% female; mean age 68 years). At baseline, 64% were in WHO functional class (FC) II and in 36% in class III. Preoperative characteristics included median NT-proBNP of 1,320 pg/mL, mean 6MWD of 242 m, use of PH-specific therapy in 43%, and long-term oxygen in 29%. Baseline echocardiography showed mean systolic pulmonary artery pressure (sPAP) 78 mmHg, TAPSE 18 mm and TAPSE/sPAP ratio 0.26 mm/mmHg. HD evaluation revealed mean mPAP 48 mmHg, PVR 9.8 WU and CI 2.32 L/min/m^2. Median cardiopulmonary bypass and cross-clamp times were 269 and 64 minutes, respectively. Median duration of mechanical ventilation was 17 h; median ICU and total hospital length of stay were 4 and 8.5 days, respectively. One pt developed reperfusion injury and 2 pts had significant postoperative bleeding. No pt required ECMO or reintervention. In-hospital and 30-day mortality were 0%. At a median FUP of 150 days, 3 pts died of non-procedure-related causes. Among survivors, WHO FC improved in 91% of pts, with 45% reaching class I. NT-proBNP decreased significantly to a median of 378 pg/mL (p = 0.011). Echocardiography showed substantial improvement in sPAP (-33 mmHg, p = 0.002) and TAPSE/sPAP ratio (+0.19 mm/mmHg, p = 0.030). Right heart catheterization (available in 3 pts) demonstrated HD cure in 2 (mPAP 14 and 18 mmHg) and mild residual PH in 1 (mPAP 36 mmHg with normal cardiac output).

Conclusions: The stepwise expansion of our PEA program has been associated with excellent perioperative safety and meaningful clinical and HD improvement. In this initial series of 14 procedures, standardized pt selection, a dedicated multidisciplinary pathway and sustained collaboration with an experienced center enabled high-quality outcomes in a newly established program. These results support the ongoing development and consolidation of PEA within the national CTEPH care network and highlight the feasibility of building advanced surgical expertise in a single-center setting.

CO 26. CATHETER-DIRECTED THERAPY FOR PULMONARY EMBOLISM: A 6-YEAR EXPERIENCE IN A TERTIARY CENTER

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[1]ULS São José/Hospital de Santa Marta. [2]ULS São José/Hospital São José.

Introduction: Catheter-directed therapies (CDT), including in-situ fibrinolysis and thrombectomy, are increasingly used in the management of pulmonary embolism (PE), particularly in intermediate-high-risk cases. Pulmonary Embolism Response Teams (PERT) have also gained relevance, enabling more coordinated management and multidisciplinary discussion of complex PE presentations.

Objectives: To characterize the PE population referred for invasive percutaneous treatment in a tertiary hospital.

Methods: We conducted a prospective registry of consecutive PE patients treated with catheter-directed therapy in a tertiary centre. Baseline data – including demographics, laboratory values, echocardiography, right heart catheterization (RHC), and CT imaging– were collected along with procedural outcomes. A structured follow-up (FU) protocol involving multimodality reassessment at 6 months after the procedure was implemented, and the resulting data were incorporated into the study.

Results: A total of 156 patients were included, with a mean age of 59.3 ± 16.6 years; 53.5% were female. The mean FU time was 1.3 ± 1.3 years. Thirteen patients were classified as high risk, 142 as intermediate-high risk, and 1 as intermediate-low risk. Regarding CDT modalities, 99 patients underwent in-situ fibrinolysis alone, 34 were treated with FlowTriever thrombectomy, 17 with Penumbra (9 with adjunctive fibrinolysis), 1 with Nautilus, and 5 with EKOS fibrinolysis (Table 1). The mean ICU length of stay was 3 days. Twenty-two patients (14.2%) were suspected of having an acute-on-chronic presentation. During the acute event, mean pulmonary artery pressure was 52.8 ± 14.3 mmHg and mean cardiac index was 2.5 ± 0.6 L/min/m^2. There were 10 procedural complications, with vascular access complications and major haemorrhage being the most frequent (2.6%). The 30-day mortality rate was 5.8%, and mortality at follow-up was 11.6% (Table 2). A total of 83 patients completed multimodality FU, including echocardiography, RHC, blood analyses, and CT imaging (Table 4).

Conclusions: We describe a sustained increase in our PERT activity, in the percutaneous treatment of PE. Comparing with contemporary literature and risk stratification data, we report a lower 30 day-mortality rate and a lower decompensation rate, in patients submitted to CDT. Moreover, from our prospective registry, a considerably low rate of complications (lower in recent years) is presented, reinforcing the safety profile of our approach. Future PE management should be focused in PERT teams and should include CDT for selected patients.

	All (n=156)
Age - mean±SD	59.3±16.6
Gender (female)- n (%)	83 (53.5)
Catheter directed therapy- n (%)	
Fibrinolysis	99 (63.4)
Penumbra	17 (10.9)
Flowtriever	34 (21.8)
Nautilus	1 (0.6)
EKOS	5 (3.2)
Stratification - n (%)	
High-risk	13 (8.3)
Intermediate high-risk	142 (91.0)
Intermediate low-risk	1 (0.6)
UCI length (days) - median [IQR]	3 [2-4]
Risk factor - n (%)	
Cancer	27 (17.4)
Immobilization	23 (14.8)
Thrombophilia	2 (1.3)
Post-operative	10 (6.5)
Previous thromboembolism	32 (20.6)
Systolic blood pressure (mmHg) - mean±SD	120.8±25.7
Heart rate (bpm) - mean±SD	100.4±21.9
Lactate (mmol/L) - median [IQR]	1.7 [0.9-1.9]
PaO2/FiO2 ratio - mean±SD	262.9±102.1
Central PE (saddle/main PA) - n (%)	46 (29.7)

Table 1 - Baseline characteristics

Echocardiogram pre-treatment	
TAPSE (mm) - mean±SD	16.7±4.0
PSAP - mean±SD	48.3±14.2
Echocardiogram pre-discharge	
Right ventricular dysfunction - n (%)	42 (26.9)
Right ventricular dilatation - n (%)	43 (27.5)
TAPSE (mm) - mean±SD	19.6±4.0
PSAP - mean±SD	36.7±14.7
High sensitivity troponin - median [IQR]	118 [283.3]
NT-proBNP (pg/mL) - median [IQR]	2728.0 [4619.0]
Right heart catheterization - mean±SD	
Central venous pressure (mmHg)	10.7±4.0
Pulmonary artery systolic pressure (mmHg)	52.8±14.3
Pulmonary artery mean pressure (mmHg)	33.0±9.1
Aorta systolic pressure (mmHg)	132.7±21.8
SvO2 (%)	62.6±8.4
Cardiac index (L/min/m2)	2.5±0.6

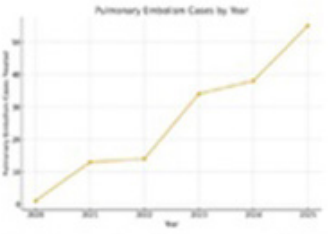
Table 2 - Echocardiogram, RHC, hs troponin and NT-proBNP at baseline

Procedural complications - n (%)	10 (6.4)
Vascular access complication	4 (2.6)
Major hemorrhage	4 (2.6)
Reperfusion edema	1 (0.6)
Pulmonary artery dissection	1 (0.6)
Acute-on-chronic - n(%)	22 (14.2)
Mortality- n (%)	18 (11.6)
30-day mortality - n (%)	9 (5.8)

Table 3 - Procedural complications and patient mortality

	Follow-up (n=83)
Echocardiogram	
Right ventricular dysfunction - n (%)	4 (5.8)
Right ventricular dilatation - n (%)	4 (5.8)
TAPSE (mm) - mean±SD	22.0±3.3
PSAP - mean±SD	34.21±14.1
Right heart catheterization - mean±SD	
Central venous pressure (mmHg)	7.8±2.9
Pulmonary artery systolic pressure (mmHg)	35.0±12.2
Pulmonary artery mean pressure (mmHg)	22.0±6.9
Aorta systolic pressure (mmHg)	134.7±21.2
SvO2 (%)	69.2±5.6
Cardiac index (L/min/m2)	3.2±0.8
High sensitivity troponin - median [IQR]	6.7 [8.5]
NT-proBNP (pg/mL) - median [IQR]	82.7 [182.8]

Table 4 - Echocardiogram and RCH at 6-month follow-up



Graph 1 - Number of PE cases treated with CDT by year

Figure CO 26

CO 27. REAL-WORLD OUTCOMES OF TRANSVENOUS LEAD EXTRACTION USING PISA TECHNIQUE: A 10-YEAR IN PORTUGAL EXPERIENCE

Leonor Magalhães, Margarida G. Figueiredo, Sofia Jacinto, Hélder Santos, Pedro Silva Cunha, Guilherme Portugal, Pedro Osório, Ana Lousinha, Pedro Coelho, Rui Cruz Ferreira, Bruno Valente, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: The increasing use of cardiovascular implantable electronic devices (CIEDs) has driven a growing need for safe and effective transvenous lead extraction (TLE). We report a comprehensive 10-year experience from a single high-volume center using the PISA technique (PT), a rotational sheath-based approach for TLE.

Methods: Retrospective study including all patients undergoing TLE at a national referral center between February 2013 and December 2024. Clinical and radiological success as defined by HRS/EHRA criteria, complications, and mortality were analyzed.

Results: A total of 530 leads were extracted from 283 patients (P) (median age 73 years [IQR 59-81], 72.4% male) [Table 1]. Lead dwell time was prolonged, with a median duration of 96 months (48-144). Pacemakers were most frequently extracted (72.2%), followed by implantable cardioverter-

	All (n=283)
Age - median (IQR), years	73 (59-81)
Male sex - n (%)	205 (72.4)
Cardiovascular risk factors - n (%)	
Hypertension	151 (53.4)
Diabete *mellitus*	85 (30.0)
Previous Cardiac Disease - n (%)	
Heart Failure	99 (35.0)
Dilated cardiomyopathy	52 (18.4)
Hypertrophic cardiomyopathy	5 (1.8)
Coronary artery disease	46 (16.3)
Valvular disease	45 (15.9)
CKD (eGFR <60ml/min) - n (%)	88 (31.3)
Median LVEF (IQR), %	55 (45-60)
LVEF <50% - n (%)	79 (27.9)
Previous LE attempts - n (%)	21 (7.4)
Median follow up time, (IQR) months	39 (17-73)

Table 1 – Baseline demographic and clinical characteristics of patients undergoing transvenous lead extraction.

	All (n=283)
Median lead dwell time (IQR), months	96 (48-144)
Device	
PMD	73 (72.2)
CRT-D/CRT-P	13 (12.8)
ICD	15 (14.9)
Median number of extracted leads (IQR)	2 (1-2)
3 ou more extracted leads - n (%)	18 (17.8)
Extraction procedure - n (%)	
Simple traction	2 (5.9)
PISA technique	95 (94.1)

Table 2- Procedural characteristics and extraction strategies.

	All (n=283)
Non-infection	72 (25.4)
Lead dysfunction	51 (70.8)
Venous access issues	11 (15.3)
Lead-related complication	3 (4.2)
Chronic pain	1 (4.2)
Pre-Radiotherapy	1 (1.4)
Infection	211 (74.6)
Pocket infection only	117 (55.5)
Isolated microorganism	98 (46.4)
MRSA/MSSA	116 (41.0)
Median ATB treatment duration before LE (IQR), weeks	3 (2.0-4.0)
Median ATB treatment duration after LE (IQR), weeks	2 (2.0-3.0)

Table 3 – Extraction indications (infectious vs non-infectious)

	All (n=283)
Clinical success	276 (97.5)
Radiologic sucess	262 (92.2)
Procedure-related complications	
Major complications*	8 (2.8)
Minor complications	16 (5.7)
Device reimplantation	192 (68.2)
Index hospitalization reimplantion	188 (66.4)
Media time until reimplantation, (IQR) days	2 (0-6)
Mortality (all causes)	64 (22.6)
In-hospital*	13 (4.5)
During the 1st year	18 (6.4)

Table 4- Clinical and radiological success, procedure-related complications, and mortality

Figure CO 27

defibrillators (14.9%) and cardiac resynchronization therapy systems (12.8%) [Table 2]. Although infection was the leading indication for extraction (74.6%); 25.4% of the procedures were due to non-infectious causes (25.4%), mainly for lead dysfunction. [Table 3]. Clinical and radiological success were extremely high (95.7% and 97.2%). Major and minor (mainly due to minor pocket hemorrhage) procedure-related complications occurred in 8P and 16P, respectively. Device reimplantation was performed in 168P (68.2%), with 188 occurring during the index hospitalization. No intraprocedural deaths occur and only 4.5% all causes in-hospital mortality [Table 4]. Lead dwell time showed a strong association with extraction failure (p > 0.001), but not complications or mortality (p = 0.102 and p = 0.078). Only the TLE of a CRT system was significantly associated with major complications (p = 0.016); but due to low frequency events, no complications predictors were found. No baseline clinical, procedural or device-related variable was significantly associated with clinical failure. Older age and chronic kidney disease independently conferred a higher risk of all-cause mortality (OR 1.033 per year, 95%CI 1.010-1.057; p = 0.005 and OR 2.25, 95%CI 1.23-4.09; p = 0.008, respectively).
Conclusions: Transvenous lead extraction using the PISA technique is a highly effective approach, with low complication and mortality rates in patients with CIEDs. These findings support the broad applicability and reproducibility safety of this extraction strategy across heterogeneous clinical and device profiles.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Sala Arrábida | Sessão de Comunicações Orais 04 - A bomba em falência: fronteiras hemodinâmicas e metabólicas na doença cardíaca crítica

CO 28. PROGNOSTIC VALUE OF EARLY SCVO2 AND PCO2 GAP KINETICS AND NORMALIZATION IN PATIENTS WITH CARDIOGENIC SHOCK: A NEW MANAGEMENT TARGET?

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Introduction: Cardiogenic shock (CS) remains associated with high short-term mortality despite advances in management. Traditional haemodynamic parameters are often insufficient to assess tissue perfusion and guide therapy. Central venous oxygen saturation (ScvO2) and central venous-arterial pCO2 gap (pCO2 gap) are potential bedside surrogates of perfusion, yet their prognostic value and dynamic behaviour in CS are not fully established.
Objectives: To evaluate the prognostic impact of early ScvO2 and pCO2 gap normalization in patients admitted with CS.
Methods: We conducted a single-centre retrospective study on consecutive patients admitted to CICU with CS between 2015 and 2025. Patients with both baseline and 24 to 48 h follow-up measurements of ScvO2 and/or pCO2 gap were analysed. Normalization thresholds up to 48 h were defined as ScvO2 > 60% and pCO2 gap < 6 mmHg. The primary endpoint was 30-day all-cause mortality or advanced heart-failure therapy (heart transplantation or LVAD). Survival analysis was conducted using Kaplan-Meier estimates, and prognostic factors evaluated through univariate and multivariate Cox regression models. A discriminative analysis was also performed using receiver operating characteristic (ROC) curves.
Results: Among 446 patients with CS, 92 had paired ScvO2 measurements, and 79 had paired pCO2 gap measurements. Mean age was 67 ± 17 years; 32% women. Regarding the CS aetiology, 159 (55%) presented with AMI-CS, 63 (23%) with HF-CS, and 58 (21%) with secondary-CS. Median ScvO2 and pCO2 gap were 58% [46-68] and 9 mmHg [7-12] at admission, and 60% [53-68] and 7 mmHg [5-9] at re-evaluation. Across patients with paired ScvO2 and pCO2 gap measurements available, 46 (50%) had ScvO2 normalized and 30 (38%) had pCO2 gap normalized at 48 h. Normalization of ScvO2, but not pCO2 gap, within 48 hours was significantly associated with a lower incidence of the primary endpoint (log-rank p < 0.001 and 0.090, respectively). In multivariate analysis, normalization of ScvO2 (HR 0.36, 95%CI 0.18-0.70, p = 0.003), but not pCO2 gap (HR 0.76, 95%CI 0.39-1.49, p = 0.43), remained an independent predictor of the primary outcome after adjustment for age, sex, SCAI stage at admission, occurrence of cardiac arrest, and baseline lactate level. The area under the curve (AUC) for ScvO2 value on re-evaluation over the first 48 h was moderate but statistically significant (AUC = 0.66 [0.56-0.77], p = 0.002) whereas the AUC for pCO2 gap did not reach statistical significance.

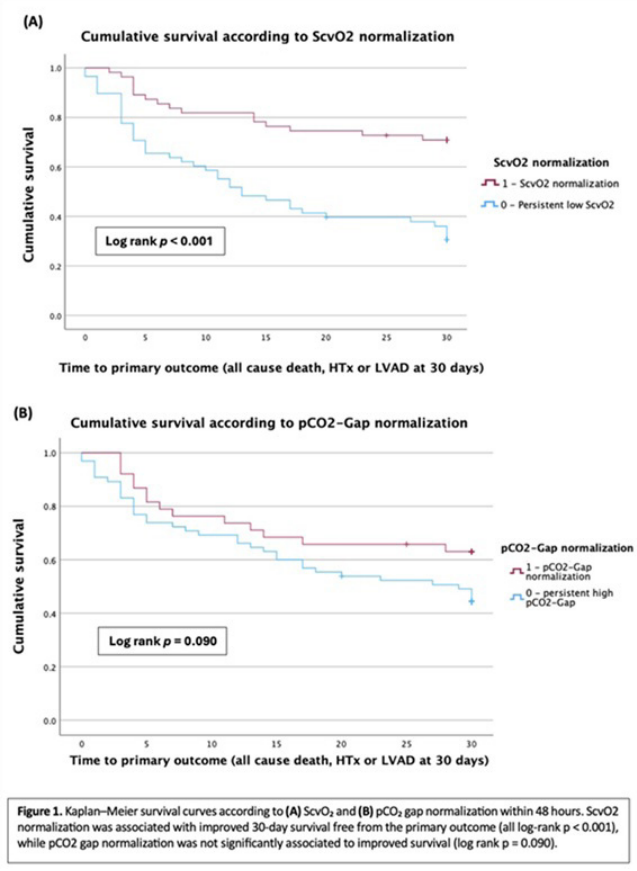

Figure 1. Kaplan–Meier survival curves according to **(A)** $ScvO_2$ and **(B)** pCO_2 gap normalization within 48 hours. ScvO2 normalization was associated with improved 30-day survival free from the primary outcome (all log-rank p < 0.001), while pCO2 gap normalization was not significantly associated to improved survival (log rank p = 0.090).

Conclusions: In patients with CS, early ScvO2 normalization within the first 48 hours of intensive care was independently associated with improved short-term outcomes. In contrast, correction of the pCO2 gap did not demonstrate a significant prognostic impact in this cohort. These findings suggest that ScvO2 may serve as valuable, non-invasive tool for risk stratification and treatment guidance in acute cardiac critical care.

CO 29. REDUCING ACUTE CARE USE IN ADVANCED HEART FAILURE THROUGH STRUCTURED HOME NURSING INTERVENTIONS

Bárbara Lage Garcia, Luísa Pinheiro, Margarida de Castro, Filipa Cardoso, Emídio Mata, Ana Marta Pinto, Filipa Almeida, Lucy Calvo, António Lourenço

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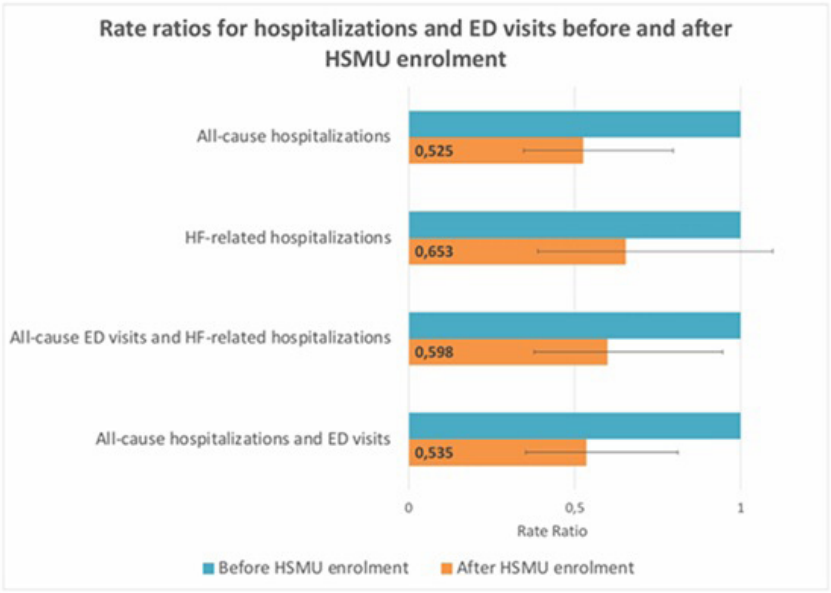
Introduction: Heart failure (HF) often leads to recurrent emergency department (ED) visits and hospitalizations, reflecting high symptom burden



Rate ratios for hospitalizations and emergency department (ED) visits before and after enrollment in the Home-Based Multidisciplinary Unit (HBMU) program. The figure illustrates significant reductions in healthcare utilization following HBMU enrollment among patients with advanced heart failure (HF). Compared with the 12 months preceding enrollment, HBMU participation was associated with a 47% reduction in all-cause hospitalizations (rate ratio 0.53, p=0.002) and a 46% reduction in the composite of all-cause hospitalizations and ED visits (rate ratio 0.54, p=0.003). A 40% lower rate was also observed for the composite of all-cause ED visits and HF-related hospitalizations (rate ratio 0.60, p=0.028), while HF-related hospitalizations alone showed a non-significant trend toward reduction (rate ratio 0.65, p=0.11). Error bars represent 95% confidence intervals.

Figure CO 29

and poor quality of life. Home-based multidisciplinary unit (HBMU) programs with ambulatory IV diuretic therapy have emerged as a strategy to improve self-management, optimize decongestion, and reduce healthcare use in advanced HF.

Objectives: To assess the impact of an HBMU program incorporating ambulatory IV diuretic on hospitalizations and ED visits among patients with terminal HF.

Methods: This retrospective single-center study included 28 patients who received IV diuretic therapy through a HBMU program between 2018 and 2025. Eligibility was defined by the attending cardiologist for patients with recurrent hospitalizations for decompensated HF, IV diuretic dependence, and persistent NYHA class III-IV symptoms. Patients were visited at least weekly by a specialized nursing team, with findings communicated to the cardiologist. Baseline characteristics were collected at enrollment. The impact of the program on hospitalization and ED visit rates was evaluated by comparing the 12-month period preceding HBMU enrollment with the entire duration of participation in the program using generalized estimating equations with negative binomial models adjusted for time exposure.

Results: Patients were elderly (mean age 74.6 ± 10 years), predominantly male (60.7%), with advanced HF (mean LVEF 35.8 ± 13.6%). Most had chronic kidney disease (85.7%) and marked functional dependence (53.6% with mRankin ≥ 3). Median follow-up in the HBMU program was 121 days [24-277]. Following HBMU enrollment, the rate of all-cause hospitalizations decreased by 47% (p = 0.002), while the composite rate of all-cause ED visits and hospitalizations decreased by 46% (p = 0.003). A non-significant reduction was observed in HF-related hospitalizations (rate ratio: 0.65; p = 0.11). The composite of all-cause ED visits and HF hospitalizations demonstrated a 40% lower event rate (p = 0.028).

Conclusions: Implementation of HBMU programs with IV diuretic therapy in terminal HF patients significantly reduced hospitalizations rate and ED visits. Given the more advanced disease stage and poorer prognosis during the HBMU period compared with the preceding comparator period, the observed benefit is likely underestimated. These findings underscore the potential value of structured home-based IV diuretic therapy in optimizing care and reducing healthcare utilization in advanced HF.

CO 30. REEVALUATING PROGNOSTIC FACTORS IN ADVANCED HEART FAILURE: INSIGHTS FROM A MULTIVARIATE ANALYSIS

Ana Rita Andrade[1], João Cravo[1], Ana Francês[2], Fátima Salazar[2], Nuno Lousada[1], Joana Rigueira[1], Rafael Santos[1], Doroteia Silva[1], Fausto Pinto[1], Dulce Brito[1], João Agostinho[1]

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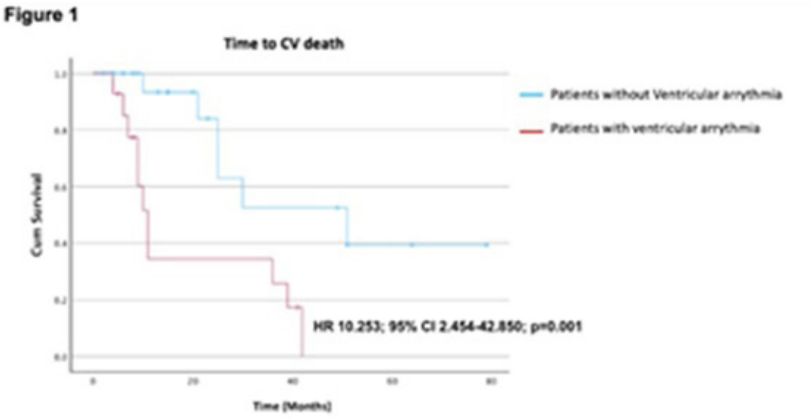
Introduction: Advanced heart failure (HF) is associated with high mortality, and various clinical factors have been proposed as prognostic indicators. Conventional risk factors, such as left ventricle ejection fraction (LVEF), NYHA class, NT-proBNP or diuretic dose are commonly used to predict mortality risk. Many previous publications consider recurrent hospitalizations as the main risk factor for death in these patients, however ventricular arrhythmias also seem to be gaining increasing attention as they are becoming more frequent as survival is improving with new therapies.

Objectives: To evaluate the relative impact of recurrent hospitalizations and ventricular arrhythmias in the mortality risk of patients with advanced heart failure.

Methods: Analysis of a single-centre, retrospective cohort of patients with advanced HF (either candidates for heart transplant or left ventricle assist device implant or dependent of intermittent inotropic therapy) was performed by using multivariate Cox regression to identify independent



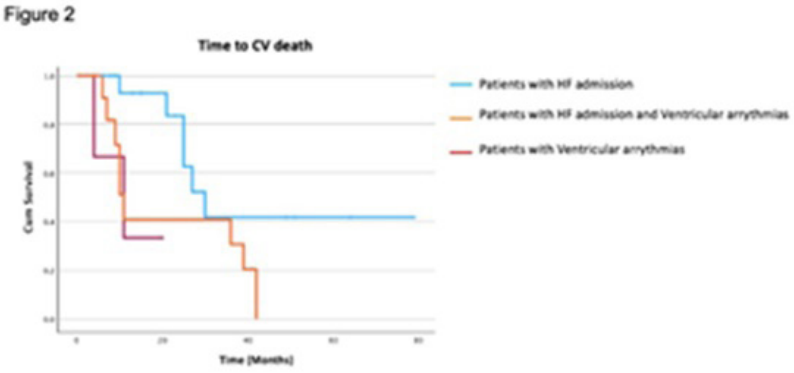


Figure CO 30

predictors of mortality. The variables used in the multivariate analysis were LVEF, age, HF etiology, frequency of hospitalizations, diuretic dose, NT-proBNP levels and the occurrence of ventricular arrhythmias.
Results: A total of 34 patients were included in the study, with a median age of 68 years (IQR: 63-73). Of these, 47.1% had an ischemic etiology. The median LVEF was 24% (IQR: 16-27%) and most patients were classified as NYHA Class III (82.4%). All patients had either an ICD or CRT-D. During a follow-up of 1,3 years (IQR 0.7-2.7 years), 50% of the patients died, 31 were admitted due to HF worsening and 15 had either an appropriate ICD shock, appropriate and effective anti-tachycardia pacing or slow ventricular tachycardia. The multivariate analysis identified ventricular arrhythmias as the most significant independent predictor of mortality (HR: 10.253; 95%CI 2.454-42.850; p = 0.001) (Figure 1). In fact, none of the other variables included for analysis showed a significant association with mortality: LVEF (p = 0.77), age (p = 0.308), ischemic etiology (p = 0.897), recurrent hospitalizations (p = 0.07), diuretic dose (p = 0.926) and NT-proBNP (p = 0.815). Interestingly, having a ventricular arrythmia was more impactful than having an HF related admission (Figure 2).
Conclusions: The occurrence of ventricular arrhythmias seems to be one of the strongest predictors of higher mortality risk in advanced heart failure, so its role as a criterion to seek for advanced heart failure therapies should be empathized.

CO 31. LEFT VENTRICULAR VENTING IN VA-ECMO: A PROPENSITY-SCORE MATCHED ANALYSIS

Rita Barbosa Sousa, Márcia Presume, Catarina Santos-Jorge, Joana Certo Pereira, Rita Almeida Carvalho, Débora da Silva Correia, Samuel Azevedo, Ana Rita Bello, João Presume, Jorge Ferreira, Catarina Brízido

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Introduction: Venoarterial extracorporeal membrane oxygenation (VA-ECMO) is used to restore systemic perfusion in cardiogenic shock (CS), but the retrograde aortic flow may increase left ventricular afterload and potentially impair myocardial recovery. The use of venting strategies may minimize this impact.
Objectives: This study aims to assess if left ventricular unloading during VA-ECMO support is associated with lower mortality.
Methods: Single-center retrospective study including 107 consecutive patients with CS undergoing VA-ECMO from 2016 to 2025. Exclusion criterion was left ventricular ejection fraction (LVEF) > 40%. A propensity score (PS) was used to match venting and no venting population in a 1:1 fashion according to age, sex, acute myocardial infarction (AMI) aetiology, LVEF, SCAI and cardiac arrest before VA-ECMO. Primary endpoint was 180-day mortality.
Results: The PS yielded two groups of 38 patients each [mean age 51 ± 15 years, 80% (n = 61) male, 37% (n = 28) with AMI-CS, 51% (n = 39) with previous cardiac arrest and 37% (n = 28) in SCAI E], well balanced for baseline characteristics. Among patients in the venting group, 87% (n = 33) were unloaded with an intra-aortic balloon pump (IABP), 8% (n = 3) with transseptal left atrial cannulation and 5% (n = 2) with an Impella device. In the matched cohort, left ventricular unloading was associated with lower 30-day mortality (68% vs. 37%, p = 0.004) and 180-day mortality (76% vs. 45%, p = 0.002). In multivariate analyses, older age was significantly associated with a higher mortality risk (HR 1.046, 95%CI 1.00-1.09, p = 0.030), whereas venting was independently associated with improved survival (HR 0.18, 95%CI 0.06-0.56, p = 0.003). Although bacteraemia was more frequent in the venting group [11% (n = 4) vs. 40% (n = 15), p = 0.005)], rates of clinically significant haemorrhage, pulmonary infection, and limb ischemia were similar between groups. Moreover, there were also no significant differences in the need for invasive mechanical ventilation or renal replacement therapy.
Conclusions: In this cohort of VA-ECMO patients with LVEF< 40%, left ventricular unloading, primarily with IABP support, was associated with lower 180-day mortality.

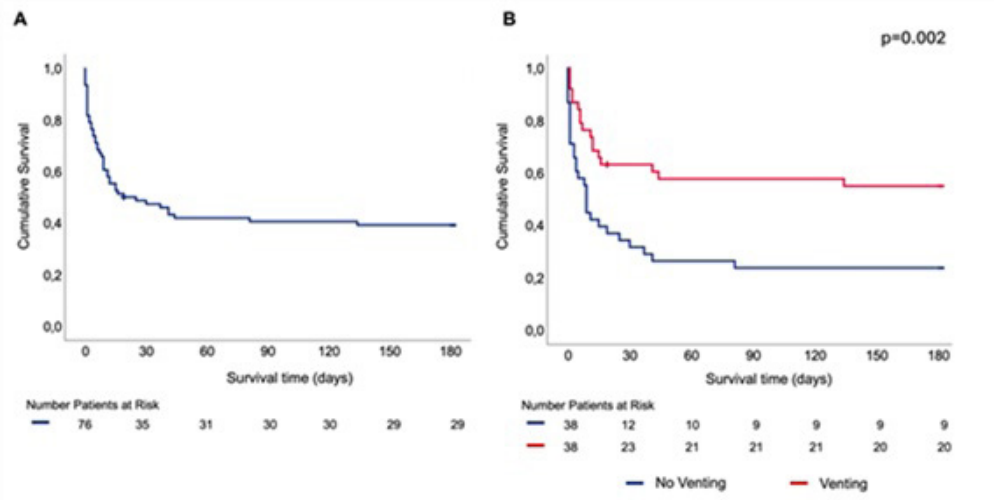


Figure 1 - Kaplan–Meier estimates of all-cause mortality during follow-up **(A)** for the overall cohort and **(B)** according to left ventricular venting in the PSM population.

Figure CO 31

CO 32. LACTATE CLEARANCE AS A PROGNOSTIC MARKER IN CARDIOGENIC SHOCK: A RETROSPECTIVE STUDY FROM A TERTIARY CARDIAC INTENSIVE CARE UNIT

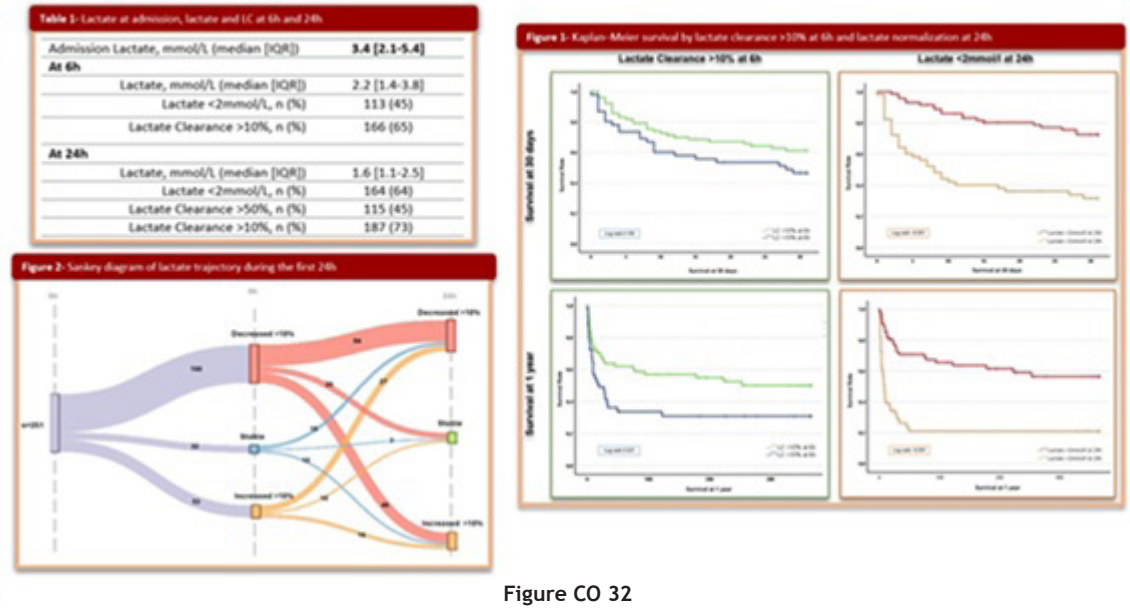
Débora da Silva Correia, Miguel Domingues, Rita Barbosa, Samuel Azevedo, Márcia Presume, Rui Gomes, Rita Carvalho, Ana Rita Bello, Jorge Ferreira, João Presume, Catarina Brízido

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Cardiogenic shock (CS) carries a high in-hospital mortality exceeding 40-50%. Accurate and rapidly responding markers of perfusion are essential for early risk stratification and treatment optimization. Recent SCAI recommendations evidence supports lactate clearance (LC) as a key marker of shock trajectory, being an easily accessible bedside marker to guide management decisions, including mechanical circulatory support (MCS).

Methods: Retrospective observational study including consecutive CS patients admitted to the cardiac intensive care unit (CICU) between 2017 and 2024. Demographic, clinical, and laboratory data, SCAI stage, and aetiology of CS were collected. Lactate measurements at admission, 6 h, and 24 h were obtained, and patients with any missing values were excluded. A significant LC was defined as a reduction > 10%, and lactate normalization as lactate < 2 mmol/L. Outcomes included mortality in the CICU, at 30 days and 1 year. Survival analysis was conducted using Cox regression and Kaplan-Meier curve, with group comparisons performed by the log-rank test.

Results: A total of 251 patients were analysed (mean age 69 ± 16 years; 66% male). Most presented with AMI-CS (54%), and initial SCAI stages C and D accounted for 86% of admissions. MCS was required in 34%. At admission, median lactate was 3.4 [2.1-5.4] mmol/L, decreasing to 2.2 [1.4-3.8] mmol/L at 6 h, and 1.6 [1.1-2.5] mmol/L at 24h. LC > 10% at 6h was observed in 65% of patients, while 64% achieved lactate < 2 mmol/L by 24h. Mortality reached 41% in the CICU, 45% during the index hospitalization, and 53% at



Admission Lactate, mmol/L (median [IQR])	**3.4 [2.1-5.4]**
At 6h	
Lactate, mmol/L (median [IQR])	2.2 [1.4-3.8]
Lactate <2mmol/L, n (%)	113 (45)
Lactate Clearance >10%, n (%)	166 (65)
At 24h	
Lactate, mmol/L (median [IQR])	1.6 [1.1-2.5]
Lactate <2mmol/L, n (%)	164 (64)
Lactate Clearance >50%, n (%)	115 (45)
Lactate Clearance >10%, n (%)	187 (73)

Figure CO 32

one year. In Cox regression analysis, only lactate normalization at 24 h predicted CICU mortality (HR 0.245, 95%CI 0.165-0.365; p < 0.001). Kaplan-Meier survival analysis demonstrated that both LC > 10% at 6h and lactate normalization at 24 h predicted 30-day and 1-year survival, with 24h normalization demonstrating the greatest separation of survival curves. In patients supported with MCS, baseline lactate levels were higher (3.7 [2.2-6.2] vs. 3.2 [1.9-5.1] mmol/L), as expected. At 6 h, 20 out of 85 patients without a LC > 10% were receiving MCS. Of these, 50% achieved lactate normalization by 24 h. In subgroup analysis by aetiology, the association between LC at 6 h and 24 h and survival at 30-day and 1-year persisted across all etiologic subgroups.
Conclusions: In this contemporary cohort of cardiogenic shock patients, early lactate clearance demonstrates a strong association with improved survival. Specifically, lactate normalization at 24 hours is highly discriminatory and independently associated with significantly reduced in-hospital and 1-year mortality across all aetiologies. These findings underscore the utility of dynamic lactate monitoring as a crucial bedside marker for risk stratification and real-time assessment of therapeutic efficacy in the management of cardiogenic shock.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Sala D. Luís | Sessão de Comunicações Orais 05 - Para além do LDL: determinantes metabólicos do risco cardiovascular

CO 33. THE CLINICAL IMPORTANCE OF THE METABOLIC SCORE FOR INSULIN RESISTANCE (METS-IR) IN ASSESSING INSULIN RESISTANCE AND ITS ASSOCIATION WITH ARTERIAL STIFFNESS

Carolina Olim[1], Ana Célia Sousa[1], Cláudia Sousa[1], Cátia Martins[1], Vasco Nunes[1], Carolina Freitas[1], Mariana Rodrigues[1], Ana Cardoso[1], Sofia Borges[1], Maria João Oliveira[1], Maria Isabel Mendonça[1], Roberto Palma dos Reis[2]

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

Introduction: Arterial stiffness increases due to biological aging and arteriosclerosis, progressively reducing vessel elasticity and contributing to endothelial dysfunction and cardiovascular risk. Both genetic and behavioral factors accelerate vascular deterioration. Insulin resistance (IR) is a major cardiometabolic risk marker; however, its association with arterial stiffness assessed by pulse wave velocity (PWV) is not well established.
Objectives: Evaluate whether IR, assessed by the metabolic score for insulin resistance (METS-IR), is associated with PWV and whether a correlation exists between these variables.
Methods: In 882 individuals (mean age 50.5 ± 8.7 years), the Carotid-femoral PWV was determined using the Complior device, and METS-IR was calculated: ln[2 × fasting blood glucose (FBG) + triglycerides (TG)] × body mass index (BMI)/ln [High Density Lipoprotein-Cholesterol (HDL-C)]. Participants were categorized as cases (PWV ≥ 10 m/s) or controls (PWV < 10 m/s), and METS-IR values were divided into quartiles. METS-IR values were divided into four quartiles: 1st ≤ 35.17; 2nd > 35.17 and ≤ 40.62; 3rd > 40.62 and ≤ 47.17; and 4th > 47.17. In both PWV groups, the percentage of individuals was evaluated in the 1st and 4th METS-IR quartiles. A Pearson correlation was subsequently performed between PWV and METS-IR values. Finally, a multivariable analysis was conducted including other cardiovascular risk factors (physical inactivity, alcohol consumption, and smoking) together with METS-IR, to determine which variables were significantly and independently associated with increased PWV.
Results: 89 participants (10.1%) had PWV ≥ 10 m/s, while 793 (89.9%) were controls. High PWV showed a greater proportion of individuals in the 4th METS-IR quartile (62.9%) versus the 1st quartile (37.1%), while controls showed the opposite pattern (48.5% vs. 51.5%) (p = 0.010). A positive correlation was observed between PWV and METS-IR (p < 0.0001). In multivariable analysis, METS-IR remained independently associated with elevated PWV (OR = 1.616; 95%CI: 1.018-2.567; p = 0.042), together with physical inactivity (OR = 1.696; 95%CI: 1.053-2.734; p = 0.030).

Table – Variables significantly and independently associated with elevated PWV (≥10 m/s)

Variables	B	S.E.	Wald	df	Odds ratio (95% CI)	P value
Physical inactivity	0.529	0.244	4.712	1	1.696 (1.053-2.734)	0.030
METS-IR (4th quartile)	0.480	0.236	4.137	1	1.616 (1.018-2.567)	0.042
Constant	-2.186	0.246	130.651	1	0.060	<0.0001

Variables excluded from the equation: smoking and alcohol.

Conclusions: METS-IR is significantly and independently associated with increased arterial stiffness in this population. The positive correlation between METS-IR and PWV reinforces the role of insulin resistance in arterial wall damage and arterial stiffening. METS-IR may serve as a practical and scalable tool in clinical practice for early vascular risk assessment.

CO 34. SEX-BASED INTRA-INDIVIDUAL VARIABILITY IN LIPOPROTEIN(A) LEVELS

Carolina Marques Neves[1], Marta Catarina Almeida[2], André Lobo[2], Eduardo Vilela[2], Ricardo Fontes-Carvalho[2]

[1]Escola de Medicina da Universidade do Minho. [2]ULS Gaia e Espinho/ Hospital Santos Silva.

Introduction: Cardiovascular diseases (CVD) remain the leading global cause of death, and lipoprotein(a) [Lp(a)] is recognized as an independent risk factor. Although Lp(a) levels are mostly genetically determined and traditionally considered stable, recent studies suggest meaningful intra-individual variability. Sex differences in Lp(a) distribution and prognostic value have also been described.
Objectives: The objectives of this study were to assess individual variability in Lp(a) levels by sex and to explore clinical and biochemical predictors of these fluctuations.
Methods: A retrospective single-center study included patients who had at least two Lp(a) measurements obtained between January 2022 and April 2025. Demographics, cardiovascular risk factors, history, medication use, and laboratory parameters were collected. Variability between sexes was compared. Chi-square, Mann-Whitney and Kruskal-Wallis tests and logistic regression were used.
Results: The study included 221 patients [157 (71%) males]. Lp(a) variation ranged from -168.30 to 277.10 nmol/L. The distribution of absolute Lp(a) variation is presented in Figure 1. Variation in Lp(a) levels greater than 50 nmol/L or exceeding 25%, defined as relevant, occurred in 121 participants (54.8%), of whom 81 (66.9%) males. Women consistently showed higher baseline Lp(a) (91.95 [155.30] nmol/L *versus* 40.00 [115.40] nmol/L in the first analysis, p = 0.020; and 91.75 [173.80] nmol/L *versus* 42.40 [152.50] nmol/L in the second, p = 0.026), and greater absolute fluctuations than men (15.70 [55.35] nmol/L *versus* 9.50 [33.10] nmol/L, p = 0.049). Independent predictors of variability differed by sex: in men, obesity was associated with variability (OR = 2.818, p = 0.036), while in women, medication changes were the independent determinant (OR = 3.565, p = 0.029).
Conclusions: Lp(a) should not be regarded as a fixed, genetically predetermined marker. Instead, it demonstrates clinically relevant intra-individual variability influenced by sex, metabolic status, and therapeutic factors. These findings challenge the adequacy of single lifetime measurements for cardiovascular risk assessment and highlight the need for sex-specific approaches when interpreting Lp(a) levels to improve personalized prevention strategies.

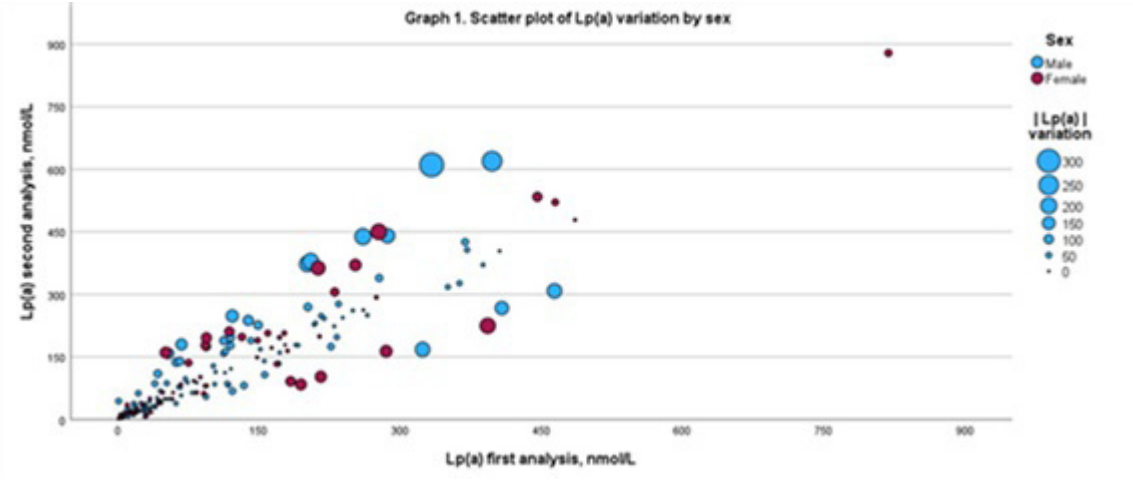


Figure CO 34

CO 35. EFFECT OF APOLIPOPROTEIN B REDUCTION ON MAJOR ADVERSE CARDIOVASCULAR EVENTS IN TRIALS OF TRIGLYCERIDE-LOWERING THERAPIES: SYSTEMATIC REVIEW AND EXPLORATORY META-REGRESSION

Miguel Sobral Domingues, André Garcia, António Ferreira, Jorge Ferreira

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Randomized controlled trials (RCTs) of triglyceride (TG)-lowering therapies show inconsistent benefits on major adverse cardiovascular events (MACE). Because TGs poorly reflect atherogenic particle burden, apolipoprotein B (ApoB) may be a better marker of treatment effect. It remains unclear how often ApoB is reported in these trials or weather data are sufficient for pooled analyses.
Objectives: To systematically assess how fully ApoB is reported in TG-lowering RCTs and weather ApoB reduction correlates with MACE reduction.
Methods: We performed a systematic review (CRD420251207909) of RCTs evaluating TG-lowering therapies (EPA and/or DHA, fibrates, and niacin/nicotinic acid) in high-risk populations reporting MACE. MEDLINE, ClinicalTrials.gov, and the Cochrane Central Register of Controlled Trials were searched. After screening and inclusion, we performed an exploratory meta-regression assessing the association between absolute ApoB reduction and risk ratio (RR) for a composite and individual outcome of cardiovascular death, myocardial infarction (MI), stroke, and coronary revascularization.
Results: Twenty-nine RCTs met inclusion criteria, but only 8 adequately reported ApoB values at baseline and end of study, or provided absolute ApoB change, allowing quantitative analysis. These trials included 86,216 participants and 10,285 MACE. ApoB reduction was associated with a lower risk of MACE (RR 0.90 per 10 mg/dL reduction; 95%CI [0.80-1.01]; p = 0.084; I^2 = 61%), although this did not reach statistical significance (Figure 1). ApoB reduction significantly correlated with a reduced risk of MI (RR 0.84; 95%CI [0.71-1.00]; p = 0.048; I^2 = 42%). For coronary revascularization, there was a trend toward risk reduction (RR 0.87; 95%CI [0.75-1.00]; p = 0.057; I^2 = 42%). No significant associations were observed for CV death (RR 1.07; 95%CI [0.91-1.26]; p = 0.42; I^2 = 61%) or stroke (RR 0.96; 95%CI [0.83-1.11]; p = 0.57; I^2 = 60%).
Conclusions: ApoB reporting in TG-lowering RCTs was limited, constraining evaluation of effects on atherogenic particle burden. Still, available data suggest greater ApoB reduction aligns with lower CV risk, especially MI, highlighting ApoB potential to reveal benefits not captured by TG levels. Larger trials with consistent ApoB reporting are needed to define the true cardioprotective impact of TG-lowering therapies.

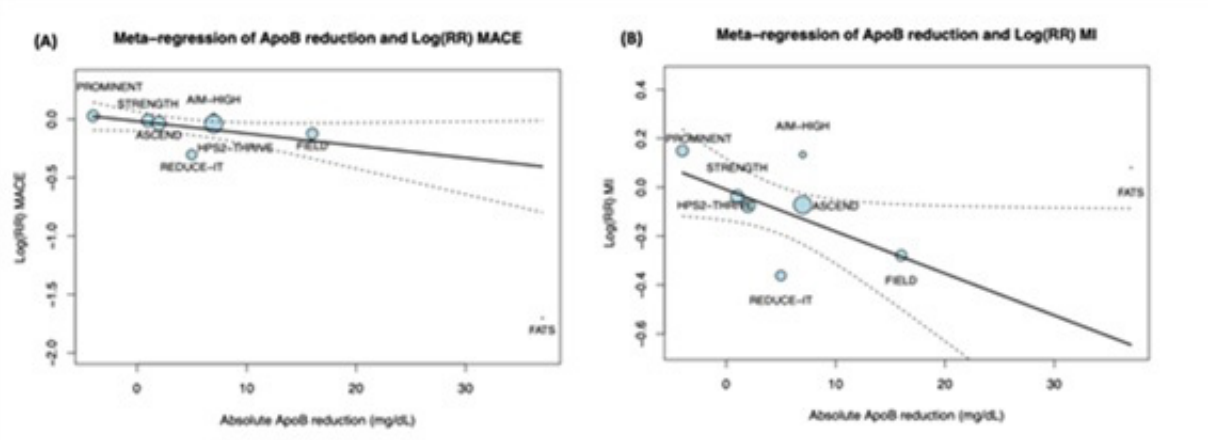


Figure 1: Meta-regression of ApoB reduction (mg/dL) and log risk ratio (log[RR]) for MACE **(A)** and MI **(B)**: **(A)** The analysis demonstrates a trend toward lower MACE risk with greater ApoB reduction across TG-lowering trials (RR 0.90 per 10 mg/dL reduction; 95% CI [0.80-1.01]; p = 0.084; I^2 = 61). **(B)** Greater ApoB reduction was associated with a significantly lower risk of MI (RR 0.84 per 10 mg/dL reduction; 95% CI 0.71–1.00; p = 0.048; I^2 = 42%). Each bubble represents an individual trial, with bubble size proportional to study weight. The solid line shows the fitted meta-regression slope, and the dashed lines represent the 95% confidence bands.

Figure CO 35

CO 36. INSULIN RESISTANCE MARKERS AND CARDIOVASCULAR MORTALITY: A COMPARATIVE STUDY IN A PORTUGUESE POPULATION

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

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

Introduction: Cardiovascular diseases with cardiometabolic conditions have a high prevalence of comorbidities and an elevated mortality risk. Insulin resistance (IR) is a significant contributor to their pathogenesis. Several assessors for IR are employed in clinical evaluations; however, their relationship with mortality is imprecise.
Objectives: This study aimed to investigate the association between various markers of IR and all-cause and cardiovascular (CV) mortality in patients with cardiometabolic diseases.
Methods: This cohort study included 1,720 cardiovascular patients with cardiometabolic conditions (78.8% male; mean age, 53.3 ± 7.9 years) with extended follow-up (average, 7.6 ± 6.7 years). The IR levels were assessed using four surrogate markers, such as: triglyceride-glucose (TyG) index, TyG-waist circumference (TyG-WC), TyG-waist-to-height ratio (TyG-WHtR), and metabolic score for insulin resistance (METS-IR) = [ln(2 × fasting plasma glucose +triglycerides) × BMI]/ln(HDL-C). To investigate the associations between different IR surrogates and both all-cause and CV mortalities, Cox proportional hazard models were applied. We employed restricted cubic splines (RCS) to examine nonlinear associations.
Results: Among 1,720 patients, 361 (21.0%) died from CV causes. In bivariate analysis, the four surrogate markers were significantly correlated with CV mortality (all with $p < 0.0001$). However, Cox regression analyses of the four surrogate markers showed that only the TyG index and METS-IR were significantly and independently associated with CV mortality. The optimal threshold values for CV mortality for TyG and METS-IR were 9.3 and 48.9, respectively. Above their respective inflexion points, both markers demonstrated a positive correlation with CV mortality (HR 1.27; 95%CI: 1.01-1.61; $p = 0.044$ and HR = 1.29; 95%CI: 1.04-1.61; $p = 0.023$, respectively). RCS analysis revealed a nonlinear relationship for both TyG and METS-IR, and CV mortality, with little risk change in at low-moderate TyG levels but a steep, progressive increase in risk at higher TyG and METS-IR values. Overall, elevated TyG and METS-IR are associated with substantially higher CV mortality.
Conclusions: TyG and METS-IR are significantly associated with CV mortality. This study highlights the prognostic significance of these two markers, particularly in predicting CV mortality, helping guide early intervention strategies (lifestyle changes and therapeutic interventions).

CO 37. ASSOCIATION OF ANTHROPOMETRIC INDICES WITH CORONARY ARTERY DISEASE: A COMPARATIVE ANALYSIS OF CENTRAL AND GENERAL ADIPOSITY MEASURES

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

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

Introduction: Obesity is a well-established risk factor for coronary artery disease (CAD). Increasing evidence, however, indicates that obesity should not be regarded solely as a risk factor but as a chronic, multifactorial disease with complex metabolic and inflammatory consequences. A recent *Lancet Diabetes & Endocrinology* Commission (2025) proposed redefining obesity beyond the exclusive use of body mass index (BMI), recommending the integration of BMI with additional anthropometric indices that better capture adipose tissue distribution and cardiometabolic risk. These developments reinforce the need to identify which anthropometric markers more accurately reflect obesity-related cardiovascular risk.
Objectives: To compare three anthropometric indices –waist-to-height ratio (WHtR), BMI, and waist-to-hip ratio (WHR)– in their association with CAD and determine which index performs best in our population.
Methods: We conducted a prospective study including 3,157 individuals classified into CAD and non-CAD groups. Student's t-tests assessed differences

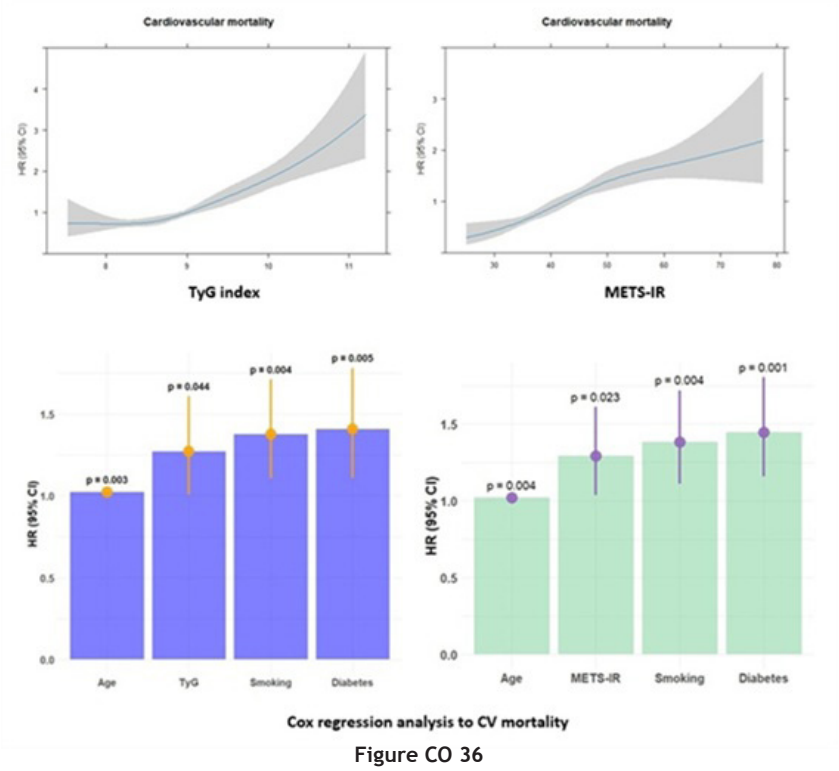
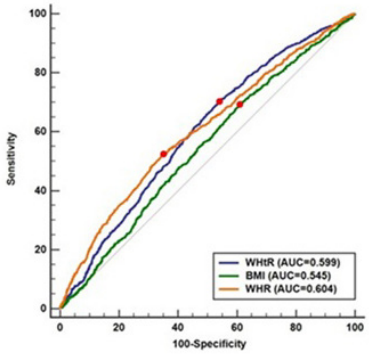


Figure CO 36

between groups. ROC curves and pairwise AUC comparisons were performed using DeLong's test. Multivariable logistic regression models were constructed for each index, adjusted for sex, age, diabetes, dyslipidaemia, hypertension, smoking, sedentary lifestyle, and alcohol intake (> 300 g/week).

Predictive value of the 3 cardiometabolic indexes



Variables independently associated with CAD

Variables	B	S.E.	Wald	df	OR (95% CI)	P value
Male sex	-0.308	0.112	7.605	1	0.735 (0.590-0.915)	0.006
Diabetes	0.791	0.097	66.256	1	2.207 (1.824-2.670)	<0.0001
Dyslipidemia	1.553	0.123	158.603	1	4.723 (3.710-6.014)	<0.0001
Hypertension	0.557	0.087	41.302	1	1.746 (1.473-2.070)	<0.0001
Smoking	1.128	0.088	162.941	1	3.090 (2.598-3.674)	<0.0001
Physical inactivity	0.506	0.081	38.692	1	1.659 (1.414-1.946)	<0.0001
WHR	2.816	0.750	14.085	1	16.707 (3.839-72.698)	<0.0001

Variables excluded from the equation: age and alcohol>300g/week. CAD – Coronary artery disease; WHR – Waist-to-hip ratio. B – Beta coefficient; S.E. – Standard error; df – degrees of freedom; OR – Odds ratio; CI – Confidence interval; Statistically significant at p<0.05.

Results: All anthropometric indices were significantly higher in CAD patients: WHtR ($p < 0.0001$), BMI ($p = 0.001$), and WHR ($p < 0.0001$). WHtR showed an AUC of 0.599 (95%CI: 0.582-0.617), BMI an AUC of 0.545 (95%CI: 0.527-0.562), and WHR an AUC of 0.604 (95%CI: 0.587-0.621). Pairwise comparisons showed significant differences between WHtR and BMI ($\Delta AUC = 0.055$; $p < 0.0001$) and between BMI and WHR ($\Delta AUC = 0.060$; $p < 0.0001$), with no significant difference between WHtR and WHR ($\Delta AUC = 0.005$; $p = 0.605$). In adjusted regression, WHtR was associated with CAD (OR = 4.05; $p = 0.036$), WHR showed a strong association (OR = 16.71; $p < 0.0001$), and BMI demonstrated an inverse association (OR = 0.98; $p = 0.020$).
Conclusions: Anthropometric indices were associated with CAD, with central-adiposity measures showing the strongest associations. These indices are simple to calculate and apply in routine practice and may help identify individuals at higher risk of CAD, allowing preventive measures to be implemented in a timely manner.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Sala D. Maria | Sessão de Comunicações Orais 06 - Fechar as lacunas: soluções percutâneas na cardiopatia congénita e estrutural

CO 38. IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR THERAPY IN ADULT CONGENITAL HEART DISEASE: INSIGHTS FROM LONG-TERM FOLLOW-UP AT A TERTIARY CENTER

Inês Ferreira Neves, Leonor Magalhães, Madalena Coutinho Cruz, Guilherme Portugal, Sérgio Laranjo, Tiago Rito, Tânia Branco Mano, Pedro Silva Cunha, José Diogo Martins, Rui Cruz Ferreira, Lídia de Sousa, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Sudden cardiac death (SCD) remains a major cause of mortality among adults with congenital heart disease (ACHD). However, evidence regarding the use and long-term outcomes of implantable cardioverter-defibrillators (ICDs) in this heterogeneous population is limited.
Objectives: We aimed to describe the clinical characteristics and long-term outcomes of ACHD patients with ICD therapy followed at our tertiary center.

Age (years) - mean±SD	42±13.9
Male sex - n (%)	35 (76.1)
Comorbidities - n (%)	
Hypertention	5 (10.9)
Diabetes	4 (8.7)
Coronary Artery Disease	5 (10.9)
Cerebrovascular Disease	4 (8.7)
NYHA class - n (%)	
I	18 (39.1)
II	19 (41.3)
III	9 (19.6)
LVEF (%) - mean±SD	45±14.1
TAPSE (mm) - mean±SD	16±4.4
Tricuspid s' (cm/s)	9±14.3
RVEF (%) - mean±SD	38±10.4
QRS duration (ms) - mean±SD	154±23.1
Medication - n (%)	
ACE-I/ARB/ARNI	19 (41.3)
Beta-blocker	27 (58.7)
Other antiarrhythmic drug	25 (59.3)
Anticoagulation	19 (41.3)

Footnote: SD - Standard deviation, LVEF - Left Ventricular Ejection Fraction, TAPSE - Tricuspid annular plane systolic excursion, Tricuspid s' Tissue Doppler lateral annular tricuspid s', RVEF - Right Ventricular Ejection Fraction, NYHA - New York Heart Association, DM - Diabetes Mellitus, ACE-I - angiotensin-converting enzyme inhibitor, ARB - angiotensin II receptor blocker, ARNI - angiotensin receptor-neprilysin inhibitor.

Table 1. Baseline Characteristics of the studied population.

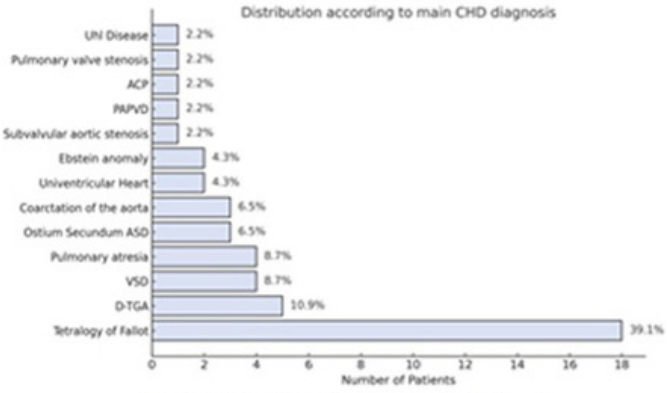


Figure 1. Patient distribution according to main CHD diagnosis.
ASD - Arterial Septal Defect, PAPVD - Partial anomalous pulmonary venous drainage, PDA - Arterial canal persistence, VSD - Ventricular septal defect, D-TGA - dextro-Transposition of Great Arteries.

Indication - n (%)	
Secondary Prevention	22 (47.8)
Class I Primary Prevention	7 (15.2)
Class II Primary Prevention	17 (37.0)
Type of ICD - n (%)	
Single-Chamber ICD	32 (69.6)
Dual-Chamber ICD	14 (30.4)
Subcutaneous-ICD	6 (13.0)
CRT-ICD	5 (10.9)

Table 2. Indication for implantation and type of ICD.

Methods: We performed a retrospective analysis of consecutive ACHD patients who underwent ICD implantation in a single tertiary care center, between

January 1994 and November 2025. Baseline characteristics, including cardiac anatomy, prior surgical history, and arrhythmic profile, were collected. Device data comprised indication for implantation, ICD type (single chamber, dual chamber, or CRT-D), and follow-up events, namely appropriate therapies, device-related complications, hospital admissions and mortality.
Results: Forty-six adult ACHD patients (mean age 42 ± 13.9 years) were included. The most frequent diagnoses were Tetralogy of Fallot (39.1%), D-transposition of the great arteries (10.9%), and shunt lesions such as VSD or ASD (8.7% each). Most patients were in NYHA class I (39.1%) or II (41.3%). ICD implantation was performed for primary prevention in 52.2% and secondary prevention in 47.8% of patients. The majority received single-chamber devices (69.6%), followed by dual-chamber (30.4%) and subcutaneous (13%). 10.9% of the transvenous systems were CRT-ICD (10.9%). The mean follow-up time was 7.2 (± 6.4) years. Appropriate ICD therapies occurred more frequently in the secondary prevention group (54.5% vs. 37.5%, p = 0.25), while rates of inappropriate therapies were similar, and mostly due to sinus tachycardia and supraventricular arrythmias with heart rate > 160 bpm (28.6% vs. 20.8%, p = 0.55). Within the subgroup implanted for primary prevention, appropriate ICD therapies were significantly more frequent among patients with class I indications compared to class II (p = 0.03, r = 0.45). In contrast, inappropriate therapies did not differ significantly between class I and class II indications (14.3% vs. 23.5%, p = 0.61).
Conclusions: ICD therapy in adults with congenital heart disease is associated with a substantial rate of appropriate interventions, but also with inappropriate therapies, suggesting a high arrhythmic burden and underscoring the need for careful risk stratification and follow-up.

CO 39. PATENT FORAMEN OVALE CLOSURE: COMPARATIVE ANALYSIS OF NOBLESTITCH EL AND AMPLATZER PFO OCLUDER IN A SINGLE-CENTRE COHORT

Diana Ribeiro[1], Carlos David[2], David Sá Couto[1], Mariana Pereira Santos[1], Tiago Peixoto[1], Pedro Monteiro[1], Gilles Sousa[1], Raquel Baggen Santos[1], Bruno Brochado[1], João Brum Silveira[1], André Luz[1]

[1]ULS Santo António/Hospital de Santo António. [2]Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto.

Introduction: Patent foramen ovale (PFO) is a common congenital defect linked to cryptogenic stroke. Percutaneous closure reduces recurrent cerebrovascular events, with the Amplatzer PFO Ocluder® widely used and well established, while suture-mediated devices like NobleStitch® (NS) offer a device-free alternative. Comparative real-world data remain limited.
Objectives: To compare the safety and efficacy outcomes of NobleStitch® and Amplatzer PFO Ocluder® in a single-centre cohort.
Methods: Single-centre retrospective, pragmatic, observational, registry of PFO closures from December 2022 to July 2025. Patient demographics, procedural details, safety outcomes, and adverse events were analysed, comparing NobleStitch® (NS) with Amplatzer PFO Ocluder®, trying to match for baseline features.
Results: Ninety-five patients were included (mean age 48.8 ± 13.6 years; 47.6% female, Amplazter = 73, NS = 22). Patient demographics did not differ between groups. Mean RoPE scores were 6.2 ± 1.9 vs. 5.9 ± 1.8, p = 0.504, in the NS group and Amplatzer group, respectively. The primary indication for PFO closure was a cerebrovascular event, including cryptogenic stroke or transient ischaemic attack (87.7% in the Amplatzer group vs. 86.6% in the NS group; p = 0,762). PFO was tunnel-like in 97.9% patients, with mean length 13.1 ± 4.2 mm (NS) vs. 12.4 ± 4.1 mm (Amplatzer), p = 0.467; width 5.2 ± 3.7 mm vs. 5.25 ± 3.3 mm, p = 0.954, respectively. Atrial septal aneurysm (ASA) was more frequent in Amplatzer patients (44.9% vs. 4.5%; p < 0.001). Baseline significant right-to-left shunt (grade ≥ 2) was present in 55% patients in NS group and 72,3% in Amplatzer group, p < 0,05, and 100% in both groups when Valsalva manoeuvre was performed. One complication occurred with the NS device: a *septum secundum* tear needing a Amplatzer device for bail-out closure, whereas two minor complications occurred in Amplatzer patients: one incorrect disc apposition with residual shunt requiring a smaller device and one new-onset atrial fibrillation. Follow-up (mean 263 ± 230 days) transthoracic echocardiography revealed spontaneous residual right-to-left shunt in 8 (36,4%) patients in NS group, and 4 (8,8%) in Amplatzer group, p < 0,01. No recurrent cerebrovascular events occurred in either group.
Conclusions: Both NobleStitch® and Amplatzer PFO Ocluder® were safe for PFO closure. However, residual shunting was more frequent after NS, while minor procedure-related complications occurred in the Amplatzer group. Patient selection should guide the device choice. Our study is limited by the retrospective nature of the analysis, as the Amplazter was the chosen device in ASA-patients. At this point, a prospective randomized trial to study both devices should be considered.

CO 40. EFFICACY AND SAFETY OF SUTURE-BASED PFO CLOSURE USING THE NOBLESTITCH EL SYSTEM: INSIGHTS FROM A MULTICENTRE REAL-WORLD ANALYSIS

Diana Ribeiro[1], Inês Gomes Campos[2], Joel Monteiro[2], Bruno Bragança[1], Marta Tavares Silva[3], Gilles Sousa[1], Raquel Baggen Santos[1], Bruno Brochado[1], João Brum Silveira[1], João Carlos Silva[3], Rui André Rodrigues[3], André Luz[1]

[1]ULS Santo António/Hospital de Santo António. [2]ULS Tâmega e Sousa/Hospital Padre Américo. [3]ULS São João/Hospital São João.

Introduction: Patent foramen ovale (PFO) affects up to 25% of the population and is associated with cryptogenic stroke. The NobleStitch® system enables implant-free, suture-mediated PFO closure and, despite short follow-up, the first published data suggested good safety and efficacy profile.
Objectives: To assess the efficacy and long-term safety of the NobleStitch® technique across multiple centres.
Methods: Retrospective multicentre study of consecutive patients admitted for PFO closure with NobleStitch® in two central hospitals from Portugal, between January 2020 and May 2025. Patient demographics, procedural characteristics, safety, and adverse events were analysed.

Table 1 - Demographic and clinical characteristics of the study population, and the functional and anatomical features of the patent foramen ovale.

Gender (female/male)	51 (50,5%)/50 (49,5%)
Age, years	47.5 ± 12.8
Cardiovascular risk factors	
Dyslipidemia	55 (54.5%)
Hypertension	25 (24.8%)
Diabetes	5 (5.0%)
Smoking (current or past)	34 (33,7%)
Overweight and obesity	61 (60.4%)
Migraine	6 (5.9%)
Autoimmune disease	5 (5.0%)
Thrombophilia	10 (9.9%)
PFO closure indication	
Cryptogenic stroke	86 (85.1%)
TIA	8 (7.9%)
Platypnea-orthodeoxia syndrome	3 (3.0%)
Paradoxical embolism	1 (1.0%)
Preventive	2 (2.0%)
RoPE score – median (IQR)	6 (IQR 5-7)
PFO echocardiographic characteristics	
Spontaneous shunt, n (%)	85 (84.2%)
Tunnel-like, n (%)	77 (76.2%)
PFO length, mm	10.3±5.0
PFO diameter, mm	3.7±2.6
Atrial septum aneurysm, n (%)	33 (33.3%)
Eustachian valve	30 (30.3%)
Chiari network	2 (2.0%)

PFO: patent foramen ovale; TIA: transient ischemic attack; RoPE score: Risk of Paradoxical Embolism Score

Results: Of the 101 patients included (mean age 45.5 ± 12.8 years, 50.5% female), 93% were referred for PFO closure due to cryptogenic stroke or transit ischemic attack (TIA) and had a high RoPE score (median 6). A tunnel-like PFO was identified in 84.6% of cases, with a mean length of 10.3 ± 5.0 mm, width 3.7 ± 2.6 mm, and atrial septal aneurysm present in 33.3%. Right-to-left shunt (RLS) at rest with bubble test was observed in 90.4% of patients. One patient required double disc device implantation due to significant residual RLS (grade ≥ 2) at the end of the procedure. Three complications occurred: a groin hematoma, a TIA, and an iatrogenic atrial septal defect later treated with double disc device implantation. Mean follow-up was 666 ± 496 days.

During follow-up, significant residual RLS (grade ≥ 2 on post-procedural TTE and/or TEE) was observed in 34 of 92 patients (37,0%). Thirty patients (32.6%) required reintervention: double disc device implantation in 26, an additional suture in 2, surgical closure in 1, and 1 patient is still awaiting reintervention. The most common mechanisms of ineffective closure were partial detachment (63%) and atrial septal tear (18.5%). Two ischemic strokes were reported during follow up: one in a patient with suspected thrombophilia, who remained event-free after starting anticoagulation and did not require PFO re-closure; the other patient underwent subsequent PFO re-closure. No patient had atrial fibrillation.

Conclusions: This multicentre study shows that NobleStitch® PFO closure is feasible and generally safe. However, significant residual shunts were more common than with standard double disc devices, and one-third of patients required further interventions, highlighting the need for careful patient selection and follow-up.

CO 41. LONG-TERM PERFORMANCE OF SUTURE-MEDIATED PFO CLOSURE: INSIGHTS FROM LATE PFO REOPENING CASES

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

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Introduction: Percutaneous suture-mediated patent foramen ovale (PFO) closure has emerged as a safe and effective procedure at short-term follow-up. However, long-term data show rates of significant residual shunt (SRS) up to 25%.

Objectives: To assess the efficacy and long-term safety profile of suture-mediated PFO closure in the longest national registry.

Methods: Single-center retrospective observational registry of consecutive patients admitted for percutaneous suture-mediated PFO closure between January 2020 and November 2025. Patient and baseline PFO echocardiographic characteristics were collected. Patients were followed up to 5 years (mean 854 ± 523 days) and recurrence of SRS (grade ≥ 2) and need for additional PFO intervention were recorded.

Results: 79 patients were included (mean age 48.5 ± 12.6 years, 55.7% female), 95% referred for cryptogenic stroke and transit ischemic attack, with high RoPE score (median 6). Median PFO length was 10.0 mm (IQR 8.3), width 3.0 mm (IQR 2.0) with baseline severe spontaneous shunt in 44.6%. Atrial septal aneurysm was present in 41.6%. The procedure showed an immediate (first 24 hours) SRS rate of 9.3%. In the first programmed echocardiogram, 25 patients (31.6%) showed SRS (median echocardiography follow-up time of 4.9 months). During long-term follow-up, 5 patients with previously negative bubble-test echocardiograms were found to have SRS due to late PFO reopening [median echocardiography follow-up time of 2.7 years (2.3-5.0 years)], mainly due to partial stitch detachment. One patient had PFO-related stroke recurrence and underwent device implantation. Three of the other patients were also submitted to device implantation, while one patient was deemed unsuitable for reintervention.

Conclusions: Although percutaneous suture-mediated PFO closure demonstrates excellent short-term outcomes, our findings highlight the occurrence of very late PFO reopening, up to 5 years, in patients with previously documented PFO closure. These results underscore the need for a prolonged and structured follow-up to ensure adequate long-term efficacy and safety.

CO 42. PERCUTANEOUS CLOSURE OF PERIMEMBRANOUS VENTRICULAR SEPTAL DEFECTS IN A PEDIATRIC COHORT: SINGLE-CENTER EXPERIENCE

Manuela Lopes, Sofia Rito, Filipa Curinha, Diogo Faim, Joana Marinho, Patrícia Vaz Silva, António Pires

ULS Coimbra/Hospital Pediátrico de Coimbra (HPC).

Introduction: Percutaneous closure of perimembranous ventricular septal defects (pmVSD) in children is a minimally invasive alternative to surgery. Evaluating real-world outcomes, case selection, and complications is essential to optimize results.

Objectives: To assess procedural success, safety, and short-term hemodynamic outcomes of percutaneous pmVSD closure in a pediatric cohort at a single center.

Methods: Retrospective analysis of all consecutive pediatric patients undergoing percutaneous pmVSD closure between May 2023 and November 2025. Demographics, echocardiographic parameters, procedural details, and clinical outcomes were collected.

Results: Twenty procedures were performed in 19 patients (11 male), with a median age of 4 years (IQR 2-6) and a median weight of 14.3 kg (IQR 11.5-15.7). Median anatomic VSD diameter was 7 mm (IQR 6-10), and median effective orifice diameter was 5 mm (IQR 4-6.8). Half of the cohort had a moderate VSD, while 35% had a large defect. Most defects were aneurysmal (74%). One patient, treated with a Lifetech Konar-MF™ multi-fenestrated occluder (LT-MFO), required reintervention due to a significant residual shunt, and an Amplatzer Duct Occluder II device was subsequently placed. All other patients were treated with LT-MFO. Device implantation was succeeded in 17 patients (85%). Procedures were performed under transesophageal echocardiogram guidance. Of the 3 unsuccessful cases, two had markedly high VSD/Ar (0.7), resulting in inadequate device adaptation, and one experienced an acute ischemic event during delivery system advancement, resulting in death prior to implantation. Among the 17 patients, one major complication occurred (device embolization requiring surgery). Minor complications included moderate tricuspid regurgitation (n = 4), moderate aortic insufficiency (n = 1), and partial femoral artery thrombosis (n = 1). Median hospital stay was 3 days. Significant hemodynamic improvement was observed at 1-month follow-up. The median left ventricle end-diastolic diameter Z-score decreased from 2.7 (IQR 1.4-3.4) to 1.1 (IQR 0.5-2.1) (p = 0.002). Similarly, the main pulmonary artery diameter Z-score decreased from 2.2 (IQR 1.7-2.8) to 1.4 (IQR 0.6-2.1) (p = 0.001). A small residual shunt was present in 12 patients (71%).

Table 1. Demographics, echocardiographic parameters, procedural details, and clinical outcomes.

	Baseline	
Procedures (n)	**20**	
Patients (n)	**19**	
Male sex – n (%)	11 (58)	
Age, years – median (IQR)	4 (2-6)	
Weight, kg – median (IQR)	14.3 (11.5-15.7)	
Height, cm – median (IQR)	98.8 (84.0-108.3)	
Trisomy 21 – n (%)	2 (11)	
Ecocardiographic parameters – median (IQR)		
Anatomic VSD diameter, mm	7.0 (6.0-10.0)	
VSD effective orifice, mm	5.0 (4.0-6.8)	
Aortic root, mm	18.0 (17.0-20.0)	
VSD/Ar ratio	0.41 (0.32-0.55)	
VSD classification – n (%)		
Small (VSD/Ar< 0.3)	3 (15)	
Moderate (VSD/Ar 0.3-0.5)	10 (50)	
Large (VSD/Ar > 0.5)	7 (35)	
Device implantation (n)	**17**	
Closure approach – n (%)		
Anterograde	4 (24)	
Retrograde	13 (76)	
Procedure duration, min – median (IQR)	120 (90-145)	
Fluoroscopy duration, min – median (IQR)	17 (16-29)	
Fluoroscopy dosage, mGy – median (IQR)	27 (17-55)	
Contrast volume, mL – median (IQR)	36 (25-50)	
Ecocardiographic parameters – median (IQR)		
LVEDD pre-procedure, mm	40.0 (36.5-43.5)	p 0.002
LVEDD post-procedure, mm	36.0 (32.5-39.5)	
LVEDD ZS pre-procedure	2.7 (1.4-3.4)	p 0.002
LVEDD ZS post-procedure	1.1 (0.5-2.1)	
MPA diameter pre-procedure, mm	21.0 (18.5-23.0)	p 0.001
MPA diameter post-procedure, mm	18.0 (16.0-21.0)	
MPA diameter ZS pre-procedure	2.2 (1.5-2.8)	p 0.001
MPA diameter ZS post-procedure	1.3 (0.6-2.1)	
Complications – n (%)		
Device embolization	1 (6)	
Moderate aortic insufficiency	1 (6)	
Moderate tricuspid insufficiency	4 (24)	
Partial femoral artery thrombosis	1 (6)	
Residual shunt at follow-up – n (%)	12 (71)	

IQR: interquartile range; LVEDD: left ventricle end-diastolic diameter; MPA: main pulmonary artery; VSD: ventricular septal defect; VSD/Ar ratio: anatomic ventricular septal defect/aortic root ratio; ZS: Z-score

Conclusions: Percutaneous pmVSDs closure is an effective and safe procedure in children, resulting in significant hemodynamic improvement and short hospitalization stays. The complication rate is low and comparable to published data, highlighting the importance of case selection and operator expertise for optimal outcomes.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Sala Infante | Sessão de Comunicações Orais 07 - Para além do evento agudo: preditores e desfechos após lesão miocárdica

CO 43. PERSISTENT RIGHT VENTRICULAR DYSFUNCTION AFTER PULMONARY ENDARTERECTOMY: INSIGHTS FROM STRAIN IMAGING AND HEMODYNAMIC CORRELATION

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ULS Almada-Seixal/Hospital Garcia de Orta.

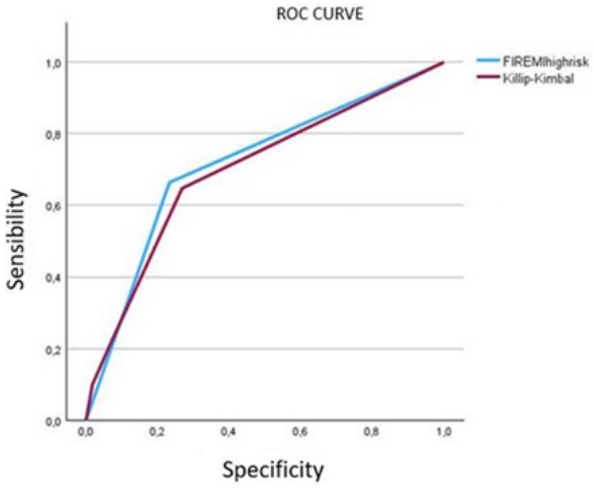
Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH, Group 4 PH) is potentially curable by pulmonary endarterectomy (PEA). However, a substantial proportion of patients show persistent pulmonary hypertension (PH) and right ventricular (RV) dysfunction despite successful surgery. Echocardiographic strain analysis of the RV and right atrium (RA) enables the detection of subtle functional abnormalities and may provide additional insight beyond invasive hemodynamic assessment.
Methods: We performed a retrospective, single-centre study including all consecutive patients with CTEPH who underwent PEA. Postoperative echocardiograms were reviewed for RV and RA strain analysis. Patients with suboptimal image quality were excluded. Strain parameters were correlated with right heart catheterization (RHC) performed 6-12 months after surgery.
Results: Of 39 patients who underwent PEA, 20 met inclusion criteria (mean age 58.7 ± 15.4 years, 60% female). Residual PH was confirmed in 37% by RHC. Compared with patients without residual PH, those with residual PH showed significantly lower RV strain values: RV free-wall strain (StFW) 16.2 ± 6.6 vs. 21.9 ± 5.2%, p = 0.047; global RV strain (StRV) 14.8 ± 6.5 vs. 19.5 ± 2.9%, p = 0.037; and basal segment strain 16.3 ± 7.7 vs. 26.2 ± 8.5%, p = 0.025. No significant differences were observed in mid- or apical-segment strain or in RA strain values (RA reservoir 29.1 ± 9.8 vs. 32.4 ± 8.6%, p = ns). Overall, RV strain failed to recover in 55% of patients and RA strain in 15%. Non-recovery was associated with higher pulmonary pressures at follow-up RHC. Significant correlations were found between StFW and mean pulmonary artery pressure (r = 0.52, p = 0.02), right-ventricular diastolic pressure (r = 0.46, p = 0.04), pulmonary capillary wedge pressure (r = 0.54, p = 0.01), and cardiac output (r = 0.52, p = 0.02). Global RV strain correlated with pulmonary vascular resistance (r = 0.62, p = 0.003), systolic pulmonary artery pressure (r = 0.61, p = 0.004), mean pulmonary artery pressure (r = 0.78, p = 0.001), wedge pressure (r = 0.66, p = 0.02), transpulmonary gradient (r = 0.61, p = 0.004), right-ventricular pressure (r = 0.67, p = 0.002), and right-ventricular tension (r = 0.72, p = 0.001).
Conclusions: After PEA, RV strain, particularly free-wall and basal-segment strain, remains impaired in more than half of patients, despite normalization of invasive hemodynamic indices. Strain parameters strongly correlate with catheterization data but frequently fail to normalize, suggesting incomplete or delayed myocardial recovery relative to hemodynamic improvement. Chronic pressure overload may result in irreversible structural remodeling or fibrosis. RV strain therefore emerges as a sensitive, non-invasive marker of persistent RV dysfunction and residual pulmonary hypertension after surgical treatment of CTEPH.

CO 44. INFLAMMATORY RESPONSE - A STRONG PREDICTOR OF MORTALITY FOLLOWING ACUTE CORONARY SYNDROME (ACS) - FIRE-MI SCORE

Francisco Rodrigues Dos Santos, João Gouveia Fiúza, Mariana Duarte Almeida, Gonçalo Ferreira, Oliver Correia Kungel, Luís Afonso Santos, António Costa, Inês Fiúza Pires

ULS Viseu Dão-Lafões/Hospital de São Teotónio.

Introduction: A pro-inflammatory status is known to increase the risk of cardiovascular events and mortality. Despite robust evidence supporting its deleterious effects, clinical recognition and interpretation of inflammatory activation remain limited in daily practice. This study aimed to develop a practical, clinically applicable risk score, based on routinely available laboratory markers, to predict in-hospital mortality following acute coronary syndrome (ACS).
Methods: This single-centre retrospective study included all patients admitted for ACS between January 2016 and December 2023. The newly developed FIRE-MI score (range: 0-5 points) was derived after identifying inflammatory biomarkers independently associated with in-hospital mortality (IHM) in multivariate analysis, with one point assigned per significant variable. The score incorporated the following parameters: C-reactive protein (CRP) > 1.5 mg/dL (p = 0.001), ferritin > 400 μg/L (p = 0.039), fibrinogen > 4.0 g/L (p = 0.021), uric acid (p = 0.041) and neutrophil percentage > 75% (p = 0.023). Patients scoring ≥ 3 were classified as high-risk. The score's association with IHM was analysed using binary logistic regression and compared with the Killip-Kimball (KK) classification by receiver-operating characteristic (ROC) curve analysis.
Results: A total of 1,714 patients were included; 70.4% (n = 1,206) were male, with a mean age of 69.2 ± 13.0 years. STEMI was present in 44.7% (n = 765) and 82.6% (n = 1,415) were in sinus rhythm. Most patients presented as KK class I (69.0%, n = 1,183). Elevated CRP, uric acid, ferritin, fibrinogen, and neutrophilia were observed in 23.7%, 31.0%, 24.3%, 44.2%, and 50.9% of patients, respectively. IHM occurred in 7.2% (n = 124). The mean FIRE-MI score was 1.73 ± 1.14, with 26.5% (n = 454) classified as high-risk (Figure 1). IHM was significantly more frequent among high-risk patients (66.9% vs. 23.3%; χ^2 = 112.31; p = 0.001). On multivariate analysis, the FIRE-MI score was an independent predictor of IHM (OR = 5.87, 95%CI 3.94-8.76; p = 0.001). ROC analysis demonstrated a fair discriminative ability, superior to the KK classification (AUC = 0.715 vs. 0.698; p = 0.047) (Figure 2).



Conclusions: The FIRE-MI score effectively stratifies patients according to their risk of in-hospital mortality following ACS, outperforming traditional clinical classification systems. Its simplicity and reliance on standard

inflammatory biomarkers make it a promising tool for bedside risk assessment, reinforcing the pivotal role of systemic inflammation in adverse cardiovascular outcomes.

CO 45. EFFICACY OF BETA-BLOCKER THERAPY IN POST-MYOCARDIAL INFARCTION PATIENTS WITH PRESERVED OR MILDLY REDUCED EJECTION FRACTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Bernardo Resende[1], Emídio Mata[2], Ana Marta Pinto[2], Tomás Carlos[1], Luísa Rocha[1], Miguel Vicente[1], Mafalda Griné[1], João Português[2], Sílvia Ribeiro[2], João Gameiro[1], António Lourenço[2], Lino Gonçalves[1]

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: While beta-blockers are well established for secondary prevention after myocardial infarction (MI) in patients with reduced left ventricular ejection fraction (LVEF), their long-term benefit in the reperfusion era among those with preserved (pEF) or mildly reduced (mrEF) LVEF remains uncertain in the era of modern reperfusion and optimized medical therapy. This study aimed to evaluate the efficacy and prognostic relevance of beta-blockers in contemporary post-MI patients without left ventricular systolic dysfunction.
Methods: Following PRISMA guidelines, we conducted a systematic search of CENTRAL, PubMed, Scopus, and EMBASE identified randomized controlled trials (RCTs) comparing long-term beta-blocker therapy versus usual care in post-MI patients with LVEF ≥ 40%. Primary outcomes were all-cause mortality and recurrent MI; secondary outcomes included cardiovascular (CV) mortality, heart failure hospitalization (HFH), malignant ventricular arrhythmias, stroke, and unplanned revascularization. Random-effects meta-analyses were performed using inverse-variance weighting.
Results: Four multicenter RCTs (2017-2024) comprising 19,826 patients (mean follow-up 3.6 years) met inclusion criteria. Beta-blocker therapy did not significantly reduce all-cause mortality (HR 0.98, 95%CI 0.85-1.12; I^2 = 0%) or recurrent MI (HR 0.88, 95%CI 0.74-1.05; I^2 = 32%). No significant differences were observed for CV mortality (HR 1.15, 95%CI 0.88-1.52), HFH (HR 0.85, 95%CI 0.61-1.19), stroke (RR 1.13, 95%CI 0.77-1.65), or revascularization (HR 1.00, 95%CI 0.85-1.18). Sensitivity analyses confirmed robustness, and heterogeneity was low. The certainty of evidence was rated high for primary outcomes.
Conclusions: In the contemporary reperfusion era, long-term beta-blocker therapy after MI does not confer significant reductions in mortality or recurrent ischemic events among patients with preserved or mildly reduced LVEF. These findings support individualized, risk-based continuation strategies, reserving chronic beta-blockade for patients with residual ventricular dysfunction or other specific indications.

CO 46. REAL-WORLD INCIDENCE AND RISK FACTORS FOR OSIMERTINIB-ASSOCIATED CARDIOTOXICITY

Beatriz Vargas Andrade[1], João Cravo[2], Marta Vilela[2], Diogo Ferreira[2], Daniel Cazeiro[2], Andreia Magalhães[2], Miguel Menezes[2], Manuela Fiúza[2], Fausto J. Pinto[2]

[1]ULS Lezíria/Hospital Distrital de Santarém. [2]ULS Santa Maria/Hospital de Santa Maria.

Introduction: Osimertinib, a third-generation EGFR inhibitor, has improved survival in metastatic lung cancer, but its real-world cardiotoxicity and associated risk factors remain unclear.
Objectives: To assess the real-world incidence, predictors, reversibility and clinical outcomes of osimertinib-related cardiotoxicity.
Methods: We conducted a retrospective single-center study including patients who started osimertinib from 2020 to 2024. Cardiotoxicity was defined as a > 10% reduction in LVEF, new-onset atrial fibrillation/flutter or any clinically relevant cardiovascular (CV) event. Predictors and outcomes were analyzed using multivariable logistic regression, Cox regression and Kaplan-Meier survival estimates.
Results: A total of 40 patients with lung adenocarcinoma were included (mean age 66 ± 3 years; 35% male). Most (88%) had metastatic disease and 50% received osimertinib as first-line therapy. Baseline mean LVEF was 56 ± 2%, with 2 patients (5%) showing LVEF < 50%. During a median follow-up of 31 (IQR 19-37) months, 6 patients (15%) developed cardiotoxicity: 3 (8%) had atrial fibrillation/flutter, 2 (5%) had LVEF decline, and 2 (5%) experienced other CV events. QT prolongation occurred in 6 patients (15%), without associated arrhythmias; 4 patients (10%) required treatment discontinuation, with therapy resumed in 2. Cardiotoxicity was significantly associated with baseline LVEF < 50% (p = 0.019), older age (75 ± 4 vs. 65 ± 2 years, p = 0.04) and higher baseline NT-proBNP [531 pg/mL (IQR 476-675) vs. 185 pg/mL (IQR 53-412), p = 0.01]. Both patients with LVEF decline discontinued osimertinib and recovered and one resumed therapy. LVEF decline was linked to baseline LVEF < 50% (p = 0.001) and not to treatment line or prior chemotherapy. New-onset atrial fibrillation/flutter was not associated with left atrial volume or obesity. CV hospitalization was associated with cardiotoxicity (50% vs. 9%, p = 0.03) and lower hemoglobin (9.9 ± 0.5 vs. 11 ± 0.3 g/dL, p = 0.02) and trended toward higher follow-up NT-proBNP [3769 pg/mL (IQR 989-7195) vs. 200 pg/mL (IQR 119-566), p = 0.07]. In survival analysis, cardiotoxicity tended to increase the risk of CV hospitalization (HR 4.4; 95%CI [1-22]; p = 0.07). All-cause mortality was not associated with cardiotoxicity, LVEF decline or CV hospitalization, but was associated to lower follow-up hemoglobin (10 ± 0.4 vs. 12 ± 0.4 g/dL, p = 0.01).
Conclusions: Osimertinib-related cardiotoxicity occurred in 15% of patients and trended toward higher CV hospitalization, without affecting mortality, which was mainly driven by disease progression. Given its long-term use, vigilant monitoring is essential, especially in older patients, those with prior heart failure or elevated baseline NT-proBNP.

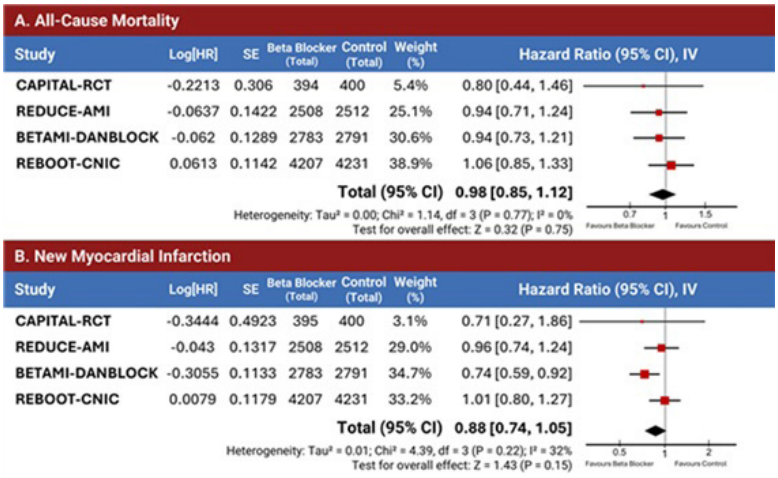


Figure CO 45

A

Total	**40**
Age, years (mean ±SD)	66 ± 3
Male, n (%)	14 (35)
Metastatic disease, n (%)	35 (88)
Previous chemotherapy, n (%)	25 (62)
First-line treatment, n (%)	20 (50)
Comorbidities	
Hypertension, n (%)	16 (40)
Dyslipidemia, n (%)	12 (30)
Diabetes mellitus, n (%)	8 (20)
Smoking, n (%)	7 (18)
AF, n (%)	2 (5)
CKD, n (%)	3 (8)
Echocardiogram before treatment	
LVEF, % (mean ±SD)	56 ± 2
LVEF <50%, n (%)	2 (5)
FUP time (median, IQR) months	31 (IQR 19-37)
Cardiotoxicity, n (%)	6 (15)
AF/Flutter, n (%)	3 (8)
Decreased LVEF, n (%)	2 (5)
CV event, n (%)	2 (5)
QT prolongation, n (%)	6 (15)
Discontinued therapy, n (%)	4 (10)
Restarted, n (%)	2 (5)
CV hospitalization, n (%)	6 (15)
Pulmonary thromboembolism, n (%)	4 (10)
Myocardial infarction, n (%)	2 (5)
Death, n (%)	26 (65)
CV cause, n (%)	0

B

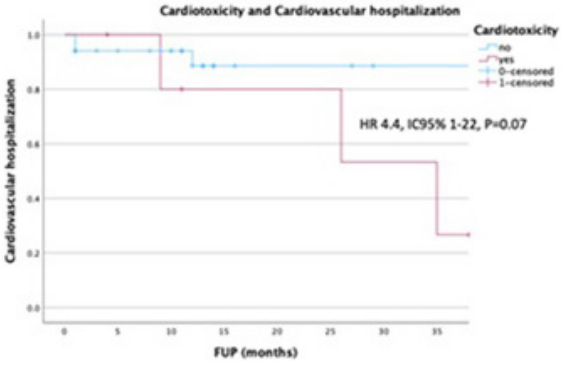


Figure 1: A) Table with baseline Characteristics and Outcomes of Patients Receiving Osimertinib (2020–2024); **B)** Cardiovascular hospitalization in pateints with osimertinib-related cardiotoxicity.

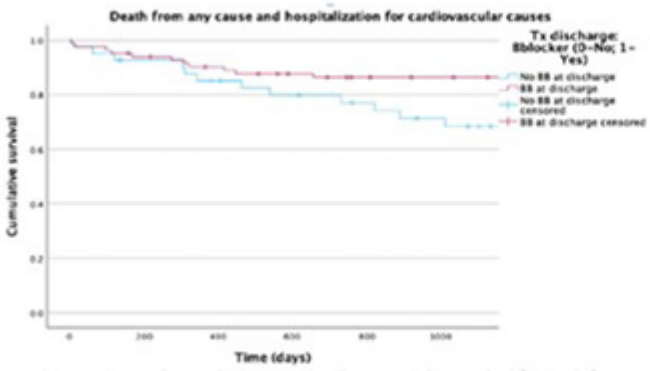
Figure CO 46

CO 47. IDENTIFYING HIGH-RISK PATIENTS AFTER TAKOTSUBO SYNDROME: LONG-TERM PROGNOSTIC PREDICTORS

Rodrigo Afonso, Marta Vilela, Daniel Inácio Cazeiro, Diogo Ferreira, João Cravo, Sofia Esteves, Inês Araújo, João Fernandes Pedro, Catarina Sena Silva, Pedro Carrilho Ferreira, Fausto J. Pinto

Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Takotsubo syndrome (TTS) is an acute and reversible form of heart failure, but patients remain at risk for late cardiovascular events. Our aim was to evaluate long-term outcomes after TTS and determine the predictors associated with adverse events.
Methods: We conducted a retrospective observational study including all patients diagnosed with TTS at a tertiary centre between June 2012 and December 2024. Clinical, laboratory, and echocardiographic data were collected. The primary endpoint was a composite of death from any cause and hospitalization for cardiovascular causes. Predictors of adverse



Graph 1- Kaplan–Meier survival curves showing cumulative survival for death from any cause and cardiovascular hospitalization, comparing patients discharged with and without beta-blocker therapy.

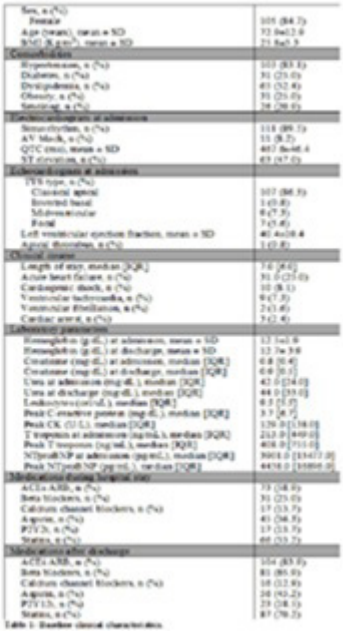


Figure CO 47

events were evaluated using univariable and multivariable regression analyses.
Results: We included 124 patients (84.5% women) with a mean age of 72.9 ± 12.9 years. Clinical baseline characteristics are in Table 1. At admission, 89.5% of patients were in sinus rhythm, the mean QTc was 467.6 ± 46.4 ms and 47.0% had ST elevation. Also, the most frequent TTS type was apical (86.3), the mean left ventricular ejection fraction (LVEF) was 40.4 ± 10.4% and almost all patients recovered LVEF at discharge (mean LVEF 50.5 ± 11.8%). During hospitalization, 58.9% received angiotensin converting enzyme inhibitors (ACEi) or angiotensin receptor blockers (ARB), 25.0% beta blockers (BB), 13.7% calcium channel blockers (CCB), 36.3% aspirin, 13.7% P2Y12 inhibitors and 18.5% statins. At discharge, ACEi/ARB were prescribed in 83.9%, BB in 65.9%, CCB in 12.9%, aspirin in 45.2%, and statins in 70.2% After a mean follow-up of 3 years, the primary composite endpoint occurred in 25.8% (32 events: 10 hospitalizations for cardiovascular cause and 22 deaths). In univariate analysis (non-parametric), lower haemoglobin at discharge (12.7 vs. 11.1), lower peak C reactive protein (2.76 vs. 6.5), lower discharge creatinine (0.84 vs. 1.22), lower discharge urea (43 vs. 55) and lower peak NT-proBNP (4,187 vs. 15,294) were associated with fewer long-term events (p < 0.05 for all). No continuous variable was normally distributed. Among categorical variables, BB at discharge reduced risk (HR 0.369, 95%CI 0.146-0.931; p = 0.031). In multivariate analysis (adjusted for age, sex, NYHA and admission LVEF), BB therapy remained protective (HR 0.273, 95%CI 0.098-0.763; p = 0.013)- graph 1. Discharge urea was an independent predictor (HR 1.026, 95%CI 1.007-1.045; p = 0.006). However, the number of events was low, so overfitting cannot be excluded.
Conclusions: In this cohort of TTS patients, discharge beta-blockers reduced 3-year risk of death or CV hospitalization, while higher discharge urea predicted worse outcomes. Results suggest optimizing therapy and monitoring renal function.

Sábado, 25 Abril de 2026 | 08:00-08:55

Espaço Ágora | Sessão de Comunicações Orais 08 - Reabilitação Cardíaca como terapia: recuperação funcional na doença cardiovascular avançada

CO 48. THE IMPACT OF EXERCISE TRAINING ON POST-EXERCISE OXYGEN UPTAKE RECOVERY IN HEART FAILURE - A POST-HOC ANALYSIS OF THE EXIT-HF RANDOMIZED CLINICAL TRIAL

Tiago Miguel Oliveira Peixoto[1], Pedro Monteiro[1], Cristine Schmidt[2], Sandra Magalhães[1], Maria Isilda Oliveira[2], João Pedro Ferreira[3], Fernando Ribeiro[4], Mário Santos[1]

[1]ULS Santo António/Hospital de Santo António. [2]Faculdade de Desporto da Universidade do Porto (FADEUP). [3]Faculdade de Medicina da Universidade do Porto. [4]Universidade de Aveiro.

Introduction: Exercise physiology research shows that post-exercise VO2 recovery kinetics offers valuable and cardio-specific insights into cardiovascular health. In advanced heart failure, prolonged VO2 recovery kinetics, defined as the time for VO2 to returns toward baseline, reflect delayed restoration of stroke volume and cardiac output, independently predicting hospitalization and mortality. However, the effects of exercise training on VO2 recovery and its prognostic significance remain unknown.
Methods: Early post-exercise VO2 recovery (VO2T12.5%: time in seconds for VO2 to decrease by 12.5% from peak VO_2 during recovery) was analyzed from the cardiopulmonary exercise testing (CPET) done at baseline and after a 12-week cardiac rehabilitation (CR) program in HF patients enrolled in the EXIF-HF trial. Participants were divided into tertiles based on baseline VO2T12.5%. The impact of the CR program was assessed by computing delta VO2T12.5% (baseline minus 12-week; analyzed via paired t-tests); we studied correlations (Pearson's r) with prognostically validated CPET parameters. Tertile differences were evaluated using one-away ANOVA.
Results: We analyzed data from 93 HF patients (mean age 63 ± 11.1 years; 33% female; 87% with reduced LVEF). At baseline, those with prolonged VO2T12.5% (> 85 s) were significantly older (68.1 ± 10.2 vs. 61.3 ± 11.0 years; $p = 0.014$). Across baseline tertiles, both oxygen pulse ($p = 0.005$) and 1-min heart rate recovery ($p < 0.001$) differed significantly. After 12 weeks of CR, VO2T12.5% improved by an average of -10 ± 22 s ($p < 0.001$). The upper quartile of responders (shortening > 20 s) did not differ from the rest of the cohort in any baseline demographic, clinical, or CPET variable. Changes in VO2T12.5% showed no meaningful associations with changes in VO2peak (r = -0.03; $p = 0.81$) or VE/VCO2 slope (r = 0.16; $p = 0.13$).
Conclusions: The 12-week CR program significantly improved early post-exercise VO2 recovery in HF patients. VO2T12.5% was physiologically linked with oxygen pulse and heart rate recovery, while training-induced improvements occurred independently of changes in traditional prognostic markers like VO_2peak. Our data support VO2T12.5% as a physiologically meaningful and modifiable metric that may enhance CPET-guided risk stratification and therapeutic monitoring in HF.

CO 49. PREDICTION USEFULNESS OF A 5-LEVEL SCORE IN DETERMINING OUTCOMES AFTER CARDIAC REHABILITATION

João Fernandes Pedro[1], Daniel Inácio Cazeiro[1], João Cravo[1], Marta Vilela[1], Catarina Silva[1], Paula Sousa[2], Madalena Carvalho[3], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[1], Nelson Cunha[1], Fausto J. Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Cardiology Department, ULS Santa Maria. [3]Physical and Rehabilitation Medicine Department, ULS Santa Maria.

Introduction: Cardiopulmonary exercise testing (CPET) provides multiple physiologic markers with established prognostic relevance. However, simple, practical CPET-based tools for risk stratification in patients entering cardiac rehabilitation (CR) are lacking.
Objectives: To identify CPET parameters associated with all-cause mortality and develop a cumulative, clinically applicable CPET-based risk score.
Methods: We retrospectively analyzed patients enrolled in a CR program who underwent CPET prior to CR initiation. Clinical, laboratory, echocardiographic, and CPET data were collected from patients' records. CPET variables associated with lower survival were identified using receiver operating characteristic (ROC) analyses to determine optimal thresholds. A cumulative score (0-5) was constructed by assigning one point per abnormal CPET parameter. Survival was assessed with Kaplan-Meier curves and multivariate Cox proportional hazards models.
Results: Among 476 patients (mean age 61 years; 80% male; 84% ischemic heart disease), 67% had hypertension, 27% diabetes, 70% dyslipidemia, and 61% a history of smoking. Median serum creatinine and NT-proBNP were 0.93 mg/dL and 460 pg/mL, respectively; mean left ventricular ejection fraction was 50%. Over a mean follow-up of 2.5 years, 20 deaths occurred. Five CPET parameters were associated with lower survival: peak VO2 < 11.7 mL·kg?¹·min?¹, percent-predicted peak VO2 < 57%, PETCO2 < 31 mmHg, VE/VCO2 slope > 32, and ventilatory power < 5.7 (HR 2.5). The cumulative CPET score demonstrated good discrimination for mortality (AUC 0.709); a score ≥ 3 identified patients with significantly reduced survival (log-rank p < 0.001). In multivariate Cox regression, the score remained an independent predictor of all-cause mortality after adjusting for LVEF, age, NT-proBNP, eGFR, and cardiovascular risk factors (HR 1.551, 95%CI 1.160-2.075, p = 0.003).
Conclusions: A simple additive score derived from five CPET parameters measured before CR initiation provides strong prognostic discrimination for all-cause mortality and may serve as a practical tool for risk stratification in cardiac rehabilitation candidates.

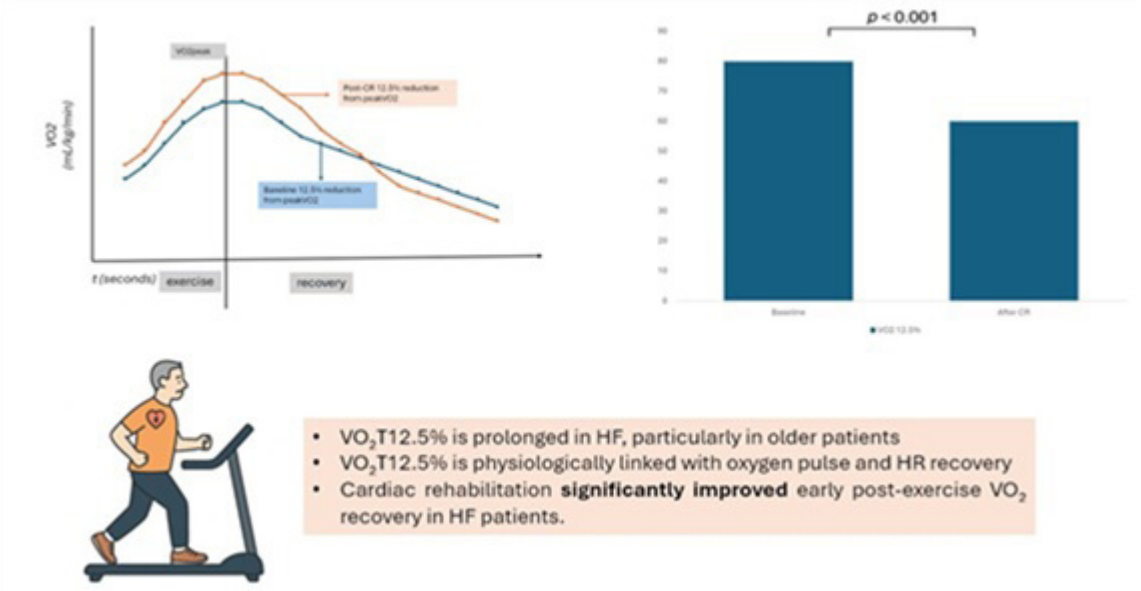


Figure CO 48

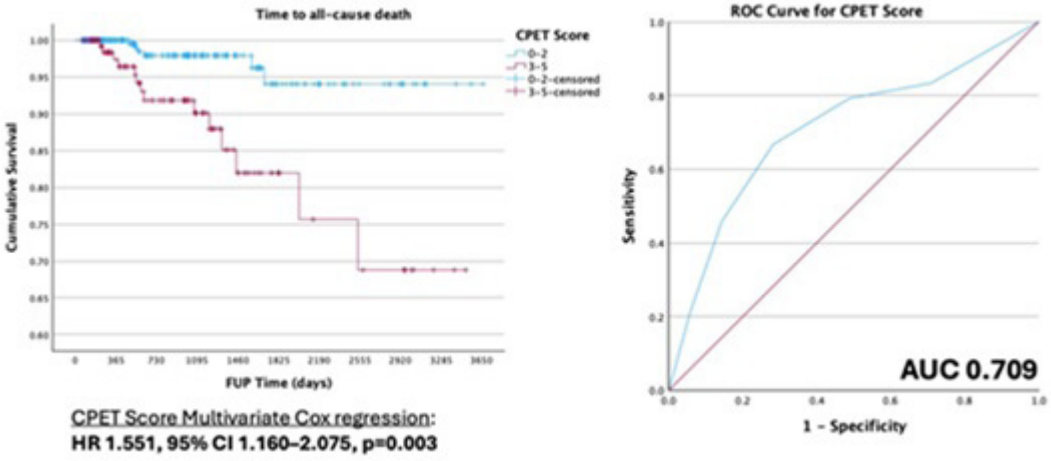


Figure CO 49

CO 50. EARLY POST-DISCHARGE AMBULATORY CARDIAC REHABILITATION AFTER ACUTE HEART FAILURE: A RANDOMIZED PROSPECTIVE STUDY

Francisco Rodrigues dos Santos, Oliver Correia Kungel, Gonçalo Ferreira, João Gouveia Fiúza, Mariana Duarte Almeida, Luís Afonso Santos, António Costa, Inês Fiúza Pires

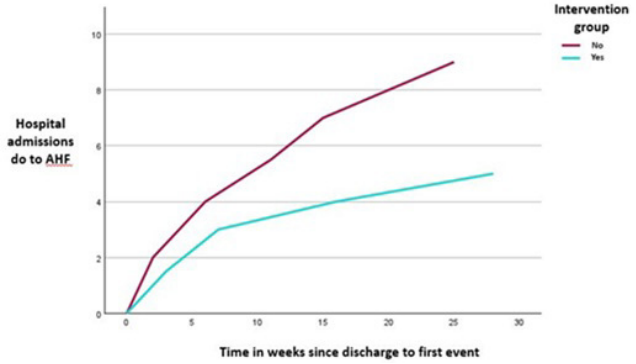
ULS Viseu Dão-Lafões/Hospital de São Teotónio.

Introduction: Cardiac rehabilitation (CR) is a cornerstone therapy for patients hospitalized with acute heart failure (AHF), with early inpatient rehabilitation (Phase I) contributing to functional recovery and Phase II programs playing a key role in longitudinal follow-up. However, the transition period between hospital discharge and initiation of Phase II –typically weeks– remains a vulnerable window associated with high rates of early readmission. This study aimed to evaluate the impact of an early, structured, post-discharge ambulatory CR strategy implemented in a center without a dedicated rehabilitation program.

Methods: We conducted a prospective, 1:1 randomized study with an estimated 1-year recruitment period and 2-year follow-up. Consecutive patients aged 18-80 years admitted with AHF and left ventricular ejection fraction (LVEF) < 50%, autonomous in daily activities and without contraindications to light-to-moderate exercise were randomized according to date of admission. The intervention group received detailed baseline assessment, individualized exercise prescription, and in-person reassessment every two weeks with iterative adjustment of the exercise plan. The control group received standard of care with routine outpatient follow-up and guideline-directed medical therapy titration. Kansas City Cardiomyopathy Questionnaire (KCCQ) scores and 6-minute walk test (6MWT) performance were obtained at discharge and at 3 months. Emergency visits, hospitalizations, and mortality were recorded. This abstract reports the 3-month interim analysis.

Results: 38 patients were included (19 control vs. 19 intervention), age (66.6 vs. 64.2 years), length of stay (8.6 vs. 8.5 days), discharge LVEF (34.1% vs. 33.8%), TAPSE (19.2 vs. 18.5 mm), LV end-diastolic volume (96.9 vs. 95.2 mL), BMI (27.9 vs. 28.7 kg/m^2), NT-proBNP (5,882 vs. 4,863 pg/mL), initial 6MWT distance (360.9 vs. 377.4 m), and KCCQ score (61.1 vs. 54.4), all $p > 0.05$. At 3 months, the intervention group achieved greater improvements in both functional capacity and quality of life: 6MWT change (+47.5 ± 31 m vs. +25 ± 36 m; $p = 0.029$) and KCCQ change (+22.2 ± 21.9 vs. +7.9 ± 9.2; $p = 0.017$). Kaplan-Meier analyses showed lower cumulative incidence of HF-related and all-cause hospitalizations,

as well as fewer emergency department visits, in the intervention group, although without statistical significance at 3 months (p = 0.10) (Figure 1). Mortality was 0 in the intervention group and 2 in the control group.



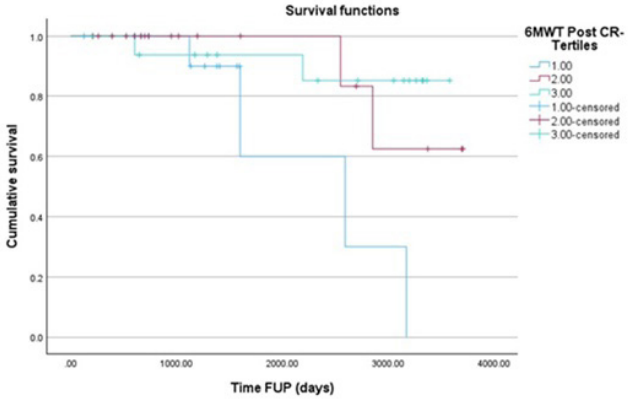
Conclusions: Early post-discharge ambulatory CR appears safe and demonstrates clinically meaningful improvements in functional capacity and quality of life, with encouraging early signals toward reduction in hospitalizations. Long-term results from the planned 2-year follow-up may clarify its impact on major clinical endpoints and support its implementation in centers without established center-based CR programs.

CO 51. RECLAIMING FUNCTION: FUNCTIONAL AND PROGNOSTIC GAINS THROUGH CARDIAC REHABILITATION IN PULMONARY HYPERTENSION

João Martins Neves[1], Daniel Inácio Cazeiro[1], Gisela Afonso[2], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[1], Nelson Cunha[1], Rui Plácido[1], Nuno Lousada[1], Sandra Miguel[2], Fausto J. Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Physical and Rehabilitation Medicine Department, ULS Santa Maria.

Introduction: Pulmonary hypertension (PH) is associated with reduced exercise tolerance and substantial morbidity. Although exercise training is recommended in PH management, the benefits of structured cardiac rehabilitation (CR) on clinical and functional outcomes remain to be fully explored.
Objectives: To assess the impact of a structured cardiac rehabilitation program on functional performance, biomarker profiles, and clinical outcomes in patients with pulmonary hypertension.
Methods: Prospective observational single-center study including patients with PH enrolled in a CR program between 2015 and 2025. The program comprised twice-weekly, low-to-moderate-intensity supervised exercise sessions complemented by multidisciplinary evaluations from cardiologists and physiatrists. Clinical, echocardiographic, and functional parameters were collected. Outcomes included all-cause and cardiovascular mortality, as well as cardiovascular hospitalizations.
Results: A total of 91 patients were included (mean age 60.5 ± 15.0 years; 64.8% female). The predominant PH groups were Group 4 (37.9%) and Group 1 (31.0%). At baseline, 31.9% were on monotherapy, 27.5% on dual therapy, and 9.9% on triple therapy. Median NT-proBNP was 648 pg/mL [231-1832] and over half of the cohort did not require supplemental oxygen (54.9%). The program was associated with significant improvements in functional capacity, including 6MWT (282.3 ± 122.0 m to 360.5 ± 111.7 m, p < 0.001), IPAQ (0 [0-837] to 870 [480-870], p < 0.001), TUG (10.7 [8.7-14.6] to 10.4 [8.5-12.9], p = 0.026), FICSIT (18.3 ± 7.2 to 21.5 ± 6.1, p = 0.006), and muscle strength in both upper (13.0 ± 4.1 to 18.1 ± 5.1, p < 0.001) and lower limbs (11.9 ± 4.1 to 14.9 ± 4.1, p = 0.001), as well as a reduction in NT-proBNP levels (513.5 [157.5-513.5] to 290 [126.5-290], p = 0.048). Among echocardiographic parameters, only PSAP improved significantly (71.1 ± 25.6 mmHg to 58.0 ± 19.1 mmHg, p = 0.002). Over a mean follow-up of 4.2 ± 3.0 years, 30 deaths (12 cardiovascular) and 45 hospitalizations (32 cardiovascular) occurred. Patients in the lowest tertile of post-CR 6-minute walk distance experienced significantly higher mortality than those in the middle and upper tertiles (p 0.025), reinforcing the established role of 6MWD as a prognostic marker in pulmonary hypertension (Figure 1) and the importance of functional gains in this population.



Conclusions: Structured cardiac rehabilitation is a safe and effective intervention that yields meaningful improvements in functional capacity and biomarkers in patients with pulmonary hypertension. These findings align with growing evidence supporting exercise-based interventions in PH and underscore post-rehabilitation 6MWD as a robust tool for risk stratification.

CO 52. CARDIAC REHABILITATION AFTER HEART TRANSPLANTATION AND HEARTMATE 3 SUPPORT: A 10-YEAR NATIONAL EXPERIENCE AND FUNCTIONAL OUTCOMES IN ADVANCED HEART FAILURE

Francisco Rocha Cardoso, Felipe Leão, Ana Raquel Santos, Ricardo Carvalheiro, Rita Ilhão Moreira, António Gonçalves, Joana Pinto, Carlos Franco, Rui Costa, Rui Cruz Ferreira, Pedro Rio

ULS São José/Hospital de Santa Marta.

Introduction: Cardiac rehabilitation (CR) is recommended after heart transplantation (HTx) and durable left ventricular assist device (LVAD) implantation, yet real-world evidence remains scarce. International data are limited by small heterogeneous cohorts, inconsistent functional endpoints, and under-representation of mixed HTx-LVAD populations. No structured national experience had been previously reported in Portugal. This study provides the first consecutive 10-year national series evaluating CR outcomes in advanced heart failure supported by HTx or HeartMate 3 (HM3).
Methods: We retrospectively analysed 29 adults who completed CR Phase II between 2015-2025 (HTx = 24; HM3 = 5). Variables included planned and completed sessions, adherence, six-minute walk test (6MWT), and oxygen consumption (VO2/METs). Group assignment was validated through clinical documentation. NYHA class, quality of life and safety outcomes were not analysed due to non-systematic recording. Analysis was descriptive (median, interquartile range [IQR]).
Results: Overall adherence was high at 100% (IQR 91-106), with 26 planned sessions (20-35). HTx patients completed 28 sessions (23-31), while several HM3 patients had ongoing programmes (23 sessions, 19-28). Baseline 6MWT was 483 m (450-538), similar to international reports. Post-CR distance improved to 554 m (500-610), yielding a global gain of +59 m (+20 to +122). HTx patients showed consistent improvement (+59 m), closely matching published cohorts. HM3 patients with completed CR demonstrated comparable gains (+53 m). Pre-CR VO2/METs was higher in HM3 patients, reflecting device-specific physiology; only HTx patients had post-CR testing, improving by +15.9 units (+1.5 to +35.5).
Conclusions: This national experience confirms that CR is feasible, structured and clinically effective across advanced heart failure therapies, with functional improvements aligned with the best international evidence. These findings support broader implementation of dedicated CR programmes for HTx and HM3 patients and highlight the need for prospective, standardised registries to strengthen the evidence base in this complex population.

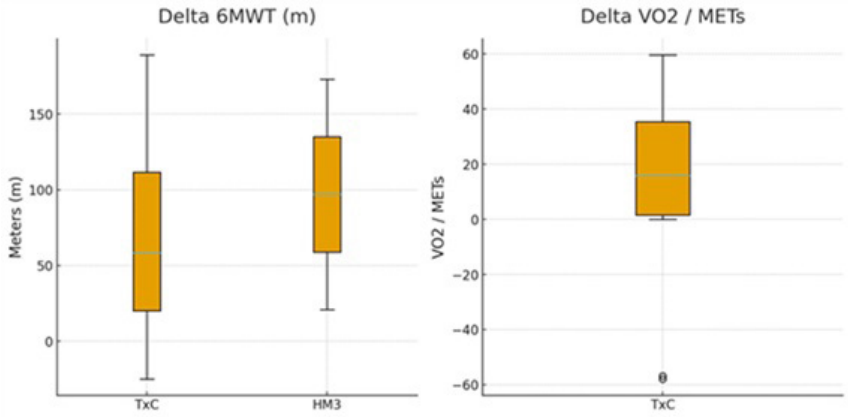


Figure CO 52

Sábado, 25 Abril de 2026 | 08:00-08:55

Sala Arquivo | Sessão de Comunicações Orais 09 - Inteligência Artificial e tomada de decisão no risco cardiovascular e nos sistemas de saúde

CO 53. BENCHMARKING LARGE LANGUAGE MODELS FOR CARDIOVASCULAR RISK STRATIFICATION: A BILINGUAL VIGNETTE-BASED STUDY

José Ferreira Santos[1], Regina de Brito Duarte[2], Inês Mota[3], Rita Carvalheira Santos[1], José Maria Moreira[3], Joana Campos[2], Bernardo Neves[4], Ricardo Ladeiras-Lopes[5], Francisca Leite[3], Hélder Dores[4]

[1]Hospital da Luz Setúbal. [2]Instituto Superior Técnico Lisboa. [3]Hospital da Luz Learning Health. [4]Hospital da Luz Lisboa. [5]Hospital da Luz Guimarães.

Introduction: Cardiovascular risk assessment is critical to prevention, yet implementation remains inconsistent. Clinicians often rely on unaided judgment, leading to systematic risk underestimation. Large language models (LLMs) show promise as decision support tools but require rigorous validation against standard of care like SCORE2 before clinical deployment.
Objectives: To benchmark 11 contemporary LLMs in (i) extracting cardiovascular risk factors from clinical text and (ii) generating accurate, ESC-aligned risk classifications, compared against expert-adjudicated reference standards.
Methods: We evaluated 30 systematically developed bilingual (Portuguese/English) outpatient vignettes using 11 LLMs (Claude Opus 4.1, Claude Sonnet 4.5, DeepSeek V3, Gemini 2.0 Flash, Gemini 2.5 Pro, GPT-4.1, GPT-4o, GPT-5, GPT-5 Nano, Grok-3, Llama 3.3 70B) in zero-shot setting. Performance was compared against gold-standard adjudication by senior cardiologists using 2021 ESC guidelines. Primary outcomes: risk-factor extraction accuracy (micro-F1) and three-class risk classification agreement (quadratic-weighted Cohen's kappa, κw). Secondary outcomes: numeric SCORE2 agreement (MAE) and guideline exception identification accuracy.
Results: All models achieved excellent traditional risk factor extraction (micro-F1: 0.97-0.99), but lower performance for risk modifiers (0.58-0.82). Risk classification agreement was moderate (Figure); GPT family models performed best, with GPT-4o achieving highest agreement (κw = 0.69, 95%CI: 0.44-0.84). Critically, 10/11 models systematically underestimated risk categories. Numeric SCORE2 calculation was poor; all but one model showed clinically significant MAE > 5 percentage points. Most models correctly identified guideline exceptions (> 95% accuracy). No significant Portuguese-English performance differences were found.

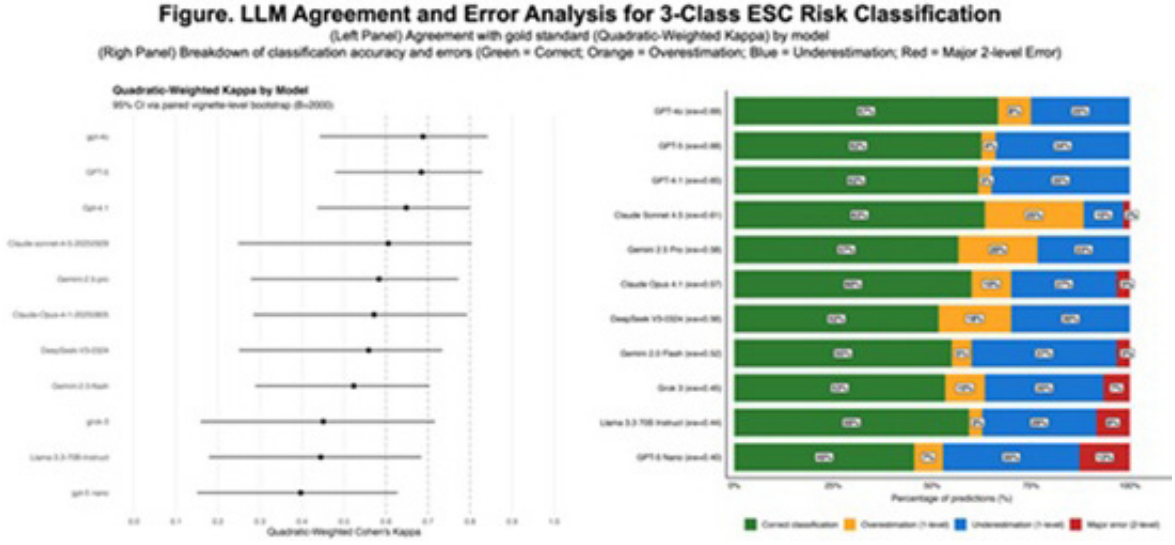


Figure CO 53

Conclusions: LLMs excel at structured data extraction and guideline eligibility screening with robust bilingual capabilities. However, inconsistent risk stratification, systematic underestimation bias, and poor numeric accuracy preclude autonomous clinical use. While promising as support tools, further refinement in clinical reasoning and mathematical computation is necessary for safe integration into cardiovascular prevention workflows.

CO 54. LARGE LANGUAGE MODELS VERSUS PHYSICIANS IN CARDIOVASCULAR RISK STRATIFICATION

José Ferreira Santos[1], Regina de Brito Duarte[2], Inês Mota[3], Rita Carvalheira Santos[1], José Maria Moreira[3], Joana Campos[2], Nuno André Silva[3], Bernardo Neves[4], Ricardo Ladeiras-Lopes[5], Francisca Leite[3], Hélder Dores[4]

[1]Hospital da Luz Setúbal. [2]Instituto Superior Técnico Lisboa. [3]Hospital da Luz Learning Health. [4]Hospital da Luz Lisboa. [5]Hospital da Luz Guimarães.

Introduction: Large language models (LLMs) show promise in medical reasoning, but their reliability relative to practicing clinicians remains poorly characterized. Benchmarking models against the variability of real-world clinical judgment, not only against guidelines, is essential to define their role in practice.
Objectives: This exploratory study compared 11 contemporary LLMs with a diverse cohort of practicing physicians for cardiovascular risk stratification, focusing on classification accuracy, inter-rater variability, and safety-critical errors.
Methods: In this vignette-based benchmark of 11 LLMs and 8 physicians, we used 30 validated synthetic clinical vignettes requiring cardiovascular risk stratification. Eight physicians (3 Family Medicine, 3 Internal Medicine, 2 Cardiology), all with > 3 years' specialty experience, independently classified vignettes into three ESC 2021 risk categories. Their performance contextualized that of 11 LLMs from six major families (GPT, Claude, Gemini, Llama, Grok, DeepSeek). Agreement with an expert-adjudicated gold standard was assessed using quadratic-weighted Cohen's kappa (κw). Inter-rater reliability was quantified with Gwet's AC2, and a majority-vote physician ensemble was constructed.
Results: LLM agreement with the gold standard ranged from fair to moderate (κw 0.40-0.69). Individual physicians showed wider variability, with κw 0.15-0.93. Inter-rater reliability among physicians was moderate (AC2 = 0.44). The top-performing model, GPT-4o (κw = 0.69), outperformed 7 of 8 individual physicians, but the pooled physician ensemble (κw = 0.76) exceeded all LLMs. Error analysis revealed distinct safety profiles: physicians made no major two-level misclassifications (low/moderate vs. very high risk), whereas several LLMs did so in 2-13% of cases.
Conclusions: In this vignette-based benchmark, top-tier LLMs matched or exceeded the performance of most individual physicians but remained inferior to collective human consensus and were uniquely prone to rare yet critical two-level errors. These findings highlight both the promise and safety limitations of current LLMs and underscore the need for further validation before clinical use.

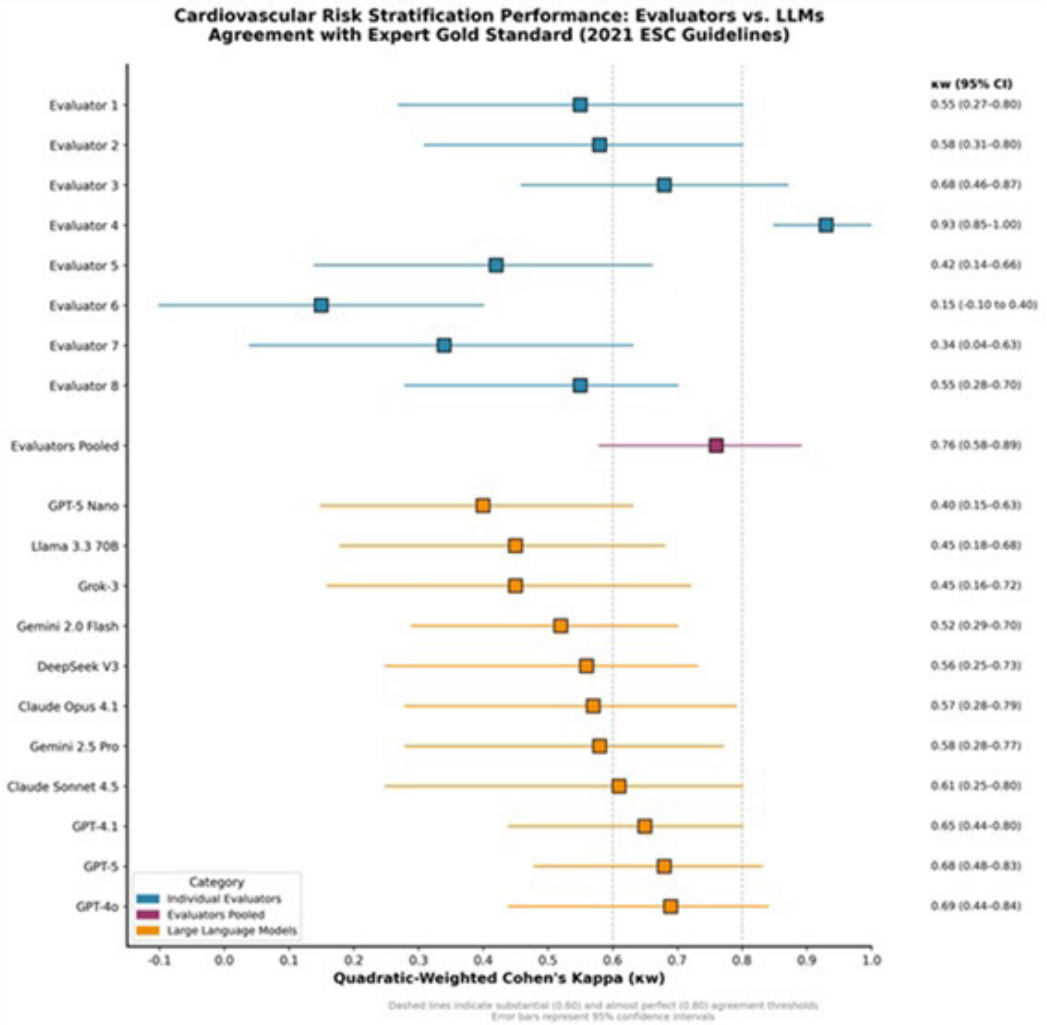


Figure CO 54

CO 55. ATLAS: INTERACTIVE VISUALISATION OF REAL-WORLD DATA (RWD) TO IMPROVE HEART FAILURE MANAGEMENT AND PATIENT OUTCOMES IN PORTUGAL

Guilherme Amorim[1], Ana Leal Neto[2], Sara Gonçalves[3], Rudolfo Mendes Francisco[1], Marisa Pardal[1], Francisco do Carmo[4], Sofia Sardinha[1], Daniel Ramos[1], Rita Canhoto[1], Ana Catarina Gomes[1], João Couceiro[1], Filipa Bernardo[1]

[1]AstraZeneca. [2]ULS Tâmega e Sousa/Hospital Padre Américo. [3]ULS Arrábida/Hospital de São Bernardo. [4]IQVIA.

Introduction: Recent findings from the PORTHOS study indicate a Heart Failure (HF) prevalence of 16.5% among individuals aged ≥ 50 years in mainland Portugal, including a high proportion of undiagnosed cases, and important regional heterogeneity. These data stress the need to ensure adequate disease diagnosis and management, and equitable access to high-quality care. Real-world data (RWD) can deliver actionable and timely insights at scale to pinpoint areas with the highest disease burden. Our objective was to create an interactive RWD visualisation tool to describe geographic variation in HF burden across Portugal, enabling targeted interventions to enhance care.
Methods: We developed ATLAS, an interactive PowerBI dashboard, based upon a retrospective analysis of routinely collected data on admissions and mortality due to heart failure (HF) in Portugal, using hospital production datasets (IQVIA) (Figure 1). We analyzed data from 2018-2023, starting with all 50 public hospitals in mainland Portugal and autonomous regions. Since complete data up to 2023 was only available for 13 units, missing data were imputed using the latest unit-specific figures and trends from similar hospital (based on official ACSS clustering). Relevant admissions were identified using ICD-10 clinical codes for HF (e.g., I50.x) recorded as primary diagnosis. HF prevalence estimates, hospitalisations, and mortality rates were aggregated at national and regional level (NUTS-II). To complement these data, we integrated prevalence estimates from the 2023 PORTHOS population-based study among individuals aged ≥ 50 years.
Results: National HF hospitalisation rates declined over time (1.5% of all admissions in 2018 to 1.0% in 2023), with similar trajectories across regions (Figure 2). In 2023, HF hospitalisation rates were 0.9% in Península de Setúbal and Grande Lisboa, 1.0% in Norte, 1.2% in Centro and Alentejo/Algarve, 1.3% in Açores/Madeira, and 1.4% in Oeste e Vale do Tejo. Contrary to hospitalisation rates, national HF in-hospital mortality increased from 14.0% in 2018 to 14.6% in 2023 (maximum: 15.4% in 2021). Regional HF mortality rates in 2023 were 8.4% in Açores/Madeira, 11.0% in Grande Lisboa, 13.9% in Centro, 14.6% in Norte, 18.0% in Alentejo/Algarve, 18.4% in Oeste e Vale do Tejo, and 19.3% in Península de Setúbal. Hospitalisation and mortality rates for 2023 showed wide variability across health units nationwide and within regions (e.g. nationwide hospitalisation rates: 0.4%-2.6%, mortality rates: 3.4%-28.8%) (Figure 3).
Conclusions: RWD shows longitudinal trajectories of HF burden and outcomes in Portugal at national, regional, and local levels, highlighting important heterogeneity both between and within regions. These data can be leveraged in interactive platforms such as ATLAS to support identification of areas of unmet need, and development of targeted initiatives to improve HF care.

CO 56. MACHINE-LEARNING CLUSTERING UNCOVERS DIVERGENT RESPONSE PATHWAYS TO MAVACAMTEN IN OBSTRUCTIVE HCM: A PORTUGUESE MULTICENTRE PERSPECTIVE

Inês Pereira de Miranda[1], Filipa Gerardo[1], Rodrigo Brandão[1], Julien Lopes[2], Débora Correia[3], Sérgio Maltês[3], José Viegas[2], Tânia Laranjeira[3], Sílvia Aguiar Rocha[2], Bruno Rocha[3], João Bicho Augusto[1]

[1]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca. [2]ULS São José/Hospital de Santa Marta. [3]ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Response to mavacamten in obstructive hypertrophic cardiomyopathy (oHCM) is heterogeneous due to differences in clinical features, biomarkers, and cardiac remodeling. Traditional subgroup analyses may miss multidimensional phenotypes influencing treatment effects. Unsupervised clustering offers a data-driven approach to identify latent response profiles, potentially improving patient stratification and supporting personalized therapy.
Objectives: To identify distinct mavacamten response phenotypes using unsupervised clustering of clinical, biomarker, and imaging parameters in oHCM patients, based on real-world data from three Portuguese centers.
Methods: Consecutive mavacamten-treated oHCM patients from three Portuguese centers were analyzed using K-means unsupervised clustering. Input variables captured multidimensional changes from baseline to optimal dose, including LVOT gradients, maximal wall thickness, indexed LV mass, left atrial diameter (LAd), E/e' ratio, and NYHA class, along with baseline genotype category and CYP2C19 metabolizer status. Missing values were imputed with medians and all features were standardized (z-scores) before model training. Silhouette analysis across k = 2 to k = 6 supported a two-

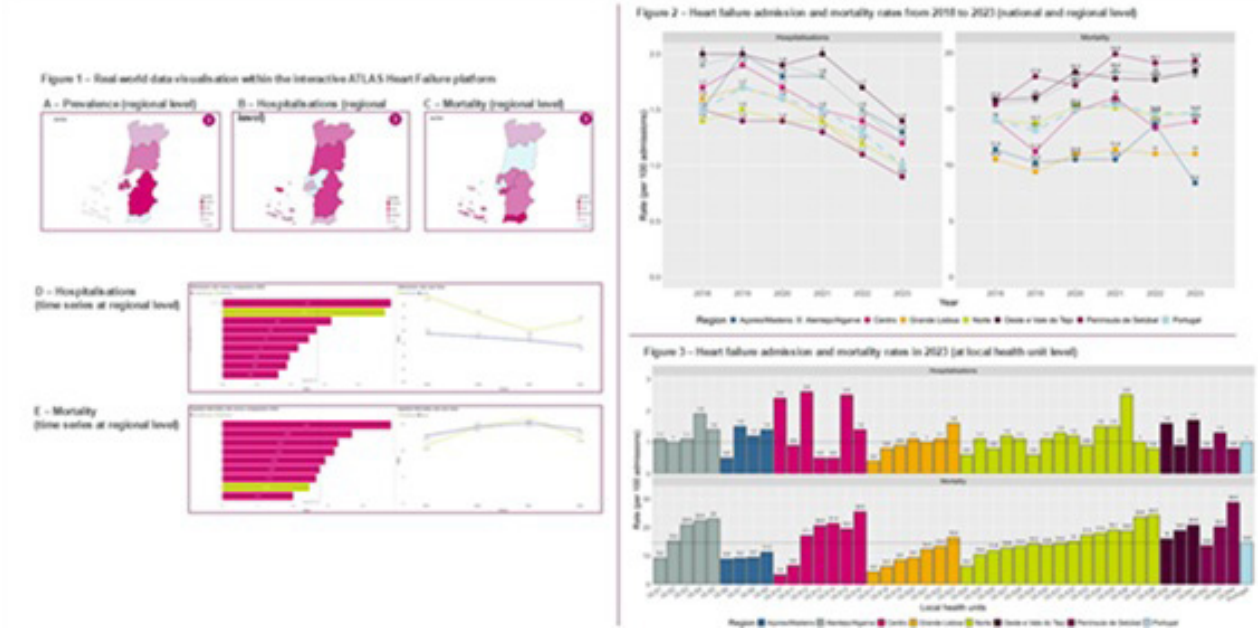


Figure CO 55

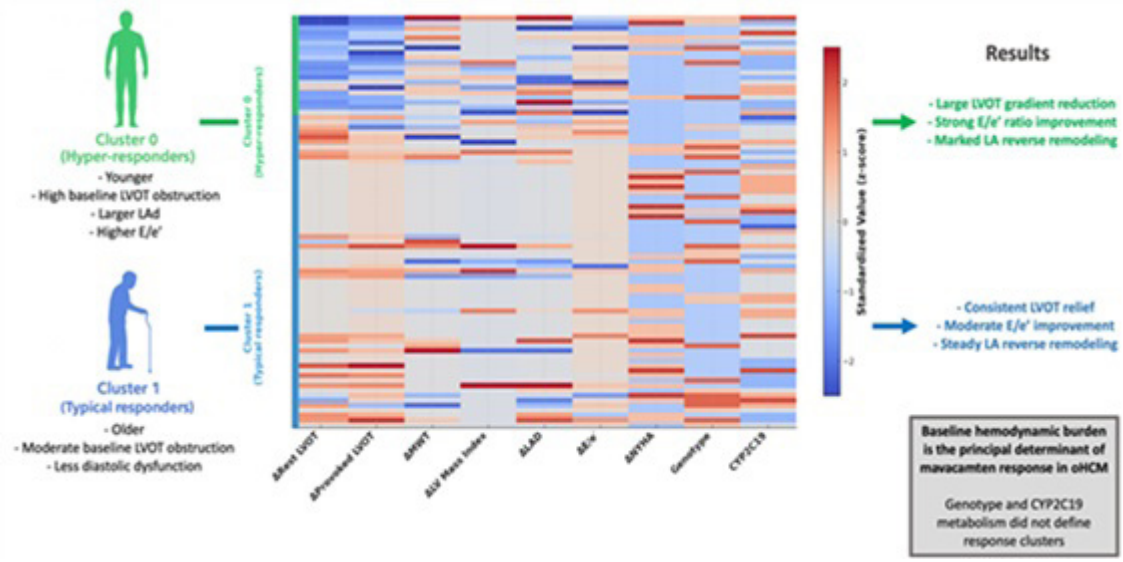


Figure CO 56

cluster model, and clinical and echocardiographic profiles were examined to derive clinically interpretable response phenotypes.

Results: A total of 83 patients were included (mean age 65 ± 12 years; 68.7% female). Two response phenotypes emerged as the optimal cluster solution. Cluster 0 ("hyper-responders", n = 20) included younger patients (60.4 ± 14.3 vs. 66.3 ± 10.6 years, p = 0.096) with markedly higher baseline obstruction (rest LVOT gradient 101 ± 37 vs. 46 ± 29 mmHg, p < 0.001; provoked 143 ± 45 vs. 85 ± 36 mmHg, p < 0.001), slightly larger LAd (46 ± 6 vs. 43 ± 6 mm, p = 0.06), and higher E/e' ratio (17.7 ± 6.0 vs. 15.2 ± 5.2, p = 0.08). This group had pronounced haemodynamic and diastolic improvement, with reductions in LVOT gradients (rest -98 ± 34 vs. -32 ± 28 mmHg, p < 0.001; provoked -135 ± 45 vs. -66 ± 35 mmHg, p < 0.001) and E/e' ratio (-6.7 ± 3.5 vs. -2.8 ± 2.7, p = 0.01). Cluster 1 ("typical responders", n = 63) consisted of older patients with less severe baseline gradients and exhibited a moderate but consistent response across all remodeling domains. Reductions in LAd (-4.1 ± 4.5 vs. -3.3 ± 4.1 mm, p = 0.42) and indexed LV mass (-32.7 ± 41 vs. -17.5 ± 39 g/m², p = 0.20) were observed in both clusters. Genotype distribution and CYP2C19 metabolizer class did not significantly differ.

Conclusions: Data-driven phenogrouping identified two mavacamten response pathways: a younger, highly obstructive hyper-responder group with striking reverse remodeling, and a milder obstructive group with moderate improvement. Hemodynamic load, but not genotype, drives treatment benefit. These phenogroups may support more personalized mavacamten use in real-world oHCM.

CO 57. TWENTY-FIVE YEARS OF CARDIOLOGY TARIFFS IN THE PORTUGUESE NATIONAL HEALTH SERVICE: WHO GAINED AND WHO LOST VALUE?

Didier Martinez, Gonçalo Ferraz-Costa, Tatiana Santos, Maria João Primo, Ana Rita Ventura, Inês Brito e Cruz, Elisabete Jorge, Rui Baptista, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Cardiology Diagnostic Procedures (CDP) are central to clinical practice in the Portuguese National Health Service (Portuguese-NHS) and are reimbursed by regulated fee schedules, whose evolution is poorly quantified and relevant for health-economics analysis.

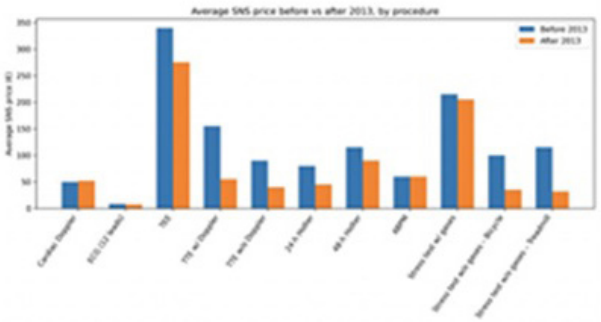


Figure 1: Mean of the Portuguese-NHS tariff for cardiology procedures before 2013 (2000–2012) and after 2013 (2013–2025), with error bars representing 95% confidence interval.

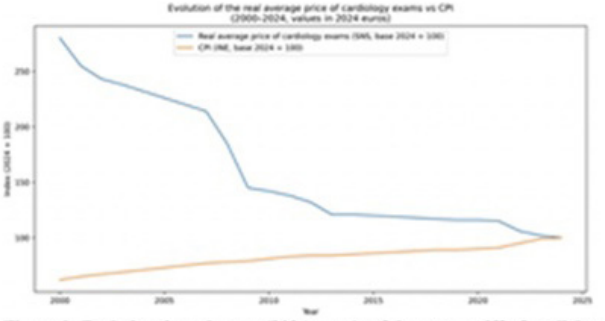


Figure 2. Evolution, in real terms (2024 euros), of the mean tariff of cardiology diagnostic examinations in the Portuguese-NHS -NHS and CPI of Portugal between 2000 and 2024, expressed as indices with base year 2024 = 100. In real terms, the tariffs of cardiology examinations did not keep pace with the increase in the general tariff level.

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Figure CO 57

Objectives: To characterise, for 2000-2025, the evolution of nominal and real tariffs of main cardiology procedures in the Portuguese-NHS and the impact of fee-schedule ministerial decrees.
Methods: Descriptive study of the CDP fee schedule from procedures: 12-lead EKG, ambulatory blood pressure monitoring (ABPM), 24-/48-hour Holter, exercise stress test, transthoracic echocardiography (TTE) with/without Doppler, transoesophageal echocardiography (TOE) and cardiac Doppler) and of the Consumer Price Index (CPI-INE) for 2000-2024. Procedures were grouped as "simple" (EKG, ABPM and Holter) or "complex" (cardiac Doppler, TOE, both TTE, exercise test). Nominal tariffs (prices extracted from ACSS) were inflation adjusted prices with CPI (2024 = 100), enabling comparison between the mean tariff index of the procedures and the CPI.
Results: Majority of procedures underwent two tariff changes, mainly in 2009 and 2013, otherwise with nominal stagnation (Figure 1). Between the base year and 2024, 9/11 procedures had nominal reductions (median −33%, range −78% to +21%). The largest cuts affected TTE (−65% to −76%) and exercise tests without gas analysis (−72% to −78%); cardiac Doppler (+21%) and ABPM (+2%) were relatively protected. The TTE with/without Doppler tariff ratio fell from 2.0 to 1.4 and the TOE/EKG ratio from 50 to 42-43. User charges were not reduced, increasing the share paid by patients for EKG and exercise tests. In real terms, the mean tariff index fell from ≈ 281 in 2000, while the CPI rose from ≈ 61, showing that cardiology test tariffs did not follow the general tariff level (Figure 2).
Conclusions: Cardiology diagnostic tariffs in the Portuguese-NHS underwent major revisions with strong relative tariff cuts for several examinations, followed by long periods of nominal stability. Real-term analysis reveals sustained compression of the relative tariffs of these procedures, with continuous real erosion during years of static nominal tariffs. Although utilisation and outcomes were not analysed, the results suggest altered incentives between simple and complex examinations and a higher financial burden for patients. Further studies linking tariffs, volumes, costs and outcomes are required to assess the alignment of current tariffs with sustainable and equitable cardiology care.

Sábado, 25 Abril de 2026 | 08:00-08:55

Sala Arrábida | Sessão de Comunicações Orais 10 - Estratificação de risco guiada por imagem em situações cardíacas complexas

CO 58. HEMODYNAMIC CHAMELEONS: A PAIRED ECHOCARDIOGRAPHIC ANALYSIS OF DIASTOLIC FUNCTION IN SINUS RHYTHM VERSUS ATRIAL FIBRILLATION

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Introduction and objectives: Current echocardiographic guidelines are derived from patients in sinus rhythm (SR), creating uncertainty regarding their applicability in atrial fibrillation (AF). This study aimed to bridge this knowledge gap by performing a systematic, paired comparison of diastolic parameters obtained during SR versus AF episodes within the same patient cohort.
Methods: It is a retrospective, single-center, within-subject cohort study of 97 patients with persistent AF. Each participant served as their own control, having undergone transthoracic echocardiography in both SR and AF. The primary endpoint was the absolute difference in the E/e' ratio. Secondary endpoints included Left Atrial Volume index (LAVi), LV Ejection Fraction (LVEF), and tissue Doppler velocities (e'). Paired statistical tests were used to assess differences. Benjamini-Hochberg was applied to control the false

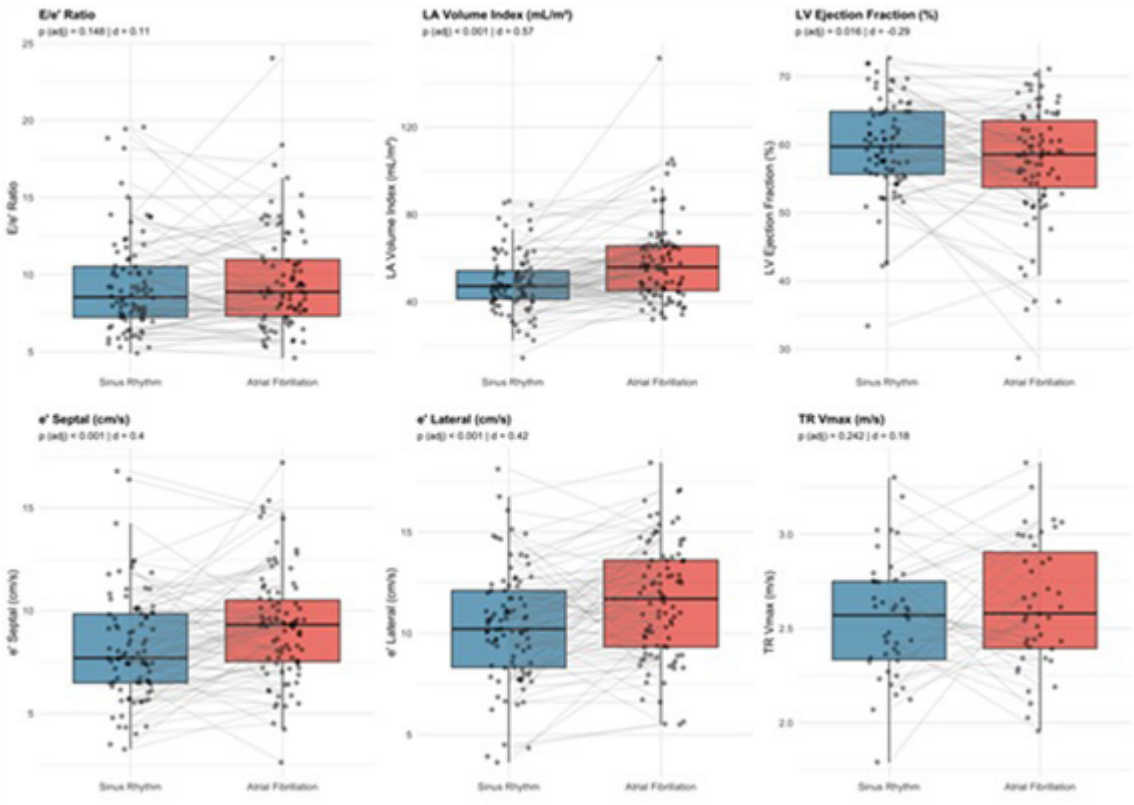

Figure CO 58

discovery rate (FDR) at 5% for multiple comparisons across secondary endpoints. Additionally, exploratory multivariable linear regression was used to assess if baseline clinical characteristics (age, sex, hypertension, diabetes, dyslipidemia) predicted the magnitude of change (D) in endpoints.
Results: The cohort had a mean age of 75.3 ± 9.9 years and was predominantly male (63.9%), with a high prevalence of hypertension (77.8%). Primary Endpoint: There was no statistically significant difference in the E/e' ratio between rhythms (SR: 9.33 ± 3.22 vs. AF: 9.64 ± 3.32; mean difference: 0.31; p = 0.12), with a negligible effect size (Cohen's d = 0.106). Secondary Endpoints: LAVi increased significantly during AF (SR: 48.75 vs. AF: 58.19 mL/m²; p < 0.001), representing a medium effect size. LVEF showed a small but significant decrease during AF (SR: 59.7% vs. AF: 57.4%; p = 0.01). Both septal and lateral e' velocities increased significantly during AF (p < 0.001 for both) (Figure 1). Exploratory Analysis: the magnitude of rhythm-related changes (D) in hemodynamic parameters was independent of baseline clinical profiles; age, sex, and cardiovascular risk factors were not significant predictors of the observed shifts in E/e', LAVi, or tissue velocities.
Conclusions: In this paired analysis, the E/e' ratio showed remarkable stability across rhythm states. However, this stability challenges the validity of the parameter in AF, where elevated natriuretic peptides suggest persistently high wall stress. The study further revealed that AF drives acute LA remodeling and increases mitral annular velocities (e') – changes driven by altered loading conditions rather than intrinsic myocardial properties. Crucially, these shifts were not predicted by age or comorbidities, indicating they are obligate consequences of the rhythm itself. These findings suggest that the hemodynamic footprint of the arrhythmia itself distorts standard parameters, necessitating a departure from SR-derived guidelines.

CO 59. CT-EXTRACELLULAR VOLUME: A GATEKEEPER FOR ATTR-CM SCREENING IN SEVERE AORTIC STENOSIS?

André Lobo[1], Carolina Castro[2], José Cavadas[2], Mariana Brandão[3], Marta Catarina Almeida[1], Rafael Teixeira[1], Marisa Silva[1], Pedro Braga[1], Nuno Dias Ferreira[1], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Faculdade de Medicina da Universidade do Porto. [3]Hospital Universitario Puerta de Hierro Majadahonda, Madrid.

Introduction: Transthyretin cardiac amyloidosis (ATTR-CM) is a frequent and clinically relevant comorbidity in patients with severe aortic stenosis (AS) but remains markedly underdiagnosed in real-world practice. Extracellular volume (ECV) can be quantified as part of pre-TAVI cardiac computed tomography (CT), having high diagnostic accuracy for ATTR-CM. We aimed to evaluate the feasibility of ATTR-CM screening during pre-TAVI CT evaluation, assess its current implementation, and explore the role of ECV in identifying patients who should proceed to the ATTR-CM diagnostic algorithm per current guidelines.
Methods: Retrospective analysis of patients with severe AS undergoing cardiac CT for TAVI planning between April 2024 and April 2025. A standardized 5-minute delayed dual-energy acquisition was used for ECV quantification. Previously validated ECV thresholds (29.2%, 31.4% and 33.4%) were applied to estimate their impact on screening burden and clinical implications.
Results: 253 patients were included (median age 81 years; 48.6% male). Median ECV was 30.4%. 80.6% of patients fulfilled criteria for ATTR-CM screening according to current ESC recommendations; however, only 14 patients (5.5%) were screened. ATTR-CM was confirmed in 2 patients (median ECV 45.6%) and excluded in 12. Among patients with a negative amyloidosis work-up, 50% had ECV < 29.2%. Using validated ECV cut-offs, eligibility for screening would decrease to 57%, 42%, and 28% with thresholds of 29.2%, 31.4%, and 33.4%, respectively. Higher ECV categories were strongly associated with increased mortality (ECV ≥ 33.4%: HR 3.65, 95%CI 1.54-8.64, p = 0.003; ECV ≥ 31.4%: HR 3.57, 95%CI 1.39-9.18, p = 0.008). Patients in these categories displayed a phenotype consistent with ATTR-CM. At ECV ≥ 31.4%, patients showed higher NT-proBNP (2,579 vs. 1,366 pg/mL, p < 0.001), lower LVEF (50.9% vs. 56.8%, p < 0.001), worse GLS (-12.9% vs. -14.3%, p = 0.047), lower TAPSE (20 vs. 22 mm, p < 0.001), higher prevalence of atrial fibrillation (41.1% vs. 26.7%, p = 0.016), pacemaker implantation (17.8% vs. 8.9%, p = 0.036), and LFLG AS (21.5% vs. 6.8%, p = 0.004). At ECV ≥ 33.4%, significant differences remained for NT-proBNP, LVEF, TAPSE, pacemaker implantation, and LFLG AS (all p < 0.05).
Conclusions: ATTR-CM remains markedly underdiagnosed in clinical practice. CT-derived ECV, obtainable without additional testing, may substantially refine patient selection for ATTR-CM screening. Routine use in the pre-TAVI setting may improve ATTR-CM detection, which carries prognostic and management implications.

CO 60. ALIGNMENT OF GENETIC TESTING PRACTICES IN ACUTE MYOCARDITIS WITH CONTEMPORARY ESC RECOMMENDATIONS: A PRE-GUIDELINE ANALYSIS

C. Santos-Jorge[1], Francisco Sousa[2], Márcia Presume[1], Rita Santos[1], Cláudia Silva[1], Francisco Gama[1], Pedro Lopes[1], Pedro Freitas[1], Sara Guerreiro[1], João Abecasis[1], Pedro Pulido Adragão[1], António Ferreira[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]Hospital Dr. Nélio Mendonça.

Introduction: Acute myocarditis (AM) may overlap with inherited cardiomyopathies, with genetic variants influencing susceptibility to injury and adverse remodeling. Genetic testing is increasingly integrated into AM evaluation, as recommended by recent ESC guidelines for high-risk groups. We aimed to determine the proportion of AM patients meeting ESC testing criteria and the gap between eligibility and testing performed.
Methods: We conducted a retrospective observational single-center study including all patients diagnosed with acute myocarditis (2017-2025). Clinical, laboratory, and imaging data were collected (Figure 1). Cardiac magnetic resonance (CMR) was reviewed using Lake Louise criteria, and late gadolinium enhancement (LGE) was categorized by pattern; septal and/or ring-like involvement were deemed significant. Genetic testing eligibility followed 2025 ESC recommendations. Endomyocardial biopsy (EMB) results were recorded when available.

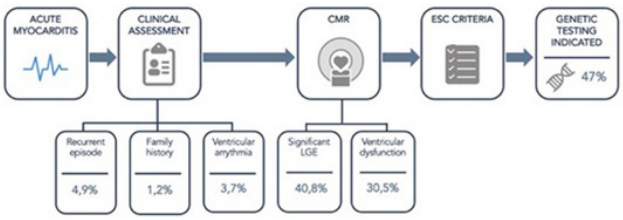

Figure 1. Flowchart illustrating the assessment of eligibility for genetic testing in acute myocarditis, integrating clinical and imaging criteria. Significant late gadolinium enhancement (LGE) and ventricular dysfunction identified on cardiac magnetic resonance (CMR) contribute to meeting ESC guideline criteria, with 47% of patients qualifying for genetic testing.

High Risk	
Acute HF/cardiogenic shock	18 (11%)
Cardiac arrest/syncope	5 (3%)
Ventricular fibrillation / ventricular tachycardia	7 (4,3%)
High-degree AV block	6 (3,7%)
Newly reduced LVEF (<40%)	30 (18,3%)
Extensive LGE on CMR	67 (40,8%)

Figure 2. Patients with acute myocarditis classified as high risk after clinical risk stratification.

Results: A total of 164 patients with AM were included (median age 40 years (IQR 24-55), 28% female). Nearly all patients were hospitalized (98%), and 12% had a complicated course, including cardiogenic shock (11%, n = 18), ventricular arrhythmias (4.3%, n = 7), complete AV block (3.7%, n = 6), and

cardiac arrest (3.1%, n = 5) (Figure 2). Most cases represented first presentations (156, 95.1%), with 8 patients (4.9%) presenting with a recurrent episode. CMR was performed in 151 patients (92.1%). Significant LGE was present in 67 (40.8%), LV systolic dysfunction in 34 (20.7%), and biventricular dysfunction in 10 (6.1%). The pattern of LGE significantly influenced left ventricular functional recovery (p < 0.001) and the absence of significant LGE had a markedly higher likelihood of LVEF normalization than those with septal or ring-like patterns (OR = 8.36, 95%CI 2.26-30.96, p = 0.001). Of the 164 patients with AM, 77 (47%) met the 2025 ESC indications for genetic testing, yet only 5 (6.5% of eligible) underwent testing. Among the 5 patients who underwent genetic testing, 3 had negative results and 2 carried pathogenic variants (LMNA and MYBPC3). EMB was performed in 25 patients, with 17 confirming myocarditis.

Conclusions: Nearly half of AM patients in our pre-guideline cohort would have met the current ESC indications for genetic testing, yet very few underwent testing. These findings underscore the need to align practice with the newly released guidelines to improve detection of inherited risk and support appropriate patient and family management.

CO 61. COMPARING PET-CT PERFUSION CHANGES AND ECHOCARDIOGRAPHIC FINDINGS FOLLOWING CTO-PCI

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

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]Instituto de Ciências Nucleares Aplicadas à Saúde.

Introduction: The role of ischemia and myocardial viability in determining functional recovery after percutaneous coronary intervention (PCI) for chronic total occlusions (CTO) remains uncertain. [^{13}N]NH_3 positron emission tomography computed tomography (PET-CT) provides semiquantitative myocardial perfusion assessment and may clarify the relationship between ischemia burden and left ventricular improvement. This study evaluated the association between changes in PET-derived semiquantitative perfusion with echocardiographic parameters after CTO-PCI and investigated whether greater baseline ischemia or larger ischemia reduction predicted superior global or regional functional recovery.

Methods: We performed a prospective single-centre study including 54 patients with CTO, of whom 37 underwent PCI-CTO with paired PET-CT and transthoracic echocardiography before and 6-month after intervention. PET analysis included global summed difference score (SDS), percentage SDS (SDS%), and regional SDS in the CTO territory. Echocardiographic parameters included left ventricle ejection fraction (LVEF), global longitudinal strain (GLS) and regional wall motion score (RWMS). Statistical analyses used paired comparisons, Spearman correlations, and linear regression models (univariate and multivariate adjusted for age, sex, baseline LVEF and prior myocardial infarction in CTO territory).

Results: CTO-PCI produced significant reductions in global (ΔSDS -6 ± 6, p < 0.001) and regional (ΔSDS in CTO territory -4 ± 4, p < 0.001) ischemia. However, echocardiographic recovery was limited (ΔLVEF 0.6%, p = 0.561; ΔGLS 0.5%, p = 0.322). In univariate analysis, global ΔSDS showed a weak inverse correlation with ΔLVEF in Spearman analysis (ρ = -0.356, p = 0.031), whereas its associations with RWMS and GLS, as well as those of regional ΔSDS, were not significant. Baseline ischemia burden - both global and within the CTO territory - was not related to subsequent variation in echocardiographic parameters. In multivariate models adjusted for clinical factors and baseline function, neither changes in SDS nor baseline SDS measures independently predicted ΔLVEF, ΔRWMS, or ΔGLS. The baseline value of each echocardiographic parameter remained the strongest determinant of its follow-up change.

Conclusions: Although CTO-PCI resulted in substantial reductions in global and regional ischemia, echocardiographic markers of left ventricular function showed minimal change and were not independently related to either baseline ischemia or ischemia reduction. These findings suggest a dissociation between reductions in PET-derived perfusion abnormalities and short-term echocardiographic changes in CTO patients, highlighting the complexity of assessing myocardial recovery after revascularization.

Table 1. Echocardiographic and [^{13}N]NH_3 PET-CT pre- and post-PCI in patients with chronic coronary total occlusion.

	Parameter	Pre-intervention	Post-intervention	Δ (Post − Pre)	p-value
[^{13}N]NH_3 PET-CT	Stress LVEF (%), mean (SD)	55.5 (13.9)	55.9 (13.4)	0.4 (10.4)	0.884
	Rest LVEF (%), mean (SD)	55.9 (11.5)	55.5 (12.5)	- 0.4 (8.2)	0.697
	Global SDS, mean (SD)	10 (5)	4 (5)	- 6 (6)	< 0.001
	Global SDS (%), mean (SD)	14.6 (7.3)	6.5 (7.8)	- 8.0 (8.5)	< 0.001
	SDS in CTO region, mean (SD)	6 (4)	2 (2)	- 4 (4)	< 0.001
	SDS in CTO region (%), mean (SD)	24.9 (17.3)	7.4 (10.4)	- 17.5 (17.1)	< 0.001
TTE	LVEF (%), mean (SD)	53.3 (9.3)	53.9 (8.4)	0.6 (8.1)	0.341
	GLS (%), mean (SD)	16.1 (8.3)	16.6 (8.9)	0.5 (3.0)	0.322
	RWMS, median (IQR)	1 (0)	1 (0)	0 (0)	1.000

CTO – chronic coronary total occlusion; GLS – global longitudinal strain; IQR – interquartile range; LVEF – left ventricle ejection fraction; PET-CT – positron emission tomography computed tomography; RWMS – regional wall motion score; SD – standard deviation; SDS – summed difference score; TTE – transthoracic echocardiography. Significant values are highlighted in bold.

Table 2. Spearman correlations between myocardial ischemia indices in [^{13}N]NH_3 PET-CT and changes in echocardiographic parameters in CTO patients.

PET-CT variable	ΔLVEF	ΔRWMS	ΔGLS
Δ global SDS	**ρ = -0.356, p = 0.031**	ρ = 0.178, p = 0.292	ρ = 0.217, p = 0.196
Δ SDS in CTO territory	ρ = -0.053, p = 0.757	ρ = 0.101, p = 0.553	ρ = 0.208, p = 0.155
Baseline global SDS	ρ = -0.028, p = 0.870	ρ = 0.050, p = 0.768	ρ = 0.112, p = 0.510
Baseline SDS in CTO territory	ρ = 0.045, p = 0.791	ρ = 0.046, p = 0.785	ρ = 0.166, p = 0.331

CTO – chronic coronary total occlusion; GLS – global longitudinal strain; LVEF – left ventricle ejection fraction; PET-CT – positron emission tomography computed tomography; RWMS – regional wall motion score; SDS – summed difference score. Significant values are highlighted in bold.

Table 3. Multivariate regression analysis on the effect of [^{13}N] PET-CT ischemia indices on echocardiographic changes.

Outcomes	Variable	β (95% CI)	p-value
ΔLVEF	Δ global SDS	-0.03 (-0.68 to 0.39)	0.877
	Δ SDS in CTO territory	-0.37 (-0.92 to 0.18)	0.178
	Baseline global SDS	0.07 (-0.38 to 0.51)	0.737
	Baseline SDS in CTO territory	0.43 (-0.12 to 0.97)	0.119
ΔRWMS	Δ global SDS	-0.01 (-0.03 to 0.01)	0.330
	Δ SDS in CTO territory	0.00 (-0.03 to 0.03)	0.897
	Baseline global SDS	0.00 (-0.02 to 0.02)	0.801
	Baseline SDS in CTO territory	0.00 (-0.03 to 0.03)	0.982
ΔGLS	Δ global SDS	-0.12 (-0.31 to 0.06)	0.178
	Δ SDS in CTO territory	-0.20 (-0.43 to 0.04)	0.092
	Baseline global SDS	0.04 (-0.16 to 0.24)	0.710
	Baseline SDS in CTO territory	0.18 (-0.07 to 0.42)	0.151

All PET variables were adjusted individually in a multivariate analysis with the following variables: age, gender prior myocardial infarction and respective baseline echocardiographic parameters. CI – confidence interval; CTO – chronic coronary total occlusion; GLS – global longitudinal strain; LVEF – left ventricle ejection fraction; PET-CT – positron emission tomography computed tomography; RWMS – regional wall motion score; SDS – summed difference score. Significant values are highlighted in bold.

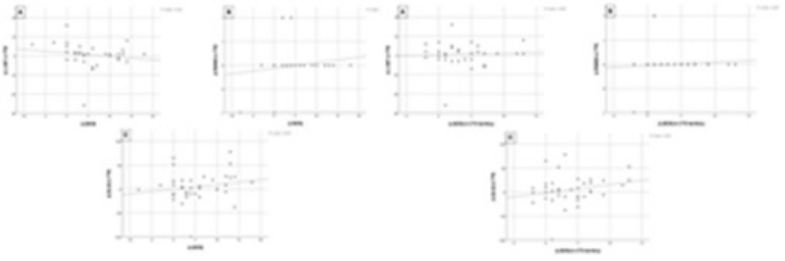

Figure 1 - Scatter plots illustrating the relationship between changes in global SDS and changes in echocardiographic parameters (A: LVEF; B: RWMS; C: GLS).

Figure 2 - Scatter plots illustrating the relationship between changes in SDS within the CTO territory and changes in echocardiographic parameters (A: LVEF; B: RWMS; C: GLS).

Figure CO 61

CO 62. PROGNOSTIC VALUE OF RIGHT VENTRICULAR SYSTOLIC FUNCTION MARKERS IN ATTR-CM

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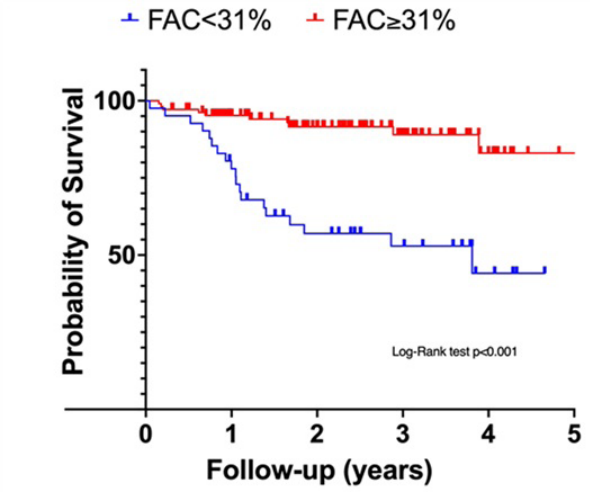
Introduction: Left ventricular (LV) dysfunction is a well-established prognostic factor in transthyretin cardiac amyloidosis (ATTR-CM). Amyloid deposition in ATTR-CM often leads to biventricular thickening and dysfunction, which may reflect amyloid burden. The clinical significance of right ventricular (RV) function, however, is not clearly defined.
Objectives: To evaluate the added prognostic value of RV function in ATTR-CM.
Methods: Single-centre retrospective study including all consecutive patients with heart failure (HF) due to ATTR-CM followed from 2019 to 2025. ATTR-CM was diagnosed as per the recommended multi-step algorithm. Echocardiographic parameters were obtained from the first available transthoracic echocardiogram (TTE) performed at our institution. We proceeded with RV function analysis as per the EACVI/ASE recommendations. Fractional area change (FAC) was obtained in 2D ecochardiogram and easily executed. The primary endpoint was all-cause death. Survival analysis was performed using univariate and multivariate Cox regression models.
Results: Among 286 patients with ATTR-CM, 214 were identified to have a baseline TTE with RV-measurable functional data (mean age 85 ± 6 years, 81% male, 71% tafamidis). RV assessment showed a mean FAC of 34.6 ± 9.4% and free wall longitudinal strain (RV-FWLS) of -17.0 ± 5.2%. Median tricuspid annular plane systolic excursion (TAPSE) was 17 (13-19) mm and mean RV S' (RVS) wave was 10 (8-13) cm/s. Among markers of RV systolic function, univariate analysis showed that FAC and FWLS were the only RV-related independent predictors. After a median follow-up of 1.8 (1.0-2.9) years, the primary endpoint was reached in 62 patients (29.0%). In multivariate analysis - adjusted for NYHA, LV ejection fraction, NT-proBNP, creatinine, RV-FWLS and tafamidis- FAC remained as an independent predictor of all-cause mortality, while RV-FWLS did not. ROC curve analysis showed the optimal cut-off value for FAC < 31% (present in 67% of the patients), with an area under the curve (AUC) of 0.729 (sensitivity 59%, specificity 81%). In a new multivariate model adjusted for the same variables, FAC < 31% independently predicted the primary outcome with an HR 2.08 (95%CI 1.02-4.35; p = 0.027).



Conclusions: In this ATTR-CM cohort, FAC provided independent prognostic information beyond well-established clinical, biomarkers, and echocardiographic parameters. A FAC < 31% was associated with a substantially higher risk of death –more than doubling the risk– highlighting its potential value for risk stratification.

Sábado, 25 Abril de 2026 | 08:00-08:55

Sala D. Luís | Sessão de Comunicações Orais 11 - Corações espessos e rígidos: amiloidose cardíaca e companhia

CO 63. MYOCARDIAL METABOLISM, PERFUSION AND RISK ASSESSMENT IN NON-OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY USING PET-CT

Mariana Salvador[1], Patrícia Marques-Alves[1], Maria João Ferreira[1], Rodolfo Silva[1], Andreia Gomes[2], Antero Abrunhosa[2], Miguel Castelo-Branco[2], Wael Jaber[3], Lino Gonçalves[1]

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Introduction: Hypertrophic Cardiomyopathy (HCM) is a genetic disease carrying risks of heart failure and sudden cardiac death (SCD). While HCM involves multiple pathological processes, including myocardial inflammation and fibrosis, the utility of molecular imaging with Positron Emission Tomography-Computed Tomography (PET-CT) in this context remains unexplored. This study investigated the relationship between myocardial metabolism and perfusion in patients with non-obstructive HCM (NOHCM) using PET-CT.
Methods and results: We used PET-CT with [^{13}N]NH_3 (perfusion) and 2-[^{18}F] FDG (perfusion) (metabolism/inflammation) to assess 30 NOHCM patients. Increased [^{13}N]NH_3 and 2-[^{18}F]FDG uptake (Target to Background Ratio, TBR ≥ 1.1) was detected in 53% of patients (average TBR 1.4 ± 0.5). The extent of this inflammatory pattern (mean 11.8 ± 17.2%) correlated significantly with maximal myocardial wall thickness (MMWT) (rho = 0.49, p = 0.009), left atrial volume (LAV) (rho = 0.39, p = 0.04) and NT-proBNP levels (rho = 0.63, p = 0.003). Maximum TBR correlated strongly with MMWT (rho = 0.53, p = 00.4), NT-proBNP (rho = 0.70, p = 0.001) and the SCD risk score (rho = 0.38, p = 0.04). A fibrotic (scar) pattern, encompassing 10.3 ± 10.2% of the left ventricle (LV), also correlated with the SCD risk score (rho = 0.38, p = 0.04).
Conclusions: In NOHCM patients, PET-CT imaging provides unique and valuable insights into myocardial inflammation and fibrosis. These imaging markers are closely associated with established indicators of disease severity, including hypertrophy, left ventricular dysfunction, and the risk of sudden cardiac death.

CO 64. LA CARDIOMYOPATHY IN ATTR-CM: THE INCREMENTAL PROGNOSTIC VALUE OF LA STRAIN

Miguel Sobral Domingues, André Garcia, Rita Carvalho, Tânia Laranjeira, Sérgio Maltês, Carlos Aguiar, Marisa Trabulo, Regina Ribeiras, Bruno M. Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Cardiac amyloidosis due to transthyretin deposition (ATTR-CM) may lead to progressive diastolic dysfunction, increased left ventricular (LV) filling pressures, and atrial mechanical impairment. Left atrial (LA) strain emerged as a sensitive marker of atrial function, often detecting dysfunction earlier than traditional volumetric parameters. However, the prognostic value of LA strain impairment for predicting adverse outcomes in ATTR-CM has not been fully elucidated.
Objectives: To assess the prognostic value of LA strain in a cohort of patients with ATTR-CM.
Methods: We conducted a single-centre retrospective study of consecutive patients with symptomatic HF due to ATTR-CM followed from 2019-2025.

Diagnosis was established according to the recommended algorithm. Echocardiographic data was collected from the first transthoracic echocardiogram (TTE) performed at our institution. LA strain analysis was performed according to the up-to-date EACVI/ASE recommendations. The primary endpoint was a composite of all-cause death or cardiovascular hospitalization at 3 years. Survival was assessed using Cox regression models. The best cut-off for LA strain-derived parameters was determined by ROC curve analysis.

Results: A total of 286 ATTR-CM patients were identified, of whom 177 had an available baseline TTE and were included - median age 83 [78-87] years; 82% male; 72% on TTR stabilizers; 45% in AF; median LAVI 52 [43-63] mL/m2; median LA reservoir strain 6.5 [4.5-11]% and LA contractile strain 1 [0-4]%; median follow-up of 1.9 [1.0-3.0] years. The primary endpoint occurred in 64 patients (36%), of whom 48 died. In univariate analysis, LA reservoir, contractile and conduit strain, NYHA, left ventricular ejection fraction (LVEF), NT-proBNP, serum sodium, creatinine, and tafamidis therapy were significantly associated with the primary endpoint. LA volume was not associated with the primary outcome. In a multivariate model adjusted for NYHA, atrial fibrillation, LVEF, NT-proBNP, sodium, creatinine, and tafamidis, both LA reservoir strain (HR 0.92 per 1% increase; 95%CI 0.86-0.98; p = 0.007) and LA contractile strain (HR 0.89 per 1% increase; 95%CI 0.82-0.97; p = 0.007) remained independent predictors of death or cardiovascular hospitalization. A LA reservoir strain < 10% (n = 118; 66%) and a LA contractile strain < 4% (n = 123; 69%) independently predicted the primary endpoint (HR 2.34; 95%CI 1.17-4.67; p = 0.016 and HR 2.17; 95%CI 1.09-4.35; p = 0.029, respectively).

Variables	Univariate analysis – HR (95% CI)	p-value	Multivariate analysis – HR (95% CI)	p-value
Age	1.00 (0.96 – 1.05)	0.887	---	---
Sex	1.37 (0.68 – 2.77)	0.384	---	---
NYHA class	2.02 (1.43 – 2.86)	<0.001	1.13 (0.72 – 1.76)	0.602
LA volume	1.00 (0.99 – 1.02)	0.523	---	---
Atrial fibrillation	1.17 (0.68 – 2.00)	0.571	0.66 (0.37– 1.17)	0.151
Serum Creatinine	3.91 (2.24 – 6.84)	<0.001	2.80 (1.53 – 5.14)	<0.001
Serum Sodium	0.93 (0.88 – 0.99)	0.018	0.96 (0.90 – 1.01)	0.231
NT-proBNP level	1.06 (1.03 – 1.08)	<0.001	1.02 (0.98 – 1.06)	0.290
LV ejection fraction	0.97 (0.96 – 0.99)	0.001	0.99 (0.98 – 1.01)	0.479
LA reservoir strain *	**0.92 (0.87 – 0.98)**	**0.005**	**0.92 (0.86 – 0.98)**	**0.007**
LA contractile strain*	**0.91 (0.83 – 0.99)**	**0.021**	**0.89 (0.82 – 0.97)**	**0.007**
LA conduit strain	0.89 (0.81-0.98)	0.017	---	
Tafamidis 61mg	0.25 (0.15 – 0.41)	<0.001	0.26 (0.14 – 0.46)	<0.001

Table 1. Univariate and multivariate Cox regression analyses for predictors of the composite endpoint of all-cause death or cardiovascular hospitalization at 3 years. *LA reservoir and contractile strain values were separately adjusted to the remaining covariates. The HRs for these variables are represented per 1% increase in strain value.

Conclusions: In a cohort of patients with ATTR-CM, LA reservoir and contractile strain added significant prognostic value beyond well-established clinical, biochemical, and echocardiographic markers. A LA reservoir strain < 10% and LA contractile strain < 4% more than doubled the risk of death or cardiovascular hospitalization, thus highlighting its value as meaningful independent markers for risk stratification.

CO 65. WHEN IMAGING IS NOT ENOUGH: DIAGNOSTIC PERFORMANCE OF ENDOMYOCARDIAL BIOPSY IN CARDIAC AMYLOIDOSIS

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Introduction: The diagnosis of cardiac amyloidosis (CA) has increased in recent years, driven by growing clinical awareness and the recognition of clinical, echocardiographic and electrocardiographic red flags. Non-invasive diagnostic tools, such as bone scintigraphy, have become pivotal in the diagnostic algorithm; however, they can yield inconclusive or false-negative results in a relevant subset of patients. In these cases, endomyocardial biopsy (EMB) remains the gold standard, yet real-world data on its diagnostic yield, safety, and predictors of positivity are limited.

Objectives: To evaluate the diagnostic performance and safety of EMB in CA and to identify clinical and imaging predictors of biopsy positivity.

	Negative Biopsy N=12	Positive Biopsy N=34	P-Value
Age, years (median, IQR)	61 ± 3	65 ± 2	NS
Male, n (%)	9(75)	23(67)	NS
NYHA I–II, n (%)	12(100)	28(82)	NS
NYHA III–IV, n (%)	0(0)	5(15)	NS
Comorbidities			
Hypertension, n (%)	8(67)	17(50)	NS
Dyslipidemia, n (%)	7(58)	11(32)	NS
Diabetes mellitus, n (%)	4(33)	6(18)	NS
Smoking, n (%)	3(25)	4(12)	NS
ECG			
Sinus Rhythm, n (%)	8(67)	21(62)	NS
PQ Interval (ms; median,IQR)	150 (IQR 148-209)	181 (172-196)	NS
AF / Flutter, n(%)	2(17)	4(12)	NS
Pacing Rythm, n(%)	2(17)	3(9)	NS
LBBB/RBBB, n(%)	1(8)	3(9)	NS
QRS interval (ms; mean ± SD)	104 ± 7	108 ± 5	NS
Echocardiography at Diagnosis			
LVEF (%; mean ± SD)	55 ± 3	52 ± 2	NS
IVS thickness (mm; mean ± SD)	13 ± 1	15 ± 1	NS
IVS >/= 13 mm, n (%)	5(42)	27(79)	p=0.04
PW thickness (mm; mean ± SD)	11.6 ± 1	14.5 ± 0.7	p=0.03
Index LV Mass (g/m^2; mean ± SD)	119 ± 15	166 ± 14	P=0.03
LA volume index (mL/m^2; mean ± SD)	40 ± 6	46 ± 3	NS
TAPSE (mm; mean ± SD)	21 ± 2	19 ± 2	NS
Laboratory Findings at Diagnosis			
Troponin (ng/L; median [IQR])	25 (IQR 10-67)	61 (29-135)	NS
NT-proBNP (pg/mL; median [IQR])	872 (IQR 155-3065)	3694 (IQR 1051 - 12826)	p=0.02
Creatinine (mg/dL; mean ± SD)	0.9 ± 0.1	1.1 ± 0.1	NS
eGFR ($mL/min/1.73\ m^2$; mean ± SD)	78 ± 6	71 ± 5	NS
^{99m}TC-DPD scintigraphy, n(%)	6(50)	13(38)	
Grade 0-1, n(%)	6(100)	8(61)	NS
Grade 2-3, n(%)	0	5(39)	NS
Cardiac MRI, n(%)	8(67)	13(38)	
Subendocardial LGE, n(%)	2(25)	7(54)	NS

Table 1. Baseline characteristics of patients with biopsy-proven cardiac amyloidosis compared with those with suspected disease but negative biopsy results.

Results: A total of 46 patients underwent endomyocardial biopsy for suspected CA (mean age 64 ± 2 years; 46% male). Among them, 41% were referred due to negative ^{99m}TC-DPD scintigraphy and 59% due to abnormal immunofixation. Amyloid was histologically confirmed in 34 patients (74%): 59% TTR, 21% AL, 15% mixed TTR+AL, and 5% with nonspecific amyloid. Compared with biopsy-negative patients, those with positive biopsies showed a trend toward more advanced heart failure symptoms (NYHA III/IV: 15% vs. 0%, p = 0.10) and significantly higher NT-proBNP levels (3,694 [IQR 1,051-12,826] vs. 872 pg/mL [IQR 155-3,065], p = 0.02). ECG findings showed a non-

significant trend toward longer PR intervals (181 [172-196] vs. 150 ms [148-209], p = 0.1). Biopsy-positive patients exhibited more pronounced structural remodeling, with greater myocardial wall thickening with higher prevalence of interventricular septum thickness ≥ 13 mm (80% vs. 42%, p = 0.02), increased posterior wall thickness (15 ± 1 vs. 12 ± 1 mm, p = 0.03) and higher indexed LV mass (166 ± 14 vs. 119 ± 15 g/m^2, p = 0.03). In logistic regression analysis, posterior wall thickness emerged as an independent predictor of biopsy positivity, with each 1-mm increase significantly increasing the odds of biopsy positivity (OR 1.3, 95%CI 1.01-1.6, p = 0.046). No significant association was found between scintigraphy grade and biopsy results. No biopsy-related complications occurred. During a mean follow-up of 24 ± 3 months, one of the 12 biopsy-negative patients was subsequently diagnosed with AL amyloidosis on extracardiac biopsy. EMB demonstrated 97% sensitivity and 100% specificity, with no false positives and one false negative.
Conclusions: Non-invasive imaging plays an essential role in the diagnostic workup of CA and is sufficient in many cases. However, our findings highlight that in patients with high clinical suspicion, particularly those with elevated NT-proBNP and increased myocardial wall thickness, EMB provides excellent diagnostic accuracy and can be safely performed. Therefore, EMB should be considered an integral and safe diagnostic approach when non-invasive methods are inconclusive despite strong clinical suspicion.

CO 66. SEX-RELATED DIFFERENCES IN HCM: CARDIOGENETICS, DISEASE SEVERITY AND MAJOR OUTCOMES

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Introduction: Hypertrophic cardiomyopathy (HCM) is a common inherited cardiac disease with heterogeneous clinical expression and outcomes. Sex differences in phenotypic expression and outcomes are well known in several cardiovascular conditions. Emerging data in patients with HCM also suggests important sex differences in clinical presentation, myocardial remodeling, and therapeutic management that may influence patient prognosis.
Objectives: To characterize sex-related differences in clinical profile, imaging features, genetics, and treatment among patients with HCM followed in a dedicated tertiary center.
Methods: We conducted a retrospective analysis of patients with a diagnosis of HCM followed at a tertiary care center up until November 2025. Data collected included demographics, NYHA class, imaging parameters, invasive and device-based therapies, treatment, genetic testing, and mortality. Comparisons between male and female patients were performed using chi-square tests for categorical variables and independent t-tests or Mann-Whitney U tests for continuous variables, as appropriate. Survival analyses were conducted using the Kaplan-Meier method.
Results: Overall, 550 patients were included (mean age 62 ± 12 years; 43% female). Women were first diagnosed at a significantly older age than men (58 vs. 53 years, p = 0.019), exhibited a higher symptomatic burden (NYHA III-IV: 24% vs. 10%, p = 0.001) and NT-proBNP levels (1,487 [512-3,940] pg/mL vs. 571 [200-1,931] pg/mL, p = 0.01). Myosin inhibitor therapy was more frequently prescribed to women (14% vs. 3%, p < 0.001). Imaging assessments revealed similar left ventricular ejection fraction and maximal wall thickness between sexes, but women had a higher prevalence of significant left ventricular outflow tract (LVOT) obstruction (34% vs. 14%, p < 0.001), higher maximal LVOT gradient (65 [45-100] vs. 51 [20-89] mmHg, p < 0.001), and elevated E/e' ratio (14 ± 7 vs. 11 ± 5, p = 0.01). The prevalence of significant late gadolinium enhancement (> 15% of myocardial mass) was also higher in women (20% vs. 11%, p = 0.04). Likely pathogenic and pathogenic (LP/P) sarcomeric mutations were identified in approximately one-third of genotyped patients, with no significant sex difference in prevalence. Rates of device implantation, appropriate or inappropriate shocks, heart transplantation and all-cause mortality were similar between men and women.
Conclusions: In this large cohort of HCM patients, we found that women were often diagnosed later than men despite presenting at baseline with more severe symptoms, higher NT-proBNP levels, worse diastolic function, greater LVOT obstruction, and increased myocardial fibrosis. Our findings emphasize sex-related differences in disease severity at diagnosis and underscore the importance of timely, comprehensive evaluation in women to guide optimal management.

CO 67. SPECTRUM OF PRIMARY HYPERALDOSTERONISM IN ADULTS WITH HYPERTENSION: EFFECTS ON CARDIAC REMODELING

António Afonso Angélico Gonçalves[1], Ana Rita Leite[2], Tiago Godinho[2], Adelino Leite-Moreira[2], João Pedro Ferreira[2], João Sérgio Neves[2]

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Introduction: Primary aldosteronism (PA) is a state of autonomous, renin-independent aldosterone production and is linked with harmful metabolic

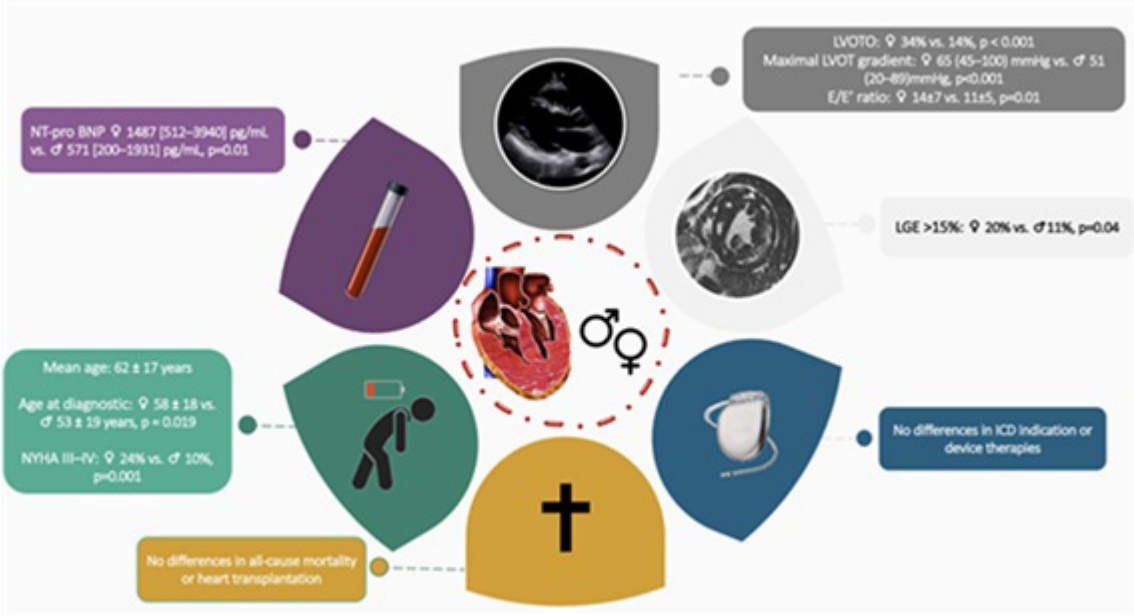

Figure CO 66

and cardiovascular effects. Limited research has explored its impact on cardiac remodeling on patients with hypertension.
Objectives: To evaluate the impact of primary aldosteronism in heart remodeling of patients with hypertension.
Methods: We assessed participants from the Generation 3 cohort of the Framingham Heart Study during their initial visit (2002-2005), where aldosterone and plasma renin activity (PRA) levels were measured and echocardiography was performed. We only included patients with a diagnosis of hypertension. Multivariate linear regression models adjusted for relevant baseline variables were used to examine the associations of PRA and Aldosterone to renin ratio (ARR) with echocardiographic parameters.
Results: A total of 1,308 patients were included (mean age 43.9 ± 8.1, 34.9% female, 98.0% white, 49.2% with dyslipidemia, 8.7% with diabetes, 6.1% with coronary artery disease, 1.6% with heart failure, 1.4% with atrial fibrillation, 15.7% smokers). A total of 94 (7.2%) had a positive screening for primary hyperaldosteronism. Baseline left ventricle mass index (LVMI) was 79.4 ± 13.4 g/m^2, LV end-diastolic volume index (LVEDVI) was 51.9 ± 10.1 ml/m^2, LV end systolic volume index (LVEDVI) was 19.0 ± 4.4 ml/m^2, interventricular septal thickness was 0.97 ± 0.14 cm, left atrial internal diastolic dimension was 2.92 ± 0.48 cm, LV ejection fraction (EF) was 63.5 ± 4.1%, lateral E' velocity was 10.9 ± 2.5 cm/s, E/e' ratio was 6.42 ± 1.78 and E/A ratio was 1.23 ± 0.33. A total of 94 (7.2%) met criteria for primary hyperaldosteronism. PRA had a negative correlation with LVMI (β = -0.77, 95% Confidence Interval [CI] -1.42 to -0.12, p = 0.20), LVEDVI (β = -0.76, 95%CI -1.24 to -0.28, p = 0.02) and LVSVI (β = -0.35, 95%CI -0.56 to -0.14, p = 0.001). ARR had a positive correlation with LVMI (β = 0.70, 95%CI 0.12 to 1.29, p = 0.019), LVEDVI (β = 0.70, 95%CI 0.26 to 1.13, p = 0.002), LVESVI (β = 0.26, 95%CI 0.07 to 0.45, p = 0.008). No meaningful associations were found between PRA or ARR and LVEF or diastolic function parameters.
Conclusions: Increased aldosterone was significantly associated with increased LVMI, LVEDVI and LVESVI, which is compatible with a pattern of excentric remodeling. These findings suggest that hyperaldosteronism may play an unrecognized role in adverse remodeling in patients with hypertension.

Sábado, 25 Abril de 2026 | 08:00-08:55

Sala D. Maria | Sessão de Comunicações Orais 12 - Doença Valvular Cardíaca: diagnóstico, estratificação de risco e abordagem terapêutica

CO 68. SURGICAL DECISION-MAKING IN INFECTIVE ENDOCARDITIS: PREDICTORS OF IN-HOSPITAL MORTALITY

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Introduction: Infective endocarditis (IE) remains a life-threatening condition with in-hospital mortality rates of 13-26%. Early identification of patients at higher risk of adverse outcomes is crucial to guide clinical and surgical decision-making.
Objectives: To identify independent predictors of in-hospital mortality in patients with IE managed in a real-world contemporary setting, and to evaluate the utility of EuroSCORE II for early risk stratification and surgical decision-making during the acute phase of the disease.
Methods: We conducted a retrospective study at a single tertiary center including all patients diagnosed with IE between January 2017 and December 2024. Mean follow-up was 20 ± 26 months. Surgical risk was stratified using EuroSCORE II with a 5% cut-off. The primary outcome was in-hospital mortality.
Results: Eighty-seven patients were included (mean age 62 ± 16 years; 69% male). Low surgical risk (EuroSCORE < 5%) was present in 52 patients (60%), and high surgical risk (EuroSCORE ≥ 5%) in 35 patients (40%). As expected, high-risk patients were older (70 ± 12 vs. 57 ± 23 years, p < 0.001) and more frequently had previous cardiac surgery (45.7% vs. 3.8%, p < 0.001). Prosthetic aortic valve endocarditis was significantly more common in the high-risk group (34.3% vs. 0%, p < 0.001). These patients also more frequently developed heart failure (90.9% vs. 29.2%, p < 0.001) and perivalvular abscess or fistula (38.2% vs. 5.4%, p = 0.021). In multivariate analysis, independent predictors of in-hospital mortality were age (OR 1.07; 95%CI: 1.01-1.14; p = 0.031) and hemodynamic instability with shock (OR 15.33; 95%CI: 2.51-93.61; p = 0.003). Surgical intervention was protective (OR 0.08; 95%CI: 0.01-0.51; p = 0.008). EuroSCORE ≥ 5% was not associated with in-hospital mortality (OR 1.47; 95%CI: 0.36-5.98; p = 0.588), although it predicted mid- to long-term mortality (HR 2.49; 95%CI: 1.11-5.62; p = 0.028). All patients requiring continuous renal replacement therapy died during hospitalization, preventing comparative statistical analysis.

				EuroScore <5%	EuroScore ≥5%	Total	p-value
				n= 52 (59.8%)	n= 35 (40.2%)	87	
Gender	Male		n (%)	38 (73.1%)	22 (62.9%)	60 (69%)	0.351
	Female		n (%)	14 (26.9%)	13 (37.1%)	27 (31%)	
Age (years)			*Mean±SD*	57 ± 23	70 ± 12	62 ± 16	**<0.001**
Medical History	Coronary disease		n (%)	1 (1.9%)	4 (11.4%)	5 (6%)	0.153
	Heart failure		n (%)	7 (13.5%)	6 (17.1%)	13 (15%)	0.761
	Congenital heart disease		n (%)	3 (5.8%)	0 (0.0%)	3 (3%)	0.209
	Reumathic heart disease		n (%)	2 (3.8%)	1 (2.9%)	3 (3%)	1.000
	Previous cardiac surgery		n (%)	2 (3.8%)	16 (45.7%)	18 (21%)	**<0.001**
	COPD/Asthma		n (%)	7 (13.5%)	4 (11.4%)	11 (13%)	1.000
	Hypertension		n (%)	22 (42.3%)	21 (60.0%)	43 (49%)	0.129
	Diabetes Mellitus		n (%)	10 (19.2%)	14 (40.0%)	24 (28%)	0.050
	Dyslipidemia		n (%)	14 (26.9%)	14 (40.0%)	28 (32%)	0.245
	Obesity		n (%)	4 (11.8%)	3 (14.3%)	7 (13%)	1.000
	Low weight (IM<18)		n (%)	1 (2.9%)	1 (4.8%)	2 (4%)	1.000
	Chronic kidney disease		n (%)	9 (17.3%)	8 (22.9%)	17 (20%)	0.587
	Peripheral artery disease		n (%)	3 (5.8%)	4 (11.4%)	7 (8%)	0.432
	Demencia		n (%)	1 (1.9%)	1 (2.9%)	2 (2%)	1.000
	Stroke		n (%)	5 (9.6%)	6 (17.1)	11 (13%)	0.338
	Chronic liver disease		n (%)	6 (11.5%)	1 (2.9%)	7 (8%)	0.234
	Atrial flibrillation or flutter		n (%)	9 (17.3%)	11 (31.4%)	20 (23%)	0.193
	HIV infection		n (%)	3 (5.8%)	0 (0.0%)	3 (3%)	0.270
	Intravenous drug users		n (%)	7 (13.5%)	1 (2.9%)	8 (9%)	0.136
	Active Cancer		n (%)	4 (7.7%)	2 (5.7%)	6 (7%)	1.000
	Previous IE		n (%)	1 (1.9%)	0 (0.0%)	1 (1%)	1.000
Charlson índex > 5			n (%)	14 (26.9%)	10 (28.6%)	24 (28%)	1.000
Cardiovascular device	Total number of patients		n (%)	4 (7.7%)	15 (42.9%)	19 (22%)	<0.001
	Mechanic heart valve		n (%)	0 (0.0%)	6 (46.2%)	6 (7%)	
	Biologic heart valve		n (%)	0 (0.0%)	7 (53.8%)	7 (8%)	
	Transcatether heart valve		n (%)	1 (1.9%)	3 (8.6%)	4 (5%)	
	PM/CRT/ICD		n (%)	2 (3.8%)	6 (17.1%)	8 (9%)	0.056
Ability to perform daily activities	Independent on all activities		n (%)	43 (87.8%)	28 (84.8%)	71 (87%)	0.248
	Dependent on some activities		n (%)	2 (4.1%)	4 (12.1%)	6 (7%)	
	Dependent on most activities		n (%)	4 (8.2%)	1 (3.0%)	5 (6%)	
Endocarditis as the 1st diagnosis			n (%)	16 (30.8%)	15 (42.9%)	31 (36%)	0.264
Location of the infection	Native heart valves	Aortic valve	n (%)	24 (46.2%)	14 (40.0%)	38 (44%)	0.661
		Mitral valve	n (%)	21 (40.4%)	10 (28.6%)	31 (36%)	0.361
		Tricuspid valve	n (%)	10 (19.2%)	2 (5.7%)	12 (14%)	0.112
		Pulmonary valve	n (%)	2 (3.8%)	0 (0.0%)	2 (2%)	0.513
	Prosthetic heart valve	Aortic position	n (%)	0 (0.0%)	12 (34.3%)	12 (14%)	**<0.001**
		Mitral position	n (%)	0 (0.0%)	3 (8.6%)	3 (3%)	0.062
	Cardiac device		n (%)	1 (1.9%)	2 (5.7%)	3 (3%)	0.562
Positive blood cultures			n (%)	45 (86.5%)	27 (81.8%)	72 (85%)	0.758
Microorganisms	Staphylococcus aureus		n (%)	21 (41.2%)	9 (31.0%)	30 (38%)	0.473
	Enterococcus		n (%)	8 (16.0%)	7 (23.3%)	15 (20%)	0.555
	Others		n (%)	23 (45.1%)	14 (46.7%)	37 (46%)	1.000
Vegetation size ≥ 10 mm			n (%)	24 (72.7%)	13 (68.4%)	37 (38%)	0.760
Complications	No complications		n (%)	12 (23.1%)	5 (14.3%)	17 (20%)	0.412
	Heart Failure		n (%)	7 (29.2%)	10 (90.9%)	17 (32%)	**<0.001**
	Severe valve disfunction		n (%)	26 (50.0%)	19 (54.3%)	45 (52%)	0.827
	Abcess/Fistula		n (%)	8 (15.4%)	13 (38.2%)	21 (24%)	**0.021**
	Emboli		n (%)	19 (36.5%)	10 (28.6%)	29 (33%)	0.493
	Shock		n (%)	9 (17.3%)	11 (32.4%)	20 (23%)	0.124
Causes of death	Stroke		n (%)	1 (4.5%)	2 (11.1%)	3 (8%)	0.596
	Related to IE, valvular disfunction or surgery		n (%)	6 (27.3%)	6 (33.3%)	12 (30%)	
	Non cardiovascular		n (%)	8 (36.4%)	3 (16.7%)	11 (28%)	
	Unknown		n (%)	3 (31.8%)	7 (38.9%)	14 (35%)	

Conclusions: Older patients and those presenting with shock represent a high-risk subgroup requiring urgent multidisciplinary evaluation and prompt surgical decision. Surgical intervention appears to confer a survival benefit

even among patients with elevated predicted surgical risk. The absence of an association between EuroSCORE II and in-hospital mortality suggests that this tool is limited for short-term risk prediction in IE, and that clinical and infection-related factors should carry more weight than conventional surgical-risk scores when determining early operative strategies in this setting.

CO 69. LEFT VENTRICULAR AFTERLOAD AND MYOCARDIAL FIBROSIS IN PATIENTS WITH SEVERE SYMPTOMATIC AORTIC STENOSIS: A MULTIMODALITY STUDY

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

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

Introduction: Left ventricular (LV) adaptation to increased afterload in patients with aortic stenosis (AS) is not only determined by valve obstacle but also by arterial impedance. As a compensatory response to maintain wall stress, LV remodeling occurs with myocardial changes that include fibrosis beyond hypertrophy. The impact of aortic stiffness, as a component of vascular load, to this adaptation remains poorly characterized.
Objectives: To assess the role of aortic stiffness, using aortic distensibility (AD) as a surrogate marker, in the myocardial tissue adaptation of the LV in patients with severe AS.
Methods: Single-centre, prospective study of 158 patients with severe symptomatic AS (mean age 71 ± 8 years; 50% male) undergoing surgical aortic valve replacement (SAVR) between 2019 and 2022. Patients with prior cardiomyopathy, significant aortic regurgitation, or other severe valve disease were excluded. All underwent TTE and CMR within 3 months before and after SAVR. Septal myocardial biopsies were harvested during surgery and analysed for myocardial fibrosis (MF) using Masson's trichrome histochemistry. QuPath™ algorithm was applied for automatic MF quantification. Aortic dimensions were measured on cine CMR images at pulmonary artery bifurcation level in three-chamber and coronal left ventricular outflow tract views for the ascending aorta, and in the four-chamber view for the descending aorta. AD before and after SAVR was inferred. Valvulo-arterial impedance (Zva) and relative valve load (RVL) were also calculated. The correlation between AD and MF, as non-invasively assessed by CMR and at histopathology, was determined.
Results: 128 patients with complete study were included (median age 73 years [69-77]; 48% male). Median AD was 1.4 [0.7-2.2] × 10^{-3} $mmHg^{-1}$, median Zva was 4.59 mmHg/mL/m^2 [3.76-5.14], and RVL was 13.5 mL/m^2 [10.9-16.7]. Pre-operative CMR native T1 value was 1051 [1.027-1.071] ms; extracellular volume (ECV) fraction: 23.6 ± 4.8%. Non-ischemic late gadolinium enhancement (LGE) was present in 67% of patients, with a LGE percentage of 4.1% [1.6-6.9]. MF area was quantified at 1.398.163 [713.204-3.116.924] μm^2, representing a median proportion of 12 [6-20]%. No significant correlations were found between AD and tissue characterization at CMR: T1 mapping (ρ = -0.183, p = 0.044), LGE percentage (ρ = -0.192, p = 0.079); ECV (ρ = -0.022, p = 0.810). Similarly, AD showed no correlation with histological MF (ρ = -0.080, p = 0.411, ρ = -0.129, p = 0.185, for absolute area and proportion, respectively). Zva and RVL also showed no significant associations with either CMR tissue parameters or MF.
Conclusions: In patients with classical severe symptomatic AS, myocardial tissue characterization at both pre-operative CMR and histology was unrelated to indexes of LV afterload. Additional factors determining tissue remodeling beyond the valve obstacle and arterial impedance are to be supposed.

CO 70. MULTIMODALITY CHARACTERIZATION OF APICAL SPARING IN SEVERE AORTIC STENOSIS USING CT-DERIVED ECV

André Lobo[1], Marta Catarina Almeida[1], Carolina Castro[2], José Cavadas[2], Rafael Teixeira[1], Inês Rodrigues[1], António Gonçalves[1], Mariana Brandão[3], Nuno Dias Ferreira[1], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Faculdade de Medicina da Universidade do Porto. [3]Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain.

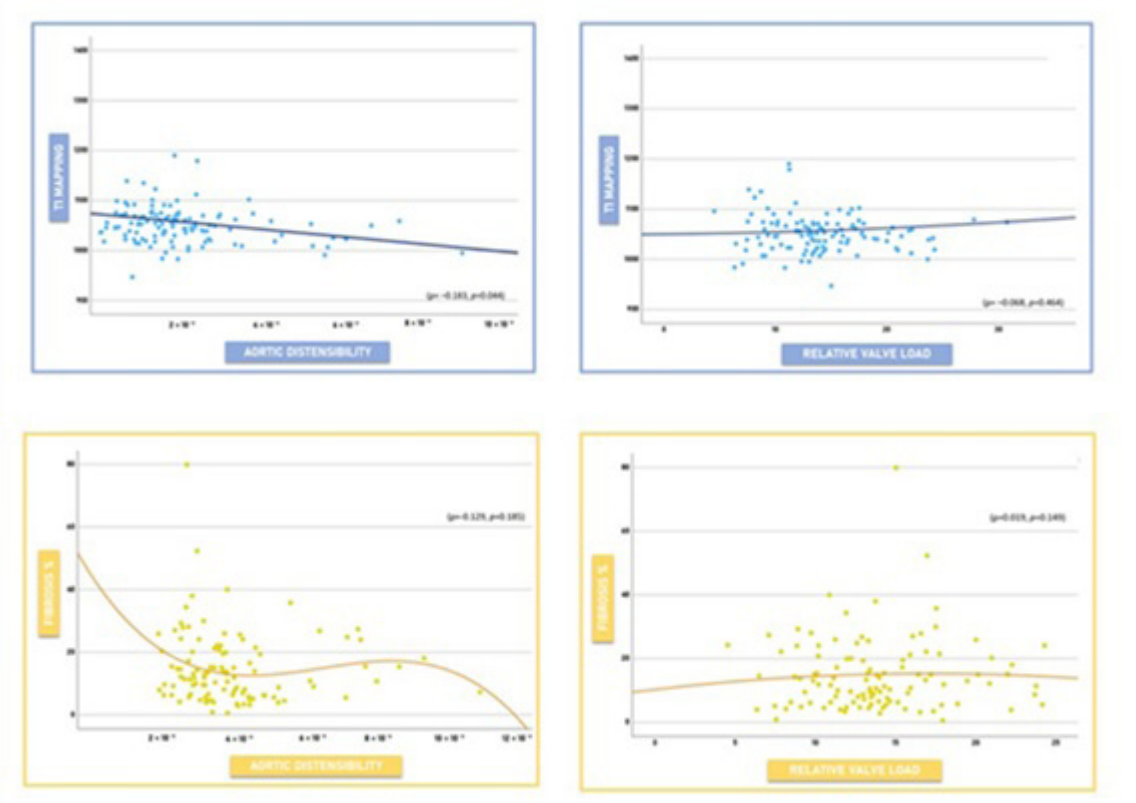


Figure CO 69

Introduction: In aortic stenosis (AS), myocardial extracellular volume (ECV) can be non-invasively quantified by computed tomography (CT). It is associated with adverse myocardial remodeling and worse prognosis. However, its regional myocardial distribution remains poorly characterized. Echocardiographic strain imaging has demonstrated a pattern of relative apical sparing in patients with AS, raising the hypothesis of a corresponding basal-to-apical gradient in ECV. Whether such a gradient exists on CT-derived ECV and how it relates to echocardiographic global longitudinal strain (GLS) remains unknown.
Methods: Retrospective analysis of patients with severe AS undergoing cardiac CT for transcatheter aortic valve implantation (TAVI) planning (April 2024-April 2025). Standardized delayed-phase dual-energy acquisition enabling opportunistic myocardial ECV quantification was performed in all cases. ECV was measured in basal, mid-ventricular, and apical short-axis slices. In the subgroup of patients with available GLS data by echocardiography, GLS and relative apical sparing were analyzed in relation to CT-derived ECV metrics.
Results: A total of 253 patients with available CT-derived ECV data were included. A basal-to-apical gradient was observed, with the highest median ECV at the basal level (31.4%, IQR 6.25), decreasing at the mid-ventricular level (29.5%, IQR 6.50), and reaching the lowest values at the apex (27.6%, IQR 6.50; all pairwise $p < 0.001$). The median basal-to-apical ECV ratio was 1.13 (IQR 0.27) and was positively associated with global ECV burden ($p < 0.001$). Among patients with available echo strain GLS (n = 162), global CT-derived ECV was inversely correlated with GLS ($r = -0.21$, $p = 0.008$), indicating worse myocardial deformation with increasing CT-ECV. The basal-to-apical CT-ECV ratio correlated with the echo strain-derived apical-to-basal ratio ($r = 0.17$, $p = 0.048$). In addition, patients with apical sparing on echo strain imaging had a significantly higher basal-to-apical CT-ECV gradient ($p = 0.024$).
Conclusions: CT-derived ECV demonstrates a consistent basal-to-apical gradient in severe aortic stenosis, with basal predominance and relative apical sparing. This structural pattern resembles the one assessed by GLS in echocardiography, highlighting the importance of a multimodality approach for evaluating myocardial damage in the setting of severe AS. These findings suggest that an apical sparing pattern may also be characterized by CT, warranting further validation.

CO 71. MULTIMODALITY IMAGING IN LOW-FLOW LOW-GRADIENT AORTIC STENOSIS: IMPACT ON SEVERITY CLASSIFICATION AND OUTCOME PREDICTION

Mariana Raimundo Sá[1], Ana Rita Pereira[1], Adriana Silva[1], Rafael Viana[2], Paula Fazendas[1], Tiago Lobão[1], Lourenço Aguiar[1], Sofia Alegria[1], Inês Cruz[1], Ana Rita Almeida[1], Isabel João[1], Hélder Pereira[1]

[1]ULS Almada-Seixal/Hospital Garcia de Orta. [2]ULS Alentejo Central/Hospital do Espírito Santo de Évora.

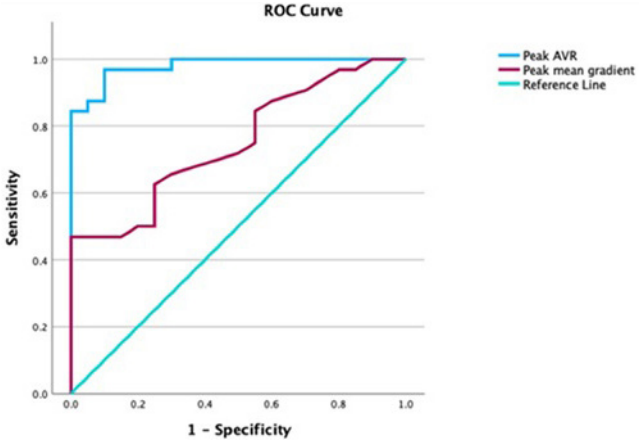
Introduction: Differentiating true severe from pseudo-severe low-flow low-gradient (LFLG) aortic stenosis (AS) remains challenging with echocardiography alone. The 2025 ESC Guidelines highlight CT-derived aortic valve calcium (AVC) scoring as an alternative to dobutamine stress echocardiography (DSE) including in patients with reduced left ventricular ejection fraction (LVEF).
Objectives: To evaluate how CT-AVC scoring, alone or combined with DSE, influences diagnostic classification and clinical outcomes in LFLG AS.
Methods: A retrospective study was conducted by reviewing all transthoracic echocardiograms performed between 2020-2023 at a tertiary centre. Patients with LFLG AS who underwent non-contrast CT AVC scoring and/or DSE were selected and divided into four groups: CT-only, DSE-only, concordant CT+DSE, and discordant CT+DSE. Classification as true severe AS followed guideline criteria. The primary endpoint was all-cause mortality at 1-year; the secondary was aortic valve replacement (AVR) at 1-year.
Results: From 139 patients with LFLG AS, 44 (31.7%) met inclusion: mean age 76.0 ± 7.5 years; 75% male and 75% with LVEF< 50%. Baseline echocardiographic parameters were peak mean velocity 3.5 ± 0.2 m/s; mean gradient 26.5 ± 7.5 mmHg; mean aortic valvular area (AVA) 0.8 ± 0.1 cm^2. Using either modality, 31 patients (70.5%) were classified as true severe AS, more often by CT (89.3%) than DSE (48.0%). Patients were divided into predefined groups: CT-only (n = 19), DSE-only (n = 16), concordant CT+DSE (n = 4), and discordant CT+DSE (n = 5). Agreement between CT AVC score and DSE was poor (55.6%, $\kappa = -0.200$) and no significant association was found between the modalities ($\chi^2 = 0.563$, $p = 0.453$). At 1-year follow-up, survival differed among groups (log-rank $p = 0.031$, event rate 0% CT-only, 37.5% DSE-only, 50% concordant, 40% discordant). Overall, 1-year AVR was 50% and differed across groups ($p = 0.042$), highest in concordant severe cases (100% vs. 20% discordant, 18.8% DSE-only, 15.8% CT-only).
Conclusions: Fewer than one third of patients with echocardiographic features of LFLG AS underwent further diagnostic evaluation. CT-derived AVC scoring more frequently classified cases as true severe LFLG AS, presenting a poor concordance with DSE but the lowest 1-year AVR rate and the most favourable 1-year outcome. Further studies are required to validate these findings and to better define the real diagnostic and prognostic value of AVC scoring in this very challenging patient cohort.

CO 72. DIAGNOSTIC VALUE OF AORTIC VALVE RESISTANCE DURING DOBUTAMINE STRESS ECHOCARDIOGRAPHY IN LOW-FLOW, LOW-GRADIENT AORTIC STENOSIS

Mariana Raimundo Sá, Ana Rita Pereira, Adriana Silva, Paula Fazendas, Liliana Brochado, Tiago Lobão, Lourenço Aguiar, Inês Cruz, Ana Rita Almeida, Isabel João, Hélder Pereira

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: In low-flow, low-gradient aortic stenosis (LFLG AS), standard dobutamine stress echocardiography (DSE) parameters may remain discordant, limiting diagnostic accuracy. Aortic valve resistance (AVR), integrating flow and transvalvular pressure, has been proposed as an adjunct index, but its added value during DSE is not well established.
Objectives: To assess the diagnostic contribution of AVR compared with classical echocardiographic parameters in patients with LFLG AS undergoing DSE.
Methods: Patients with mean gradient < 40 mmHg and AVA < 1.0 cm^2 or < 0.6 cm^2/m^2 undergoing DSE (2014-2024) were included. AVR was calculated at rest and peak DSE. Thresholds followed published criteria: < 120 dyn·s·cm^{-5} indicating pseudo-severe and > 180 dyn·s·cm^{-5} indicating true-severe AS. Severity classification followed guideline DSE criteria. Diagnostic performance was evaluated using Pearson correlation, crosstabs, logistic regression, and ROC curves.



Results: Fifty-five patients were included (mean age 79.7 ± 4.1 years; 87.7% male). Mean gradient, AVA and AVR were, respectively, 21.8 ± 6.2 mmHg, 0.9 ± 0.3 cm^2 and 174.4 ± 79.3 dyn·s·cm^{-5} at baseline and 29.3 ± 8.4 mmHg, 1.0 ± 0.3 cm^2 and 167.2 ± 77.2 dyn·s·cm^{-5} at peak. AVR strongly correlated with AVA at rest ($r = -0.864$) and peak ($r = -0.777$), $p < 0.001$. Classical DSE criteria classified 61.5% as true-severe. AVR-based reclassification showed significant association with the classical classification ($\chi^2 = 25.4$, $p < 0.001$; Cramer's V = 0.699). In univariate analysis, peak AVR (OR 1.12, 95%CI 1.0-1.2, $p = 0.003$) and peak mean gradient (OR 1.12, 95%CI 1.0-1.3, $p = 0.001$) were independent

predictors of true-severe AS. In multivariate analysis, peak AVR remained independently associated (OR 1.1, 95%CI 1.0-1,2, p = 0.003), while mean gradient lost significance (OR 1.0, 95%CI 0.8-1.3, p = 0.761). ROC analysis confirmed superior diagnostic performance of peak AVR (AUC 0.980, p < 0.001), with optimal cut-offs between 115-140 dyn·s·cm^{-5} achieving sensitivity ≥ 90% and specificity ≥ 80%. Peak mean gradient showed only moderate accuracy (AUC 0.749, p < 0.001), with the best cut-off (32-33 mmHg) yielding sensitivity 47% and specificity 95%.
Conclusions: In our LFLG AS cohort, AVR during DSE strongly correlated with anatomic severity and outperformed classical DSE parameters in identifying true-severe stenosis. AVR appears to provide independent diagnostic value, but further studies are needed to confirm its utility.

Sábado, 25 Abril de 2026 | 08:00-08:55

Sala Infante | Sessão de Comunicações Orais 13 - Para além do isolamento das veias pulmonares: estratégias avançadas na ablação da fibrilhação auricular

CO 73. ACUTE HEART-RATE RESPONSE PREDICTS ATRIAL FIBRILLATION RECURRENCE AFTER CARDIONEUROMODULATION AND PULMONARY VEIN ISOLATION

Tiago Serrano Constantino, Filipe Leão, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Paulo Osório, Guilherme Portugal, Madalena Cruz, Hélder Santos, Sofia Jacinto, Rui Cruz Ferreira, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Cardiac neuromodulation (CNM) seeks to rebalance cardiac autonomic tone by targeting atrial ganglionated plexi (GP). While CNM is increasingly used in vagally mediated atrial fibrillation (AF), predictors of arrhythmia recurrence and the durability of autonomic modulated response remain uncertain. Mechanistic and clinical data suggest age-dependent vagal tone and a potential role for immediate heart-rate (HR) shifts in informing about outcomes; however, real-world evidence is limited.
Objectives: To identify demographic, clinical and procedural predictors of AF recurrence and to characterize the acute autonomic response after CNM in a single-centre cohort.
Methods: We conducted a retrospective study of 33 consecutive patients who underwent CNM combined with pulmonary veins isolation (PVI) for paroxysmal AF associated with pronounced baseline bradycardia (£ 50bpm). Comorbidities, medication and symptoms were recorded. HR and heart-rate variability (HRV) indices were assessed pre- and post-procedure when available. Primary endpoint was AF recurrence documented by ECG or ambulatory monitoring. Immediate autonomic response was predefined as a stable HR rise > 10 bpm, between the last pre-ablation and first post-ablation measurements. Comparisons used t-tests or Fisher's exact test, as appropriate. Missing data were analyzed as observed without imputation.
Results: Mean age was 59.8 ± 12.5 years (51.5% male, hypertension - 63.6%, dyslipidaemia - 51.5%, diabetes - 12.1%; regular sport activity - 9.1%). Recurrent palpitations before ablation were present in 87.9%. The mean number of ablated GP procedure was 2.44 ± 1.22. No major complications occurred. Patients with AF recurrence were younger (52.8 ± 15.2 vs. 61.6 ± 10.8 years; one-sided p = 0.047, Figure 1B). An immediate HR rise > 10 bpm occurred in 22/33 (66.7%) and was associated with a lower AF recurrence rate (27% vs. 55%; p = 0.03, Figure 1A). Neither classic atrial stimulation (High-frequency stimulation to GP to assess the autonomic response), extracardiac vagal nerve stimulation nor targeting ≥ 3 versus ≤ 2 GP was associated with recurrence on univariate testing (p > 0.10). Paired comparisons of pre vs. post-procedure HR showed no significant shift (mean difference 1.7 bpm; p = 0.62), and HRV changes were heterogeneous owing to limited availability.
Conclusions: In this cohort, CNM combined with PVI was a safe procedure, producing immediate sustained HR increase in two-thirds of patients. AF recurrence was associated with younger age and absence of acute HR rise. These findings support incorporating simple intra-procedural markers into decision-making and follow-up planning. Validation in larger, prospective cohorts is warranted to refine candidate selection and optimize CNM durability.

CO 74. ATRIAL GANGLIONATED PLEXI MODIFICATION COMBINED WITH PULMONARY VEIN ISOLATION FOR THE TREATMENT OF PAROXYSMAL ATRIAL FIBRILLATION AND BASELINE BRADYCARDIA

Mário Martins Oliveira[1], Pedro Silva Cunha[1], Sérgio Laranjo[1], Bruno Valente[1], Guilherme Portugal[1], Ana Lousinha[1], Hélder Santos[1], Tiago Constantino[1], Ana Sofia Trindade[2], Margarida Paulo[1], Ana Sofia Delgado[1], Rui Cruz Ferreira[1]

[1]ULS São José/Hospital de Santa Marta. [2]Hospital CUF Tejo.

Introduction: Experimental and clinical studies have established a dominant role of autonomic nervous system activity in the initiation and maintenance of atrial fibrillation (AF). Increased vagal tone is strongly associated with bradycardia and increased risk of developing AF. In patients (P) with AF and significant bradicardia, combining pulmonary vein isolation (PVI) with atrial ganglionated plexi (GP) modification may emerge as an ablative strategy.

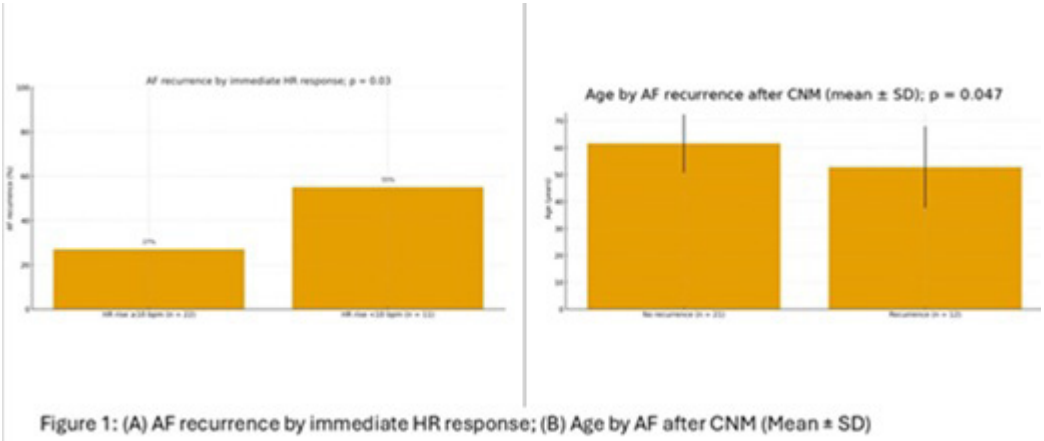


Figure 1: (A) AF recurrence by immediate HR response; (B) Age by AF after CNM (Mean ± SD)

Figure CO 73

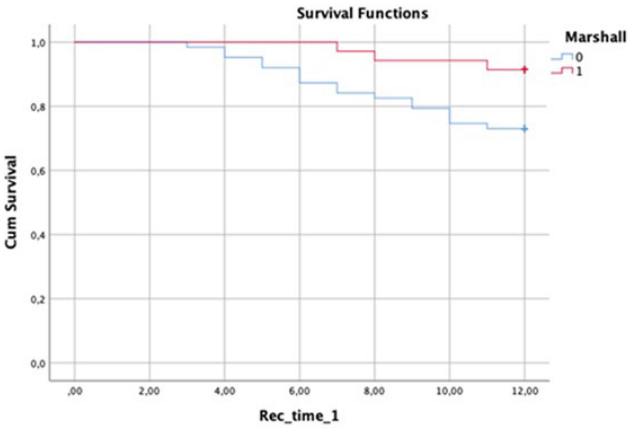
Objectives: evaluate the safety and success rates of combining PVI and anatomical-based modification of the major left atrial GP in P with paroxysmal AF (PAF) and baseline sinus bradycardia (≤ 50 bpm), submitted to a first AF ablation.
Methods: 34P (51 ± 14 years; 27 male; 85% engaged with regular exercise, left atrial volume 32-56 ml/m²; left ventricular ejection fraction > 50%; CHADSVASc 0-2; AAD used as "pill in the pocket") undergoing PVI + left atrial empiric GP sites ablation with radiofrequency (RF). All P performed a cardiac CT before ablation to provide detailed 3-D images and exclude intracardiac thrombus. Electroanatomic mapping for anatomic geometry reconstruction was performed with NAVx Ensite (Abbot Inc.) or Carto system (Biosense Webster Inc). The primary outcome was the freedom from AF or sustained atrial tachycardia during 18-month follow-up verified by ECG (every 6 months or if symptoms), external event recorder (blanking period), and a 24h-Holter (between 6 and 12 months).
Results: P underwent successful PVI (4-5 PV) and RF modification of the four GP in the vicinity of the PV. The average procedure time was 124 min and fluoroscopy time 12 min. The duration of RF (30-35W) was 40 ± 10min. At the end of the procedure, there was a stable acute increase of heart rate between 11bpm and 24 bpm. A pericardial effusion was drained in the laboratory, with no other acute complications. The mean heart rate (24h-Holter recording) changed from 52 bpm to 66 bpm, before and 6-12 months after ablation, respectively (p < 0,05). At 18-month follow-up, maintenance of sinus rhythm was 77%%, with an EHRA score for AF-related symptoms of I-II. **Conclusions:** Anatomical-based left atrial neuromodulation as an adjunctive procedure to PVI may provide benefits in AF suppression for the treatment of P suffering from AF and sinus bradycardia.

CO 75. VEIN OF MARSHALL ETHANOL INFUSION FOR PERSISTENT ATRIAL FIBRILLATION: FEASIBILITY, SAFETY AND EFFICACY

Mariana Rodrigues Simões, Ana Luísa Silva, Carolina Saleiro, João Ferreira, Patrícia Alves, Nuno Pontes, José Nascimento, Natália António, Pedro A. Sousa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Despite limited evidence, two-thirds of physicians perform persistent atrial fibrillation (AF) ablation beyond pulmonary veins isolation. Recent trials and meta-analyses have shown that vein of Marshall (VoM) ethanol infusion provides additional benefit, consistent with the findings in the VENUS trial.



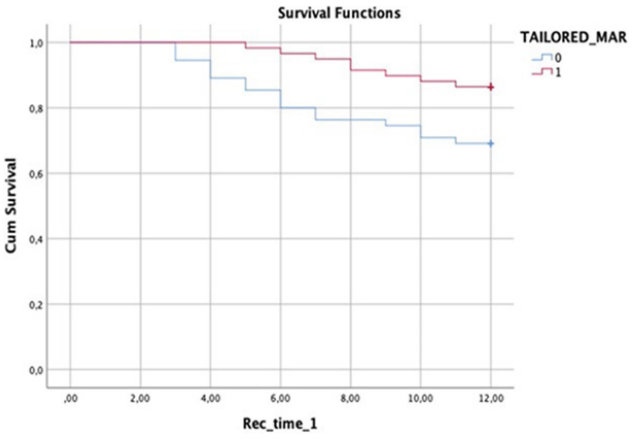
Methods: Single-centre, retrospective, observational study of patients referred for first procedure radiofrequency (RF) catheter ablation between August 2022 and August 2024. All redo-procedures were excluded. The blanking period for atrial arrhythmia recurrence was 3 months. We aimed to assess the feasibility, safety, and efficacy of VoM ethanol infusion for persistent AF ablation.
Results: A total of 100 patients were included (70% male, mean age of 62 ± 11 years). Vein of Marshall (VoM) ethanol infusion was attempted in 41 patients and was successfully achieved in 35 patients (85%). Infusion was unsuccessful in 6 cases: the VoM could not be identified in 4 patients, cannulation was not possible in 1, and dissection of the vein occurred in another. One complication occurred in the VoM group (a mild-to-moderate pericardial effusion), while an esophagitis was reported in the group that not performed VoM ethanol infusion. Both cases were managed conservatively. At 1-year follow-up, 21 patients experienced recurrence of sustained atrial arrhythmia: 18 with persistent AF, 2 with atrial tachycardia and one with atrial flutter. Overall, single-procedure freedom from atrial arrhythmia was 79%. The risk of recurrence was significantly lower in the VoM group (8.5% vs. 28.1%, p = 0.030) (Figure 1). VoM ethanol infusion was associated with freedom from atrial arrhythmia at 1 year follow-up with a HR of 0.28 (95%CI, 0.08-0,96), p = 0.021.
Conclusions: The VoM ethanol infusion seem to be a feasible, safe and effective approach for persistent AF ablation.

CO 76. TAILORED ABLATION WITH VEIN OF MARSHALL FOR PERSISTENT ATRIAL FIBRILLATION ABLATION

Mariana Rodrigues Simões, Tatiana Pereira dos Santos, Carolina Saleiro, João Ferreira, Patrícia Alves, Nuno Pontes, José Nascimento, Natália António, Pedro A. Sousa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Catheter ablation is the treatment of choice in symptomatic patients with atrial fibrillation (AF) who do not respond to antiarrhythmic drug therapy, with pulmonary vein isolation (PVI) serving as the cornerstone of AF ablation. Despite advances in ablation techniques, freedom from atrial arrhythmias remains limited, particularly in patients with persistent or long-standing persistent AF.
Methods: Prospective single-center, observational study of consecutive referred for catheter ablation for persistent AF ablation between August 2022 and August 2024. Patients were submitted to a tailored ablation guided by the presence of low-voltage areas. Procedural endpoints and 1-year outcomes were assessed and compared to those of a propensity score-matched (1:1 ratio) cohort of patients submitted to only PVI during the same period. All REDO procedures were excluded. The primary endpoint was defined as freedom from any atrial arrhythmia of at least 30 seconds duration, regardless of symptoms, after the 3-month blanking period.



Results: A total of 118 patients (71% male, mean age of 62 ± years) fulfilled our inclusion criteria and were included in our study, corresponding 59 to the tailored approach group and 59 propensity score-matched patients in the control group. Mean LA volume index was 45.5 ± 13 and mean left ventricular ejection fraction was 48.1 ± 14.51%. In the tailored group, sixty percent of patients underwent vein of Marshall ethanol infusion, which was followed by creation of a posterior mitral line; A roof line was created in 8% of patients, a posterior box in 73%, and an anterior mitral line in 27%. At 1-year follow-up, 26 patients had recurrences of sustained atrial

arrhythmia: AF in 21 patients, atrial flutter in 3 patients and atrial tachycardia in the remaining 2 patients. Overall, single-procedure freedom from atrial arrhythmia after the 3-month blanking period was 78%. The risk of recurrence was significantly lower in the tailored approach group compared with the control group (13.5% vs. 30.5%, p = 0.019) (Figure 1). The use of VoM ethanol infusion were associated with freedom from atrial recurrence during follow-up with a HR = 0.271 (95%CI 0.081-0.904), p = 0.013.

Conclusions: A tailored approach guided by the presence of LVA was associated with a higher arrhythmia-free survival at 1-year of follow-up compared with performing PVI alone and VoM ethanol infusion was associated with a reduced risk of AF recurrence.

CO 77. FROM ST GEORGE TO EASY-WPW: COMPARATIVE VALIDATION OF TWO ECG ALGORITHMS FOR ACCESSORY PATHWAY LOCALIZATION

Miguel Rocha, Helena Moreira, Pedro Palma, Joana Gonçalves, Emanuel Oliveira, Bernardo Cruz, Benedita Couto Viana, Erivaldo Figueiredo, Tiago Prata Branco, Luana Alves, Ana Isabel Pinho, Rui Simões Rodrigues

ULS São João/Hospital São João.

Introduction: Accurate localization of accessory pathways (APs) from baseline ECG is crucial for planning ablation in Wolff-Parkinson-White patients (WPW). The EASY-WPW algorithm, published in 2023, offers a simplified stepwise approach, but its performance relative to other classic AP location algorithms, such as the St. George's algorithm, is yet to be extensively validated.

Objectives: To compare the real-world diagnostic performance of EASY-WPW and the St George algorithm for AP localization, using electrophysiologic (EP) findings as the reference.

Methods: We retrospectively analysed consecutive patients with WPW pattern who underwent successful AP ablation at a Portuguese tertiary centre between 2021-2024. Pre-excitation ECGs were independently classified using EASY-WPW and St George algorithms. AP location from EP study was coded into seven segments (right/left antero, postero- and lateral). Exact seven-segment localization and grouped right/left and septal/free-wall categories were compared. Accuracy, segment-wise sensitivity and positive predictive value (PPV) were calculated. Paired accuracies were contrasted with McNemar tests, to assess for significant differences between algorithms in AP location.

Results: Of 154 eligible patients, 147 had complete ECG and EP data (mean age 33.1 ± 17.7 years; 71% male; 29%

Conclusions: In this cohort, EASY-WPW showed moderate but significantly better performance than the St George algorithm for detailed AP localization, while maintaining comparable side (right/left) determination and clearly superior septal/free-wall discrimination. Although its use should be exercised with caution, given its moderate accuracy, these findings provide external validation of EASY-WPW as a practical ECG tool for accessory pathway localization, including in mixed adult-paediatric populations and in settings with limited electrophysiology experience.

Domingo, 26 Abril de 2026 | 08:30-09:25

Espaço Ágora | Sessão de Comunicações Orais 14 - Mavacamten na MCH obstrutiva: preditores de resposta, remodelagem e dados de vida real

CO 78. MAVACAMTEN TO TREAT PATIENTS WITH OBSTRUCTIVE HCM IN PORTUGAL – AN INTERIM ANALYSIS OF THE MAVA-PT COHORT

Débora da Silva Correia[1], Inês Miranda[2], Julien Lopes[3], Sérgio Maltês[1], Filipa Gerardo[2], Rodrigo Brandão[2], José Viegas[3], Tânia Laranjeira[1], João Bicho Augusto[2], Sílvia Aguiar[3], Bruno Rocha[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca. [3]ULS São José/Hospital de Santa Marta.

Introduction: Mavacamten, a selective cardiac myosin inhibitor, reduces left ventricular outflow tract obstruction (LVOTO) while improving exercise capacity

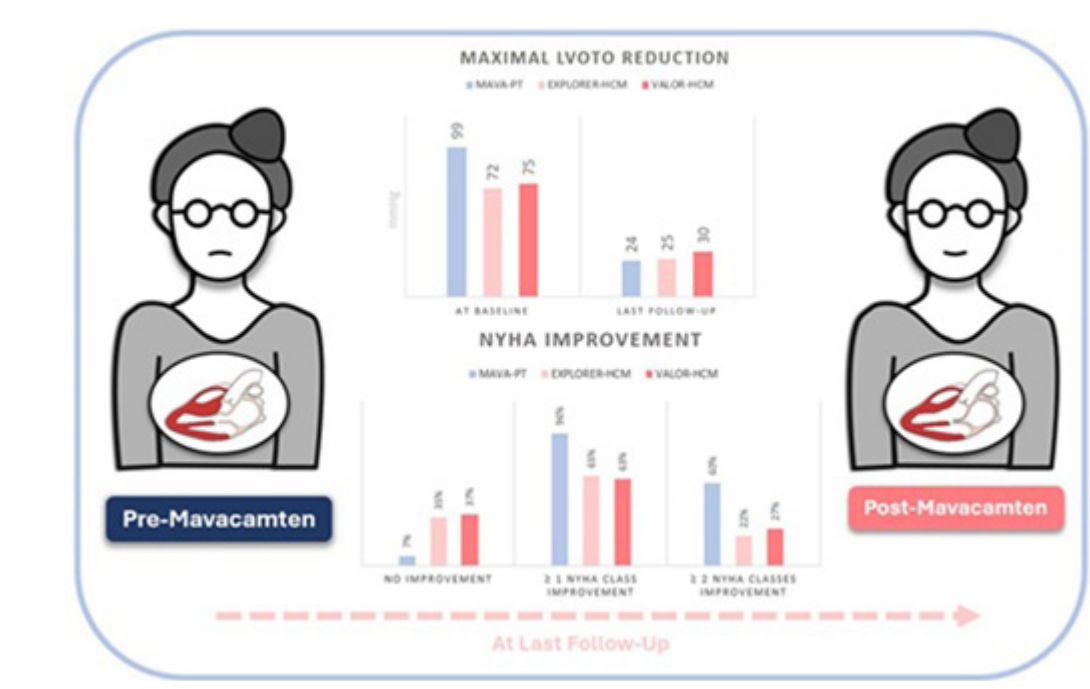


Figure CO 78

and symptoms in patients with obstructive hypertrophic cardiomyopathy (oHCM). As a drug becomes more widely used, generating real-world data is important to assess its effectiveness and safety. MAVA-PT is an observational multicentre study aiming to assess patient characteristics, treatment patterns, and longitudinal outcomes in patients receiving mavacamten.

Objectives: To describe the real-world experience with the use of mavacamten in symptomatic oHCM across Portuguese centres.

Methods: All consecutive adult patients with symptomatic (NYHA III) oHCM enrolled in the Early Access Program at 3 centres were analysed in this interim analysis. Baseline characteristics, clinical outcomes, and safety were compared with the EXPLORER-HCM and VALOR-HCM trials.

Results: Overall, ninety-three patients were included [mean age 65 ± 12 years; 31% male; 91% beta-blocker at baseline; 6 patients with prior septal reduction therapy]. Pathogenic or likely pathogenic variants were identified in 18% patients of those genotyped (16/87). Only two patients were poor CYP2C19 metabolizers. MAVA-PT patients presented with a higher symptom burden and LVOTO than those in the EXPLORER-HCM and VALOR-HCM. Seventy-three patients had received at least one month of mavacamten and were included for further analysis. At a median follow-up of 9 (3-14) months, a significant improvement was noted in functional capacity (NYHA I: 0 vs. 73%; p < 0.001), NT-proBNP (1,012 [301-2,368] vs. 235 [103-491] pg/mL; p < 0.001), maximal LVOTO (99 ± 41 vs. 24 ± 30 mmHg; p < 0.001) and maximal wall thickness (18 [16-21] vs. 16 [15-18] mm; p < 0.001). Maximal LVOTO below 30 mmHg and 50 mmHg was achieved in 48 (66%) and 60 (82%) of the patients at last follow-up, respectively, all of whom had an improvement of at least one NYHA class. These changes were comparable to those in observed in the EXPLORER-HCM and VALOR-HCM trials (central figure). Mavacamten was well-tolerated, with low adverse event rates. There was a mild reduction in left ventricular ejection fraction (LVEF) (67 ± 8% vs. 63 ± 8%; p < 0.001). Nine patients discontinued mavacamten due to a LVEF < 50%, all of whom had fully recovered LVEF after 4 weeks and seven of whom were restarted on treatment. Three additional patients stopped the drug: one due to planned pregnancy, one due to generalized muscle weakness and one for a non-cardiovascular death. There were no reported arrhythmic events.

Conclusions: MAVA-PT is the first real-world study characterizing the use of mavacamten in patients with oHCM in Portugal. This interim analysis provides insight of the national experience with the drug, showing substantial clinical and structural improvements and a favourable safety profile.

CO 79. GENETIC STATUS AND RESPONSE PATTERNS TO MAVACAMTEN IN OHCM: AN ECHOCARDIOGRAPHIC SIGNATURE OF REVERSE REMODELING FROM 3 PORTUGUESE CENTERS

Inês Pereira de Miranda[1], Débora Correia[2], Julien Lopes[3], Filipa Gerardo[1], Rodrigo Brandão[1], Sérgio Maltês[2], José Viegas[3], Tânia Laranjeira[2], Sílvia Aguiar Rosa[3], Bruno Rocha[2], João Bicho Augusto[1]

[1]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca. [2]ULS Lisboa Ocidental/Hospital de Santa Cruz. [3]ULS São José/Hospital de Santa Marta.

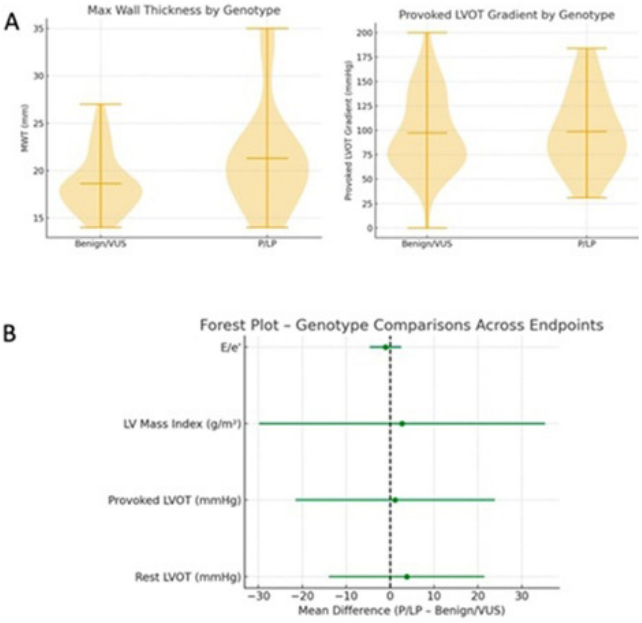
Introduction: Mavacamten is an effective targeted therapy for symptomatic obstructive hypertrophic cardiomyopathy (oHCM). However, real-world data on the extent and trajectory of cardiac reverse remodeling, based on comprehensive echocardiography, remains scarce. Additionally, the influence of genetic background on treatment response is still incompletely understood.

Objectives: To characterize echocardiographic markers of reverse remodeling in mavacamten-treated oHCM patients from three Portuguese centres and to assess whether genotype influences treatment response patterns.

Methods: A retrospective multicentre study was conducted including consecutive mavacamten-treated oHCM patients across three Portuguese centres. Clinical, laboratory, ECG, cardiopulmonary exercise, and multimodality imaging (echocardiography and CMR when available) data were collected at baseline, weeks 4, 8, and 12, and at each patient's optimal dose. Measurements included maximal wall thickness, left ventricular (LV) mass index, LV outflow tract (LVOT) gradients (rest and Valsalva), systolic and diastolic function (LVEF, GLS, E/e' ratio), and left atrial size. A composite response endpoint was defined as (i) haemodynamic improvement (normalization or marked LVOT gradient reduction) or (ii) clinical response (improvement of at least 1 NYHA class). Associations between genotype and response were assessed using contingency analyses and logistic regression.

Results: A total of 83 patients were included (mean age 65 ± 12 years; 68.7% female). Baseline functional status was poor (all patients NYHA III), improving markedly at follow-up (NYHA I-II). Genetic testing results were available for 73 patients (88%), of whom 57 (78%) were negative and 16 (22%) had a P/LP variant. Mavacamten was associated with progressive structural reverse remodeling: (1) maximal wall thickness decreased at 12 weeks (-1.7 mm, p < 0.001) and further at optimal dosing (-2.9 mm, p < 0.001), (2) indexed LV mass decreased significantly at 12 weeks (-16.8 g/m², p = 0.006) and at optimal dose (-24.5 g/m², p = 0.002). Hemodynamics improved significantly: resting LVOT gradient fell by -26.4 mmHg at 12 weeks and -59.9 mmHg at optimal dosing, while provoked gradients decreased by -43.0 mmHg and -92.3 mmHg, respectively (all p < 0.001). Diastolic unloading was evident through reductions in E/e' at 12 weeks (-2.9) and at optimal dose (-4.3) (both p < 0.001). LVEF and GLS showed small reductions but remained within clinically preserved ranges. The composite response rate was high across both genotype groups: 93.0% in the negative/VUS group vs. 100% in the P/LP group (p = 0.57).

Figure 1: Genotype Comparisons Across Endpoints (A and B)



Conclusions: Mavacamten led to substantial and progressive improvements in symptoms, haemodynamics, and cardiac structure, with similarly strong responses across all genotypic groups and no evidence of reduced efficacy regardless of genotype.

CO 80. IMPACT OF MAVACAMTEN ON LEFT ATRIAL REMODELING IN OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY: DATA FROM 3 PORTUGUESE CENTERS

Inês Pereira de Miranda[1], Julien Lopes[2], Débora Correia[3], Filipa Gerardo[1], Rodrigo Brandão[1], Sérgio Maltês[3], José Viegas[2], Tânia Laranjeira[3], Sílvia Aguiar Rosa[2], Bruno Rocha[3], João Bicho Augusto[1]

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Introduction: Left atrial (LA) remodeling is a key marker of diastolic burden and arrhythmic risk in hypertrophic cardiomyopathy (HCM). Mavacamten has

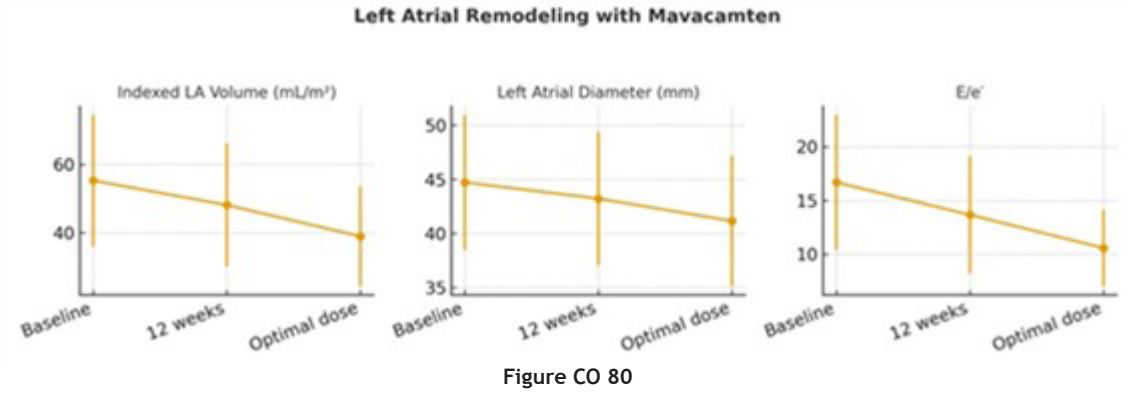


Figure CO 80

been shown to reduce left ventricular outflow tract (LVOT) obstruction and improve filling pressures, but real-world data on its impact on LA structure and function remain limited.

Objectives: To evaluate LA remodeling in patients with obstructive HCM treated with mavacamten across three Portuguese centers.

Methods: We conducted a multicenter observational study including consecutive patients with symptomatic obstructive HCM treated with mavacamten. Clinical data, laboratory parameters, ECG, cardiopulmonary exercise testing, and comprehensive echocardiography were collected at baseline, 4, 8 and 12 weeks, and at individually defined optimal dosing. Echocardiographic analysis focused on LA remodeling and diastolic burden, including LA diameter (LAD), indexed LA volume and E/e' ratio. Paired comparisons across timepoints were performed with appropriate parametric tests, and effect sizes (Cohen's d) and 95% confidence intervals (CI) were calculated. LA enlargement was defined as LAD ≥ 40 mm - changes in its prevalence were tested with the McNemar's test.

Results: Eighty-three patients were included (mean age 65 ± 12 years; 68.7% female). LAD showed no significant change at 12 weeks (44.2 ± 6.6 vs. 43.2 ± 6.2 mm; mean change -1.0 mm, 95%CI 2.1 to 0.2; p = 0.11). At optimal dosing, however, LA structural reverse remodeling became evident: LAD decreased from 44.8 ± 6.0 to 41.2 ± 6.0 mm (mean change -3.7 mm, 95%CI -5.3 to -2.0; p < 0.001; Cohen's d = 0.66). The prevalence of LA enlargement reduced from 79.1% to 55.8% (p = 0.013, McNemar). Similarly, E/e' ratio decreased from 16.6 ± 6.3 to 13.7 ± 5.4 at 12 weeks (mean change -2.9; 95%CI -4.3 to -1.6; p < 0.001; d = 0.66) and further to 10.6 ± 3.6 at optimal dose (mean change -4.3; 95%CI -5.7 to -2.8; p < 0.001; d ≈ 1.0).

Conclusions: Mavacamten was associated with LA reverse remodeling, reflected by reductions in LA size and filling pressures, indicating effective and sustained atrial unloading. Given the central role of LA in HCM, these real-world findings suggest a potential atrial disease-modifying effect of mavacamten, supporting further evaluation of its impact on atrial fibrillation susceptibility and arrhythmic risk.

CO 81. PREDICTORS OF LEFT VENTRICULAR DYSFUNCTION DURING MAVACAMTEN THERAPY IN OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY

Julien Lopes[1], Inês Pereira de Miranda[2], Débora Correia[3], Miguel Marques Antunes[1], Isabel Cardoso[1], José Miguel Viegas[1], Pedro Garcia Brás[1], Inês Grácio Almeida[1], João Bicho Augusto[2], Bruno Rocha[3], Rui Cruz Ferreira[1], Sílvia Aguiar Rosa[1]

[1]ULS São José/Hospital de Santa Marta. [2]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca. [3]ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Mavacamten, currently approved to treat patients with obstructive hypertrophic cardiomyopathy (oHCM), reduces left ventricular outflow tract (LVOT) gradient through inhibition of cardiac contractility. Owing to its mechanism of action, its main adverse effect is reduced left ventricular ejection fraction (LVEF), often requiring temporary treatment suspension.

Objectives: To evaluate predictors of reduced LVEF in a cohort of patients treated with mavacamten.

Methods: We conducted a prospective, observational, multicenter study of symptomatic oHCM patients enrolled in an Early Access Program for mavacamten at three centers. Baseline demographic, clinical, echocardiographic, cardiac magnetic resonance (CMR), cardiopulmonary exercise testing, and electrocardiographic data were collected and analyzed as potential predictors of "systolic dysfunction" during treatment, defined as an LVEF decline to < 50%, using a logistic regression model. Given the anticipated low number of events, variables with a p-value < 0.100 were considered for inclusion in the multivariable analysis to assess their strength as independent predictors.

Results: 73 patients were included (median age 67 years [IQR 59-72], 32.9% male). The mean resting LVOT gradient at baseline was 62 ± 37 mmHg, and 102 ± 43 mmHg with Valsalva. All patients had been receiving mavacamten for at least one month. Nine patients (10.8%) required treatment suspension due to reduced LVEF, of whom two discontinued therapy permanently. In univariate analysis, variables associated with the outcome included atrial fibrillation (p = 0.054) or pacemaker rhythm (p = 0.019), age (p = 0.094), LVEF on baseline CMR (p = 0.048), and percentage of late gadolinium enhancement (p = 0.065). Mavacamten dosage was not associated with the outcome (p = 0.805). In multivariable analysis, atrial fibrillation was the strongest independent predictor (p = 0.020; OR 32.8). Pacemaker rhythm (p = 0.066), baseline LVEF (p = 0.073), and percentage of late gadolinium enhancement (LGE) (p = 0.084) were borderline predictors, whereas age was not independently associated with the outcome (p = 0.120).

Conclusions: In our cohort, atrial fibrillation independently predicted LVEF dysfunction during mavacamten therapy, while lower baseline LVEF, greater LGE burden on CMR, and pacemaker rhythm demonstrating borderline associations with the primary outcome.

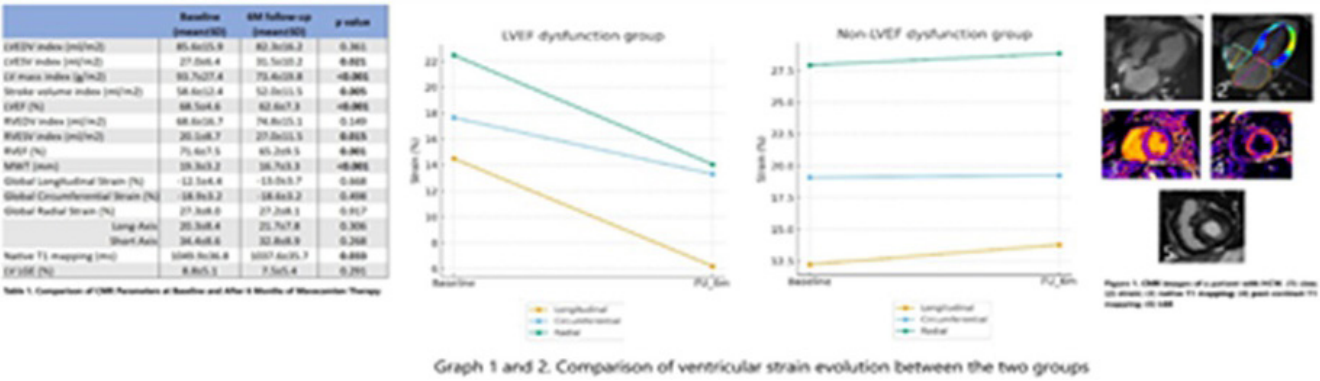
CO 82. CARDIAC MRI CHARACTERIZATION OF VENTRICULAR REMODELING DURING MAVACAMTEN TREATMENT: A MULTICENTRIC STUDY

Julien Lopes[1], Débora Correia[2], Inês Pereira de Miranda[3], Isabel Cardoso[1], Vera Ferreira[1], José Miguel Viegas[1], Pedro Garcia Brás[1], Inês Grácio Almeida[1], Bruno Rocha[2], João Bicho Augusto[3], Rui Cruz Ferreira[1], Sílvia Aguiar Rosa[1]

[1]ULS São José/Hospital de Santa Marta. [2]ULS Lisboa Ocidental/Hospital de Santa Cruz. [3]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca.

Introduction: Mavacamten, a cardiac myosin inhibitor, effectively reduces left ventricular outflow tract (LVOT) gradients by lowering myocardial contractility and is approved for the treatment of obstructive hypertrophic cardiomyopathy (oHCM).

Objectives: To evaluate the impact of mavacamten treatment on myocardial structural remodeling and ventricular functional parameters assessed by cardiac magnetic resonance (CMR).



Graph 1 and 2. Comparison of ventricular strain evolution between the two groups

Figure CO 82

Methods: We performed a prospective, multicenter, observational study including patients with oHCM who initiated mavacamten therapy and underwent CMR imaging at baseline and after six months of treatment. CMR parameters were collected, including: left and right ventricular index volumes and ejection fraction, stroke volume index (SVi), indexed LV mass (iLV mass), maximum wall thickness (MWT), native T1 mapping, LV late gadolinium enhancement (LV LGE) percentage, and myocardial deformation assessed by ventricular feature tracking strain (longitudinal, circumferential, and radial). Changes in CMR measurements between baseline and follow-up (FU) were analysed using paired t-tests. In addition, strain parameters were compared between patients who experienced a significant reduction in LVEF (> 10%) and the remaining patients using independent t-tests.
Results: 27 patients were included, with a median age of 67.0 [IQR 58-75], 44.4% male. During FU, one patient permanently discontinued mavacamten due to a significant decline in LVEF. Regarding CMR parameters (Table 1), no statistically significant differences were observed regarding LVEDVi, RVEDVi and LV LGE percentage. There were significant increases in LVESVi and RVESVi and a significant decrease was observed in SVi, iLV mass, MWT, right and left ventricular ejection fractions and native T1 mapping values. Patients who experienced a significant reduction in LVEF at FU showed a consistent decline across all three strain categories - longitudinal circumferential, and radial. In contrast, patients without a significant reduction in LVEF showed a slight improvement in these strain parameters over follow-up.
Conclusions: In our cohort, treatment with mavacamten was associated with a reduction in LV mass, MWT and native T1 mapping values. Mild reduction in LVEF at 6-month FU was noted without impairment in ventricular strain. However, among patients with significant decline in LVEF, a parallel deterioration in all types of ventricular strain was observed.

Domingo, 26 Abril de 2026 | 08:30-09:25

Sala Arrábida | Sessão de Comunicações Orais 15 - Instabilidade eléctrica e terapêuticas do sistema de condução: do *pacing* à tempestade arrítmica

CO 83. IATROGENIC ATRIOVENTRICULAR BLOCK: MYTH OR REALITY?

João Mirinha Luz, João Grade Santos, Luís Brandão, Rita Miranda, Alexandra Briosa, Diogo Santos da Cunha, Carlos Alvarenga, João Simões, Andreia Eusébio, Hélder Pereira, Sofia Almeida

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction and objectives: Atrioventricular block (AVB) can be associated with secondary causes, some of them potentially reversible. Permanent Pacemaker (PPM) implantation aims at ameliorating symptoms and prevent sudden cardiac death but is not recommended in transient causes that can be corrected or prevented. Previous work from our group demonstrated high rate of recurrences of initially though iatrogenic AVB (iAVB) and raised the hypothesis that pure iAVB is a rare entity. Our aim was to further characterize the population which had recurrence of symptomatic AVB after having recovered from an index event and having corrected secondary causes.
Methods: Data were collected from patients (pts) admitted with second- or third-degree AVB (ICD-10 codes I44.2, I44.3 and I44.5) in a district hospital between January 2011 and December 2024, associated with bradycardic drugs and/or drug-induced hyperkalemia (hyperK). Data were analyzed using SPSS software version 28.0 (IBM).
Results: 218 pts were admitted during the study period. Mean age was 77.7 years, mostly male (56%). Most pts (73%) presented with complete AVB (cAVB). HyperK was found in 22% of pts on admission, although most of them (62%) had potassium levels below 6.5 mmol/L. Overall, 88% of pts were receiving bradycardic drugs, predominantly beta-blockers (75%). 168 pts (77%) did not recover intrinsic rhythm and implanted PPM on initial admission (PMfirst). Fifty pts (23%) recovered intrinsic rhythm after withdrawal of the triggering agent. Of these, 76% (38 pts) re-presented and required PPM implantation (PMsecond), mainly due to recurrent cAVB (53%), with a median recurrence time of 9 months. Only 12 pts (5.5%) were free of AVB during follow-up. Among PMfirst pts, median ventricular pacing at 1 month (1m), 1 year (1y) and 3 years (3y) after implantation was 99%. In PMsecond pts, median pacing was significantly lower at 1m (60%, $p < 0.001$) and 1y (73%, $p = 0.035$), but not at 3y (92%, $p = 0.388$), and the majority of them had high (over 20%) percentages of ventricular pacing right after PPM implantation (1m: 59%; 1y: 67%; 3y: 93%).
Conclusions: AVB secondary to transient causes have a low rate of remission with its correction with a high rate of recurrence in follow-up. Those patients had high pacing rates upfront which increased over time but were, nonetheless, significantly lower than those that initially implanted a PPM. That further reinforces the possibility that pure iAVB is a rare entity but rather an earlier manifestation of latent advanced conduction disease.

CO 84. EARLY CATHETER ABLATION IN ELECTRICAL STORM: A PROPENSITY SCORE-MATCHED COMPARISON WITH MEDICAL THERAPY

Rita Almeida Carvalho, Joana Certo Pereira, Ana Rita Bello, Daniel Gomes, João Presume, Daniel Matos, Francisco Costa, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Catarina Brízido, Pedro Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Electrical storm (ES) is a life-threatening arrhythmic emergency whose initial management relies on antiarrhythmic drugs, beta-blockers, sedation, and hemodynamic support. Early catheter ablation (CA) has been proposed to improve outcomes by reducing arrhythmic burden and

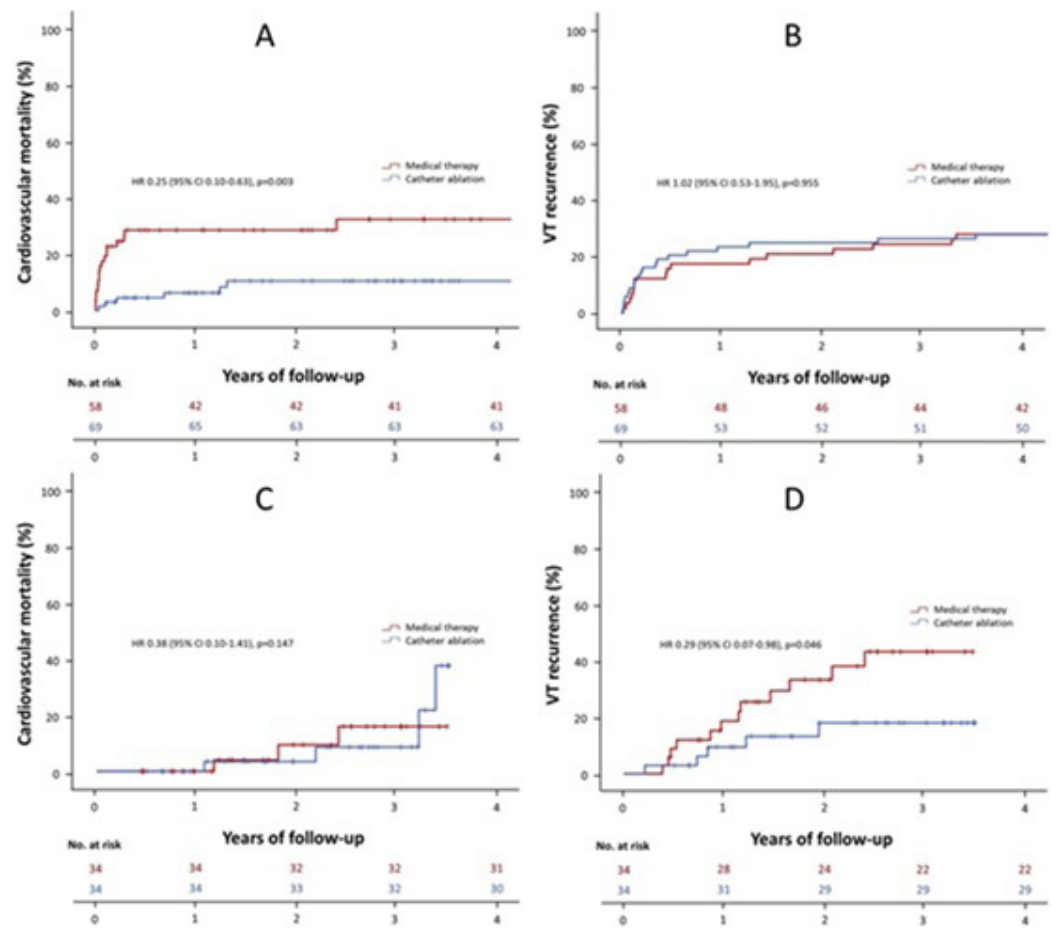


Figure 1. Kaplan–Meier curves showing CV mortality (A and C) and VT recurrence (B and D) according to treatment strategy before (A and B) and after (C and D) propensity-score matching.

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stabilizing patients. This study aimed to compare CA with medical therapy alone in patients experiencing a first ES episode.

Methods: Single-center, retrospective study including consecutive patients admitted to the cardiac intensive care unit between 2015 and 2025 with a first ES episode, defined as ≥ 3 episodes of sustained ventricular arrhythmia within 24 hours. Patients were categorized according to management strategy (medical therapy or CA during the index hospitalization) and subsequently matched 1:1 based on age, left ventricular ejection fraction, PAINESD score, creatinine, NT-proBNP, presence of a trigger, and use of sedation, mechanical ventilation, and vasoactive drugs. In the matched cohort, Cox regression was used to estimate hazard ratios (HRs) for time-to-event outcomes: ventricular tachycardia (VT) recurrence and cardiovascular (CV) mortality during follow-up.

Results: A total of 127 patients were included (age 65 ± 14 years; 88% male): 69 (54%) underwent CA and 58 (46%) received medical therapy. Most had ischemic heart disease (59%), followed by non-ischemic cardiomyopathy (39%); 88% presented with monomorphic VT. Medically treated patients more often had acute myocardial infarction (22% vs. 3%, p < 0.001), out-of-hospital cardiac arrest (12% vs. 1%, p = 0.023), and identifiable triggers (47% vs. 13%, p < 0.001). During hospitalization, 33% required continuous sedation, 30% mechanical ventilation, and 26% vasoactive support. Compared with medical therapy, CA patients required less sedation (25% vs. 43%, p = 0.044), mechanical ventilation (19% vs. 43%, p = 0.005), and vasoactive drugs (17% vs. 36%, p = 0.027), suggesting greater early clinical stability. Time to CA was 5 days [3-8], hospital stay 11 days [6-20], and in-hospital mortality 13%. After a median follow-up of 2.1 years [0.4-3.5], CV mortality was 18% and VT recurrence 29%. Before matching, CV mortality was lower with CA (9% vs. 29%, p = 0.006) [Figure 1A], while VT recurrence was similar [Figure 1B]. After matching (34 pairs, n = 68), CA was associated with lower VT recurrence (HR 0.29, 95%CI 0.07-0.98, p = 0.046) [Figure 1D], whereas CV mortality no longer differed significantly (HR 0.38, 95%CI 0.10-1.41, p = 0.147) [Figure 1C].

Conclusions: ES patients treated medically had greater clinical instability and higher early mortality, reflecting substantial baseline differences between groups. After matching, CA independently predicted lower VT recurrence, suggesting that CA reduces arrhythmic burden, although without evidence of a survival benefit.

CO 85. PHYSIOLOGIC VS. CONVENTIONAL PACING: COMPARATIVE OUTCOMES IN PATIENTS WITH > 40% VENTRICULAR PACING

Ana L. Silva, Maria João Primo, Tatiana Pereira dos Santos, Mariana Rodrigues Simões, Ana Luísa Rocha, Inês Cruz, Didier Martinez, Carolina Saleiro, Patrícia Alves, João André Ferreira, Natália António, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Left bundle branch area pacing (LBBAP) has emerged as a physiologically favourable alternative to conventional right ventricular (RV) septal/apical pacing. However, comparative evidence regarding clinical outcomes in real-world populations remains limited.

Objectives: To compare clinical outcomes between LBBAP and conventional RV septal/apical pacing in patients with a high pacing percentage (≥ 40%).

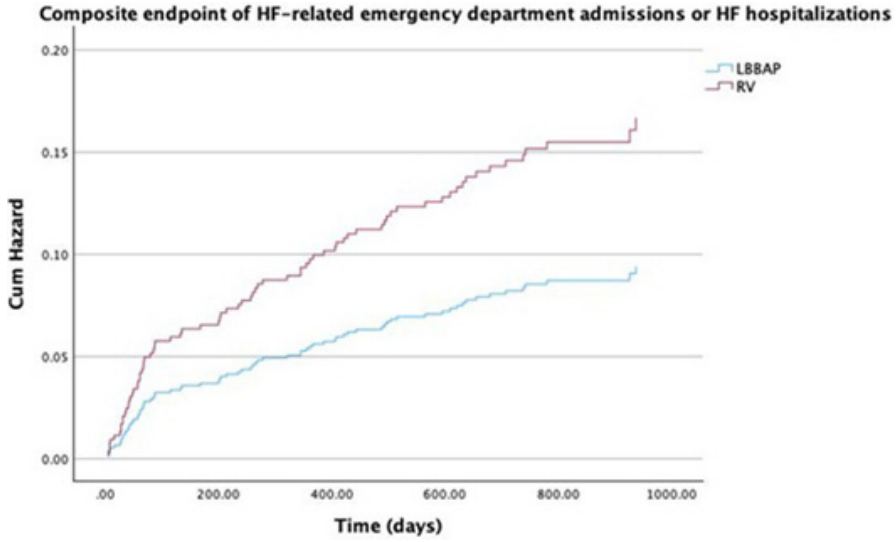

Figure CO 85

Methods: This single-center, retrospective study included patients who underwent pacemaker implantation between September 2022 and July 2024 and achieved ≥ 40% ventricular pacing during follow-up. QRS duration at baseline and under pacing was measured, and specific LBBAP parameters were recorded. Left ventricular ejection fraction (LVEF) was assessed at baseline and at follow-up when available. Clinical outcomes included heart failure (HF) hospitalization, HF-related emergency department (ED) visits, and a composite endpoint of these events. Statistical analysis was performed using SPSS 31.0 software. Cox regression was used to compare clinical outcomes.
Results: A total of 663 patients were included: 257 (38.8%) received LBBAP and 406 (61.2%) RV septal/apical pacing. Median age was 80.0 years (IQR 12.0), 68.3% were male, and median follow-up was 26.8 ± 6.5 months. Indications for pacing were mostly third (41.9%) or second-degree (21.3%) atrioventricular block. Median pacing percentage was 99.0% (IQR 7.3) in the LBBAP group and 96.5% (IQR 22.0) in the RV pacing group ($p < 0.001$). Most patients were in sinus rhythm (62.3%). Baseline QRS duration was wider in the LBBAP group (146.4 ± 33.0 ms vs. 128.3 ± 28.1 ms, $p < 0.001$), whereas paced QRS was significantly narrower (120.0 ± 16.1ms vs. 155.8 ± 19.5ms; $p < 0.001$). QRS variation differed markedly between groups (LBBAP: −27.5 ± 30.7 ms vs. RV: +26.7 ± 28.8 ms; $p < 0.001$). Mean LVAT in LBBAP was 79.7 ± 10.5 ms, and the V6-V1 interpeak interval was 42.1 ± 10.4 ms. LBBAP was associated with an improvement in LVEF after pacing (+5.0 ± 9.2%), whereas RV pacing resulted in a decline (-4.72 ± 8.6%) (B = -9.667, 95%CI -11,924 to -7,409, $p < 0.001$). The proportion of patients who lost LVEF after pacing was significantly higher in RV pacing (43.5% vs. 9.3%, $p < 0.001$). RV pacing was associated with higher rates of HF-related ED visits (HR 1.998, 95%CI 1.159-3.444; $p = 0.013$) and with a higher risk of the composite clinical endpoint (HR 1.777, 95%CI 1.054-2.995; $p = 0.031$). No significant differences were found in HF hospitalizations (HR 1.381, 95%CI 0.680-2.807; $p = 0.372$).
Conclusions: In patients with ventricular pacing ≥ 40%, LBBAP was associated with narrower paced QRS complexes, improved left ventricular systolic function, and fewer HF-related ED visits compared with RV septal/apical pacing. These findings reinforce the physiological advantages of conduction system pacing in routine clinical practice.

CO 86. CATHETER ABLATION FOR ELECTRICAL STORM PREVENTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Mafalda Oliveira Griné, Gonçalo Terleira Batista, Gonçalo Ferraz-Costa, Carolina Saleiro, Patrícia Alves, João Ferreira, Natália António, Pedro A. Sousa, Lino Gonçalves

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Introduction: Electrical storm (ES) is a life-threatening clinical condition. Catheter ablation (CA) has emerged as a potential strategy for reducing arrhythmic burden and preventing ES.
Objectives: To assess the efficacy of CA in preventing ES in patients with structural heart disease and documented ventricular arrhythmias.
Methods: We conducted a systematic review and meta-analysis of randomized controlled trials (RCT) assessing CA versus conventional management in adult patients with structural heart disease and documented ventricular arrythmias. The primary outcome was ES occurrence. Secondary outcomes included all-cause mortality, cardiovascular mortality, cardiovascular hospitalization, and appropriate implantable cardioverter-defibrillator (ICD) shocks. Studies with insufficient event reporting were excluded. Odds ratios (ORs) were pooled using a random-effects model with Wald-type confidence intervals.
Results: Eight eligible RCTs comprising 1,283 patients were included in the primary outcome analysis. ES occurred in 111/627 CA patients and in 149/643 Control patients. CA significantly reduced the odds of ES: OR = 0.70 (95%CI 0.53-0.93; $p = 0.01$); $I^2 = 0\%$. CA was also associated with less cardiovascular hospitalizations [OR = 0.73 (95%CI 0.55-0.95); $p = 0.02$; $I^2 = 13\%$], and less appropriate ICD shocks [OR = 0.53 (95%CI 0.35-0.79; $p = 0.002$; $I^2 = 55\%$]. No significant differences were observed in all-cause or cardiovascular mortality. When restricting the analysis to trials enrolling only patients with ischemic cardiomyopathy, the effect size remained essentially unchanged [ES: OR = 0.71 (95%CI 0.53-0.94); $p = 0.02$; $I^2 = 0\%$].
Conclusions: This meta-analysis suggests that CA significantly reduces the risk of electrical storm, appropriate ICD shocks and cardiovascular hospitalization compared with standard therapy.

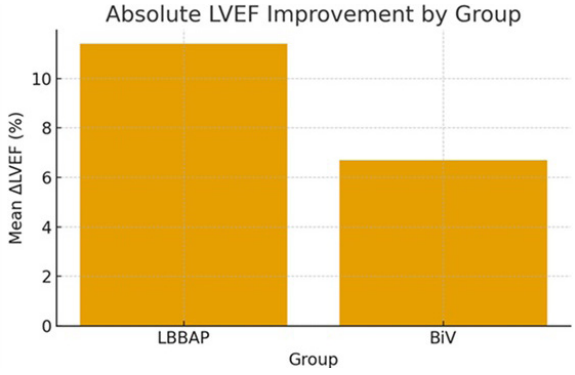
CO 87. TARGETING THE CONDUCTION SYSTEM: LBBAP-CRT VERSUS BIV-CRT IN A REAL WORLD COHORT

Maria João Primo, Inês Brito e Cruz, Ana Luísa Silva, Didier Martinez, Rita Bertão Ventura, João André Ferreira, Natália António, Patrícia Alves, Pedro Sousa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Conduction system pacing has emerged as an alternative strategy for delivering cardiac resynchronization therapy (CRT), with left bundle branch area pacing (LBBAP-CRT) showing increasing clinical adherence. Nonetheless, direct comparisons with conventional biventricular pacing (BiV-CRT) regarding functional recovery and remodeling remain scarce.
Objectives: To evaluate differences in CRT response and improvement in left ventricular ejection fraction (LVEF) between patients treated with LBBAP-CRT and those undergoing traditional BiV-CRT.

Methods: We performed a retrospective observational analysis of consecutive patients receiving CRT between 2022 and 2024. Individuals were assigned to either LBBAP-CRT (n = 117) or BiV-CRT (n = 100). CRT response was defined as a ≥ 5% increase in LVEF. "Super-response" was classified as achieving LVEF superior to 50% or an absolute LVEF gain of more than 14.5% at 6-month follow-up. Comparative analyses employed chi-square tests, independent t-tests, and Mann-Whitney U tests as appropriate.
Results: The study population included 217 patients with comparable baseline characteristics across groups, including age (73.0 ± 10.5 vs. 70.9 ± 11.2 years, p = 0.155), sex distribution, NYHA functional class, cardiomyopathy etiology, atrial fibrillation, and baseline QRS morphology. Median follow-up differed significantly, being shorter in the LBBAP-CRT cohort (15.0 months, IQR 12.7) than in the BiV-CRT group (28.6 months, IQR 23.2). Although the LVEF improvement trend did not reach statistical significance on two-tailed testing (ΔLVEF 11.4% vs. 6.7%, p = 0.056), patients receiving LBBAP-CRT demonstrated a markedly higher proportion of responders than those treated with BiV-CRT (83.8% vs. 56.6%, p = 0.007). Rates of super-response were comparable between groups (24.3% vs. 22.6%, p = 0.853).



Conclusions: In this real-world experience, LBBAP-CRT resulted in a significantly greater proportion of patients achieving meaningful LVEF improvement compared with BiV-CRT, alongside a strong trend toward superior absolute LVEF gains. These data reinforce LBBAP as a promising modality for enhancing CRT efficacy, supporting the need for randomized prospective trials to validate these findings.

Domingo, 26 Abril de 2026 | 08:30-09:25

Sala Infante | Sessão de Comunicações Orais 16 - Imagiologia avançada para estratificação de risco: do ECV à RMC em contexto de vida real

CO 88. GLOBAL MOLECULAR CALCIUM SCORE IMPROVES TRADITIONAL CARDIOVASCULAR RISK SCORE PERFORMANCE

Mafalda Oliveira Griné, Rita Bertão Ventura, Manuel Oliveira-Santos, João Borges-Rosa, Rodolfo Silva, Andreia Gomes, Antero Abrunhosa, Miguel Castelo-Branco, Lino Gonçalves, Maria João Ferreira

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Positron emission tomography computed tomography with 18F sodium fluoride (18F-NaF-PET-CT) detects active microcalcification, a marker of atherosclerotic plaque instability. We sought to explore whether cardiac microcalcification activity could change traditional scores' ability to predict the risk of cardiovascular (CV) events.

Methods: We conducted a patient-level outcomes analysis of the ROPPET-NAF trial (Rosuvastatin Effect on Atherosclerotic Plaque Metabolism - a Subclinical Atherosclerosis Imaging Study With 18F-NaF PET-CT: NCT 03233243) and its pilot study, in which high CV risk individuals underwent 18F-NaF-PET-CT. Total cardiac 18F-NaF uptake was measured as global molecular calcium score (GMCS). The primary endpoint was a composite of CV death, nonfatal myocardial infarction, nonfatal stroke, or heart failure hospitalization. GMCS's potential to alter the discriminative ability of the PREVENT equation was assessed using receiver operator characteristic analysis. Area under the curve values were compared with the DeLong test.
Results: A total of 57 participants were included in this analysis. Mean age was 64 years, 63% were male, most had hypertension (96%) and diabetes (82%). Over a median of approximately 4 years, 8 patients (14%) experienced the primary endpoint: 4 nonfatal strokes, 3 heart failure hospitalizations, 1 fatal myocardial infarction. Among participants who experienced an event, diabetes was less frequent, there was a higher median systolic blood pressure and more current smokers. Median GMCS was significantly higher in those with CV events (187 (134, 288) vs. 413 (339, 537); p < 0.001. Adding GMCS to the PREVENT score improved its discriminative ability in our cohort from AUC of 0.626 to 0.917 (p = 0.027).
Conclusions: In this patient-level analysis of the ROPPET-NAF trial and its pilot study, GMCS improved the discriminative ability of a contemporary CV risk score. As we shift from the "vulnerable plaque" to the "vulnerable patient" paradigm, GMCS appears to be a promising tool to refine CV risk stratification.

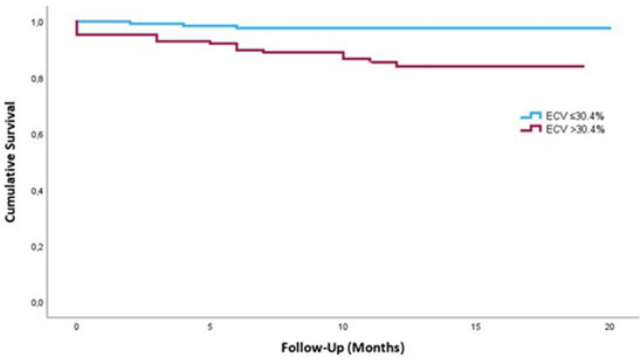
CO 89. CT-DERIVED EXTRACELLULAR VOLUME FOR RISK STRATIFICATION IN SEVERE AORTIC STENOSIS

André Lobo[1], Marta Catarina Almeida[1], José Cavadas[1], Carolina Castro[1], Rafael Teixeira[1], Mariana Brandão[2], Pedro Braga[1], Nuno Dias Ferreira[1], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain.

Introduction: Extracellular volume (ECV) reflects diffuse myocardial fibrosis and has been increasingly associated with adverse outcomes in severe aortic stenosis (AS). Dual-energy computed tomography (CT) technology allows reliable ECV quantification during routine pre-transcatheter aortic valve implantation (TAVI) assessment. We aimed to evaluate the prognostic value of CT-derived ECV in severe AS, with particular focus on pre-intervention outcomes.
Methods: Retrospective cohort of patients with severe AS undergoing pre-TAVI CT (April 2024-April 2025). A delayed dual-energy acquisition was performed for ECV quantification. Global ECV was defined as the mean of basal and mid-ventricular short-axis values. Patients were included irrespective of subsequent management strategy. Primary outcomes were all-cause and pre-treatment mortality. Secondary outcomes included post-intervention mortality, unplanned cardiovascular hospitalization, and urgent aortic valve replacement.
Results: 253 patients were included (median age 81 years; 48.6% male). Median follow-up was 11 months [9-15]. 146 patients underwent valve implantation (136 TAVI, 10 SAVR), and 107 were managed conservatively. Median ECV was 30.4% [27.55-33.70%]. ECV did not differ between management strategies (p = 0.118). During follow-up, 21 deaths occurred (8.3%). ECV was higher in non-survivors (33.8% vs. 30.0%; p < 0.001). ECV was associated with increased overall mortality (HR 1.157, 95%CI: 1.069-1.252, p < 0.001) and remained significant after multivariable adjustment (HR 1.163, 95%CI: 1.063-1.272, p < 0.001). Survival analysis stratified by the median ECV showed lower survival in patients with ECV > 30.4%-16.81 months (95%CI 15.85-17.76) vs. 19.62 months (95%CI 19.19-20.05), p < 0.001. In the pre-intervention period, 15 deaths occurred; ECV was a significant predictor of pre-treatment mortality (HR 1.154, 95%CI 1.056-1.262; p = 0.002) and remained independently associated after multivariable adjustment (HR 1.157, 95%CI 1.042-1.284; p = 0.006). Among treated patients, ECV was not significantly associated with mortality (HR 1.137, 95%CI 0.973-1.331; p = 0.107). Treatment was associated with a reduction in mortality, independently of ECV (HR 0.317, 95%CI 0.122-0.823; p = 0.018). ECV predicted

pre-treatment unplanned cardiovascular hospitalization (OR 1.12, 95%CI 1.04-1.22; p = 0.005) and urgent aortic valve replacement (OR 1.24, 95%CI 1.11-1.38; p < 0.001).



Conclusions: CT-derived ECV is a marker of adverse prognosis in severe AS, particularly in the pre-intervention period. Higher ECV identified patients at increased risk of death, hospitalization, and urgent valve intervention. These findings support the potential role of ECV in routine pre-TAVI evaluation for improved risk stratification.

CO 90. PROGNOSTIC VALUE OF STRESS PERFUSION CMR IN PATIENTS WITHOUT KNOWN CORONARY ARTERY DISEASE: A REAL-WORLD SINGLE-CENTER EXPERIENCE

Márcia José Oliveira Presume, Miguel Domingues, Rui Miguel Gomes, André Garcia, Catarina Santos-Jorge, Pedro Lopes, Francisco Gama, Cláudia Silva, Sara Guerreiro, João Abecasis, Pedro Freitas, António Ferreira

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction and objectives: Stress perfusion cardiovascular magnetic resonance (CMR) is widely used to assess myocardial ischemia, yet its prognostic evidence–particularly in patients without known coronary artery disease (CAD)–is less extensive than that of older imaging modalities. We aimed to evaluate the prognostic value of stress CMR in a contemporary cohort of patients without known CAD.
Methods: We conducted a single-center retrospective study including patients without known CAD who underwent adenosine stress CMR on a 1.5-T system between 2019 and 2023. Major adverse cardiovascular events (MACE), defined as all-cause death, non-fatal myocardial infarction (MI), cardiovascular hospitalization and late coronary revascularization, were recorded as the primary endpoint. Secondary outcomes were defined as each individual component of the composite endpoint. The prognostic value of inducible myocardial ischemia (≥ 2 segments) and ischemic-pattern late gadolinium enhancement (LGE) (previously unknown myocardial infarction) was evaluated using survival and Cox regression analyses.
Results: A total of 558 patients were included (median age 68.7 years; 57.5% male). Patients showed a high cardiovascular risk burden, including hypertension (73%), dyslipidaemia (65%), smoking (31%), diabetes mellitus (27%), chronic kidney disease (27%), and atrial fibrillation (22%). Stress CMR was positive for inducible myocardial ischemia in 14.5% of patients and ischemic LGE in 15.8%, with 4.5% presenting both findings. Concomitant non-ischemic LGE was identified in 11.3%. Over a median follow-up of 2.9 years, the primary endpoint occurred in 16.3%. Survival analysis showed a higher incidence of the primary endpoint in patients with inducible ischemia, ischemic LGE, or both (log-rank p < 0.001). Increase in event rates was also observed for all-cause mortality (log-rank p = 0.005), non-fatal MI (log-rank p = 0.018), cardiovascular hospitalization (log-rank p = 0.013) and late coronary revascularization (log-rank p < 0.001) (Figure 1). In multivariable Cox regression analysis, age (HR 1.03, 95%CI 1.01-1.04, p < 0.001), LV ejection fraction (HR 0.97, 95%CI 0.96-0.98, p < 0.001), inducible myocardial ischemia (HR 1.67, 95%CI 1.25-2.23, p < 0.001), and ischemic LGE (HR 1.66, 95%CI 1.24-2.23, p = 0.001) were independent predictors of the primary endpoint.

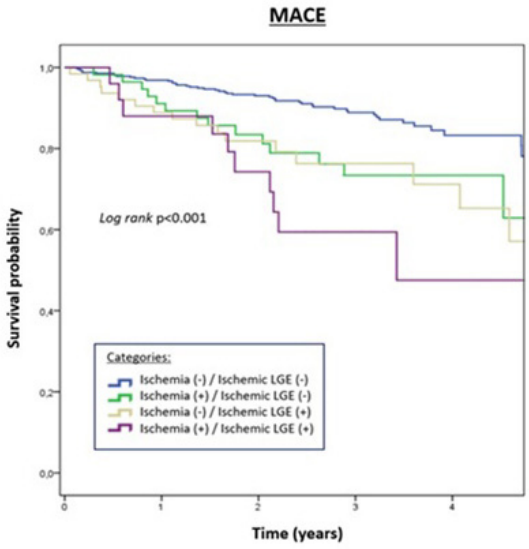


Figure 1. Kaplan–Meier survival curves for MACE according to the combined presence of inducible ischemia and ischemic LGE (log-rank p < 0.001).

Conclusions: Stress CMR offers robust prognostic information in patients without known CAD. Inducible ischemia and ischemic LGE were independently associated with an increased risk of MACE. Importantly, stress CMR also revealed a substantial number of previously unrecognized MI, a finding with direct implications for patient management.

CO 91. THE PORTUGUESE NATIONAL REGISTRY OF CARDIAC IMAGING (RNPIC): FIRST NATIONWIDE INSIGHTS INTO CARDIAC MRI UTILIZATION, ACCESS, AND CLINICAL PROFILES

Filipa Gerardo[1], João Augusto[1], António Ferreira[2], Pedro Matos[3], Ana Almeida[4], Catarina Ferreira[5], Lígia Mendes[6], Mariana Vasconcelos[7], Marta António[8], Vera Ferreira[8], Nuno Jalles[9], Nuno Bettencourt[10]

[1]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca. [2]ULS Lisboa Ocidental/Hospital de Santa Cruz. [3]Hospital CUF Tejo. [4]ULS Santa Maria/Hospital de Santa Maria. [5]ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro. [6]Hospital da Luz Setúbal. [7]ULS São João/Hospital São João. [8]ULS São José/Hospital de Santa Marta. [9]Affidea. [10]Faculdade de Medicina da Universidade do Porto.

Introduction: Cardiovascular magnetic resonance (CMR) has become central to the diagnosis and management of a wide spectrum of cardiovascular diseases. Despite its expanding clinical relevance, the real-world landscape of CMR practice in Portugal remains insufficiently characterized.
Objectives: To describe the national distribution, clinical indications, patient characteristics, and imaging patterns of CMR in Portugal, based on the initial results of the Portuguese National Registry of Cardiac Imaging (RNPIC).
Methods: RNPIC is a nationwide, multicenter, prospective registry conducted between March 1 and April 30, 2023. All Portuguese centers capable of performing at least one advanced imaging modality (CMR, cardiac CT, and/or nuclear cardiology) were invited. Participating centers consecutively enrolled all referred patients who provided informed consent over a 30-day period. Demographic data, cardiovascular risk factors, referral specialty, clinical indications, CMR protocol, stress agents, contrast type and dose, and exam outcomes were recorded.
Results: A total of 1,154 CMR studies were included. The mean age was 55 ± 19 years, and 39% were women (n = 445). Cardiovascular risk factors were frequent: hypertension 43%, dyslipidemia 41%, diabetes 17%, active smoking

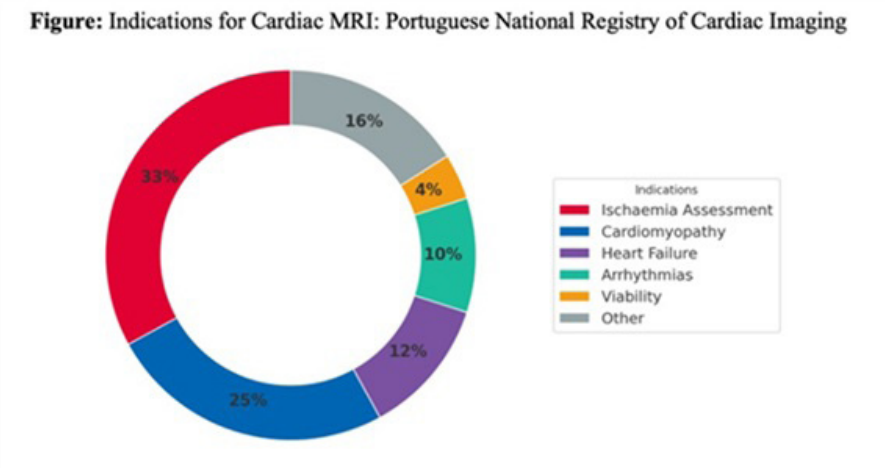


Figure CO 91

13%, and previous cardiovascular disease 53%. Cardiology accounted for most referrals (82%), followed by internal medicine (7%) and pediatric cardiology (5%). The most common indications were ischemia assessment (33%), cardiomyopathy evaluation (25%), heart failure (12%), and arrhythmias (10%). Only 4% of studies were performed without contrast. Stress perfusion was performed in 38%, mainly with adenosine (64%) and regadenoson (35%); 22% demonstrated inducible ischemia. Gadobutrol was the preferred contrast agent (82%), followed by gadoterate (14%). Late gadolinium enhancement (LGE) was present in 48% of patients, predominantly non-ischemic (59% of LGE-positive cases). Adverse events were rare (< 1%), with five contrast reactions.

Conclusions: This first nationwide multicenter registry provides the most comprehensive snapshot to date of CMR practice in Portugal. Ischemia assessment was the primary indication for examination, with a high prevalence of positives exams likely reflecting a high pre-test probability among the selected population. Almost half of the patients had LGE in CMR, further supporting the presence of significant cardiovascular disease. Exams were safe and well tolerated.

CO 92. IMPACT OF CT-DERIVED EXTRACELLULAR VOLUME ON LV REMODELING AFTER TAVR

Rita Barbosa Sousa, Rita Almeida Carvalho, Rita Santos, Samuel Azevedo, Débora da Silva Correia, Pedro Lopes, Sara Guerreiro, Cláudia Silva, Francisco Gama, Pedro Freitas, João Abecasis, António Ferreira

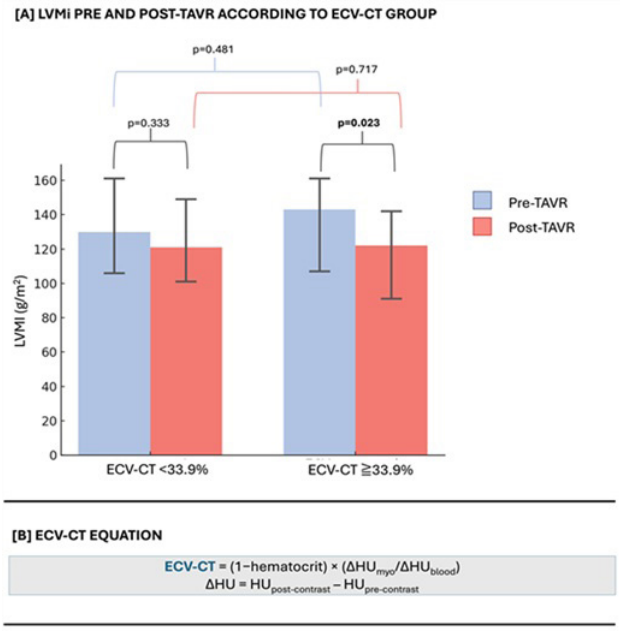
ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Left ventricular (LV) reverse remodeling (RR) can occur after transcatheter aortic valve replacement (TAVR), but it is largely influenced by the underlying myocardial changes and remains incompletely understood. Pre-TAVR CT-derived extracellular volume (ECV-CT), a marker of extracellular matrix expansion (including both focal replacement fibrosis and diffuse interstitial fibrosis), has been correlated with worse outcomes, but its association with LV RR is ill defined. We aimed to assess the association between pre-TAVR ECV-CT and LV RR at 1-year post-TAVR.

Methods: Single-center retrospective study including consecutive patients with severe symptomatic AS undergoing TAVR between 2022-2024. Only patients with echocardiographic (TTE) data both before and 1-year after TAVR were included. All patients underwent a pre-TAVR-planning CT on a 192-slice dual-source scanner, using an additional post-contrast low-radiation-dose prospective acquisition. ECV-CT was calculated according to the equation and example in Fig1. Patients were grouped by mean ECV-CT, and TTE measures were compared before and after TAVR within each group using paired analyses.

Results: A total of 81 patients were included (median age 82 (IQR 78-87) years; 47% male). Pre-TAVR TTE showed a median transaortic gradient of 47 mmHg (IQR 41-56), a mean aortic valve area of 0.75 ± 0.19 cm^2, a median indexed LV mass (LVMi) of 138 g/m^2 (IQR 106-161) and a median indexed LV end-diastolic volume (LVEDVi) of 51 mL/m^2 (IQR 41-68). The median LV ejection fraction (LVEF) was 56% (IQR 51-63) and mean global longitudinal strain (GLS) was -15 ± 4%. No patient had a clinical diagnosis of cardiac amyloidosis. The mean ECV-CT was 33.9 ± 8.0%. Patients with ECV-CT 33.9% had numerically higher LVMi (143 g/m^2 [IQR 107-161] vs. 130 g/m^2 [IQR 106-161], p = 0.481). At 1-year post-TAVR, TTE demonstrated a significant reduction in LVMi to 121 g/m^2 (IQR 98-148; p = 0.018). No significant changes were observed in other parameters [LVEDVi 51 mL/m^2 (IQR 38-66), LVEF 56% (IQR 52-61) and (GLS -16 ± 4%); p > 0.05 for all]. After stratification according to mean ECV-CT, patients with ECV-CT < 33.9% (n = 42) showed a non-statistically significant regression in LVMi (130 g/m^2 [IQR 106-161] vs. 121 g/m^2 [IQR 101-149]; p = 0.333), whereas those with ECV-CT ³33.9% (n = 33) demonstrated a significant reduction in LVMi (143 g/m^2 [IQR 107-161] vs. 122 g/m^2 [IQR 91-142]; p = 0.023). Both groups achieved similar LVMi at 1-year after TAVR (p = 0.717) (Figure 1).

Conclusions: In this preliminary study, patients with elevated ECV-CT showed a post-TAVR reduction in LVMi that brought them to levels similar to those with normal ECV. This pattern suggests that elevated ECV-CT, despite associated with poorer prognosis in previous studies, is not necessarily a marker of irreversible adverse remodeling in aortic stenosis.



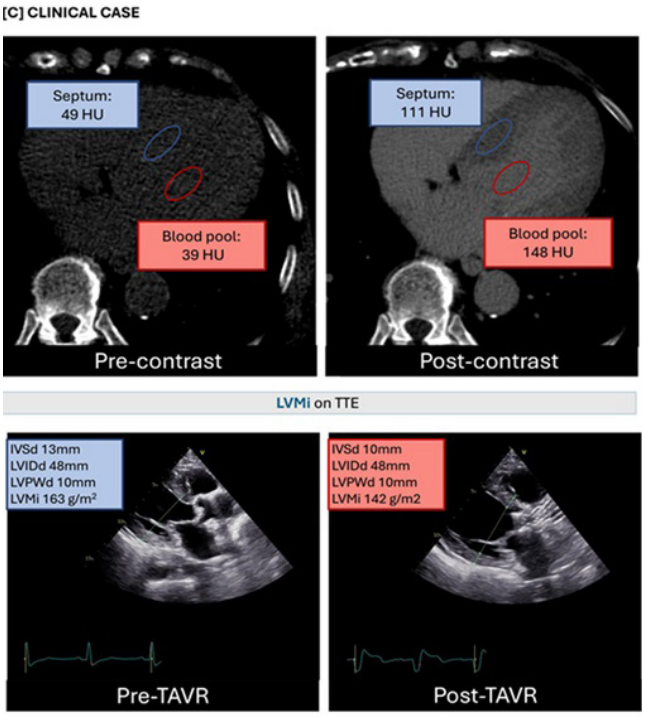


Figure 1. [A] Bar graph. Patients with ECV-CT <33.9% showed no significant regression in LVMi (130 g/m² [IQR 106–161] vs 121 g/m² [IQR 101–149]; p=0.333), whereas those with ECV-CT ≧33.9% demonstrated a significant reduction in LVMi (143 g/m² [IQR 107–161] vs 122 g/m² [IQR 91–142]; p=0.023). **[B] ECV-CT formula.** ΔHU represents the change in CT attenuation in the septal myocardium and left ventricular blood pool before and after contrast administration. **[C] Clinical Case.** 87-year-old woman with severe aortic stenosis (peak velocity 4.51 m/s; mean gradient 56 mm Hg; aortic valve area 0.44 cm2). ECV-CT was 38.2%. At 1 year after TAVR, there was a 13% reduction in LVMi.
ECV-CT, computed tomography derived extracellular volume. HU, Hounsfield unit. IVSd, interventricular septal thickness in diastole. LVIDd, left ventricular internal diameter in diastole. LVMi, left ventricular mass index. LVPWd, left ventricular posterior wall thickness in diastole. TAVR, transcatheter aortic valve replacement. TTE, transthoracic echocardiogram.

Sexta-feira, 24 Abril de 2026 | 16:30-17:00

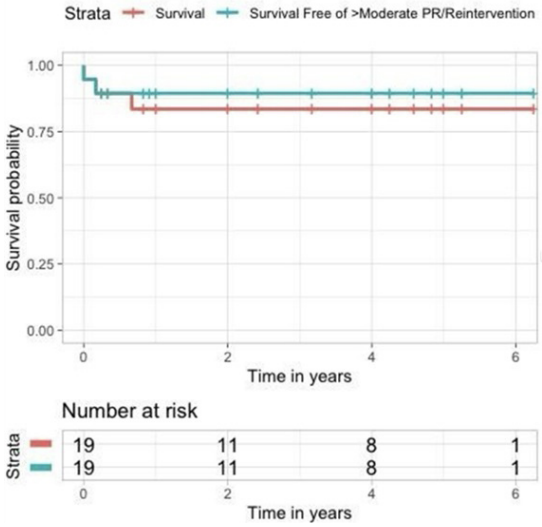
Espaço Ágora | Prémio Manuel Machado Macedo

CO 6. INSPIRIS RESILIA VALVE IN PULMONARY POSITION- SINGLE CENTER EXPERIENCE AND LITERATURE REVIEW

Maria Francisca Castro, Pedro Lamares Magro, Marta Pereira Marques, João Aquino, Inês Alves, Maria Resende

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Pulmonary valve (PV) disease is frequently encountered in congenital heart disease, yet evidence guiding the optimal valve substitute remains limited. The Inspiris Resilia (IR) bioprosthesis, designed to improve durability through novel pericardial tissue technology, has shown promising performance in the aortic position. However, data on its use in the pulmonary position are scarce and conflicting.
Objectives: This study evaluates a single-center experience with IR valves implanted in the PV position and reviews current literature.
Methods: A retrospective observational study was conducted including all patients who underwent pulmonary valve replacement with an IR prosthesis from 2011 to 2025. Demographic, surgical, and early postoperative data were collected. Long-term follow-up assessed echocardiographic performance, reintervention, and mortality. Descriptive statistics were used, and freedom from reintervention or significant pulmonary regurgitation was analyzed using the Kaplan-Meier method.
Results: Nineteen patients received an IR pulmonary valve (mean age 28.9 ± 18.7 years; 42% ≤ 18 years). Most had repaired Tetralogy of Fallot as the main diagnosis (79%). Mean prosthesis size was 25.7 ± 3.1 mm. In-hospital mortality was 10.5%. Among the 17 patients discharged alive, no reinterventions occurred during follow-up. Mid-to-long-term echocardiography demonstrated stable gradients (mean 17.8 mmHg), with 5 mild, 2 moderate, and 1 severe pulmonary regurgitation. No late mortality was observed.



Conclusions: In this single-center cohort, IR valves in the pulmonary position demonstrated good mid-term outcomes without any observed reinterventions.

CO 7. VASOACTIVE-INOTROPIC SCORE AS A PREDICTOR OF LONG-TERM MORTALITY AFTER CARDIAC SURGERY

Tiago Velho[1], Rafael M. Pereira[2], Francisco Luís[2], Manuel Abecasis[1], Nuno Carvalho Guerra[1], Ricardo Ferreira[1], Luís Ferreira Moita[2], Ângelo Nobre[1]

[1]ULS Santa Maria/Hospital de Santa Maria. [2]Faculdade de Medicina da Universidade de Lisboa.

Introduction: Long-term mortality after cardiac surgery remains a major clinical concern. Early postoperative hemodynamic support reflects patient severity, and early organ dysfunction is known to correlate with poorer late outcomes. The vasoactive-inotropic score (VIS) quantifies pharmacological cardiovascular support and has been associated with short-term postoperative morbidity. However, its relationship with long-term prognosis is not well established. This study aimed to assess the association between the maximum VIS in the first 24 hours after cardiac surgery and long-term mortality.
Methods: We conducted an observational, retrospective, single-centre study including consecutive patients undergoing major cardiac surgery between 2018 and 2021. The maximum VIS over the first postoperative 24 hours (VISmax24h) was calculated for each patient. Clinical variables, survival status and time of death were collected. Long-term all-cause mortality was analysed using a Cox proportional hazards model with 60-month follow-up. Model performance was evaluated using time-dependent ROC curves at 12, 24 and 60 months. The proportional hazards assumption was tested with Schoenfeld residuals. Statistical analysis was performed in R.
Results: A total of 1,429 patients were included. Five-year cumulative mortality was 27.4%. VISmax24h was significantly associated with long-term mortality (p = 0.006), with higher VIS values corresponding to progressively lower adjusted survival. Kaplan-Meier curves stratified by VIS demonstrated a clear risk gradient. Estimated hazard ratios for VISmax24h values of 5, 100 and 500 were 2.99 (95%CI 1.28-6.97), 8.62 (95%CI 1.56-18.4) and 10.12 (95%CI 2.83-23.3), respectively. Mortality risk was also higher in complex procedures (HR 2.97, p = 0.002) and urgent/emergent surgery (HR 2.61, p = 0.001). Female sex was protective (HR 0.65, p = 0.025). The model showed good discrimination (AUC = 0.776).

Conclusions: VISmax24h is an independent predictor of long-term mortality after cardiac surgery. A stepwise increase in risk was observed with higher VIS levels. VIS may serve as an early postoperative prognostic marker, and its incorporation into clinical risk models could enhance long-term outcome prediction.

Sexta-feira, 24 Abril de 2026 | 17:00-18:25

Espaço Ágora | Prémio Jovem Investigador

CO 1. HIGH-RISK CORONARY ATHEROSCLEROSIS AT CCTA AMONG PATIENTS WITH FAMILY HISTORY OF CORONARY ARTERY DISEASE: AN INTERNATIONAL MULTICENTRIC STUDY (THE FRATER STUDY)

Rita Almeida Carvalho[1], Pedro Lopes[1], Kamil Stankowski[1], Edoardo Conte[2], Giuseppe Ciliberti[3], Daniele Andreini[2], Francisco Gama[1], Cláudia Silva[1], Sara Guerreiro[1], João Abecasis[1], Pedro Freitas[1], António Ferreira[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]Galeazzi-Sant'Ambrogio Hospital IRCCS, Milan. [3]Marche University Hospital, Ancona.

Introduction: Family history (FH) of coronary artery disease (CAD) is a well-recognized, non-modifiable cardiovascular risk factor. Although FH is included in standard clinical risk assessment, the prevalence and distribution of coronary atherosclerosis in this population have not been clearly defined. Coronary computed tomography angiography (CCTA) enables comprehensive non-invasive characterization of plaque burden, composition, and high-risk plaque (HRP) features. This study evaluated coronary atherosclerosis prevalence and features on CCTA in patients with and without FH of CAD.
Methods: This international, multicenter, observational study included consecutive patients who underwent clinically indicated CCTA between September 2022-September 2023 across 3 European centers. Patients with FH of CAD were matched 1:2 for age, sex, and traditional cardiovascular risk factors with controls without FH. Clinical pre-test likelihood of obstructive CAD was estimated using the Risk Factor-weighted Clinical Likelihood model. All CCTAs were analyzed in a centralized core laboratory by experienced readers using validated software for semi-automatic quantification of total, non-calcified (NCP; < 350 HU), and low-attenuation (LAP; < 30 HU) plaque volumes. HRP features included positive remodeling, napkin-ring sign, spotty calcifications, and LAP. Obstructive CAD was defined as ≥ 70% luminal area reduction in any coronary segment. High-risk atherosclerosis was defined as ≥ 2 HRP features and/or increased LAP (> 10 mm^3) or NCP (> 80 mm^3) volume.
Results: A total of 480 patients were included (160 with and 320 without FH of CAD), with a mean age of 61.7 ± 9.6 years and 41.9% female. Clinical characteristics were comparable between groups. Patients with FH showed a higher prevalence of obstructive CAD (26% vs. 18%, p = 0.042), LAP (35% vs. 19%, p < 0.001), positive remodeling (61% vs. 47%, p = 0.003), and ≥ 2 HRP features (48% vs. 32%, p < 0.001). Total, NCP and LAP volumes were all significantly higher in the FH group (all p < 0.05). Overall, high-risk atherosclerosis was more prevalent among those with FH (62% vs. 43%, p < 0.001). After multivariate adjustment for major risk factors, FH remained independently associated with high-risk atherosclerosis (OR 3.01, 95%CI 1.89-4.78, p < 0.001). Among patients clinically classified as very low risk, high-risk atherosclerosis or obstructive CAD on CCTA were present in 42% of those with FH compared to 19% without FH (p < 0.001) (Figure 1).
Conclusions: This international multicenter study demonstrates that FH of CAD is independently associated with a greater coronary atherosclerotic burden and a higher prevalence of HRP features at CCTA. Nearly half of patients with very low clinical risk but positive FH showed high-risk atherosclerosis, suggesting that CCTA may enhance risk stratification and support earlier initiation of preventive therapies in this population.

CO 2. PERFORMANCE OF THE DERIVATE RISK SCORE 2.0 FOR PREDICTING MAJOR ARRHYTHMIC EVENTS IN NON-ISCHEMIC CARDIOMYOPATHY: A PORTUGUESE VALIDATION STUDY

Francisco Sousa, Catarina Santos- Jorge, Pedro Freitas, Pedro M. Lopes, Sara Guerreiro, João Abecasis, Francisco Gama, Cláudia Silva, Rita dos Reis Santos, Sérgio Maltez, Bruno Rocha, António Miguel Ferreira

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Sudden cardiac death (SCD) risk stratification in non-ischemic cardiomyopathy (NICM) remains challenging. The recently proposed Derivate Risk Score 2.0 (DRS 2.0) seeks to enhance risk prediction using three variables: sex, cardiac magnetic resonance-derived left ventricular ejection fraction (CMR-LVEF), and the presence of midwall late gadolinium enhancement (LGE). The aim of this study was to assess the accuracy of the DRS 2.0 for predicting Major Arrhythmic Events (MAACE) in a Portuguese NICM cohort.
Methods: Patients with the clinical diagnosis of NICM who underwent CMR for clinical purposes were included in this single-center retrospective study. Patients with obstructive coronary artery disease, infiltrative, inflammatory or hypertrophic cardiomyopathy, or significant valvular or congenital heart disease were excluded. The DRS 2.0 score was calculated for each patient based on male sex, CMR-derived LVEF and on the presence and pattern of midwall LGE as reported. The primary endpoint was Major Arrhythmic Cardiac Events (MAACE), defined as SCD, sustained ventricular tachycardia (VT), or appropriate ICD therapy (shock or ATP). Follow-up was performed using clinical records and device interrogations.

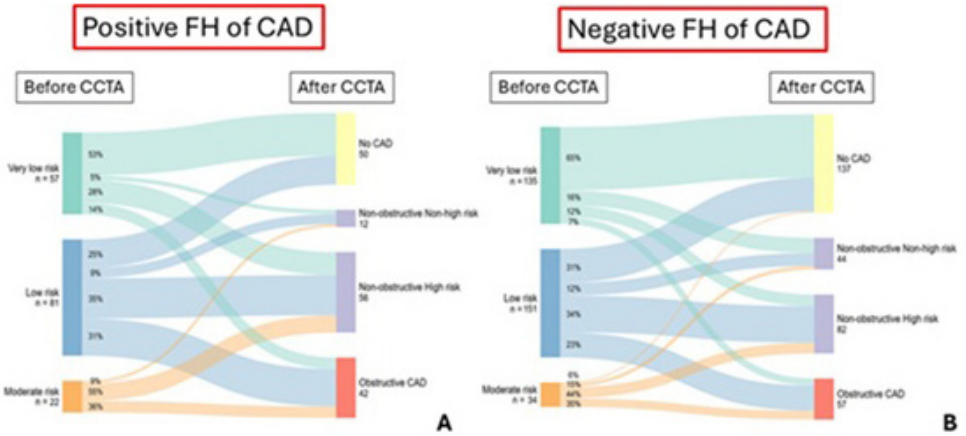


Figure 1. Reclassification rate after CCTA according to clinical risk profile in patients with FH of CAD (panel A) and without FH of CAD (panel B)

Figure CO 1

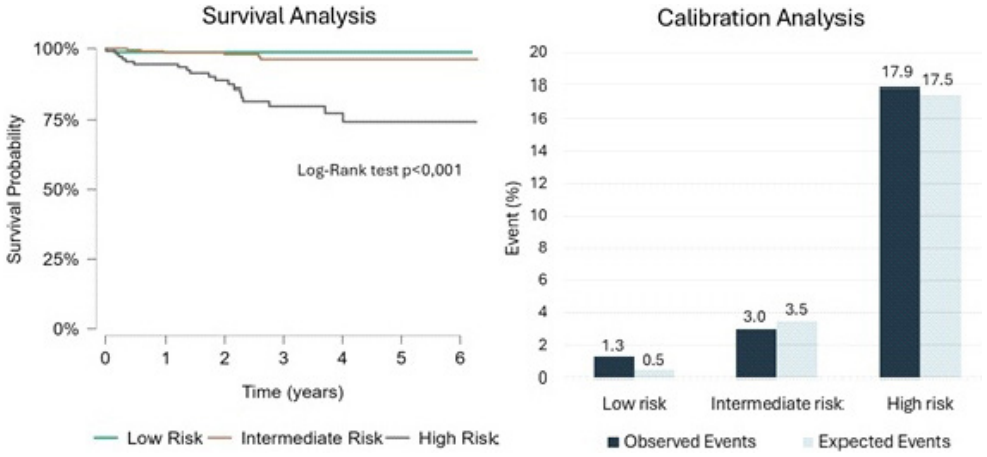


Figure CO 2

Results: A total of 385 patients were enrolled (age 62.5 years (± 14.9); 63% male, mean CMR-LVEF 34.5% ± 10.7, midwall LGE present 51.4%). 102 patients had an ICD (26.5%), 5 had an ICD previous to CMR and the remaining 97 patients received one during follow up. The median DRS2.0 score was 2.0 (IQR 2.0). Risk distribution according to the DRS 2.0 was 20% low risk (n = 76), 53% intermediate risk (n = 203), and 28% high risk (n = 106). During a mean follow up of 3.0 ± 1.4 years, 26 MAACE (6.8%) occurred, including 7 SCD, 9 sustained VT, and 10 appropriate ICD therapies. The annualized MAACE rates were 0.4%/year in low risk, 1.0%/year in intermediate-risk, and 6.7%/year in the high-risk patients. Patients classified as high risk by DRS 2.0 represented 28% of the cohort yet accounted for 73% of all MAACE (HR 8.00, 95%CI 3.36-19.04, p < 0.001). The DRS 2.0 showed good discrimination (C statistic 0.76, 95%CI: 0.66-0.85, p < 0.001). Calibration was excellent, as indicated by a non-significant Hosmer-Lemeshow test (χ^2 = 0.802, p = 0.371).
Conclusions: DRS 2.0 showed robust discrimination and calibration in our Portuguese NICM cohort, effectively identifying a small subgroup that accounted for most arrhythmic events. This score appears applicable in our population and may assist in refining SCD risk stratification and management.

CO 3. PROGRESSION OF AORTIC STENOSIS AND MYOCARDIAL FIBROSIS: INSIGHTS FROM CT-DERIVED ECV

Andre Lobo[1], José Cavadas[2], Carolina Castro[2], Marta Catarina Almeida[1], Rafael Teixeira[1], Fábio Nunes[1], Mariana Brandão[3], Pedro Braga[1], Nuno Dias Ferreira[1], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Faculdade de Medicina da Universidade do Porto. [3]Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain.

Introduction: The rate of aortic stenosis (AS) progression is a major determinant of myocardial damage and adverse clinical outcomes. Sustained pressure overload drives diffuse myocardial fibrosis, which can be quantified non-invasively by computed tomography (CT)- derived extracellular volume (ECV). However, data on ECV changes and AS progression rate are limited.
Methods: Retrospective analysis of patients undergoing cardiac CT for transcatheter aortic valve implantation (TAVI) planning (April 2024-April 2025). A standardized 5-minute delayed dual-energy acquisition was used for ECV quantification. AS progression was evaluated in patients with classical high-gradient severe AS and at least two echocardiographic examinations separated by ≥ 6 months. AS progression was defined as the annualized change in aortic stenosis maximum velocity (ΔVmax/year). Rapid progression was defined as ΔVmax > 0.30 m/s/year.
Results: Among 253 patients with available ECV quantification, 126 fulfilled criteria for AS progression analysis. The median AS progression rate was 0.29 m/s/year. AS progression rate showed a significant positive association with ECV (Spearman ρ = 0.485, p < 0.001). In multivariable linear regression, ΔVmax/year remained independently associated with ECV after adjustment for clinical and echocardiographic covariates (p < 0.001). When stratified by ECV quartiles, a marked stepwise increase in AS progression was observed, with median ΔVmax/year rising from 0.12 m/s/year in the lowest quartile to 0.64 m/s/year in the highest quartile (p < 0.001). After categorizing patients as rapid (ΔVmax > 0.30 m/s/year) or slow progressors, ECV remained independently associated with rapid AS progression (OR 1.234, 95% 1.11-1.37, p < 0.001).
Conclusions: Higher rates of AS progression are independently associated with greater myocardial damage assessed by cardiac CT, supporting accelerated pressure overload as a principal driver of diffuse myocardial fibrosis. CT-derived ECV identifies patients with rapid hemodynamic disease progression and may represent an integrative marker of cumulative myocardial injury with potential implications for surveillance and timing of intervention.

CO 4. GROWTH RATE OF ASCENDING AORTA AND RISK OF AORTIC DISSECTION IN PATIENTS WITH BICUSPID AND TRICUSPID AORTIC VALVES UNDERGOING INTERVENTION: SYSTEMATIC REVIEW AND META-ANALYSIS

João Fernandes Pedro, Ana Rita Figueiredo, Fausto J. Pinto, Daniel Caldeira

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

Introduction: Bicuspid aortic valve (BAV) is associated with premature valve dysfunction and progressive aortic dilation, potentially leading to dissection. The evolution of aortic dimensions after valve replacement remains uncertain, particularly compared with tricuspid aortic valve (TAV) disease. This systematic review and meta-analysis aimed to compare postoperative aortic growth and the risk of major aortic events between BAV and TAV patients.
Methods: A systematic search of MEDLINE, CENTRAL, and Web of Science (from inception to April 2025) identified prospective and retrospective cohort studies including adult patients with BAV or TAV undergoing surgical (SAVR) or transcatheter (TAVI) aortic valve replacement. Studies were required to report longitudinal data on aortic growth rate (mm/year) or the incidence of aortic dissection or reintervention; those with concomitant aortic surgery were excluded. Data extraction and quality assessment (ROBINS-E tool) were performed using a predefined protocol. Random-effects meta-analyses estimated mean differences (MD) and risk ratios (RR) with 95% confidence intervals (CI).
Results: Fifteen studies were included (n = 1,772 for aortic growth; n = 2,307 for aortic dissection; n = 2,598 for aortic reintervention). There was no significant difference in annual aortic growth between BAV and TAV (MD 0.15 mm/year; 95%CI -0.03 to 0.33; p = 0.09; I^2 = 82.6%). Meta-regression confirmed that age differences between BAV and TAV cohorts did not modify the overall neutral effect on aortic growth rate. Subgroup analyses showed similar findings across study designs and procedure types (SAVR MD 0.19 mm/year; TAVI MD -0.04 mm/year). No significant differences were found in the risk

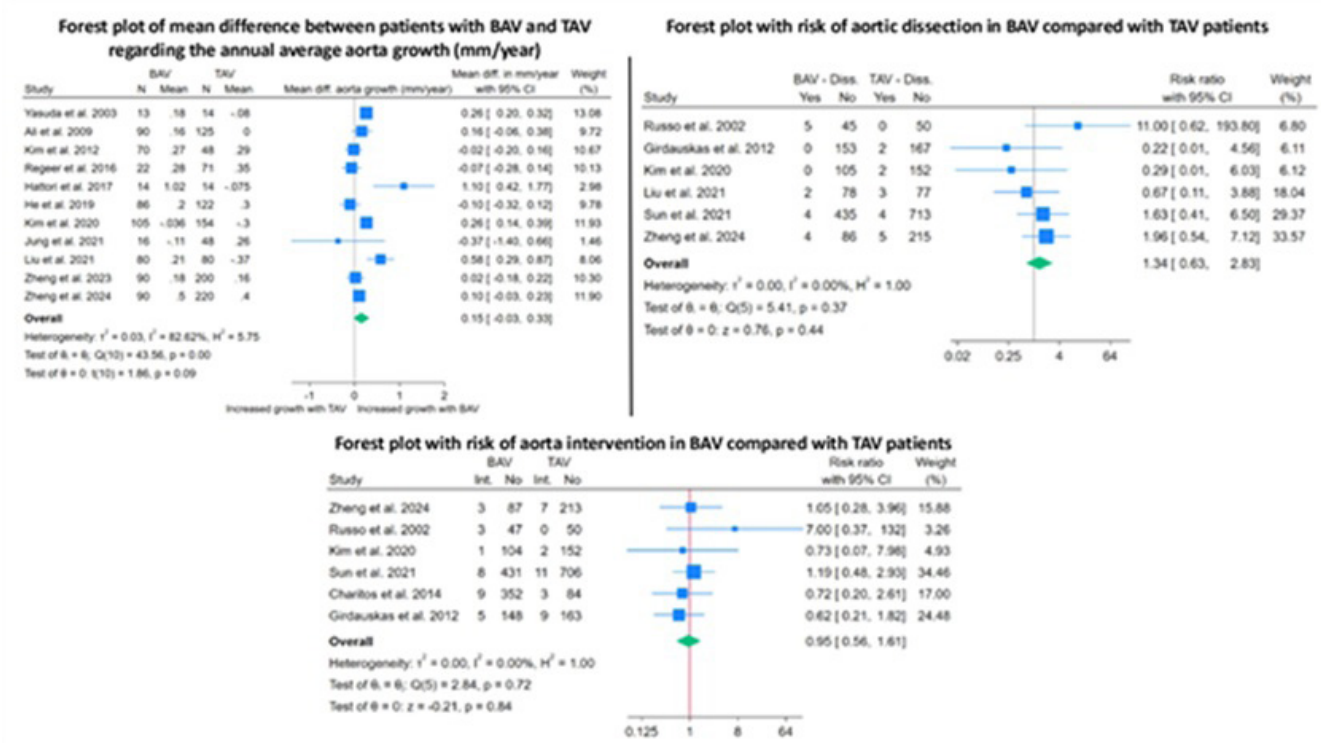


Figure CO 4

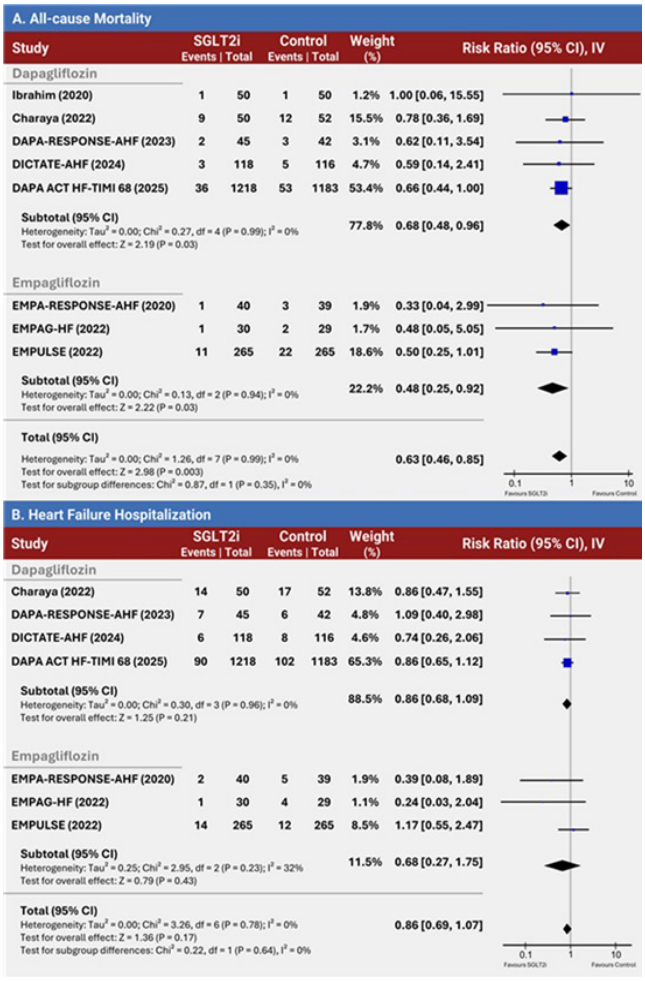
of aortic dissection (RR 1.34; 95%CI 0.63-2.83; p = 0.44) or aortic reintervention (RR 0.95; 95%CI 0.56-1.61; p = 0.84). The overall risk of bias was moderate, mainly due to confounding and heterogeneity in imaging assessment.
Conclusions: Postoperative aortic growth and event rates were comparable between BAV and TAV patients after valve replacement. These results challenge the long-standing assumption that bicuspid morphology intrinsically accelerates postoperative aortopathy, suggesting that aortopathic pathophysiology after valve replacement may be driven more by patient-specific factors than by leaflet phenotype. Also, it emphasizes the importance of individualized treatment approaches and surveillance strategies after valve replacement.

CO 5. EFFICACY AND SAFETY OF EARLY INITIATION OF SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITORS IN ACUTE HEART FAILURE: A SYSTEMATIC REVIEW AND META-ANALYSIS

Bernardo Resende[1], Emídio Mata[2], Ana Marta Pinto[2], Margarida Castro[2], Tomás Carlos[1], Luísa Rocha[1], Miguel Vicente[1], João Português[2], Sílvia Ribeiro[2], João Gameiro[1], António Lourenço[2], Lino Gonçalves[1]

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]ULS Alto Ave/ Hospital da Senhora da Oliveira.

Introduction: Acute heart failure (AHF) remains associated with high short-term mortality and rehospitalization despite advances in therapy. Sodium-glucose cotransporter2 inhibitors (SGLT2i) provide robust cardiovascular benefits in heart failure, but their efficacy and safety when initiated during AHF hospitalization are less well established.
Methods: Following a systematic search of five databases, a systematic review and meta-analysis of randomized controlled trials (RCTs) was conducted to evaluate the efficacy and safety of the initiation of dapagliflozin or empagliflozin during hospitalization for AHF, in addition to standard therapy. Primary outcomes were all-cause mortality and heart failure hospitalization (HFH). Secondary outcomes included all-cause mortality at 1-month, cardiovascular death, serious adverse events leading to drug discontinuation, acute kidney injury (AKI), hypotension, hypoglycemia, and diabetic ketoacidosis. Data were pooled using inverse variance random-effects models.



Results: Eight RCTs including 3,596 patients (1,817 SGLT2i; 1,779 control) were analyzed. SGLT2i initiation in AHF significantly reduced all-cause mortality (RR 0.63, 95%CI 0.46-0.85; p = 0.003; I^2 = 0%). No significant reduction was observed for HFH (RR 0.86, 95%CI 0.69-1.07; p = 0.78; I^2 = 0%). All-cause mortality at 1 month and cardiovascular death, did not differ significantly between groups. Pooled analyses showed no excess risk of hypotension, hypoglycemia, AKI or ketoacidosis.
Conclusions: Initiation of SGLT2i during AHF hospitalization significantly improves survival without increasing adverse safety events, supporting their use as an early adjunct to guideline-directed therapy. The absence of a clear effect on rehospitalization highlights the need for further large-scale and patient-level analyses.

Sábado, 25 Abril de 2026 | 17:00-17:55

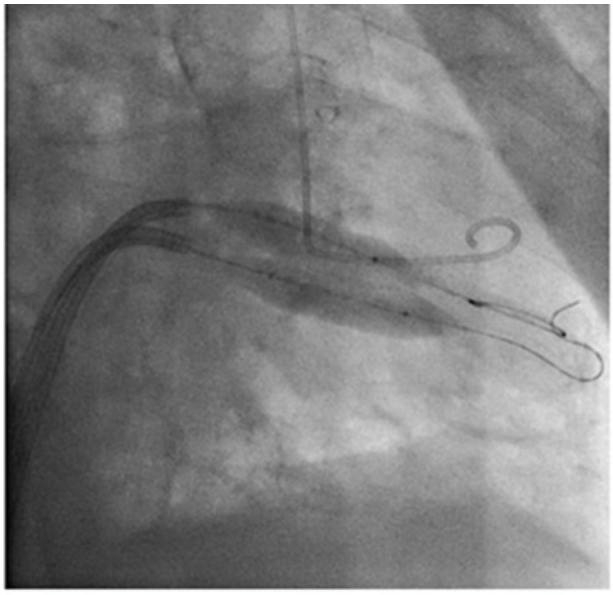
Espaço Ágora | Prémio Melhor Comunicação Oral

CO 8. FEASIBILITY AND SAFETY OF PARALLEL SHOCKWAVE BALLOON PERCUTANEOUS MITRAL COMMISSUROTOMY FOR DEGENERATIVE MITRAL STENOSIS

Fabio Viveiros, Daniel Inácio Cazeiro, Pedro Carrilho Ferreira, Claúdia Jorge, Miguel Nobre Menezes, Pedro Cardoso, Fausto Pinto, João Silva Marques

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

Introduction: Treatment of degenerative mitral valve stenosis (DMVS) is challenging, with most transcatheter and surgical techniques carrying high morbidity/mortality. Conventional percutaneous mitral commissurotomy (PMC) is often contraindicated, as most cases present with heavily calcified leaflets and/or absence of commissural fusion. In this setting, the use of shockwave lithotripsy (LT) has emerged as a novel therapeutic approach in these patients (pts), with favorable hemodynamic (HD), clinical and safety outcomes.
Objectives: To describe a novel technique of PMC with 2 parallel shockwave LT balloons through a single transseptal puncture and characterize its HD and safety results.
Methods: Retrospective, single center analysis of pts with DMVS, who were deemed unsuitable for surgery and were scheduled to undergo PMC with shockwave LT, after multidisciplinary HeartTeam evaluation.
Results: Three pts were submitted to PMC with shockwave LT (median age 73 years, 67% female). Two pts were deemed unsuitable for surgery due to porcelain aorta, whereas 1 pt was rejected due to advanced age and comorbidities. All pts presented significant leaflet and mitral annular calcification (MAC) and were not eligible for percutaneous valve-in-MAC. The procedure was performed as described: 1. Preprocedural transthoracic echocardiography for evaluation of noninvasive transmitralgradients (TMG), estimated MV area and mitral regurgitation (MR); 2. Establishment of 2 arterial and 2 venous accesses. Deployment of a cerebral embolic protection device (CEPD) and a pigtail catheter through the arterial accesses. Progression of an intracardiac echocardiography probe and an over-the-wire sheath to the right atrium; 3. Transseptal puncture. Over-the wire progression of 2 steerable sheaths and pigtail catheters to the left atrium. Invasive assessment of left ventricular pressure and TMG; 4. Progression of a guidewire through the pigtail catheter and subsequent delivery of two 12 mm Shockwave® E6 balloons; 5. Sequential and simultaneous balloon inflations with LT delivery (30 pulses per cycle; total 540-600 pulses) without ventricular pacing. Assessment of final TMG. 6. Retrieval of CEPD and access closure. Median noninvasive and invasive preprocedural TMG were 16 mmHg and 11 mmHg, respectively. After PMC, significant HD improvements were observed, with final noninvasive and invasive median TMG of 7 mmHg. No worsening of baseline MR was observed. There were no immediate major complications.
Conclusions: This case series illustrates the feasibility and safety of MV balloon valvuloplasty using Shockwave LT in inoperable pts with DMVS. The approach achieved significant HD improvement without increasing MR or



Patient	Sex	Age	Preprocedural mean gradient (Echo)	Preprocedural mean gradient (invasive)	Preprocedural mitral regurgitation grade	Postprocedural mean gradient (Echo)	Postprocedural mean gradient (invasive)	Postprocedural mitral regurgitation grade
1	M	81y	19mmHg	24mmHg	Mild	11mmHg	9mmHg	Mild
2	F	56y	16mmHg	11mmHg	Mild-moderate	7mmHg	7mmHg	Mild-moderate
3	F	73y	8mmHg	10mmHg	Severe	4mmHg	1mmHg	Moderate

Figure CO 8

causing procedural complications. These findings support LT-assisted MV valvuloplasty as a potential option for pts with unfavorable anatomy for conventional percutaneous or surgical therapy.

CO 9. FFR VS. IFR FOR CLINICAL OUTCOMES: INSIGHTS FROM MACHINE-LEARNING RISK STRATIFICATION

Diogo Ferreira[1], Marta Vilela[1], Sofia Morgado[2], Filipa Valdeira[2], Cláudia Soares[2], Fausto Pinto[1], Miguel Nobre Menezes[1]

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

Introduction: Coronary revascularization guided by physiological assessment improves outcomes versus angiography alone, and trials have shown iFR to be noninferior to FFR at 1 year. Yet 5-year results from DEFINE-FLAIR (higher mortality with iFR) and iFR SWEDEHEART (neutral) have created uncertainty about long-term differences. We analyzed a large clinical cohort to compare FFR and iFR, evaluate prognostic performance, and apply machine learning to identify high-risk phenotypes among patients with negative physiological measurements.

Methods: All patients undergoing FFR or iFR assessment from 2012-2022 were included. Clinical outcomes comprised 5-year all-cause mortality, acute coronary syndrome (ACS), and major adverse cardiovascular events (MACE: death, nonfatal myocardial infarction, or unplanned revascularization). Outcomes were evaluated with Kaplan-Meier analysis and Cox proportional hazards models. In patients with negative iFR values, unsupervised machine-learning clustering identified subgroups, which were analyzed for 5-year outcomes.

Results: We analyzed 1,314 physiological measurements from 915 patients (349 FFR; 566 iFR) with a mean 5.9-year follow-up. Baseline characteristics were similar and comparable to DEFINE-FLAIR, though iFR patients more often presented with ACS and had less prior PCI. All-cause mortality was higher with iFR (HR 1.52; CI 1.17-1.98), while rates of ACS, MACE, and unplanned revascularization were similar. Survival curves separated between 12-24 months, mirroring DEFINE-FLAIR. Physiologically positive lesions were numerically lower with iFR. To identify high-risk individuals within the iFR-negative population, we applied machine-learning clustering based on features distinguishing true from false negatives, identifying three clusters. Since clusters 2 and 3 showed no outcome differences, they were merged as low-risk, while cluster 1 was classified as high-risk. In five-year survival analyses, excess adverse events occurred in the high-risk group, which had higher rates of death (HR 2.6; p = 0.006) and MACE (HR 1.83; p = 0.03). This group was older with worse renal function, more anatomical and clinical complexity, and heavier comorbidity burden. Using the strongest prognostic variables, we built software that automatically identifies high-risk patients through an integrated risk-classification interface.

Conclusions: In this large real-world cohort, iFR was associated with higher 5-year mortality despite similar rates of ACS, MACE, and revascularization, echoing divergence seen in DEFINE-FLAIR. Machine-learning identified a high-risk phenotype within the iFR-negative population that accounted for the excess events. These findings challenge the assumption that a negative iFR uniformly denotes low risk and highlight the need for closer follow-up and potentially intensified management in selected patients.

CO 10. PREVALENCE AND IMAGING DETECTION OF CARDIAC SARCOIDOSIS IN A SOUTHERN EUROPEAN POPULATION: INSIGHTS FROM LONG-TERM FOLLOW-UP

Mariana Salvador, Pedro Miguel Ventura, João Borges-Rosa, Rodolfo Silva, Lino Gonçalves, Gracinda Costa, Maria João Vidigal Ferreira

Centro Académico e Clínico de Coimbra (Coimbra Hospital and University Center and Faculty of Medicine of University of Coimbra Consortium).

Introduction: The use of [18F]FDG-Positron Emission Tomography (PET) has become a key non-invasive tool for diagnosing and monitoring sarcoidosis.

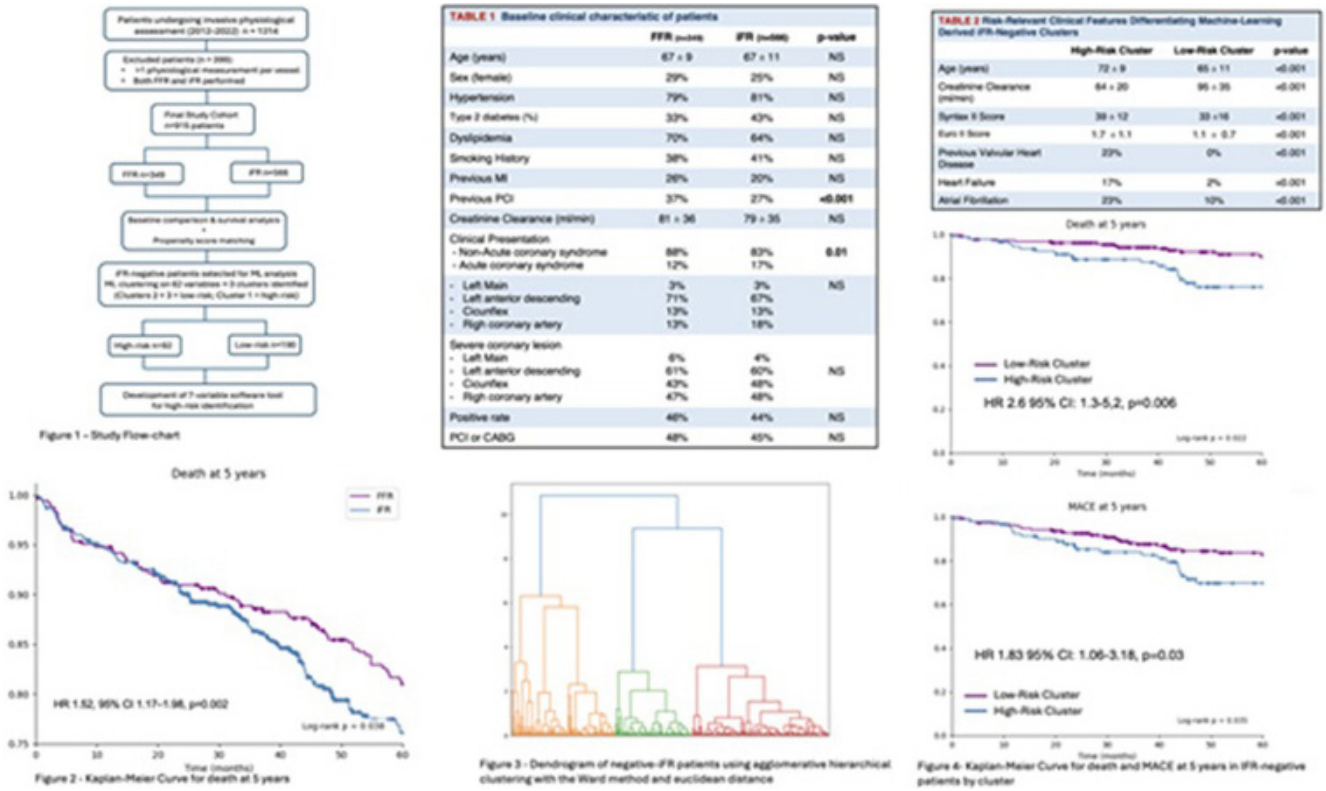


Figure CO 9

Although cardiac involvement is often cited at 5% with known geographic variation, our previous study found a higher prevalence of probable cardiac sarcoidosis (CS) (10%), with over half of these patients lacking cardiac symptoms.
Objectives: Our aim is to characterize patients with suspected CS in a southern European population over an extended follow-up period.
Methods: We reviewed all [^{18}F] FDG-PET reports of patients assessed for suspected sarcoidosis between January 2009 and February 2025. From this cohort, we selected patients with biopsy-confirmed sarcoidosis and applied the Heart Rhythm Society (HRS) criteria to diagnose probable CS. We gathered detailed information on clinical profiles and imaging assessments.
Results: We analysed 960 [^{18}F]FDG-PET scans; after removing duplicates, 314 patients had a histologically confirmed diagnosis of extracardiac sarcoidosis, among whom 27 (8.6%) were further classified as having probable CS (40.7% females, mean age 58.8 ± 13.2 years) according to HRS: histological diagnosis of extracardiac sarcoidosis and uptake on [^{18}F]FDG-PET in a pattern consistent with CS (n = 15), or late gadolinium enhancement (LGE) on cardiovascular magnetic resonance (CMR) in a pattern consistent with CS (n = 11), or unexplained reduced left ventricular ejection fraction < 40% (n = 1). Extracardiac sarcoidosis was confirmed by lymph node (n = 13), lung (n = 12), bone marrow (n = 1) or skin (n = 1) biopsy; only one patient had an endomyocardial biopsy, which was negative. There were no cases of isolated cardiac sarcoidosis; all patients had extracardiac involvement, most commonly lungs (n = 24) and lymph nodes (n = 20), followed by skin (n = 6), central nervous system (n = 6), bone marrow (n = 4), eyes (n = 3), liver (n = 2), spleen (n = 2), kidneys (n = 2), and adrenal glands (n = 1). Most patients were asymptomatic (59.3%) and the majority (85.2%) had been on immunosuppressive therapy for at least one year: 22 (81.5%) received corticosteroids, often combined with methotrexate (n = 9), azathioprine (n = 2), or adalimumab (n = 1) and one received methotrexate alone.

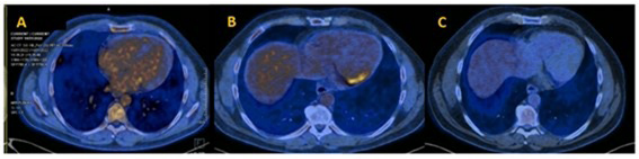


Figure 1. A 20-year-old man with pulmonary and lymph-node sarcoidosis. He was asymptomatic in November 2021 with a PET scan showing no abnormal uptake (A). By April 2022 he developed exertional dyspnoea and cough, and PET revealed new focal FDG uptake in the left-ventricular lateral wall (B) with increased lymph-node activity. After starting prednisolone, symptoms improved and follow-up PET showed no residual cardiac uptake (C).

Conclusions: In this southern European cohort with extracardiac sarcoidosis, probable cardiac involvement occurred in 8.3% of patients, mostly asymptomatic. [^{18}F]FDG-PET detected most cases, while CMR-LGE revealed additional PET-negative disease, highlighting the value of multimodality imaging.

CO 11. PHYSIOLOGICAL ATRIAL PACING VIA THE BACHMANN BUNDLE: FIRST EXPERIENCE IN A TERTIARY CARE CENTRE

Maria João Primo, João André Ferreira, Natália António, Patrícia Alves, Carolina Saleiro, Didier Martinez, Rita Bertão Ventura, Inês Brito e Cruz, Pedro Sousa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

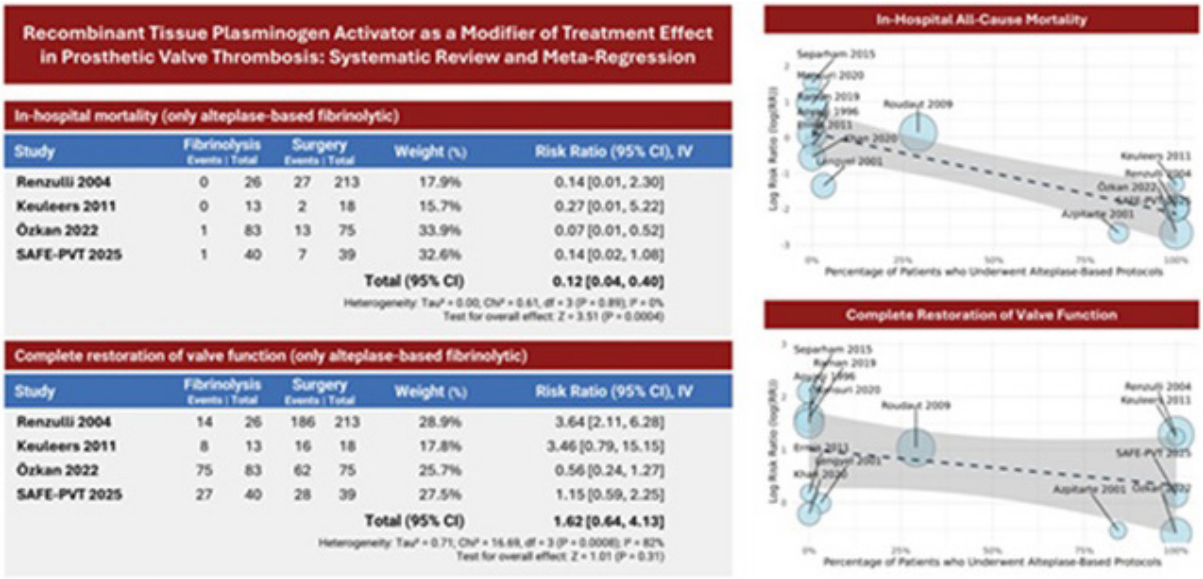
Introduction and objectives: Bachmann bundle pacing (BBP) is an emerging physiological atrial pacing technique designed to enhance interatrial conduction and potentially reduce atrial arrhythmias. Despite increasing interest, real-world data on procedural performance, electrical stability, and atrial activation metrics remain limited. This study reports the first experience of BBP in a tertiary centre, with detailed procedural and follow-up assessment.
Methods: We conducted a prospective single-centre observational registry including consecutive patients undergoing BBP between December 2024 and October 2025. Procedural characteristics (pacing threshold, sensing amplitude, impedance, fluoroscopy time, and procedure duration) and follow-up parameters were recorded at hospital discharge and subsequent visits. P-wave duration was measured before and after BBP to evaluate interatrial activation changes. Continuous variables are presented as mean, median, interquartile range (IQR), and standard deviation (SD).
Results: A total of 30 patients underwent BBP. At implantation, mean pacing threshold was 1.14 V (median 1.0 V, IQR 0.79-1.35; SD 0.54), and mean sensing amplitude was 2.16 mV (median 1.5 mV, IQR 1.05-2.40; SD 2.63). Median fluoroscopy time was 11.2 minutes (8.7-15.4), and procedure duration showed a median of 88.5 minutes (IQR 73.0-108.5). At first follow-up, mean pacing threshold decreased to 0.59 V (SD 0.36). Sensing amplitude remained stable at 2.46 mV (SD 2.30), and impedance values were preserved (mean 623 Ω, IQR 456-713; SD 240). No major complications (e.g. dislodgement) occurred. BBP produced a significant shortening of P-wave duration (mean reduction −25.6 ms; p = 0.0003), indicating improved interatrial conduction.
Conclusions: In this first real-world experience, BBP implantation was feasible with excellent acute electrical performance, stable follow-up parameters, and low complication rates. The significant reduction in P-wave duration supports BBP as a promising physiological atrial pacing strategy capable of improving interatrial conduction. Larger prospective studies are warranted to confirm long-term clinical and electrophysiological benefits.

CO 12. RECOMBINANT TISSUE PLASMINOGEN ACTIVATOR AS A MODIFIER OF TREATMENT EFFECT IN PROSTHETIC VALVE THROMBOSIS: SYSTEMATIC REVIEW AND META-REGRESSION

Emídio Mata[1], Bernardo Resende[2], Ana Marta Pinto[1], Margarida Castro[1], João Gameiro[2], Sílvia Ribeiro[1], Gonçalo Ferraz-Costa[2], Lino Gonçalves[2], António Lourenço[1]

[1]ULS Alto Ave/Hospital da Senhora da Oliveira. [2]ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Obstructive prosthetic valve thrombosis (PVT) is a rare but potentially fatal complication. Optimal first-line therapy remains debated. Historically, surgery has been favoured, but advances in low-dose, slow-infusion recombinant tissue plasminogen activator (rt-PA) protocols have improved outcomes with fibrinolysis.
Objectives: To compare surgical and fibrinolytic approaches for PVT using meta-analysis and meta-regression, focusing on how rt-PA-based protocols may modify treatment effects.
Methods: A systematic search of five databases identified studies comparing fibrinolysis and surgery for PVT. Random-effects meta-analyses estimated pooled risk ratios (RRs) with 95% confidence intervals, and mixed-effects meta-regression assessed the influence of rt-PA use on in-hospital mortality, complete valve restoration (without death), and recurrence.
Results: Thirteen studies (12 observational, 1 RCT; 586 fibrinolysis, 714 surgery) from 1978-2023 were included. Streptokinase (SK) was the most common fibrinolytic agent, while urokinase (UK) and rt-PA were less frequent, with rt-PA use increasing in recent studies. Across all studies, fibrinolysis and surgery had similar in-hospital mortality (RR 0.62 [0.32-1.21], I^2 = 57%), though fibrinolysis showed lower complete valve restoration (RR 2.02 [1.25-3.27], I^2 = 70%). Restricting analyses to rt-PA-based regimens, fibrinolysis significantly reduced in-hospital mortality (RR 0.12 [0.04-0.40], I^2 = 0%) without affecting valve restoration (RR 1.62 [0.64-4.13], I^2 = 82%). Meta-regression showed that for cohorts with 0% rt-PA usage, the baseline RR for in-hospital mortality was 1.24 [0.68-2.26]. Each 10% increase in rt-PA usage reduced RR by 19% (0.81 [0.70-0.93], p = 0.003), with low-moderate residual heterogeneity (I^2 = 27.5%) and 67% of between-study variance explained. For complete valve restoration, the baseline RR at 0% rt-PA usage was 2.74 [1.41-5.34], favouring surgery. Each 10% rise in rt-PA usage corresponded to a nonsignificant 7% RR reduction (0.93 [0.84-1.04], p = 0.20), suggesting a trend toward improved valve restoration with fibrinolysis.
Conclusions: Despite historical preference for surgery, modern rt-PA-based fibrinolysis may be comparable and possibly superior for obstructive PVT, providing similar rates of valve restoration while significantly reducing in-hospital mortality. Meta-regression identifies rt-PA as a strong moderator of treatment effect, with greater usage linked to lower mortality.



Recombinant tissue plasminogen activator (rt-PA) as a modifier of treatment effect in prosthetic valve thrombosis (PVT).
Forest plots (left) show pooled outcomes restricted to studies using alteplase-based fibrinolytic protocols, comparing fibrinolysis versus surgery for in-hospital mortality (top) and complete restoration of valve function (bottom). Alteplase-based fibrinolysis was associated with significantly lower in-hospital mortality (RR 0.12, 95% CI 0.04–0.40; I^2 = 0%) without a significant difference in valve restoration (RR 1.62, 95% CI 0.64–4.13; I^2 = 82%). Bubble plots (right) depict meta-regression analyses assessing the proportion of rt-PA use as a continuous moderator of treatment effect across all included studies. Increasing rt-PA adoption was associated with progressively lower in-hospital mortality risk ratios, explaining 67% of between-study variance, while a nonsignificant trend toward improved valve restoration with greater rt-PA use was observed. These findings suggest that modern low-dose, slow-infusion alteplase regimens may enhance the safety and effectiveness of fibrinolysis compared with surgery for obstructive PVT.

Figure CO 12

Revista Portuguesa de Cardiologia 45 (2026) S61-S279

Revista Portuguesa de Cardiologia
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PÓSTERS (PO)

Congresso Português de Cardiologia 2026 (CPC2026)

24 a 26 de Abril de 2026

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

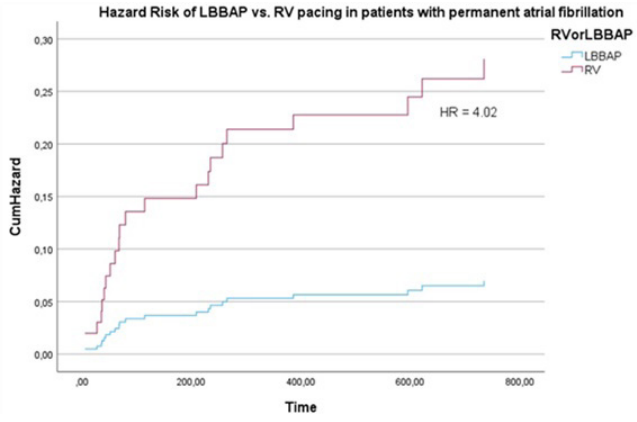
Área de Posters - Ecrã 1 | Sessão de Posters 01 - Estimulação do sistema de condução: LBBAP na prática

PO 1. LEFT BUNDLE BRANCH AREA PACING AS A PHYSIOLOGIC ALTERNATIVE TO RIGHT VENTRICULAR CONVENTIONAL PACING IN PERMANENT ATRIAL FIBRILLATION

Tatiana Pereira dos Santos, Ana L. Silva, Didier Martinez, Maria João Primo, Inês Brito e Cruz, Mariana Simões, Luísa Gomes Rocha, Carolina Saleiro, Patrícia Alves, João André Ferreira, Natália António, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Left bundle branch area pacing (LBBAP) is an emerging physiological pacing strategy associated with better clinical outcomes than conventional right ventricular (RV) pacing. Evidence in patients with permanent atrial fibrillation (AF), however, remains limited.
Methods: This single-center retrospective study included patients who underwent LBBAP between September 2022 and June 2024. Baseline pacing indication, procedural characteristics, and LVEF were collected. The primary endpoint was a composite of emergency visits for acute heart failure (HF) and HF hospitalization. We compared outcomes between LBBAP and conventional RV pacing in patients with permanent AF. Median follow-up was 873 days (IQR 355.5).
Results: The analysis included 165 patients with permanent atrial fibrillation who underwent pacemaker implantation (72.1% male; mean age 81.9 ± 0.56 years). Of these, 46 (27.9%) received LBBAP and 119 (72.1%) RV pacing. Baseline cardiovascular risk factors were similar between groups. Pacing indications were complete heart block in 58 patients (35.2%) and bradycardia in 106 (64.2%), with one case (0.6%) of alternating bundle branch block. Median left ventricular ejection fraction (LVEF) for the entire cohort was 57% (IQR = 11.5). The LBBAP group had a slightly lower baseline LVEF, with a median of 55% (IQR = 10), which was statistically significant (p = 0.044). Procedure duration was similar between groups (p > 0.05) with a mean of 57.59 ± 2,54 min. The mean intrinsic QRS duration for the entire cohort was 129.3 ± 2.37 ms. Among paced complexes, LBBAP produced a narrower QRS (122.0 ± 3.0 ms) compared with RV pacing (159.9 ± 2.39 ms, p < 0.001). Capture thresholds (0.53 V) and sensed R-wave amplitudes (12.86 mV) were similar between groups. Median ventricular pacing during follow-up was 79.5%, with no difference by pacing modality (p = 0.372). In Cox regression adjusted for confounders, RV pacing was associated with a 4.02-fold higher risk of heart failure events versus LBBAP (HR 4.02, 95%CI 1.1-14.5, p = 0.033).



Conclusions: In patients with permanent atrial fibrillation, LBBAP was feasible, achieved pacing parameters comparable to RV pacing, and produced narrower paced QRS complexes. LBBAP was associated with fewer adverse clinical outcomes, while RV pacing conveyed a 4-fold higher risk of heart failure events. These results support LBBAP as a more physiological and clinically favorable pacing strategy in this population.

PO 2. DOES LBBAP CAPTURE TYPE INFLUENCE CLINICAL OUTCOMES?

Ana L. Silva, Ana Luísa Rocha, Maria João Primo, Mariana Rodrigues Simões, Tatiana Pereira dos Santos, Inês Cruz, Didier Martinez, Patrícia Alves, Carolina Saleiro, João André Ferreira, Natália António, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Left bundle branch area pacing (LBBAP) enables physiological ventricular activation, but whether different capture types translate into distinct clinical outcomes remains uncertain.
Objectives: To compare outcomes according to LBBAP capture type (confirmed, probable, left-septal, and deep-septal).
Methods: This single-center, retrospective study included consecutive patients who underwent LBBAP implantation between September 2022 and July 2024. Confirmed LBB capture was defined by QRS transition with output reduction (from non-selective to left ventricular septal pacing or to selective LBB capture), paced V6 RWPT< 75 ms (< 80 ms in LBBB), V6-V1 interpeak

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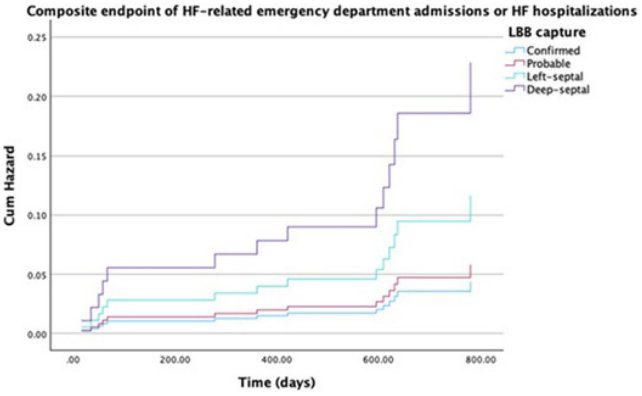
interval > 44 ms, or selective capture on programmed stimulation. The primary outcome includes a composite of heart failure (HF)-related emergency department (ED) admissions or HF hospitalization.
Results: A total of 294 patients were included: 222 (75.6%) had confirmed, 36 (12.2%) probable, 20 (6.8%) left-septal, and 16 (5.4%) deep-septal capture. Mean age was 74.5 ± 9.7 years, 68.4% were male, and median follow-up was 19.5 months. The most frequent indication was third-degree atrioventricular (AV) block (35.7%), followed by second-degree AV block (19.4%) and HF with reduced ejection fraction (14.6%). Paced QRS duration was significantly shorter with confirmed LBB capture (115.7 ± 13.8 ms) compared with left-septal (126.5 ± 17.5 ms; p = 0.016) and deep-septal capture (139.6 ± 15.7 ms; p < 0.001), with no difference versus probable capture (121.1 ± 14.3 ms; p = 0.224). Paced left ventricular activation time (LVAT) was also significantly shorter in the confirmed group (74 ms, IQR 12) compared with probable (85 ms, IQR 12), left-septal (96 ms, IQR 8), and deep-septal capture (92 ms, IQR 12; p < 0.001). Baseline LVEF was 49.6 ± 12.7%, slightly lower in the left-septal group (42.1 ± 12.7%; p = 0.035). Post-pacing LVEF (53.1 ± 11.2%) and LVEF improvement (4.7 ± 9.4%) were not significantly different across capture types (p = 0.417 and p = 0.802, respectively). In the multivariable Cox model adjusted for age, sex, and pacing percentage, and using confirmed LBB capture as the reference, no significant differences in clinical events were observed for probable (HR 1.326, 95%CI 0.155-11.353; p = 0.797) or left-septal capture (HR 2.653, 95%CI 0.533-13.218; p = 0.234). In contrast, deep-septal capture was associated with a significantly higher risk of the primary outcome (HR 5.204, 95%CI 1.213-22.321; p = 0.026).



Conclusions: Confirmed LBB capture resulted in more physiological ventricular activation, with shorter paced QRS and LVAT. Deep-septal capture was associated with a higher risk of adverse events, suggesting that achieving true conduction-system capture may be essential for optimizing the clinical benefit of LBBAP.

PO 3. PREDICTORS OF QRS NARROWING AND OF ELECTRICAL RESPONSE AFTER LEFT BUNDLE BRANCH PACING

Fernando Nascimento Ferreira, Sofia Jacinto, Margarida Figueiredo, Cátia Guerra, Hélder Santos, Guilherme Portugal, Bruno Valente, Ana Lousinha, Paulo Osório, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

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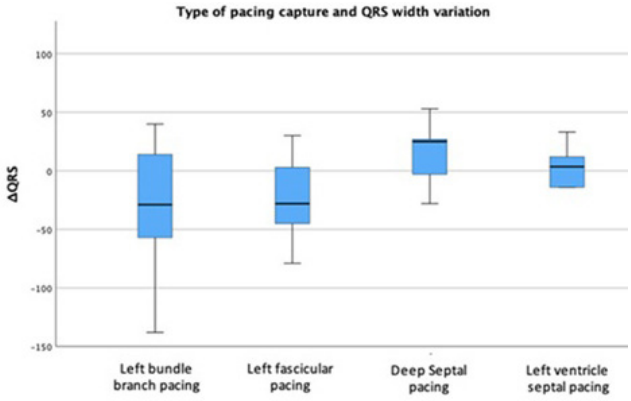
Introduction: Left bundle branch area pacing (LBBAP) has emerged as a physiologic pacing strategy that preserves synchronous ventricular activation and may overcome the dyssynchrony associated with conventional pacing. However, predictors of electrical response, particularly QRS narrowing, remain insufficiently characterized in real-world populations.
Objectives: Describe clinical and procedural characteristics of patients undergoing LBBAP and identify predictors of QRS width variation following implantation.
Methods: We conducted a retrospective cohort study including consecutive patients who underwent LBBAP between October 2021 and October 2025 at a tertiary centre. Demographic, procedural, and electrocardiographic parameters were collected at implantation and first interrogation (at 1st month). QRS variation (ΔQRS = paced − intrinsic) was used as a continuous marker of electrical response. Between-group comparisons were performed using parametric and non-parametric tests, including Kruskal-Wallis analysis for type of pacing capture. Linear regression was applied to identify predictors of ΔQRS.
Results: A total of 120 patients (mean age 74 ± 15 years; 29% female) were included. The pacing indication was bradyarrhythmia in 92.5% and cardiac resynchronization in 7.5%. The most frequent capture types were left fascicular pacing (45.8%) and left bundle branch pacing (38.3%), while stylet-driven leads were used in 38% of procedures and the axillary approach in 51%. Baseline QRS duration was 135 ± 35 ms, decreasing to 115 ± 16 ms post-implant (mean ΔQRS = -17.5 ± 39 ms). In univariable linear regression, baseline QRS ≥ 120 ms (B = -47.9 ± 7.6 ms, p < 0.001) and type of pacing capture (B = 5.7 ± 1.9 ms, p = 0.003) were associated with QRS narrowing, whereas transcatheter aortic valve replacement (TAVR), LVEF < 50%, and type of lead were not significant predictors. The Kruskal-Wallis test confirmed differences in QRS narrowing across the types of pacing capture (p = 0.033), with LBBP and left fascicular pacing showing greater electrical improvement compared with deep or left septal pacing.



QRS width variation predictors			
	Correlation	95% CI	p Value
Post TAVR	-7.308	(-29.502; 14.89)	0.513
LVEF < 50%	-16.062	(-34.588; 2.47)	0.088
Stylet-driven lead	-3.590	(-19.066; 11.89)	0.645
Initial QRS >120ms	-47.952	(-63.124; -32.781)	**<0.001**
Type of pacing capture	5.721	(1.953; 9.490)	**0,003**

Type of pacing capture and QRS width variation		
	Mean rank (ΔQRS)	p value
Left bundle branch pacing	**30.33**	
His bundle branch pacing	56.00	
Left fascicular pacing	**30.50**	**0,033**
Deep Septal pacing	51.50	
Left ventricle septal pacing	48.50	

Conclusions: In patients undergoing LBBAP, QRS narrowing was frequent and influenced by both baseline QRS duration and type of pacing capture. Conduction system pacing (LBBP and fascicular pacing) achieved greater electrical synchronization compared to septal pacing. These findings support the physiologic advantage of conduction system capture.

PO 4. LONG-TERM CLINICAL OUTCOMES OF LEFT BUNDLE BRANCH AREA PACING AMONG ELDERLY PATIENTS

Mariana Rodrigues Simões, Luísa Gomes Rocha, Ana Luísa Silva, Tatiana Pereira dos Santos, Diogo Fernandes, Carolina Saleiro, João Ferreira, Natália António, Lino Gonçalves

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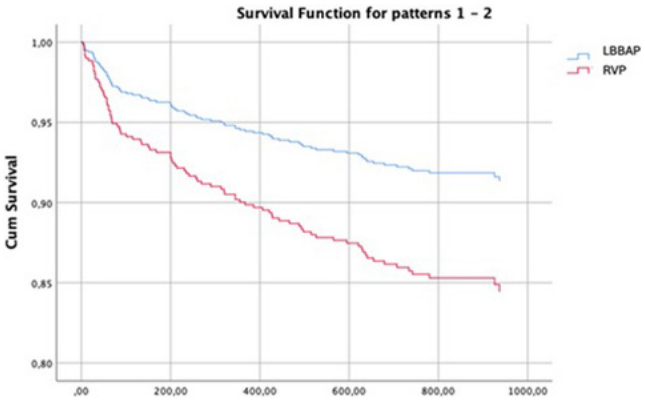
Introduction: Left bundle branch area pacing (LBBAP) has emerged as a physiologic alternative to right ventricular pacing (RVP), reducing

desynchrony that can lead to pacing-induced cardiomyopathy. As elderly patients are especially susceptible to heart failure, LBBAP can offer additional protection in this high-risk population.
Methods: We conducted a single-centre retrospective, observational study including patients ≥ 75 years who underwent cardiac implantable electronic devices implantation between September 2022 and September 2025. The objective was to compare LBBAP with RVP, in patients with implanted pacemakers, regarding Emergency Department (ED) admissions due to heart failure (HF), hospitalization for HF, and all-cause mortality. Statistical analysis was performed using SPSS. Categorical variables were compared with chi-square test, and continuous variables with the Student's t-test or the Wilcoxon test, as appropriate. Hazard ratios for outcome predictors were estimated using Cox regression.
Results: A total of 1,174 patients were included, of whom 726 were men and 448 were women. The mean age was 83.09 ± 5.02 years, and the median follow-up time was 679 (IQR 633) months. Of these patients, 372 patients underwent LBBAP and 784 received RVP. No significant differences were observed between the groups regarding past medical history, such as hypertension (LBBAP: n = 139 vs. RVP: n = 327, p = 0.342), coronary artery disease (LBBAP: n = 27 vs. RVP: n = 52, p = 0.464) or diabetes *mellitus* (LBBAP: n = 66 vs. RVP: n = 137, p = 0.478). The LBBAP group had a significantly lower median left ventricular ejection fraction (LVEF) compared with the RVP group: 55% (IQR 12.75) *vs.* 57% (IQR 5), p < 0.001. The LBBAP group also had a higher median pacing percentage: 94.65% (IQR 67.75) vs. 76% (IQR 85.5), p < 0.001. For hospitalization due to HF, 14 patients in the LBBAP group and 75 patients in the RVP group were hospitalized; however, the difference was not statistically significant (HR 0.743, 95%CI 0.357-1.548; p = 0.415). Regarding all-cause mortality, although fewer death occurred in the LBBAP group (n = 26 vs. n = 106), the difference was not significant (HR 0.929, 95%CI 0.599-1.439; p = 0.739). The LBBAP group had significantly fewer ED admissions for HF (n = 14 vs. n = 75; b = -0.626, HR 0.535, 95%CI 0.302-0.948; p = 0.022) (Figure 1).



Conclusions: Among older patients, LBBAP seems to reduce ED admissions for heart failure compared with right ventricular pacing.

PO 5. LEFT BUNDLE BRANCH AREA PACING VS. RIGHT VENTRICULAR PACING: CHANGING THE PACING PARADIGM

Inês Caldeira Araújo, João Cravo, Marta Vilela, Daniel Cazeiro, Diogo Ferreira, Andreia Magalhães, Sara Pereira, Pedro António, Pedro Marques, João de Sousa, Fausto J. Pinto, Nelson Cunha

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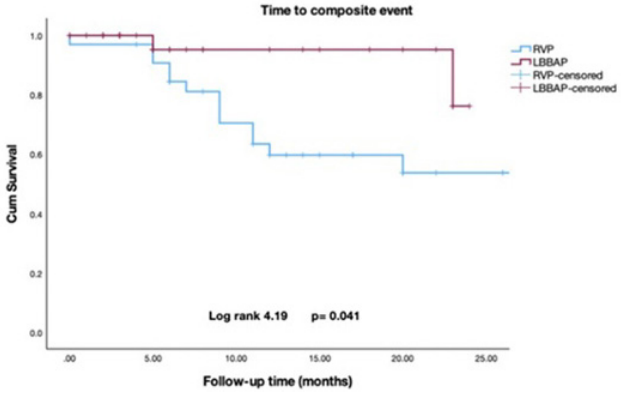
Introduction: Right ventricular pacing (RVP) can induce ventricular dyssynchrony and increase the risk of left ventricular dysfunction in patients requiring frequent ventricular pacing. Left bundle branch area pacing (LBBAP) provides a more physiological activation pattern and may offer superior long-term clinical outcomes. However, comparative real-world evidence in patients with preserved left ventricular function remains limited.

Objectives: To compare electrical, echocardiographic and clinical outcomes between LBBAP and RVP in a consecutive cohort from a tertiary center.
Methods: A retrospective, observational study was conducted, including 69 patients with preserved left ventricular ejection fraction (LVEF) who underwent pacemaker implantation (LBBAP n = 35; RVAP n = 34). Baseline clinical, electrocardiographic and echocardiographic parameters were collected, along with procedural data. Electrical, echocardiographic and clinical outcomes were assessed during follow-up. The primary endpoint was a composite of cardiovascular hospitalization or cardiovascular death, evaluated with Kaplan-Meier analysis.
Results: Baseline characteristics were comparable between groups. LBBAP procedures were longer and required more fluoroscopy (68.66 ± 19.98 min and 12.69 ± 11.76 min versus 37.15 ± 10.6 min and 4.079 ± 4.74 min, respectively, both p < 0.001), though complication rates remained low and similar. Mean baseline QRS duration was similar (123 ± 29 ms for LBBAP and 121 ± 27 ms for RVP), but LBBAP resulted in significant QRS narrowing (-11.5 ± 30.1 ms) whereas RVP led to QRS widening (+27.0 ± 28.0 ms, p < 0.001). LVEF remained stable in both groups (baseline 60% vs. 58%; post-procedure 58% vs. 57%). However, LBBAP showed a more favorable echocardiographic profile, including superior GLS changes (-0.8 ± 1.9% vs. +1.6 ± 3.3%, p = 0.032) and nonsignificant improvements concerning left ventricular and atrial volumes, E/e' ratio, TAPSE and PSAP. Clinical outcomes strongly favored LBBAP. Cardiovascular hospitalizations were markedly lower in the LBBAP group (3% vs. 38%, p < 0.001) and cardiovascular deaths occurred only in the RVP group (0 vs. 2, p = ns). Kaplan-Meier analysis demonstrated a significant reduction in the composite cardiovascular event in the LBBAP group (log-rank χ^2 = 12.8, p < 0.001). Patients experiencing events had a high percentage of ventricular pacing (> 20%).

Parameter	LBBAP (n=35)	RVP (n=34)	p value
Electrocardiographic response			
Δ QRS (ms)	-11.5±30.1	+27.0±28.0	**<0.001**
Echocardiographic response			
Δ LVEF (%)	-1.6±5.1	-0.8±11.2	0.799
Δ GLS (%)	-0.8±1.9	+1.6±3.3	**0.032**
Δ LVEDV/BSA (mL/m²)	-4.3±22.9	+1.1±11.0	0.402
Δ LVESV/BSA (mL/m²)	-1.4±9.1	+2.1±9.3	0.275
Δ LAVI (mL/m²)	-7.8±7.9	+0.1±2.4	0.154
Δ E/e'	-0.1±2.4	+2.2±5.3	0.417
Δ PASP (mmHg)	-4.0±7.1	+0.5±12.8	0.816
Δ TAPSE (mm)	2.3±2.9	-1.5±6.3	0.729
Clinical response			
Hospital admissions, n (%)	1 (3)	13 (38)	**<0.001**
Death of CV cause, n (%)	0 (0)	2 (6)	0.239



Conclusions: In this real-world population with preserved LVEF, LBBAP provided superior electrical synchrony and a significantly better clinical trajectory compared with RVP. The marked reduction in cardiovascular events and improved survival curves support LBBAP as a safer and more physiological

pacing strategy, reinforcing its role as a preferred alternative to traditional RVP in patients with an expected high burden of ventricular pacing.

PO 6. DELIVERING PHYSIOLOGICAL PACING IN ROUTINE PRACTICE: REAL-WORLD OUTCOMES OF LEFT BUNDLE BRANCH PACING

Beatriz Vargas Andrade[1], Diogo Ferreira[2], Marta Vilela[2], Daniel Cazeiro[2], Andreia Magalhães[2], Sara Pereira[2], Pedro António[2], Pedro Marques[2], João de Sousa[2], Fausto J. Pinto[2], Nelson Cunha[2]

[1]ULS Leziria/Hospital Distrital de Santarém. [2]ULS Santa Maria/Hospital de Santa Maria.

Introduction: Left bundle branch area pacing (LBBAP) has emerged as a physiologic pacing strategy capable of preserving native ventricular activation and improving ventricular synchrony and cardiac function. However, real-world data on procedural performance and early cardiac remodeling in multimorbid populations remains limited.
Objectives: To characterize the experience of LBBAP implantation in a tertiary university hospital and to evaluate early electrical, echocardiographic and clinical outcomes following LBBAP implantation in a consecutive cohort of patients.
Methods: A retrospective, observational, single-center study was conducted, including 71 patients who underwent LBBAP implantation. Baseline clinical characteristics, pacing indication, procedural metrics and complications were collected. Clinical outcomes, electrocardiographic and echocardiographic parameters were assessed at baseline and follow-up.
Results: Mean age was 79 ± 8 years, 44% were female, and comorbidities were highly prevalent. AV node dysfunction was the most common indication for implant in 42 patients (56%) followed by sinus node dysfunction (25%), atrial fibrillation with slow ventricular conduction (12%), and after AV node ablation (3%). In 2 patients (3%) LBBAP was performed with the pursuit of resynchronization: left ventricular ejection fraction (LVEF) < 35% and left bundle branch block. Mean LVEF pre-implantation was 45 ± 12%. Implantation success rate was 95%, with a mean procedure duration of 70 ± 20 minutes and fluoroscopy time of 12 ± 11 minutes. Complications were infrequent and with similar rates to those described in the literature for right ventricular pacing, including one pneumothorax (1.4%) and one lead dislodgement (1.4%). During 8 months of mean follow-up, LBBAP achieved significant electrical improvement with QRS narrowing from 136 ± 32 to 122 ms (p = 0.002). Echocardiography demonstrated favourable remodeling with increases in LVEF (45 ± 12% to 52 ± 10%, p < 0.01) and GLS (-12.4 ± 3.6% to -13.5 ± 3.1%, p = 0.023) and a reduction in LA volume index (49.4 ± 27.2 to 44.7 ± 25.4 mL/m², p = 0.013). LV volumes showed a non-significant trend toward reduction. NYHA class and NT-proBNP remained unchanged.
Conclusions: In a real-world tertiary-centre cohort, LBBP was safe, feasible and associated with marked electrical resynchronization and early signs of favourable cardiac remodeling. These findings support LBBP as an effective physiological pacing strategy across a broad clinical population.

Baseline characteristics	All patients (n=71)
Age, mean ± SD	79±8
Male sex, n (%)	40 (56.3)
Medical history	
DM, n (%)	18 (25.4)
Hypertension, n (%)	58 (81.7)
Atrial fibrillation, n (%)	25 (35.2)
Heart failure, n (%)	25 (35.2)
HFrEF, n (%)	15 (21.1)
NYHA functional class, mean ± SD	1.6±0.7
Electrocardiographic parameters	
LBBB, n (%)	22 (31.0)
RBBB, n (%)	22 (31.0)
Indication for implantation	
AV node dysfunction, n (%)	42 (56.3)
Sinus node dysfunction, n (%)	18 (25.4)
Bradifibrillation, n (%)	9 (12.7)
Ressynchronization, n (%)	2 (2.8)
AV node ablation, n (%)	2 (2.8)
Procedural outcomes	
Succes rate, n (%)	67 (95)
Procedure duration, mean±SD (min)	70±20
Fluoroscopy duration, mean±SD (min)	12±11
Venous access	
Cephalic, n (%)	14 (19.7)
Subclavian, n (%)	54 (76.1)
Axillary, n (%)	3 (4.2)
Type of device	
DDDR, n (%)	57 (80.3)
VVIR, n (%)	14 (19.7)
Complications	
Pneumothorax, n (%)	1 (1.4)
Lead dislodgement, n (%)	1 (1.4)
Significant haematoma, n (%)	1 (1.4)

Parameter	Baseline	Follow-up	p-value
Electrocardiographic response			
QRS,mean±SD (ms)	136±32	122±21	**0.002**
Echocardiographic response			
LVEF, mean±SD (%)	45±12	52±10	**<0.01**
GLS, mean±SD (%)	−12.4±3.6	−13.5±3.1	**0.023**
LVEDV/BSA, mean±SD (mL/m²)	63.4±23.7	55.1±19.1	0.122
LVESV/BSA, mean±SD (mL/m²)	30.5±14.8	26.0±11.2	0.109
LA volume/BSA, mean±SD (mL/m²)	49.4±27.2	44.7±25.4	**0.013**
E/e', mean±SD	13±6.8.5	13.3±5.1	0.834
TAPSE, mean±SD (mm)	19.8±4.1	21.2±3.3	0.070
PASP, mean±SD (mmHg)	37.4±16.9	35.6±19.2	0.719
Clinical response			
NYHA functional class, mean ± SD	1.6±0.7	1.83±0.72	0.678
NT-proBNP (pg/mL)	7376±13404	5928±11510	0.131
Hospital admissions for CV cause, n (%)	7 (10)	6 (9)	1.000

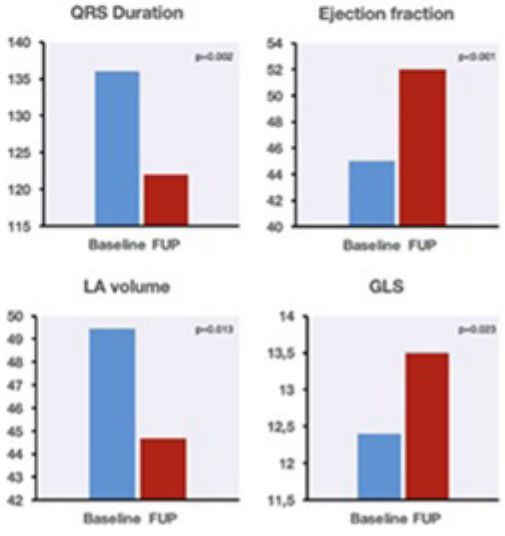


Figure PO 6

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Área de Posters - Ecrã 2 | Sessão de Posters 02 - Síndromes coronárias agudas: vias, atrasos e impacto das recomendações

PO 7. ATRIAL REMODELING AFTER ACUTE MYOCARDIAL INFARCTION: ASSOCIATIONS WITH INFARCTION SEVERITY, CORONARY ANATOMY, AND CHRONIC CARDIOVASCULAR RISK FACTORS

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Introduction: Atrial remodeling after acute myocardial infarction (AMI) is an important marker of hemodynamic load and cardiovascular risk. This study examined, in first-episode AMI, the structural and biochemical determinants of atrial remodeling over 1 year, using ST-segment elevation status (STEMI/NSTEMI), troponin, Killip class, and left ventricular ejection fraction (LVEF) as indicators of infarction severity, and integrating coronary anatomy and chronic cardiovascular risk factors.
Methods: We included 148 consecutive patients admitted with AMI (2013-2015) to a tertiary CARE center. Left atrial volume index (LAVI) and B-type natriuretic peptide (BNP) were measured at baseline and 12 months. Demographic, clinical, angiographic, and biochemical variables were related to structural and biomarker-based remodeling.
Results: Mean age was 54.5 ± 10.0 years; 87.2% were male; mean BMI was 27.2 ± 3.2 kg/m^2. Smoking was present in 74%, hypertension in 38.5%, diabetes mellitus in 15.6%, and dyslipidemia in 64.9%. STEMI accounted for 69.6% of cases. The left anterior descending artery (LAD) was involved in 52.4%, the circumflex in 17.0%, and the right coronary artery in 30.6%. Troponin correlated with 12-month LAVI ($p = 0.002$) and 12-month BNP ($p < 0.001$). STEMI patients had higher 1-year LAVI ($p = 0.042$). Higher Killip class was associated with elevated 12-month BNP ($p = 0.005$), larger 12-month LAVI ($p = 0.033$), and greater absolute and relative LAVI progression (both $p = 0.002$). Lower baseline LVEF related to higher 12-month BNP ($p = 0.040$) and LAVI ($p = 0.028$). LAD involvement predicted higher 12-month BNP ($p = 0.002$) and showed a borderline association with higher 12-month LAVI ($p = 0.073$). Among chronic risk factors, only diabetes mellitus was associated with higher 12-month BNP ($p = 0.020$) and showed a trend toward greater LAVI progression ($p = 0.063$).
Conclusions: Atrial remodeling after first-episode AMI appeared consistently associated with multiple indicators of infarction severity, suggesting hemodynamic burden as a major contributor. Although the circumflex and right coronary arteries supply atrial branches, they showed no associations with remodeling in this cohort. Coronary anatomy therefore seemed to act mainly as a surrogate for infarct extent, particularly regarding LAD involvement. Diabetes mellitus emerged as a potential chronic modifier of the atrial response and warrants further investigation.

PO 8. A MULTIDOMAIN ATRIAL REMODELING SCORE AS A POTENTIAL PREDICTOR OF ARRHYTHMIAS AND MAJOR CARDIOVASCULAR EVENTS TEN YEARS AFTER ACUTE MYOCARDIAL INFARCTION

Benedita Couto Viana

ULS São João/Hospital São João.

Introduction: Atrial remodeling after acute myocardial infarction (AMI) encompasses structural, electrical, and biochemical changes that may reflect arrhythmic vulnerability and cumulative cardiovascular burden. Its long-term prognostic significance remains uncertain. This study evaluated whether a multidomain atrial remodeling score (ARS) may predict major adverse cardiovascular events (MACE) and atrial arrhythmias over a ten-year follow-up.
Methods: We included 148 consecutive AMI patients admitted between 2013-2015 to a tertiary care center. Atrial remodeling at 1 year was defined using a multidomain construct integrating structural (LAVI > 34 mL/m^2), biochemical (BNP in the highest tertile ≥ 56.1 pg/mL), and electrical domains (≥ 2 of: P-wave duration ≥ 120 ms, P-wave terminal force in V1 ≤ −4,000 μV·ms, or advanced interatrial block). Patients were categorized as having 0, 1, or ≥ 2 abnormal domains. Outcomes included incident atrial fibrillation or flutter, MACE, and a combined endpoint. Fisher-Freeman-Halton and Mann-Whitney tests were applied.
Results: The population had a mean age of 54.5 ± 10.0 years; 87.2% were male. 74% were smokers; 38.5% had hypertension; 15.6% diabetes; and 64.9% dyslipidemia. STEMI accounted for 69.6% of cases, and the left anterior descending artery was involved in 52.4%. ARS at 1 year demonstrated a graded and statistically significant association with atrial arrhythmias ($\chi^2 = 10.924$, $p = 0.004$), with incidence increasing from 5.0% without remodeling to 33.3% in those with multidomain remodeling. In contrast, atrial remodeling burden

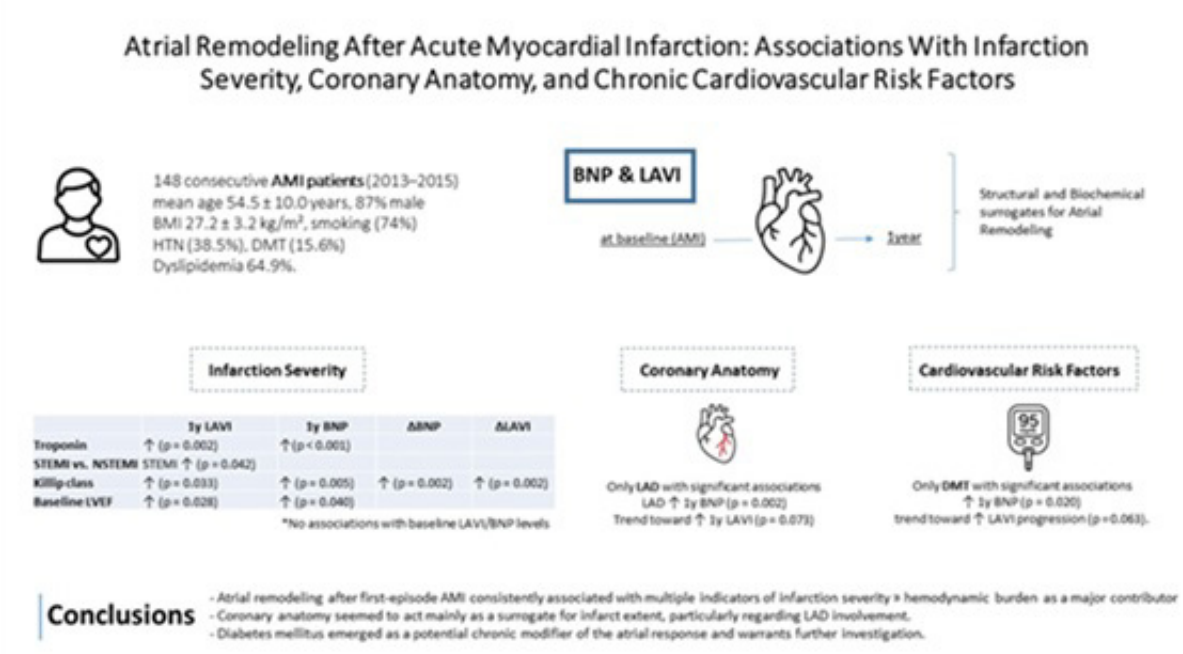

Figure PO 7

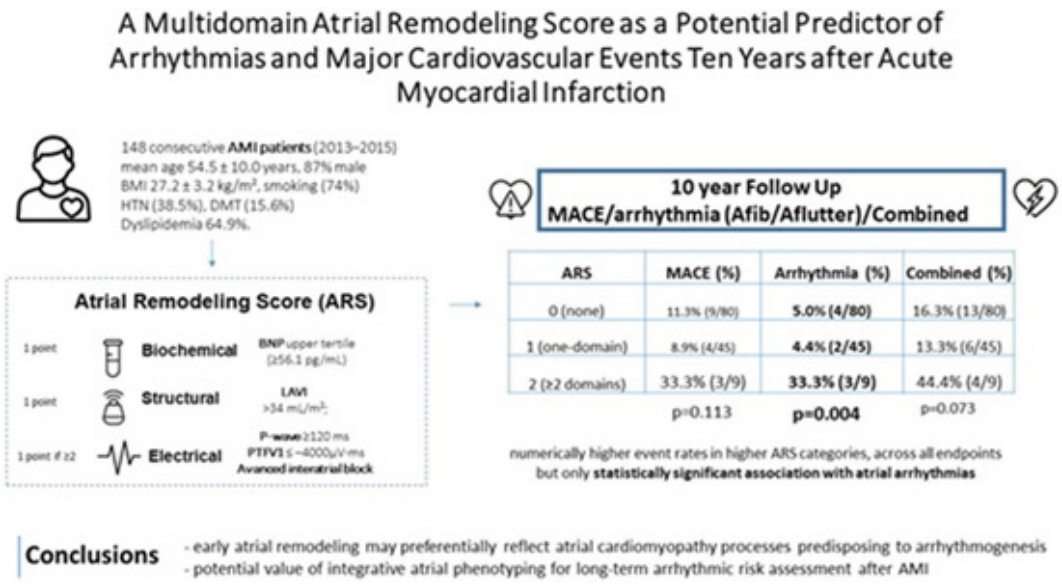

Figure PO 8

was not significantly associated with MACE (p = 0.113) or with the combined endpoint (p = 0.073), although both outcomes increased numerically across categories. When score components were evaluated individually, higher BNP at one year was the only isolated parameter significantly associated with atrial arrhythmias (p = 0.040). No single structural, biochemical, or electrical variable predicted MACE or the combined endpoint.

Conclusions: Atrial remodeling quantified one year after AMI was significantly associated with long-term atrial arrhythmias, whereas its relationship with MACE or the combined endpoint did not reach statistical significance despite numerically higher event rates in higher ARS categories. BNP at one year emerged as the only isolated marker associated with arrhythmias, although with weaker association strength than the ARS. No single one-year atrial parameter predicted MACE. Taken together, these findings suggest that early atrial remodeling may preferentially reflect atrial cardiomyopathy processes predisposing to arrhythmogenesis, while links with broader cardiovascular outcomes appear weaker or may manifest later. This exploratory evidence supports the potential value of integrative atrial phenotyping for long-term arrhythmic risk assessment after AMI.

PO 9. A SIMPLIFIED RISK SCORE FOR MORTALITY AFTER ANTERIOR ST-ELEVATION MYOCARDIAL INFARCTION USING RELATIVE APICAL STRAIN: THE RASK SCORE

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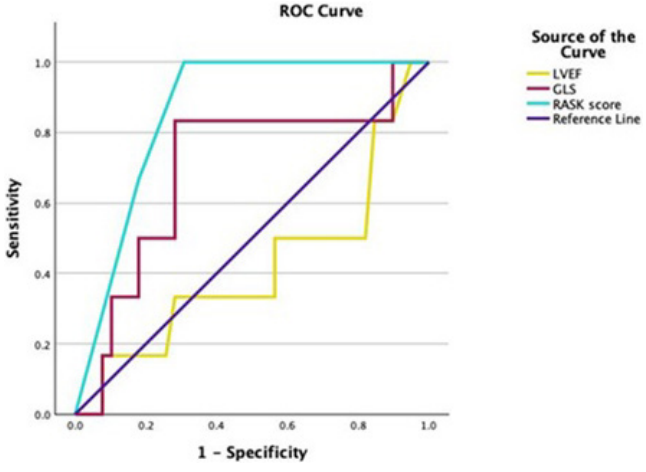
Francisco Rodrigues dos Santos, Oliver Kungel, Luís Afonso Santos,
Gonçalo RM Ferreira, Júlio Gil, Nuno Craveiro, António Costa

ULS Viseu Dão-Lafões/Hospital de São Teotónio.

Introduction: In anterior ST-elevation myocardial infarction (AMI), myocardial injury frequently involves the apex. Global longitudinal strain (GLS) predicts adverse outcomes but averages segment deformation, potentially masking critical regional disparities. We hypothesized that a relative apical strain index (RASi), reflecting the apical to non-apical gradient, combined with clinical variables, would improve prediction of all-cause mortality (ACM) compared with conventional parameters.

Methods: Retrospective single-centre cohort study of 45 patients admitted with anterior AMI who underwent transthoracic echocardiography (median 3 days post-admission). Left ventricular longitudinal strain (LS) was measured in apical, mid and basal segments to derive RASi (average apical LS/(average basal LS + mid-LS)). We then developed the RASK score (Risk Assessment using Age, relative Strain and Killip class), a 0-3 point tool. We assigned 1 point for each of the following variables: abnormal apical strain pattern (RASi ≤ 0), age > 70 years, and Killip class ≥ II at admission. The primary endpoint was 12-month ACM. Discriminative performance was assessed using receiver operating characteristic (ROC) analysis and compared with left ventricular ejection fraction (LVEF) and GLS.

Results: The study population had a mean age of 66 ± 14 years, 77.8% were male, and a mean LVEF of 42 ± 9%. All-cause mortality was 13.3% (n = 6). LVEF (42 ± 9% vs. 40 ± 9%, p = 0.53) and GLS (−8.9 ± 3.1% vs. −7.3 ± 2.9%, p = 0.27) did not differ significantly between survivors and non-survivors. In contrast, non-survivors were older (80 ± 7 vs. 65 ± 14 years, p = 0.012) and presented more negative RASi values (−0.23 ± 0.34 vs. 0.10 ± 0.32, p = 0.028), indicating inversion of the usual base-to-apex gradient. Higher Killip class showed a trend towards increased mortality (2.2 ± 0.9 vs. 1.5 ± 0.7, p = 0.087). The RASK Score showed excellent discrimination for mortality (AUC 0.86; 95%CI 0.75-0.97, p < 0.01), outperforming LVEF (AUC 0.42) and GLS (AUC 0.69). A score ≥ 2 identified all non-survivors (100% sensitivity). Mortality was 0% for low scores (0-1) versus 33.3% for high scores (≥ 2; p = 0.014), indicating effective risk stratification.



Conclusions: In patients with AMI, this simple three-item score showed superior discrimination for ACM compared with LVEF and GLS in this cohort. Low scores (0-1) identified patients with excellent short-term prognosis. Given the small sample size, external validation in larger cohorts is required before clinical use.

Beyond the Inferior Wall: Long-Term Consequences of Right Ventricular Involvement in acute myocardial infarction

Variable	Adjusted HR	95% CI	p-value
Age (per 10-year increase)	1.4	1.08–1.81	0.01
RV involvement	1.7	1.09–2.66	0.02
LV ejection fraction <40%	2.1	1.35–3.27	<0.001
Multivessel artery disease	1.6	1.05–2.45	0.03
Complete AV block	1.8	1.10–2.95	0.02
Incomplete/ late revascularization	1.9	1.20–3.00	0.006
Beta-blocker at discharge	0.6	0.39–0.92	0.02

Figure 1 – Independent predictors of mortality

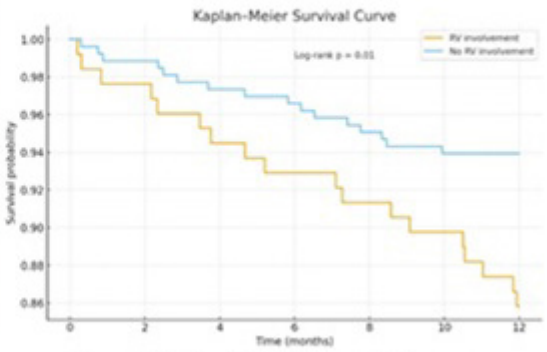


Figure 2 – Kaplan Meier 1 year survival curves

Figure PO 10

PO 10. BEYOND THE INFERIOR WALL: LONG-TERM CONSEQUENCES OF RIGHT VENTRICULAR INVOLVEMENT IN ACUTE MYOCARDIAL INFARCTION

Rui Miguel Gomes, Raquel Montalvão, Mariana Ramos, André Garcia, Catarina Santos-Jorge, Márcia Presume, Ana Rita Bello, João Presume, Marisa Trabulo, Jorge Ferreira, Catarina Brízido

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Inferior myocardial infarction (MI) with right ventricular (RV) involvement is frequently associated with conduction abnormalities, hemodynamic instability and adverse outcomes. This study aimed to evaluate long-term outcomes in patients with inferior MI and RV involvement.
Methods: Retrospective, single-centre study, analysing consecutive patients admitted to a cardiac intensive care unit for inferior ST-segment elevation MI between 2015 and 2024. RV involvement was diagnosed by right precordial leads ST elevation ≥ 1 mm and/or echocardiographic evidence of dysfunction [tricuspid annular plane systolic excursion < 18 mm and RV systolic velocity on tissue Doppler< 10 cm/s]. The primary endpoint was 1-year all-cause mortality. Secondary endpoints included heart failure hospitalization (HFH), ventricular arrhythmias, and RV systolic dysfunction during follow-up. Predictors of 1-year mortality and RV systolic recovery were explored in uni- and multivariate analysis.
Results: From a total of 391 patients, 32% (n = 127) had RV involvement, mostly identified by echocardiographic criteria (83%). The right coronary artery (RCA) was the culprit vessel in 86% of patients with RV involvement versus 68% without (p < 0.001). Cardiogenic shock occurred more frequently in the RV involvement group (18% vs. 6%, p < 0.001), and complete AV block was significantly more common (31% vs. 9%, p < 0.001), with 14% vs. 4% requiring permanent pacemaker implantation (p = 0.01). In-hospital mortality was higher among patients with RV involvement (7% vs. 2%, p = 0.02). At 1 year, Kaplan-Meier analysis showed increased mortality in the RV involvement group (14% vs. 6%; log-rank p = 0.01). RV involvement was an independent predictor of 1-year mortality, after adjusting for age, LVEF, multivessel disease, incomplete revascularization and complete AV block (adjusted HR 1.7, 95%CI 1.09-2.66, p = 0.02). RV involvement also showed increased risk of HFH and ventricular arrhythmias during follow-up (HR 2.5 95%CI: 1.45-4.29, Log-rank p < 0.001 and HR: 2.7 95%CI: 1.17-6.39, Log-rank p = 0.02, respectively). Echocardiographic follow-up at 1 year (available in 85% of survivors) showed significant RV systolic recovery: TAPSE improved from 13.6 ± 2.8 mm to 18.2 ± 3.1 mm (p < 0.001) and RV S′ from 8.0 ± 1.8 cm/s to 10.5 ± 1.7 cm/s (p < 0.001). Overall, 74% of patients with RV involvement achieved RV systolic recovery at 1 year. Baseline RV dysfunction, incomplete revascularization, multivessel disease, and reduced LVEF all independently predicted RV non-recovery.
Conclusions: Inferior MI with RV involvement poses higher risk of 1-year mortality, HF hospitalization and ventricular arrhythmias. Despite this, RV systolic recovery occurred in most patients, with baseline RV dysfunction, delayed or unsuccessful revascularization, multivessel disease, and reduced LVEF being key predictors of RV non-recovery.

PO 11. WHEN YOUTH MEETS RISK: A SIMPLE SCORE PREDICTING HEART FAILURE AFTER EARLY-ONSET ACUTE CORONARY SYNDROME

Liliana Brochado, Diogo Cunha, Oliveira Baltazar, João Mirinha Luz, Nazar Ilchyshyn, Adriana Silva, Mariana Martinho, Ana Rita Pereira, Otília Simões, Hélder Pereira, Paula Fazendas

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Acute coronary syndrome (ACS) in young adults (≤ 45 years) carries a substantial long-term risk of heart failure (HF). Existing prediction models, derived from older populations, may not accurately stratify younger patients. A simple, clinically applicable score for early identification of high-risk individuals could enhance preventive care and long-term outcomes.
Objectives: To develop and validate a pragmatic risk score for predicting HF in young adults following ACS.
Methods: We performed a retrospective, single-centre study of patients aged ≤ 45 years admitted with ACS between January 2013 and October 2023. Median follow-up was 4.5 ± 2.9 years. Demographic, clinical, and angiographic variables were collected. Logistic regression analysis was performed to identify predictors of HF. Six predictors were included in the final score: left ventricular ejection fraction (LVEF) < 50% (3 points), left anterior descending artery (LAD) occlusion (2), and STEMI, multivessel disease, obesity, and smoking (1 each). Discrimination for incident HF was assessed by receiver-operating-characteristic (ROC) analysis.
Results: A total of 130 patients were analysed (mean age 41.8 ± 4.2 years; 77.7% male). Almost all (97.9%) had at least one cardiovascular risk factor: smoking 79.2%, overweight/obesity 75.2%, dyslipidaemia 74.6%, hypertension 30.8%, diabetes 20.0%. Family history of premature ACS occurred in 20%. At presentation, 60.8% had STEMI, 30.0% NSTEMI, and 9.2% unstable angina; 3.1% presented with cardiac arrest. LVEF < 50% was observed in 38.5%. Single-vessel disease predominated (74.6%), mainly involving the LAD (61.5%). Atherosclerosis was the leading aetiology (76.9%), followed by in-stent restenosis (8.5%), embolism (5.4%), and spontaneous dissection (2.3%). During follow-up, 20.8% developed HF; among them, 59.3% had reduced LVEF. The score demonstrated excellent discrimination for HF (AUC 0.866, 95%CI 0.79-0.94; p < 0.001). HF incidence was 0% in the low-risk group, 52,4% in the intermediate (score = 6), and 71,8% in the high-risk group (scores 7-9). The positive predictive value for high risk was 69,7%, and the negative predictive value for low risk 100%.
Conclusions: A concise six-variable risk score accurately identifies young ACS survivors at high risk of HF. The model uses readily available clinical data and shows excellent discrimination. This simple stratification tool may guide personalised follow-up and early preventive interventions in young adults after ACS. Prospective external validation is warranted.

PO 12. PREDICTORS OF HEART FAILURE AFTER ACUTE CORONARY SYNDROME

Luís Sousa Azevedo, Isabel Martins Moreira, Isabel Nobrega Fernandes, Pedro Sousa Mateus, Silvia Leão, Ilídio Moreira

ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro.

Introduction: Ischemic heart disease is one of the leading causes of heart failure (HF) worldwide; therefore, patients presenting with acute coronary syndrome (ACS) are at particularly high risk of developing this condition.
Objectives: To identify predictors of the occurrence of heart failure during hospital stay in patients admitted with ACS.
Methods: This retrospective observational study included patients admitted to our centre with ACS between October 2010 and July 2025, all of whom were recorded in a national registry. Individuals with a previous diagnosis of HF were excluded. The cohort was divided into two groups based on whether *de novo* heart failure developed during the hospitalization. Differences between groups were assessed using the chi-square test for categorical variables and median-comparison tests for continuous variables. The impact of each variable on the occurrence of HF was evaluated using binary logistic regression adjusted for potential confounders. For the regression analysis, non-smokers and former smokers were combined into a single category, and unstable angina served as the reference category for ACS type.
Results: A total of 1,392 patients were included, of whom 1,015 (72.9%) were male, with a median age of 67 years. During hospitalization, 253 patients (17.7%) developed heart failure. Significant differences between groups were observed for gender, age, smoking status, arterial hypertension, diabetes mellitus, valvular heart disease, chronic obstructive pulmonary disease (COPD), hemoglobin at admission, and ACS type (Table 1). In the multivariable logistic regression analysis adjusted for confounders, female sex (OR = 1.554; 95%CI 1.070-2.256; p = 0.021), arterial hypertension (OR = 1.920; 95%CI 1.247-2.955; p = 0.003), diabetes mellitus (OR = 1.795; 95%CI 1.238-2.601; p = 0.002), valvular heart disease (OR = 3.582; 95%CI 1.218-10.530; p = 0.02), COPD (OR = 2.067; 95%CI 1.026-4.165; p = 0.042), and ACS type (p < 0.001) were independent predictors for heart failure. Specifically, ST-segment elevation myocardial infarction (STEMI) (OR = 17.780; 95%CI 2.403-131.550; p = 0.005) and acute myocardial infarction of unspecified location (OR = 15.030; 95%CI 1.800 - 125.516; p = 0.013) emerged as independent predictors in the ACS type category.
Conclusions: In this study, female sex, arterial hypertension, diabetes mellitus, valvular heart disease, and COPD were associated with an increased likelihood of developing heart failure during hospitalization, irrespective of ACS type. Regarding ACS type, patients presenting with STEMI or myocardial infarction of unspecified location were more likely to develop this complication. These findings identify patient subgroups that may benefit from closer in-hospital monitoring to ensure timely and appropriate management.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

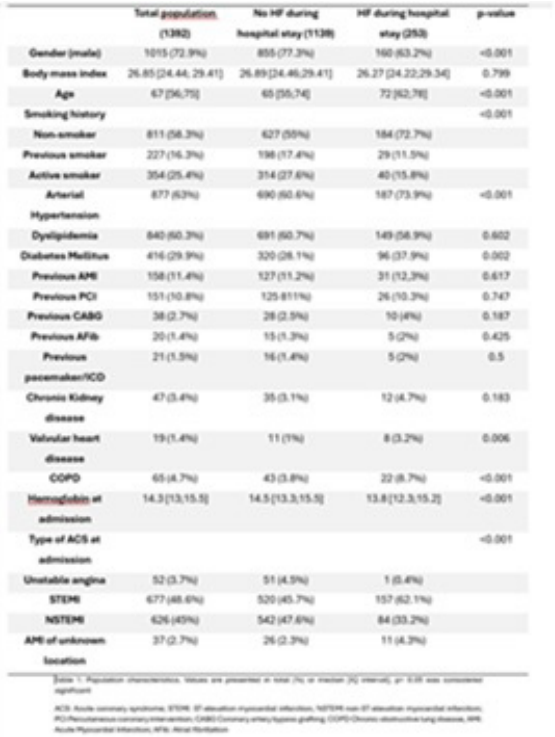
Área de Posters - Ecrã 3 | Sessão de Posters 03 - Cardio-oncologia e doença sistémica: onde o cancro encontra o coração

PO 13. PERFORMANCE OF CARDIOTOXICITY RISK SCORES IN A TERTIARY CENTER CARDIO-ONCOLOGY CLINIC

Marta Vilela, Diogo Ferreira, João Cravo, Daniel Cazeiro, Inês Araújo, Sofia Esteves, Catarina Silva, Pedro Alves Silva, Andreia Magalhães, Fausto Pinto, Miguel Menezes, Manuela Fiuza

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

Introduction: Cardiotoxicity worsens prognosis in cancer patients, making early detection and prevention crucial. Several predictive scores exist, but their applicability across therapies and populations is limited, highlighting the need for more reliable risk stratification.



	Total population (1392)	No HF during hospital stay (1139)	HF during hospital stay (253)	p-value
Gender (male)	1015 (72.9%)	855 (77.3%)	160 (63.2%)	<0.001
Body mass index	26.85 [24.44; 29.41]	26.89 [24.46;29.41]	26.27 [24.22;29.34]	0.799
Age	67 [56;75]	65 [55;74]	72 [62;78]	<0.001
Smoking history				<0.001
Non-smoker	811 (58.3%)	627 (55%)	184 (72.7%)	
Previous smoker	227 (16.3%)	198 (17.4%)	29 (11.5%)	
Active smoker	354 (25.4%)	314 (27.6%)	40 (15.8%)	
Arterial Hypertension	877 (63%)	690 (60.6%)	187 (73.9%)	<0.001
Dyslipidemia	840 (60.3%)	691 (60.7%)	149 (58.9%)	0.602
Diabetes Mellitus	416 (29.9%)	320 (28.1%)	96 (37.9%)	0.002
Previous AMI	158 (11.4%)	127 (11.2%)	31 (12.3%)	0.617
Previous PCI	151 (10.8%)	125 (11%)	26 (10.3%)	0.747
Previous CABG	38 (2.7%)	28 (2.5%)	10 (4%)	0.187
Previous AFib	20 (1.4%)	15 (1.3%)	5 (2%)	0.425
Previous pacemaker/ICD	21 (1.5%)	16 (1.4%)	5 (2%)	0.5
Chronic Kidney disease	47 (3.4%)	35 (3.1%)	12 (4.7%)	0.183
Valvular heart disease	19 (1.4%)	11 (1%)	8 (3.2%)	0.006
COPD	65 (4.7%)	43 (3.8%)	22 (8.7%)	<0.001
Hemoglobin at admission	14.3 [13;15.5]	14.5 [13.3;15.5]	13.8 [12.3;15.2]	<0.001
Type of ACS at admission				<0.001
Unstable angina	52 (3.7%)	51 (4.5%)	1 (0.4%)	
STEMI	677 (48.6%)	520 (45.7%)	157 (62.1%)	
NSTEMI	626 (45%)	542 (47.6%)	84 (33.2%)	
AMI of unknown location	37 (2.7%)	26 (2.3%)	11 (4.3%)	

Table 1. Population characteristics. Values are presented in total (%) or median [IQ interval]; p< 0.05 was considered significant

ACS: Acute coronary syndrome, STEMI: ST-elevation myocardial infarction, NSTEMI: non-ST-elevation myocardial infarction, PCI: Percutaneous coronary intervention, CABG: Coronary artery bypass grafting, COPD: Chronic obstructive lung disease, AMI: Acute Myocardial Infarction, AFib: Atrial fibrillation

	Odds Ratio	p-value
Body Mass Index	0,987 [0,930 - 1,046]	0,679
Gender	0,789 [0,455 – 1,367]	0,398
Arterial Hypertension	**1,880 [1,013- 3,490]**	**0,045**
Diabetes Mellitus	1,582 [0,896-2,799]	0,112
Valvular heart disease	1,268 [0,271-5,940]	0,763
Dyslipidemia	1,109 [0,653-1,886]	0,701
Previous heart failure	0,779 [0,234; 2,597]	0,684
Previous AMI	1,180 [0,441; 3,159]	0,742
Previous PCI	0,603 [0,199; 1,824]	0,370
Previous CABG	2,012 [0,503; 8,052]	0,323
Chronic Kidney disease	**3,194 [1,238 – 8,236]**	**0,016**
Chronic obstructive lung disease	**4,309 [1,906-9,740]**	**<0,001**
Killip Classe≥2	**2,733 [1,581- 4,864]**	**<0,001**
Smoking history	**2,206[1,203- 4,044]**	**0,011**
Age	0,999 [0,988; 1,011]	0,886
Type of acute coronary syndrome		**0,017**
Unstable angina	0,449 [0,057-3,515]	0,446
STEMI	**2,232 [1,311-3,515]**	**0,03**
ACS of unspecified location	1,116 [0,341-3,648]	0,916

Table 2. Binary logistic regression for the occurrence of atrial fibrillation. Values are presented in OR (CI 95%); p< 0.05 was considered significant. AMI: Acute myocardial infarction, PCI: Percutaneous coronary intervention, CABG: Coronary artery Bypass Grafting, STEMI: ST-elevation myocardial infarction, ACS: Acute coronary syndrome

Figure PO 12

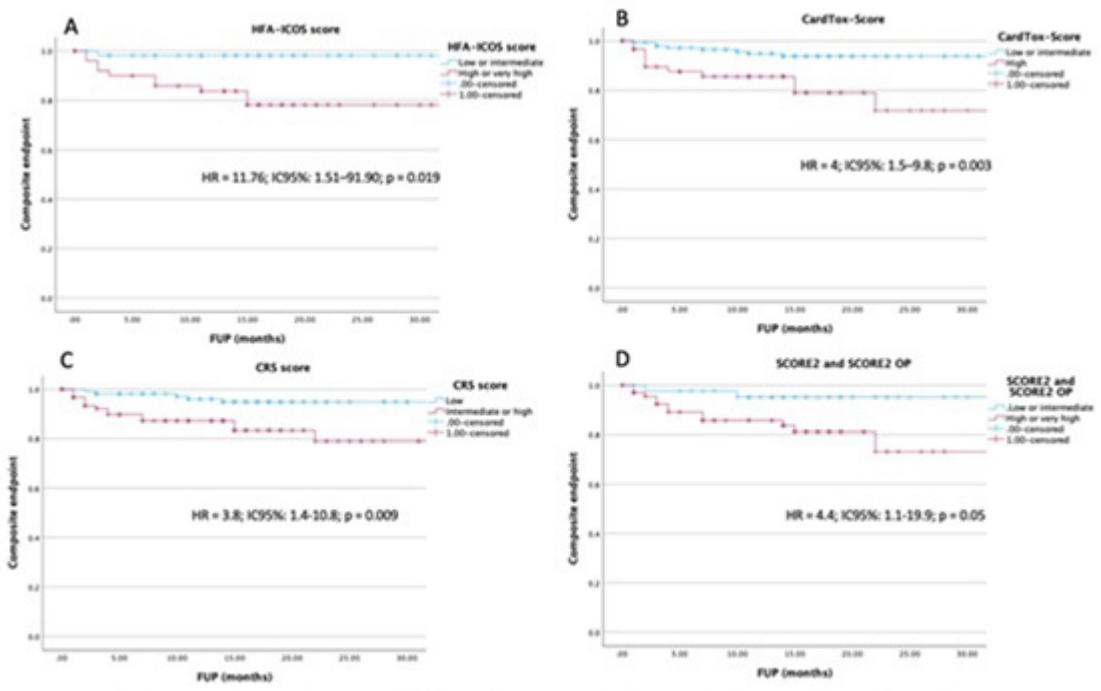


Figure 1: Risk of the composite event (cardiovascular hospitalization + cardiovascular mortality) in patients with higher scores. High/very high HFA-ICOS (A), CardTox (B), CRS (C), and SCORE2 (D) scores were associated with the composite endpoint (HR = 11.76, p = 0.019; HR = 4, p = 0.003; HR = 3.8, p = 0.009; HR = 3.8, p = 0.009; HR = 4.4, 95% CI: 1.1–19.9; p = 0.05, respectively).

Figure PO 13

Objectives: To identify cardiotoxicity predictors and assess risk scores in cancer patients.
Methods: Retrospective single-centre study of consecutive patients seen in a cardio-oncology clinic (2022-2023). Cardiotoxicity was defined as heart failure decompensation, > 10% LVEF reduction, clinically significant arrhythmias, myocardial infarction, myocarditis, pericarditis, or refractory hypertension. Baseline HFA-ICOS, CardTox, CRS, SCORE2 and SCORE2-OP scores were calculated. A composite endpoint (CV hospitalization or CV death) was analysed using Kaplan-Meier curves and Cox regression.
Results: A total of 209 patients were included (mean age 60 ± 2 years, 57% female). Most received HER2-targeted therapy (18%), anthracyclines (17%) or hormone therapy (17%). Over a median follow-up of 16 months (IQR 11-23), 85 patients (41%) developed cardiotoxicity, most commonly HF (69%), LVEF decline (44%), AF/flutter (20%), and pericarditis (7%). Cardiotoxicity was significantly associated with baseline LVEF, GLS, TAPSE and troponin levels. In multivariate analysis, GLS ≤ −18% independently predicted cardiotoxicity (OR 5.5, p = 0.002) and LVEF decline (OR 10.0, p = 0.002), adjusted for age and baseline LVEF. HER2-targeted therapy was linked to higher risk of new-onset HF (OR 4.4, p = 0.01), and HT to new-onset AF/flutter (OR 4.1, p = 0.03), both adjusted for age, atrial size and concomitant cancer therapies. A composite endpoint (CV hospitalization or CV death) occurred in 18 patients (21%). Independent predictors were LVEF decline (OR 6.3, p = 0.04) and HF decompensation (OR 22.0, p = 0.01), adjusted for age, cardiovascular risk factors and baseline LVEF. While risk scores did not predict cardiotoxicity directly, high/very high HFA-ICOS, CardTox, CRS scores and SCORE2 were associated with the composite endpoint (HR = 11.76; IC95%: 1.51-91.90; p = 0.019; HR = 4; IC95%: 1.5-9.8; p = 0.003; HR = 3.8; IC95%: 1.4-10.8; p = 0.009; HR = 4.4; IC95%: 1.1-19.9; p = 0.05, respectively). Subgroup analysis showed that HFA-ICOS best predicted cardiotoxicity in patients receiving multiple myeloma therapy (p = 0.02), whereas SCORE2 and SCORE OP performed better in those on HT (p = 0.01). All-cause mortality was not related to cardiotoxicity or cardiovascular hospitalization.
Conclusions: GLS and cardio-oncology risk scores such as HFA-ICOS, CardTox and CRS independently predict adverse CV outcomes. Routine integration of these tools could enhance individualized risk stratification and guide preventive strategies, but further multicenter studies are required to refine risk identification and validation.

PO 14. IS THERE A ROLE FOR CARDIAC REHABILITATION IN BREAST CANCER PATIENTS UNDERGOING CHEMOTHERAPY?

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[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Physical and Rehabilitation Medicine Department, ULS Santa Maria. [3]Faculdade de Medicina, Universidade de Lisboa, CAML, CCUL@RISE.

Introduction: Breast cancer anthracycline-based chemotherapies (AC) carries a high risk of cardiotoxicity and functional decline. Cardiac rehabilitation (CR) modelled programmes may help mitigate these effects, but their cardiovascular impact in this population remains unclear.
Objectives: To evaluate the cardiovascular and functional effects of a 12-week CR-modelled programme in breast cancer patients during and after AC.
Methods: This prospective single-center study included breast cancer patients diagnosed in 2022 and referred for CR during AC. Patients were randomly assigned to 12-week CR exercise sessions or during AC (CRduringAC) or after AC (CRafterAC). The 12-week programme comprised two supervised weekly sessions (90 min/session) and one unsupervised aerobic session, integrating moderate-intensity cycling, strength, and functional training, plus an optional home-based aerobic activity. Body composition, echocardiography, functional assessment of chronical illness (FACIT), muscle strength (handgrip) and a ramp symptom-limited cardiopulmonary exercise test (CPET) were assessed at baseline, 3 months, and 6 months.
Results: From a total cohort of 113 breast cancer patients undergoing AC with or without trastuzumab, 11 were enrolled in a 12-week exercise-based CR programme (mean age 46 ± 2 years; 10 [90%] female), of whom 9 completed the intervention. At 3-month follow-up, participants demonstrated a trend toward improved body composition, including reductions in body fat percentage (35 ± 6% vs. 31 ± 8%, p = 0.09) and increases in muscle mass (61 ± 6% vs. 66 ± 8%, p = 0.09). CPET parameters showed modest, non-significant gains in functional capacity: peak load/kg (1.5 ± 0.7 vs. 1.7 ± 0.7, p = 0.10) and peak respiratory exchange ratio (RER) (1.1 ± 0.2 vs. 1.2 ± 0.1, p = 0.20).

Functional capacity assessed via the FACIT score improved significantly (112 ± 19 vs. 127 ± 24, p = 0.02). Echocardiographic parameters remained stable during follow-up. In subgroup analyses comparing CRduringAC (n = 3) versus CRafterAC (n = 6), no significant differences were observed, indicating similar trajectories between groups in body composition, echocardiographic parameters, and functional capacity.

	Visit 1 (Baseline)	Visit 2 (3 months)	
Body composition			
BMI kg/m2 (mean ±SD)	27 ± 3	26 ± 4	NS
Body fat (%) (mean ± SD)	35 ± 6	31 ± 8	NS
Muscle mass (%) (mean ± SD)	61 ± 6	66 ±8	NS
Skeletal muscle mass (%) (mean ± SD)	34 ± 4	39 ± 8	NS
Bone mass (kg, mean ± SD)	2.5 ± 0.3	2.6 ± 0.4	NS
Sarcopenic index (mean ± SD)	6.9 ± 0.7	7.2 ± 1	NS
Scores			
FACIT score (mean ± SD)	127 ± 24	112 ± 19	**p=0.02**
GPAQ score (median, IQR)	225 (IQR 68-1455)	540 (IQR 180-810)	NS
Handgrip strength			
Handgrip, right kg (mean ± SD)	29 ± 4	29 ± 4	NS
Handgrip, left kg (mean ± SD)	26 ± 4	25 ±4	NS
Echocardiogram (TTE) parameters			
LVEDVI mL/m² (mean ± SD)	41 ± 9	38 ± 8	NS
LVEF % (mean ± SD)	64 ± 2	62 ± 2	NS
GLS % (mean ± SD)	20 ± 1	19 ± 2	NS
E/E' mean (mean ± SD)	6.8 ± 2	6.7 ± 1	NS
CPET			
Peak load/kg W/kg (mean ± SD)	1.5 ± 0.7	1.7 ± 0.7	NS
Peak $V'O_2$/kg mL/kg/min (mean ± SD)	20.4 ± 6	20.8 ± 5	NS
Peak RER (mean ± SD)	1.1 ± 0.2	1.2 ± 0.1	**p=0.02**
Peak $PETCO_2$ mmHg (mean ± SD)	35 ± 3	36 ±5	NS
$V'O_2$/kg at LV1 mL/kg/min (mean ± SD)	13 ± 3	13.3 ± 2	NS
% predicted $V'O_2$ peak (mean ± SD)	88 ±12	89 ±11	NS
% predicted HR (mean ± SD)	89 ± 7	92 ± 9	NS
$V'O_2$/workload slope (mean ± SD)	9.2 ± 2	9 ± 2	NS
Ventilatory efficiency (mean ± SD)	25 ± 3	23 ± 1	NS

Figure 1-Overview of patient assessments within the 12-week CR-modelled programme. Comprehensive evaluation was conducted at baseline (Visit 1) and repeated at the 3-month follow-up (Visit 2), including body composition, handgrip strength, echocardiography and cardiopulmonary exercise testing (CPET).

Conclusions: CR-modelled rehabilitation appears to be beneficial for breast cancer patients undergoing chemotherapy, leading to improvements in body composition and functional capacity. These findings underscore the need for larger studies to confirm these results and to clarify the role of this approach in supporting chemotherapy tolerance and mitigating cardiotoxicity.

PO 15. PROGNOSTIC PERFORMANCE OF ARC-HBR CRITERIA IN CANCER PATIENTS WITH SEVERE CORONARY DISEASE

Daniel Inácio Cazeiro, Diogo Ferreira, Tiago Rodrigues, Ana Rita Francisco, João Silva Marques, Cláudia Jorge, Pedro Carrilho Ferreira, José Almeida Duarte, José Marques da Costa, Pedro Cardoso, Miguel Nobre Menezes, Fausto J. Pinto

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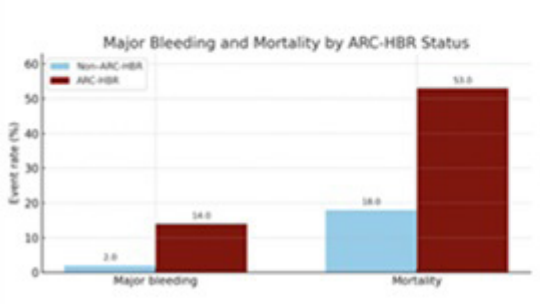
Introduction: Cancer patients frequently present with complex coronary disease and elevated ischemic and bleeding risks. The ARC-HBR criteria were developed to identify patients at high bleeding risk, but their performance in cardio-oncology populations remains insufficiently characterized. This study evaluated the ability of ARC-HBR to predict major bleeding in cancer patients with severe coronary disease treated across different revascularization strategies.
Methods: We conducted a retrospective study of 150 consecutive cancer patients from 2017 to 2023 with severe coronary disease who underwent PCI, CABG, or, when revascularization was not feasible, were treated with DAPT or single antiplatelet therapy plus anticoagulation for at least 6 months. ARC-HBR status was determined according to the original definition. Baseline characteristics, angiographic data, and clinical outcomes were compared between ARC-HBR and non-ARC-HBR patients. Major bleeding was defined as BARC type 3 or 5. Logistic regression assessed associations with major bleeding and mortality. Mean follow-up was 3.4 years.
Results: Ninety-nine patients (66%) met ARC-HBR criteria and 51 (34%) were classified as non-ARC-HBR. Baseline cardiovascular risk factors and angiographic characteristics were generally comparable between groups. Age tended to be higher in ARC-HBR patients, and chronic kidney disease

TABLE 1 Baseline clinical characteristic of patients

	Non-ARC-HBR (N=51)	ARC-HBR (N=99)	p-value
Age (years)	69 ± 7	76± 9	NS
Sex (female)	22 %	24 %	NS
Solid vs Haematologic Cancer	94 vs 6 %	90 vs 10 %	NS
Hypertension	73%	77%	NS
Type 2 diabetes (%)	33%	43%	NS
Dyslipidemia	57%	67%	NS
Smoking History	41%	38%	NS
Previous MI	20%	22%	NS
Previous PCI	25%	24%	NS
Previous CABG	4%	4%	NS
Chronic Kidney Disease	26%	62%	<0.001
Hemoglobin (g/dL)	13.7 ± 2	11.6 ± 2	NS
Platelets (x10⁹/L)	295 ± 85	244 ± 120	NS
Active Malignancy	0	60%	<0.001
Severe coronary lesion - Left Main - Left anterior descending - Cicunflex - Righ coronary artery	 6% 61% 43% 47%	 4% 60% 48% 48%	 NS
Treatment - PCI - CABG - Medical	 80% 12% 8%	 69% 11% 20%	 NS

TABLE 2 ACR-HBR criteria

Major	Minor
	Age ≥75 y
Anticipated use of long-term oral anticoagulation*	
Severe or end-stage CKD (eGFR <30 mL/min)	Moderate CKD (eGFR 30–59 mL/min)
Hemoglobin <11 g/dL	Hemoglobin 11–12.9 g/dL for men and 11–11.9 g/dL for women
Spontaneous bleeding requiring hospitalization or transfusion in the past 6 mo or at any time, if recurrent	Spontaneous bleeding requiring hospitalization or transfusion within the past 12 mo not meeting the major criterion
Moderate or severe baseline thrombocytopenia† (platelet count <100×10⁹/L)	
Chronic bleeding diathesis	
Liver cirrhosis with portal hypertension	
	Long-term use of oral NSAIDs or steroids
Active malignancy‡ (excluding nonmelanoma skin cancer) within the past 12 mo	
Previous spontaneous ICH (at any time) Previous traumatic ICH within the past 12 mo Presence of a bAVM Moderate or severe ischemic stroke§ within the past 6 mo	Any ischemic stroke at any time not meeting the major criterion
Nondeferrable major surgery on DAPT	
Recent major surgery or major trauma within 30 d before PCI	



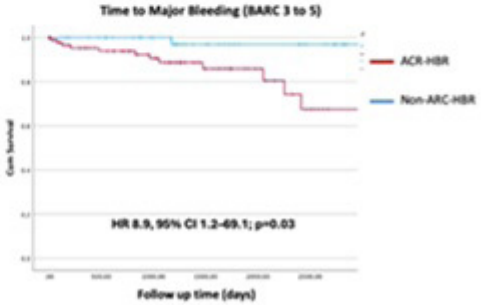


Figure PO 15

was markedly more prevalent (62% vs. 26%, p < 0.001). Hemoglobin and platelet levels were lower in ARC-HBR patients, though without statistical significance. As expected, active malignancy occurred exclusively in the ARC-HBR group, as it constitutes a major criterion. Major bleeding occurred in 15 patients (10%), with substantially higher rates in ARC-HBR compared with non-ARC-HBR patients (14% vs. 2%, p = 0.018). In ARC-HBR patients, the 3.4-year mean follow-up corresponds to an annualized major bleeding rate of 4.1 events per 100 patient-years, closely matching the ≥ 4% 1-year risk threshold that defines ARC-HBR. ARC-HBR status was associated with an eight-fold increase in major bleeding risk (OR 8.24, p = 0.045) and a significant rise in mortality (OR 5.08, p < 0.001).
Conclusions: In cancer patients with severe coronary disease, ARC-HBR status effectively identified individuals at substantially higher risk of major bleeding and mortality, supporting its applicability and internal validity in this cardio-oncology population.

PO 16. PROGNOSIS OF SEVERE CORONARY DISEASE IN CANCER PATIENTS TREATED WITHOUT REVASCULARIZATION

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Introduction: Cancer patients with severe coronary artery disease (CAD) pose important management challenges, particularly when revascularization is not undertaken. Evidence describing the natural history and outcomes of medically managed severe CAD in oncology populations remains limited. This study aims to characterize the clinical profile and long-term outcomes of cancer patients with severe CAD treated exclusively with optimal medical therapy.
Methods: A retrospective cohort study was performed including cancer patients who underwent coronary angiography between 2017 and 2022. Patients with severe CAD managed medically rather than with PCI or CABG were identified. Demographic, cardiovascular, oncologic, laboratory, and angiographic characteristics were extracted from electronic records. Follow-up began at angiography, and predefined outcomes included all-cause and cardiovascular mortality, acute coronary syndromes (ACS), repeat angiography, revascularization, and major bleeding.
Results: Among 318 cancer patients who underwent angiography, 53 had severe CAD managed medically. The cohort was elderly (mean age 77 ± 7), predominantly male, and presented with a substantial burden of cardiovascular comorbidities. Genitourinary (44%) and gastrointestinal (24%) cancers were most frequent. Functional status was generally preserved, with 70% ECOG 0-1, while 24% had stage IV disease. Nearly half (45%) underwent angiography for ACS. Cardiovascular risk factors were prevalent: hypertension (93%), diabetes (40%), dyslipidemia (68%), smoking history (51%), prior MI (26%), prior PCI (26%), and chronic kidney disease (51%). Severe multivessel CAD was common, involving the LAD (54%), circumflex (58%), and RCA (61%). Despite angiographic severity, ischemic complications were infrequent: 4 patients (7.5%) developed ACS, 6 (11.3%) required repeat angiography, and 2 (3.8%) underwent revascularization. Major bleeding occurred in two patients. Overall mortality reached 63%. Among the 35 deaths with a documented cause, non-cardiovascular mortality predominated (74%), whereas cardiovascular causes accounted for 26%, indicating outcomes were largely driven by cancer-related or other non-cardiac conditions rather than CAD progression.
Conclusions: In cancer patients with severe CAD managed conservatively, long-term survival is poor and primarily shaped by non-cardiovascular mortality. Recurrent ischemia, repeat angiography, and revascularization were uncommon, suggesting that in selected oncology patients a conservative strategy may be appropriate, as prognosis depends mainly on the underlying malignancy.

PO 17. CLUSTERING INFLAMMATION TO STRATIFY CARDIOVASCULAR RISK IN AUTOIMMUNE DISEASE

Rita Louro, Marta Figueiredo, Maria Santos Fialho, Maria de Belém Coelho, Flávio Quadrado, Ana Teresa Vieira, Gustavo Sá Mendes, Margarida Jacinto

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Introduction: Inflammation is recognised as a determinant of cardiovascular risk. Patients with autoimmune diseases, due to chronic systemic inflammation, carry an excess cardiovascular burden. However, the characterisation of inflammatory profiles and their impact on cardiovascular outcomes remains poorly defined. This study aimed to identify inflammatory clusters in autoimmune patients and assess their association with major adverse cardiovascular events (MACE).

TABLE 1 Baseline clinical characteristic of patients

	N= 53
Age (years)	77 ± 7
Sex (female)	11%
ECOG	
0	12%
1	58%
2	19%
3	9%
4	2%
Cancer Stage	
I	56%
II	10%
III	10%
IV	24%
Hypertension	93%
Type 2 diabetes (%)	40%
Dyslipidemia	68%
Smoking History	51%
Previous MI	26%
Previous PCI	26%
Previous CABG	8%
Chronic Kidney Disease	51%
Hemoglobin (g/dL)	13.2 ± 2
Platelets (x10⁹/L)	218 ± 96
Severe coronary lesion	
- Left Main	9%
- Left anterior descending	54%
- Cicunflex	58%
- Righ coronary artery	61%

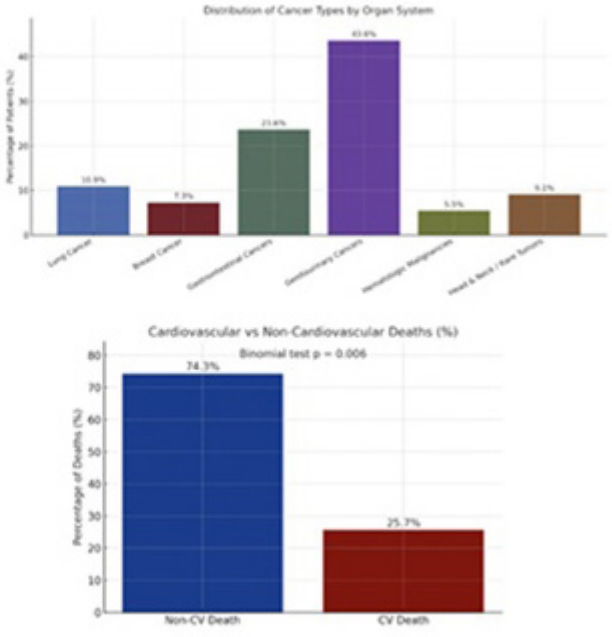

Figure PO 16

Methods: We conducted a cross-sectional study including 388 patients followed at an autoimmune diseases clinic during 2023. Cluster analysis based on erythrocyte sedimentation rate, C-reactive protein, and ferritin identified two groups: an inflammatory cluster and a control cluster. The primary endpoint was MACE, defined as a composite of death, stroke, heart failure, and acute/chronic coronary syndromes. Multivariable logistic regression adjusted for age, sex, hypertension, dyslipidaemia, diabetes, obesity, smoking, corticosteroid and DMARD use, and statin therapy was performed.
Results: Patients in the inflammatory cluster (n = 52) were older (median 73 vs. 58 years, p < 0.05) and had significantly higher inflammatory markers. Traditional cardiovascular risk factors and lipid profiles were similarly distributed between groups. The prevalence of MACE was significantly higher in the inflammatory cluster compared with the control cluster (25.0% vs. 12.3%, p < 0.05). In multivariable analysis, the inflammatory cluster remained independently associated with a two-fold higher risk of MACE (OR 2.26, 95%CI 1.01-5.05, p = 0.048), even after adjustment for age and conventional cardiovascular risk factors. Obesity was also associated with increased risk (OR 2.35, 95%CI 1.04-5.32, p = 0.040), while male sex was protective (OR 0.46, 95%CI 0.21-0.98, p = 0.045). Statin therapy was strongly associated with MACE (OR 7.10, 95%CI 2.47-20.39, p < 0.001), likely reflecting treatment bias, as high-risk patients were treated. Other traditional cardiovascular risk factors referred in the methods were not independent predictors.

Características basais da população em cada cluster

	Cluster inflamatório (n=52)	Cluster controlo (n=325)	p-value
Demografia			
Idade (anos), mediana (IQR)	73 (61–84)	58 (25–87)	<0.05
Sexo feminino, n (%)	39 (75.0)	270 (83.1)	0.16
Diagnóstico principal			
Artrite reumatóide	24 (46.2)	92 (28.3)	
Lúpus eritematoso sistémico	7 (13.5)	62 (19.1)	
Comorbilidades			
Hipertensão arterial, n (%)	32 (61.5)	155 (47.7)	0.06
Dislipidemia, n (%)	27 (51.9)	150 (46.2)	0.44
Diabetes mellitus, n (%)	9 (17.3)	43 (13.2)	0.66
Doença renal crónica, n (%)	6 (11.5)	15 (4.6)	<0.05
Obesidade, n (%)	10 (19.2)	37 (11.4)	0.11
Fumador, n (%)	8 (15.4)	42 (12.9)	0.63
Terapêutica			
Hipolipemiante, n (%)	25 (48.1)	128 (39.4)	0.24
Corticoterapia, n (%)	25 (48.1)	150 (46.2)	0.80
DMARD convencional, n (%)	28 (54.9)	152 (47.1)	0.14
DMARD biológico, n (%)	10 (19.2)	60 (18.2)	0.89
Avaliação laboratorial			
VS (mm/h), mediana (IQR)	11.5 (2–68)	10.0 (0–118)	<0.05
PCR (mg/L), mediana (IQR)	6.5 (0–133)	0.0 (0–66)	<0.05
Ferritina (ng/mL), média ± DP	294.5 (204–729)	32.0 (4–180)	<0.05
Colesterol total (mg/dL), média ± DP	188.5 ± 41.3	193.1 ± 44.3	0.330
HDL (mg/dL), média ± DP	65.5 ± 20.3	62.2 ± 19.6	0.271
LDL (mg/dL), média ± DP	95.8 ± 36.5	107.6 ± 36.3	0.685
Triglicerídeos (mg/dL), mediana (IQR)	128 (45–208)	105 (37–451)	<0.05

Conclusions: Inflammatory clusters identify autoimmune patients with substantially increased cardiovascular risk, independent of age and conventional risk factors. These findings highlight systemic inflammation as an independent therapeutic target. More assertive anti-inflammatory strategies, combined with aggressive management of conventional risk factors, may improve outcomes in this population.

PO 18. CANCER THERAPY-RELATED CARDIAC DYSFUNCTION: INCIDENCE, RISK FACTORS AND OUTCOMES IN A REAL-WORLD CARDIO-ONCOLOGY COHORT

Isabel Martins Moreira, Isabel Nóbrega Fernandes, Luís Sousa Azevedo, Matilde Pipa, Alzira Nunes, Inês Silveira, Ilídio Moreira

ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro.

Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a growing clinical challenge with prognostic implications. Despite increasing attention to risk stratification and cardioprotective drugs (CPD), optimal prevention and management strategies remain unclear.

Objectives: To characterize the incidence, risk factors and outcomes associated with CTRCD.
Methods: A retrospective study was conducted on patients referred to cardio-oncology outpatient clinic at our centre between May 2021 and July 2024. CTRCD were defined according to 2022 ESC Cardio-oncology guidelines. Demographic, clinical, echocardiographic, and laboratory data were analysed.
Results: A total of 135 patients (mean age of 67.8 ± 11.7 years, 62.2% male) were included. The most common malignancies were breast cancer (23.7%), gastrointestinal (22.2%), and hematological malignancies (17.8%); 42.9% had metastatic disease. Cardiovascular risk factors were prevalent: arterial hypertension (68.1%), dyslipidemia (65.9%), diabetes mellitus (37.0%), and smoking history (35.6%). At baseline, 60.7% of the patients were on angiotensin-converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARBs), or angiotensin receptor-neprilysin inhibitors (ARNi); 51.1% on betablockers (BB), 54.8% on statins, and 21.0% on SGLT2 inhibitors, primarily for comorbidities. CTRCD was observed in 25 patients (18.5%): 24% mild, 40% moderate and 36% severe, mostly asymptomatic (68%). The most frequent agents associated with CTRCD were trastuzumab (64%), anthracyclines (12%), BCR-ABL tyrosine-kinase inhibitors (8%), and epidermal growth factor receptor inhibitors (8%). CPD initiation or titration occurred in a significant proportion of patients (72% BB, 48% ACEi/ARBs/ARNis, 72% SGLT2i and 16% statins) and 28% needed to suspend cancer treatment, with a complete recovery rate of 44% during a median follow-up of 20 [10, 32] months. There were no significant differences in cardiovascular mortality (4% vs. 1.8%, p = 0.504) and cardiovascular hospitalizations (12.0% vs. 20.0%, p = 0.353) between patients with and without CRTCD. Patients receiving BB, statins or SGLT2i at baseline showed a significantly lower incidence of CTRCD compared with untreated patients (11.6% vs. 25.8%, p = 0.034; 12.2% vs. 26.2%, p = 0.036; and 3.4% vs. 22.9%, p = 0.018, respectively). Baseline ACEi/ARBs/ARNis use was not associated with a reduced risk of CTRCD (19.5% vs. 17%, p = 0.712).
Conclusions: In this study, CTRCD occurred in 18.5% of patients and was mostly asymptomatic. Pretreatment with BB, SGLT2i and statins was associated with a lower incidence of CTRCD. These findings highlight the importance of cardiovascular risk stratification and primary prevention in oncology patients, emphasizing the role of systematic cardiac surveillance and tailored therapeutic approaches to mitigate the risk of CRTCD in this vulnerable population.

Sexta-feira, 24 Abril de 2026 | 08:00-08:55

Área de Posters - Ecrã 4 | Sessão de Posters 04 - Prognóstico e desfechos clínicos na estenose aórtica

PO 19. LONG COVID IMPACT ON THE CARDIOVASCULAR FUNCTION OF AORTIC STENOSIS PATIENTS

Maria Inês N. Alves[1], Cláudia Mendes[1], Gustavo Couto[1], Inês Sousa[1], Juliana Morais[1], Alexandre Gonçalves[1], Carolina Silva[1], Diana Martins[1], Ana Beatriz Batista[1], João Abecasis[2], Adelino Leite-Moreira[1], Inês Falcão Pires[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Long COVID (LC) affects a significant proportion of individuals after SARS-CoV-2 infection and may include cardiovascular complications. While mechanisms remain unclear, inflammation, RAAS dysregulation, and mitochondrial dysfunction are suspected contributors.
Objectives: This study aimed to evaluate LC's impact on cardiovascular function and related markers in aortic stenosis (AS) patients undergoing aortic valve replacement surgery.
Methods: After informed consent, patients were stratified into three groups based on COVID-19 history prior to surgery: Control (never infected), no-LC

(previous infection without persistent symptoms), and LC (ongoing symptoms). At surgery (T0), myocardial tissue, pericardial fluid, blood samples and echocardiographic data were collected, repeating blood tests/echocardiography at ~6 months post-surgery (T1). Analyses included histology, mitochondrial assessments, and inflammatory/RAAS biomarkers. The study was approved by the Ethics Committee of the involved hospitals and followed the Declaration of Helsinki.

Results: Ninety-six patients (n = 76 control, n = 13 no-LC, and n = 7 LC group) were enrolled, with comparable comorbidities and medications, except for lower rates of diabetes, hypertension, and β-blocker use in the no-LC group. Preoperative echocardiographic parameters were comparable between groups. Significant regression of left ventricular hypertrophy occurred exclusively in control patients. E/E' tended to improve postoperatively (T1) in non-infected patients but increased in those with long COVID. Similarly, postoperative LVEF improvement approached significance only in patients without previous infection. Myocardial biopsies from LC patients revealed greater fibrosis and a trend toward larger cardiomyocytes compared to controls, whereas mitochondrial respiration and morphology showed no significant differences. Slightly reduced IL-6 suggested lower local inflammation, but decreased pericardial/serum STL2 (T0/T1) and elevated Serpin E2/PAI-1 indicated reduced cardioprotection in LC patients. Additionally, reduced serum angiotensin 1-7 at T1 implied diminished RAAS-mediated cardiac protection.

Conclusions: Prior SARS-CoV-2 infection may hinder myocardial recovery following AVR, with LC promoting cardiac fibrosis and hypertrophy in AS patients, underscoring the need for further mechanistic investigation.

PO 20. PRE-INTERVENTION OUTCOMES IN PATIENTS WITH HIGH VS. LOW GRADIENT SEVERE AORTIC STENOSIS: A REAL-WORLD COMPARATIVE ANALYSIS

Mónica Amado, Adriana Vazão, André Martins, Joana Pereira, Carolina Esteves, Mariana Carvalho, Luís Graça Santos, David Durão

ULS Região de Leiria/Hospital de Santo André.

Introduction: Severe aortic stenosis (SAS) includes heterogeneous phenotypes that influence clinical presentation and management. While high-gradient (HG) SAS reflects classical valvular obstruction, some patients

	Total (n=240)	Group A (n=189)	Group B (n=51)	p-value
Age at time of exam (yrs) – mean (SD)	81.72 (5.26)	82.03 (5.19)	84.2 (4.71)	p=0.517[b]
Male patients – no (%)	121 (50.4)	98 (51.9)	23 (45.1)	p=0.392[c]
Follow-up period (months) - median (IQR)	8 (10)	8 (7)	9.5 (7)	p=0.534[b]
Medical history – no (%)				
Arterial hypertension	203 (84.6)	154 (81.5)	49 (96.1)	**p=0.010[c]**
Diabetes *mellitus*	81 (33.9)	66 (35.1)	15 (29.4)	p=0.446[c]
Dyslipidemia	156 (65.3)	125 (66.5)	31 (60.8)	p=0.448[c]
Overweight/Obesity	174 (73.1)	140 (74.5)	34 (68.0)	p=0.359[c]
Smoking (current or previous)	20 (8.4)	18 (9.6)	2 (3.9)	p=0.261[d]
Chronic kidney disease	21 (8.8)	17 (9.0)	4 (7.8)	p=1.000[d]
Atrial fibrillation/atrial flutter	65 (27.1)	46 (24.3)	19 (37.3)	p=0.065[c]
Heart Failure	24 (10.0)	14 (7.4)	10 (19.6)	**p=0.010[c]**
Myocardial infarction	14 (5.8)	8 (4.2)	6 (11.8)	p=0.080[d]
Prior percutaneous coronary intervention	23 (9.6)	17 (9.0)	6 (11.8)	p=0.593[d]
History of cancer	27 (11.3)	22 (11.6)	5 (9.8)	p=0.713[c]
Cerebrovascular disease	32 (13.3)	25 (13.2)	7 (13.7)	p=0.926[c]
Medication – no (%)				
Aspirin and/or P2Y12 inhibitor and/or anticoagulation	150 (62.5)	108 (57.1)	42 (82.4)	**p<0.001[c]**
Betablocker	90 (37.7)	59 (31.4)	31 (60.8)	**p<0.001[c]**
Antiarrhythmics	15 (6.3)	10 (5.3)	5 (9.8)	p=0.323[d]
ARB/ARNI/ACEI	165 (69.3)	127 (67.6)	38 (76.0)	p=0.250[c]
Oral antidiabetics	79 (33.1)	63 (33.5)	16 (31.4)	p=0.773[c]
Diuretics	108 (45.0)	75 (39.7)	33 (64.7)	**p=0.001[c]**
Statins	170 (71.1)	133 (70.7)	37 (72.5)	p=0.801[c]
Symptoms– no (%)				
Fatigue	192 (81.0)	150 (80.6)	42 (82.4)	p=0.783[c]
Exertional angina	35 (14.8)	23 (12.4)	12 (23.5)	**p=0.047[c]**
Syncope	15 (6.3)	10 (5.4)	5 (9.8)	p=0.326[d]
CCT parameters				
Left ventricular ejection fraction - mean (SD)	62.3 (11.6)	64.5 (9.9)	56.5 (18.1)	**p<0.001[b]**
Mitral annulus calcification – no (%)	45 (18.8)	36 (19.0)	9 (17.6)	p=0.820[c]
Aortic valve calcium score - mean (SD)	949 (1469.0)	918 (1499.8)	1066 (1356.3)	p=0.166[b]
TTE parameters - mean (SD)				
Left ventricular ejection fraction	58.8 (10.2)	62.6 (6.9)	52.3 (18.7)	**p=0.006[a]**
Septal thickness (mm)	14.5 (2.2)	15.4 (2.4)	14.6 (1.1)	**p=0.010[b]**
Posterior wall thickness (mm)	12.9 (1.74)	13.3 (1.62)	12.4 (1.26)	**p=0.007[b]**
E/A ratio	0.92 (0.46)	0.98 (0.53)	1.04 (0.57)	p=0.112[b]
E/e'	15.7 (5.6)	16.5 (5.8)	14.4 (3.4)	p=0.105[a]
Aortic valve area (cm^2)	0.75 (0.16)	0.75 (0.17)	0.85 (0.8)	p=0.306[b]
Aortic valve peak transvalvular velocity	4.3 (0.56)	4.6 (0.45)	3.7 (0.62)	-
Aortic valve mean pressure gradient	46.4 (12.1)	52.3 (11.4)	32.7 (8.6)	-
Aortic valve area indexed to body surface area	0.43 (0.09)	0.44 (0.10)	0.50 (0.08)	**p=0.046[a]**
Tricuspid Annular Plane Systolic Excursion	22.1 (4.0)	22.3 (3.6)	21.9 (4.0)	p=0.067[a]
Estimated pulmonary systolic arterial pressure	40.4 (12.3)	37 (8.9)	40.4 (9.4)	p=0.439[b]
Coronary angiography diagnosis– no (%)				
Obstructive coronary artery disease	74 (31.6)	52 (28.1)	22 (44.9)	**p=0.025[c]**
Pre-intervention outcomes – no (%)	**70 (29.5)**	**50 (26.7)**	**20 (40.0)**	**p=0.783[c]**
Cardiovascular hospitalization	62 (26.2)	44 (23.5)	18 (36.0)	p=0.075[c]
Heart failure hospitalization	40 (16.9)	29 (15.5)	11 (22.0)	p=0.276[c]
MACE	13 (5.5)	6 (3.2)	7 (13.7)	**p=0.008[d]**
Non-fatal acute myocardial infarction	4 (1.7)	2 (1.1)	2 (4.0)	p=0.197[d]
Non-fatal Stroke	3 (1.3)	1 (0.5)	2 (4.0)	p=0.114[d]
Cardiovascular mortality	9 (3.8)	4 (2.1)	5 (10.0)	**p=0.022[d]**
All-cause mortality	17 (7.2)	10 (5.3)	7 (14.0)	p=0.058[d]

Table 1. Demographic and clinical characteristics, imaging parameters, and pre-procedures outcomes of patients undergoing transcatheter aortic valve implantation.

Statistical analysis: [a]T-student test, [b]Mann-Whitney U test, [c]Chi-square test, [d]Fisher's exact test.

Abbreviations: ACEI - Angiotensin-Converting Enzyme Inhibitor; ARB - Angiotensin II Receptor Blocker; ARNI - Angiotensin Receptor-Neprilysin Inhibitor; CCT – Cardiac Computed Tomography; MACE - major adverse cardiovascular events; SD - Standard Deviation; TTE - Transthoracic Echocardiography

Figure PO 20

(pts) show low-gradient (LG) SAS despite varied left ventricular ejection fraction (LVEF) values. As transcatheter aortic valve implantation (TAVI) waiting times remain long, identifying phenotype-related differences may support risk stratification.
Objectives: To characterize and compare pre-intervention outcomes between pts with HG and LG with SAS awaiting TAVI.
Methods: Single-center retrospective study of SAS pts who underwent pre-TAVI cardiac computed tomography (CCT) protocol between 2022 and 2025. Demographic and clinical data, transthoracic echocardiography (TTE), coronary angiography and CCT parameters were collected. SAS was defined by an aortic valve area (AVA) ≤ 1 cm^2 and categorized as HG (group A) or LG (group B) according to a mean gradient of ≥ 40 mmHg or < 40 mmHg, independently of stroke volume, respectively. The pre-procedural endpoint was a composite of: major adverse cardiovascular (CV) events (MACE), consisting of CV mortality, non-fatal acute myocardial infarction or stroke, CV hospitalization and all-cause mortality, whichever occurred first.
Results: Overall, 240 pts (81.7 ± 5.3 years) underwent pre-TAVI CCT: 189 in group A and 51 pts in group B. Although demographics were similar, group B showed exertional angina, arterial hypertension, heart failure, use of antithrombotic, β-blockers and diuretics more frequently (all $p < 0.05$). Group B also presented lower LVEF on both CCT ($p < 0.001$) and TTE ($p = 0.006$), thinner septal ($p = 0.010$) and posterior wall ($p = 0.007$) thicknesses on TTE and a higher aortic valve area indexed to body surface area ($p = 0.046$). Over a median follow-up of 8 months, the pre-procedural endpoint did not differ ($p = 0.783$), although MACE was significantly higher in group B ($p = 0.008$) (Table 1).
Conclusions: In our population of SAS pts awaiting TAVI, although pre-procedural endpoint did not differ, MACE was higher in pts with LG SAS, a group presenting higher prevalence of CV comorbidities, lower LVEF, and greater use of medications for heart failure management. Further studies may help clarify whether these pts may benefit from higher priority on the TAVI waiting list or if other factors are the driving force for their worse prognosis.

PO 21. ASSOCIATION BETWEEN DIFFERENT BIOMARKERS AND MORTALITY IN MODERATE OR ASYMPTOMATIC SEVERE AORTIC STENOSIS: A SYSTEMATIC REVIEW

José Agostinho Carneiro, Ana Rute Costa, Carla Araújo

Faculdade de Medicina da Universidade do Porto.

Introduction: Moderate and asymptomatic severe aortic stenosis (AS) are diseases with heterogeneous prognosis, making clinical decision-making complex. Traditional strategies that rely solely on symptomatology may miss the optimal window for intervention. Circulating biomarkers have the potential to enhance risk stratification and help to guide the timing of aortic valve replacement (AVR).
Objectives: To assess the association between biomarkers and mortality in patients diagnosed with moderate AS (both symptomatic and asymptomatic) or asymptomatic severe AS, through a systematic review.
Methods: Medline (via PubMed), Web of Science, and Scopus were searched from inception up to January 27, 2025. Cohort studies evaluating BNP, NT-proBNP, Troponin, galectin-3, or ST2 prior to AVR, and reporting mortality outcomes were eligible. Two independent reviewers performed screening,

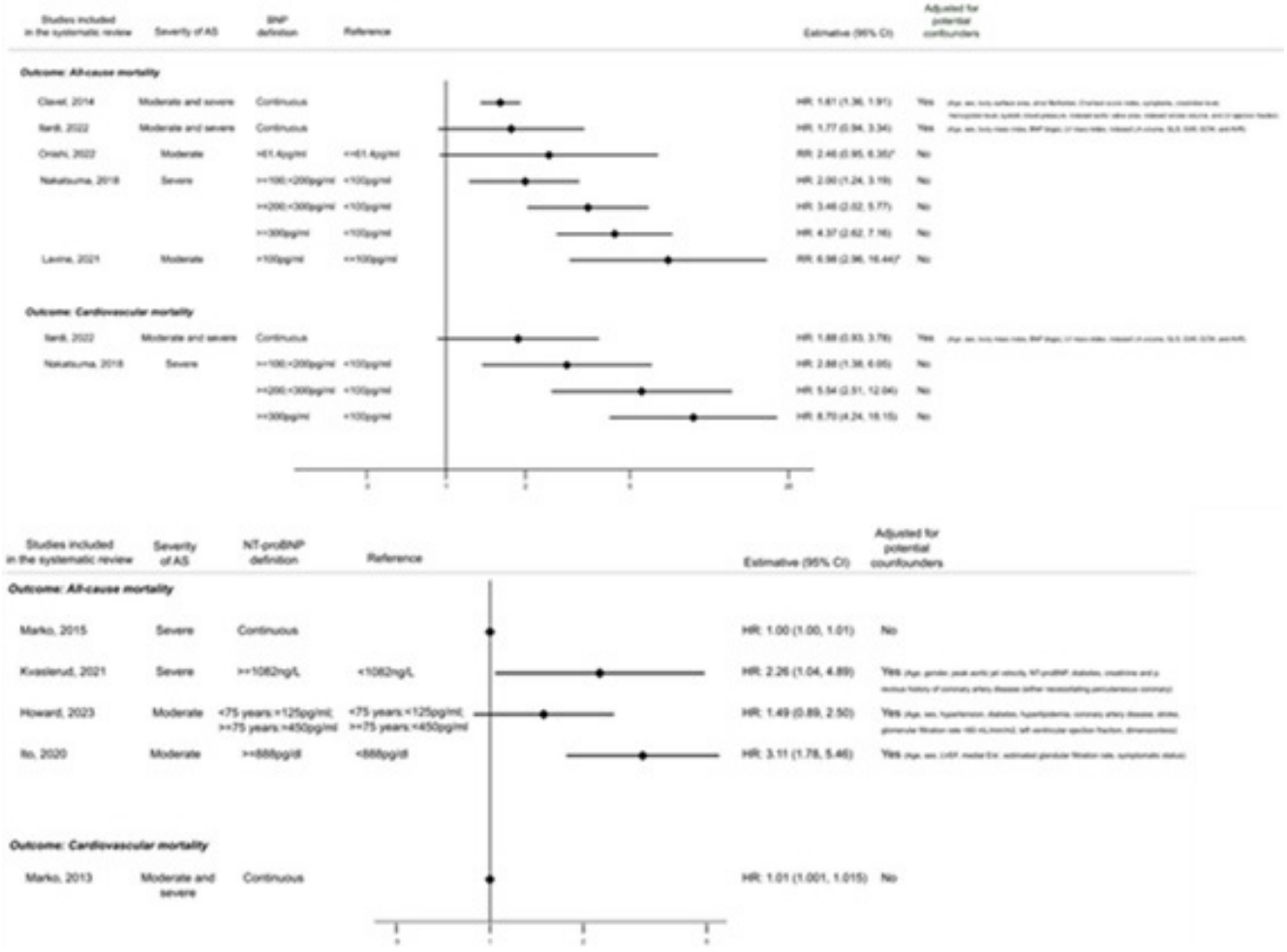

Figure PO 21

data extraction and quality assessment. Given the heterogeneity in exposure and outcome definitions, a narrative synthesis was performed.
Results: A total of ten studies met the inclusion criteria. Five studies focused on BNP, and the other five on NT-proBNP. No other biomarker was evaluated in this setting. Despite some heterogeneity in biomarkers' cut-points, most of the studies have shown a positive association between high levels of BNP and NT-proBNP and all-cause or cardiovascular mortality.
Conclusions: These findings support the use of BNP and NT-proBNP in patients with moderate or asymptomatic severe AS, according to the positive association with mortality. While they may potentially help to guide earlier AVR decisions, standardized thresholds and prospective validation are needed, along with further research on the prognostic role of additional biomarkers in this population.

PO 22. CLINICAL PREDICTORS OF MORTALITY IN MODERATE TO SEVERE AORTIC STENOSIS: A COHORT OF CARDIOLOGY OUTPATIENTS

António Afonso Angélico Gonçalves, Inês Arrobas Rodrigues, Marta Almeida, André Lobo, Marta Leite, Inês Neves, Francisco Sousa, Leonor Moura, Francisca Nunes, Rafael Teixeira, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Aortic stenosis (AS) is highly prevalent and is associated with substantial morbidity and mortality. Current treatment relies on surgical or percutaneous aortic valve replacement. However, accessibility remains a public health challenge. Identifying risk factors of adverse outcomes may help patient management.
Objectives: To identify baseline clinical parameters that best predict mortality in a cohort of outpatients with moderate to severe AS.
Methods: We retrospectively identified patients with a first diagnosis of moderate to severe AS and preserved left ventricular ejection fraction who presented in the cardiology outpatient clinic between 2012 and 2020. Patients were followed until August 2025. A multivariate stepwise logistic regression was used to identify predictors of mortality. The analysis was repeated for the subgroup aged < 75 years.
Results: A total of 914 patients were included (mean age 75.6 ± 8.8 years; 48.3% male; 88.0% with hypertension; 38.4% with diabetes; 15.9% smokers; 74.0% with dyslipidemia). Over a mean follow-up of 5.0 ± 3.4 years, 483 patients (52.8%) died. Independent predictors of higher mortality were age (Odds Ratio [OR] 1.11, 95% Confidence Interval [CI] 1.08-1.13, p < 0.001), diabetes (OR 1.79, 95%CI 1.30-2.48, p < 0.001), atrial fibrillation/flutter (OR 1.72, 95%CI 1.22-2.42, p = 0.002), and prior stroke (OR 1.95, 95%CI 1.22-3.10). Estimated glomerular filtration rate (eGFR) was inversely associated with mortality (OR -0.007, 95%CI -0.012 to -0.001, p = 0.026). In patients < 75 years, only prior stroke (OR 3.25, 95%CI 1.62-6.25, p = 0.001) and diabetes (OR 2.19, 95%CI 1.37-3.49, p = 0.001) remained significant positive predictors, whereas eGFR had a negative association with mortality (OR 0.990, 95%CI 0.984-0.998, p = 0.012).
Conclusions: Outpatients with moderate to severe AS have a high short-term mortality. Older age, diabetes, renal dysfunction, and a history of stroke or atrial fibrillation are associated with increase risk. Closer clinical surveillance and timely intervention may help reduce mortality in this population.

PO 23. BRIDGING THE GAP TO DEFINITIVE AORTIC VALVE TREATMENT: OUTCOMES AFTER BALLOON AORTIC VALVULOPLASTY

Tiago Filipe Aguiar[1], David Couto[2], Mariana Santos[2], Diana Ribeiro[2], Pedro Monteiro[2], Tiago Peixoto[2], Joana Ribeiro[1], Gilles Sousa[2], Raquel Santos[2], Bruno Brochado[2], João Silveira[2], André Luz[2]

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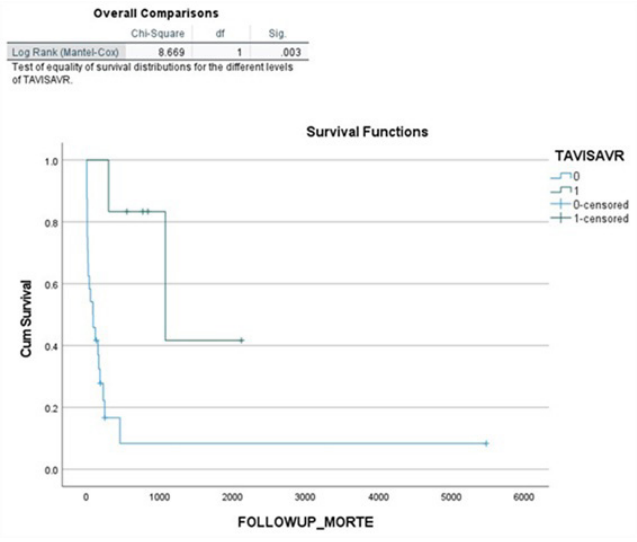
Introduction: While aortic valve replacement (AVR) is the definite treatment for aortic stenosis (AS), percutaneous balloon aortic valvuloplasty (BAV) is less expensive and easier to perform in emergent settings. BAV may be useful in selected cases as a bridge to AVR, urgent non-cardiac surgery, or palliative care.
Methods: We performed a retrospective single-centre cohort analysis of all patients submitted to BAV between 2011 and 2025. The primary endpoint was all cause mortality. Secondary endpoints included cardiovascular mortality, peri-procedural (in-hospital) complications and AVR.
Results: We included 31 consecutive BAV patients, 51.6% were female (n = 16), with median age of 80 years. The presentations at admission were of acute heart failure (n = 20), cardiorespiratory arrest (n = 4), chest pain (n = 2), and syncope (n = 1). The indications for BAV were bridge to recovery (n = 9), bridge to decision of further valvular intervention (n = 20), and bridge to urgent non-cardiac surgery (n = 2). One procedure was performed on a biologic heart valve, while the remaining were performed on native valves. Intra-operative invasive pressure gradients decreased from 55.2 ± 20.1 mmHg to 36.6 ± 13.0 mmHg on average. There was 1 intraprocedural death and 11 deaths during the index hospital admission. Non-fatal periprocedural complications included 6 major bleedings, 3 strokes and 2 advanced heartblocks requiring pacemaker implantation. Following the procedure, 5 patients were submitted to transcatheter aortic valve implantation, while 1 patient was submitted to surgical aortic valve replacement. Patients submitted to definite treatment had significantly better survival on Kaplan-Meier analysis (log rank 8.67, p = 0.003). In this population, concomitant coronary artery disease (p = 0.024) and malignancy (p = 0.018) were the major predictors of intra-hospital mortality, with no single transthoracic echocardiography measurement showing statistical significance.



Conclusions: BAV is a technique with specific indications and should be considered in selected patients with temporary contra-indications to definitive treatment. More studies are required to definite selection criteria for palliative and immediate recovery indications.

PO 24. DAVID PROCEDURE IN 100 CONSECUTIVE PATIENTS

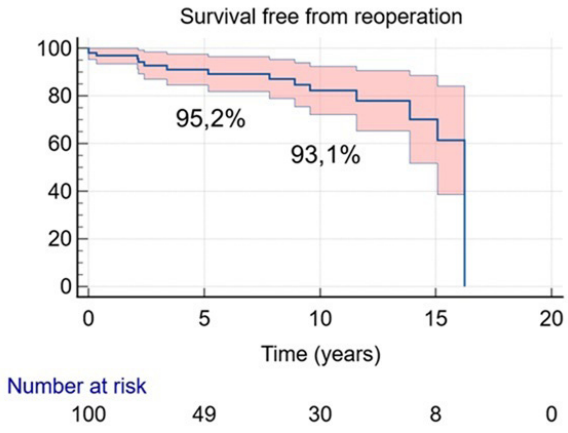
Márcio Madeira, Inês Alves, Maria Resende, Paulo Oliveira, José Pedro Neves, Marta Marques, Miguel Abecasis

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: The David procedure is associated with excellent long-term durability in high-volume centres, but outcomes rely heavily on technical expertise. Structured training and mentorship programmes play a key role in safely disseminating this complex operation. This study evaluates the safety and efficacy of the David procedure in a low-volume centre and underscores the importance of dedicated educational pathways.
Methods: Single-centre retrospective analysis of 100 consecutive patients (2007-2025). Mean age was 48.9 ± 18.2 years; 14% were female and 10%

paediatric. Bicuspid aortic valve (BAV) was present in 27%. Concomitant procedures were performed in 22%, including mitral repair (8%), tricuspid repair (4%), CABG (3%) and aortic arch surgery (3%). Valve repair with leaflet plication accompanied the procedure in 53%. Follow-up was complete (100%) with a mean duration of 6.2 ± 5.2 years. Primary endpoints were overall mortality and aortic valve reintervention. Statistical analyses included multivariate logistic regression, Cox regression and log-rank tests.

Results: Mean cardiopulmonary bypass and cross-clamp times were 159.9 ± 26.8 and 132.9 ± 19.9 minutes, respectively. Early complications were low: stroke 2%, re-exploration for bleeding 2%, mediastinitis 1%. In-hospital mortality was 2%. Kaplan-Meier analysis showed excellent long-term survival (Figure 1), with no significant difference between BAV and non-BAV patients (p = 0.155). Freedom from reintervention was significantly lower in BAV patients, confirmed as an independent predictor of reoperation (HR 17.7 CI95% 2,1-147,3; p = 0.002).



Conclusions: The David procedure is safe and effective even in a low-volume centre when performed by a trained and consistent surgical team. Although BAV anatomy increases the likelihood of reoperation, it does not affect long-term survival. Structured educational programmes and mentorship-such as dedicated aortic root and valve repair fellowships-are crucial to ensure high-quality, reproducible outcomes during the dissemination of this technically demanding procedure.

Sexta-feira, 24 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 1 | Sessão de Posters 05 - Ablação por campo pulsado: da viabilidade à fisiologia

PO 25. PULSED FIELD ABLATION FOR ATRIAL FIBRILLATION: IMPACT OF ADJUNCTIVE ABLATION BEYOND PULMONARY VEIN ISOLATION-A SYSTEMATIC REVIEW AND META-ANALYSIS

Tatiana Pereira dos Santos[1], Manuela Lopes[2], Ana L. Silva[1], Carolina Saleiro[1], Patrícia Alves[1], João André Ferreira[1], Pedro Sousa[1], Natália António[1], Lino Gonçalves[1]

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]ULS Coimbra/Hospital Pediátrico de Coimbra.

Introduction: Pulmonary vein isolation (PVI) is the cornerstone of atrial fibrillation (AF) ablation; however, its efficacy as a standalone strategy remains limited. Adjunctive ablation approaches, including left atrial posterior wall and mitral isthmus ablation, have gained interest, particularly with the emergence of pulsed field ablation (PFA). Evidence comparing PFA-guided PVI alone versus PVI plus adjunctive strategies remains inconsistent.

Methods: We conducted a systematic review and meta-analysis of studies evaluating the impact of PVI plus adjunctive ablation versus PVI alone on atrial arrhythmia recurrence at one year. A systematic search identified studies involving PFA for paroxysmal or persistent AF. Random-effects models were used to pool outcomes.

Results: From a total of 485 references, 5 observational studies comprising 1,382 patients were included (PVI plus: n = 438; PVI-only: n = 944). Recurrence of any atrial tachyarrhythmia at one year was similar between groups (pooled OR 1.02; 95%CI 0.72-1.46; I^2 = 25%; p = 0.89). Subgroup analyses-including PVI plus posterior wall ablation versus PVI-only (pooled OR 1.08; 95%CI 0.67-1.74; I^2 = 32%; p = 0.76) and persistent AF only (pooled OR 0.97; 95%CI 0.66-1.41; I^2 = 32%; p = 0.87) -also showed no significant differences. Overall complication rates were comparable (pooled OR 1.19; 95%CI 0.67-2.11; I^2 = 0%; p = 0.83), with no differences in major or minor complications: major complications (pooled

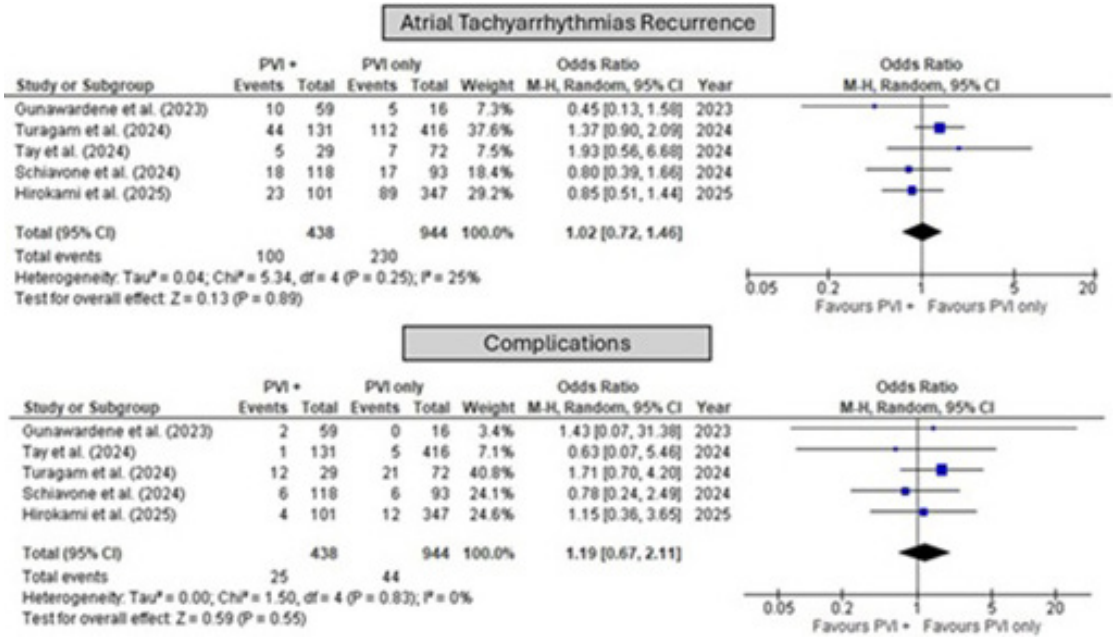


Figure PO 25

OR 1,52; 95%CI 0.63-3,65; I2 = 0%; p = 0.35) and minor (pooled OR 1,30; 95%CI 0.70-2,42; I2 = 0%; p = 0.42).
Conclusions: In AF ablation using PFA, adjunctive strategies added to PVI-predominantly posterior wall ablation-do not reduce arrhythmia recurrence and demonstrate similar safety profiles compared with PVI alone. These findings support the safety of PVI plus approaches; however, further high-quality studies are needed to clarify their clinical utility and identify optimal ablation strategies.

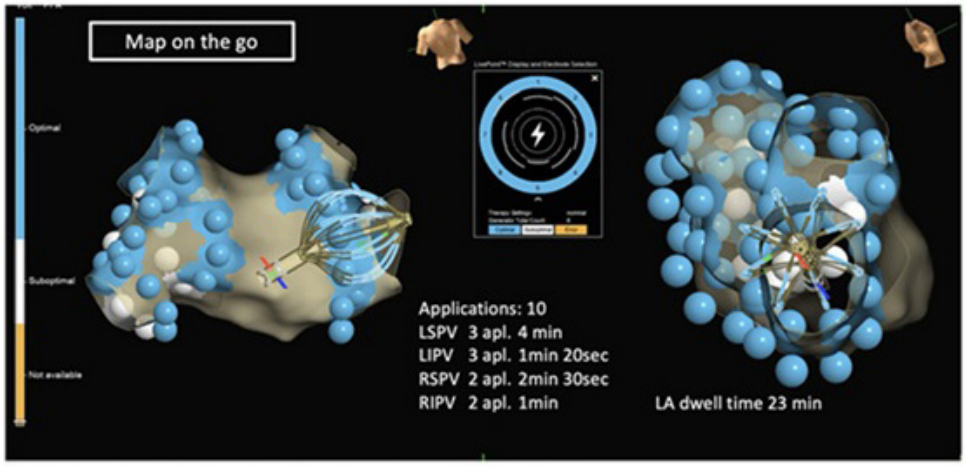
PO 26. FEASIBILITY AND TOLERABILITY OF PULSED-FIELD ABLATION FOR ATRIAL FIBRILLATION USING THE VOLT™ SYSTEM UNDER CONSCIOUS SEDATION: A REAL-WORLD EXPERIENCE

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

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Pulsed-field ablation (PFA) is an emerging, for atrial fibrillation (AF) ablation, allowing safer and shorter procedures but requiring deep sedation or general anaesthesia. The newly introduced VOLT™ mapping and ablation system (Abbott™), with the balloon-in-basket design and bipolar energy delivery, enables more efficient lesion formation with a simplified workflow, potentially reducing acute procedural pain and requiring lower levels of sedation. Data on feasibility under conscious sedation remain limited. This study aimed to evaluate procedural performance, anesthetic management, and acute safety outcomes in patients undergoing AF ablation using this technology.
Methods: Single-center registry included patients who underwent AF ablation using the VOLT™ system between June and November 2025. Patient selection for conscious sedation followed predefined criteria: BMI < 30 kg/m^2, low procedural anxiety, prior successful procedures under sedation, anticipated procedure time < 45 minutes, and absence of significant obstructive sleep apnea or chronic lung disease. Sedation protocols included midazolam, remifentanil, and dexmedetomidine, with adjunctive propofol in selected cases. Procedural duration, fluoroscopy time, acute success, and complications were recorded.
Results: A total of 43 patients were included (mean age 61 ± 10 years, 63% male, 72% with paroxysmal AF, 21% Redo procedures). Mean procedure duration was 64 ± 22 min and fluoroscopy time was 10 ± 6 min. The mean number of PVI applications per patient was 19 ± 9, and additional lesions averaged 7 ± 9 applications. Twenty-four patients (56%) underwent PVI-only procedures while and the reminder (44%) required PVI plus additional

Ablation with VOLT™ PFA – PVI with conscious sedation



PFA ablation for AF Using the VOLT™ system – procedural characteristics (N = 43)	
Baseline characteristics of the patients	
Age (years)	61 ± 10
Male sex	27 (63%)
Procedural characteristics	
Redo AF Ablation	9 (21%)
AF at beginning of procedure	14 (33%)
PVI-only ablation	24 (56%)
PVI + other lesions	19 (44%)
Posterior wall	14 (33%)
Cavotricuspid isthmus	5 (12%)
Mitral annulus	2 (5%)
Other	2 (5%)
Total number of aplications (n)	19 ± 9
PVI	13 ± 2
Other lesions	7 ± 9
Total procedural duration (min)	64 ± 22
Fluoroscopy time (min)	10 ± 6
Radiation dose (mGy)	133 ± 79
Sedation characteristics	
General anaesthesia	15 (35%)
Conscious sedation	28 (65%)
Dexmedetomidine + Midazolam + Remifentanil	20 (71%)
Propofol + Midazolam + Remifentanil	5 (18%)

PFA – Pulsed-field ablation; AF - atrial fibrillation; PVI – pulmonary vein isolation.

Figure PO 26

lesions- figure 1. Complete acute PVI was achieved in all cases. No major periprocedural complications were observed. General anesthesia was used in 35% of cases, while 65% were performed under conscious sedation. The most used conscious sedation regimen included dexmedetomidine + midazolam + remifentanil (n = 20; 71%). In the conscious sedation group, no remapping was required due to patient movement during energy application, nor were there conversions to general anesthesia. In two cases, sedation was temporarily deepened to a non-conscious level due to discomfort/anxiety. Overall, pain and discomfort were minimal, and operators reported preserved catheter stability throughout the procedures.
Conclusions: In our initial experience, the VOLT™ system demonstrated high acute efficacy and a favorable safety profile. Procedures performed under conscious sedation were feasible, well tolerated, and efficient, with complete acute success and no complications. These real-world findings supports conscious sedation as a feasible alternative to general anaesthesia, potentially facilitating same-day workflows and optimizing resource utilization in AF ablation programs.

PO 27. IMPACT OF PULSED FIELD ABLATION ON LEFT ATRIAL FUNCTION

Inês Arrobas Rodrigues[1], António Gonçalves[1], Marta Almeida[1], André Lobo[1], Rafael Teixeira[1], Mafalda Carrington[1], João Almeida[1], Marco Oliveira[1], Silvia Diaz[2], Francisco Sampaio[1], Paulo Fonseca[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Faculdade de Medicina da Universidade do Porto.

Introduction and objectives: Pulsed field ablation (PFA) is a novel, non-thermal and selective atrial fibrillation (AF) ablation modality based on the process of irreversible electroporation. It holds the promise of creating transmural and durable lesions while reducing the risk of collateral damage. Its impact on left atrium (LA) function, however, remains unclear. This study evaluated the effects of PFA on LA function.
Methods: This prospective observational study included all patients undergoing AF ablation with PFA between March and October 2025. LA function was assessed using LA strain (LAS) before the procedure (T1), the day after (T2), and at 3-month follow-up (T3). Study endpoints were temporal changes in LAS across the 3 time points and differences in LAS variation between patients undergoing pulmonary vein isolation (PVI) alone versus PVI plus additional posterior wall (PW) lesions.
Results: 73 patients (35.6% female; median age 67 [IQR 59.5-72]; 58.9% persistent AF) underwent PVI with PFA, of whom 23.3% had additional PW lesions. Median LA volume was 40 mL/m² (35-48) and mean LVEF was 57.8 ± 8.2%. The proportion of patients in sinus rhythm (SR) differed significantly across time points (60.5% at T1, 98.4% at T2, 93% at T3). In the overall cohort, mixed-effects modelling showed no significant changes in reservoir LA strain (LARS) across time points (20.3% [95%CI 17.1-23.5] at T1, 19.9% [95%CI 17.8-22] at T2, 23.3% [95%CI 20.5-26] at T3, overall p = 0.092). Among patients in SR, baseline LARS was higher (25.1%, 95%CI 21.9-28.2). After ablation, LARS significantly decreased (20.2%, 95%CI 18.5-22.3; p = 0.005) and recovered at T3 to values comparable to baseline (24.1% [95%CI 21.3-26.8]; $p_{T2\text{-}T3}$ = 0.04; $p_{T1\text{-}T3}$ = 1.00). Contractile LAS showed a similar pattern; conduit LAS remained unchanged. Compared with PVI alone, patients receiving additional PW lesions had larger LA volumes (47.5 [IQR 42-4.8] vs. 42 [IQR 37.8-46.2], p = 0.031) and lower T1 LARS (11.7% [IQR 5.9-16.6] vs. 26.7% [IQR 12.7-36], p = 0.049). Additional PW lesions were associated with poorer LARS recovery at T3 ($\Delta LARS_{T3\text{-}T2}$ = +6.0% [95%CI 2.7-9.2] for PVI vs. -2.8% [-9.3 to 3.2] for PVI+PW, p = 0.024). Despite a similar trend for contractile LAS, the difference between groups did not reach statistical significance.
Conclusions: AF ablation with PFA resulted in a transient reduction in LARS, that fully recovered at 3 months. Additional PW lesions were associated with poorer LARS recovery at 3 months, compared with PVI alone.

PO 28. ONE THOUSAND CASES OF PULSED-FIELD ABLATION: REAL-WORLD INSIGHTS

Samuel Azevedo, Rita Almeida Carvalho, Daniel Gomes, Daniel Matos, Gustavo Rodrigues, João Carmo, Francisco Moscoso Costa, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Francisco Bello Morgado, Pedro Pulido Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Pulmonary vein isolation (PVI) is the standard catheter-based treatment for atrial fibrillation (AF). Due to its safety profile and efficacy, pulsed field ablation (PFA), a non-thermal energy, has been increasingly adopted as the default strategy across many centers. We aimed to analyse the real-world efficacy and safety of PFA for the treatment of atrial arrhythmias in a tertiary high-volume center.
Methods: All patients undergoing PFA for atrial tachyarrhythmias (i.e., AF and atrial flutter [AFL]) between July 2022 and November 2025 were included in the registry. Baseline characteristics included age, sex, left atrial volume (LAVi), left ventricular ejection fraction and history of prior catheter ablation. Procedural metrics included procedure duration, fluoroscopy time, and use of general anesthesia/sedation. The outcome of interest was arrhythmia recurrence, defined as AFL/AF documented on ECG, Holter or clinical records after a 3-months period. Safety endpoint encompassed periprocedural complications, including cardiac tamponade, stroke, vascular access complications, and death.
Results: A total of 1,000 patients were included (mean age 64 ± 11 years, 62,5% male, LAVI 62 ± 24, 51% paroxysmal AF, 15% atypical atrial flutter, 21% redo procedures). The PFA systems used were Farapulse (73%), Varipulse (18%), Volt (7%) and Affera (2%). Regarding ablation sets, most patients underwent PVI alone (58%) or combined with other lesions posterior wall isolation (32,6%), posterior mitral isthmus line (10,5%), anterior line (2,6%) and cavotricuspid isthmus isolation (5,3%). Mean procedure time was 75 ± 26 min, and fluoroscopy duration was 8.5 ± 6 min. A total of 748 procedures (75%) were performed under general anesthesia (GA), whereas the others were under sedation with remifentanil, dexmedetomidine and midazolam. Periprocedural complications were documented in 0.8% (2 tamponade, 2 vascular access). During a median follow-up of 10 months (IQR 6-14), a total

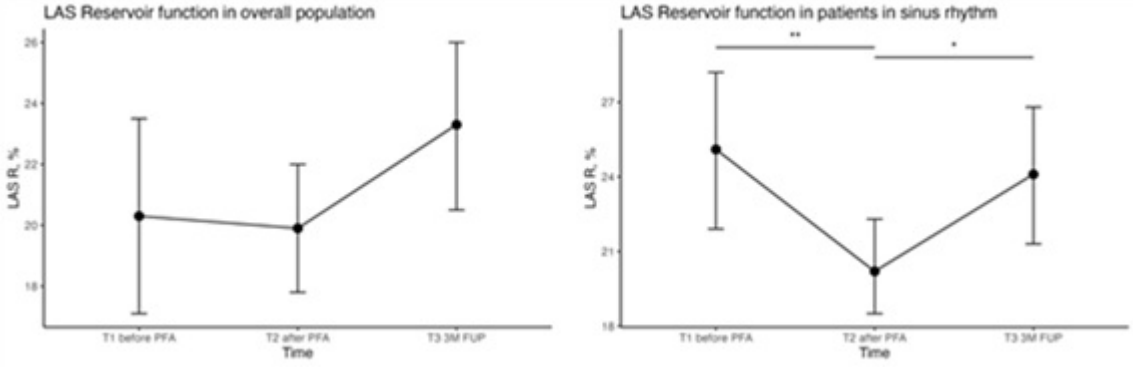


Figure PO 27

of 13% suffered arrhythmia recurrence. Results were not different whether performed under GA or sedation. Efficacy was not significantly different when compared to our center and other high-volume center registries of AF ablation using thermal energies (RF or cryo).

Baseline Characteristics	Pulsed Field Ablation n=1000
Age, years	64±11years
Male	625 (62,5%)
Body mass index, kg/m²	28.1±5.5
CHA2DS2-VASc score	2.8±1.4
Session type	
Paroxysmal AF	511 (51%)
Atypical FLA	151 (15%)
Redo AF	208 (21%)
Echocardiogram/CT scan findings	
LVEF %	53±12%
LAVi by CT, ml/m²	62±24
Ablation target	
Pulmonary Vein Isolation	975 (97.5%)
Posterior Wall Isolation	326 (32.6%)
Anterior Wall	26 (2.6%)
Cavotricuspid isthmus	53 (5.3%)
Mitral line	105 (10.5%)
Procedure time, min	75±26
Fluoroscopy time, min	8.5±6
Complication	4 (0.8%)

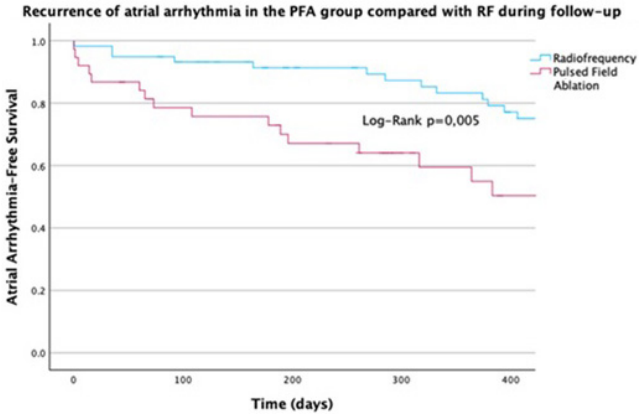
Conclusions: In this comprehensive evaluation of 1,000 PFA cases, the procedure showed a good efficacy and safety profile. PFA has become the standard catheter-based treatment of AF.

PO 29. IS PFA READY FOR ATYPICAL ATRIAL FLUTTER?

Samuel Azevedo[1], Inês Coutinho Santos[2], Daniel Gomes[1], Daniel Matos[1], Gustavo Rodrigues[1], João Carmo[1], Francisco Moscoso Costa[1], Pedro Galvão Santos[1], Pedro Carmo[1], Diogo Cavaco[1], Francisco Bello Morgado[1], Pedro Pulido Adragão[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Pulsed field ablation (PFA) has emerged as a non-thermal modality with high tissue selectivity and favorable acute safety in the treatment of atypical atrial flutter (AAF). Although PFA is hypothesized to improve acute procedural outcomes due to its rapid and homogeneous lesion formation, its long-term performance compared with radiofrequency (RF) ablation remains uncertain. Experimental and clinical observations suggest that reduced acute collateral and myocardial injury with PFA may paradoxically lead to incomplete substrate modification and higher arrhythmic recurrence over time.
Methods: We retrospectively analyzed 98 consecutive patients who underwent catheter ablation for AAF between January 2023 and September 2025. Baseline characteristics included age, sex, CHA2DS2-VASc score, LVEF, CT-derived left atrial volume index (LAVI), and history of prior AF ablation. Patients were treated with RF (n = 60, 61%), PFA (n = 35, 36%), or a combination of both (n = 3, 3%). Acute success was defined as termination of the clinical flutter during ablation and non-inducibility of atrial arrhythmias at the end of the procedure. Long-term recurrence was defined as documented AAF or AF on ECG or Holter monitoring during follow-up. Median follow-up was 13 (6-21) months.
Results: Mean age was 69 ± 13 years, 47% were female, the mean CHA2DS2-VASc score was 3 ± 1, and the CT-LAVI was 67 ± 20 mL/m². Regarding ablation lesion sets, 33% of lines were delivered for pulmonary vein isolation, 24% targeted the posterior wall, 27% corresponded to a mitral isthmus line, and 16% were performed at other atrial sites. Acute procedural success was numerically higher with PFA compared with RF (90% vs. 83%), although this difference did not reach statistical significance (p = 0.397). Of the total procedures, 24 (24,5%) were redo radiofrequency ablations. During follow-up, the outcome of interest occurred in 34 (34,7%) patients. In the mid-term, PFA was independently associated with a significantly higher risk of arrhythmia recurrence compared with RF (HR 2.62, 95%CI 1.31-5.26, p = 0.007).



Conclusions: In this contemporary cohort of AAF, approximately one-third of patients experienced arrhythmia recurrence. Although acute success was numerically higher with PFA, mid-term recurrence rates were greater in this group. This pattern may reflect the reversible or retractile characteristics of acute PFA lesions, which could limit long-term substrate modification. These results highlight the need to refine PFA lesion strategies in complex atrial arrhythmias and underscore the importance of prospective evaluation of long-term lesion durability.

PO 30. REAL-WORLD FEASIBILITY AND OUTCOMES OF CTI PULSED-FIELD ABLATION DURING PVI

Rita Almeida Carvalho, Samuel Azevedo, Rita Barbosa Sousa, Daniel Gomes, Daniel Matos, Gustavo Rodrigues, João Carmo, Pedro Galvão Santos, Pedro Carmo, Francisco Moscoso Costa, Diogo Cavaco, Pedro Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Atrial flutter (AFL) and atrial fibrillation (AF) frequently co-exist and may potentiate one another. Cavotricuspid isthmus (CTI) ablation is the treatment of choice for typical CTI-dependent AFL, whereas pulmonary vein isolation (PVI) is the gold-standard catheter-based therapy for AF. Although pulsed-field ablation (PFA) has been widely adopted for PVI in recent years, CTI ablation with PFA remains off-label and supported by limited real-world evidence. We aimed to evaluate the feasibility, efficacy, and periprocedural safety of CTI ablation using PFA in patients undergoing combined PVI and CTI ablation.
Methods: Single-center retrospective study including consecutive patients referred for PVI with PFA who underwent concomitant CTI ablation between 2022 and 2025. CTI ablation was performed using either PFA or radiofrequency (RF) catheters from commercially available systems, according to operator preference. Acute success was defined as complete bidirectional CTI block, confirmed by differential pacing after a waiting period. Procedural characteristics and periprocedural complications were recorded. The primary outcome was defined as recurrence of typical AFL documented on 12-lead ECG, Holter monitoring, or clinical records. Recurrence of any sustained atrial tachyarrhythmia was the secondary outcome.
Results: A total of 65 patients were included (68% male; mean age 66.8 ± 11.2 years). Redo procedures accounted for 12% of cases for PVI and 3% for CTI. Typical AFL had been previously documented in 71% of patients, while the remaining 29% had CTI-dependent AFL induced during the index PVI procedure. Concomitant CTI ablation was performed using PFA in 50 procedures (77%) and RF in 15 (23%). Within the PFA group, the systems used were FARAPULSE™ [Boston Scientific] (62%), VARIPULSE™ [Biosense Webster] (14%), Volt™ [Abbott] (14%), Affera™ [Medtronic] (8%) and CENTAURI™ [Galaxy Medical] (2%). Acute bidirectional CTI block was achieved in all cases. No periprocedural adverse events, including cardiac tamponade, vascular complications, stroke/transient ischaemic attack or procedure-related death were documented. Over a median follow-up of 8 months (IQR 4-12), typical

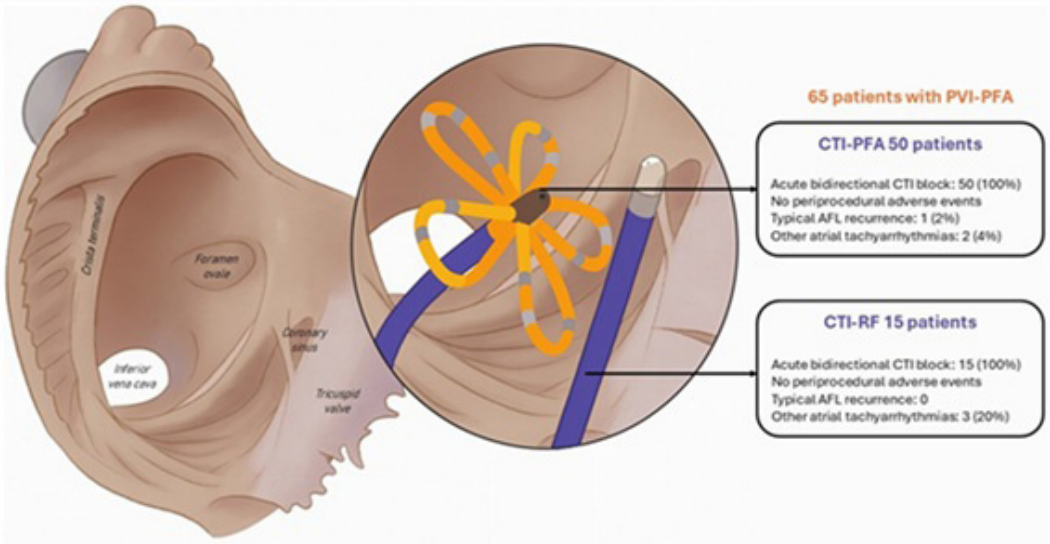


Figure 1. Right atrial view showing cavotricuspid isthmus (CTI) ablation with pulsed-field ablation (PFA) versus radiofrequency (RF) catheters and corresponding outcomes.

Figure PO 30

AFL recurred in 1 patient (2%) in the PFA group and none (0/15) in the RF group. The secondary outcome occurred in 2 patients (4%) in the PFA group and 3 patients (20%) in the RF group (p = 0.130).
Conclusions: In this real-world cohort undergoing combined PVI and CTI ablation, CTI-PFA achieved 100% acute bidirectional block without any significant periprocedural complication. Mid-term recurrence of typical AFL was rare and comparable to RF-based CTI ablation. These findings support prospective controlled studies to confirm lesion durability and clarify the role of CTI-PFA in integrated AF ablation strategies.

Sexta-feira, 24 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 2 | Sessão de Posters 06 - Balões revestidos na ICP contemporânea

PO 31. ARE DRUG-COATED BALLOONS READY FOR NON-SMALL-VESSELS? INSIGHTS FROM A FOUR-YEAR REAL-WORLD ANALYSIS

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Introduction: Drug-coated balloons (DCB) are increasingly used in percutaneous coronary interventions, particularly in small coronary vessels. We aimed to evaluate angiographic performance and clinical outcomes according to vessel size in a four-year single-centre DCB registry.
Methods: Consecutive patients treated with DCB between 2021-2025 were included. Lesions were classified as small-vessel (< 3 mm) or non-small-vessel (≥ 3 mm) using DCB diameter. Outcomes included angiographic success (residual stenosis < 30% with TIMI 3), recoil, bailout stenting, and clinically driven target lesion/vessel revascularisation (TLR/TVR).
Results: A total of 150 patients were included, 93 (62%) with small-vessel lesion and 57 (38%) non-small-vessel lesion. Baseline demographic characteristics were similar (mean age 67.25 ± 10.27 vs. 66.65 ± 10.35 years, p = 0.730), predominantly men (p = 0.612). DM and history of previous ACS was significantly more prevalent in the non-small lesion group (*p* = 0.014 and p < 0.001). There were no significant differences for hypertension and dyslipidemia. Regarding clinical presentation at admission (STEMI, NSTEMI, unstable angina or CCS), there were no significant differences (p = 0.271). Treated vessels (LAD, Cx and RCA) were comparable between groups, *p* = 0.561. Angiographic success was high and comparable (96.5% vs. 96.8%, p = 0.925). Recoil patterns showed no significant differences across vessel sizes (p = 0.277). Bailout stenting remained infrequent (5.4% vs. 7.1%, p = 0.440). TLR occurred only in the small-vessel group (3.5%), with none in non-small-vessel group (p = 0.069). TVR showed no meaningful difference (p = 0.200). Periprocedural complications including MI, major bleeding and contrast-induced nephropathy were absent in both groups. There were no unplanned readmissions at 6 months. No cardiovascular deaths were recorded.
Conclusions: In this four-year real-world registry, DCB angioplasty achieved uniformly high angiographic success and an excellent safety profile in both small and non-small-vessel lesions. Although DCBs have historically been used predominantly in small vessels, our study demonstrates that they are equally safe and effective in larger-calibre vessels. These results support the reliability and consistency of DCB-based PCI across different vessel sizes.

PO 32. ACUTE CORONARY SYNDROME VS. CHRONIC CORONARY SYNDROME DRUG-ELUTING BALLOON PCI: A LESION-LEVEL ANALYSIS OF PREDICTORS AND OUTCOMES OF TARGET LESION FAILURE

Lucas Hamann, Joana Guerreiro Pereira, Daniel Faria, Sofia Andraz, J. Massa Pereira, Hugo Costa, Pedro de Azevedo, Patrícia Franco, João Moura Guedes, João Bispo, Jorge Mimoso, Hugo Vinhas

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Introduction: Drug-eluting balloon (DEB) angioplasty is increasingly used across the spectrum of chronic coronary syndromes (CCS) and acute coronary syndromes (ACS), but comparative lesion-level data for ACS versus CCS procedures are limited.
Objectives: To compare lesion-level outcomes between ACS and CCS DEB percutaneous coronary intervention (PCI) and to identify independent predictors of target lesion failure (TLF).
Methods: We conducted a retrospective single-centre analysis of 398 consecutive patients (mean age 67.1 ± 12.6 years, 83.2% male), from 2023

and 2024, treated with DEB, yielding 518 DEB-treated lesions with a follow-up of more than 1 year. Hypertension, dyslipidaemia and diabetes were present in 77.4%, 78.4% and 38.2% of patients, respectively. Baseline presentation was STEMI in 21.4%, NSTEMI 29.1%, unstable angina 4.3% and chronic coronary syndrome 45.0%. ACS (STEMI/NSTEMI/UA for 271 lesions (52.3%), whereas 247 lesions (47.7%) were CCS. Lesion complexity was frequent (bifurcation 40.9%, *de novo* 75.5%, in-stent restenosis 24.9%). The primary endpoint was lesion-level TLF (composite of TLR and non-TLR events including MI/CV death); secondary endpoints were TLR and TLF components. Univariate comparisons (Fisher's exact test) and penalised multivariable logistic regression were performed.

Results: Over follow-up, TLF occurred in 12/271 ACS lesions (4.43%) versus 2/247 CCS lesions (0.81%; odds ratio [OR] 5.68, p = 0.013). In contrast, TLR rates were low and similar (0.74% ACS vs. 0.81% CCS, OR 0.91, p = 1.000). Subanalysis of TLF components and secondary outcomes showed increased cardiovascular death (2.95% vs. 0.81%, p = 0.110) and all-cause death (4.43% vs. 2.04%, p = 0.146), while follow-up MI rates were comparable (2.58% vs. 2.02%, p = 0.775), as well as numerically higher non-TLR events in ACS lesions (18.1% vs. 12.6%, p = 0.089). In multivariable analysis, ACS presentation remained an independent predictor of TLF (adjusted OR 6.15, 95%CI 1.66-22.82; p = 0.007), and bifurcation lesions were also associated with higher TLF risk (adjusted OR 4.48, 95%CI 1.30-15.44; p = 0.018); other lesion characteristics, AHA class and segment location were not significant.

Table 1 – Baseline Characteristics (Per-Patient + Lesion)

Variable	Value/Events	% or SD
Total Number of Patients	398	
Age	67.1	±12.6
BMI	28.0	± 12.5
CrCl	73.5	± 26.7
Gender	331 M / 66 F	83.2% male
Hypertension	308	77.4%
Dyslipidemia	312	78.4%
Diabetes Melitus	152	38.2%
Smoker	107	26.9%
Ex-smoker	92	23.1%
COPD	21	5.3%
Chronic Kidney Disease	84	21.1%
Heart Failure	82	20.7%
Afib/flutter	36	9.0%
Baseline Presentation:		
STEMI	85	21.4%
NTEMI	116	29.1%
UA	17	4.3%
CCS	179	45.0%
Number of Lesions	518	
ACS	271	52.3%
Bifurcation	212	40.9%
De_novo_lesion	391	75.5%
Stent_restenosis	129	24.9%

Table 2 – Univariate Lesion Outcomes (ACS vs CCS)

Endpoint	OR	p-value	CCS no-event	CCS event	ACS no-event	ACS event
TLF	**5.68**	**0.013**	245	2	259	12
TLR	0.91	1.000	245	2	269	2
Non-TLR	1.54	0.089	216	31	222	49
CV death	3.73	0.110	245	2	263	8
All-cause death	2.22	0.146	240	5	259	12
MI	1.28	0.775	242	5	264	7

Table 3 – Multivariable Penalized Logistic Regression for TLF

Predictor	Adjusted OR	95% CI	p-value
ACS	6.15	1.66 – 22.82	0.007
Bifurcation	4.48	1.30 – 15.44	0.018
Stent_restenosis	2.62	0.76 – 8.97	0.126
Dissection	2.47	0.58 – 10.51	0.221
Perforation	1.00	0.01 – 94.73	1.000
No_reflow	1.00	0.01 – 106.83	1.000
AHA_B	0.49	0.12 – 2.02	0.324
AHA_C	1.00	0.15 – 6.52	1.000
Seg_LAD	1.03	0.19 – 5.53	0.970
Seg_LCx	0.87	0.16 – 4.86	0.872
Seg_RCA	1.00	0.13 – 7.61	1.000
Seg_Diagonal	0.41	0.06 – 2.65	0.350
Seg_OM	0.87	0.14 – 5.54	0.878
Seg_PDA	0.13	0.00 – 10.62	0.369
Seg_PL	1.00	0.10 – 10.24	1.000

Conclusions: In this real-world lesion-level cohort, ACS DEB PCI was associated with a higher risk of TLF, predominantly due to increases in target-vessel MI and cardiac death, with no significant difference in TLR compared with CCS interventions. These findings support careful procedural planning and optimal lesion preparation when treating ACS with DEBs, particularly in bifurcation lesions, where the combined biological and anatomical complexity compounds risk. Prospective studies are needed to further refine the role of DEBs in the ACS PCI setting.

PO 33. PREDICTORS OF BAILOUT STENT IMPLANTATION AFTER DRUG-ELUTING BALLOON ANGIOPLASTY: A LESION-LEVEL ANALYSIS IN CONTEMPORARY REAL-WORLD PCI

Lucas Hamann, Daniel Faria, Joana Guerreiro Pereira, Sofia Andraz, João Moura Guedes, João Bispo, Hugo Costa, Pedro de Azevedo, Jorge Mimoso, Hugo Vinhas

ULS Algarve/Hospital de Faro.

Introduction: Drug-eluting balloon (DEB) angioplasty is increasingly used across a wide spectrum of coronary lesions, but unplanned rescue stenting remains a clinically relevant failure mode that may indicate insufficient lesion preparation, balloon oversizing, or vessel trauma. Despite its procedural importance, predictors of rescue DES implantation in real-world DEB practice remain insufficiently characterized.

Methods: We conducted a retrospective single-centre analysis of 398 consecutive patients, from 2023-2024 (mean age 67.1 ± 12.6 years, 83.2% male) treated with DEB, yielding 518 DEB-treated lesions, with one year follow-up. Rescue stenting was defined as unplanned DES implantation following DEB inflation due to acute vessel compromise. Candidate predictors included hybrid treatment strategy, bifurcation anatomy, lesion subtype (AHA class), vessel segment, DEB diameter and length, lesion preparation (NC/scoring/cutting balloons), and procedural complications (dissection, no-reflow). Univariate and multivariable penalized logistic regression models were applied.

Results: Rescue stenting occurred in 35 lesions (6.8%). On univariate analysis, procedural complications were the strongest correlates: any dissection (55.6% rescue rate; OR ≈ 57.9) and no-reflow (60.0%; OR ≈ 22.5) demonstrated the highest risk, whereas bifurcation anatomy and hybrid strategy showed no significant effect. A detailed classification of dissection severity showed a stepwise rise in risk: Type A (40.7%; OR 31.8), Type B (90.0%; OR 416.7), and Type C (62.5%; OR 77.2) compared with no dissection, confirming a powerful gradient of risk linked to deeper vessel injury. Beyond complications, DCB diameter emerged as a significant independent predictor: each 1-mm increase was associated with 4.22-fold higher odds of requiring rescue DES (95%CI 1.63-10.93, p = 0.003). Conversely, DEB length, lesion type, restenosis, vessel segment, and hybrid approaches were not independent predictors. A predefined cutoff analysis showed that DCB > 2.5 mm did not significantly increase rescue risk (8.6% vs. 5.9%; OR 1.49, p = 0.26).

Conclusions: In contemporary DEB practice, rescue stenting is uncommon (6.8%) but overwhelmingly driven by intraprocedural complications, especially flow-limiting dissections and no-reflow, with a strong graded effect across dissection types. Importantly, larger DCB diameter independently predicts a significantly higher risk of bailout DES, suggesting that subtle oversizing may predispose to vessel trauma, recoil, or propagation of dissection. These findings emphasize the need for precise vessel sizing, meticulous lesion preparation, and cautious inflation strategy, particularly when using larger DCBs or in lesions predisposed to dissection.

Table 1 – Univariate Predictors of Rescue Stenting

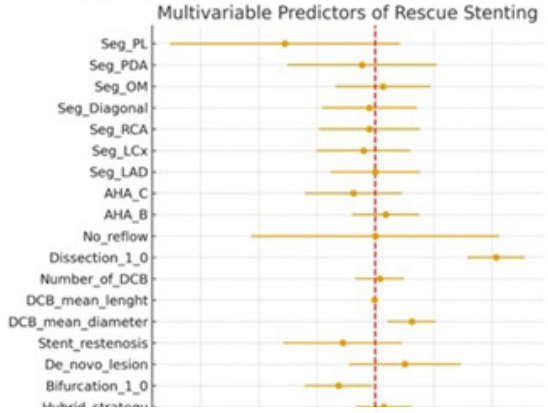
Predictor	N_0	Events_0	Rate_0	N_1	Events_1	Rate_1	OR	p-value
Hybrid_strategy	232	16	6.897	286	19	6.643	0.961	1.000
Bifurcation	306	24	7.843	212	11	5.189	0.643	0.287
Stent_restenosis	389	31	7.969	129	4	3.101	0.370	0.067
Dissection	473	10	2.114	45	25	55.556	57.875	<0.001
No_reflow	513	32	6.238	5	3	60.000	22.547	0.003

Table 2 – Multivariable Predictors of Rescue Stenting

Predictor	Adjusted OR	95% CI	p-value
Hybrid_strategy	1.40	0.46 – 4.21	0.552
Bifurcation	0.23	0.06 – 0.90	0.035
De_novo_lesion	3.22	0.36 – 29.17	0.298
Stent_restenosis	0.28	0.03 – 2.89	0.284
DCB_mean_diameter	4.22 per mm-increase	1.63 – 10.93	0.003
DCB_mean_lenght	0.97	0.90 – 1.05	0.446
Number_of_DCB	1.19	0.46 – 3.11	0.721
Dissection	119.34	37.97 – 375.08	0.000
No_reflow	1.00	0.01 – 135.16	1.000
AHA_B	1.51	0.40 – 5.72	0.543
AHA_C	0.42	0.06 – 2.88	0.380
Seg_LAD	1.00	0.17 – 5.93	1.000
Seg_LCx	0.63	0.10 – 4.02	0.624
Seg_RCA	0.79	0.11 – 5.80	0.818
Seg_Diagonal	0.79	0.12 – 5.17	0.806
Seg_OM	1.35	0.21 – 8.79	0.755
Seg_PDA	0.59	0.03 – 11.19	0.724
Seg_PL	0.03	0.00 – 2.62	0.123

Dissection Type	Code	N	Rescue Stent Events	Rescue Rate (%)	OR vs No Dissection	p-value
No Dissection	0	473	10	2.11%	–	–
A	1	27	11	40.74%	31.83	P<0.0001
B	2	10	9	90.00%	416.70	P<0.0001
C	3	8	5	62.50%	77.17	P<0.0001
F	4	*not present*	–	–	–	–
E	5	*not present*	–	–	–	–
F	6	*not present*	–	–	–	–

Group	N	Rescue	Rate	OR
DCB ≤ 2.5 mm	355	21	5.9%	1.49 (p=0.26)
DCB > 2.5 mm	163	14	8.6%	



PO 34. DRUG-ELUTING BALLOON ANGIOPLASTY IN COMPLEX VS. NON-COMPLEX CORONARY LESIONS: A REAL-WORLD LESION-BASED OUTCOME STUDY

Lucas Hamann, Daniel Faria, Sofia Andraz, Joana Guerreiro Pereira, Hugo Costa, Pedro de Azevedo, Hugo Palmeiro, João Bispo, João Moura Guedes, Jorge Mimoso, Hugo Vinhas

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Introduction: Drug-eluting balloons (DEB) are established therapy for coronary in-stent restenosis and are increasingly used in small-vessel disease, where they showed non-inferiority to DES in randomized trials such as BASKET-SMALL 2. Current ESC and international consensus documents primarily frame DCB as a strategy for ISR and *de novo* small vessels (< 2.75-3.0 mm), with much less evidence in complex coronary lesions. However, the safety profile of DEB-based strategies across escalating levels of anatomical complexity remains insufficiently characterized.

Objectives: To evaluate whether lesion complexity adversely affects clinical and procedural outcomes after DEB angioplasty, using an expanded composite endpoint that includes both follow-up events and intraprocedural rescue stenting.

Table 1 – Frequency of Individual Complexity Criteria

Criterion	Count	%
Heavily_calcified_AHA_C	47	9.0%
Bifurcation	212	40.8%
CTO	44	8.5%
Left_main	6	1.2%
ISR	129	24.8%
Long_Lesion	118	22.7%

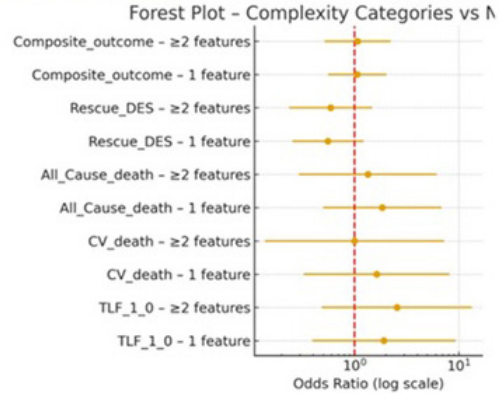
Table 2 – Any Complex vs Non-Complex

Outcome	N non-complex	Events non-complex	Rate non-complex (%)	N complex	Events complex	Rate complex (%)	OR (complex vs non) / p
TLF_1_0	135	2	1.48	385	12	3.12	2.14 (p=0.536)
TLR_1_0	135	0	0.00	385	4	1.04	NA
CV_death	135	2	1.48	385	8	2.08	1.41 (p=1.000)
All_Cause_death	135	3	2.22	383	14	3.66	1.67 (p=0.578)
Rescue_DES	135	13	9.63	385	22	5.71	0.57 (p=0.160)
Composite_outcome	135	16	11.85	383	48	12.53	1.07 (p=1.000)

Table 3 – Outcomes by Complexity Category with OR, CI and p-values

Outcome	Complexity_category	N	Events	Rate_%	OR	CI_low	CI_high	p
TLF_1_0	0 (non-complex)	135	2	1.48				
TLF_1_0	1 feature	250	7	2.80	1.91	0.39- 9.353		0.50
TLF_1_0	≥2 features	135	5	3.70	2.55	0.48-13.41		0.44
TLR_1_0	0 (non-complex)	135	0	0.0				
TLR_1_0	1 feature	250	2	0.8				
TLR_1_0	≥2 features	135	2	1.48				
CV_death	0 (non-complex)	135	2	1.48				
CV_death	1 feature	250	6	2.4	1.6	0.32-8.21		0.71
CV_death	≥2 features	135	2	1.48	1.0	0.13-7.20		1.0
All_Cause_death	0 (non-complex)	135	3	2.22				
All_Cause_death	1 feature	250	28	11.20	1.84	0.50-6.83		0.55
All_Cause_death	≥2 features	135	4	2.96	1.34	0.29-6.12		1.0
Rescue_DES	0 (non-complex)	135	13	9.6				
Rescue_DES	1 feature	250	14	5.60	0.55	0.25-1.22		0.14
Rescue_DES	≥2 features	135	8	5.92	0.59	0.23-1.47		0.36
Composite_outcome	0 (non-complex)	135	16	11.85				
Composite_outcome	1 feature	250	49	19.6	1.0625	0.55-2.02		1.0
Composite_outcome	≥2 features	135	17	12.59	1.07	0.51-2.22		1.0

Figure – Forest Plot with 95% CI



Methods: We conducted a retrospective single-centre analysis of 398 consecutive patients, from 2023-2024, (mean age 67.1 ± 12.6 years, 83.2% male) treated with DEB, yielding 520 DEB-treated lesions, with a 1 year

follow-up. Complex anatomy was defined by ≥ 1 of the following criteria: AHA type C calcification, bifurcation, chronic total occlusion, left main involvement, in-stent restenosis, or long lesion segment (≥ 30 mm). Outcomes included target lesion failure (TLF), target lesion revascularization (TLR), cardiovascular death, all-cause death, rescue stenting, and a composite of all. Univariate comparisons were followed by penalized multivariable logistic regression.

Results: A total of 385 lesions (74.0%) were classified as complex. Although numerically higher event rates were observed in complex lesions, none of the comparisons reached statistical significance. The composite endpoint occurred in 16 non-complex lesions (11.9%) vs. 48 complex lesions (12.5%; OR 1.07, p = 1.000). Similarly, TLF showed a non-significant directional increase (3.1% vs. 1.5%). All secondary endpoints, including cardiovascular death, all-cause death and rescue stenting, were not statistically different between groups.

Conclusions: In this real-world DEB cohort, anatomical complexity did not significantly worsen lesion-level clinical or procedural outcomes, although numerically higher rates were observed. These findings suggest that DEB angioplasty may remain a viable strategy even in complex coronary anatomy when meticulous lesion preparation and bailout DES readiness are ensured. Larger prospective studies are needed to determine whether specific complexity components carry incremental risk.

PO 35. ISR VS. *DE NOVO* LESIONS TREATED WITH DCB: A FOUR-YEAR REAL-WORLD COMPARATIVE ANALYSIS

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Introduction: Drug-coated balloons (DCB) are established for in-stent restenosis (ISR) but increasingly used in *de novo* coronary lesions. We analysed a four-year real-world DCB registry comparing these two lesion subsets.

Methods: Consecutive patients treated with DCB between 2021-2025 were included. Demographic, procedural, angiographic and clinical outcomes were compared. Key endpoints included angiographic success (< 30% residual stenosis, TIMI 3 flow), recoil, need for bailout stenting and clinically driven target lesion revascularisation.

Results: A total of 150 patients were included. Patients were classified as *de novo lesions* (73%, n = 109) or *ISR* (27%, n = 41). Baseline demographic characteristics were similar (mean age 65.94 ± 10.37 vs. 69.34 ± 9.77 years, p = 0.364), predominantly men (p = 0.490). DM and history of previous acute coronary syndrome was significantly more prevalent in the ISR group (p < 0.001). There were no significant differences for hypertension and dyslipidemia. Regarding clinical presentation at admission (STEMI, NSTEMI, unstable angina or CCS), there were no significant differences (p = 0.452). ISR lesions were more commonly located in the RCA and LAD arteries, while *de novo* lesions showed higher involvement of the LAD and Cx, p = 0.012. Side-branch involvement was significantly more common in *de novo* lesions (p < 0.001). Intracoronary imaging was more frequently performed in ISR (p = 0.04). Angiographic performance was consistently high: angiographic success reached 97% overall, without significant differences between ISR and *de novo* lesions (p = 0.52). Rates of recoil were infrequent and comparable across groups (p = 0.41). Bailout stenting remained low in the two groups (7% vs. 5%, p = 0.26). TLR occurred exclusively in ISR lesions (4.9%), while no TLR events were observed in *de novo* lesions. The association between lesion type and TLR was statistically significant (p = 0.020). No periprocedural myocardial infarction, no major bleeding and no contrast nephropathy occurred in either group. Early and mid-term safety remained excellent, with no unplanned readmissions at 6 months.

Conclusions: In this real-world DCB registry, ISR and *de novo* lesions demonstrated equally high procedural success and low periprocedural risk. Overall, DCB angioplasty showed strong safety and favourable angiographic outcomes across lesion subsets, however, TLR events were exclusively seen in ISR, highlighting the higher complexity of those lesions.

PO 36. OPTIMISING LESION PREPARATION FOR DCB PCI: THE "SWEET SPOT" BETWEEN UNDER AND OVER DILATATION

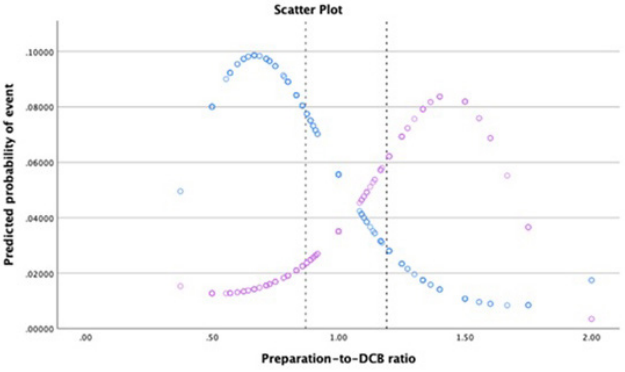
Rita Louro, Marta Figueiredo, Rafael Viana, Raquel Silva, Maria Banha, Rita Rocha, Gustavo Sá Mendes, Diogo Brás, David Neves, Ângela Bento, Renato Fernandes, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Effective lesion preparation is a key determinant of success in drug-coated balloon (DCB) angioplasty. Both insufficient and excessive dilatation have been associated with suboptimal outcomes. This study aimed to characterise the relationship between the ratio of the pre-dilatation balloon to the DCB diameter (BA_rel) and procedural outcomes, identifying a potential "sweet spot" for optimal results.

Methods: A single-centre retrospective analysis was conducted on 366 coronary lesions treated exclusively with DCB angioplasty. BA_rel was evaluated as a continuous variable. Two outcomes were assessed: (1) acute procedural failure, defined as the requirement for bailout stenting; one case involved a distal LAD thrombus, which was treated with glycoprotein IIb/IIIa inhibitors rather than stenting; and (2) target lesion revascularisation (TLR) during clinical follow-up. Discrimination for both acute procedural failure and TLR was evaluated using ROC analysis, with optimal thresholds determined by Youden's index. Risk patterns across BA_rel were further examined using logistic regression models.

Results: Lesion preparation was performed using either semi-compliant or non-compliant balloons (45.6%), cutting balloons (25.7%), or a combination of both (28.7%), according to operator preference and lesion morphology. The mean pre-dilatation balloon diameter was 2.65 ± 0.59 mm and the mean DCB diameter 2.83 ± 0.57 mm, yielding a mean BA_rel of 0.97 ± 0.28. Lower BA_rel values were associated with a higher risk of TLR The ROC curve constructed specifically for TLR identified an optimal threshold of ≤ 0.87 (AUC 0.644, p = 0.007). In contrast, higher BA_rel values were associated with an increased likelihood of acute procedural failure, and the ROC analysis for this distinct outcome yielded an optimal threshold of ≥ 1.19 (AUC 0.649, p = 0.053). When BA_rel was modelled as a continuous variable-considering both outcomes jointly-the overall risk pattern followed a U-shaped distribution, with greater adverse event rates at both extremes of BA_rel. The intermediate zone between the two ROC-derived thresholds-approximately 0.9 to 1.2-corresponded to the lowest predicted risk. Event rates across these three ranges (< 0.9, 0.9-1.2, > 1.2) are summarised in the figure.



	BA_rel		
	<0.9	0.9–1.2	>1.2
	n=165	n=142	n=60
Overall lesion failure, n (%)	19 (11.5)	9 (6.3)	7 (11.7)
Acute procedural failure, n (%)	3 (1.8)	5 (3.5)	5 (8.3)
Target lesion revascularisation, n (%)	16 (9.9)	4 (2.8)	2 (3.3)

Figure 1. Relationship between preparation-to-DCB ratio and outcomes. Scatter plot of the adjusted predicted probability of event according to the preparation-to–DCB ratio (BA_rel). Each dot represents the model-based predicted risk for a given value of BA_rel; the vertical dashed lines at 0.9 and 1.2 indicate the cut-offs used to define the three BA_rel categories. The table below shows the incidence of overall lesion failure, acute procedural failure and target lesion revascularisation across BA_rel categories <0.9, 0.9–1.2 and >1.2.

Conclusions: BA_rel demonstrates a non-linear association with outcomes after DCB angioplasty, with increased adverse events at both ends of the spectrum and a procedural "sweet spot" between 0.9 and 1.2. These findings support targeting balanced lesion preparation to optimise drug transfer while minimising vessel injury.

Sexta-feira, 24 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 3 | Sessão de Posters 07 - Lípidos para além do LDL: a nova fronteira do risco

PO 37. VARIABILITY OF LIPOPROTEIN(A) AND ITS CORRELATION WITH LIPID PROFILE FLUCTUATIONS

Carolina Marques Neves[1], Marta Catarina Almeida[2], André Lobo[2], Eduardo Vilela[2], Ricardo Fontes-Carvalho[2]

[1]Escola de Medicina da Universidade do Minho. [2]ULS Gaia e Espinho/ Hospital Santos Silva.

Introduction: Plasma lipoproteina(a) [Lp(a)] concentrations are considered to be largely unaffected by traditional lipid parameters, including LDL cholesterol, HDL cholesterol, or triglycerides. Despite limited known correlation with conventional lipid profile, Lp(a) variability has been recently enhanced and evidence in factors related to that variability is still scarce.
Objectives: The aim of this study was to analyze Lp(a) levels variability and lipid profile changes.
Methods: A retrospective single center analysis of patients with more than one measurement of Lp(a) levels was conducted. Anti-dyslipidemia treatment was registered and patients receiving PCSK9 inhibitor therapy at the time of either Lp(a) measurement were excluded. Context of measurement, time intervals and Lp(a) levels and lipid profile were collected. Statistical analysis was done using Chi-square, Spearman and Mann-Whitney tests.
Results: This study included 221 participants. At first analysis, most of the patients were under anti-dyslipidemia treatment: 67.0% (n = 148) with statins, 17.6% (n = 39) on ezetimibe and 5.0% (n = 11) with fibrates. Lipid profile showed median HDL levels of 44 [19] mg/dL, total cholesterol of 145 [56] mg/dL, triglycerides of 102 [59] mg/dL, and LDL levels of 77 [50] mg/dL. Lp(a) had a median of 52.10 [141.50] nmol/L in the first analysis. The time interval between measurements was 107 [286] days. Anti-dyslipidemia treatment was changed between the two analyses in 68 (30.8%) patients. HDL showed an absolute variation of 5 [8] mg/dL, total cholesterol of 22 [26] mg/dL, triglycerides of 25 [39] mg/dL and LDL levels of 18 [27] mg/dL. The absolute variation in Lp(a) was 11.40 [36.95] nmol/L. Statistically significant correlations were observed between absolute Lp(a) variation and changes in HDL ($p < 0.001$) and total cholesterol ($p = 0.013$). No significant correlations were found with triglycerides ($p = 0.151$) or LDL variation ($p = 0.062$). Variation in total cholesterol ($p < 0.001$), LDL ($p < 0.001$) and triglycerides ($p = 0.004$) was higher in patients who changed anti-dyslipidemia treatment, as expected. A trend for higher Lp(a) variation in patients who change anti-dyslipidemia treatment was verified (16.80 [47] *versus* 9.35 [30] in patient who did not change), as exposed on Graph 1, but not statistically significant ($p = 0.052$), nor was variation in HDL ($p = 0.512$).
Conclusions: Lp(a) levels demonstrated measurable intra-individual variability over time, yet this variation showed only correlations with changes in HDL and total cholesterol and a non-significant trend toward higher Lp(a) variation with modifications in anti-dyslipidemia therapy. These findings challenge the traditional view of Lp(a) as a largely static and lipid-independent biomarker, suggesting that its variability may parallel specific lipid metabolism or treatment changes that deserve further research.

PO 38. ASSOCIATION OF REMNANT CHOLESTEROL WITH RISK OF CORONARY ARTERY DISEASE AND CARDIOVASCULAR EVENTS

Francisco Sousa[1], M. Isabel Mendonça[2], G. Abreu[1], M. Ferreira[1], F. Escórcio Silva[1], S. Freitas[2], E. Henriques[2], M. Rodrigues[2], S. Borges[2], A. Drumond[1], A.C. Sousa[2], R. Palma dos Reis[3]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dr.ª Maria Isabel Mendonça. [3]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Remnant cholesterol (RC) is a proven independent and causal risk factor for coronary artery disease (CAD), beyond LDL-C, HDL-C,

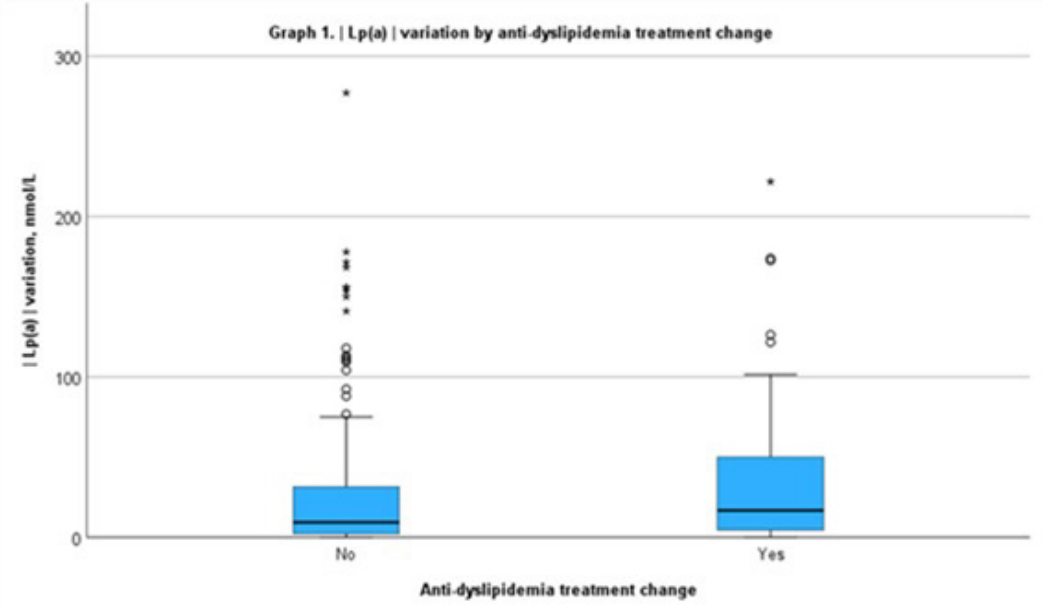
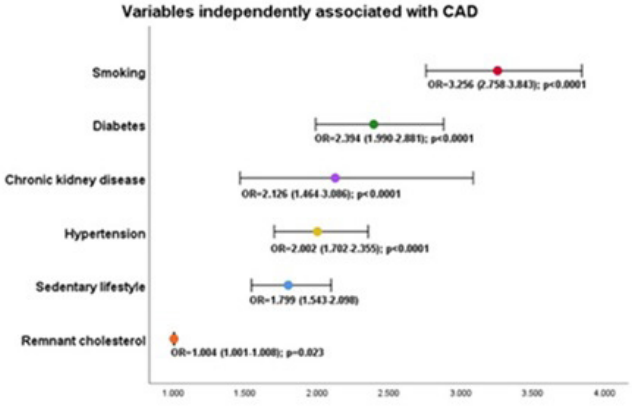


Figure PO 37



Independent Predictor of cardiovascular events in coronary patients: Multivariable Logistic Regression

Variables	B	S.E.	Wald	df	OR (95% IC)	P value
Age	0.010	0.005	4.013	1	1.010 (1.000-1.020)	0.045
Sedentary lifestyle	0.298	0.083	13.017	1	1.347 (1.146-1.583)	<0.0001
Diabetes	0.155	0.078	3.953	1	1.168 (1.002-1.360)	0.047
Remnant cholesterol	0.004	0.001	7.850	1	1.004 (1.001-1.007)	0.005

Figure PO 38

triglycerides, diabetes, and other traditional risk factors. It reflects the cholesterol content of triglyceride-rich lipoproteins, and is strongly associated with subclinical inflammation and endothelial dysfunction.
Objectives: Determine whether remnant cholesterol is independently associated with CAD in a coronary population. Investigate in a coronary population whether remnant cholesterol is a risk factor of CAD, independently of traditional/clinical risk factors.
Methods: A case-control study performed between 2000 and 2023 included 1,722 successive coronary patients (mean age 53.3 ± 7.9 years, 78.8% male) and 1,435 controls (mean age 52.7 ± 7.8 years, 76.2% male). RC was calculated by the formula: total cholesterol - (LDL-C + HDL-C) (mg/dl) and categorized as below or above the median. Multivariate logistic regression was performed to assess the association between RC and CAD, adjusting for age, sex, smoking, physical inactivity, type 2 diabetes, hypertension, body mass index, alcohol consumption, and chronic kidney disease. Patients were prospectively followed for an extended period (median 7.6 ± 6.7 years), and an adjusted Cox regression analysis was applied to identify independent predictors of cardiovascular (CV) events.
Results: The median RC value was 26.4 mg/dl (19.0-39.0) and this value was used in the statistical analyses. Multivariate logistic regression showed that RC remained independently associated with CAD (OR = 1.004; CI95%-1.001-1.008; p = 0.023), together with smoking, type 2 diabetes, physical inactivity, and chronic kidney disease (all p < 0.0001). During the follow-up, 715 CV events were recorded. Cox regression showed that RC is independently associated with CV events (HR = 1.004; 95%CI 1.001-1.007; p = 0.005).
Conclusions: Elevated RC was associated with CAD and long-term CV events, independently of major traditional risk factors. These findings underscore the potential value of targeted RC reduction, which may refine lipid risk profiles and reduce the burden of coronary disease.

PO 39. IMPLICATIONS OF LIPOPROTEIN(A) VARIABILITY ON CARDIOVASCULAR RISK CLASSIFICATION ENHANCEMENT

Marta Catarina Ferreira de Almeida[1], André Lobo[1], Carolina Marques Neves[2], Eduardo Vilela[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Escola de Medicina da Universidade do Minho.

Introduction: Lipoprotein(a) [Lp(a)] is an independent risk factor for atherosclerotic cardiovascular (CV) disease. Guidelines suggest a one-in-a-lifetime measurement, enhancing that the presence of elevated Lp(a) above 105 nmol/L should be considered in all adults as a CV risk-enhancing factor. Recent clinical trials have been documenting some changes up to 25% in the placebo groups.
Objectives: The aim of this study was to evaluate Lp(a) levels variability and its impact on CV risk assessment.
Methods: A retrospective single-center analysis of patients with more than one measurement of Lp(a) levels was conducted. Demographics, CV risk factors, comorbidities and medication use were registered. Context of measurement, time intervals and Lp(a) levels were collected. Change across Lp(a) level of 105 nmol/L as a CV risk-enhancing factors was analyzed. Statistical analysis was done using Chi-square, Mann-Whitney and Kruskal-Wallis tests.
Results: A total of 221 patients were analyzed (157 males, 71.0%), with a median age of 74 [18] years old. Regarding cardiovascular risk factors, 18.1% (n = 40) had obesity, 71% (n = 157) had hypertension, 66.5% (n = 147) had dyslipidemia, and 34.4% (n = 76) had diabetes; active smoking was reported by 14.5% (n = 32) of the patients; only 5% (n = 11) had a family history of CVD. Anti-dyslipidemia treatment was changed between the two analyses in 68 (30.8%) patients. During the first analysis, 34.8% (n = 77) of participants were admitted due to an acute coronary syndrome, 43% (n = 95) were admitted for other reasons, and 22.2% (n = 49) underwent laboratory testing in an ambulatory setting. Lp(a) had a median of 52.10 [141.50] nmol/L in the first analysis. The time interval between measurements was 107 [286] days. Lp(a) in the second analysis had a median of 61.90 [160.3] nmol/L. The second analysis was done in the context of acute coronary syndrome in 27.6% (n = 61) patients, 33.5% (n = 74) were admitted for other reasons, and 38.9% (n = 86) underwent laboratory testing in an ambulatory setting. Lp(a) variation ranged from - 168.30 to 277.10 nmol/L. Lp(a) variability crossed the level of 105 nmol/L in 9.5% (n = 21) of the patients and it was associated with lower age (p = 0.028), obesity (p = 0.020), absence of dyslipidemia (p = 0.026) and smoking habits (p = 0.018). Lp(a) variation by CV risk-enhancing factor cross is represented in Figure 1.
Conclusions: Lp(a) levels had substantial variability, with nearly 10% of patients crossing the clinically relevant threshold of 105 nmol/L used for cardiovascular risk enhancement. This variability was associated with younger age, higher BMI, fewer dyslipidemia diagnoses, and smoking habits. These findings suggest that contrary to the current assumption of Lp(a)

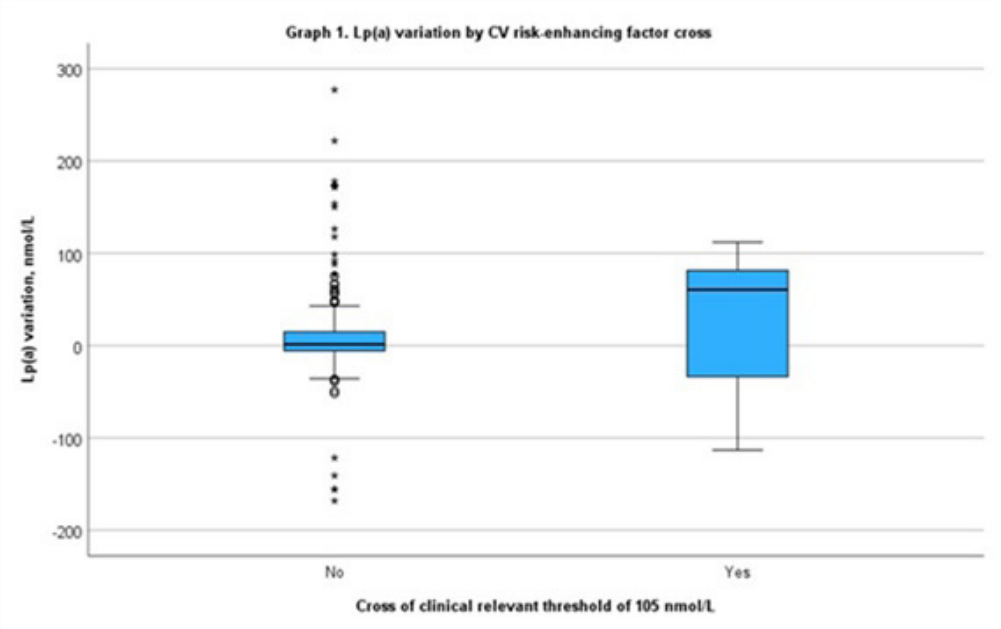


Figure PO 39

stability, repeat measurements may be warranted to refine recommendations for Lp(a) use in cardiovascular risk assessment.

PO 40. LIPOPROTEIN(A) AND CARDIOVASCULAR RISK STRATIFICATION: INSIGHTS FROM SCORE2-BASED RISK CATEGORIES IN A PORTUGUESE COMMUNITY-BASED STUDY

Tiago Prata Branco[1], Rafael Costa[1], Giulia Rinaldi[2], Luana Alves[1], Tiago Silva[1], Silvia O. Diaz[2], Rui Rodrigues[1], Mariana Vasconcelos[1], Marta Tavares Silva[1], Francisca Saraiva[2], Tiago Guimarães[1], Adelino Leite-Moreira[1]

[1]ULS São João/Hospital São João. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Lipoprotein(a) [Lp(a)] is a well-established causal and independent risk factor for atherosclerotic cardiovascular disease (ASCVD), with a continuous association between circulating levels and cardiovascular outcomes. Despite this evidence, Lp(a) is not incorporated into SCORE2, SCORE2-OP or SCORE2-DM, the recommended tools for 10-year ASCVD risk estimation in Europe. As Lp(a) is genetically determined, stable throughout life and considered a potential risk modifier, its measurement may reveal cardiovascular risk not captured by traditional SCORE2 variables. Understanding how Lp(a) distributes across SCORE2-based categories may help identify individuals with unrecognised cardiovascular risk.
Objectives: The aim of this study was to evaluate the association between Lp(a) concentrations and SCORE2, SCORE2-OP and SCORE2-DM cardiovascular risk categories in a real-world Portuguese community-based cohort.
Methods: A cross-sectional cardiovascular screening programme was conducted across three northern localities in Portugal. Eligible participants were volunteers

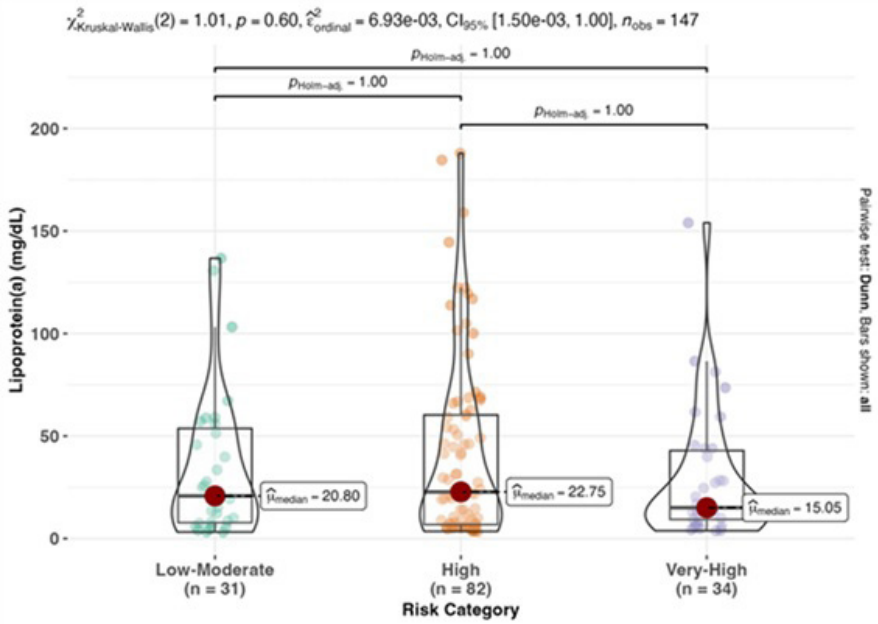


Figure PO 40

aged ≥ 40 years without previous cardiovascular events. Screening followed a standardised protocol including anthropometric assessment, blood pressure measurement, a structured lifestyle and clinical questionnaire, and venous blood sampling. Ten-year ASCVD risk was estimated using SCORE2/SCORE2-OP/SCORE2-DM according to age group. Lp(a) was analysed as a continuous variable and also dichotomised using the threshold ≥ 50 mg/dL.
Results: A total of 160 participants were included, with a mean age of 67 years and 71% being male. The overall median Lp(a) concentration was 21 mg/dL (IQR 8-56), and 28% presented Lp(a) ≥ 50 mg/dL. Median Lp(a) levels were similar across SCORE2-based cardiovascular risk categories: 20.8 mg/dL in low-moderate risk individuals (n = 31, 21%), 22.7 mg/dL in high-risk individuals (n = 82, 56%) and 15.1 mg/dL in very high-risk individuals (n = 34, 23%). No statistically significant differences were observed (Kruskal-Wallis χ^2 = 1.01; p = 0.60). Sex, age, body mass index, traditional cardiovascular risk factors and high-sensitivity C-reactive protein levels also did not differ significantly between groups.
Conclusions: In this community-based cohort, Lp(a) levels did not vary across SCORE2/SCORE2-OP/SCORE2-DM risk categories, suggesting that Lp(a) reflects an independent dimension of cardiovascular risk not captured by current risk algorithms. These findings reinforce current recommendations to measure Lp(a) at least once in a lifetime, particularly to identify residual cardiovascular risk among individuals classified as low or moderate risk by SCORE2-based tools. They also generate the hypothesis that larger population-based studies with longitudinal follow-up may clarify whether incorporating Lp(a) improves cardiovascular risk re-stratification.

PO 41. DETERMINANTS OF LIPOPROTEIN(A) FLUCTUATION IN OUTPATIENT SETTINGS: INSIGHTS FROM A SINGLE-CENTER COHORT

Marta Catarina Ferreira de Almeida[1], André Lobo[1], Carolina Marques Neves[2], Eduardo Vilela[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Escola de Medicina da Universidade do Minho.

Introduction: Lipoprotein(a) [Lp(a)] is an independent risk factor for atherosclerotic cardiovascular (CV) disease, considered to be mostly genetically determined, but data on fluctuations in recent placebo groups in clinical trials challenged this concept of stability.
Objectives: The aim of this study was to evaluate Lp(a) levels variability in patients who measured Lp(a) in stable settings as outpatients and identify its predictors.
Methods: A retrospective single-center analysis of Lp(a) levels collect in a stable setting, as outpatients, was conducted. Demographics, cardiovascular risk factors, comorbidities and medication use were registered. Context of measurement, time intervals and laboratory parameters with lipid profile were collected. Relevant Lp(a) variability was defined as an absolute change ≥ 50 nmol/L or a relative change ≥ 25%, calculated as [(highest value - lowest value)/lowest value] * 100. Statistical analysis was done using Chi-square, Mann-Whitney tests and logistic regression.
Results: A total of 45 patients were analyzed. Absolute Lp(a) values range from 2.4 to 463.9 nmol/L in the first measurement and 2.6 to 449.9 nmol/L in the second measurement. Time interval between both measurements was 168 [154] days. Lp(a) variability ranged from -168.3 to + 172.6 nmol/L, with a median absolute variation of 16.0 [64.4] nmol/L and 32.6 [62.7]%. Relevant variation was verified in 26 (57.8%) patients, with the distribution represented in Figure 1. Relevant variation was lower in patients with obesity (OR = 0.486, p = 0.014) and higher in patients with hypertension (OR = 16.500, p < 0.001), dyslipidemia (OR = 8.727, p = 0.010) and heart failure (OR = 7.563, p = 0.004). Logistic regression predicted Lp(a) relevant variation (R^2 = 0.595, p < 0.001) and only hypertension remained significant in the multivariate analysis (OR = 7.604, p = 0.040).
Conclusions: Lp(a) levels demonstrated notable intra-individual variability of Lp(a) levels measured in stable clinical settings, with more than half of participants with relevant changes. Obesity was associated with lower variability, whereas hypertension, dyslipidemia, and heart failure were linked to higher Lp(a) fluctuations. Hypertension emerged as the only independent predictor in multivariate analysis, explaining almost 60% of the Lp(a) variability in stable settings. These findings challenge the concept of Lp(a) as independent CV risk factor and underscores the importance of further studies on the correlation between hypertension and Lp(a) variability.

PO 42. WHEN APOLIPOPROTEIN B SPEAKS: EARLY CLUES TO CORONARY DISEASE BURDEN

Francisco Salvaterra[1], Diogo Ferreira[1], Pedro Alves da Silva[1], Inês Aguiar-Ricardo[1], Nelson Cunha[1], Inês Araújo[1], João Fernandes Pedro[1], Catarina Silva[1], Alda Ribas[2], Edite Caldeira[3], Fausto J. Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Dietetic and Nutrition Department, ULS Santa Maria. [3]Cardiology Department, ULS Santa Maria.

Introduction: Apolipoprotein B (ApoB) is a key marker of atherogenic lipoproteins and a strong predictor of cardiovascular risk. Recent data suggest that, although seldom measured in clinical practice, it outperforms

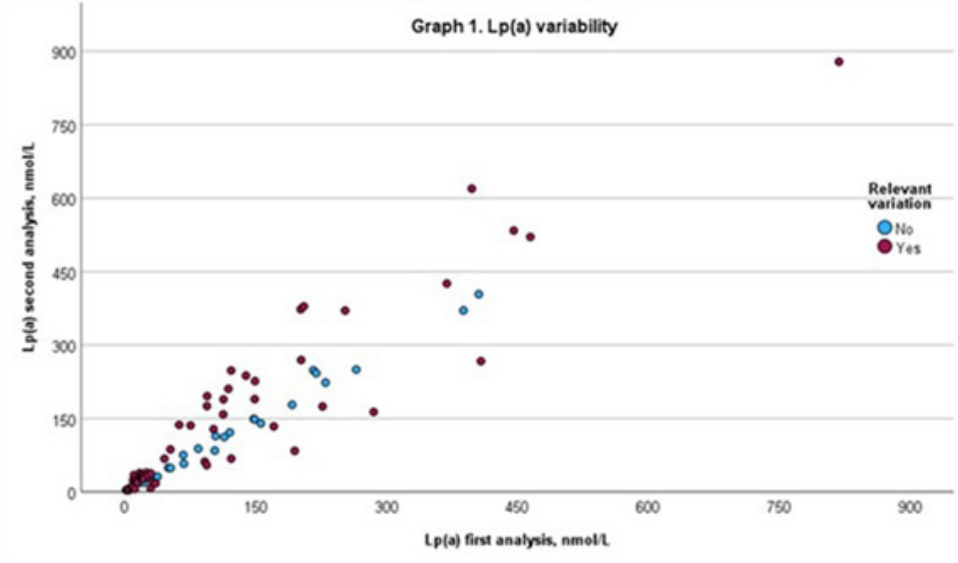


Figure PO 41

low-density lipoprotein cholesterol in predicting atherosclerotic cardiovascular disease risk.
Objectives: The objective of our study is to assess whether baseline ApoB levels can predict cardiovascular disease severity in patients enrolled in a cardiac rehabilitation program.
Methods: This was a prospective observational single-center study including patients with ischemic coronary artery disease enrolled in a phase II cardiac rehabilitation program between 2023 and 2025. Patients were stratified into two groups based on baseline ApoB levels (≥ 80 mg/dL or < 80 mg/dL). Clinical, echocardiographic, and CPET data were collected. A composite outcome of all-cause mortality, cardiovascular hospitalizations, and reinfarction was evaluated.
Results: A total of 151 patients (88% male; 61.1 ± 10.4 years) with ischemic cardiomyopathy enrolled in the phase II cardiac rehabilitation program. Common comorbidities included hypertension (63.3%), dyslipidemia (72.2%), smoking (31.1% current; 32.5% former), and diabetes (28.7%). At admission, mean ApoB levels were 71.68 ± 23.16 mg/dL, and 46 patients had levels of at least 80 mg/dL. Patients with ApoB ≥ 80 mg/dL were younger at the start of cardiac rehabilitation (58.3 years [95%CI 55.2-61.5] vs. 62.3 years [95%CI 60.3-64.3], p = 0.031), and, were, therefore, younger at the time of the coronary event. ApoB levels of at least 80 mg/dL were also associated with the severity of coronary artery disease. In fact, patients with higher levels of ApoB had twice the odds of having multivessel disease (OR 2.11 [95%CI 1.03-4.32], p 0.039) and four times the odds of being submitted to coronary artery bypass grafting surgery (OR 4.28 [95%CI 1.82-10.07], p < 0.001). Other clinical variables including weight, BMI, NYHA class, HbA_{1c}, glomerular filtration rate and NT-proBNP levels, 6MWT and CPET parameters were similar between both groups. During a mean follow-up of 1.28 ± 1.61 years, no statistically significant difference was found between the two groups regarding the composite outcome of all-cause mortality, cardiovascular hospitalizations, and reinfarction, with only three events in each group (p = 0.474).
Conclusions: In our cohort, patients with ApoB ≥ 80 mg/dL were younger and had more severe ischemic coronary artery disease, underscoring the value of ApoB as a marker of cardiovascular risk and disease burden. These findings support the broader incorporation of ApoB measurement into routine clinical practice for risk stratification and early identification of high-risk patients.

Sexta-feira, 24 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 4 | Sessão de Posters 08 - Amiloidose cardíaca por transtirretina: diagnóstico e reconhecimento da doença

PO 43. RIGHT VENTRICULAR-PULMONARY ARTERY COUPLING: A FUNCTIONAL APPROACH TO DISTINGUISHING FABRY DISEASE FROM WILD-TYPE TRANSTHYRETIN CARDIAC AMYLOIDOSIS

Luísa Pinheiro, Emídio Mata, Tamara Pereira, Margarida Castro, Bárbara Lage Garcia, Joana Gomes, Filipa Cordeiro, Marina Fernandes, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Fabry disease (FD) and wild-type transthyretin cardiac amyloidosis (wtATTR-CM) can both present similar patterns of left ventricular hypertrophy. As right ventricular adaptation to afterload has emerged as a sensitive marker of early myocardial involvement, right ventricular-pulmonary artery (RV-PA) coupling metrics have gained interest as potential diagnostic indicators.
Objectives: To evaluate the diagnostic utility of RV-PA coupling indices–TAPSE/PASP (Tricuspid Annular Plane Systolic Excursion/Pulmonary Artery Systolic Pressure), FAC/PASP (Fractional Area Change), and RV-FWS/PASP (Right Ventricular Free Wall Strain) – in differentiating FD from ATTR-CM.
Methods: This retrospective study included 30 patients with FD and 30 with wtATTR-CM. RV structure and function were independently assessed by two blinded observers. The diagnostic performance of TAPSE/PASP, FAC/PASP, and RV-GLS/PASP ratios was evaluated using receiver operating characteristic (ROC) analysis and DeLong's test applied for comparison.
Results: Patients with ATTR-CM were older than those with FD (83.4 ± 4.8 vs. 64.6 ± 10.7 years, p < 0.001), had higher NT-proBNP levels (11,001 ± 15,080 vs. 899 ± 1,016 pg/ml, p < 0.001), and greater septal wall thickness (18.9 ± 2.7 vs. 17.4 ± 2.7 mm, p = 0.036). ATTR-CM patients also exhibited lower RV-PA coupling indices, including TAPSE/PASP (0.428 ± 0.199 vs. 0.871 ± 0.252, p < 0.001), FAC/PASP (0.855 ± 0.358 vs. 1.608 ± 0.435, p < 0.001), and RV-FWS/PASP (0.246 ± 0.120 vs. 0.507 ± 0.171, p < 0.001). In ROC curve analysis, all three indices demonstrated good diagnostic performance for identifying ATTR-CM. TAPSE/PASP ratio had an area under the curve (AUC) of 0.924 [0.826-0.976] (p < 0.0001) with an associated cutoff of ≤ 0.679 for identifying ATTR-CM (sensitivity: 93%; specificity: 77%). FAC/PASP ratio showed an AUC of 0.917 [0.817-0.973] (p < 0.0001) with an associated cutoff of ≤ 1.25 for identifying ATTR-CM (sensitivity: 80%; specificity: 87%). The RV-FWS/PASP ratio had an AUC of 0.916 [0.815-0.972] (p < 0.0001) with an associated cutoff of ≤ 0.375 for identifying ATTR-CM (sensitivity: 90%; specificity: 83%). Pairwise comparisons showed no significant differences among the three ratios. When compared to the right ventricular function parameters not normalized to load, the AUCs were always numerically lower than those of the load-normalized parameters (AUC of 0.836 for TAPSE, AUC of 0.829 for FAC and AUC of 0.888 for RV-FWS).
Conclusions: RV-PA coupling indices were significantly more impaired in wtATTR-CM than in FD, and all three ratios demonstrated strong diagnostic performance in identifying wtATTR-CM. Although no single parameter outperformed the others, these findings indicate that RV-PA coupling assessment may have an added value in the differentiation of wtATTR-CM from FD compared to RV function parameters not normalized to load.

PO 44. DIAGNOSTIC VALUE OF RIGHT VENTRICULAR WALL THICKNESS AND FREE WALL STRAIN RATIO IN DISTINGUISHING HYPERTROPHIC CARDIOMYOPATHY AND WILD-TYPE TRANSTHYRETIN CARDIAC AMYLOIDOSIS

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Introduction: Although both hypertrophic cardiomyopathy (HCM) and wild-type transthyretin cardiac amyloidosis (ATTR-CM) affect the right ventricle (RV), their structural and functional patterns differ. Two-dimensional speckle-tracking echocardiography (2D-STE) enables detailed assessment of RV mechanics, and combining RV free wall strain (RV-FWS), wall thickness (RVWT), and their ratio may enhance diagnostic accuracy.
Objectives: To evaluate the diagnostic utility of RVWT, RV-FWS, and their ratio in differentiating HCM from ATTR-CM.
Methods: This retrospective study included HCM (n = 30) and ATTR-CM (n = 30) patients evaluated for cardiomyopathy between 2014 and 2021. Two blinded observers assessed RV structure and function using echocardiography and 2D-STE. RV-FWS was analysed in absolute values. Receiver operating characteristic (ROC) analysis assessed the diagnostic performance of RVWT, RV-FWS, and their ratio, with DeLong's test used for curve comparison.
Results: ATTR-CM patients were older than HCM patients (Median [IQR] 84 [5] vs. 57 [18.25] years, p < 0.01) and had higher NT-proBNP levels (Median [IQR] 5,841 [11,742] vs. 812 [857] pg/ml, p < 0.01). ATTR-CM patients also had greater RVWT (9.0 ± 1.7 vs. 5.5 ± 0.9 mm, p < 0.01) and reduced RV-FWS (15.5 ± 7.6 vs. 25.6 ± 5.2%, p < 0.01). In ROC analysis, RV-FWS had an area under the curve (AUC) of 0.89 [0.79-0.96] (p < 0.01) with an associated cutoff of ≤ 18.8% for identifying ATTR-CM (sensitivity: 76.67%; specificity: 96.7%). RVWT showed an AUC of 0.98 [0.90-0.99] (p < 0.01) with an associated cutoff

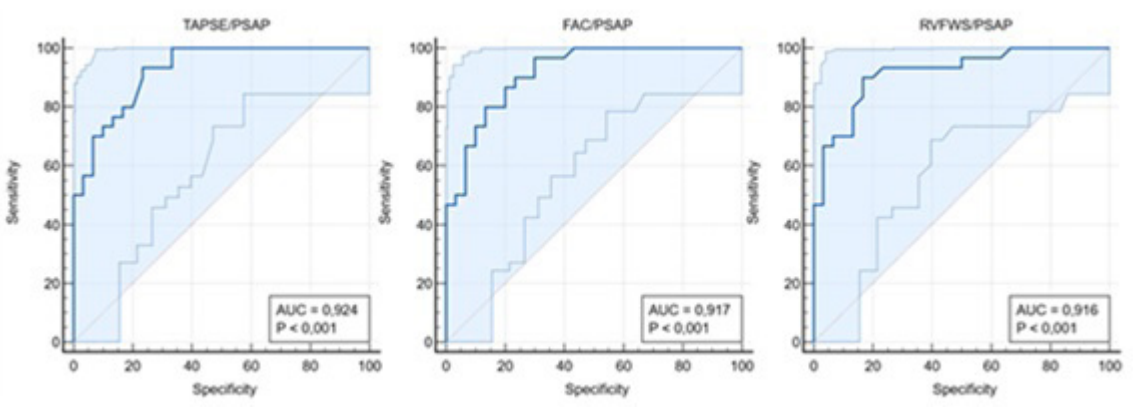
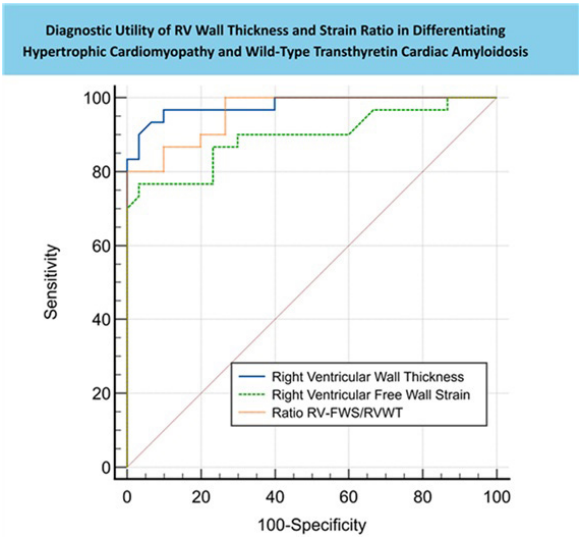


Figure PO 43

of > 6.5 mm for identifying ATTR-CM (sensitivity: 96.7%; specificity: 90%). The RV-FWS/RVWT ratio had an AUC of 0.96 [0.88-0.99] (p < 0.01) with an associated cutoff of ≤ 2.73 for identifying ATTR-CM (sensitivity: 80%; specificity: 100%). Pairwise comparisons showed no significant difference between RVWT and the RV-FWS/RVWT ratio (difference 0.0194, p = 0.26), and a borderline non-significant difference between RVWT and RV-FWS (difference 0.0856, p = 0.05). However, the RV-FWS/RVWT ratio showed a significant advantage over RV-FWS (difference 0.07, p = 0.04) in distinguishing ATTR-CM from HCM.



Conclusions: The RV-FWS/RVWT ratio outperformed RV-FWS alone in distinguishing ATTR-CM from HCM and provided a 100% specific cutoff, surpassing RVWT. These findings highlight the diagnostic value of integrating structural and functional RV parameters, warranting validation in larger cohorts.

PO 45. THE ROLE OF ENDOMYOCARDIAL BIOPSY IN FAMILIAL AMYLOID POLYNEUROPATHY: DIAGNOSTIC YIELD, SAFETY, AND CLINICAL IMPACT IN A CONTEMPORARY REFERRAL CENTRE

Pedro Monteiro[1], Clara Teixeira[2], Tiago Peixoto[1], Diana Ribeiro[1], Mariana Pereira Santos[1], David Sá Couto[1], Sara Fernandes[1], Marta Oliveira[1], Raquel Baggen Santos[1], João Silveira[1], André Luz[1], Patrícia Rodrigues[1]

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Introduction: Endomyocardial biopsy (EMB) has become less frequently used in the era of advanced cardiac imaging, yet it remains a key diagnostic tool in certain clinical scenarios. In familial amyloid polyneuropathy (FAP), cardiac involvement can pose a diagnostic challenge, as non-invasive tests may lack sensitivity, highlighting the need to clarify the contemporary role of EMB in this setting.

Methods: We conducted a retrospective single-centre analysis of all patients with FAP assessed in the specialised Cardiology outpatient clinic of a national referral hospital between January 2019 and October 2025. Clinical records were reviewed for cardiac amyloidosis (CA) suspicion and confirmation, and patients who underwent EMB were characterised in greater detail.

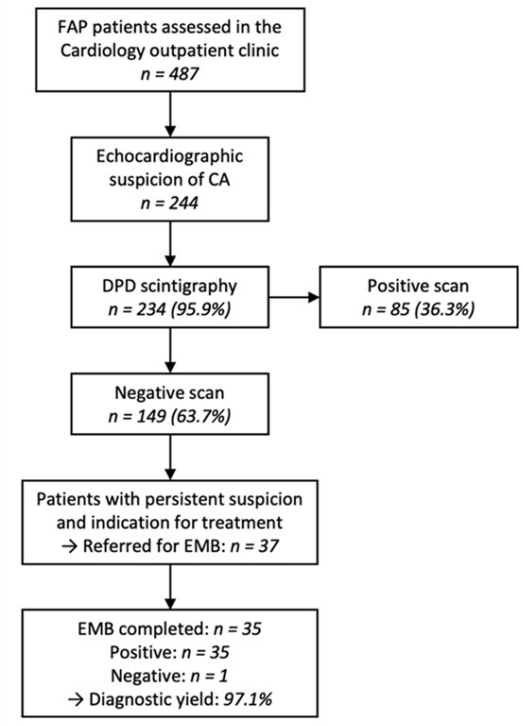

Figure 1 - Diagnostic pathway of patients with familiar amyloid polyneuropathy (FAP) and suspected cardiac amyloidosis (CA).

Results: Among 487 patients, echocardiographic suspicion of CA was present in 244 (50.1%); 95.9% underwent DPD scintigraphy, which was negative in 63.7%. Liver-transplanted patients had a significantly higher likelihood of a negative result (91.2% vs. 38.0%, p < 0.001). Cardiac MRI was frequently

contraindicated due to non-compatible pacemaker systems. Thirty-seven patients with persistent clinical and echocardiographic suspicion, negative scintigraphy, and a need for diagnostic confirmation were referred for EMB. These patients were predominantly male (75.7%) and transplanted (91.9%), with a mean age of 54.0 ± 8.2 years. Mean septal wall thickness was 14.8 ± 2.0 mm and left atrial volume index 41.5 ± 10.6 mL/m²; right ventricular hypertrophy was present in 24.3%. Median NT-proBNP was 653 pg/mL (IQR 325-2,368) and mean troponin T 0.048 ± 0.027 ng/mL. In two patients, the procedure could not be completed and EMB was not performed; among 35 biopsies, 34 confirmed CA, yielding a 97.1% diagnostic rate. Three complications occurred, none resulting in major adverse cardiovascular events. Histological confirmation of CA led to therapeutic changes in most patients, with 18 started on targeted therapy and the remainder undergoing evaluation.

Conclusions: Cardiac involvement in FAP is frequent and difficult to diagnose when non-invasive tests are negative, particularly in liver-transplanted patients, in whom scintigraphy is less sensitive. When used appropriately, EMB provides near-definitive diagnostic yield with an acceptable safety profile, enabling timely initiation of disease-modifying therapy, and should therefore be considered early when scintigraphy is negative and suspicion remains high.

PO 46. CARDIAC AMYLOIDOSIS IN OLDER PATIENTS: CAN WE PREDICT HEREDITARY VS. WILD-TYPE SUBTYPE?

João Reis Sabido[1], Diogo Ferreira[1], Daniel Inácio Cazeiro[1], Marta Vilela[1], João Cravo[1], Inês Araújo[1], João Fernandes Pedro[1], Catarina Campos[2], Isabel Conceição[1], Fausto J. Pinto[1], Dulce Brito[1], João Agostinho[3]

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Introduction: The diagnosis of transthyretin cardiac amyloidosis (ATTR-CM) is increasingly common among older adults. Genetic testing is mandatory to differentiate hereditary forms (hATTR-CM) from wild-type (wtATTR-CM). Distinguishing both forms based on clinical and echocardiographic features remains difficult, particularly in older patients where hereditary mutations may manifest later and mimic the wild-type form.

Objectives: To identify clinical, laboratory, and echocardiographic parameters to differentiate hATTR-CM from wtATTR-CM and develop a predictive score to estimate the likelihood of hATTR-CM before genetic testing.

Methods: Single-center retrospective observational study including patients diagnosed with ATTR-CM. All patients underwent transthyretin genotyping.

Results: Among 100 patients (51% hATTR-CM and 49% wtATTR-CM), patients with hATTR-CM were significantly younger (70 ± 2 vs. 81 ± 1 years; p = 0.001) with fewer comorbidities, including atrial fibrillation (11 [22%] vs. 35 [71%]; p = 0.001). They presented with milder functional impairment (NYHA III-IV: 9 [18%] vs. 16 [33%]; p = 0.08), required lower diuretic doses (18 ± 3 vs. 28 ± 3 mg; p = 0.05), and had significantly lower NT-proBNP levels (384 [IQR 202-996] vs. 1971 [IQR 1,071-3,865] pg/mL; p = 0.001). Echocardiography demonstrated milder cardiac involvement in hATTR-CM, with higher GLS (-16 ± 1.4 vs. -12 ± 0.8%; p = 0.007), thinner interventricular septum (15 ± 0.4 vs. 17 ± 0.4 mm; p = 0.002), smaller indexed left atrial volume (39 ± 1 vs. 50 ± 2 mL/m²; p = 0.002) and lower sPAP (28 ± 2 vs. 39 ± 3 mmHg; p = 0.002). Over a mean follow-up of 28 ± 2 months, hATTR-CM patients more frequently remained in NYHA functional class I (31 [61%] vs. 10 [20%]), whereas wtATTR-CM patients predominantly remained in NYHA II (27 [55%] vs. 14 [27%]; p = 0.001). Diuretic use at follow-up was also lower in the hATTR-CM group (19 [37%] vs. 31 [63%]; p = 0.01). Cardiovascular hospitalizations occurred in 6 patients (6%), and mortality was low overall (4 deaths, 4%), including 2 cardiovascular deaths (no significant difference between groups). In multivariable analysis, lower sPAP was independently associated with hATTR-CM (OR 0.91 per mmHg; p = 0.042). A simplified 0-8 score combining age, sPAP, septal thickness ≤ 13 mm showed good diagnostic performance. A cutoff ≥ 3 identified hATTR-CM with 88.5% sensitivity and 75% specificity (PPV 85.2%, NPV 80%), with a Youden index of 0.635 and AUC of 0.86.

Conclusions: In this cohort, hATTR-CM was diagnosed earlier with less advanced disease, better functional status, lower diuretic requirements, and more favorable echocardiographic parameters. The proposed score is simple to apply and may help estimate the likelihood of hATTR-CM before genetic testing –particularly in older patients where phenotypic overlap is common. Nonetheless, genetic testing remains mandatory for definitive diagnosis in all patients with ATTR-CM.

	wtATTR-CM	hATTR-CM	P-Value
Total	49	51	
Age (years; mean ± SD)	81±1	70±2	p<0.001
Female, n(%)	35(71)	11(22)	p<0.001
Hypertension, n (%)	36(73)	30(59)	NS
Diabetes mellitus, n (%)	38(78)	43(73)	NS
Atrial fibrillation, n (%)	28(57)	11(22)	p<0.001
Dyslipidaemia, n (%)	27(55)	14(27)	p=0.008
Functional capacity			
NYHA I–II, n (%)	33(67)	42(82)	NS
NYHA III–IV, n (%)	16(33)	9(18)	NS
Diuretic dose (mg; mean ± SD)	30±4	18±3	NS
Laboratory Findings			
Troponin (ng/L, median [IQR])	51 (IQR 34-85)	28 (IQR 16-48)	p=0.009
NT-proBNP (pg/mL, median [IQR])	1971 (IQR 1071-3865)	384 (IQR 202-996)	p<0.001
Creatinine (mg/dL, mean ± SD)	1.2±0.1	1±0.04	NS
eGFR (mL/min/1.73 m², mean ± SD)	60±3	74±3	NS
Echocardiographic Parameters			
LVEF (%, median [IQR])	56 (IQR 45-60)	60 (IQR 55-61)	p=0.02
GLS (%, mean ± SD)	12±0.8	16±1.4	p=0.007
Apical sparing, n (%)	20(41)	15(29)	NS
IVS thickness (mm, mean ± SD)	17±0.4	15±0.4	p=0.002
IVS >15 mm, n (%)	30(61)	25(49)	p<0.001
E/E' median [IQR]	17 (IQR 14-21)	14 (IQR 9-18)	NS
LA volume index (mL/m², mean ± SD)	50±2	39±1	p<0.002
Right ventricular hypertrophy, n (%)	17(35)	15(29)	NS
TAPSE (mm; mean ± SD)	18±0.7	20±0.4	p=0.03
sPAP (mmHg; mean ± SD)	39±3	28±2	p=0.002
FUP months, mean ± SD	28±2		
NYHA I, n(%)	8(16)	24(47)	p<0.001
NYHA II, n(%)	39(80)	18(35)	p<0.001
NYHA III, n(%)	2(4)	0(0)	p<0.001
6MWT (meters, median [IQR])	407 (IQR 89-520)	425 (IQR 333-494)	NS
Diuretic use, n (%)	31(63)	19(37)	p=0.01
Diuretic dose (mg, mean±SD)	30±4	18±4	NS
Hospitalization, n (%)	6(12)	8(16)	NS
Cardiovascular Hospitalization, n (%)	1(17)	5(63)	NS
Death, n(%)	1(2)	3(6)	NS
Cardiovascular Death, n(%)	1(100)	1(33)	NS

Table 1: Baseline characteristics of study population

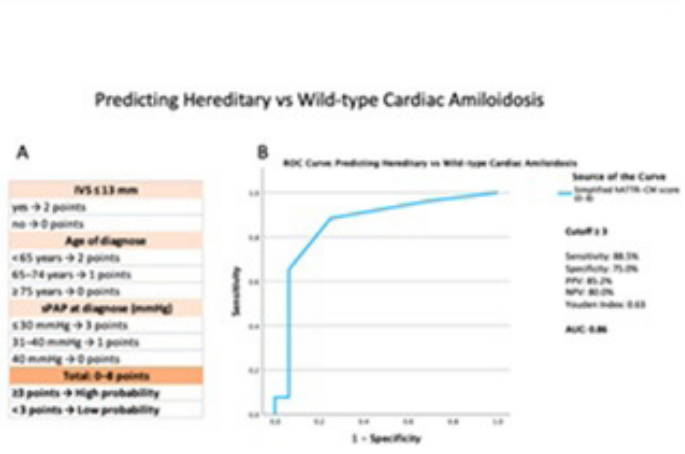

Figure 1. Predicting Hereditary vs Wild-Type Cardiac Amyloidosis. A) Simplified 0–8 score combining age, sPAP, and septal thickness ≤13 mm. B) ROC curve demonstrating good diagnostic performance. Using a cutoff ≥3, the score identified hATTR-CM with 88.5% sensitivity and 75% specificity (PPV 85.2%, NPV 80%), yielding a Youden index of 0.635 and an AUC of 0.86.

Figure PO 46

PO 47. 99MTC-DPD BONE SCINTIGRAPHY IN ATTR-CM: ARE WE MISSING PATIENTS?

Marta Vilela[1], João Cravo[1], Daniel Cazeiro[1], Diogo Ferreira[1], Sofia Esteves[1], João Fernandes Pedro[1], Inês Araújo[1], Catarina Campos[2], Isabel Conceição[2], Fausto Pinto[1], Dulce Brito[1], João Agostinho[3]

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Introduction: ^{99m}TC-DPD scintigraphy is widely regarded as the standard non-invasive imaging technique for diagnosing transthyretin cardiac amyloidosis (ATTR-CM). However, its diagnostic performance across the full phenotypic spectrum of ATTR-CM remains incompletely validated. Reduced sensitivity has been reported, particularly in early-stage hereditary forms. In these scenarios, reliance solely on scintigraphy may delay diagnosis and treatment, making endomyocardial biopsy (EMB) essential for accurate diagnosis.
Objectives: To evaluate the diagnostic performance of ^{99m}TC-DPD scintigraphy ATTR-CM and to identify clinical and imaging predictors of non-diagnostic scintigraphy.

Methods: We conducted a single-center retrospective study of patients diagnosed with ATTR-CM between 2022 and 2024. Scintigraphy was negative when the Perugini score was 0 or 1. All patients with negative scans subsequently underwent EMB for diagnostic confirmation. TTR genotyping was performed in all patients using next-generation sequencing.
Results: A total of 100 patients with confirmed ATTR-CM were included (51% hATTR-CM; 49% wtATTR-CM). Overall, 90% presented a positive scintigraphy at diagnosis. Patients with negative scans were significantly younger (60 ± 5 vs. 77 ± 1 years; p = 0.009), and all had hATTR-CM. The sensitivity of ^{99m}TC-DPD scintigraphy was 100% in wtATTR-CM and 77% in hATTR-CM, including 77% in V30M and 100% in non-V30M variants. Those with negative scans showed a trend towards lower symptom (NYHA III/IV: 0 vs. 25 [28%]; p = 0.06) and required less diuretic therapy (20% vs. 53%; p = 0.046). Echocardiographic evaluation at diagnosis showed significantly lower interventricular septal (IVS) thickness in patients with negative scintigraphy (13 ± 0.5 vs. 16 ± 0.5 mm; p = 0.001) and a trend toward lower sPAP (26 [IQR 17-34] vs. 33 [IQR 26-39] mmHg; p = 0.08). Biomarker levels were also lower: NT-proBNP (280 [IQR 104-379] vs. 1,136 [IQR 521-2,924] pg/mL; p = 0.001) and troponin (14 [IQR 10-29] vs. 38 [IQR 19-56] ng/L; p = 0.02). All patients with negative scintigraphy underwent EMB, which confirmed amyloid deposition. In multivariable logistic regression, IVS ≤ 13 mm was independently associated with a negative scintigraphy result, conferring a seven-fold greater likelihood of a negative scan (OR 7; 95%CI 1.3-36; p = 0.03).
Conclusions: ^{99m}TC-DPD scintigraphy demonstrates high diagnostic performance in most patients with ATTR-CM; however, its sensitivity is

	Positive scintigraphy N=90	Negative scintigraphy N=10	P-Value
Age (years; mean ± SD)	77±1	60±5	**p=0.009**
Male sex, n (%)	49 (54)	5(50)	NS
wtATTR-CM, n (%)	49(54)	0(0)	**p=0.001**
hATTR-CM, n (%)	41(45)	10(100)	**p=0.001**
Genetic variants, n (%)			
• Val30Met n (%)	34(38)	10(100)	NS
• G89I, n (%)	1(1)	0(0)	NS
• V122I, n (%)	6(7)	0(0)	NS
NYHA I–II, n (%)	65(72)	10(100)	**NS**
NYHA III–IV, n (%)	25 (28)	0(0)	NS
Hypertension, n (%)	63(70)	3(30)	**p=0.03**
Diabetes mellitus, n (%)	19(21)	0(0)	NS
Atrial fibrillation, n (%)	38(42)	1(10)	NS
Dyslipidaemia, n (%)	41(46)	0(0)	**p=0.05**
Chronic kidney disease, n (%)	8(9)	3(30)	NS
Diuretic use, n (%)	48 (53)	2 (20)	**p=0.046**
Diuretic dose (mg; median [IQR])	20 (IQR 0-40)	8 (IQR 0-16)	**NS**
Echocardiography at Diagnosis			
LVEF (%; mean ± SD)	54±1	59±1	NS
Apical sparing, n (%)	34(38)	1(10)	NS
LV hypertrophy, n (%)	73(81)	9(90)	NS
IVS thickness (mm; median [IQR])	16.3±0.5	12.7±0.5	**P<0.001**
IVS >15 mm, n (%)	55(61)	0(0)	**P<0.001**
IVS ≤ 13 mm, n (%)	11(12)	7(70)	**P<0.001**
E/E', mean ± SD	16±1	13±2	NS
LA volume index (mL/m²; mean ± SD)	45±2	35±3	NS
Right ventricular hypertrophy, n (%)	29(32)	3(30)	NS
TAPSE (mm; mean ± SD)	19±0.5	21±0.8	NS
sPAP (mmHg; mean ± SD)	33 (IQR 26-39)	26 (IQR 17-34)	NS
Pericardial effusion, n (%)	12(13)	2(20)	NS
Aortic stenosis, n (%)	2(2)	0(0)	NS
Laboratory Findings at Diagnosis			
Serum TTR (mg/dL; mean ± SD)	23±1.6	25±2.9	NS
Troponin (ng/L; median [IQR])	38 (IQR 19-56)	14 (IQR 10-29)	**p=0.017**
NT-proBNP (pg/mL; median [IQR])	1136 (IQR 521-2924)	280 (IQR 104-379)	**p=0.001**
Creatinine (mg/dL; mean ± SD)	1.1±0.03	0.9±0.07	NS
eGFR (mL/min/1.73 m²; mean ± SD)	66±2	77±8	NS

Table 1: Comparison of patients with cardiac amyloidosis showing positive vs negative 99mTC-DPD scintigraphy at diagnosis.

reduced in younger individuals and in hereditary forms, particularly those with V30M mutation and less advanced structural remodeling. In this subgroup–especially when IVS is ≤ 13 mm–EMB is essential to avoid missed diagnoses and ensure timely initiation of targeted therapy. These findings reinforce the need for a tailored diagnostic approach, integrating clinical suspicion, genotyping and myocardial histology when scintigraphy is non-diagnostic.

PO 48. DELAYED RECOGNITION OF TRANSTHYRETIN CARDIAC AMYLOIDOSIS: CLINICAL AND DIAGNOSTIC INSIGHTS FROM A DPD SCINTIGRAPHY COHORT

Mariana Salvador, Pedro Miguel Ventura, João Borges-Rosa, Rodolfo Silva, Maria João Cunha, Lino Gonçalves, Gracinda Costa, Maria João Vidigal Ferreira

Centro Académico e Clínico de Coimbra (Coimbra Hospital and University Center and Faculty of Medicine of University of Coimbra Consortium).

Introduction: Early diagnosis of transthyretin amyloid cardiomyopathy (ATTR-CM) is crucial, as misfolded transthyretin deposits cause progressive heart failure. Timely recognition enables earlier intervention and better management.
Objectives: Our aim is to characterize patients with suspected cardiac amyloidosis in a Southern European population, assessing clinical features and diagnostic patterns.

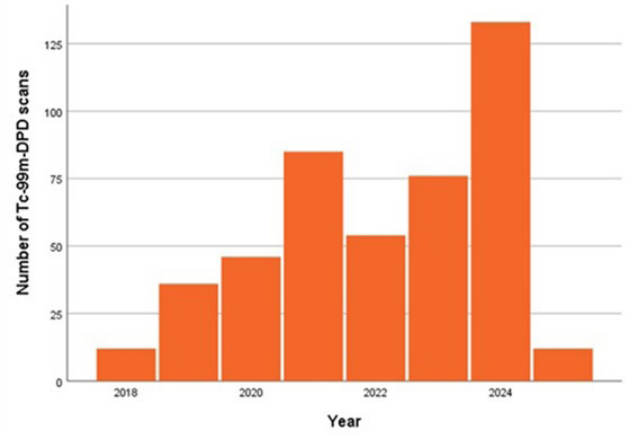


Figure 1. Temporal trends in Tc-99m-DPD scintigraphy referrals: Referrals have steadily increased since the 2021 ESC heart failure guidelines, with a peak in 2020–2021 due to the AMY-TAVI study. Note: 2018 includes six months, 2025 only one month.

Methods: We retrospectively studied consecutive patients screened for cardiac amyloidosis with Tc-99m-DPD scintigraphy (July 2019 to January 2025). Those with Perugini scores 2-3 were included, and detailed clinical and imaging data were collected.
Results: Over the study period, we observed a rising trend in referrals for Tc-99m-DPD scintigraphy (Figure 1). Of 454 patients, 29.3% (133 patients, 82.7% males, median age 84 [80-87] years) had a Perugini score indicative of cardiac amyloidosis (0-66.3%; 1- 4.4%; 2- 2.2%; 3- 27.1%). At the time of diagnosis, only two patients were younger than 65 years (1.5%): one with hereditary ATTR-CM and the sole patient in this cohort with suspected serum amyloid A amyloidosis (AA-CA). Most patients had atrial fibrillation (71.4%), 30.8% had a pacemaker, and 24.1% had coronary artery disease (14.3% prior acute coronary syndrome). Echocardiography showed severe left ventricular hypertrophy (≥ 15 mm) in 71.4% (only one patient had < 12 mm); left ventricle ejection fraction ≤ 50% in 53.4%, severe left atrium dilation in 48.9%, systolic pulmonary artery pressure ≥ 35 mmHg in 47.4%, and mean E/e' ≥ 13 in 87.8%. Thirty-two had moderate-to-severe aortic stenosis (15 had a history of transcatheter aortic valve implantation). Of 17 patients undergoing cardiac magnetic resonance, 13 (76.5%) had suggestive late gadolinium enhancement. Ninety-three patients (69.9%) had hematological testing, positive in 19 (14.3%): 13 monoclonal gammopathy of undetermined significance, 1 multiple myeloma, 1 lymphocytic leukemia, and 3 uncertain. Twenty-four (18%) underwent genetic testing, with only one showing a pathogenic TTR mutation (c.418G > T, p.Ala140Ser). Notably, only three patients with Perugini 2-3 and a positive hematology test received genetic testing.
Conclusions: Many patients with cardiac amyloidosis detected by DPD scintigraphy were not tested for AL or hereditary forms, highlighting gaps in diagnostic pathways. Late diagnosis and severe echocardiographic findings underscore the need for earlier detection.

Sexta-feira, 24 Abril de 2026 | 11:00-11:55

Área de Posters - Ecrã 1 | Sessão de Posters 09 - Síncope, ILR e cardioneuromodulação

PO 49. DIAGNOSTIC YIELD OF IMPLANTABLE LOOP RECORDERS IN ROUTINE CLINICAL PRACTICE - A 10-YEAR SINGLE-CENTER EXPERIENCE

Adriana Vazão, André Martins, Joana Reis Pereira, Mónica Amado, Carolina Esteves, João Filipe Carvalho, Davide Severino, Hélia Martins, David Durão

ULS Região de Leiria/Hospital de Santo André.

Introduction: Implantable loop recorders (ILRs) are widely used in the evaluation of syncope, palpitations, and cryptogenic stroke, but real-world data on their diagnostic yield remain limited.
Objectives: To evaluate the diagnostic yield of ILRs in a real-world population from a local health unit in Portugal.
Methods: Single-center retrospective cohort of patients (pts) who underwent ILR monitoring (Dec 2014-Dec 2024). Baseline clinical, electrocardiographic and echocardiographic variables and outcomes (all-cause mortality, cardiovascular (CV) mortality, heart failure (HF) hospitalization and urgent pacemaker (PM) implantation) were collected. Diagnostic findings included symptomatic sinus node disease (SND), atrioventricular (AV) node disease (high-grade AV block; complete AV block), new-onset atrial fibrillation (AF), slow AF (symptomatic ventricular pause > 3s) and sustained supraventricular (SVT) or ventricular tachycardia (VT).
Results: A total of 340 ILRs were implanted. Annual implant numbers increased over time, peaking at 64 in 2023 (Figure 1). Syncope was the main indication (n = 274, 80.6%), followed by palpitations (n = 35, 10.3%) and cryptogenic stroke (n = 18, 5.3%). Patients were predominantly male (50.6%), with a mean age of 64.9 ± 15.6 years. Baseline electrocardiograms revealed sinus rhythm in 65% and bundle branch block (BBB) in 12.8%. The median left ventricular ejection fraction was 60%. The overall diagnostic yield was 34.1%, with a median time to diagnosis of 6 months. Among syncope pts, the diagnostic yield was 37.9%; 66 pts (72.5%) subsequently received a cardiac implantable electronic device (16 for complete AV block, 35 for SND, 7 for high-grade AV block, 3 for bradycardia-tachycardia syndrome, 3 for slow AF) and 2 received an implantable cardioverter-defibrillator (ICD) for VT. Among pts monitored for cryptogenic stroke the yield was lower (16.7%), with the diagnosis of AF in 2 pts and sustained asymptomatic VT in another patient, although the findings led to therapeutic changes in 2/3 of cases. In the palpitation's subgroup, the diagnostic yield was 48.6%, mainly SVT, with targeted treatment in 47% of diagnosed cases (Figure 2). Diagnostic yield declined markedly after the first year (Figure 3). Pts were followed for a median of 23 months [IQR 9-38]. During follow-up, 38 pts experienced adverse outcomes: 11 required urgent admission for syncope with PM implantation, 2 were admitted for HF, 4 had a non-fatal stroke and 2 had non-fatal AMI. Overall, 23 pts died (6.8%), including 3 CV deaths.

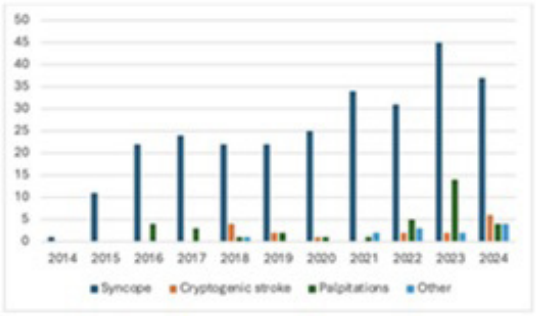


Figure 1. Number of devices implanted by year, according to the indication

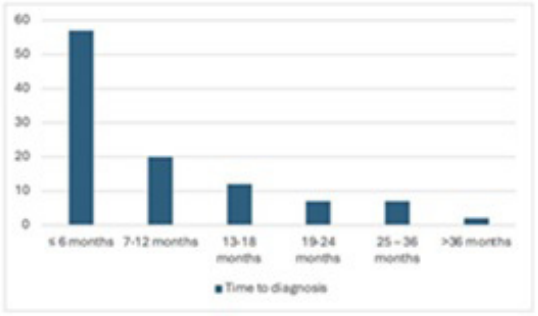


Figure 3. Time from ILR implantation until diagnosis

	Overall (n=340)	Syncope (n=274)	Cryptogenic stroke (n=18)	Palpitations (n=35)	Other indication (n=13)
Diagnostic yield, n (%)	116 (34.1)	91 (37.9)	3 (16.7)	17 (48.6)	5 (38.5)
Diagnostic value, n (%)	80 (23.5)	66 (24.1)	2 (11.1)	8 (22.9)	4 (30.8)
Device implantation	73	66	1	4	2
PM implantation	69	64	1	2	2
ICD implantation	4	2	-	2	-
EPS ± CA	3	-	-	3	-
Medical therapy adjustments	4	-	1	1	2
No change in management	36 (31.0)	25 (27.5)	1 (33.3)	9 (52.9)	1 (20.0)
Removal without diagnosis, n (%)	224 (65.9)	183 (66.8)	15 (83.3)	18 (51.4)	8 (61.5)
Median time to diagnosis, months	6 (0-12)	6 (0-12)	8	6 (0-13)	1 (0-7)
Median monitoring time, months	23 (9-38)	22 (7-37)	28 (12-44)	21 (13-29)	32 (17-47)

Figure 2. Diagnostic Outcomes (CA – catheter ablation; EPS – electrophysiological study; ICD – implantable cardioverter-defibrillator; PM – pacemaker)

Figure PO 49

Conclusions: ILRs are a highly valuable diagnostic tool for the evaluation of syncope, cryptogenic stroke and palpitations. In this real-world cohort, ILRs demonstrated a good diagnostic performance, with a diagnostic yield of 34%, and most diagnoses occurring withing the first year after implantation.

PO 50. TILT-TEST OUTCOMES AFTER CARDIONEUROMODULATION ACROSS TWO VAGAL PHENOTYPES

Felipe Leão, Tiago Constantino, Helena Fonseca, Sara Laginha, Hélder Santos, Madalena Cruz, Guilherme Portugal, Paulo Osório, Ana Lousinha, Pedro Silva e Cunha, Bruno Valente, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Cardioneuromodulation (CNM) is increasingly used in patients with severe cardioinhibitory (CI) reflex syncope and hypervagotonic syndromes. Recent studies have shown that CNM can significantly reduce syncope burden in CI vasovagal syncope and may provide benefit in dedicated cohorts with symptomatic vagally mediated bradycardia as an alternative to cardiac pacing. We aimed to evaluate tilt test (TT) and clinical outcomes of CNM in hypervagotonic bradycardia (HB) and CI reflex syncope in a dedicated syncope unit.

Methods: Consecutive patients undergoing CNM for severe recurrent CI syncope (CI group) or symptomatic HB (HB group) were included. Patients were classified according to clinical features and baseline investigations. TT performed before and after CNM were considered positive whenever there was reproduction of symptoms and a response not reported as negative. Outcomes included change in TT positivity and syncope recurrence during follow-up.

Results: Fourteen patients were included (age 36.9 ± 8.5 years, 71.4% male): CI group - 6; HB group - 8. HB patients were younger and less frequently male (34.0 ± 7.1 years, 50.0%) compared with the CI group (40.8 ± 9.3 years, 100.0%; p = 0.085). Recurrent syncope pre-CNM was highly prevalent in both groups (87.5% vs. 100%; p = 1.00). In the HB group, TT positivity decreased from 62.5% (5/8) to 12.5% (1/8), whereas in the CI group it decreased from 100% (6/6) to 66.7% (4/6; p = 0.091). Syncope recurrence occurred in two HB patients (25.0%) and in none of the CI patients during the first year of follow-up. No major procedural complications were documented.

Conclusions: CNM was associated with a marked reduction in TT positivity across both HB and CI syncope phenotypes. HB patients demonstrated near-complete physiological conversion, while CI patients showed meaningful

	Hypervagotonic	Reflex
N	8	6
Age, years (mean±SD)	34.0 ± 7.1	40.8 ± 9.3
Male, n (%)	4 (50.0%)	6 (100.0%)
Syncope, n (%)	7 (87.5%)	6 (100.0%)
Dizziness, n (%)	4 (50.0%)	3 (50.0%)
Palpitations, n (%)	2 (25.0%)	0 (16.7%)
Positive tilt pre, n (%)	5 (62.5%)	6 (100.0%)
Positive tilt post, n (%)	1 (12.5%)	4 (66.7%)
Syncope recurrence, n (%)	2 (25.0%)	0 (0.0%)

Figure PO 50

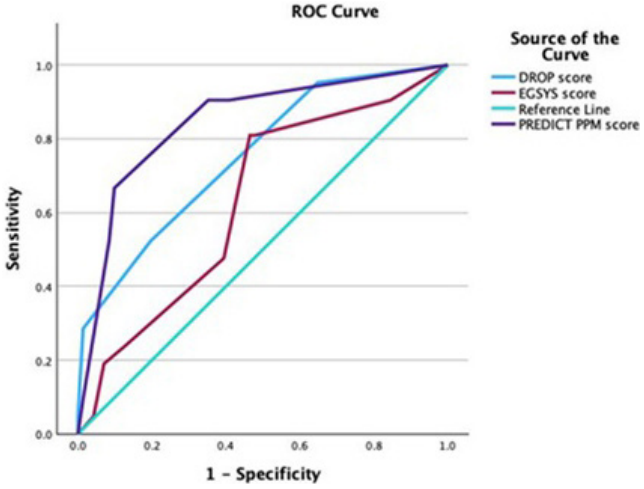
improvement with no recurrent syncope. These findings suggest that distinct vagal phenotypes may display differential physiological and clinical responses to CNM. Larger prospective studies are required to clarify the role of CNM within syncope management pathways.

PO 51. FROM SYNCOPE TO PACEMAKER: EVALUATING PREDICT-PPM, DROP, AND EGSYS SCORES IN ILR-MONITORED PATIENTS WITH SUSPECTED BRADYCARDIA

João Gouveia Fiuza, Mariana Duarte Almeida, Francisco Rodrigues dos Santos, Oliver Kungel, Luís Afonso Santos, Gonçalo RM Ferreira, João Miguel Santos, Júlio Gil, António Costa

ULS Viseu Dão-Lafões/Hospital de São Teotónio.

Introduction: Implantable loop recorders (ILR) are recommended to investigate unexplained syncope of suspected bradycardic origin. While several risk scores exist for syncope evaluation, their performance in predicting permanent pacemaker implantation (PPMi) in this specific population remains unclear. The PREDICT-PPM score was recently developed locally for this purpose, while DROP and EGSYS scores are widely used.
Objectives: To compare the performance of PREDICT-PPM, DROP, and EGSYS scores in predicting pacemaker implantation after ILR in patients with unexplained suspected bradycardic syncope.
Methods: Retrospective study of 119 consecutive patients who underwent ILR implantation for unexplained suspected bradycardic syncope. PREDICT-PPM, DROP and EGSYS scores were calculated at baseline. The primary outcome was PPMi during ILR monitoring. Chi-square and Mann-Whitney U tests were used for group comparisons. Discrimination for PPM implantation was assessed with ROC curve analysis.
Results: Mean age 62 ± 17 years; 60.5% were women. PPMi occurred in 17.6% (n = 21). Median follow-up was 25.5 months. All patients without PPMi had a minimum follow-up of 1-year. PREDICT PPM score showed good discrimination (AUC 0.844, p < 0.001). Patients with PREDICT-PPM ≥ 2.75 had significantly higher PPMi (60.9% vs. 7.5%; χ^2 = 35.39, p < 0.001). DROP score showed moderate discrimination (AUC 0.753, p < 0.001). Risk stratification showed excellent gradient: low risk (< 2 points, n = 67) had 14.9% PPMi rate; intermediate risk (2 points, n = 18) had 27.8%; and high risk (≥ 3 points, n = 7) had 85.7% PPMi rate (χ^2 = 18.34, p < 0.001). EGSYS score demonstrated modest discrimination (AUC 0.630, p = 0.054). Patients with EGSYS ≥ 1.5 had higher PPMi rate (30.4% vs. 6.8%; χ^2 = 10.70, p < 0.001), although the standard classification (< 3 vs. ≥ 3) showed no significant difference (p = 0.21). When comparing the three scores, PREDICT-PPM showed numerically higher AUC compared to DROP (0.844 vs. 0.753) and EGSYS (0.844 vs. 0.630). The scores demonstrated complementary performance profiles: PREDICT-PPM with high specificity (90.1%), EGSYS with high sensitivity (81.0%), and DROP with balanced characteristics.



Conclusions: In patients with suspected bradycardic syncope undergoing ILR monitoring, all scores demonstrated discriminative ability for PPMi, with PREDICT-PPM showing the highest AUC. These findings support further external validation and highlight complementary roles that may aid clinical decision-making.

PO 52. LONG-TERM OUTCOME OF CARDIONEUROMODULATION FOR CARDIOINHIBITORY VASOVAGAL SYNCOPE

Sílvia Ribeiro[1], Mário Oliveira[2], Paulo Fonseca[3], Lucy Calvo[1], Tiago Constantino[2], Sérgio Laranjo[2], Pedro Silva e Cunha[2], João Almdeida[3], Víctor Sanfins[1], Ricardo Fontes de Carvalho[3], António Lourenço[1], João Primo[3]

[1]ULS Alto Ave/Hospital da Senhora da Oliveira. [2]ULS São José/Hospital de Santa Marta. [3]ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Vasovagal syncope is the most frequent form of syncope in the general population. Conventional conservative measures are often insufficient for its successful treatment. Autonomic modulation with atrial ganglionated plexi ablation (CNA) has emerged as a treatment option for cardioinhibitory reflex (CI) syncope, especially in young patients, to avoid definitive cardiac pacing.
Methods: A retrospective study aimed at characterizing the population undergoing CNA for CI syncope, using extracardiac vagal stimulation to assess the intra-procedural acute endpoint of vagal response abolition.
Results: The sample includes 52 patients (70% male, mean age - 43 years). The EnSiteX mapping system with Emphasis mapping software for ganglion location was used in 26 patients, while the Carto system was used in 26 patients. Extracardiac vagal stimulation induced significant sinus pauses in 8.3% of patients, complete atrioventricular block (AVB) in 8.3%, and a mixed response (sinus pauses + AVB) in 83.3%. In most patients (80%) CNA targeted more than one ganglionated plexus group. The mean procedure time was 105 minutes, with a mean radiation dose of 67.92 mGy, a mean of 34 radiofrequency (RF) applications, and a mean RF time of 16 minutes. Times were longer when the intra-procedural response was AV block. In 92% of the cases, it was possible to completely eliminate the intra-procedural vagal response. The mean number of RF applications and RF time were lower when using Emphasis mapping software. No complications associated with the procedure were recorded. Approximately 90% of patients did not present syncope recurrence during a follow-up ranging between 1 and 5 years.
Conclusions: CNA guided by extra-cardiac vagal stimulation offers a safe and successful treatment option for CI vasovagal syncope, showing excellent long-term results in a young population. Larger studies are needed to confirm these findings.

PO 53. PREDICTIVE VALUE OF PASSIVE TILT-INDUCED ASYSTOLE FOR SPONTANEOUS SYNCOPE: INSIGHTS FROM A SINGLE-CENTRE ILR COHORT

Patrícia Bernardes, Leonor Parreira, Dinis Mesquita, Jéni Quintal, Catarina Pohle, Marco Tomaz, David Campos, Sara Gonçalves, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Tilt-induced asystole is considered a marker of cardioinhibitory syncope, but its predictive value for spontaneous events remains debated.
Objectives: To determine whether asystole during the passive phase of the tilt-table test (TTT) predicts spontaneous asystole documented by an implantable loop recorder (ILR), and to assess outcomes according to ILR-guided management.
Methods: This retrospective single-centre cohort (2015-2025) included adults with syncope and asystole ≥ 3 s occurring during the passive phase of a standard two-stage TTT protocol (70°, 20-min passive phase followed by nitro-glycerine if negative). Patients whose first event occurred only after nitro-glycerine were excluded. All subsequently underwent ILR implantation (median TTT-to-ILR interval 29.5 days [IQR 15.0-45.3]). ILR-documented

symptomatic episodes were classified (blinded to TTT results) as bradycardia with asystole (pause ≥ 3 s), bradycardia without asystole, or normal rhythm. The primary endpoint was TTT-ILR concordance (positive predictive value, PPV). Secondary endpoints were 1-year syncope recurrence and outcomes according to therapy. Treatment was ILR-directed and included pacemaker (PM) implantation or cardioneuroablation (CNA); these were analysed as a single treated group.

Characteristic	Value
Age, years	54.7 ± 14.4
Female, n (%)	43 (58.1)
Hypertension	40 (54.1)
Dyslipidaemia	25 (33.8)
Coronary artery disease	12 (16.2)
Heart failure	18 (24.3)
Atrial fibrillation	17 (23.0)
Chronic kidney disease	5 (6.8)
Type 2 diabetes mellitus	17 (23.0)
Medications	
ACEi/ARB	32 (43.2)
β-blocker	19 (25.7)
MRA	21 (31.1)
ARNI	15 (20.3)
SGLT2 inhibitor	39 (52.7)
Antiarrhythmic drugs	8 (10.8)

Table 1. Baseline characteristics of the study population (n = 74)
Values are presented as mean ± SD or n (%). ACEi = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; MRA = mineralocorticoid receptor antagonist; ARNI = angiotensin receptor–neprilysin inhibitor; SGLT2 = sodium–glucose cotransporter 2.

Parameter	Value
Mean TTT pause, s	6.5 ± 2.3
Time to syncope, min	15.7 ± 3.2
Time from TTT to ILR implantation, days	29.5 (15.0–45.3)
ILR follow-up, months	21.6 ± 7.9
ILR with symptomatic event	54 (73.0%)
No symptom–rhythm correlation	20 (27.0%)
ILR-documented mechanism (n=74)	
Bradycardia with asystole	19 (25.7%)
Bradycardia without asystole	23 (31.1%)
Normal rhythm	12 (16.2%)
TTT–ILR concordance for asystole	19 (25.7%)
PM implantation	13 (68.4%)
Cardioneuroablation (CNA)	3 (15.8%)
Total treated	16 (84.2%)
Syncope recurrence (1 year)	
Treated (only in PM recipients)	2/16 (12.5%)
Not treated/others	27/58 (46.6%)
Risk ratio (95% CI)	0.27 (0.07–1.01)
Fisher's exact p-value	0.019

Table 2. Tilt-table test and ILR findings
TTT = tilt-table test; ILR = implantable loop recorder; PM = pacemaker; CNA = cardioneuroablation

Results: Among 74 patients (mean age 54.7 ± 14.4 years; 58.1% women), ILR follow-up averaged 21.6 ± 7.9 months. ILR recorded ≥ 1 symptomatic event in 54 (73.0%). ECG-based ILR mechanisms were bradycardia with asystole 19 (25.7%), bradycardia without asystole 23 (31.1%), and normal rhythm 12 (16.2%). TTT-ILR concordance for asystole was 25.7% (19/74). Among ILR-asystolic patients, 16 were treated based on ILR findings (13 PM; 3 CNA). At 1 year, syncope recurred in 12.5% of treated patients vs. 46.6% in the non-treated group (RR 0.27, 95%CI 0.07-1.01; p = 0.019); all recurrences occurred in PM recipients.
Conclusions: Passive-phase TTT asystole predicted spontaneous asystole in only one in four patients, suggesting TTT may overestimate cardioinhibition. ILR-guided therapy markedly reduces recurrence.

PO 54. PROCEDURAL STRATEGY AND OUTCOMES OF CARDIONEUROMODULATION IN VAGALLY MEDIATED SYNDROMES

Felipe Leão, Tiago Constantino, Helena Fonseca, Sara Laginha, Hélder Santos, Madalena Cruz, Guilherme Portugal, Paulo Osório, Ana Lousinha, Pedro Silva e Cunha, Bruno Valente, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Cardioneuromodulation (CNM) seeks to modulate cardiac autonomic balance by targeting ganglionated plexi that mediate parasympathetic innervation of the atria. Its application spans hypervagotonic bradycardia, cardioinhibitory syncope and vagally mediated atrial arrhythmias, with emerging evidence supporting symptomatic improvement. Nevertheless, CNM techniques remain heterogeneous, and systematic descriptions of procedural strategy and its impact on physiological and clinical endpoints are still scarce.
Methods: We analysed consecutive CNM procedures in patients with hypervagotonic bradycardia, cardioinhibitory reflex syncope or paroxysmal atrial fibrillation with neurally mediated features. Right atrial (RA) and left atrial (LA) ganglionated plexi (GP) were ablated according to standard anatomic targets. For each procedure, we assessed GP distribution, number of ablation sites, immediate heart-rate (HR) response, syncope recurrence and safety. A patient-level analysis described clinical presentation and follow-up.
Results: Twenty-five patients underwent 28 CNM procedures (mean age 39.2 ± 12.9 years, 68% male): 20 for hypervagotonic bradycardia, 6 for cardioinhibitory syncope and 2 for paroxysmal atrial fibrillation with vagal features. Biatrial ablation was performed in 22 procedures (78.6%), LA-only in 3 (10.7%) and RA-only in 3 (10.7%). The median number of ablated GP was 2.5 (mean 2.8). In procedures with complete data, mean HR increased from 65.7 to 84.9 bpm immediately after CNM (Δ ≈ +19 bpm). Overall syncope recurrence occurred after 3 procedures (10.7%), all in hypervagotonic patients; no recurrences were observed in cardioinhibitory syncope or atrial fibrillation groups. No major procedural complications were documented.
Conclusions: CNM was predominantly performed using a biatrial strategy with ablation of multiple GP targets and produced a consistent acute HR increase. Clinical outcomes were favourable, with low syncope recurrence and no major complications. These findings provide a pragmatic description of procedural practice and support CNM as a therapeutic option in selected vagally mediated syndromes.

	HB	CI
N	8	6
Age (mean±SD)	34.0 ± 7.1	40.8 ± 9.3
Male (%)	4 (50.0%)	6 (100.0%)
Syncope (%)	7 (87.5%)	6 (100.0%)
Tilt pre (+)	5 (62.5%)	6 (100.0%)
Tilt post (+)	1 (12.5%)	4 (66.7%)
Recurrence (%)	2 (25.0%)	0 (0.0%)

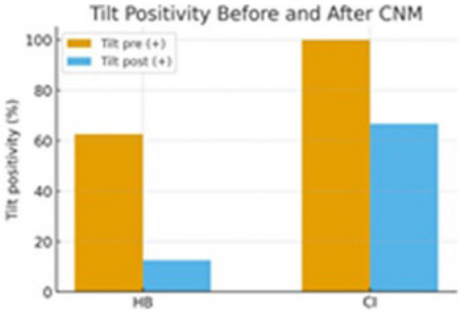


Figure PO 54

Sexta-feira, 24 Abril de 2026 | 11:00-11:55

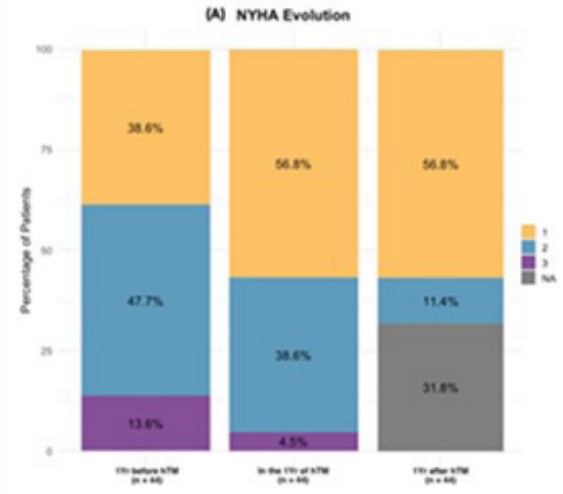
Área de Posters - Ecrã 2 | Sessão de Posters 10 - Cuidados modernos na insuficiência cardíaca: congestão, metabolismo e resultados

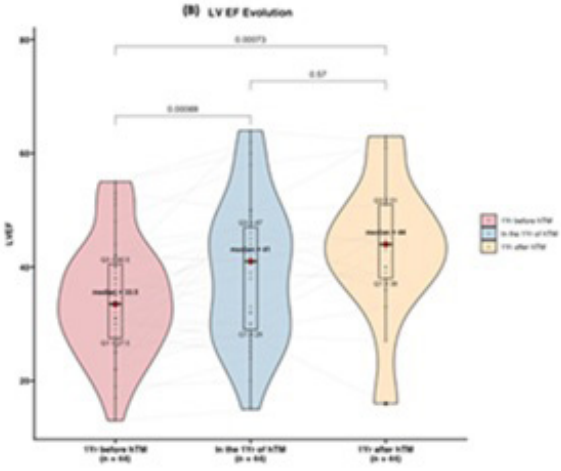
PO 55. HOME TELEMONITORING IN HEART FAILURE: REAL-WORLD CLINICAL OUTCOMES AND BIOSIGNAL PREDICTORS OF EVENTS

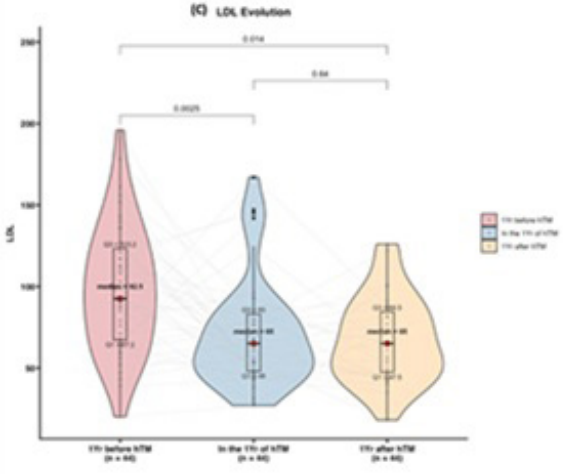
Inês Amorim Cruz, Tiago Filipe Aguiar, Carlos Oliveira Costa, Mariana S. Silva, Luís Miguel Santos, J. Mesquita Bastos, José A. Santos, Ana Briosa

ULS Região de Aveiro/Hospital Infante D. Pedro.

Introduction: Despite advances in therapy, heart failure (HF) continues to strain healthcare systems due to frequent outpatient follow-up and recurrent hospitalizations. Non-invasive home telemonitoring (hTM) may help address this challenge by improving follow-up, supporting adherence, and enabling earlier detection of HF decompensation. However, real-world evidence on its prognostic impact remains limited.
Objectives: To evaluate the clinical impact of a non-invasive hTM programme for HF and explore which biosignals best predict HF events.
Methods: In this retrospective study, all patients in our hTM programme were included (2020-2025). Clinical, biochemical, and cardiac parameters were compared across three timepoints: one year prior to enrolment, the first year of participation, and one year post-enrolment (based on the latest clinical evaluation at our centre). Logistic regression was used to assess the predictive value of biosignals.
Results: Over a 5-year period, our hTM programme enrolled 44 patients - median age of 70 years [IQR 60-77], 23% women and 77% with coronary artery disease. Median time in the hTM programme was 37 months [IQR 12-59], with a total of 41170 biosignal entries. HF hospitalizations decreased from 53 in the year before hTM to 23 in the first year, and to 8 among patients followed for more than one year. Emergency department (ED) visits followed a similar trend. The proportion of patients in NYHA class I increased from 38.6% to 56.8% in the first year of hTM, remaining stable thereafter ($p = 0.05$, Figure 1A), and median LVEF improved from 33.5% to 44% ($p = 0.0007$, Figure 1B). In terms of CV risk factors, LDL-cholesterol decreased from 92.5 mg/dL to 65 mg/dL ($p = 0.014$, Figure 1C); and among patients with ischemic heart disease, the proportion achieving LDL < 55 mg/dL rose from 14.7% to 55.9%. Of the 10,221 alerts triggered on the hTM platform, only 29 (0.3%) were considered clinically significant; 69% of which were resolved remotely without an ED visit. Among all HF-related ED visits, only 33% were referred through hTM. Weight changes showed the strongest association with HF-related ED visits (OR = 5.76 [95%CI, 2.87-11.0], $p < 0.001$), followed by oxygen saturation and heart rate (Figure 1D).
Conclusions: Over a median follow-up of 37 months, our non-invasive home telemonitoring programme reduced HF hospitalisations and emergency department visits, alongside improvements in NYHA class, cardiac function and better cardiovascular risk-factor control. Among monitored parameters,







(D) Univariable Logistic Regression of biosignals for HF-related ED visits

Biosignal	HF-related ED visits — Univariable model	
	OR (95% CI)	p-value
Systolic Blood Pressure	1.0 (0.45 - 2.01)	>0.9
Diastolic Blood Pressure	1.11 (0.53 - 2.15)	0.8
Heart Rate	2.54 (1.14 - 5.12)	**0.014**
Oxygen saturation	3.99 (1.36 - 9.35)	**0.004**
Temperature	5.14 (0.29 - 24.2)	0.11
Weight	5.76 (2.87 -11.0)	**<0.001**

weight, oxygen saturation, and heart rate were the most informative predictors of HF-related ED visits.

PO 56. TIMELINESS OF THE FIRST HEART FAILURE CONSULTATION AND OUTCOMES IN HFREF: ESTABLISHING A TEMPORAL THRESHOLD FOR FOLLOW-UP

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

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Introduction: Timely follow-up after hospital discharge or initial diagnosis is recommended to reduce adverse outcomes in HFrEF. However, objective evidence defining the maximum acceptable waiting time for the first consultation is lacking, and the prognostic impact of delayed access to specialized follow-up in real-life practice remains unclear.
Objectives: To evaluate whether waiting time until the first consultation predicts the occurrence of HF events (hospitalization or death) in patients with HFrEF and to explore whether a temporal threshold could be identified beyond which prognosis significantly worsens.
Methods: A retrospective cohort study of HFrEF patients followed at a tertiary hospital's outpatient HF clinic was conducted. Baseline clinical, laboratory, and echocardiographic data were collected. Patients were followed for 3 years for HF events. Mean waiting time for the first consultation was compared between patients with and without events. A ROC analysis identified the optimal waiting-time threshold, which informed subsequent Kaplan-Meier and Cox regression analyses, based on the identified threshold.
Results: A total of 200 HFrEF patients were included (mean age 65.1 ± 14.6 years; LVEF 27.5 ± 8.2%). Most were in NYHA class II (46.5%). Ischemic etiology was the most common (47.5%), followed by dilated cardiomyopathy (35.5%). Mean waiting time for the first consultation was 59.9 ± 63 days. During the 3-year follow-up period, 26 patients (13%) experienced an HF event. Patients with events had a significantly longer waiting time compared with those without events (97.3 ± 81.1 vs. 54.6 ± 58.2 days; mean difference 42.7 days; 95%CI -68.3 to -17.2; p = 0.001). ROC curve analysis demonstrated meaningful discrimination and identified 60 days as the optimal threshold to predict events. Kaplan-Meier curves showed a significantly higher cumulative incidence of HF events among patients seen ≥ 60 days after referral (log-rank p < 0.001). Cox regression confirmed that waiting ≥ 60 days for a first consultation was strongly associated with an increased risk of HF events (HR 5.73; 95%CI 2.41-13.65; p < 0.001).
Conclusions: Delayed access to the first HF consultation is a strong predictor of mortality or hospitalization in patients with HFrEF. A waiting time ≥ 60 days identifies patients at higher risk, suggesting that earlier follow-up may be clinically meaningful. These findings support the need for structured pathways ensuring timely post-diagnosis or post-discharge evaluation.

PO 57. IMPACT OF HEART FAILURE ON PATIENT AND CAREGIVER WELL-BEING AND QUALITY OF LIFE: EVIDENCE FROM A REPORTED OUTCOMES STUDY IN PORTUGAL

José Silva Cardoso, em Nome do Grupo de Estudo Vital[2]

ULS São João/Hospital São João.

Introduction: Heart failure (HF) is a global public health problem with high impact on both patients and their caregivers. This study aimed to characterize the well-being and quality of life (QoL) of HF patients and their caregivers.
Methods: This cross-sectional study included adult patients with HF (regardless of HF characteristics) and caregivers of HF patients between September 2023 and September 2024. Sociodemographic and clinical data were collected. Patients' self-care was assessed using the Portuguese version of the European Heart Failure Self-care Behavior Scale, and the Caregivers' Burden with the Heart Failure Caregiver Questionnaire. QoL was evaluated using the Portuguese version of EQ-5D-3L questionnaire.
Results: The study included 120 patients and 32 caregivers. Patients had a median [P25;P75] age of 58 [51;68] years and 59% were male. Caregivers had a median age of 55 [41;64] years and 71% were female; nearly half (45%) were spouses. The majority of patients (95%) took their medication as prescribed and were on a low-salt diet (64%), but only 42% exercised regularly and 26% weighed themselves daily. The self-care median reverse score for patients was 67 [53;78] out of 100. Caregivers spent a median of 21 [7;39] hours/week over a median 5 [3;16] years taking care of the patient. Regarding caregiver burden, physical well-being, emotional well-being and lifestyle total scores were 30 [15;55], 41 [29;52] and 38 [19;67] out of 100, respectively. Working caregivers reported a median 29% [0%;75%] work impairment due to HF. The most frequently reported QoL issue in both groups was experiencing some or severe anxiety and depression, reported by 44% of patients and 48% of

Demographics - Baseline (n=200)	
Age (y)	65.1±14.6
Time to 1st consultation (days)	59.9±63
Cause of Heart Failure and Co-morbidities	
Ischaemic (%)	46.5
Dilated Cardiomyopathy (%)	35.5
Valvular Heart Disease (%)	3.5
Diabetes (%)	32
Dyslipidemia (%)	56.5
Hypertension (%)	62
Smoking habits (%)	44.5
Atrial Fibrillation (%)	36.5
Clinical Presentation	
LVEF (%)	27.5±8,2
NT-proBNP (pg/mL)	5625.1±9008.9
NYHA functional class,	
I (%)	4.5
II (%)	47.5
III (%)	30.5
IV (%)	17.5
eGFR (mL/1,73m2/min)	70.4±24.3

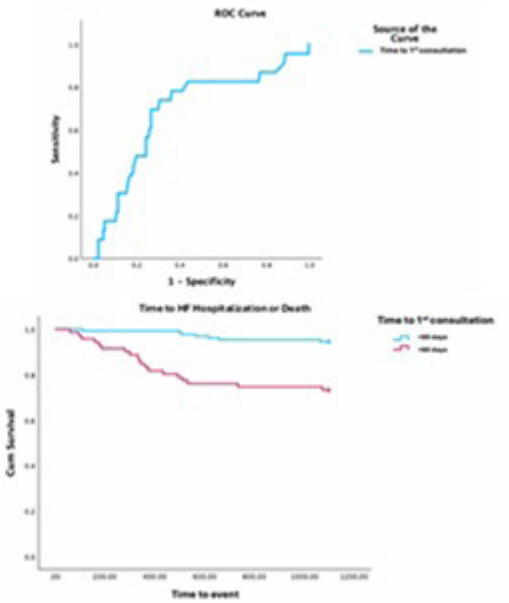


Figure PO 56

caregivers. The overall median health state score was 65 [50;80] and 76 [52;81] out of 100, for patients and caregivers, respectively. Most patients with caregivers (n = 11) reported some or significant problems with anxiety and depression (67%) and pain or discomfort (67%), and their median health state score was 50 [43;80].
Conclusions: Patients show acceptable self-care, although targeted interventions are still needed. Caregiving imposes a physical and emotional burden that requires structured support, and its presence is associated with worse QoL. Overall, HF substantially affects the well-being and QoL of both patients and caregivers.

PO 58. ASSOCIATION OF CA-125 WITH CONGESTION MARKERS IN ACUTE CORONARY SYNDROME

David Campos, Marco Tomaz, Catarina Pohle, Patrícia Bernardes, Ivo Palmeiro, Ana Esteves, Sara Gonçalves, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Tumour marker antigen carbohydrate 125 (CA-125) has emerged as a promising biomarker for assessing congestion in acute heart failure, complementing brain natriuretic peptide (BNP). While evidence supports CA-125's role in acute heart failure following ST-elevation myocardial infarction (STEMI), its utility in evaluating congestion among patients with acute coronary syndrome (ACS) remains unclear.
Objectives: To evaluate the association between CA-125 increase and congestion markers in patients presenting with ACS.
Methods: We performed a retrospective analysis of consecutive ACS patients hospitalized from July to November 2025. Baseline characteristics and clinical presentation at admission were recorded. CA-125 levels at admission were compared with congestion indicators, including Killip-Kimbal class, diuretic use, and NT-proBNP levels.
Results: A total of 52 patients were included (median age 67 years; 73% male), with 32 (61.5%) presenting with NSTEMI. 14 patients (27%) had a Killip-Kimbal class ≥ 2 during hospitalization, and 15 (29%) received diuretics. Mean CA-125 was 29.7 ± 58.1 UI/mL, and mean NT-proBNP was 3,880 ± 5,996 pg/mL. A statistically significant positive correlation was observed between CA-125 and NT-proBNP (Spearman's rho = 0.295, p = 0.034). However, no significant associations were found between CA-125 and Killip-Kimbal class (p = 0.12) or diuretic use (p = 0.19).
Conclusions: CA-125 levels correlate positively with NT-proBNP in ACS patients, supporting its potential as a congestion biomarker. No definitive relationship was established between CA-125 and clinical congestion markers such as Killip-Kimbal class or diuretic therapy. Studies with larger samples are warranted to further investigate these findings.

PO 59. THE ROLE OF ANTI-DIABETIC DRUGS ON THE EXTENT OF POST-BARIATRIC SURGERY CARDIAC REVERSE REMODELING

Edilson Chamba[1], Ana Filipa Ferreira[1], João Sérgio Neves[2], Mariana Pinto[2], Sara Costa[2], Fernando Resende[2], Eduardo Jorge Lima-da-Costa[2], Inês Falcão Pires[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]ULS São João/Hospital São João.

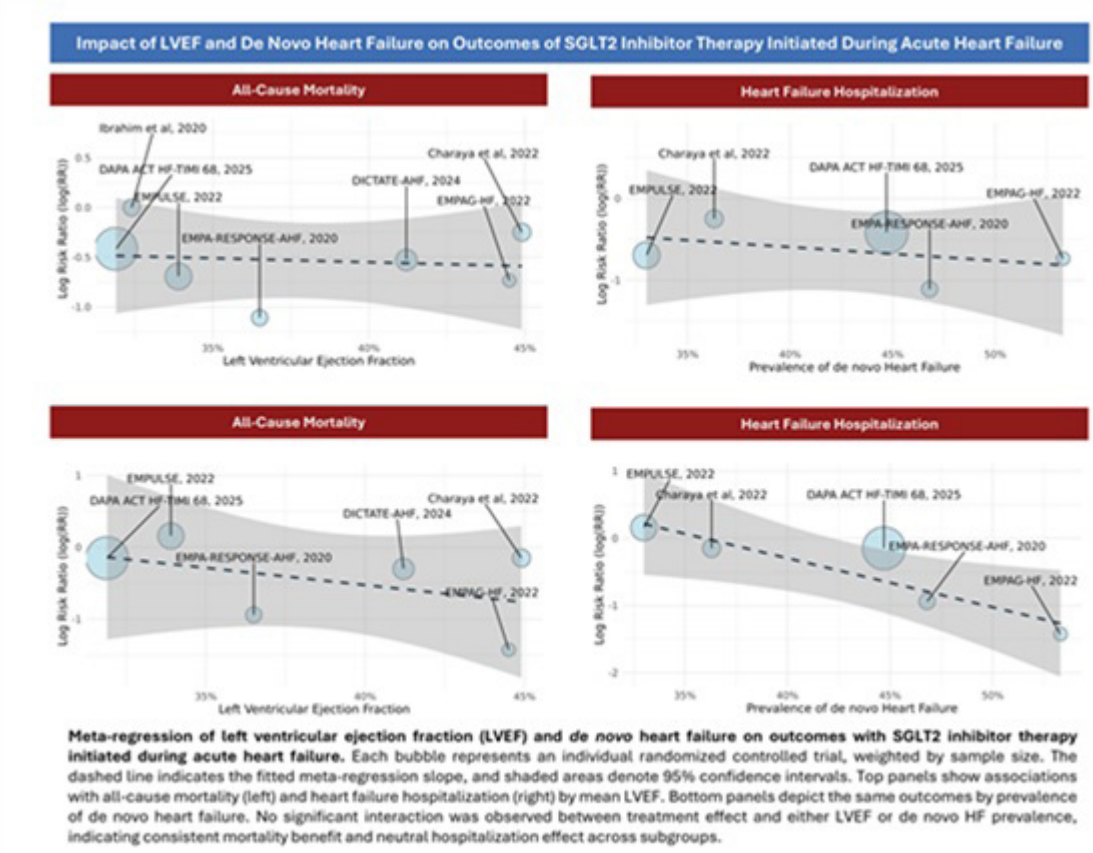
Introduction: Obesity induces cardiac remodeling, often asymptomatic, that may precede HF. Bariatric surgery (BS) can lead to weight loss and cardiac reverse remodeling (RR). The impact of anti-diabetic drugs, particularly glucagon-like peptide-1 receptor agonists (GLP1-RA) and sodium-glucose cotransport-2 inhibitors (SGLT2i), on cardiac function and RR remains unclear.
Objectives: To investigate the effects of BS on cardiac, metabolic, and adipose tissue RR and the influence of pre-surgery GLP1-RA or SGLT2i therapy.
Methods: We recruited 19 obese participants (mean age 50 ± 10 years; 9 females, 10 males) with preserved ejection fraction, scheduled for BS at a tertiary center from October 2024 to April 2025. Participants underwent transthoracic echocardiography (TCC), pulse wave velocity analysis, and bioelectrical impedance analysis (BIA), as well as a 6-minute walk test (6MWT) and the Kansas-City Cardiomyopathy Questionnaire (KCCQ), immediately before BS (T0) and three-months post-BS (T1). Visceral adipose tissue (VAT) was collected for histomorphometric analysis. Participants were divided into two groups: those receiving GLP1-RA or SGLT2i therapy (BARD group, n = 8) and those not receiving it (CTRL group, n = 11). Statistical analyses included t-tests, Mann-Whitney tests, chi-square tests, and mixed-effects models ($p < 0.05$).
Results: Significant weight loss was confirmed at follow-up, along with reductions in total fat mass (−29%, $p < 0.001$) and visceral fat area (−28%, $p = 0.003$). Despite no significant changes in walking distance, there was a marked improvement in exercise tolerance as shown by higher end-exercise oxygen saturation (+3%, $p = 0.030$), decreased dyspnoea (-2 points, $p = 0.001$), going accordingly with improvement in physical limitations (+22 points, $p = 0.001$), and quality of life (+29 points, $p < 0.001$) observed. Cardiac and vascular RR patterns were similar between groups post-BS. However, the BARD group had a higher relative wall thickness at baseline ($p = 0.020$). VAT analysis showed increased fibrosis in the BARD group ($p = 0.042$) compared to CTRL, with no significant differences in adipocyte size. No additional differences were observed between groups in the other parameters evaluated.
Conclusions: BS led to significant symptomatic and metabolic improvements, as evaluated through KCCQ, 6MWT, and BIA. Pre-surgery anti-diabetic therapy influenced cardiac RR in the BARD group, seen as a greater reduction of RWT. However, no differences were observed in other echocardiographic or vascular variables.

PO 60. IMPACT OF LVEF AND *DE NOVO* HEART FAILURE ON OUTCOMES OF SGLT2 INHIBITOR THERAPY INITIATED DURING ACUTE HEART FAILURE

Ana Marta C. Pinto[1], Emídio Mata[1], Bernardo Resende[2], Margarida Castro[1], João Português[1], Sílvia Ribeiro[1], João Gameiro[2], Filipa Cordeiro[1], Lino Gonçalves[2], António Lourenço[1]

[1]ULS Alto Ave/Hospital da Senhora da Oliveira. [2]ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Acute heart failure (AHF) carries high short-term mortality and rehospitalization despite advances in therapy. Sodium-glucose cotransporter 2 inhibitors (SGLT2i) improve outcomes in chronic heart failure (HF), but their efficacy when initiated during AHF hospitalization is less clear. Effects may differ by *de novo* versus chronic HF and left ventricular ejection fraction (LVEF).
Objectives: To assess the efficacy of SGLT2i initiated during AHF hospitalization and examine whether LVEF or *de novo* HF influence outcomes.
Methods: A systematic review and meta-analysis of RCTs was performed across five databases. Trials initiating dapagliflozin or empagliflozin during AHF hospitalization alongside standard therapy were included. Random-effects meta-analyses estimated pooled risk ratios (RRs) for all-cause mortality and HF hospitalization (HFH), and mixed-effects meta-regression evaluated the influence of LVEF and *de novo* HF.
Results: Eight RCTs involving 3,596 patients (1,817 SGLT2i; 1,779 controls) were included. The proportion of *de novo* HF ranged from 29.9% to 53.3%, mean LVEF was consistently ≤ 40%, and over half of patients were NYHA class III/IV. Initiation of SGLT2i during hospitalization significantly reduced all-cause mortality (RR 0.63 [0.46-0.85], $p = 0.003$). No significant reduction was observed for HFH (RR 0.86 [0.69-1.07], $p = 0.78$). Meta-regression analyses showed that neither baseline LVEF nor *de novo* HF prevalence significantly influenced outcomes. For all-cause mortality, the RR at LVEF 20% was 0.56 [0.21-1.48], with each 10% increase in LVEF associated with a nonsignificant 9% rise in RR (1.09 [0.58-2.02], $p = 0.79$). For HF hospitalization, the baseline RR at LVEF 20% was 0.99 [0.48-2.03], with each 10% increase in LVEF linked to a nonsignificant 10% reduction in RR (0.90 [0.57-1.44], $p = 0.67$). Regarding *de novo* HF, the RR for all-cause mortality at 0% prevalence was 0.49 [0.04-5.73], with each 10% increase in prevalence associated with a nonsignificant 6% increase in RR (1.06 [0.59-1.92], $p = 0.84$). For HF hospitalization, the baseline RR at 0% *de novo* HF was 2.62 [0.28-24.3], and each 10% increase in prevalence was linked to a nonsignificant 23% reduction in RR (0.77 [0.46-1.30], $p = 0.32$).



Meta-regression of left ventricular ejection fraction (LVEF) and *de novo* heart failure on outcomes with SGLT2 inhibitor therapy initiated during acute heart failure. Each bubble represents an individual randomized controlled trial, weighted by sample size. The dashed line indicates the fitted meta-regression slope, and shaded areas denote 95% confidence intervals. Top panels show associations with all-cause mortality (left) and heart failure hospitalization (right) by mean LVEF. Bottom panels depict the same outcomes by prevalence of de novo heart failure. No significant interaction was observed between treatment effect and either LVEF or de novo HF prevalence, indicating consistent mortality benefit and neutral hospitalization effect across subgroups.

Figure PO 60

Conclusions: Initiation of SGLT2i during hospitalization for AHF significantly reduces short-term all-cause mortality. The benefits appear consistent across patients with varying baseline LVEF and proportions of *de novo* heart failure, suggesting broad applicability in AHF management.

Sexta-feira, 24 Abril de 2026 | 11:00-11:55

Área de Posters - Ecrã 3 | Sessão de Posters 11 - Dos digitálicos aos diuréticos no espectro da insuficiência cardíaca

PO 61. REAL-WORLD PATTERNS OF DIGOXIN USE AND SAFETY IN HEART FAILURE: INSIGHTS FROM A CONTEMPORARY AMBULATORY COHORT

Francisco Salvaterra[1], Diogo Ferreira[1], Ana Francês[2], Fátima Salazar[2], Nuno Lousada[1], Joana Rigueira[1], Rafael Santos[1], Doroteia Silva[3], Fausto J. Pinto[1], Dulce Brito[1], João Agostinho[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]ULS Santa Maria/Hospital Pulido Valente. [3]Department of Cardiology and Department of Intensive Care, ECMO Reference Center, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Digoxin use in HF has declined due to safety concerns and limited recent evidence, but the DIGIT-HF trial renewed interest in digitalic's role, particularly for more advanced HF patients. Updated real-world data on its use and safety are therefore needed.

Objectives: To characterize real-world prescribing patterns, indications, monitoring, and safety outcomes of digoxin in patients with HF.
Methods: We conducted a retrospective observational study of HF patients on digoxin, collecting demographic, clinical, echocardiographic, therapeutic, and follow-up data, including initiation indications and serum digoxin levels.
Results: In a population of 900 patients, a total of 59 patients were treated with digoxin and were included, with a mean age of 69.8 ± 11.6 years, BMI of 28.3 ± 8.46 kg/m^2 and advanced systolic dysfunction (mean LVEF 32.6%). Baseline heart rate averaged 75.7 ± 15.4 bpm and mean systolic/diastolic blood pressures were 115.9 ± 20.3 and 69.1 ± 12.4 mmHg. Biomarker and renal profiles reflected significant disease burden, with a median NT-proBNP of 2,134 pg/mL (IQR 1,017-3,595), mean creatinine, 1.20 ± 0.36 mg/dL, and estimated GFR, 57.6 ± 21.0 mL/min/1.73 m^2; chronic kidney disease was present in 30.5%. Atrial arrhythmias were highly prevalent, with atrial fibrillation in 84.8% of patients and atrial flutter in 5.1%. 10.1% of patients were in sinus rhythm. Most patients had HFrEF (72.9%). Digoxin was mainly prescribed for atrial arrhythmia-related rate control, accounting for almost 90% of indications. Only 10.3% received digoxin primarily for HFrEF management independent of rhythm or need for rate control. Serum digoxin was measured in 34 patients (52 assays). Therapeutic levels (0.5-0.9 ng/mL) were observed in 11 patients, while 10 had levels ≥ 0.9 ng/mL, although only one reached a toxic level ≥ 2 ng/mL) in the context of renal function worsening. In 13 patients, concentrations remained ≤ 0.5 ng/mL, reflecting adequate rate control achieved with lower digoxin doses rather than subtherapeutic exposure. No adverse events attributed to digoxin were recorded. Digoxin was discontinued in 7 patients (11.9%), because its maintenance was deemed unnecessary (4 patients), either because the target heart rate was attained independent of digoxin use or because a rhythm-control strategy was implemented or due to renal function decline, levels above the safety margin or iatrogenic concerns (1 patient each). Outcomes after withdrawal were favorable, with only one HF hospitalization recorded.
Conclusions: In this real-world cohort, digoxin was used mainly for atrial arrhythmia rate control. Target digoxin levels were achieved in most patients, reflecting ease of use and contributing to the low rate of adverse events, even

after discontinuation. These findings suggest that digoxin may warrant broader reconsideration as a therapeutic option in selected patients with HFrEF.

Baseline Patient Characteristics	
Age (y)	69.78 ± 11
CKD (%)	30.5
HTN (%)	50.8
Dyslipidemia (%)	44.8
Diabetes (%)	20.3
NT-proBNP (pg/mL)	3462.89 ± 4700.21
LVEF (%)	32.6 ± 11.37
eGFR (ml/1.73m²/min)	61.53 ± 21
LVEF Class	
HFrEF (%)	72.9
HFimpEF (%)	16.9
HFmrEF (%)	5.1
HFpEF (%)	5.1
Etiology	
Ischemic (%)	22.4
Dilated Cardiomyopathy (%)	55.2
Rhythm	
Sinus Rhythm (%)	1.7
Atrial Fibrillation (%)	84.8
Atrial Flutter (%)	5.1

PO 62. CARDIAC GLYCOSIDES IN HEART FAILURE WITH REDUCED EJECTION FRACTION IN THE ERA OF CONTEMPORARY GUIDELINE-DIRECTED MEDICAL THERAPY: A SYSTEMATIC REVIEW AND META-ANALYSIS

Luísa Pinheiro[1], Emídio Mata[1], Bernardo Resende[2], Ana Marta Pinto[1], Bárbara Lage Garcia[1], João Português[1], Sílvia Ribeiro[1], Olga Azevedo[1], António Lourenço[1]

[1]ULS Alto Ave/Hospital da Senhora da Oliveira. [2]ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Heart failure (HF) with reduced ejection fraction (HFrEF) remains a major challenge despite widespread use of the four pillars of contemporary guideline-directed medical therapy (GDMT). Cardiac glycosides, historically used for their inotropic and neurohormonal effects, have largely fallen out of favor with the DIG trial (1997), showing reduction of HF hospitalizations but no mortality benefit. However, that trial predated modern GDMT and device therapy. Recent data, including the DIGIT-HF trial (2023), have renewed interest in this drug class by suggesting a potential benefit of digitoxin in optimally treated patients.

Objectives: Evaluate the impact of cardiac glycosides on patients with HFrEF receiving contemporary background therapy.

Methods: Four databases were searched for randomized trials (RCT) or propensity-matched studies recruiting adults with HFrEF (LVEF< 50%) after 2000, comparing cardiac glycosides with standard care and reporting at least one primary outcome (all-cause mortality or heart-failure hospitalization). Data were pooled using an inverse-variance random-effects model.

Results: Six studies met inclusion criteria, one RCT (DIGIT-HF) and five propensity-matched observational cohorts (2000-2023), encompassing ~10,000 patients (4,500 cardiac glycoside users, 5,500 controls). DIGIT-HF assessed digitoxin; the remaining studies evaluated digoxin. Pooled analysis demonstrated no significant difference in all-cause mortality (HR 1.01 [0.67-1.53] I^2 = 77%) with cardiac glycosides significantly reducing HF hospitalizations (HR 0.84 [0.76-0.93] I^2 = 0%). No significant effect was observed for all-cause hospitalizations (HR 0.95 [0.83-1.10] I^2 = 53%). Cardiovascular mortality, reported only in DIGIT-HF, was similar between groups (HR 0.87 [0.67-1.11]).

Conclusions: This post-2000 era meta-analysis suggests that cardiac glycosides may still provide benefit by reducing HF hospitalizations among patients with HFrEF receiving contemporary GDMT. The interpretation of mortality outcomes is, however, limited by the high heterogeneity observed across studies. Digoxin dosing differences, potential residual bias despite propensity matching, and differences in pharmacokinetics between digoxin and digitoxin, together with wide variation in recruitment periods, may have influenced the results and contributed to heterogeneity. These findings highlight the crucial need for RCTs to clarify the role of cardiac glycosides as adjunctive therapy in contemporary HFrEF.

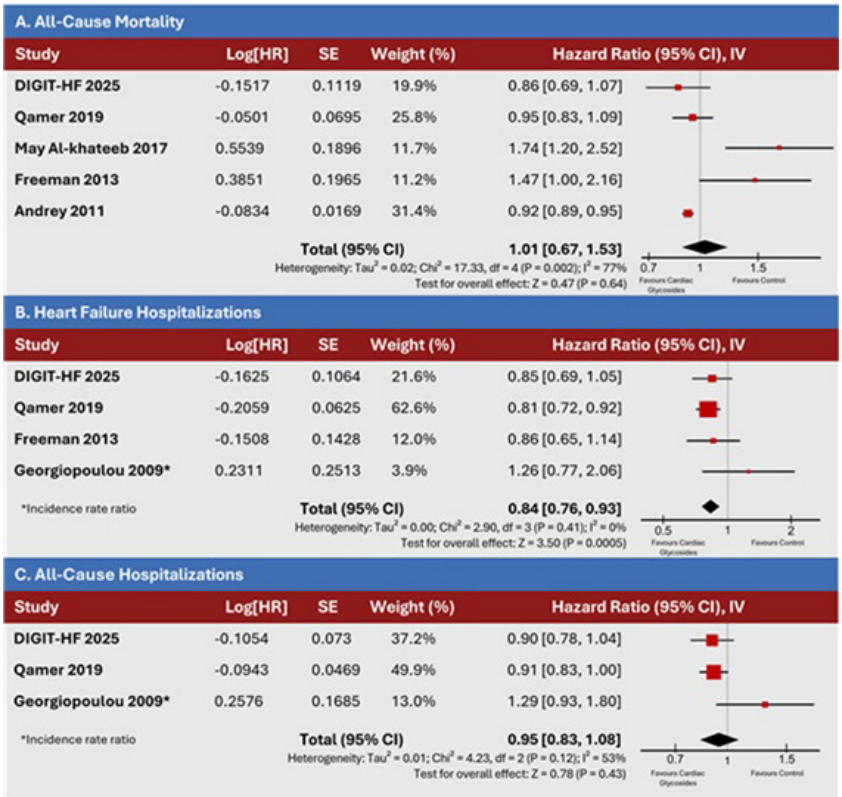


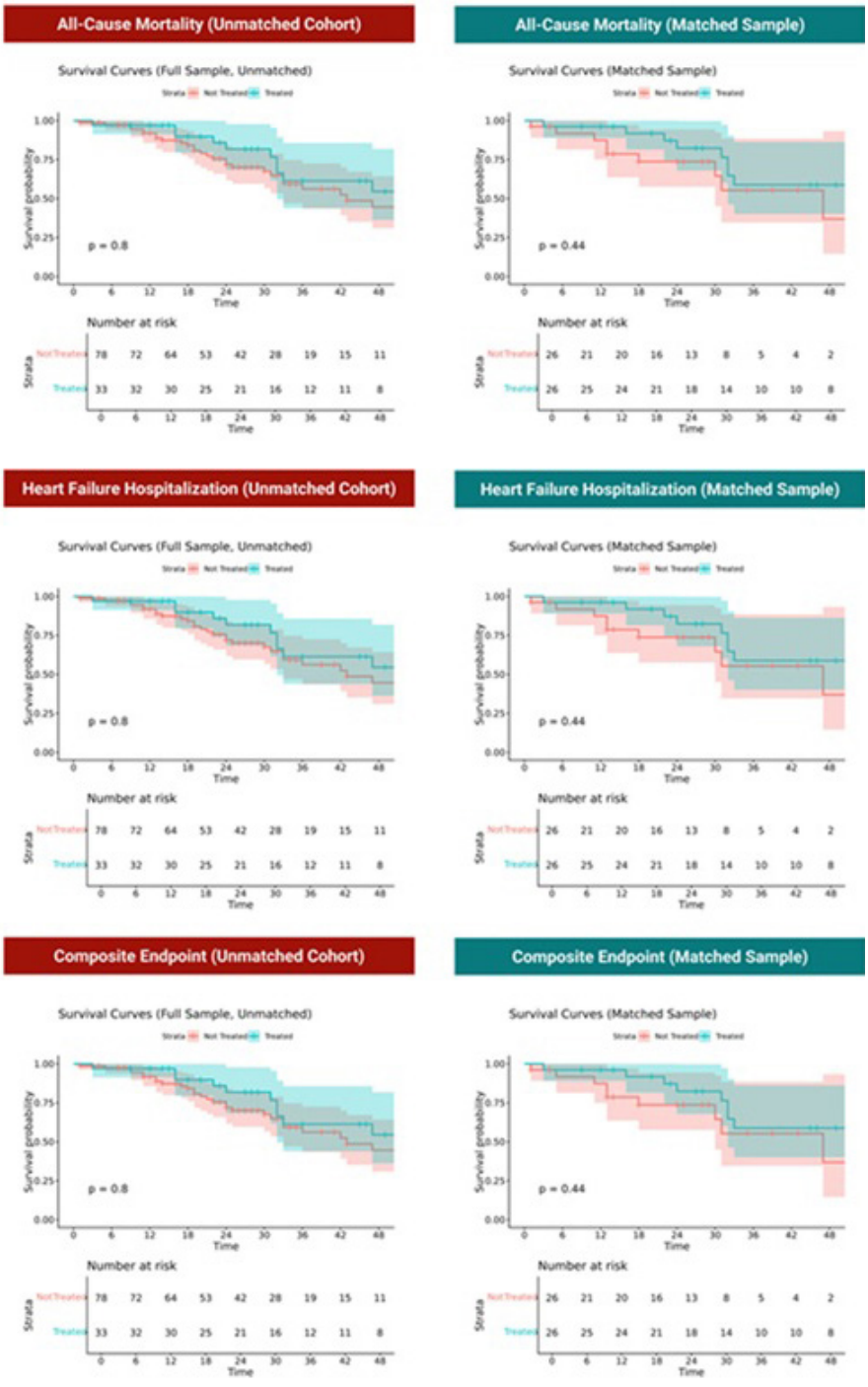
Figure PO 62

PO 63. MINERALOCORTICOID RECEPTOR ANTAGONISTS THERAPY IN TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: A PROPENSITY-MATCHED COHORT STUDY

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

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Evidence for mineralocorticoid receptor antagonists (MRA) in heart failure (HF) secondary to transthyretin amyloid cardiomyopathy (ATTR-CM) is limited.
Objectives: Evaluate the impact of MRA on clinical outcomes in ATTR-CM.
Methods: Single-center, retrospective cohort of consecutive patients with confirmed ATTR-CM (2014-2023; n = 111). Patients were categorized as MRA-treated or untreated. Propensity score (PS) matching used 11 clinical covariates, yielding 26 matched pairs (n = 52). The primary outcome was all-cause mortality; secondary outcomes included heart failure



Kaplan–Meier survival curves comparing mineralocorticoid receptor antagonists (MRA)–treated and non-treated patients with transthyretin amyloid cardiomyopathy (ATTR-CM). Outcomes are shown for unmatched (left) and propensity score–matched (right) cohorts: all-cause mortality (top), heart failure hospitalization (middle), and the composite of all-cause mortality and heart failure hospitalization (bottom). P values correspond to log-rank tests. Shaded areas represent 95% confidence intervals; numbers at risk are provided below each plot.

hospitalization (HFH) and a composite of mortality and HFH. Survival was analyzed using Kaplan-Meier estimates and Cox regression, with treatment modeled both at baseline and as a time-varying covariate to account for immortal time bias.
Results: In the PS-matched cohort (mean age 81.0 ± 4.6 years, 61.5% male), MRA therapy was not associated with a reduction in all-cause mortality (HR = 0.71 [0.28-1.81], *p* = 0.48), over a median follow-up of 23 months (IQR: 16-41.25). In the overall (unmatched) cohort, MRA therapy was also not associated with mortality (HR = 0.93 [0.50-1.72], *p* = 0.82). In time-varying Cox models, MRA treatment remained neutral both unadjusted (HR = 0.96 [0.44-2.08], *p* = 0.92) and after multivariable adjustment for age, sex, comorbidities, and concurrent HF therapies (HR = 1.35 [0.62-2.95], *p* = 0.45). Similarly, no significant association was observed between MRA therapy and HF hospitalization. In the PS-matched cohort, the HR for HFH was 0.71 [0.28-1.81] (*p* = 0.48), consistent with findings in the unmatched cohort (HR = 0.93 [0.50-1.72], *p* = 0.82). In time-varying analyses, MRA remained neutral both unadjusted (HR = 0.96 [0.44-2.08], *p* = 0.92) and adjusted (HR = 1.35 [0.62-2.95], *p* = 0.45). The composite endpoint of all-cause mortality or HF hospitalization was likewise unaffected by MRA use (PS-matched HR = 0.71 [0.28-1.81] *p* = 0.48), with consistent null findings in time-varying unadjusted and adjusted analyses.
Conclusions: In this PS-matched observational cohort of ATTR-CM, MRA therapy was not associated with improved survival, fewer HFH, or lower composite event rates. Findings were consistent across baseline and time-varying analyses, suggesting no apparent benefit of MRA therapy in this population. Prospective, adequately powered studies are warranted to clarify the role of MRA in ATTR-CM.

PO 64. EFFECTS OF DIGOXIN IN MODERN HEART FAILURE TREATMENT: THE DIG-MOD HF TRIAL

António Valentim Goncalves[1], Nuno Cardim[2], António Fiarresga[1], Tiago Pereira-da-Silva[1], Mafalda Selas[1], Ana Galrinho[1], Pedro Rio[1], Rita Ilhão Moreira[1], Ricardo Carvalheiro[1], Fernando Ferreira[1], Julien Lopes[1], Rui Cruz Ferreira[1]

[1]ULS São José/Hospital de Santa Marta. [2]Hospital CUF Descobertas.

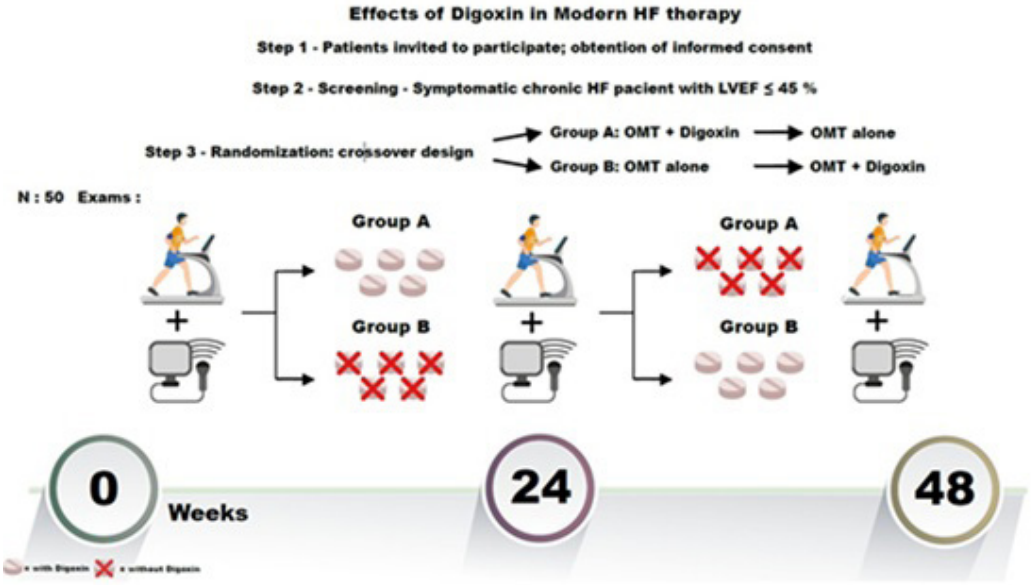
Objectives: Even though it is the oldest Heart Failure (HF) medication, Digoxin has not been recently evaluated in HF with reduced ejection fraction patients. The main objective is to assess the effectiveness of Digoxin in functional capacity and cardiac function when combined with modern HF therapy.
Methods: An interventional, open-label, randomized, crossover trial (EU CT Number: 2024-513448-26-00) among adults with chronic HF and reduced ejection fraction (≤ 45%), was designed to allocate 50 patients for 24 weeks in each arm (48 weeks of study). The arms are daily intake of Digoxin 0,125 mg plus standard of care versus standard of care alone. At the end of each 24 weeks arm, patients undergo the co-primary outcome measurement of the maximum oxygen consumption, evaluated through Cardiopulmonary Exercise Test, and the Global Work Index, measured by transthoracic echocardiography. Key secondary outcome includes a safety composite of death, need for urgent heart transplantation or mechanical assist device, total hospitalisations and sustained ventricular arrhythmias. The study completed recruitment in April 2025.
Results: The study will complete follow up in March 2026. Results will be ready to be presented in the congress.
Conclusions: The use of Digoxin could be significantly impacted by evidence that it still has a considerable effect on functional capacity and cardiac function in HF patients.

PO 65. VISÃO DOS ESPECIALISTAS NACIONAIS DO PAPEL DOS DIGITÁLICOS NO TRATAMENTO DA INSUFICIÊNCIA CARDÍACA EM 2025 EM PORTUGAL

António Valentim Goncalves[1], Ricardo Carvalheiro[1], Fernando Ferreira[1], Julien Lopes[1], Tiago Pereira-da-Silva[1], António Fiarresga[1], Nuno Cardim[2]

[1]ULS São José/Hospital de Santa Marta. [2]Hospital CUF Descobertas.

Introdução: Desde 1785 que conhecemos o potencial dos Digitálicos para tratar os nossos doentes com Insuficiência Cardíaca com fração de ejeção reduzida (ICFEr). No entanto, muito evoluiu o tratamento desta patologia nos últimos 40 anos, o que juntamente com a controvérsia associada com o risco de toxicidade destes fármacos, levou a que os Digitálicos deixassem de ser uma primeira opção de tratamento. Em 2025 tivemos um ressurgimento desta classe com a publicação do estudo Digit-HF. Nesse sentido, importa perceber de que forma os especialistas em Insuficiência Cardíaca Portugueses posicionam a utilização dos Digitálicos em 2025.
Métodos: Onze questões foram estruturadas num formulário online para avaliar o posicionamento nacional relativamente ao uso dos digitálicos na ICFEr. Os responsáveis de cada serviço de Insuficiência Cardíaca foram



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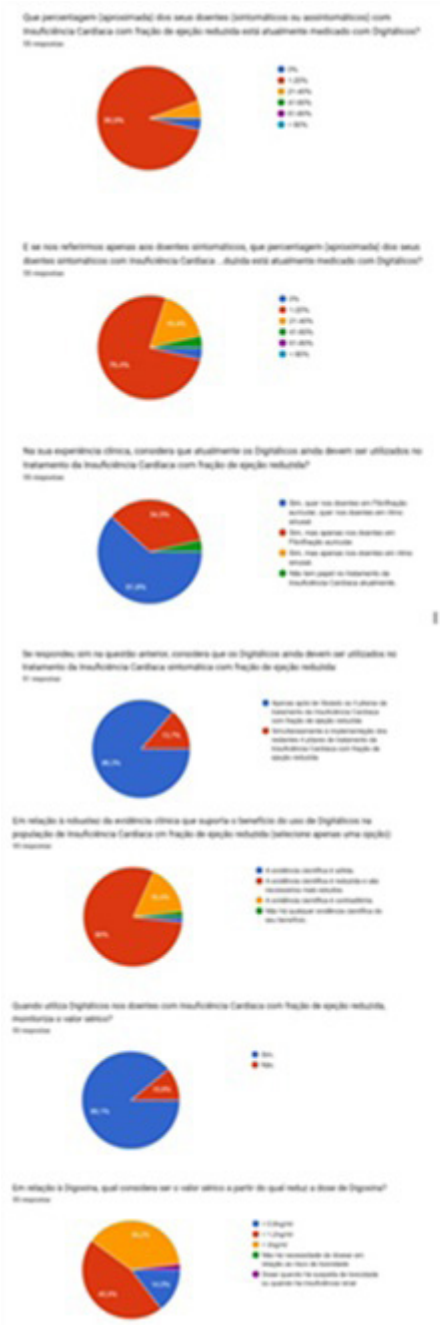

Quais são os principais benefícios que associaria ao uso de Digitálicos nos doentes com Insuficiência Cardíaca com fração de ejeção reduzida (pode selecionar mais que uma opção):	%
Melhoria sintomática	80,0
Redução internamentos hospitalares	49,1
Melhoria da sobrevida	5,5
Facilitar a implementação/titulação da restante terapêutica	10,9
Possível efeito neuro-hormonal adicional	20,0
Controlo de frequência cardíaca	90,9
Não encontro nenhum benefício	0

Em que situações clínicas considera apropriada a utilização de Digitálicos no tratamento da Insuficiência Cardíaca com fração de ejeção reduzida (pode selecionar mais que uma opção):	(%)
Sintomas de IC apesar de terapêutica otimizada	58,2
Sintomas de IC independentemente da terapêutica otimizada	1,8
IC avançada independentemente da restante terapêutica	12,7
Limitação na implementação dos 4 pilares	49,1
FA e IC com fração de ejeção reduzida	47,3
IC e FA com resposta ventricular rápida	94,5
Praticamente nunca recomendo	1,8

Quais são os principais motivos a limitar o seu uso de Digitálicos nos doentes com Insuficiência Cardíaca com fração de ejeção reduzida (pode selecionar mais que uma opção):	%
Risco de toxicidade elevado em relação ao eventual benefício	58,2
Falta de evidência científica robusta de benefício	50,9
Alternativas terapêuticas superiores disponíveis	52,7
Necessidade de monitorização	29,1
Não encontra nenhuma limitação	5,5

Figure PO 65

contactados e incentivados a divulgar o questionário à respetiva equipa médica para preenchimento individual. O preenchimento era anónimo.
Resultados: O questionário foi realizado por 55 especialistas nacionais (todas as respostas em anexo). Apenas 3,6% não utiliza digitálicos nos seus doentes com ICFEr, no entanto 34,5% refere apenas utilizar nos doentes com fibrilhação auricular (FA) concomitante. A grande maioria (86,3%) apenas utiliza após titular o tratamento com as quatro classes de recomendação I. A principal utilização é a FA com resposta ventricular não controlada (94,5%), seguido de ICFEr sintomática apesar de terapêutica médica/devices otimizada (58,2%). A principal limitação para a sua utilização foi considerar-se que o risco de toxicidade supera um eventual benefício clínico (58,2%), seguido da falta de evidência científica robusta (50,9%), sendo que 80% considerou que são necessários mais estudos nesta área. Na única questão referente apenas à Digoxina, o valor sérico a partir do qual consideram que se deve reduzir a dose foi divergente (45,5% > 1,2 ng/ml, 38,2% > 2 ng/ml e 14,5% > 0,9 ng/ml).
Conclusões: Os Digitálicos mantêm um papel ativo no tratamento da ICFEr em Portugal, no entanto é necessário maior evidência científica do seu benefício e segurança.

PO 66. BEAT THE CLOCK: DELAYED FUROSEMIDE INCREASES EARLY MORTALITY IN ACUTE HEART FAILURE

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TABLE 1 Baseline clinical characteristic of patients

	Population (n=305)
Age (years)	81±11
Sex (female)	63%
Ischemic heart disease	22%
Atrial fibrillation	45%
Hypertension	82%
Type 2 diabetes	38%
Manchester Triage System Green Yellow Orange	 10% 44% 46%
Weight (Kg)	74 ± 18
Creatinine Clearance (mL/min)	47 ± 22
NTproBNP (pg/ml)	12683 [10901]
LVEF (%)	51±13
First furosemide dose	46±20 mg
Time to first furosemide administration	10±14 h

TABLE 2 Clinical Outcomes

	Population (n=305)
Admissions	166 (55%)
Lenght of hospital stay in days	9 [10]
In-hospital deaths	30 (10%)
1-year deaths	71 (23%)

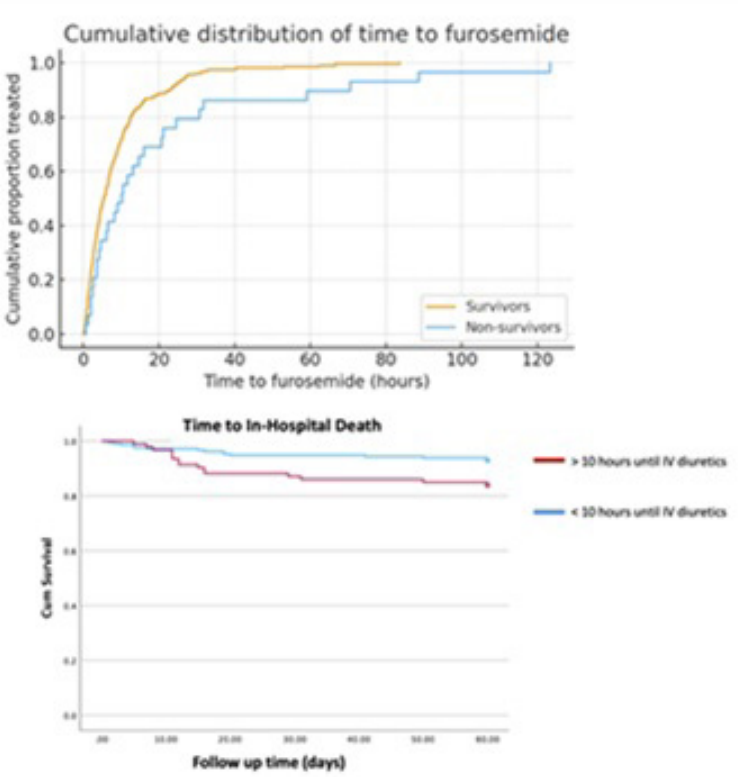


Figure PO 66

Introduction: Timely therapy is central in acute heart failure, but the real-world impact of delays in intravenous (IV) diuretics remains unclear. This study examined whether time from emergency department (ED) arrival to first IV furosemide was associated with admission, in-hospital mortality, and 1-year outcomes.
Methods: We performed a retrospective single-center study of patients that went to the ED in 2023 with acute heart failure and received IV furosemide. Demographic, clinical, laboratory, and treatment variables were extracted from electronic records. Outcomes included admission, length of stay, in-hospital mortality, and 1-year mortality. Group comparisons used Mann-Whitney U or χ^2 tests; logistic regression assessed associations between delay and outcomes. ROC analysis identified an optimal delay threshold, applied in Kaplan-Meier and Cox models.
Results: Among 305 patients (mean age 81 ± 11 years; 63% female), comorbidities were common: hypertension in 82%, atrial fibrillation in 45%, ischemic heart disease in 22% and diabetes in 38%. Median NT-proBNP was 12,683 pg/mL; mean estimated glomerular filtration rate, 47 ± 22 mL/min; mean LVEF, 51 ± 13%. First furosemide dose averaged 46 ± 20 mg, with a mean administration delay of 10 ± 14 hours. Overall, 166 patients (55%) were admitted (median stay 9 days); 30 (10%) died in-hospital and 71 (23%) died within one year. Admitted patients had longer delays than discharged patients (6.8 vs. 5.0 h; p = 0.021), and each additional hour increased odds of admission by 2.3% (OR 1.023; p = 0.029). In-hospital deaths had substantially longer delays (9.7 vs. 5.3 h; p = 0.029); each hour increased odds of death by 3.4% (OR 1.034; p < 0.001). ROC analysis identified 10 hours as the optimal cut-off for predicting early mortality. Patients treated after ≥ 10 hours had higher early mortality (HR 2.38; 95%CI 1.16-4.87; p = 0.017), with early and persistent Kaplan-Meier separation. Delay was initially linked to 1-year mortality (OR 1.022; p = 0.012), but this association disappeared after excluding in-hospital deaths, indicating the long-term effect was driven by early mortality.
Conclusions: Delayed IV furosemide, especially beyond 10 hours, was associated with increased admission and markedly higher in-hospital and short-term mortality. The effect did not persist after discharge, suggesting the harm of delayed treatment occurs early. Timely furosemide administration in the ED is critical to improve outcomes.

Sexta-feira, 24 Abril de 2026 | 11:00-11:55

Área de Posters - Ecrã 4 | Sessão de Posters 12 - Estratégias terapêuticas e desfechos em vida real na ATTR-CM

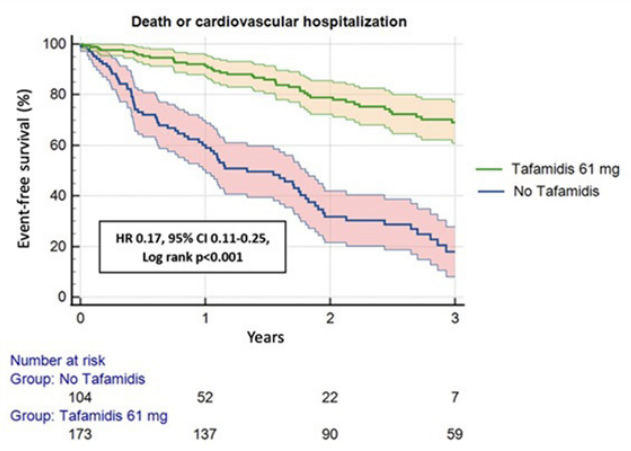
PO 67. TAFAMIDIS TO TREAT PATIENTS WITH TRANSTHYRETIN CARDIAC AMYLOIDOSIS (ATTR-CM): REAL-WORLD DATA FROM A TERTIARY CENTRE

Miguel Sobral Domingues, Rita Carvalho, Mariana Ramos, Sérgio Maltês, Tânia Laranjeira, Carlos Aguiar, Bruno M. Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Tafamidis 61 mg is the first therapy shown to improve survival and reduce cardiovascular hospitalizations in transthyretin cardiac amyloidosis (ATTR-CM). As real-world evidence continues to grow, further characterization of tafamidis use across diverse clinical settings remains important. Accordingly, we evaluated treatment patterns and outcomes in patients managed within a dedicated tertiary-care cardiomyopathy program.
Methods: We conducted a prospective, single-centre, all-comers study of consecutive patients with symptomatic Heart Failure (HF) due to ATTR-CM, up to November 2025. The diagnosis was performed based on the ESC multi-step algorithm. Management included HF therapy tailored to ATTR-CM (CHAD-STOP) and tafamidis 61 mg for patients who met the local protocol key criteria, including NYHA class I-II and no exclusion criteria [e.g., estimated glomerular filtration rate (GFR) < 25 mL/min and/or clinical frailty scale > 6]. The primary endpoint was a composite of cardiovascular hospitalization or all-cause death at 3 years. Subgroup analyses were performed according to the National Amyloidosis Centre (NAC) staging system.

Results: A total of 278 patients with ATTR-CM were included (median age 83 [78-87] years; 82% male; 8% hereditary ATTR-CM). Tafamidis 61 mg was initiated in 173 patients (62.2%). Compared with patients on stand-alone HF treatment, those treated with tafamidis were significantly younger (median age: 82 [77-86] vs. 85 [81-89] years; p < 0.001) with better functional status (NYHA I-II: 93% vs. 50%; p < 0.001) and health status (e.g., Frailty Index > 3: 14% vs. 68%; p < 0.001), and having fewer comorbidities (e.g., median GFR 37 [31-50] vs. 31 [24-43] mL/min; p = 0.002). During a median follow-up of 1.9 [0.9-3.2] years, 109 patients (39.2%) met the primary endpoint, including 82 deaths. Kaplan-Meier analysis demonstrated an improved event-free survival favouring tafamidis (HR 0.17; 95%CI 0.11-0.25; p < 0.001) (central figure). In the multivariate model adjusted for age, sex, NYHA, left ventricular ejection fraction, NT-proBNP and creatinine, tafamidis remained an independent predictor of reduced risk for the primary endpoint (HR 0.28; 95%CI 0.18-0.43; p < 0.001), driven by a reduction in death and cardiovascular hospitalization. These findings were consistent while assessing the cohort by NAC subgroups.



Central Figure: Kaplan-Meier event-free survival curves for patients with ATTR-CM with and without tafamidis treatment.

Conclusions: In this real-world cohort of patients with symptomatic HF due to ATTR-CM, tafamidis therapy was independently associated with a reduction in cardiovascular hospitalization or all-cause mortality. The magnitude of the benefit was comparable to that observed in the ATTR-ACT, supporting the effectiveness of applying trial-derived eligibility criteria to guide appropriate patient selection in real-world clinical practice.

PO 68. CLINICAL PROFILE, TREATMENT SELECTION, AND EARLY OUTCOMES WITH TTR STABILIZERS TO TREAT PATIENTS WITH TRANSTHYRETIN CARDIAC AMYLOIDOSIS: A REAL-WORLD STUDY

Mariana Silveira Ramos, Rita Carvalho, Sérgio Maltês, Rui Gomes, Tânia Laranjeira, Gonçalo Cunha, Miguel Mendes, Carlos Aguiar, Bruno M. Rocha

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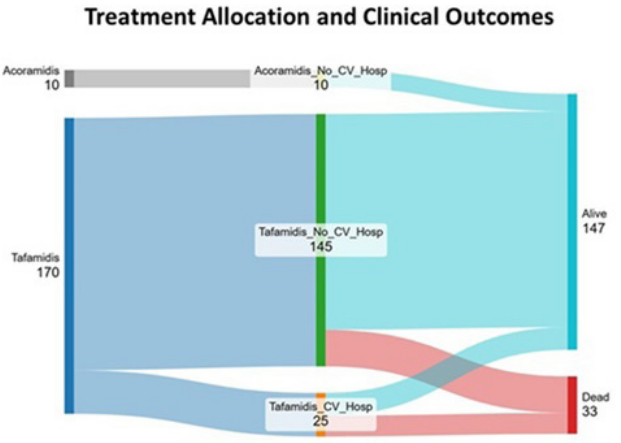
Introduction: Transthyretin cardiac amyloidosis (ATTR-CM) is a progressive infiltrative cardiomyopathy treatable with transthyretin stabilizers (S-TTR): 1) tafamidis 61 mg id, which is more broadly available and has long-term real-world data; and 2) acoramidis 712 mg bid, restricted to an Early Access Program (EAP) in Portugal, with scarcer real-world evidence.
Objectives: To characterize the real-world local experience with S-TTR to treat ATTR-CM, comparing baseline characteristics, treatment selection, safety, and clinical outcomes.
Methods: We conducted a retrospective, single-center cohort study of consecutive patients with ATTR-CM diagnosed according to the recommended algorithm. Treatment allocation reflected local protocols and EAP criteria. The primary endpoint was a composite of all-cause mortality or first cardiovascular hospitalization.
Results: A total of 180 patients received S-TTR: 170 were treated with tafamidis and 10 with acoramidis. The acoramidis group was slightly younger (80 [77-90] vs. 83 [79-83] years) and included more women (30% vs. 17%), with more pronounced renal dysfunction [creatinine clearance: 28 [25-33] vs. 44 [34-60] mL/min; *p* = 0.001] and higher NT-proBNP levels (3,954 [1,372-13,200] vs. 2,197 [1,323-4,005] pg/mL; *p* = 0.340). Echocardiographic parameters were similar between groups at baseline: interventricular septal thickness (17 [15-19] vs. 17 [14-21] mm), left ventricular ejection fraction (54% [43-58] vs. 53% [48-60]), tricuspid annular plane systolic excursion (17 [13-19] vs. 17 [13-20] mm) and Perugini grading (grade 3: 63% vs. 40%; grade 2: 35% vs. 40%). Acoramidis was prescribed according to the EAP: 3 patients switched from tafamidis (1 due to worsening heart failure; 2 due to progressive renal dysfunction) and 7 initiated acoramidis upfront due to chronic kidney disease (glomerular filtration < 25 mL/min). Patients received tafamidis and acoramidis for a median of 20 (10-35) vs. 3 (0-4) months (p < 0.001). During follow-up, 45 patients (25%) met an event of the primary endpoint: 33 died and 25 had a first cardiovascular hospitalization (central figure). Thirty-month survival estimated by Kaplan-Meier for the overall cohort (n = 180) was 81.7% (95%CI 75.8-87.6). The acoramidis cohort had a 100% event-free survival, with no new reported adverse events, although interpretation is limited by the short follow-up.



Central figure: Sankey diagram illustration treatment allocation (Tafamidis and acoramidis) and clinical outcomes per subgroup, including cardiovascular hospitaliation and mortality.

Conclusions: In this real-world cohort of patients with ATTR-CM treated with S-TTR, those on acoramidis had similar features compared to those on tafamidis, with the seldom exception of more pronounced renal impairment and higher NT-proBNP levels. Patients on acoramidis remained free of cardiovascular hospitalizations and mortality during follow-up. These early real-world findings support a favorable safety profile of acoramidis in EAP-selected patients unsuitable for or with disease progression while on tafamidis.

PO 69. REAL-WORLD USE OF TRANSTHYRETIN SILENCERS IN PATIENTS WITH VAL50MET FAMILIAL AMYLOID POLYNEUROPATHY AND CARDIAC INVOLVEMENT

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Introduction: RNA-targeted transthyretin (TTR) silencers, including antisense oligonucleotides and small interfering RNA therapies, are

Table 1 – Baseline characteristics and follow-up outcomes of patients with familial amyloid polyneuropathy and cardiac involvement treated with transthyretin silencers

Baseline characteristics (n = 37)		Follow-up (n=27)	
Age, median (IQR)	66 (52-74)	Duration, mean ± SD, months	29.5 ± 18.2
Male sex, n (%)	25 (67.6)	Stability criteria met	
Prior tafamidis 20 mg use, n (%)	29 (78.4)	Wall thickness, n (%)	20 (74.1)
Silencer initiated		LVEF, n (%)	18 (66.7)
Patisiran, n (%)	26 (70.3)	NT-pro-BNP, n (%)	22 (81.5)
Inotersen, n (%)	7 (18.9)	All three, n (%)	14 (51.9)
Vutrisiran, n (%)	4 (10.8)	NYHA functional class	
IVS thickness, mean ± SD, mm	13.8 ± 2.5	Improved, n (%)	3 (11.1)
PW thickness, mean ± SD, mm	12.6 ± 2.2	Stable, n (%)	21 (88.8)
LVEF preserved, n (%)	34 (91.9)	Worsened, n (%)	3 (11.1)
LVEF, mean ± SD, %	60.2 ± 8.5	Diuretic changes	
NT-proBNP, median (IQR), pg/mL	469 (227-961)	Start, n (%)	4 (14.8)
Troponin T, mean ± SD, ng/mL	0.044 ± 0.031	Up-titration, n (%)	2 (7.4)
NYHA functional class		Down-titration, n (%)	1 (3.7)
I, n (%)	17 (45.9)	New pacemaker implantations, n (%)	6 (22.2)
II, n (%)	20 (54.1)	New Afib or flutter, n (%)	3 (11.1)
Diuretic use, n (%)	12 (32.4)	HF hospitalisations, n (%)	0 (0)
Pacemaker, n (%)	10 (27.0)	Cardiac or hepatic transplant, n (%)	0 (0)
Afib or flutter, n (%)	3 (8.1)		

Afib – atrial fibrillation, IQR – interquartile range, IVS – interventricular septum, LVEF – left ventricular ejection fraction, PW – posterior wall, SD – standard deviation

Figure PO 69

established disease-modifying agents for variant transthyretin amyloidosis (ATTRv) with polyneuropathy. The role of a small interfering RNA (vutrisiran) in TTR amyloid cardiomyopathy has already been shown in a randomized clinical trial, but only 6 patients had the "Portuguese" TTR variant (Val50Met). Moreover, there are no officially approved treatments specifically for mixed phenotypes. Our study describes real-world experience in a cohort of patients with Val50Met ATTRv with a neurologic indication for having been treated with TTR silencers, who had coexisting confirmed amyloid cardiomyopathy (AC).

Methods: We performed a single-centre retrospective study including all patients with Val50Met TTR variant followed at our Cardiology clinic who were treated with TTR silencers due to their polyneuropathy, but who also had diagnosed AC, ergo a mixed phenotype. Baseline clinical, laboratory and echocardiographic data were collected. Patients with ≥ 2 visits while on therapy were included in the follow-up analysis. Cardiac stabilisation was defined as < 30% increase in NT-proBNP, < 5% absolute decrease in left ventricular ejection fraction (LVEF), and < 2 mm increase in wall thickness.

Results: Thirty-seven patients were enrolled (67.6% male; median age 66 years). Most patients (78.4%) had received tafamidis 20 mg before starting a silencer. Initial treatment consisted of patisiran (70.3%), inotersen (18.9%) or vutrisiran (10.8%). Twenty-seven patients met criteria for follow-up (mean 29.5 months). Echocardiographic stability was observed in 74.1% for wall thickness and 66.7% for LVEF, and NT-proBNP stability was achieved in 81.5%; overall cardiac stabilisation was seen in 51.9%. NYHA class remained stable or improved in most patients, with 11.1% worsening; diuretic therapy was initiated or intensified in 22.2% patients. New pacemaker implantation occurred in 22.2% cases and new atrial arrhythmias in 11.1%. No heart failure hospitalisations or organ transplants occurred, and 11.1% patients died during follow-up.

Conclusions: In this real-world cohort of patients with Val50Met vATTR, TTR silencers were associated with stabilisation of key structural, functional and biomarker parameters in 51% of the patients, alongside a favourable overall clinical trajectory in most. These findings support a potential role for RNA-silencing therapy in patients with mixed phenotype ATTRv amyloidosis, although larger prospective studies are needed. Expanding data about transthyretin hereditary and wild-type amyloidosis may refine future management of cardiac disease in these patients.

PO 70. FROM TRIALS TO PRACTICE: EARLY USE OF VUTRISIRAN IN ATTR-CM

Catarina Sena Silva[1], Daniel Inácio Cazeiro[1], Marta Vilela[1], Diogo Ferreira[1], João Cravo[1], João Fernandes Pedro[1], Inês Araújo[1], Catarina Campos[1], Isabel Conceição[2], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[3]

[1]Cardiology Department, Hospital de Santa Maria (ULSSM), CAML,CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Neurology department, hATTR Reference Center, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [3]Cardiology Department, hATTR Reference Center, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Transthyretin cardiac amyloidosis (ATTR-CM) is a progressive and life-threatening disorder characterized by the deposition of misfolded transthyretin (TTR) in cardiac tissue. Vutrisiran, a subcutaneously administered RNA interference (RNAi) therapeutic, has emerged as a promising treatment by silencing the TTR gene and thereby inhibiting hepatic protein production. Clinical studies have demonstrated reductions in circulating TTR levels of over 80% after 18 months of treatment. Additionally, vutrisiran has been shown to reduce all-cause mortality and cardiovascular events, while preserving functional capacity and quality of life.

Objectives: To evaluate the real-world safety and effectiveness of vutrisiran in patients with hereditary transthyretin-mediated cardiac amyloidosis (hATTR-CM).

Methods: We conducted a prospective, single-center study including patients with hATTR-CM carrying the Val30Met variant who initiated vutrisiran 25 mg administered subcutaneously every 3 months. Clinical, echocardiographic, and laboratory parameters were assessed at baseline (prior to treatment initiation) and after 6 months of therapy.

Results: Five patients were enrolled (mean age 68 ± 5 years; 3 [60%] male). Three patients (60%) had previously received tafamidis and were switched to vutrisiran due to clinical progression. After 6 months of treatment, there was a trend toward clinical and functional improvement: no patients remained in NYHA class III-IV (vs. 2 [40%] at baseline). Diuretic dose decreased (20 mg [IQR 10-30] vs. 40 mg [IQR 10-60] at baseline; p = 0.06),

	Before Vutrisiran	6 Months Follow-Up	P-Value
Baseline Characteristics			
NYHA I-II n(%)	3 (60)	5 (100)	NS
NYHA III-IV n(%)	2 (40)	0 (0)	NS
6MWT (meters, mean±SD)	306 ± 40	367 ± 41	**p=0.02**
Diuretic dosages (median [IQR]	40 (IQR 10-60)	20 (IQR 10-30)	NS
Echocardiographic Parameters			
LVEF (%; mean ± SD)	62 ± 2	58 ± 3	**p=0.01**
GLS (%; mean ± SD)	10 ± 1	10 ± 1	NS
IVS thickness (mm; median [IQR])	16 (IQR 13-67)	15 (IQR 10-22)	NS
E/E', mean ± SD	16 ± 4	15 ± 3	NS
LA volume index (mL/m²; mean ± SD)	34 ± 4	35 ± 3	NS
TAPSE (mm; mean ± SD)	19 ± 3	20 ± 2	NS
sPAP (mmHg; mean ± SD)	27 (IQR 26-28)	22 (IQR 5-41)	NS
Laboratory Parameters			
Serum TTR levels (mg/dL; mean ± SD)	27 (IQR 6-33)	< 3	NS
NT-proBNP (pg/mL; median [IQR])	456 (IQR 353-2030)	358 (IQR 246-892)	NS
Troponin (ng/L; median [IQR])	28 (IQR 23-49)	24 (IQR 15-28)	NS
eGFR (mL/min/1.73 m²; mean ± SD)	68 ± 6	71 ± 7	NS

Table 1: Clinical, echocardiographic, and laboratory parameters at baseline (prior to initiation of vutrisiran) and after 6 months of follow-up

Figure PO 70

and 6-minute walk distance improved significantly (367 ± 41 m vs. 306 ± 40 m; p = 0.02). Regarding laboratory findings, NT-proBNP levels demonstrated a trend toward reduction at follow-up (358 pg/mL [IQR 246-892] vs. 456 pg/mL [IQR 353-2,030]; p = 0.06). Serum TTR levels became undetectable in all patients (baseline 27 mg/dL [IQR 6-33]), with a median time to suppression of 8 weeks (IQR 5-22). No significant changes were observed in echocardiographic parameters. During follow-up, no adverse events, heart failure decompensations, or hospitalizations were recorded. No statistically significant differences were observed between tafamidis-experienced and treatment-naïve patients.

Conclusions: In this real-world cohort, vutrisiran was well tolerated and associated with improvements in clinical status and functional capacity. These findings suggest that vutrisiran may represent an effective therapeutic option both for tafamidis non-responders and for treatment-naïve hATTR-CM patients.

PO 71. IMPACT OF TAFAMIDIS ON HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: A COMPARATIVE STUDY BETWEEN ATTRWT AND ATTRH

Rodrigo Afonso[1], Marta Vilela[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], João Cravo[1], Catarina Campos[2], Isabel Conceição[2], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[3]

[1]Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Neurology, hATTR Reference Center, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [3]Department of Cardiology, hATTR Reference Center, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: In the ATTR-ACT trial, tafamidis showed a positive impact on quality of life (QoL) at 30 months, as demonstrated by improvements in the Kansas City Cardiomyopathy Questionnaire Overall Summary (KCCQ-OS) score in patients with TTR amyloid cardiomyopathy (ATTR-CM). However, its impact on patient-reported outcomes was not evaluated separately between wild type ATTR (ATTRwt) and hereditary (ATTRh).

Objectives: To compare the impact of tafamidis 61mg on health-related QoL in patients with ATTR-CM, as evaluated by changes in the KCCQ-OS score in patients with ATTRwt and ATTRh.

Methods: A single center observational study was conducted. Patients were categorized into two groups: ATTRwt and ATTRh. All patients completed the 23-item KCCQ-OS during the last follow-up (Fup) visit.

Results: 37 patients with ATTRwt and 39 patients with ATTRh were included (66 males). ATTRh patients were younger (72.5 ± 2 vs. 83.6 ± 0.9 years; p < 0.001) and developed symptoms earlier (65.8 ± 1.9 vs. 80.6 ± 1.1 years, p = 0.003) when compared to ATTRwt. At baseline, ATTRwt patients presented with more advanced disease, showing significantly higher NT-proBNP levels (3,096.1 ± 3,076.5 vs. 1,694.2 ± 3,958.9 pg/mL; p = 0.04), a higher proportion of patients in NYHA functional class II or III (p < 0.001), increased left ventricular hypertrophy (17.4 ± 2.8 vs. 15.1 ± 4.1; p = 0.005), and higher diuretic dose (29.2 ± 26.5 vs. 22.6 ± 31.6; p < 0.001). During a follow-up of 27.4 ± 2.1 months, peripheral polyneuropathy was the predominant symptom in ATTRh patients (77% vs. 0%), while HF predominated in ATTRwt patients (64% vs. 81%). More patients in the ATTRwt group improved to classes I or II, whereas in the ATTRh group, patients' functional capacity worsened (Table 1). There were no significant changes in NTproBNP levels (p = 0.49) or diuretic dose (p = 0.25) over the Fup period between the two groups. KCCQ-OS scores were comparable between groups (ATTRh 50.9 ± 4.5 vs. ATTRwt 55.9 ± 4.2, p = NS), as were scores for physical limitations (ATTRh 51.8 ± 6.7 vs. ATTRwt 44.7 ± 5.9, p = NS), symptoms (ATTRh 60.9 ± 5.9 vs. ATTRwt 66.1 ± 5.6, p = NS), QoL (ATTRh 53.4 ± 6.2 vs. ATTRwt 55.6 ± 5.6, p = NS), and social limitations (ATTRh 39.7 ± 5.8 vs. ATTRwt 42.4 ± 5.6, p = NS). However, considering the younger age of ATTRh patients, the disease likely imposes a relatively greater burden across these domains. In a gender-based sub-analysis, women with ATTRh had lower KCCQ-OS scores for social domain (p = 0.02), while men with ATTRwt showed better overall KCCQ scores (p = 0.023), as well as higher scores in QoL (p = 0.008) and social domains (p < 0.001).

	ATTRh (N=39)		ATTRwt (N=37)	
	T0	T1	T0	T1
I	24 (62)	21 (54)	1 (3)	6 (16)
II	10 (26)	16 (41)	29 (78)	30 (81)
III	5 (13)	2 (5)	7 (19)	1 (3)

Figure 1 - Functional class in patients with ATTRh and ATTRwt at baseline and follow-up.

Conclusions: Tafamidis demonstrated a comparable impact on health-related quality of life, as assessed by KCCQ-OS scores, in patients with ATTRwt and ATTRh. Despite similar overall scores, the younger age and

earlier onset of symptoms in ATTRh patients suggest a relatively greater perceived burden of the disease in this subgroup.

PO 72. BEYOND STRUCTURAL STABILITY: ONGOING ELECTRICAL REMODELING IN ATTR-CM TREATED WITH TAFAMIDIS

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Introduction: Tafamidis improves survival in transthyretin cardiac amyloidosis (ATTR-CM), but detailed real-world characterization of its longitudinal clinical, electrical, and structural effects remains limited. Clarifying disease progression under tafamidis in routine care is essential.
Objectives: To describe 12-month changes in functional status, biomarkers, ECG parameters, and echocardiographic structure/function in patients with ATTR-CM treated with tafamidis.
Methods: Retrospective observational study of patients with ATTR-CM treated with tafamidis. NYHA class, NT-proBNP, ECG variables (PR interval, QRS duration, QRS voltage pattern, new-onset atrial fibrillation), and echocardiographic parameters (wall thickness, LVEF, GLS, diastolic indices, and LA volume index) were assessed at baseline and 12 months.
Results: Forty-five patients initiated tafamidis (median age 83 years; 80% male). Hypertension (88.9%) and atrial fibrillation (AF) (60%) were frequent; 22.2% had prior pacemaker implantation. Population baseline finding included mild functional impairment, elevated NT-proBNP, prolonged QRS duration, and typical structural findings. NYHA class remained stable (median Δ 0.0 [-1.0 to 0.0], p = 0.491), though 35.7% improved. NT-proBNP showed marked inter-individual variability without a consistent trend (median Δ +376 pg/mL [-1,332 to +750], p = 0.807). Electrically, PR interval remained stable (median Δ +4 ms [−38 to +19], p = 0.866), while QRS duration increased significantly (Δ +7 ms [3.5 to 17.8], p ≤ 0.001). Despite tafamidis therapy, new-onset AF emerged in 32% of previously non-AF patients. Echocardiographic parameters remained largely unchanged: LVEF (Δ -2.0% [-7.0 to +3.0], p = 0.363), septal thickness (Δ 0.0 mm [-1.0 to 0.5], p = 0.518), posterior wall thickness (Δ +1.0 mm [-2.77 to +1.85], p = 0.916), LV mass index (Δ +2.7 g/m² [-40.6 to 19.4], p = 0.893), GLS (Δ +2.6% [-2.16 to +9.60], p = 0.500), E/e' (Δ +3 [-5.75 to +5], p = 0.713), and LA volume index (Δ +3 mL/m² [-1.5 to 13.5], p = 0.195).

Variable	Baseline	12 months	Δ	p-value
NYHA class, median [Q1–Q3] (n=28)	2.0 [2.0–2.0]	2.0 [1.0-2.8]	0.0 [-1.0–0.0]	0.491
NT-proBNP (pg/mL), median [Q1–Q3] (n=13)	4154 [2608–8419]	5184 [2974–7195]	376 [-1332–750]	0.807
PR interval (ms), median [Q1–Q3] (n=7)	190 [171–278]	209 [187–218]	4 [-38–19]	0.866
QRS interval (ms), median [Q1–Q3] (n=24)	137 [105–168]	154 [112–178]	7 [3.5–17.8]	< 0.001
LVEF (%), median [Q1–Q3] (n=15)	50 [47–60]	50 [42–60]	-2 [-7–3]	0.363
Septal thickness (mm), median [Q1–Q3] (n=9)	20.0 [18.5–22.5]	20.0 [18.5–22.0]	0.0 [-1.0–0.5]	0.518
PWD (mm), median [Q1–Q3] (n=6)	14.5 [13.5–15.8]	14.5 [13.3–16.3]	1.0 [-2.8–1.9]	0.916
LV mass index (g/m²), median [Q1–Q3] (n=5)	165.0 [160.7–233.8]	188.95 [158.5–204.2]	2.7 [-40.6–19.4]	0.893
GLS (%), median [Q1–Q3] (n=5)	13.5 [11.5–18.9]	15.6 [13.0–25.1]	2.6 [-2.2–9.6]	0.500
E/E', median [Q1–Q3] (n=4)	19 [15–24]	20 [18–23]	3 [-6–5]	0.713
LA volume index (mL/m²), median [Q1–Q3] (n=13)	50.0 [39.5–57.0]	55.0 [44.5–67.5]	3.0 [-1.5–13.5]	0.195

Conclusions: Tafamidis stabilizes structural, functional, and biomarker profiles in real-world ATTR-CM, but electrical disease continues to progress, with significant QRS widening and frequent new-onset AF. These findings highlight persistent electrophysiological vulnerability and support routine ECG monitoring, as well as validation in larger cohorts.

Sexta-feira, 24 Abril de 2026 | 12:00-12:55

Área de Posters - Ecrã 1 | Sessão de Posters 13 - Intervenção coronária avançada: fisiologia, bifurcações e complicações

PO 73. PLUMMETING THE RADIATION CURVE - A 13-YEAR CATH LAB EXPERIENCE

Daniel Inácio Cazeiro, João Cravo, Marta Vilela, Diogo Ferreira, Tiago Rodrigues, Ana Rita Francisco, Pedro Carrilho Ferreira, Cláudia Jorge, João Silva Marques, Pedro Cardoso, Fausto J. Pinto, Miguel Nobre Menezes

Department of Cardiology, Unidade Local de Saúde de Santa Maria, CAML, CCUL@RISE, Faculty of Medicine, University of Lisbon.

Introduction: Radiation exposure remains a major safety concern in fluoroscopy (FL) guided cardiovascular procedures, with substantial variability across centers and operators.
Objectives: To characterize long-term trends in radiation dose and assess the impact of a comprehensive radiation-reduction initiative (RRI) in a hemodynamics laboratory.
Methods: Single-center, retrospective study of all coronary procedures - diagnostic coronary angiography (CAG) with or without percutaneous coronary intervention (PCI) - and transcatheter aortic valve implantation (TAVI) procedures performed from 2012 and September 2025. Coronary procedures were performed using Siemens® Axiom Artis FC® systems until 2019 and Artis zeego® systems from 2019 onwards; TAVI procedures used Artis zee®. Until 2020, standard FL settings with frame rates (FR) of 15 frames/second (f/s) were routinely used. From 2021 onwards, FR were standardized to 10 or 7.5 f/s and low-dose protocols became increasingly common. In 2025, an extended RRI was implemented, incorporating (1) public reporting of baseline radiation metrics; (2) semi-automated radiation data capture; (3) rigorous quarterly audits publicly released to the team and (4) a standardized protocol with low-dose presets, FR at a minimum of 4 f/s when feasible, and preferential storage of FL loops instead of cine acquisitions. Radiation was quantified using Kerma Air Product (KAP) in mGy·cm² (the only radiation metric universally present during the entire period). Temporal changes were assessed with Mann-Whitney tests across three predefined periods (2012-2016, 2017-2021, 2022-2025) and the 2025 trimesters.
Results: A total of 28,906 coronary procedures (18,274 CAG, 10,632 CAG+PCI) and 1,114 TAVI procedures were included - median KAP of 36,200, 117,400 and 94,550 mGy·cm², respectively. Across the three periods, median KAP declined significantly in all procedures – 41,800 > 37,000 > 29,700 in CAG; 134,700 > 121,150 > 91,200 in CAG+PCI and 175,650 > 109,100 > 70,300 mGy·cm² in TAVI (all p < 0.05). Following implementation of the 2025 protocol, further reductions occurred – 28,122 > 20,101 in CAG (p < 0.001); 82,398 > 66,702 in CAG+PCI (p = 0.011) and 82,253 > 32,215 mGy·cm² in TAVI (p < 0.001).
Conclusions: Radiation exposure during coronary procedures and TAVI decreased substantially over the study period, reflecting improvements in operator expertise, procedural efficiency and dose-optimization strategies. Reductions were most pronounced in higher dose procedures, with decade-long relative decreases of 47% for CAG + PCI and 80% for TAVI. In 2025, the standardized protocol yielded additional reductions of 19% and 61%, respectively. These findings highlight the effectiveness of structured, team-

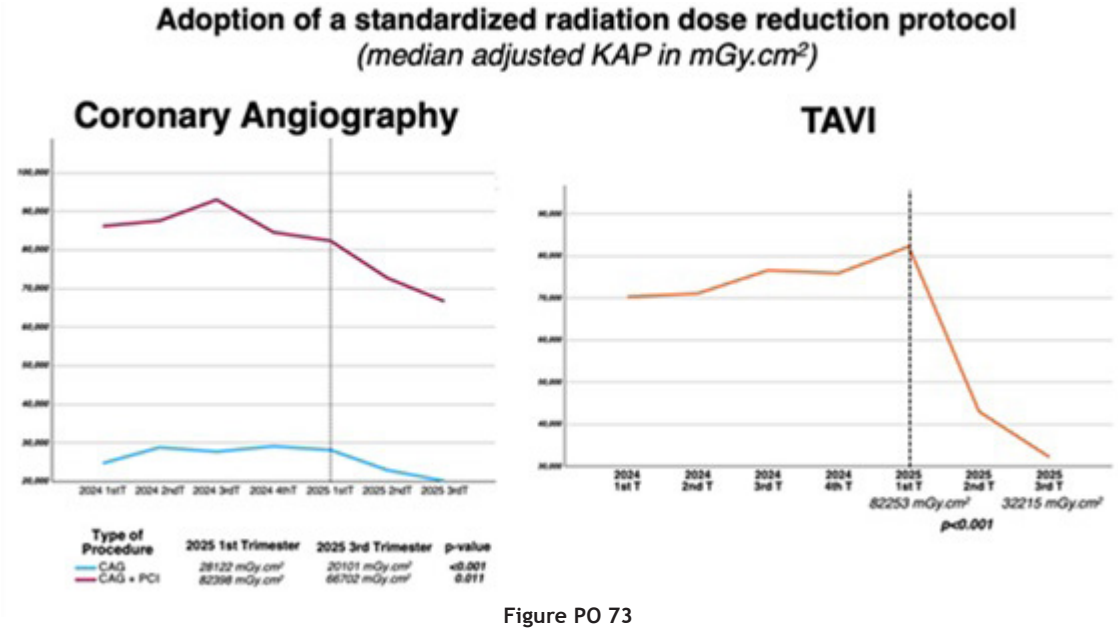

Figure PO 73

wide radiation-optimization approaches supported by public auditing and feedback in contemporary interventional cardiology.

PO 74. CAN CHATGPT-ASSISTED ECG INTERPRETATION HELP IN THE STEMI ACTIVATION PATHWAY?

Inês Pereira de Miranda, Filipa Gerardo, Yara Alvarenga, Carolina Pereira Mateus, Rodrigo Brandão, Tiago Dias Mesquita, Luís Cotrim, Inês Madeira Santos, Miguel Santos, Sérgio Bravo Baptista, Carlos Morais

ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca.

Introduction: Rapid and accurate interpretation of the ECG is critical for early activation of the coronary team in patients with suspected ST-segment-elevation myocardial infarction (STEMI). However, conventional workflows often face delays and diagnostic variability. Recent advances in generative AI, such as ChatGPT, offer potential to streamline ECG interpretation and trigger timely and accurately STEMI activation.
Objectives: To assess ChatGPT-assisted ECG analysis diagnostic accuracy.
Methods: We conducted a single-center retrospective study including all coronary team ("Via Verde Coronária") STEMI activations from January to November 2025. ECGs were analyzed using ChatGPT version 5.0, prompted with: *"Based on this ECG, is there an occluded coronary artery?"*. ChatGPT's output was then compared with the invasive coronary angiography reports. Significant coronary artery disease was defined as a ≥ 90% stenosis requiring urgent revascularization.
Results: We reviewed a total of 220 STEMI activations (mean age 64 ± 14 years, 30.9% female, 21.8% diabetes, 42.7% dyslipidemia, 63.2% hypertension, 40.5% smokers and 11.4% previous smokers). There were 176 (80%) ECGs available for analysis; 20% were unavailable due to external acquisition or technical issues. Among the available ECGs, 152 patients (86%) had significant coronary stenosis. ChatGPT correctly predicted a significant stenosis in 126 cases (83%), and failed in 26 (17%). Missed occlusions most frequently involved the LAD (10), followed by LCx (5), RCA (5), diagonal (2) and OM (2) branches, and one case of three-vessel disease. Among the 24 patients without significant stenosis, ChatGPT correctly classified 20 (83%) and generated four false positives (normal coronaries [2], vasospasm [1], or repeat angiography [1]). Diagnostic performance had a sensitivity of 82.9%, specificity 83.3%, positive likelihood ratio 4.97, and a high positive predictive value of 96.9% (vs 84.4% human positive predictive value), confirming excellent rule-in ability. The negative likelihood ratio was 0.21 and the negative predictive value 43.5%, indicating limited rule-out capability. Overall accuracy was 83%.
Conclusions: These results indicate a good overall performance, driven mainly by ChatGPT excellent rule-in ability, with a high positive predictive value, providing practical reassurance for clinicians uncertain about activating the interventional team or even the on-duty cardiologist. The negative predictive value was low (although limited by the high disease prevalence), and ChatGPT should not be used to exclude a coronary occlusion. The high positive predictive value suggests further investigations are in order to explore ChatGPT's capability in similar settings, such as identifying NSTEMI patients with an acutely occluded artery.

PO 75. USING CALCIUM MODIFICATION TOOLS IN CORONARY BIFURCATIONS: WHAT CHANGES?

Luís Pedro dos Santos, João Gouveia Fiúza, Gonçalo RM Ferreira, Mariana Duarte Almeida, Oliver Kungel, Francisco Rodrigues Santos, Maria Luísa Gonçalves, António Costa

ULS Viseu Dão-Lafões/Hospital de São Teotónio.

Introduction: Calcified coronary bifurcation lesions (CBL) are technically challenging. Advanced calcium modification tools (CMT) (cutting/scoring balloons, intravascular lithotripsy, atherectomy) may improve lesion preparation, yet evidence supporting their use specifically in bifurcation percutaneous coronary intervention (PCI) remains limited.
Objectives: To evaluate angiographic, procedural, and clinical outcomes of CMT in CBL PCI compared with conventional preparation semi compliant and NC ballons).
Methods: Single-center retrospective study including consecutive calcified CBL PCI performed between 2019-2024. Cases treated with CMT were compared with all remaining bifurcation PCI cases in the same period without advanced tools. Endpoints included residual stenosis > 20%, final TIMI flow, procedure duration, radiation exposure (PKA, mGy·cm^2), periprocedural complications (either coronary or vascular access), bleeding, target-vessel revascularization, heart-failure (HF) hospitalization, MACE (myocardial infarction and/or stroke), and 1-year all-cause and cardiovascular (CV) mortality. Groups were compared using Mann-Whitney U for continuous variables and chi-square/Fisher's exact test for categorical variables (two-sided).
Results: Baseline demographics were similar with a median age of 71 and 91.2% were male sex. There were 37 patients in the CMT group and 43 patients in the standard preparation group. Angiographic outcome: residual stenosis ≥ 20% occurred in 13/43 (30.2%) conventional cases and

in 0/37 (0%) CMT cases (p < 0.001). Final TIMI flow impairment was uncommon (1/43 [2.3%] vs. 0/37 [0%]; Fisher p = 1.000). Procedural metrics: CMT use was associated with longer procedures (120 [95-145] vs. 93 [74-117] min; p = 0.001) with no difference in radiation exposure (PKA 150,000 [92,725.5-220,415.5] vs. 171,763 [73,838-259,047] mGy·cm^2; p = 0.881). Safety and follow-up: no significant differences were observed in periprocedural complications (4/43 [9.3%] vs. 1/37 [2.7%]; Fisher p = 0.366), bleeding (4/43 [9.3%] vs. 1/37 [2.7%]; p = 0.366), target-vessel revascularization (7/43 [16.3%] vs. 2/37 [5.4%]; p = 0.166), heart-failure hospitalization (2/43 [4.7%] vs. 1/37 [2.7%]; p = 1.000), and MACE (2/43 [4.7%] vs. 1/37 [2.7%]; p = 1.000). At 1 year, all-cause mortality was 2/43 (4.7%) vs. 5/37 (13.5%) (Fisher p = 0.240) and CV mortality 1/43 (2.3%) vs. 5/37 (13.5%) (p = 0.090).
Conclusions: In this real-world bifurcation PCI cohort, CMT use was associated with a markedly lower rate of residual stenosis at the cost of longer procedures, without increased radiation exposure or statistically significant differences in periprocedural complications, MACE, or 1-year outcomes. These data support considering CMT tools in calcified bifurcation lesions and warrant confirmation in larger prospective studies.

PO 76. APPLICABILITY OF QUANTITATIVE FLOW RATIO (QFR) IN A CONSECUTIVE POPULATION OF PATIENTS WITH CORONARY ARTERY DISEASE

Sérgio Bravo Baptista[1], Miguel Santos[1], Pedro Magno[1], José Loureiro[1], Luís Brízida[1], Filipa Gerardo[1], Maura Nédio[1], Cátia Ribeiro[1], Célia Monteiro[1], Elsa Lourenço[1], Luís Raposo[2]

[1]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca. [2]ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: The assessment of the functional severity of coronary artery disease (CAD) is underused world-wide. Angio-based, wire-free and adenosine-free techniques, like Quantitative flow ratio (QFR), have been suggested to be an easier alternative that could increase the use of coronary physiology. However, it's not clear in which patients this technique can be used, neither it's reproducibility in centers not involved in the investigation of these technologies.
Objectives: To describe the applicability of QFR in a consecutive population of patients (pts) referred for invasive angiography (ICA).
Methods: The QFR-Real study is a prospective all-comers consecutive registry in which pts with significant coronary lesions (> 50%, in vessels > 2.0 mm) are assessed for QFR measurement, with the purpose of evaluating both the applicability (according to the inclusion criteria in the QFR trials) and the reproducibility of the technique. When QFR analysis is possible, images are collected according to the manufacturer's recommendations. In this pre-defined sub-analysis, we present the results on the applicability of QFR in the screened population, after exclusion of pts who refused or were considered unable to consent, as well as pts with no obstructive CAD, participating in RTCs, with an anatomy not suitable for revascularization or with acute coronary syndromes (ACS) and no other lesions besides the culprit.
Results: From an initial population of 897 pts, 560 had significant CAD. Of these, 352 pts met all the inclusion criteria, being the population of this analysis. Mean age was 68.1 ± 12.7 years and 76.4% were males. Most common indications for ICA were ACS in 203 (57.7) and CCS in 109 (31%). 259 pts (73.6%) presented at least one anatomical/technical contra-indication for performing QFR, including 82 pts with CTOs, 58 with systolic hypotension (< 90 mmHg), 33 with renal failure (eGFR < 30 ml/kg/min, serum creatinine ≥ 2.5 mg/dL or on dialysis), 32 with in-stent restenosis (ISR) lesions, 21 with TIMI flow < 3, 17 with aorto-ostial lesions, and 16 with other technical or clinical contra-indications. As a result, images for QFR measurements were collected in only 93 (26.4%) pts, while invasive physiology would be theoretically possible in 175 (67.6%), according to current technical and clinical standards for this technique. Importantly, of the 203 pts with ACS and other lesions besides the culprit, 154 (75.9%) had at least one contra-indication for QFR evaluation, while only 104 (51.2%) had a contra-indication for invasive physiology evaluation. Data on the quality of the angiography runs and its suitability for use with the QFR software are currently being analyzed and data will be available for the presentation.

Variable	Total	QFR measurable?		P-value
		No (n=259)	Yes (n=93)	
Age (years)	68.1±12.7	68.4±13.3	67.2±11.1	0.098
Male Gender	269 (76.4%)	66 (71.0%)	203 (78.4%)	0.405
Creatinine (mg/dL)	1.19±1.28	1.29±1.40	0.94±0.64	0.001
Previous MI	120 (35.2%)	97 (38.6%)	23 (25.6%)	0.017
Previous PCI	123 (36.1%)	98 (39.0%)	25 (27.8%)	0.036
Clinical Presentation				
STEMI	74 (21.0%)	61 (23.6%)	13 (14.0%)	0.033
CCS/nST-ACS	278 (79.0%)	198 (76.4%)	80 (86.0%)	

Conclusions: In a consecutive population of pts with significant coronary artery disease, including pts with ACS, QFR is only applicable in a minority of cases.

PO 77. ACUTE AND SUBACUTE STENT THROMBOSIS: INSIGHTS AND CHARACTERIZATION FROM A TERTIARY CENTRE PATIENT COHORT

Miguel Rocha, Tiago Prata Branco, Benedita Couto Viana, Luana Alves, Erivaldo Figueiredo, Helena Moreira, Pedro Palma, Joana Gonçalves, Emanuel Oliveira, Bernardo Cruz, Ana Isabel Pinho, Rui Simões Rodrigues

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Introduction: Stent thrombosis is a rare but life-threatening complication after PCI. We aimed to describe all angiographically confirmed cases managed at our tertiary centre between 2019 and 2025.
Methods: We retrospectively identified 15 patients with acute coronary syndrome and definite stent thrombosis. Clinical characteristics, drug therapy, angiographic data, procedural details and outcomes were collected.
Results: All patients were male, mean age 59 ± 9 years. Hypertension was present in 60%, dyslipidaemia in 80%, diabetes in 27% and smoking in 73%. Most were on antiplatelet therapy before the event (93%), including dual antiplatelet therapy in 40%, but only 40% were receiving high-intensity statins. However, 40% had irregular adherence to antiplatelets. Previous myocardial infarction occurred in 80% and multivessel disease in 73%. Time from index PCI to thrombosis ranged from < 10 minutes to > 10 years; 40% occurred within 24 hours and 60% were late. The culprit vessel was the left anterior descending artery in 67%, circumflex in 20% and right coronary artery in 13%. Presentation was ST elevation myocardial infarction in 87% cases, one patient had ventricular fibrillation, one an acute pulmonary oedema and one a hyperacute cath-lab thrombosis. Median peak high-sensitivity troponin I was 34,000. All patients were treated invasively; aspiration thrombectomy and high-pressure non-compliant balloon angioplasty were the dominant strategies (73%), sometimes combined with drug-coated balloons (20%), additional stents (13%) or intracoronary alteplase (6%). Intravascular imaging was used in 7%, but final TIMI 3 flow was achieved in all cases. Triple antithrombotic therapy during admission occurred in 60%. At discharge, 80% were on aspirin plus ticagrelor and 80% on high-intensity statins, often with ezetimibe. Median left ventricular ejection fraction declined from 53% to 41% after thrombosis. During follow-up, two patients (13%) had myocardial infarction due to repeat stent thrombosis; one was started on prasugrel, and reintervention was not feasible in one because of organised occlusion.
Conclusions: In this small real-world cohort, stent thrombosis occurred in middle-aged men with a heavy burden of risk factors and complex coronary disease, often despite background antiplatelet therapy. A substantial proportion showed poor pre-event adherence to antiplatelets, and the index event was associated with sizeable myocardial injury and a meaningful risk of recurrence.

PO 78. CATHETER-DIRECTED THERAPIES FOR INTERMEDIATE-HIGH AND HIGH-RISK PULMONARY EMBOLISM: EFFICACY AND SAFETY OUTCOMES FROM A SINGLE-CENTRE COHORT

Pedro Monteiro[1], Bárbara Gonçalves[2], Tiago Peixoto[1], Diana Ribeiro[1], Mariana Pereira Santos[1], André Alexandre[1], Gilles Sousa[1], Maria Trêpa[1], Raquel Baggen Santos[1], Bruno Brochado[1], João Brum Silveira[1], André Luz[1]

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

Introduction: Acute pulmonary embolism (PE) remains a major cause of cardiovascular mortality. Catheter-directed therapies (CDT) have recently gained relevance in intermediate-high and high-risk PE, particularly when systemic fibrinolysis is contraindicated or ineffective. National evidence remains scarce, and Portugal real-world data are limited.
Methods: We conducted a retrospective single-centre analysis of all patients undergoing CDT for acute PE between January 2019 and October 2025, collecting demographic, clinical, procedural and outcome data.
Results: Forty patients underwent CDT (19 in the last 24 months), with a median age of 63.5 years (IQR 52-78); 67.5% were women, and the mean Charlson Comorbidity Index was 3.6 ± 2.8. Overweight (52.5%) and hypertension (50%) were the most prevalent comorbidities; immobilization (30.6%), trauma or major surgery (22.2%) and active cancer (11.1%) were also common risk factors. Twenty-three patients (57.5%) had intermediate-high-risk PE and 17 (42.5%) had high-risk PE. Mean shock index (SI) was 1.06 ± 0.25, and 38 patients (95%) were classified as high risk for 30-day mortality by the simplified PESI. Right ventricular (RV) dysfunction was present in 36 patients (90%), with a mean TAPSE/PSAP ratio of 0.41 ± 0.18 mm/mmHg. Twenty-one patients (52.5%) had contraindication to fibrinolysis and eight (20%) had failed prior fibrinolysis. Mechanical thrombectomy was performed in 37 patients (92.5%) and catheter-directed thrombolysis in nine (22.5%). CDT led to early haemodynamic improvement: mean pulmonary artery pressure decreased from 31.3 ± 8.3 to 28.3 ± 7.9 mmHg (p = 0.005), SI improved to 0.81 ± 0.19 (p = 0.005), and RV dysfunction decreased to 52.5% (p = 0.039). One patient in shock died during the procedure, two required mechanical circulatory support, and bleeding occurred in eight patients, including one major bleed; in-hospital mortality was 12.5%. Median follow-up was 12.5 months (IQR 4.8-25.8). No symptomatic recurrent PE occurred; one patient developed chronic thromboembolic pulmonary hypertension and three developed chronic thromboembolic disease without pulmonary hypertension.

Table 1 – Haemodynamic and respiratory parameters before and after CDT.

Parameter	Before CDT	After CDT	*p* value
Systolic arterial pressure, mean ± SD, mmHg	107.2 ± 23.9	118.2 ± 19.0	0.053
Diastolic arterial pressure, mean ± SD, mmHg	59.13 ± 14.4	68.5 ± 10.9	**0.012**
Mean arterial pressure, mean ± SD, mmHg	74.6 ± 15.3	84.7 ± 11.8	0.056
Heart rate, mean ± SD, bpm	101.9 ± 16.7	95.2 ± 19.1	**0.033**
Shock index, mean ± SD	1.06 ± 0.25	0.81 ± 0.19	**<0.001**
Shock index ≥1, n (%)	24 (60.0)	11 (27.5)	**0.016**
Lactate level, median (IQR), mmol/L	1.15 (0.8-4.4)	0.9 (0.6-2.6)	0.064
PaO2/FiO2, median (IQR)	173 (114-273)	235 (134-260)	0.591
RV dysfunction, n (%)	36 (90)	21 (52.5)	**0.039**
Mean pulmonary arterial pressure, mean ± SD, mmHg	31.3 ± 8.3	28.3 ± 7.9	**0.005**

CDT – catheter-directed therapies , IQR – interquartile range, RV – right ventricular, SD – standard deviation

Conclusions: In this high-risk cohort, CDT resulted in rapid haemodynamic stabilisation and substantial improvement in RV function, with safety outcomes consistent with published experience. Given the scarcity of national data, this series provides meaningful insight into CDT outcomes in Portugal. CDT appears effective, particularly in elderly patients and in those unsuitable for or failing systemic fibrinolysis.

Sexta-feira, 24 Abril de 2026 | 12:00-12:55

Área de Posters - Ecrã 2 | Sessão de Posters 14 - Tratar o risco: sucessos e falhas na gestão lipídica

PO 79. ACHIEVEMENT OF LDL-C TARGETS BEFORE ACUTE CORONARY SYNDROME: A RETROSPECTIVE ANALYSIS STRATIFIED BY SCORE2/SCORE2-OP AND CARDIOVASCULAR HISTORY

Isabel Martins Moreira, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, Matilde Pipa, Pedro Rocha Carvalho, Pedro Mateus, Inês Silveira, Ilídio Moreira

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Introduction: Although effective lipid-lowering therapies are available, many patients remain above guideline-recommended LDL-cholesterol (LDL-C) target prior to acute coronary events. The magnitude of this gap across different risk profiles remains poorly described in real-world hospital cohorts.
Objectives: To assess whether patients admitted for acute coronary syndrome (ACS) were at LDL-C targets before the event, stratified according to baseline risk (SCORE2/SCORE2-OP) and prior established atherosclerotic cardiovascular disease (ASCVD).
Methods: This single centre retrospective study included patients hospitalized with ACS and enrolled in the Portuguese Registry of Acute Coronary Syndromes, between October 2010 and July 2025. Patients were classified as primary prevention (no ASCVD, chronic kidney disease, or diabetes; risk stratified by SCORE2/SCORE2-OP) or secondary prevention (established ASCVD). LDL-C targets were defined according to 2025 Focused Update of the 2019 ESC/EAS Guidelines for the management of dyslipidaemias (< 55 mg/dL for secondary prevention; SCORE2/2-OP-based targets for primary prevention).
Results: Among 1,074 patients (mean age 65.6 ± 13.2 years; 76.2% male; 49.8% STEMI), 30.1% were in secondary prevention and 69.9% were in primary prevention (16.8% very high-risk, 34.1% high-risk and 49.1% intermediate-to-low-risk). Cardiovascular risk factors were frequent: 59.8% had dyslipidaemia, 59.0% had arterial hypertension, 29.1% were smokers and 20.5% were obese. Mean total cholesterol was 178.9 ± 48.0 mg/dL and calculated LDL-C was 110.0 ± 43.7 mg/dL. Prior statin use was recorded in 25.9% of patients in primary prevention and 71.7% in secondary prevention; additional lipid-lowering therapy was used by 4.3% and 15.8%, respectively. At admission, only 18.4% of all patients were at LDL-C goal. No significant differences were found between patients in primary or secondary prevention (18.2% vs. 18.9%, p = 0.803). Target attainment did not differ significantly by year of admission or baseline characteristics, except for risk category in primary prevention (29.5% in low-intermediate vs. 7.3% in high-very high-risk, p < 0.001) and prior statin use (56.9% vs. 43.1%, p < 0.001). Prior statin use was significantly associated with LDL-C target attainment in secondary prevention (88.5% vs. 11.5%, p = 0.001) and high-very high-risk patients in primary prevention (53.6% vs. 46.4%, p < 0.001), but not in low-intermediate risk patients (39.8% vs. 60.2%, p < 0.001).
Conclusions: Most patients admitted with ACS were not at recommended LDL-C targets prior to the event, even among those with established ASCVD. Statin use improved LDL-C goal achievement in high-very-high risk patients. These findings highlight persistent gaps in lipid management and reinforce the need for earlier, more intensive preventive strategies, especially in high-risk individuals.

PO 80. LDL-C REMAINS UNDERTREATED AMONG HIGH-RISK INDIVIDUALS: INSIGHTS FROM A 2025 COMMUNITY SCREENING

Ivo Santos Palmeiro, Joana Silva Ferreira, Patrícia Bernardes, Marco Tomaz, David Campos, Catarina Lagoas Pohle, Jéni Quintal, Quitéria Rato, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Accurate risk stratification and treatment of cardiovascular risk factors (CVRF), including LDL-cholesterol (LDL-c), are the pillars to reducing cardiovascular (CV) disease burden. Despite guideline recommendations, real-world data suggest that many fail to achieve LDL-c targets, underscoring the need to monitor population risk profiles and the quality of CVRF control.
Objectives: To characterize CV risk in an unselected Portuguese population and assess how well dyslipidaemia is being controlled.
Methods: We conducted an observational study including all participants in a local CV screening event in May 2025. Clinical and point-of-care laboratory data were collected on-site. 10-year risk of CV events was calculated using SCORE-2/OP and stratified into 4 categories: low (< 2%), moderate (2%-10%), high (10%-20%) and very high (≥ 20%) risk. Each individual's LDL-c was compared with the target recommended by the European Society of Cardiology for their risk category and categorized as on- or off-target. We compared our data with those collected at the 2022 edition of the screening and explored potential predictors of off-target LDL-c.
Results: A total of 436 individuals screened in 2025 were included (median age 68 years; 69% female). Median CV risk was 9%, with 24% of individuals considered at very high risk. Over half the population (56%) had LDL-c levels above the target for their risk category. Although a third of the individuals were medicated for dyslipidaemia, only 56% of them reached the LDL-c target. Median deviation from target was 30.5 [15.8;57.5] mg/dL. Only 2% of off-target individuals were medicated with both a statin and ezetimibe. We found that patients off-target were older (72 vs. 69 years, p < 0.01), had higher SCORE-2/OP (10% vs. 7%, p < 0.01) and were less frequently medicated for dyslipidaemia (29% vs. 45%, p < 0.01). For the historical comparison, we included an additional 2022-cohort comprising 431 individuals (final sample of 867 individuals). There were no significant differences in CV risk nor in the rate of off-target LDL-c between 2025 and 2022 cohorts (56% vs. 53% respectively, p = 0.483).
Conclusions: Over half of our unselected population failed to achieve guideline-recommended LDL-c targets, with poorer control among older participants and those at higher CV risk. Suboptimal LDL-c levels appeared largely related to insufficient lipid-lowering therapy, suggesting a contributing role of therapeutic inertia or barriers to accessing medical care.

PO 81. PREVALENCE OF ELIGIBILITY FOR DUAL GIP/GLP-1 RECEPTOR AGONISTS AMONG NON-DIABETIC AND OVERWEIGHT ADULTS: A PORTUGUESE COMMUNITY-BASED STUDY

Helena Santos Moreira[1], Benedita Viana[1], Giulia Rinaldi[2], Pedro Mangas Palma[1], Bernardo Cruz[1], Emanuel Oliveira[1], Francisca Saraiva[2], Silvia O Diaz[2], Mariana Vasconcelos[1], Marta Tavares Silva[1], Rui André Rodrigues[1], Adelino Leite-Moreira[1]

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Introduction: Obesity stands as a potentially modifiable cardiovascular (CV) risk factor, with current guidelines including targeted therapy as part of standard of care. Recent evidence shows benefits of glucose-dependent insulinotropic polypeptide (GIP) and glucagon-like peptide-1 (GLP-1) receptor agonists (RA) dual therapy in overweight and non-diabetic individuals, with significant weight loss and improved CV markers. In Portugal, reimbursement of dual RA therapy is not addressed, leaving many undertreated.
Objectives: To assess and characterize the prevalence of non-diabetic and overweight adults potentially eligible for dual GIP/GLP-1 RA therapy in a community-based setting.
Methods: A cross-sectional CV screening programme was conducted in three localities in Portugal. Screening included a standardized clinical assessment and onsite blood sampling. Eligibility for dual RA therapy with tirzepatide followed SURMOUNT-1 Trial criteria.
Results: A total of 161 non-diabetic pts were included (out of 198 screened pts), mostly female (n = 110, 68%), median age of 65 years (IQR 56,73) and median body mass index (BMI) of 27 Kg/m^2 (IQR 24,29). Nearly half (n = 68, 49%) were classified as high risk according to the 10-year risk estimate of CV disease in Europe. Based on the eligibility criteria (Figure 1), more than one-third (n = 62, 39%) were deemed eligible for tirzepatide, mainly due to BMI ≥ 30 Kg/m^2 (n = 32, 52%), followed by BMI ≥ 27 Kg/m^2 with arterial hypertension and/or dyslipidemia (n = 28, 46%). Eligible pts had higher waist circumference (103 cm vs. 89 cm, p < 0.001), as well as higher glycated hemoglobin (5.70% vs. 5.50%, p = 0.004) and triglycerides levels (146 mg/dL vs. 120 mg/dL, p = 0.003). Possibly due to more frequent statin

Variables	Total cohort (n = 436)	On-target group (n=134)	Off-target group (n=170)	
Patient demographics				
Age, median [IQR]	68.0 [54.0;76.0]	69.0 [55.8;75.0]	72.0 [61.8;79.0]	p < 0.01
Sex (female)	298/435 (68.5%)	90/134 (67.2%)	115/170 (67.2%)	p = 0.93
Cardiovascular factors				
Cardiovascular risk categories				
Low	24/304 (7.9%)	17/134 (12.7%)	7/170 (4.1%)	
Moderate	146/304 (48.0%)	73/134 (54.5%)	73/170 (42.9%)	p < 0.01
High	62/304 (20.4%)	24/134 (17.9%)	38/70 (22.4%)	
Very High	72/304 (23.7%)	20134 (14.9%)	52/170 (30.6%)	
SCORE2/OP, median [IQR]	9.0 [4,6;18,0]	7.2 [3.4;12.0]	10.0 [5.6;21.0]	p < 0.01
LDL-c above target	170/304 (55.9%)	-	-	-
Any dyslipidaemia drug	115/348 (33.0%)	53/117 (45.3%)	41/144 (28.5%)	p < 0.01
Statin	63/303 (20.8%)	30/98 (30.6%)	23/128 (18.0%)	p = 0.03
Statin+Ezetimibe	7/247 (2.8%)	3/71 (4.2%)	2/107 (1.9%)	p = 0.39
Total-c, mean ± SD	180.5 ± 41.0	161.0 ± 35.5	199.9 ± 36.9	p = 0.27
HDL-c, mean ± SD	55.2 ± 17.8	57.8 ± 19.1	54.5 ± 16.1	p = 0.03
LDL-c, median [IQR]	97.7 [70.4;125.3]	67.1 [51.4;85.0]	120.5 [94.2;140.3]	p < 0.01
TG, median [IQR]	112,5 [78.8;195.3]	153.0 [65.5;234.0]	110.0 [88.5;166.5]	p = 0.12

Table 1, population characteristics and comparison on-target vs off-target groups
IQR, interquartile range; LDL-c, LDL cholesterol; Total-c, total cholesterol; SD, standard deviation; HDL-c, HDL cholesterol; TG, triglycerides

Figure PO 80

treatment (n = 44, 71% vs. n = 35, 35% p < 0.001), eligible pts had lower low-density lipoprotein cholesterol (81 mg/dL vs. 101 mg/dL, p = 0.026). Other blood parameters, including lipoprotein(a) (21 mg/dL, p = 0.7), serum creatinine (0.77 mg/dL, p = 0.2), high-sensitivity c-reactive protein (1.10 mg/dL p = 0.095) and N-terminal pro-B-type natriuretic peptide (79 pg/mL, p > 0.9) levels were similar across groups. Stable mental health disorders were more prevalent in eligible pts (n = 21, 34% vs. n = 17, 17%, p = 0.015) with no major differences in other chronic conditions. Although Atlantic dietary pattern (p = 0.060), alcohol intake (p = 0.072) and smoking history (p = 0.4) were similar, eligible pts reported significantly less rates of aerobic physical activity per week (n = 48, 77% vs. n = 92, 92%, p = 0.004). Despite the high eligibility rate, none of the pts was under dual RA therapy.

Figure 1. Eligibility criteria of SURMOUNT-1 Trial (NCT04184622).

Inclusion criteria:

- Age ≥ 18 years old.
- Body mass Index (BMI) ≥30 kilograms per square meter (kg/m²), or ≥27 kg/m² and previous diagnosis with at least one of the following comorbidities: hypertension, dyslipidemia, obstructive sleep apnea, cardiovascular disease.
- History of at least one unsuccessful dietary effort to lose body weight.

Exclusion criteria:

- Diabetes *mellitus*.
- Change in body weight greater than 5 kg within 3 months prior to starting study.
- Obesity induced by other endocrinologic disorders or monogenetic or syndromic forms of obesity.
- History of pancreatitis.
- Family or personal history of medullary thyroid carcinoma (MTC) or multiple endocrine neoplasia syndrome type 2 (MEN-2).
- History of significant active or unstable major depressive disorder (MDD) or other severe psychiatric disorder within the last 2 years.
- Any lifetime history of a suicide attempt.

Conclusions: A substantial proportion of our community-based sample met the eligibility criteria for tirzepatide, yet none of the pts were currently under it. These findings support the need for updated health policies to possibly ensure wider access for dual RA therapy.

PO 82. RISK MODIFIERS IN CARDIOVASCULAR PREVENTION: PREVALENCE AND CLINICAL IMPACT IN A PORTUGUESE COMMUNITY-BASED STUDY

Pedro Mangas Palma[1], Luana Alves[1], Sílvia O. Diaz[2], Helena Moreira[1], Emanuel Oliveira[1], Bernardo Cruz[1], Francisca Saraiva[2], Giulia Rinaldi[2], Marta Tavares Silva[1], Mariana Vasconcelos[1], Adelino Leite-Moreira[1], Rui André Rodrigues[1]

[1]ULS São João/Hospital São João. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: The 2021 ESC Guidelines on cardiovascular disease prevention recommend estimating 10-year ASCVD risk using SCORE2 or SCORE2-OP and emphasise the incorporation of modifiers to refine individualised risk assessment. However, clinical practice remains largely centred on traditional risk factors, and modifiers are frequently overlooked. This may lead to systematic underestimation of cardiovascular risk, with implications for preventive strategies and patient outcomes.
Objectives: To determine the prevalence of cardiovascular risk modifiers in a Portuguese population sample and evaluate their impact on risk reclassification.
Methods: A cross-sectional screening programme was conducted in three localities in Portugal. Eligible participants were volunteers aged ≥ 40 years. A standardised protocol was followed, including anthropometric measurements, blood pressure assessment, a lifestyle and clinical questionnaire, point-of-care capillary lipid profiling, and high-sensitivity C-reactive protein (hs-CRP) testing. Optional venous blood sampling was performed according to individual preference. Ten-year ASCVD risk was estimated in accordance with ESC Guidelines. Recorded risk modifiers were family history of premature cardiovascular disease, obesity, sedentarism, chronic inflammatory disease, major psychiatric disorders, elevated hs-CRP and elevated lipoprotein(a). Borderline cases were moved up one risk category if any modifier was present.
Results: We included 198 patients (median age 67 years [IQR 56-73]; 64 [32%] men). Traditional risk factors were common: 19% had diabetes, 47% hypertension and 56% dyslipidaemia; 49% were overweight or obese and 40% were current or former smokers. Most patients (92%) had at least one cardiovascular risk modifier and 38% had multiple. Sedentary lifestyle, obesity and elevated Lp(a) were the most frequent unique modifiers, whereas elevated hs-CPR was least frequent. Incorporating modifiers into risk estimation produced a marked upward shift in risk estimation: low-moderate, high and very high risk categories changed from 23%, 49% and 28% to 2%, 26% and 72%, respectively. Upward reclassification occurred in 91% of patients initially at low-moderate risk and 90% at high risk.

Table 1. Baseline characteristics of the study population.

Characteristic	N=198
Age, years	67 (56–73)
Male sex	64 (32.3%)
Diabetes	37 (18.7%)
Oral antidiabetic drugs	34 (17.2%)
Hypertension	92 (46.5%)
Dyslipidaemia	110 (55.6%)
Overweight or obese	97 (49.0%)
BMI, kg/m²	27.0 (24.0–29.0)
HbA1c, %	5.70 (5.40–6.00)
Total Cholesterol, mg/dL	176 (150–198)
HDL Cholesterol, mg/dL	57 (49–66)
LDL Cholesterol, mg/dL	88 (68–108)
Non-HDL Cholesterol, mg/dL	119 (95–140)
Triglycerides, mg/dL	138 (92–186)
High-sensitivity C-reactive protein, mg/L	1.10 (1.00–1.70)
Lipoprotein(a), mg/dL	21 (8–56)
Creatinine, mg/dL	0.79 (0.69–0.92)
NT-proBNP, pg/mL	81 (50–133)
Exhaled CO, ppm	2.0 (1.0–4.0)

Data are presented as median (IQR) or n (%).

Table 2. Reclassification of SCORE2 cardiovascular risk categories after incorporation of risk modifiers.

	SCORE2 + Modifiers			
	Low-Moderate	High	Very High	Total
SCORE2				
Low-Moderate	3 (2%)	29 (21%)	0 (0%)	32 (23%)
High	0 (0%)	7 (5%)	61 (44%)	68 (49%)
Very High	0 (0%)	0 (0%)	38 (28%)	38 (28%)
Total	3 (2%)	36 (26%)	99 (72%)	138 (100%)

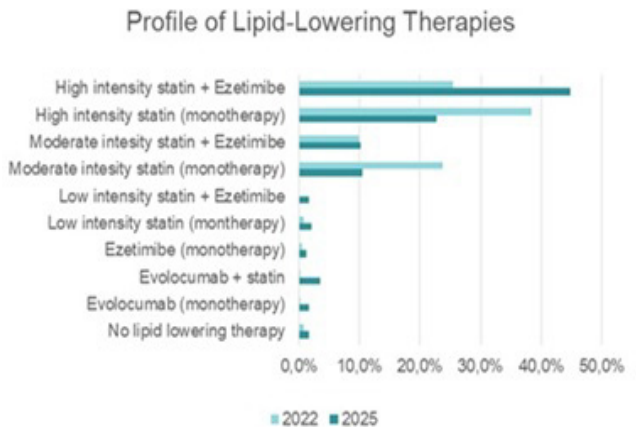
Conclusions: Cardiovascular risk modifiers were highly prevalent and led to substantial upward reclassification, with most patients shifting to very high risk and clear implications for preventive treatment decisions. Elevated Lp(a) was both frequent and influential, in contrast to the limited contribution of hs-CRP. These findings may help guide biomarker testing in primary prevention in this population and improve the cost-effectiveness of cardiovascular risk stratification.

PO 83. CLOSING THE GAP IN LDL-CHOLESTEROL GOAL ATTAINMENT AFTER MYOCARDIAL INFARCTION: PROGRESS AND PERSISTENT CHALLENGES

André Moniz Garcia, Mariana Ramos, Daniel Gomes, Mariana Paiva, Ana Rita Bello, Rita Amador, Rita Carvalho, Miguel Domingues, Marisa Trabulo, Carlos Aguiar, Jorge Ferreira, António Ferreira

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: The European Society of Cardiology Guidelines recommend an LDL cholesterol (LDL-C) < 55 mg/dL for patients with established atherosclerotic cardiovascular disease, but real-word data show that many patients fail to reach this target. This study assessed temporal trends in LDL-C goal attainment and lipid-lowering therapy use over a three-year period in patients with prior myocardial infarction (MI).
Methods: This single-center cross-sectional study included 800 post-MI patients followed by 20 cardiologists in a tertiary hospital. A random sample of 20 patients per cardiologist was selected from consultations that took place in 2022 (2022 cohort, n = 400) and 2025 (2025 cohort, n = 400). Patients were eligible if they had a type 1 MI ≥ 6 months before the appointment, and stable lipid-lowering therapy for ≥ 6 weeks before a fasting lipid profile.
Results: The overall population had a mean age of 68 ± 12 years, with 78% male. There were no significant differences between the 2022 and 2025 cohorts regarding age, sex, cardiovascular risk factors, subtype of MI (STEMI vs. NSTEMI), or the proportion of patients with recent MI (< 1 year). The median LDL-C under therapy decreased from 70 mg/dL (IQR 58-86) in 2022 to 61 mg/dL (IQR 49-76) in 2025 (p < 0.001). Accordingly, the proportion of patients reaching LDL-C < 55 mg/dL increased from 22% in 2022 to 36% in 2025 (p < 0.001). There were significant increases in the use of high intensity statins, ezetimibe, PCSK9 inhibitors, and overall combination therapy (Figure). Despite these improvements, in the 2025 cohort, 69% of patients (n = 178) who failed to reach LDL-C target did not have their therapy intensified, 47% of whom (n = 84) with LDL-C values ≥ 70 mg/dL. There was also a significant increase in the proportion of patients who were openly non-compliant or refused lipid therapy (2.5% vs. 5.0%, p = 0.003).



Conclusions: LDL-C levels and target attainment improved over the three-year period, yet fewer than four in ten post-MI patients achieve the ESC-recommended goal. At the current rate of progress, many years will be required to reach acceptable LDL-C control in this very-high-risk population. Persistent therapeutic inertia and a rising number of patients refusing or discontinuing therapy further emphasize the need for more effective implementation of guideline-directed lipid management.

PO 84. BEYOND EXPECTATIONS: WHO ACHIEVES THE GREATEST LDL-C DECLINE?

Rodrigo Afonso[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], João Cravo[1], Marta Vilela[1], Alda Ribas[2], Edite Caldeira[3], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[1], Nelson Cunha[1], Fausto J. Pinto[1], Ana Abreu[1]

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Introduction: Lipid-lowering therapy is key for reducing cardiovascular risk, but responses to statins and ezetimibe vary widely. Identifying baseline factors that predict LDL-c reduction, including "super-responder" status, may help personalize treatment and optimize outcomes.
Objectives: The aim of this study was to identify clinical and biochemical predictors of LDL-c response to lipid-lowering therapy.
Methods: Prospective observational single-center study of lipid lowering therapy-naïve patients admitted to the Cardiology Department with acute coronary syndrome between 2023 and 2025 and subsequently enrolled in a cardiac rehabilitation program. Clinical and laboratory data were collected at admission and post-rehabilitation. Patients were classified as responders if they achieved the average LDL-C percentage reduction reported in the newest ESC guidelines (± 10%), and as super-responders if they exceeded it by at least 10%.
Results: Of the 105 patients enrolled (mean age of 59.3 ± 10.88 years), the majority were male (78.1%) and had single-vessel disease (57.3%), 56.2% had hypertension, 55.2% dyslipidemia, 13.3% diabetes and 63.8% had smoking history. Mean LDL-c at admission was 118.6 ± 46.2 mg/dL. At discharge, 5 patients received moderate-intensity statins, 80 received high-intensity statins, 1 received moderate-intensity statin plus ezetimibe, and 19 received high-intensity statin plus ezetimibe. Overall, 64 patients were classified as responders and 31 as super-responders. In univariate analyses, responders had significantly higher admission LDL-c (135.6 ± 46.9 vs. 92.1 ± 29.9 mg/dL, p < 0.001) and higher glomerular filtration rates (eGFR; 86.7 ± 21.3 vs. 77.6 ± 20.9, p 0.033), while non-responders had significantly higher Apolipoprotein B levels (ApoB; 77.9 ± 18.0 vs. 64.8 ± 19.3, p 0.007) and slightly higher Lipoprotein (a), although not statistically significant (124.8 ± 99.0 vs. 83.7 ± 84.7, p 0.063). In multivariate analysis, only admission LDL-c (HR 1.07; p < 0.001) and ApoB (HR 0.89; p = 0.002) remained independently associated with response. Super-responders, in univariate analysis, had higher LDL-c at admission (140.9 ± 53.8 vs. 109.3 ± 39.4, p 0.001), lower ApoB (60.7 ± 17.5 vs. 74.7 ± 19.3, p 0.005) and higher IPAQ scores (681.9 ± 768.2 vs. 360.6 ± 502.8, p 0.049). On multivariate logistic regression, only admission LDL-c (HR 1.02; p = 0.008) and ApoB (HR 0.94; p = 0.009) remained significant.
Conclusions: Baseline LDL-c and ApoB levels emerged as the strongest predictors of LDL-c reduction following lipid-lowering therapy. Identifying patients with high LDL-c and low ApoB at admission may assist clinicians in anticipating treatment response and optimizing early lipid-lowering strategies.

Sexta-feira, 24 Abril de 2026 | 12:00-12:55

Área de Posters - Ecrã 3 | Sessão de Posters 15 - Prognóstico, estratificação de risco e comorbilidades na amiloidose cardíaca

PO 85. TRACKING THE FALL: SERUM TRANSTHYRETIN DECLINE AS A HARBINGER OF HEART FAILURE IN HATTR-CM

João Cravo[1], Daniel Inácio Cazeiro[1], Marta Vilela[1], Catarina Campos[2], Isabel Conceição[2], Fausto Pinto[1], Dulce Brito[1], João Agostinho[3]

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Introduction: Transthyretin cardiac amyloidosis (ATTR-CM) is a progressive infiltrative cardiomyopathy arising from transthyretin protein misfolding

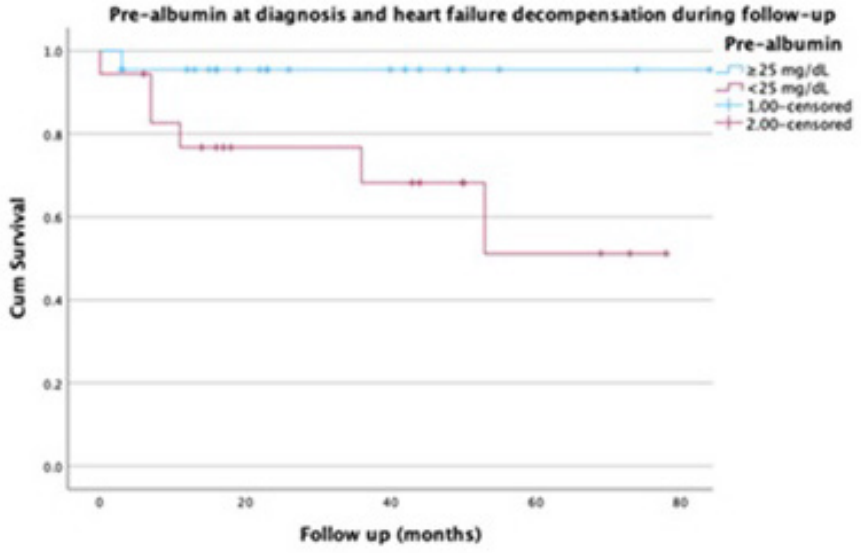

Figure 1 Kaplan–Meier survival analysis according to sTTR. Patients with sTTR levels <25 mg/dL exhibited a significantly shorter time to event compared with those with pre-albumin ≥25 mg/dL (log-rank χ^2=4.48, p=0.034).

Figure PO 85

leading to myocardial amyloid deposition. Nowadays, a few biomarker-based prognostic models for ATTR-CM have been proposed. Serum transthyretin levels (sTTR) may serve as a surrogate of disease burden and amyloid deposition. Despite its potential, the prognostic value of sTTR remains uncertain.

Objectives: To evaluate the prognostic value of sTTR in patients with hereditary transthyretin cardiac amyloidosis (hATTR-CM).

Methods: Single-center retrospective observational study including patients diagnosed with hATTR-CM between 2022-2025. Diagnosis was established according to international criteria, including genetic testing. Clinical, laboratory, ^{99m}TC-DPD scintigraphy and echocardiographic data were systematically collected at baseline and during follow-up. sTTR levels (measured as pre-albumin) were collected at baseline and serially during follow-up and correlated with disease severity and prognostic events.

Results: A total of 51 patients with hATTR-CM were included (median age at diagnosis 57 years [IQR 47-67]; 40 [78%] male). The majority carried the Val30Met variant (44 [86%]), followed by V122I (6 [12%]) and G89L (1 [2%]). Hypertension was present in 40 (78%) and atrial fibrillation in 11 (22%). 40 were treated with tafamidis 61 mg and 9 with vutrisiran. Median sTTR at diagnosis was 20 mg/dL (IQR 12-24). Lower sTTR levels were observed in patients with greater functional impairment requiring diuretics, (23 [IQR 16-26] vs. 27 [IQR 22-33]; p = 0.047), and in those with interventricular septum thickness > 15 mm (21 ± 3 vs. 26 ± 1 mm; p = 0.049). A non-significant trend towards lower sTTR levels was seen in patients with a Perugini score 3 on ^{99m}TC-DPD scintigraphy (22.5 ± 2 vs. 26 ± 2 mg/dL; p = 0.20). During a mean follow-up of 35 ± 3 months, 11 heart-failure (HF) decompensations requiring diuretic uptitration occurred. Patients who experienced HF events had significantly lower sTTR at diagnosis (17.7 ± 3 vs. 26 ± 1 mg/dL; p = 0.010). A decline in sTTR from baseline was strongly associated with cardiovascular events (−1.3 ± 0.6 vs. +6 ± 1 mg/dL in those without events; p = 0.010). Patients with sTTR < 25 mg/dL had significantly shorter event-free survival compared with those ≥ 25 mg/dL (log-rank χ^2 = 4.48; p = 0.034). In Cox regression analysis, low sTTR was associated with a seven-fold higher risk of events (HR 7.06; 95%CI 0.85-58.7; p = 0.071).

Conclusions: Lower serum transthyretin levels at diagnosis were associated with more advanced cardiac involvement, impaired functional status, and a higher risk of subsequent heart failure decompensation. sTTR may represent a practical and clinically relevant biomarker for disease severity and short-term prognosis in hATTR-CM, serving as a complementary tool alongside established markers such as NT-proBNP.

PO 86. MORTALITY AND HEART FAILURE BENEFITS OF SGLT2 INHIBITORS IN TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: A COHORT AND INTEGRATED META-ANALYSIS

Emídio Mata[1], Bernardo Resende[2], Luísa Pinheiro[1], Margarida Castro[1], Bárbara Lage Garcia[1], Tamara Pereira[1], Filipa Cordeiro[1], Olga Azevedo[1], António Lourenço[1]

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Introduction: The evidence supporting sodium-glucose cotransporter-2 inhibitors (SGLT2i) in heart failure (HF) secondary to transthyretin amyloid cardiomyopathy (ATTR-CM) remains scarce and fragmented across small observational series.

Objectives: To evaluate the impact of SGLT2i on clinical outcomes in ATTR-CM through a single-center cohort study, integrating results into a meta-analysis of available evidence.

Methods: A retrospective cohort of patients with ATTR-CM (2014-2024, n = 111) was analyzed, comparing those treated with SGLT2i versus non-treated. The primary endpoint was all-cause mortality (ACM); secondary endpoints included heart failure hospitalizations (HFH) and the composite of ACM and HFH. A time-varying treatment exposure Cox regression, adjusted for 12 baseline covariates, was used to account for confounding and immortal-time bias. A systematic search of CENTRAL, Scopus, EMBASE, and PubMed (October 10, 2025) identified studies evaluating SGLT2i effects on outcomes of interest in ATTR-CM. Hazard ratios (HRs) were extracted or converted from relative risks, prioritizing covariate-adjusted or propensity-matched estimates. Data were pooled using inverse-variance random-effects meta-analyses to estimate overall effects.

Results: In the institutional cohort, time-varying analysis demonstrated lower ACM among SGLT2i users (HR 0.35, 95%CI 0.13-0.97; p = 0.04) over a median 25-month follow-up (IQR 16-39). Rates of HFH and the composite outcome did not differ significantly between patients treated with SGLT2i and those not receiving SGLT2i therapy. The meta-analysis pooled data from 4 observational studies and the institutional cohort (n = 5,909). SGLT2i use was associated with reduced ACM (pooled HR 0.56, 95%CI 0.46-0.68; I^2 = 24%), fewer HFH (HR 0.66, 95%CI 0.51-0.86; I^2 = 30%), and lower risk of the composite outcome (HR 0.55, 95%CI 0.38-0.80; I^2 = 0%). No significant heterogeneity or small-study effects were detected.

Conclusions: SGLT2i therapy in transthyretin amyloid cardiomyopathy (ATTR-CM) was associated with significant reductions in ACM and HFH in

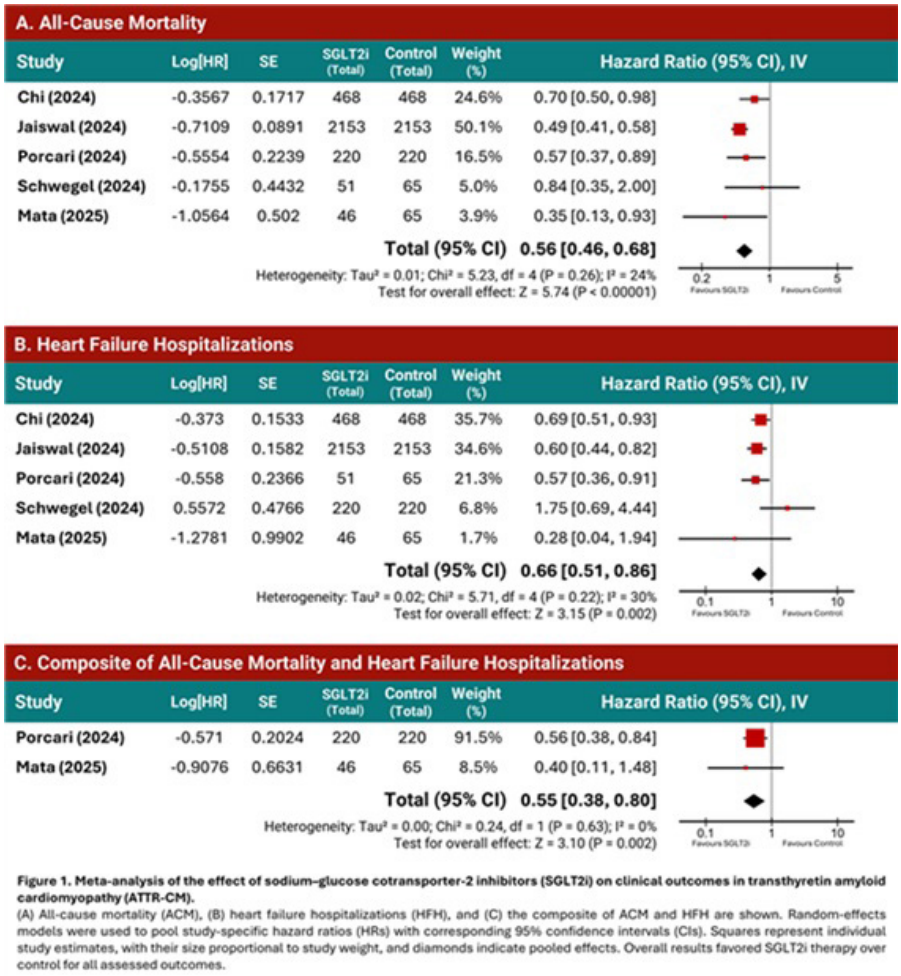

Figure 1. Meta-analysis of the effect of sodium–glucose cotransporter-2 inhibitors (SGLT2i) on clinical outcomes in transthyretin amyloid cardiomyopathy (ATTR-CM).
(A) All-cause mortality (ACM), (B) heart failure hospitalizations (HFH), and (C) the composite of ACM and HFH are shown. Random-effects models were used to pool study-specific hazard ratios (HRs) with corresponding 95% confidence intervals (CIs). Squares represent individual study estimates, with their size proportional to study weight, and diamonds indicate pooled effects. Overall results favored SGLT2i therapy over control for all assessed outcomes.

Figure PO 86

pooled analyses, consistent with findings from the institutional cohort. These results support the emerging role of SGLT2i as a potentially disease-modifying adjunct in the management of ATTR-CM and highlight the need for confirmation in prospective randomized trials.

PO 87. THE HEART AFTER TRANSPLANT: LONG-TERM CARDIOVASCULAR OUTCOMES IN HEREDITARY ATTRV AMYLOIDOSIS

Nuno Madruga[1], Daniel Inácio Cazeiro[1], Marta Vilela[1], João Cravo[1], Diogo Ferreira[1], João Fernandes Pedro[1], Sofia Esteves[1], Catarina Campos[2], Isabel Conceição[2], Fausto J. Pinto[1], Dulce Brito[1], João Agostinho[3]

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Introduction: Hereditary transthyretin amyloidosis (ATTRv) is an autosomal dominant disease caused by TTR gene mutations, leading to misfolded protein deposition, especially in the heart and peripheral nervous system. This multisystem involvement results in cardiomyopathy, neuropathy and significant morbidity with poor survival. As the liver is the main source of mutated TTR, orthotopic liver transplantation (LT) emerged in the 1990s as the first disease-modifying therapy, improving outcomes and survival. Despite recent advances in TTR-stabilizing and gene-silencing treatments, cardiac involvement remains a key prognostic factor.

Methods: We conducted a single-center observational study including patients with diagnosis of hereditary ATTR amyloidosis (V30M mutation) who underwent liver transplantation between 1992 and 2020. Clinical, laboratory and echocardiographic data were collected at baseline and follow-up.
Results: 114 hATTR V30M patients were included (56% male; mean age at liver transplantation 38 ± 0.9 years) with a mean follow-up of 13.6 ± 0.6 years. Most received tacrolimus (74%), cyclosporine (11%) or mycophenolate (9%). During follow-up, chronotropic incompetence increased from 14% to 40% (p = 0.10). Echocardiography showed progression of interventricular septal thickness (10 ± 0.2 vs. 11 ± 0.3 mm, p = 0.01), posterior wall thickness (9 ± 0.2 vs. 10 ± 0.2 mm, p = 0.01), LV mass (92 ± 2.8 vs. 101 ± 3 g, p = 0.04) and NT-proBNP (101 [58-218] to 193 [109-373] pg/mL, p = 0.003). Pacemakers were implanted in 86 patients (75%), and age at liver transplantation independently predicted implantation (OR 1.043; 95%CI 1.012-1.075; p = 0.006), corresponding to a 4.3% increase in risk per additional year. Cardiovascular hospitalization occurred in 6 patients (5%). Higher follow-up E/E′ was an independent predictor of cardiovascular hospitalization after adjustment for age at liver transplantation (OR 1.30; 95%CI 1.04-1.63; p = 0.023), indicating a 30% increase in risk per unit rise. Thirty patients (26%) died during follow-up. Mortality was unrelated to pacemaker implantation or cardiovascular hospitalization. In multivariable analysis, cyclosporine use (OR 5.06; 95%CI 1.41-18.12; p = 0.013) and older age at liver transplantation (OR 1.05 per year; 95%CI 1.00-1.10; p = 0.036) were independent predictors of mortality. Kaplan-Meier analysis showed a trend toward lower survival among patients on cyclosporine (HR 2.04; p = 0.105).
Conclusions: In this long-term cohort of hATTR V30M patients after liver transplantation, older age at transplantation was associated with higher risks of pacemaker implantation and mortality, while elevated follow-up E/E′ independently predicted cardiovascular hospitalization. These results underline the ongoing cardiac vulnerability in hATTR despite liver transplantation and reinforce the need for sustained, targeted cardiac monitoring.

	Baseline	Follow-Up	P-Value
Functional capacity			
Orthostatic Hypotension, n(%)	3 (3)	5 (4)	NS
Chronotropic Incompetence, n(%)	16 (14)	46 (40)	NS
Echocardiographic Parameters			
LVEF (%; mean ± SD)	60 ± 0.4	61 ± 0.7	NS
GLS (%; mean ± SD)		16 ± 0.6	
IVS thickness (mm; median [IQR])	10 ± 0.2	11 ± 0.3	**p=0.001**
PW thickness (mm; median [IQR])	9 ± 0.2	10 ± 0.2	**p=0.001**
Lv indexed mass(g/m²; mean ± SD)	92 ± 2.8	101 ± 3	**p=0.04**
LA volume index (mL/m²; mean ± SD)	32 ± 0.9	31 ± 1.2	NS
E/E', mean ± SD	9 ± 0.6	10 ± 0.7	NS
TAPSE (mm; mean ± SD)	20 ± 0..3	22 ± 0.4	**p=0.02**
sPAP (mmHg; mean ± SD)	28 ± 1.4	26 ± 0.9	NS
Laboratory Parameters			
NT-proBNP (pg/mL; median [IQR])	101 (IQR 58-218)	193 (IQR 109-373)	**p=0.003**
Troponin (ng/L; median [IQR])	14 (IQR 4-20)	12 (7-19)	NS
Creatinine (mg/dL; mean ± SD)	0.8 (IQR 0.6-0.9)	0.98 (IQR 0.8-1.1)	NS
Serum TTR levels (mg/dL; mean ± SD)		22 ± 0.5	
^{99m}TC-DPD scintigraphy			
Score 0-1, n(%)		**20 (18)**	
Score 2-3, n(%)		1 (1)	

Table 1: Baseline characteristics of study population

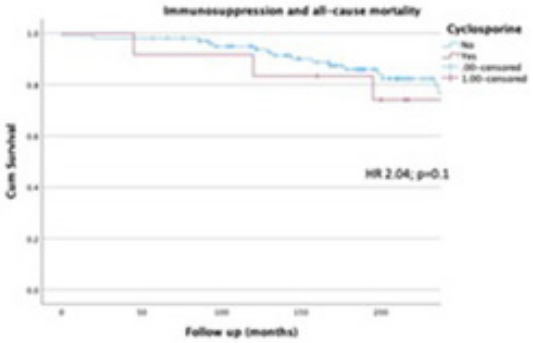

Figure 1. Kaplan–Meier survival curves comparing all-cause mortality in patients treated with cyclosporine versus those not treated with cyclosporine.

Figure PO 87

PO 88. ROLE OF 99MTC-DPD SCINTIGRAPHY IN TRACKING THERAPEUTIC RESPONSE TO TAFAMIDIS IN HATTR-CM

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Introduction: Transthyretin amyloid cardiomyopathy (ATTR-CM) is nowadays a major cause of heart failure worldwide, due to improved awareness of clinical red flags and use of non-invasive diagnostic tools like ^{99m}TC-DPD scintigraphy. The emergence of disease-modifying therapies like tafamidis, have altered the natural history of ATTR-CM and highlighted the need for reliable methods to assess treatment response. However, the ability of imaging modalities to reflect changes in amyloid burden during therapy and track disease progression is not fully established.

Objectives: To evaluate disease progression in hATTR-CM patients treated with tafamidis and assess the utility of ^{99m}TC-DPD in monitoring treatment response.

Methods: Single-center, retrospective observational study including patients diagnosed with hATTR-CM between 2022-2025. Pre and post-treatment ^{99m}TC-DPD bone scintigraphy was performed and Perugini scores were compared and correlated with disease progression and clinical outcomes.

Results: 48 patients with hATTR-CM were included (mean age 69 ± 1.7 years, 33 (83%) male). Genetic variants included: Val30Met in 41 (85%), G89L in 1 (2%) and

Echocardiographic Parameters	Baseline	Follow-Up	P-Value
LVEF (%; mean ± SD)	57±1	59±2	NS
GLS (%; mean ± SD)	-17±2	-13±1	NS
Apical sparing, n (%)	30(75)	32(79)	NS
IVS thickness (mm; median [IQR])	15±1	15±1	NS
E/E', mean ± SD	14±1	12±2	NS
LA volume index (mL/m²; mean ± SD)	39±2	39±2	NS
TR velocity (m/s; mean ± SD	1.8±0.2	1.7±0.2	NS
Right ventricular hypertrophy, n (%)	14(36)	10(24)	NS
TAPSE (mm; mean ± SD)	20±1	20±1	NS
sPAP (mmHg; mean ± SD)	28±2	30±2	NS
Pericardial effusion, n (%)	7(18)	5(12)	NS
^{99m}TC-DPD scintigraphy			
Total	48	24	
Score 0, n(%)	7(14)	8(33)	NS
Score 1, n(%)	2(4)	4(17)	NS
Score 2, n(%)	8(17)	6(25)	NS
Score 3, n(%)	31(65)	6(25)	NS
Laboratory Parameters			
Serum TTR levels (mg/dL; mean ± SD)	24±2	29±1	**p=0.002**
Troponin (ng/L; median [IQR])	24(IQR 19-29)	27(IQR 22-32)	NS
NT-proBNP (pg/mL; median [IQR])	339(IQR 326-352)	431(IQR 404-458)	NS

Table 1: Baseline characteristics of study population

^{99m}TC-DPD Scintigraphy	Score 3 Follow-Up	Score 2 Follow-Up	Score 1 Follow-Up	Score 0 Follow-Up
Score 3 Baseline	3 (12)	5(21)	2 (8)	5(21)
Score 2 Baseline	3 (12)	1(4)	0	1(4)
Score 1 Baseline	0	0	1(4)	0
Score 0 Baseline	0	0	1(4)	2 (8)

Table 2: ^{99m}TC-DPD bone scintigraphy Perugini score progression

Figure PO 88

V122L in 6 (13%). Hypertension was present in 28 (58%), followed by atrial fibrillation in 11 (23%). At baseline, 34 patients (71%) had positive ^{99m}TC-DPD bone scintigraphy. Patients with Perugin Score of 0-1 underwent endomyocardial biopsy for diagnostic confirmation. All patients were treated with tafamidis 61 mg. Over a mean follow-up of 36 ± 3 months, 11 patients (23%) experienced heart failure decompensation, 5 (10%) required cardiovascular hospitalization and 4 (8%) died, including 1 cardiovascular death. Echocardiographic parameters had no significant changes between baseline and follow-up. Serum transthyretin (sTTR) levels increased significantly (24 ± 2 to 29 ± 1 mg/dL; p = 0.002). Ongoing disease progression despite tafamidis prompted treatment escalation to vutrisiran in 5 patients (10%), with a mean switch time of 27 ± 6 months. 23 patients underwent follow-up ^{99m}TC-DPD scintigraphy at 27 ± 2 months after treatment initiation: 13 (57%) showed reduced cardiac uptake, whereas 4 (17%) showed increased uptake. No significant differences were observed between these groups regarding functional class, laboratory values, echocardiographic parameters, or outcomes.

Conclusions: Despite showing that the majority of patients with hATTR-CM treated with tafamidis 61 mg had a reduction in ^{99m}TC-DPD scintigraphy myocardial uptake, our study shows a poor correlation between changes in uptake at follow-up and disease progression/clinical outcomes, possibly limited by the low number of follow-up ^{99m}TC-DPD scintigraphy. The utility of bone scintigraphy in assessing treatment response, disease progression and clinical outcomes should be made with caution.

PO 89. IMPACT OF IRON DEFICIENCY ON ADVERSE OUTCOMES IN TRANSTHYRETIN CARDIAC AMYLOIDOSIS

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Introduction: Transthyretin cardiac amyloidosis (ATTR-CA) is a restrictive cardiomyopathy associated with symptomatic heart failure (HF) and an increased risk of cardiovascular events. Iron deficiency (ID), a common comorbidity in HF, may also influence outcomes in ATTR-CA, but its prognostic impact remains insufficiently defined.

Objectives: This study aimed to assess the prevalence of ID and evaluate its association with clinical outcomes in patients with ATTR-CA followed at a Cardiomyopathy Clinic in a regional hospital in Portugal.

Methods: Retrospective, single-center study including patients diagnosed with ATTR-CA between 2018 and 2024. Baseline clinical and laboratory data were collected (Table 1). ID was defined using either the conventional criteria [ferritin < 100 μg/L, or 100-300 μg/L with transferrin saturation (TSAT) < 20%] and the TSAT-based criteria (TSAT < 20%). The primary endpoint, a composite of cardiac death and HF hospitalization, was assessed

Table 1 (A)

	Total (n=61)	Group 1 (n=30)	Group 2 (n=31)	p-value
Male gender – n (%)	57 (93)	28	29	0.973[a]
Age at diagnosis (years) – mean (SD)	81 (6)	81 (6)	81 (6)	0.648[b]
NYHA Class				
NYHA I	8 (13)	2 (7)	6 (19)	0.142[a]
NYHA II	36 (59)	13 (43)	23 (74)	0.014[a]
NYHA III	17 (28)	15 (50)	2 (7)	**<0.001[a]**
Past medical history – n (%)				
Overweight	35 (57)	19 (63)	16 (52)	0.355[a]
Hypertension	50 (82)	27 (90)	23 (74)	0.108[a]
Dyslipidemia	48 (79)	26 (87)	22 (71)	0.134[a]
Atrial fibrillation	43 (71)	27 (90)	16 (52)	**0.001[a]**
Diabetes mellitus	29 (48)	18 (60)	11 (36)	0.055[a]
Chronic kidney disease	35 (57)	25 (83)	10 (32)	**<0.001[a]**
COPD	13 (21)	9 (30)	4 (13)	0.103[a]
Obstructive sleep apnea	10 (16)	5 (17)	5 (16)	0.955[a]
Prior MI	7 (12)	5 (17)	2 (7)	0.211[a]
Valvular heart disease	16 (26)	10 (33)	6 (19)	**<0.001[a]**
Iron deficiency markers – n (%)				
ID (conventional criteria)	48 (79)	23 (77)	25 (81)	0.704[a]
Absolute ID (SF < 100 μg/L)	42 (69)	18 (60)	24 (77)	0.142[a]
Functional ID (SF 100-300 μg/L and TSAT <20%)	6 (10)	5 (17)	1 (3)	0.035[a]
Transferrin saturation < 20%	27 (44)	18 (60)	9 (29)	0.015[a]
Analytical parameters				
Plasma iron (μmol/L) – median (IQR)	11.9 (5.6)	10.9 (3.8)	13.7 (6.5)	**0.023[c]**
Transferrin (mg/dL) – median (IQR)	246.0 (63.5)	241.5 (89.8)	249.0 (50.0)	0.845[c]
Serum ferritin (ng/mL) – median (IQR)	83.5 (71.6)	88.0 (95.6)	77.1 (47.4)	0.375[c]
Transferrin saturation (%) – mean (SD)	22.4 (7.9)	19.9 (7.7)	24.8 (12.3)	**0.012[b]**
TIBC (μmol/L) – median (IQR)	56.5 (10.2)	55.9 (13.2)	57.1 (9.9)	0.977[c]
Hemoglobin (g/dL) – mean (SD)	13.8 (1.5)	13.5 (1.6)	14.1 (1.4)	0.134[b]
NT-proBNP (pg/mL) – median (IQR)	4210.0 (3760.0)	4985.0 (5278.0)	2660.0 (3410.0)	**<0.001[c]**
hs-TnI (pg/mL) – median (IQR)	91.7 (146.0)	109.0 (156.0)	73.7 (110.0)	0.067[c]
Creatinine (mg/dL) – median (IQR)	1.36 (0.70)	1.64 (0.81)	1.11 (0.48)	**<0.001[c]**

Table 1 (B)

Variables	OR	CI 95%	p-value
Atrial fibrillation	8.016	1.533 - 41.908	**0.014**
Chronic kidney disease	10.625	2.333 - 48.383	**0.002**
Valvular heart disease	2.149	0.420 - 10.990	0.358
Absolute ID	0.341	0.056 - 2.089	0.245
Functional ID	3.940	0.155 - 255.109	0.331
Transferrin saturation < 20%	6.285	1.321 - 19.316	**0.041**

Table 1. (A) Patient baseline characteristics. (B) Multivariate logistic regression.
Statistical analysis: [a]Chi-square test, [b]t-student test, [c]Mann-Whitney U test. Abbreviations: **COPD** - chronic obstructive pulmonary disease, **hs-TnI** - high-sensitivity troponin I, **ID** - iron deficiency, **IQR** - interquartile range, **SD** - standard deviation, **SF** - serum ferritin, **TIBC** – total iron-binding capacity, **TSAT** - transferrin saturation.

Figure PO 89

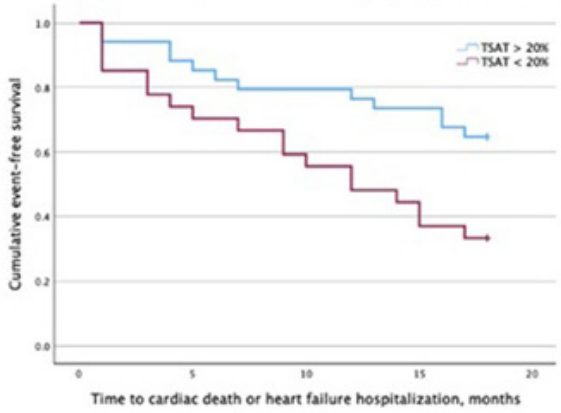

Figure 1. Kaplan Meier analysis showing outcomes of the ATTR-CA population according to the presence or absence of iron deficiency at baseline, defined as transferrin saturation (TSAT) below 20%.

Figure PO 89 ***(cont.)***

at 18 months. Patients who experienced the primary endpoint (group 1) were compared with those who did not (group 2).

Results: 61 patients were included (81 ± 6 years, 93% male), of whom 30 (49%) experienced the primary endpoint (group 1). ID was observed in 79% of patients by conventional criteria and in 44% by the TSAT-based criteria, with a higher prevalence in group 1 only under the TSAT-based definition (60 vs. 29%, p = 0.015). Group 1 patients also had a higher prevalence of atrial fibrillation (AF) (90 vs. 52%, p = 0.001), chronic kidney disease (CKD) (83 vs. 32%, p < 0.001) and significant valvular heart disease (33 vs. 19%, p < 0.001). In multivariate analysis, AF (OR 8.02, 95%CI 1.53-41.91, p = 0.014), CKD (OR 10.63, 95%CI 2.33-48.38, p = 0.002) and TSAT < 20% (OR 6.29, 95%CI 1.32-19.32, p = 0.041) were associated with the occurrence of the primary endpoint. Kaplan-Meier curves showed lower event-free survival in patients with TSAT < 20% (Figure 1). Patients with TSAT < 20% had higher levels of NT-proBNP at baseline (4870.0 vs. 3810.0 pg/mL, p = 0.047). The primary driver of 18-month MACE was HF hospitalizations (60%), followed by cardiac death (40%).

Conclusions: In this cohort of patients with ATTR-CA, ID was highly prevalent, particularly when defined by conventional criteria. However, only the TSAT-based definition demonstrated prognostic relevance, being associated with worse outcomes. These findings highlight the importance of screening for ID, especially TSAT < 20%, to identify patients at increased risk.

PO 90. CHARACTERIZATION OF TAFAMIDIS NON-RESPONDERS IN CARDIAC AMYLOIDOSIS: A REAL-WORLD SINGLE-CENTRE STUDY

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Introduction: Tafamidis is the standard disease-modifying therapy for transthyretin cardiac amyloidosis, yet real-world cohorts show substantial heterogeneous treatment response. Characterizing non-responders may improve risk stratification, follow-up planning and therapeutic decision-making.

Objectives: To characterize Tafamidis non-responders at 12 months according to a composite definition integrating NYHA class, NT-proBNP, and echocardiographic parameters.

Methods: We conducted a single-centre observational study including 49 consecutive patients who initiated Tafamidis between Feb/2022 and Jun/2025. Non-response at 12 months was defined as ≥ 1 of the following: NYHA worsening, NT-proBNP rise ≥ 15%, or structural echocardiographic deterioration (LVEF decrease ≥ 5%, ≥ 1 mm wall-thickness increase, ≥ 2-point GLS worsening, or left atrial (LA) volume index increase ≥ 10 mL/m^2). Tafamidis interruption, heart failure (HF) hospitalization and all-cause mortality were also evaluated.

Variable	Value
Demographics	
Age, mean ± SD (years)	78.3 ± 10.3
Male sex, n (%)	18 (75%)
Comorbidities	
Hypertension, n (%)	20 (83.3%)
Atrial fibrillation, n (%)	16 (66.7%)
Dyslipidaemia, n (%)	14 (58.3%)
Diabetes mellitus, n (%)	3 (12.5%)
Coronary artery disease, n (%)	3 (12.5%)
Structural heart disease, n (%)	3 (12.5%)
Chronic kidney disease, n (%)	2 (8.3%)
Obesity, n (%)	2 (8.3%)
Functional status	
NYHA I, n (%)	3 (12.5%)
NYHA II, n (%)	15 (62.5%)
NYHA III, n (%)	6 (25%)
Biomarkers	
NT-proBNP (pg/mL), median (IQR), n=20	2608.5 (1600.5–4426.3)
Echocardiography	
LVEF (%), mean ± SD (n=22)	47.2 ± 12.1
IVS thickness (mm), mean ± SD (n=18)	18.3 ± 3.0
Posterior wall (mm), mean ± SD (n=12)	14.2 ± 2.3
LA volume index (mL/m^2), mean ± SD (n=20)	49.4 ± 12.5
E/e', mean ± SD (n=7)	16.0 ± 5.9
Treatment timeline	
Time from diagnosis to Tafamidis start (days), median (IQR)	94.5 (39.5–259.8)

Results: Twenty-four patients (49%) were non-responders (mean age 78.3 ± 10.3 years, 75% male). Cardiovascular risk factors were highly prevalent: hypertension (83%), dyslipidaemia (58%), and atrial fibrillation (67%). Structural heart disease, predominantly moderate-to-severe aortic stenosis, was present in 13%. Baseline NYHA class was mainly II (62.5%), with median NT-proBNP of 2,608.5 pg/mL (IQR 1,600.5-4,426.3). Baseline echocardiography demonstrated mean LVEF was 47.2% ± 12.1%, interventricular septal thickness 18.3 ± 3.0 mm, posterior wall 14.2 ± 2.3 mm, LA volume index 49.4 ± 12.5 mL/m^2 and E/e' 16.0 ± 5.9. Median time from diagnosis to Tafamidis initiation was 94.5 days (IQR 39.5-259.8).

After 12 months of treatment, one-third of patients demonstrated NYHA class deterioration, while NT-proBNP increased in 50%, with a median rise of 12.9% (IQR 10.2-29.4%). Echocardiographic progression occurred in 29% of reassessed patients, mainly due to LA enlargement. Overall, 8.3% discontinued Tafamidis owing to deterioration in functional or general status, 33.3% required HF hospitalization, and 12.5% died within 12 months. **Conclusions:** Nearly half of the patients met criteria for non-response at 12 months, underscoring the need for improved patient selection. Non-responders showed an adverse profile characterized by advanced age, a high comorbidity burden, and high rates of short-term events. Additional research is necessary to clarify the implications of delayed treatment initiation.

Sexta-feira, 24 Abril de 2026 | 12:00-12:55

Área de Posters - Ecrã 4 | Sessão de Posters 16 - Mapeamento do risco: dos scores ao cálcio

PO 91. TRIGLYCERIDE-GLUCOSE INDEX: A NOVEL TOOL TO PREDICT ELEVATED CORONARY CALCIUM

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ULS Arrábida/Hospital de São Bernardo.

Introduction: Coronary artery calcium (CAC) score is a strong predictor of cardiovascular risk, with a CAC ≥ 100 AU often used to guide preventive therapy. The triglyceride-glucose (TyG) index is a surrogate marker for insulin resistance. Being easily accessible and inexpensive, it has been increasingly used for predicting atherosclerotic cardiovascular disease. Its utility in predicting high CAC compared to traditional lipid markers remains unclear.
Objectives: To evaluate whether the TyG index can predict coronary artery calcification and coronary artery disease, and compare its performance with conventional lipid biomarkers.

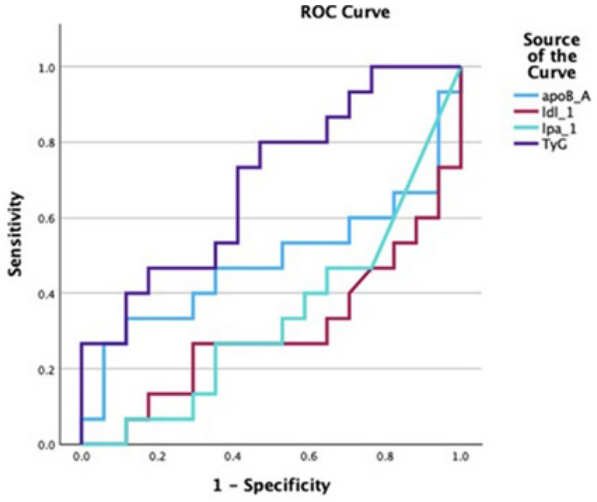

Fig. 1, ROC analysis: ApoB/A, LDL-c, Lp(a) an TyG index.

Methods: In this single-centre retrospective cohort study, patients undergoing cardiac CT (CCT) in 2024-2025 were included. Demographic, clinical, laboratory and CCT data were collected. The TyG index was calculated as Ln [(triglycerides x fasting glucose)/2]. CAC scores were calculated using the Agatston method from non-contrast cardiac-gated CT scans, with CAC ≥ 100 AU considered high. ROC curves were used to evaluate the predictive performance of TyG and other lipid biomarkers, and optimal TyG cutoff was determined by Youden's index.
Results: Our cohort included 131 patients (58% male; aged 64.8 ± 13.3 years), with a high burden of cardiovascular risk factors: 64% were hypertensive, 30% had a BMI ≥ 30 Kg/m², 26% had diabetes and 12% were active smokers. 16% of patients had chronic kidney disease (CKD). On average, laboratory measurements were performed within 7 weeks of the CCT. Calculated mean TyG index was 4.57 ± 0.28. Median CAC was 23 [0-404] AU, with a median MESA percentile of 55. Atherosclerotic plaques were detected on a median of 2 vessels [0;3] and median CAD-RADS was 1 [0-3]. On ROC analysis, we found that TyG index was a good predictor of CAC score ≥ 100 (AUC 0.76, $p < 0.01$, Figure 1), with optimal cutoff 4.69 (sensitivity 55%, specificity 83%). On the contrary, classical lipid markers including LDL-c (AUC 0.378, $p = 0.07$), Lp(a) (AUC 0.344, $p = 0.11$) and ApoB/A (AUC 0.48, $p = 0.87$) did not predict a high CAC score.
Conclusions: The TyG index is a useful predictor of elevated CAC score, clearly outperforming other classical lipid markers. Our results support the use of this inexpensive biomarker to identify patients more likely to have subclinical coronary atherosclerosis that may justify initiating preventive pharmacological therapy.

PO 92. VALUE OF CORONARY CALCIUM SCORE FOR RISK RECLASSIFICATION IN ELDERLY WITH HIGH OR VERY HIGH CARDIOVASCULAR RISK

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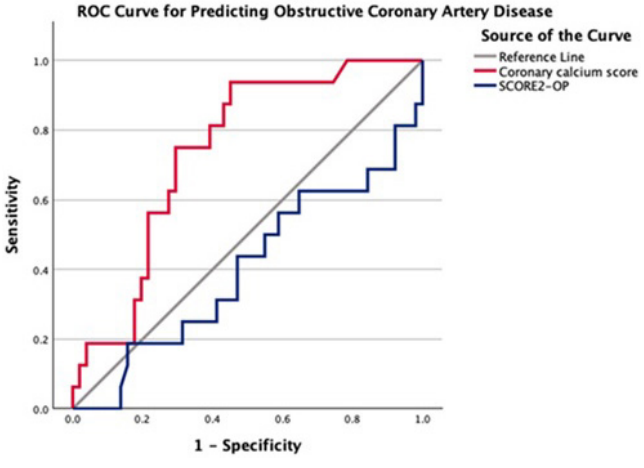
Introduction: SCORE2-OP is the recommended tool for estimating 10-year cardiovascular risk (CVR) in the elderly. Coronary calcium score (CS) is a direct marker of atherosclerotic burden and a well-established method for reclassifying CVR in patients (P) with moderate CVR or low CVR with additional risk factors but is not recommended in high or very-high CVR categories.
Objectives: To evaluate the relationship between the SCORE2-OP and the CS in older P and to compare its usefulness in predicting obstructive coronary artery disease (CAD).

Figure 1
ROC Curve for Predicting Obstructive Coronary Artery Disease



Methods: Cross-sectional observational study including 97 consecutive P ≥ 75 years undergoing coronary CT angiography (CTA) for evaluation of stable chest pain between 2020-2025 (78 years [75-88], 51.5% men, 85.6% with hypertension, 27.8% with diabetes, 86.6% with dyslipidaemia, median CS 303 [0-5,322] and mean Score2-OP 18.29 ± 6.69. SCORE2-OP was calculated and categorised by risk groups. Clinical data, demographics, CVR factors,

analytical parameters, CS and obstructive CAD by CTA (≥ 50% stenosis) were evaluated. CS was stratified by percentiles (Hoff *et al.* Am J Cardiol. 2001). The relationship between SCORE2-OP and CS was evaluated, and their discriminatory acuity for prediction of obstructive CAD in CTA was assessed by ROC curve analysis.
Results: According to SCORE2-OP, all patients were classified as either high (35.4%) or very high (64.6%). Regarding CS, 18.6% were in the < 25th percentile, including 5.2% with CS = 0, while 39.2% were in the > 75th percentile. Although very-high-risk SCORE2-OP P had higher CS values (Kruskal-Wallis p = 0.015), no correlation was found between the SCORE2-OP and CS (r = 0.165, p = 0.138), which remained non-significant when evaluated across CS percentiles. By ROC curve analysis (Figure 1), SCORE2-OP showed no discriminative ability to identify obstructive CAD (AUC = 0.403, 95%CI 0.235-0.570; p = 0.253), while CS had a good performance (AUC = 0.740, 95%CI 0.615-0.865; p < 0.001).
Conclusions: SCORE2-OP showed relevant discordance with CS values, only reflecting correctly atherosclerotic burden in 39.2% of P, and demonstrating no ability to identify obstructive CAD. Therefore, in older P, CS has superior performance for CVR stratification and is useful for risk reclassification even in SCORE2-OP high or very-high CVR categories, particularly to reclassify P to lower-risk groups and support treatment de-escalation in frequently polymedicated individuals.

PO 93. GLOBAL MOLECULAR CALCIUM SCORE: NEW TOOL IN CARDIOVASCULAR RISK ASSESSMENT?

Mafalda Oliveira Griné, Rita Bertão Ventura, Manuel Oliveira-Santos, João Borges-Rosa, Rodolfo Silva, Andreia Gomes, Antero Abrunhosa, Miguel Castelo-Branco, Lino Gonçalves, Maria João Ferreira

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Introduction: Positron emission tomography computed tomography with 18F sodium fluoride (18F-NaF-PET-CT) detects active microcalcification, a marker of atherosclerotic plaque instability. We sought to explore the association between increased 18F-NaF uptake and cardiovascular (CV) events.
Methods: We conducted a patient-level outcomes analysis of the ROPPET-NAF trial (Rosuvastatin Effect on Atherosclerotic Plaque Metabolism - a Subclinical Atherosclerosis Imaging Study With 18F-NaF PET-CT: NCT 03233243) and its pilot study, in which high CV risk individuals underwent 18F-NaF-PET-CT. Total cardiac 18F-NaF uptake was measured as global molecular calcium score (GMCS). The primary endpoint was defined as the composite of CV death, nonfatal myocardial infarction, nonfatal stroke, or heart failure hospitalization.
Results: A total of 57 participants were included in this analysis. Mean age was 64 years, 63% were male, most had hypertension (96%) and diabetes (82%). Over a median of approximately 4 years, 8 patients (14%) experienced the primary endpoint: 4 nonfatal strokes, 3 heart failure hospitalizations, 1 fatal myocardial infarction. There was also one case of unplanned arterial revascularization. Among participants who experienced an event, diabetes was less frequent, there was a higher median systolic blood pressure and more current smokers. Median GMCS was significantly higher in the group with CV events (187 (134, 288) vs. 413 (339, 537); p < 0.001. Increased cardiac microcalcification activity was associated with the primary composite endpoint (HR: 1.085; 95%CI: 1.023-1.151; p = 0.007) and the association remained after multivariate adjustment (HR 1.174; 95%CI: 1.020-1.351; p = 0.026). According to maximally selected rank statistics, the optimal GMCS cut-off would be 400.67. According to variable importance analysis (survival random forest model), GMCS was the most significant predictor variable.
Conclusions: In this patient-level analysis of the ROPPET-NAF trial and its pilot study, GMCS was associated with CV events. As we shift from the "vulnerable plaque" to the "vulnerable patient" paradigm, GMCS is a promising tool to refine CV risk stratification.

PO 94. IMPACT OF CORONARY ARTERY CALCIUM ON ANTIPLATELET THERAPY DECISIONS FOLLOWING CORONARY COMPUTED TOMOGRAPHY WITH NON-OBSTRUCTIVE CORONARY DISEASE OR NON-DIAGNOSTIC RESULT

Mónica Amado, Adriana Vazão, Joana Pereira, André Martins, Carolina Esteves, Mariana Carvalho, Luís Graça Santos, David Durão

ULS Região de Leiria/Hospital de Santo André.

Introduction: Coronary computed tomography angiography (CCTA) is a non-invasive imaging modality for evaluating coronary artery disease (CAD). Expert consensus statements suggest that patients (pts) with a calcium score (CaS) ≥ 300 Agatston units (AU) may have a cardiovascular (CV) risk equivalent to those with established atherosclerotic cardiovascular disease (ASCVD), even in the absence of obstructive CAD or the presence of a non-

Table 1.

	Total (n=86)	Group A (n=60)	Group B (n=26)	p-value
Male gender – no. (%)	59 (67.0)	38 (63.3)	21 (80.8)	p=0.110[c]
Age (yrs) – mean (SD)	62.8 (9.2)	61.7 (9.7)	65.3 (7.3)	p=0.064[a]
Medical history – no. (%)				
Arterial hypertension	59 (67.0)	36 (60.0)	23 (88.5)	**p=0.009**[c]
Dyslipidemia	50 (56.8)	32 (53.3)	18 (69.2)	p=0.170[c]
Diabetes mellitus	21 (23.9)	8 (13.3)	13 (50.0)	**p <0.001**[c]
Current cigarette use	12 (13.6)	9 (15.0)	3 (11.5)	p=1.000[d]
Heart failure	7 (8.0)	4 (6.7)	3 (11.5)	p=0.427[d]
Antiplatelet therapy before CCTA – no. (%)	**30 (34.1)**	**16 (26.7)**	**14 (53.8)**	**p=0.015**[c]
Antiplatelet therapy after CCTA – no. (%)	**35 (39.8)**	**17 (28.3)**	**18 (69.2)**	**p<0.001**[c]
Initiation of antiplatelet therapy after CCTA – no. (%)	**6 (6.8)**	**2 (3.3)**	**4 (15.4)**	p=0.065[d]
CCTA parameters				
Calcium score (Agatston units) – mean (SD)	452.2 (925.196)	49.5 (68.3)	1381.7 (1008.1)	**p<0.001**[b]
Problems in acquiring images – no. (%)				
Poor apnea	5 (5.7)	5 (8.3)	0 (0.0)	------
ECG artifacts/ Irregular rhythm	11 (12.5)	11 (18.3)	0 (0.0)	
Other problems	4 (4.5)	4 (6.7)	0 (0.0)	
Non-diagnostic exam – no. (%)	16 (18.2)	15 (25.0)	1 (3.8)	**p=0.032**[d]
Prospective gating – no. (%)	55 (62.5)	44 (73.3)	11 (42.3)	p=0.2247[c]

Table 1. Baseline characteristics, antiplatelet therapy and coronary computed tomography angiography findings in patients stratified by calcium score.

Statistical analysis: [a]T-student test, [b]Mann-Whitney U test, [c]Chi-square test, [d]Fisher´s exact test.
Abbreviations: CCTA – coronary computed tomography angiography; ECG: electrocardiogram; SD - Standard Deviation.

Figure PO 94

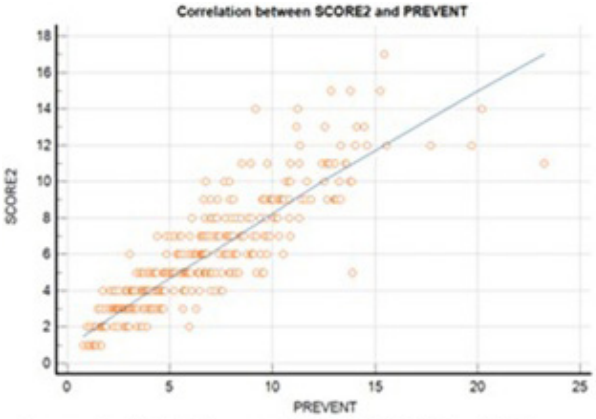
diagnostic CCTA, and that these pts may benefit from intensified preventive strategies, including antiplatelet therapy (APT).
Objectives: To identify and characterize pts with positive CaS and non-obstructive CAD or non-diagnostic CCTA, and to evaluate subsequent APT management according to the calcification degree.
Methods: Single-center retrospective study of 354 pts with suspected obstructive CAD who underwent CCTA between June 2022 and September 2024. We selected pts with non-obstructive-CAD (absence of ≥ 50% stenosis) or a non-diagnostic test for obstructive CAD (inability to exclude obstructive CAD in ≥ 1 segment and absence of ≥ 50% stenosis in interpretable segments) plus positive CaS. Group A included pts with CaS = 1-299 AU and Group B with CaS ≥ 300 AU. Pts with a prior formal indication for APT were excluded.
Results: Overall, our study included 86 pts (67% male) with a mean age of 62.8 ± 9.2 years. Group A included 60 pts (69.8%) and Group B 26 pts (30.2%). Demographic characteristics were similar between groups [Table 1], while group B presented a significantly higher prevalence of hypertension (60.0% vs. 88.5%, *p* = 0.009) and diabetes mellitus (13.3% vs. 50.0%, p < 0.001). APT was more commonly used both before and after CCTA in Group B (26.7% vs. 53.8%, *p* = 0.015; 28.3% vs. 69.2%, *p* < 0.001, respectively). However, no differences were registered considering APT initiation rates following CCTA (3.3% vs. 15.4%; p = 0.065) and APT was withheld in 30.8% of group B pts despite CaS ≥ 300 AU.
Conclusions: In our study, pts with higher calcium burden (group B) had a greater prevalence of CV risk factors, highlighting their role in ASCVD, and were also more likely to be on APT before and after CCTA, which may reflect a higher clinically perceived CV risk and consequent tendency towards more aggressive preventive strategies. However, the APT initiation rate in this group did not differ from pts with lower CaS category, drawing some concern to a likely lack of awareness regarding the potential benefits of introducing APT in pts with CaS ≥ 300 AU.

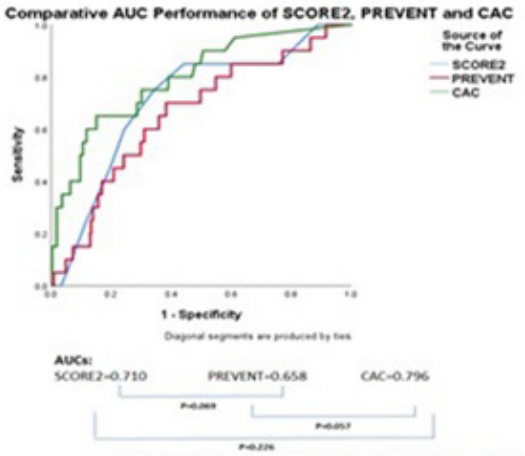
PO 95. PERFORMANCE OF SCORE2, PREVENT, AND CORONARY ARTERY CALCIUM SCORING IN CARDIOVASCULAR RISK PREDICTION: EVIDENCE FROM A SOUTHERN EUROPEAN POPULATION

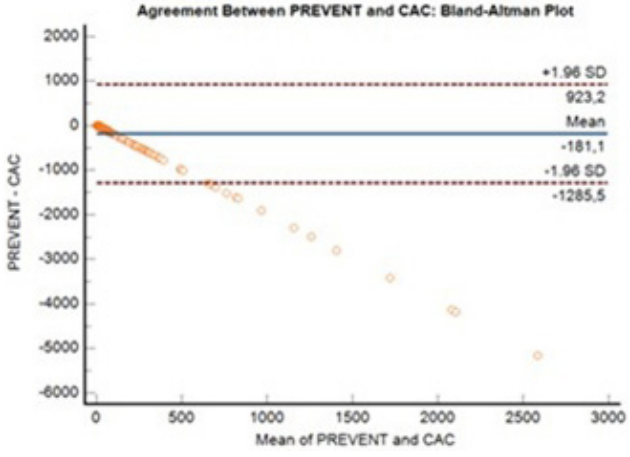
Francisco Sousa[1], M. Isabel Mendonça[2], G. Abreu[1], Matilde Ferreira[1], F. Escórcio Silva[1], S. Freitas[2], E. Henriques[2], M. Rodrigues[2], S. Borges[2], António Drumond[1], A.C. Sousa[2], R. Palma dos Reis[3]

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

Introduction: SCORE2 and PREVENT are widely used tools for estimating 10-year cardiovascular disease (CVD) risk in individuals without prior CVD, having good accuracy across diverse populations. Coronary Artery Calcium (CAC) scoring provides direct imaging of atherosclerotic plaque, but its relationship with clinical scores in Southern Europeans requires further evaluation.
Objectives: Assess the correlation and agreement between SCORE2, PREVENT, and CAC in a Southern European population, and compare their ability to discriminate cardiovascular events.
Methods: In a cohort of 352 CVD-free individuals, SCORE2, PREVENT, and CAC scores were calculated. SCORE2 was computed using ESC risk variables for moderate-risk regions; PREVENT incorporated demographic, metabolic, renal and treatment data; CAC was measured using non-contrast CT and expressed in Agatston units. Spearman correlations and Bland-Altman analyses were used to assess agreement between scores. Discriminatory ability was evaluated through ROC and AUC analyses, with ROC curve comparisons performed using the DeLong test.
Results: There was a strong correlation between SCORE2 and PREVENT (r = 0.894; p < 0.0001), with a Bland-Altman plot indicating minor but potentially relevant differences (bias of -0.7; limits of agreement from -4.3 to 2.9). SCORE2 had a weak but significant correlation with CAC (r = 0.392), and PREVENT showed a moderate correlation with CAC (r = 0.356), both with wide limits of agreement, indicating substantial dispersion. ROC-based comparisons revealed no significant differences in AUCs among SCORE2, PREVENT, and CAC (all p > 0.05), suggesting similar overall discriminatory accuracy for cardiovascular events.







Conclusions: Although SCORE2 and PREVENT show strong agreement and can be used interchangeably for population-level risk assessment, their variability relative to CAC underscores that clinical calculators cannot substitute for imaging-based plaque assessment. CAC provides incremental value for refining individual risk assessment, particularly by identifying low-clinical-risk individuals with significant subclinical atherosclerosis.

PO 96. MAPPING CARDIOVASCULAR RISK: FINDINGS FROM A COMMUNITY SCREENING

Filipa Escórcio Silva[1], Maria Isabel Mendonça[2], Gonçalo Abreu[1], Francisco Sousa[1], Matilde Ferreira[1], Graça Caires[1], Luís Freitas[1], Sónia Freitas[2], Maria João Oliveira[2], Ana Célia Sousa[2], António Drumond[1]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM.

Introduction: Cardiovascular disease remains the leading cause of morbidity and mortality worldwide. Understanding the prevalence of modifiable cardiovascular risk factors is essential to guide prevention strategies and optimize routine clinical practice.
Objectives: To assess the prevalence of major cardiovascular risk factors in a Southern European community-based sample and stratify cardiovascular risk using the SCORE2 algorithm.
Methods: This cross-sectional observational study included 267 participants obtained through convenience sampling conducted between May 19 and 24, 2025. Individuals aged ≥ 40 years and residing in the geographic area of the screening were eligible. A questionnaire collected information on age, sex, smoking habits, and history of cardiovascular disease. Weight, height, and blood pressure were assessed, and glucose and lipid profiles were measured using rapid point-of-care test kits. Subsequently, through consultation of the patient's clinical record, we retrieved the most recent laboratory results related to each participant's metabolic profile. Additionally, we obtained information on prescriptions for lipid-lowering, antihypertensive, and antidiabetic medications from the national electronic prescribing platform. For the present analysis, only participants younger than 69 years and without diabetes mellitus were included. Cardiovascular risk was calculated using the SCORE2 algorithm.
Results: The sample had a mean age of 55.9 years (± 7.6) and consisted of 186 females (69.7%) and 81 males (30.3%). Overweight/obesity (64.4%), hypertension (59.9%), and dyslipidemia (55.8%) were the most prevalent risk factors. Among participants with hypertension, 33.1% were receiving antihypertensive medication, while 23.5% of those with dyslipidemia were on lipid-lowering therapy. Most participants were classified as having low (68.5%) or moderate (27.7%) cardiovascular risk. Significant associations were found between SCORE2 risk categories and sex ($p < 0.0001$) and smoking status ($p = 0.001$). In contrast, hypertension, dyslipidemia, and overweight/obesity showed no statistically significant association with SCORE2 risk.
Conclusions: This study highlights the high prevalence of traditional cardiovascular risk factors in this community sample. Within the SCORE2 framework, only male sex and smoking status were significantly associated with higher cardiovascular risk, emphasizing the need for targeted preventive strategies in these subgroups.

Sexta-feira, 24 Abril de 2026 | 14:00-14:55

Área de Posters - Ecrã 1 | Sessão de Posters 17 - O género importa em cardiologia

PO 97. SEX-RELATED DIFFERENCES IN CLINICAL PRESENTATION AND OUTCOMES OF A FIRST EPISODE OF ACUTE MYOCARDITIS

Mariana Pereira Santos[1], Lara Peleteiro[2], Mariana Marques[2], Diana Ribeiro[1], Tiago Peixoto[1], Pedro Monteiro[1], Marta Fontes Oliveira[1], Ana Meireles[1], Maria Trêpa[1], António Pinheiro Vieira[1], André Luz[1], Patrícia Rodrigues[1]

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Introduction: Sex differences are recognized across cardiovascular diseases, but contemporary data on acute myocarditis (AM) remain limited. Women are often underrepresented and may present atypically, resulting in diagnostic delays and uncertain outcomes. We aimed to investigate sex-specific differences in patients presenting with AM.
Methods: Retrospective, observational study of consecutive patients diagnosed with a first episode of AM at a single tertiary center between January 2010 to March 2023. Diagnosis was established according to ESC criteria and isolated pericarditis was excluded. Data on demographics, comorbidities, management, and outcomes were collected. Patients were followed until August 2024.
Results: A total of 161 patients were included, 120 (74.5%) were male and 41 (25.5%) were female. Women were older (median 40 vs. 33 years, $p = 0.009$) and had higher rates of hypertension, anemia, obesity, valvular heart disease, renal disease, and immunocompromised status. Men more frequently presented with ST-segment elevation (51% vs. 32%, $p = 0.045$) and higher peak troponin (0.69 vs. 0.28 ng/mL, $p = 0.03$), whereas women had higher NT-proBNP (1,024 vs. 340 pg/mL, $p = 0.024$), PCR (114 vs. 56 mg/L, $p = 0.048$), and heart failure at presentation (17% vs. 5%, $p = 0.022$). Women also showed more pericardial involvement (pericarditis 76% vs. 51%, $p = 0.006$; effusion 42% vs. 13%, $p < 0.01$). Women more frequently had left ventricular dysfunction (43.9% vs. 20.8%, $p = 0.007$) but were less likely to undergo cardiac magnetic resonance (56.1% vs. 77.5%, $p = 0.015$). No significant differences were observed in presumed etiology, biopsy rates and specific treatment. Women had more in-hospital complications, including atrial fibrillation (15% vs. 2%, $p = 0.004$) and cardiogenic shock (17% vs. 3%, $p = 0.003$), and all in-hospital deaths occurred in women [3(7%)]. During a median follow-up of 15 months, long-term outcomes were similar, with no significant differences in mortality (16.2% vs. 6.6%, log rank $p = 0.394$) or recurrent myocarditis (5.9% vs. 2.9%, $p = 0.596$).

Table I – Characteristics of male and female patients

	Male (N=120)	Female (N=41)	p-value
Age, years, median	33.0 (25.0 – 45.0)	40.0 (28.0 – 65.5)	**0.010**
Medical history			
Hypertension	13 (10.8%)	13 (31.7%)	**0.003**
Diabetes	7 (5.8%)	6 (14.6%)	0.096
Obesity	5 (4.2%)	7 (17.1%)	**0.012**
Smoking	44 (36.7%)	9 (22.0%)	0.123
Previous Heart Failure	2 (1.7%)	3 (7.3%)	0.105
Coronary Artery Disease	6 (5.0%)	2 (4.9%)	0.992
Valvular Heart Disease	0 (0%)	3 (7.3%)	**0.016**
Cancer	3 (2.5%)	3 (7.3%)	0.173
COPD	7 (5.8%)	3 (7.3%)	0.716
Autoimmune Disease	9 (7.5%)	6 (14.6%)	0.213
Cerebrovascular disease	2 (1.7%)	2 (4.9%)	0.268
Anaemia	3 (2.5%)	7 (17.1%)	**0.003**
Alcohol abuse	3 (2.5%)	0(0%)	0.571
Renal disease	7 (5.8%)	7 (17.1%)	**0.048**
Hepatic disease	2 (1.7%)	1 (2.4%)	0.978
Immunocompromised	4 (3.3%)	5 (12.2%)	**0.048**
Initial diagnosis			
Myocarditis	79 (65.8%)	28 (68.3%)	0.849
STEMI	17 (14.2%)	3 (7.3%)	0.410
NSTEMI	20 (16.7%)	3 (7.3%)	0.197
Heart failure	3 (2.5%)	3 (7.3%)	0.173
Etiology			
Viral	51 (42.5%)	17 (41.5%)	0.999
Streptococcus tonsillitis	11 (9.2%)	3 (7.3%)	0.987
Presumed autoimmune	1 (0.85%)	1 (2.4%)	0.446
Unknown	49 (40.8%)	18 (43.9%)	0.969
Clinical presentation			
Chest pain	113 (94.2%)	35 (85.4%)	0.096
Arrhythmia	0 (0%)	1 (2.4%)	0.255
Heart failure	6 (5.0%)	7 (17.1%)	**0.022**
ST elevation	61 (50.8%)	13 (31.7%)	**0.045**
Peak TnT, ng/ml, median	0.690 (0.262 - 1.553)	0.282 (0.099 - 0.650)	**0.030**
Peak PCR, mg/L, median	56.32 (19.278 - 211.790)	114.240 (33.900 - 147.610)	**0.048**
NT-proBNP, pg/mL, median	340.0 (119.5 - 1242.5)	1024.0 (303.0 - 4548.0)	**0.024**
Compromised LV Ejection Fraction	25 (20.8%)	18 (43.9%)	**0.007**
Cardiac Magnetic Resonance	93 (77.5%)	23 (56.1%)	**0.015**
Late Gadolinium Enhancement	75 (80.7%)	9 (39.1%)	**<0.01**
Oedema	54 (58.1%)	6 (66.7%)	**0.009**
Early Gadolinium Enhancement	11 (11.8%)	1 (11.1%)	0.485
Segmental Wall Motion Abnormalities	5 (5.4%)	2 (22.2%)	0.624
Pericarditis	64 (50.8%)	31 (75.6%)	**0.006**
Pericardial effusion	16 (13.3%)	17 (41.5%)	**<0.001**
Cardiogenic Shock	3 (2.5%)	7 (17.1%)	**0.003**
Atrial Fibrillation	2 (1.7%)	6 (14.6%)	**0.004**
Ventricular Tachycardia	5 (4.2%)	0 (0%)	0.330
Atrioventricular block	0 (0%)	2 (4.9%)	0.064

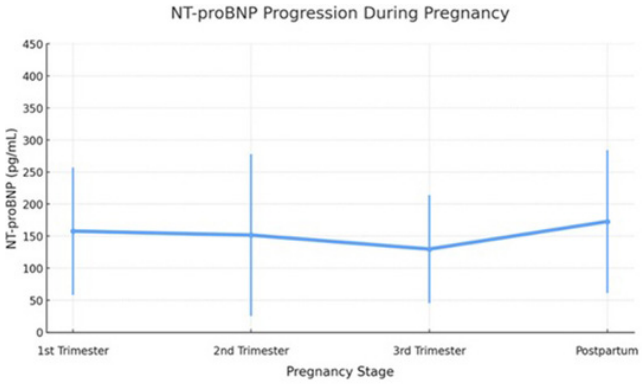
Conclusions: Despite male predominance and lower peak troponin, women exhibited a higher comorbidity burden, greater myocardial dysfunction, and a higher rate of in-hospital complications, which may reflect the impact of age, comorbidities, or potential underdiagnosis in women with subtle symptoms. Although interpretation of long-term outcomes is limited by the low number of events, outcomes appeared similar, and further studies are needed.

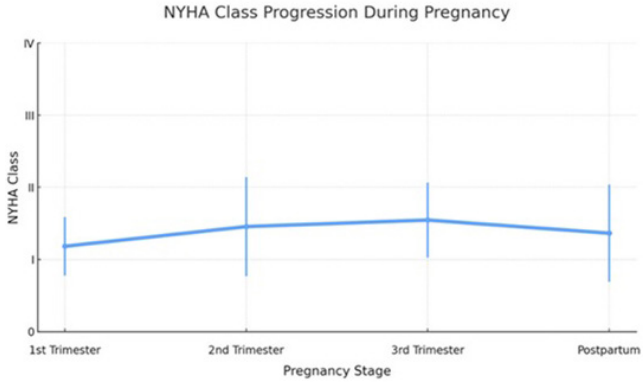
PO 98. COMPLEX CONGENITAL HEART DISEASE IN PREGNANCY: REAL-WORLD OUTCOMES IN MWHO III-IV WOMEN FOLLOWED BY A DEDICATED HEART-TEAM

Fernando Ferreira, Mariana Caetano Coelho, Vera Ferreira, Tânia Mano, Rita Moreira, Tiago Rito, Pedro Oom, Rui Cruz Ferreira, Lidia de Sousa

ULS São José/Hospital de Santa Marta.

Introduction: Pregnancy imposes haemodynamic and prothrombotic stress, and women with complex congenital heart disease (CHD) classified as modified WHO (mWHO) class III or IV face increased risks of adverse obstetric and neonatal outcomes, requires coordinated multidisciplinary management. However available data in the patients remain limited.
Methods: We performed a retrospective descriptive study of consecutive pregnancies in women with mWHO III-IV CHD followed by a multidisciplinary pregnancy-heart team between 2020 and 2024. Baseline characteristics, maternal and obstetric outcomes were systematically collected. Haemodynamic status during pregnancy was assessed by NYHA functional class and serial NT-proBNP measurements.





Results: 12 women and 13 pregnancies were included (39.5% mWHO IV), with 11 completed deliveries. Two pregnancies were electively interrupted, one due to patient decision and another after counselling, owing to failing Fontan circulation. The mean maternal age was 29.8 ± 5.2 years; 62% had prior corrective and 46% palliative surgery. Diagnoses included systemic right ventricle after atrial switch for D-TGA (42%), Fontan circulation (17%), repaired TOF with significant residual lesions (17%), unrepaired complex cyanotic CHD (8.3%), and atrioventricular septal defects (AVSD) with AV valve regurgitation or mechanical prosthesis (25%). Significant valvular disease was present in 62%, and previous arrhythmia in 31%. At baseline, most patients were NYHA class I-II and median NT-proBNP was 126 (65-377) pg/mL with minor changes during pregnancy. Among the completed pregnancies, the median gestational age at delivery was 39 (38-40) weeks. Caesarean section was performed in 45%. Maternal complications included decompensated heart failure in 2 patients (D-TGA with pulmonary baffle stenosis and failing Fontan) and postpartum cardiovascular hospitalisation in a patient with AVSD and mechanical left AV valve stenosis by mismatch. Obstetric complications occurred in 36%, 2 patients with AVSD, one with severe left AV valve regurgitation and another with left mechanical prosthetic mismatch, had postpartum haemorrhage, and 1 patient with D-TGA and pulmonary baffle stenosis had a hypertensive disorder. Neonatal outcomes were favourable; one neonate, born to a mother with unrepaired complex cyanotic CHD, had low birth weight and congenital heart disease and died at two months old. No maternal deaths occurred.
Conclusions: This cohort of women with mWHO III-IV CHD managed within a specialised multidisciplinary programme, pregnancy was feasible with acceptable maternal and neonatal outcomes, although cardiac and obstetric complications remained common. These findings highlight the importance of meticulous pre-pregnancy counselling, individualised risk stratification, and close surveillance throughout gestation in high-risk congenital heart disease.

PO 99. SEX-RELATED DIFFERENCES IN VASOVAGAL RESPONSE PHENOTYPES DURING HEAD-UP TILT TESTING

Raquel França Moreira, Helena Fonseca, Sara Laginha, Pedro Silva Cunha, Bruno Valente, Guilherme Portugal, Paulo Osório, Sofia Jacinto, Ana Lousinha, Rui Ferreira, Sérgio Laranjo, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Sex differences in vasovagal syncope have been reported, but the association with distinct hemodynamic response patterns during head-up tilt testing (HUTT) remains unclear. Since women have higher prevalence and recurrence of syncope, clarifying this relationship is crucial to optimize sex-specific diagnostic and management strategies. This study aimed to assess sex effects over HUTT positivity and response subtypes.
Methods: A retrospective single-centre analysis was conducted on 238 consecutive patients undergoing HUTT (62% female, 57 ± 22 years) using standardized Front Loaded (50%) and Fast Italian (50%) protocols. Responses were classified by VASIS (Type 1 mixed, Type 2 cardioinhibitory, or Type 3 vasodepressor). Multivariable logistic regression tested the independent effect of sex on response phenotype among positive tests, adjusting for age and protocol, with inverse probability weighting (IPW) as sensitivity analysis. Follow-up data were available for 150 patients.
Results: Overall, HUTT positivity was 70.5% (165/234) with no significant difference between females and males (73.8% vs. 65.2%, p = 0.209). Among all patients, males tended to exhibit higher cardioinhibitory rates (18% vs. 9%, p = 0.068). When analysing positive tests, this difference was significant: cardioinhibitory responses were observed more than twice as often in men than women (27.6% vs. 12.1%, p = 0.023). After adjustment for age and protocol, male sex remained independently associated with a cardioinhibitory phenotype (OR 2.74, 95%CI 1.15-6.55, p = 0.024), confirmed by IPW analysis (OR 2.53, 95%CI 1.10-5.82, p = 0.029). Vasodepressor responses were primarily age-dependent (OR 1.04 per year, 95%CI 1.02-1.07, p < 0.001), rather than sex-related. Chronotropic incompetence (2.1%), orthostatic hypotension (6.4%), and POTS (2.1%) showed no sex-related differences. Syncope recurrence at one-year follow-up occurred in 22.7% of patients, similar between sexes (25.0% vs. 19.0%, p = 0.43).
Conclusions: While overall HUTT positivity rates do not differ between sexes, women predominantly show vasodepressor or mixed vasovagal responses, while men are nearly three times more likely to exhibit cardioinhibitory responses – a finding robust across different analytical approaches. These results suggest sex-specific differences in autonomic modulation during vasovagal episodes, with potential implications for risk stratification and clinical management.

PO 100. SEX DIFFERENCES IN ATRIAL STRUCTURE, FUNCTION, AND ATRIAL FIBRILLATION RECURRENCE AFTER PULMONARY VEIN ISOLATION

Ana Lucy Calvo, Luísa Pinheiro, Emídio Mata, Bárbara Lage Garcia, Filipa Castro, Margarida de Castro, Daniela Ferreira, Joana Gomes, Sílvia Ribeiro, Olga Azevedo, António Lourenço

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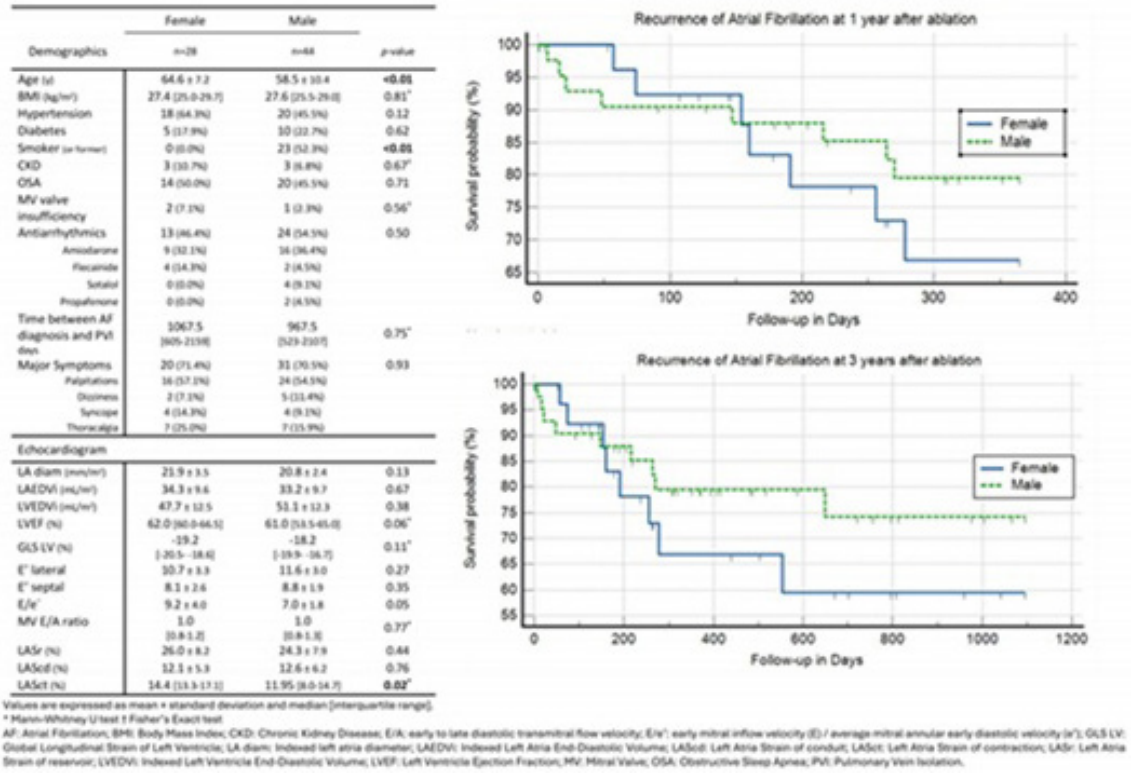

Demographics	Female n=28	Male n=44	p-value
Age (y)	64.6 ± 7.2	58.5 ± 10.4	**<0.01**
BMI (kg/m²)	27.4 [25.0-29.7]	27.6 [25.5-29.0]	0.81*
Hypertension	18 (64.3%)	20 (45.5%)	0.12
Diabetes	5 (17.9%)	10 (22.7%)	0.62
Smoker (or former)	0 (0.0%)	23 (52.3%)	**<0.01**
CKD	3 (10.7%)	3 (6.8%)	0.67*
OSA	14 (50.0%)	20 (45.5%)	0.71
MV valve insufficiency	2 (7.1%)	1 (2.3%)	0.56*
Antiarrhythmics	13 (46.4%)	24 (54.5%)	0.50
Amiodarone	9 (32.1%)	16 (36.4%)	
Flecainide	4 (14.3%)	2 (4.5%)	
Sotalol	0 (0.0%)	4 (9.1%)	
Propafenone	0 (0.0%)	2 (4.5%)	
Time between AF diagnosis and PVI (dys)	1067.5 [605-2159]	967.5 [523-2107]	0.75*
Major Symptoms	20 (71.4%)	31 (70.5%)	0.93
Palpitations	16 (57.1%)	24 (54.5%)	
Dizziness	2 (7.1%)	5 (11.4%)	
Syncope	4 (14.3%)	4 (9.1%)	
Thoracalgia	7 (25.0%)	7 (15.9%)	
Echocardiogram			
LA diam (mm/m²)	21.9 ± 3.5	20.8 ± 2.4	0.13
LAEDVi (mL/m²)	34.3 ± 9.6	33.2 ± 9.7	0.67
LVEDVi (mL/m²)	47.7 ± 12.5	51.1 ± 12.3	0.38
LVEF (%)	62.0 [60.0-66.5]	61.0 [53.5-65.0]	0.06*
GLS LV (%)	-19.2 [-20.5- -18.6]	-18.2 [-19.9- -16.7]	0.11*
E' lateral	10.7 ± 3.3	11.6 ± 3.0	0.27
E' septal	8.1 ± 2.6	8.8 ± 1.9	0.35
E/e'	9.2 ± 4.0	7.0 ± 1.8	0.05
MV E/A ratio	1.0 [0.8-1.2]	1.0 [0.8-1.3]	0.77*
LASr (%)	26.0 ± 8.2	24.3 ± 7.9	0.44
LAScd (%)	12.3 ± 5.3	12.6 ± 6.2	0.76
LASct (%)	14.4 [13.3-17.1]	11.95 [8.0-14.7]	**0.02***

Values are expressed as mean ± standard deviation and median [interquartile range].
* Mann-Whitney U test † Fisher's Exact test

AF: Atrial Fibrillation; BMI: Body Mass Index; CKD: Chronic Kidney Disease; E/A: early to late diastolic transmitral flow velocity; E/e': early mitral inflow velocity (E) / average mitral annular early diastolic velocity (e'); GLS LV: Global Longitudinal Strain of Left Ventricle; LA diam: Indexed left atria diameter; LAEDVi: Indexed Left Atria End-Diastolic Volume; LAScd: Left Atria Strain of conduit; LAScT: Left Atria Strain of contraction; LASr: Left Atria Strain of reservoir; LVEDVi: Indexed Left Ventricle End-Diastolic Volume; LVEF: Left Ventricle Ejection Fraction; MV: Mitral Valve; OSA: Obstructive Sleep Apnea; PVI: Pulmonary Vein Isolation.

Figure PO 100

Introduction: Sex differences in atrial fibrillation (AF) presentation, cardiac structure, and treatment response are increasingly recognized. Despite being underrepresented in ablation trials, women often show greater structural remodeling and symptom burden. Whether these differences affect outcomes and recurrence after pulmonary vein isolation (PVI) remains under investigation.
Objectives: To compare baseline echocardiographic characteristics and long-term arrhythmia recurrence between female and male patients undergoing first-time AF catheter ablation.
Methods: This retrospective study included 72 consecutive patients (28 women, 44 men) who underwent first-time PVI (2015-2024) with available echocardiogram. Demographic, clinical, and echocardiographic data, including left atrial strain (LAS) parameters, were analysed. Arrhythmia recurrence was assessed at 1 and 3 years post-ablation using 12-lead ECG and Holter monitoring. Kaplan-Meier analysis was used to evaluate recurrence-free survival.
Results: Women were significantly older than men (64.6 ± 7.2 vs. 58.5 ± 10.4 years, p < 0.01), with similar prevalence of comorbidities - hypertension, diabetes, chronic kidney disease, and sleep apnea. The median interval between echocardiography and PVI was 312 days [IQR 120-610]. Symptom burden was comparable between sexes. Echocardiographic evaluation showed no significant differences in LA volume index (34.3 ± 9.6 vs. 33.2 ± 9.7 mL/m² p = 0.67) or LV function. A trend toward higher E/e' ratio in women was noted (9.2 ± 4.0 vs7.0 ± 1.8 p = 0.05). LAS of reservoir and LAS of conduit were similar, but women exhibited significantly higher contractile LAS (14.4% vs. 11.95% p = 0.02), potentially indicating preserved atrial booster function. The mean follow-up was 652.6 ± 576.6 days. AF recurrence did not differ significantly between sexes at 1 year (HR 1.61 [0.56-4.63] p = 0.38) or at 3 years (HR 1.64 [0.61-4.43] p = 0.33).
Conclusions: Although women were older and had higher E/e' ratio, they showed similar left atrial structure and LAS parameters to men, with higher contractile strain. No significant sex differences in AF recurrence were observed at 1- and 3-year follow-up which may be explained by smaller sample size. Limitations include the retrospective single-center design, intermittent monitoring that may miss asymptomatic recurrences, high follow-up dropout rates, and selection bias. These results underscore the need for further study of sex-specific factors in AF management.

PO 101. SEX DIFFERENCES IN THE INCIDENCE OF APPROPRIATE VENTRICULAR ARRHYTHMIAS THERAPY IN PATIENTS WITH ICD OR CRT-D FOR PRIMARY PREVENTION

Julien Lopes, Mariana Caetano Coelho, Inês Ferreira Neves, Francisco Cardoso, Sofia Jacinto, Hélder Santos, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Rui Cruz Ferreira, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Patients with heart failure and reduced ejection fraction have a higher incidence of sustained ventricular arrythmias (VT/VF). Current guidelines recommend implantable cardioverter-defibrillators (ICD) or cardiac resynchronization therapy with Defibrillator (CRT-D) (depending on QRS width) implantation for primary prevention in patients with reduced left ventricular ejection fraction (LVEF ≤ 35%) after at least three months of optimal medical therapy. This study aimed to assess sex differences regarding appropriate device therapy in these population.
Methods: Consecutive patients from January 2015 to July 2023 that were submitted to ICD or CRT-D implantation in primary prevention at a tertiary centre were included. Patients were divided into two groups according to sex category (female vs. male). Groups were compared regarding comorbidities and therapeutic with chi-square test. A retrospective analysis regarding appropriate device therapy (ATP or shock) in the two groups was performed and then a Kaplan-Meier survival analysis to check for appropriate device therapy differences between the two groups. We also conducted a sub-group analysis regarding ischemic versus non-ischemic patients.
Results: 378 patients (age 64.2 ± 11.0 years; 22% female, 58.5% with ischemic heart disease) were included with a mean follow-up of 4.59 ± 2.4 years. There were no differences between groups regarding therapeutic with ACEi/ARB (64.2% vs. 59.8%; p = 0.473); ARNI (28.4% vs. 34.2%; p = 0.352); beta-blocker (97.5% vs. 93.8%; p = 0, 268); SGLT2i (18.5% vs. 18.6%; p = 0.994) and mineralocorticoid antagonist (77.8% vs. 79.5%; p = 0.743). Regarding comorbidities, there were statistically significant differences on the prevalence of smoking (15.7% vs. 28%; p = 0.023), opposed to dyslipidaemia (53% vs. 68%; p = 0.11), hypertension (62.7% vs. 71.1%; p = 0.141) and diabetes

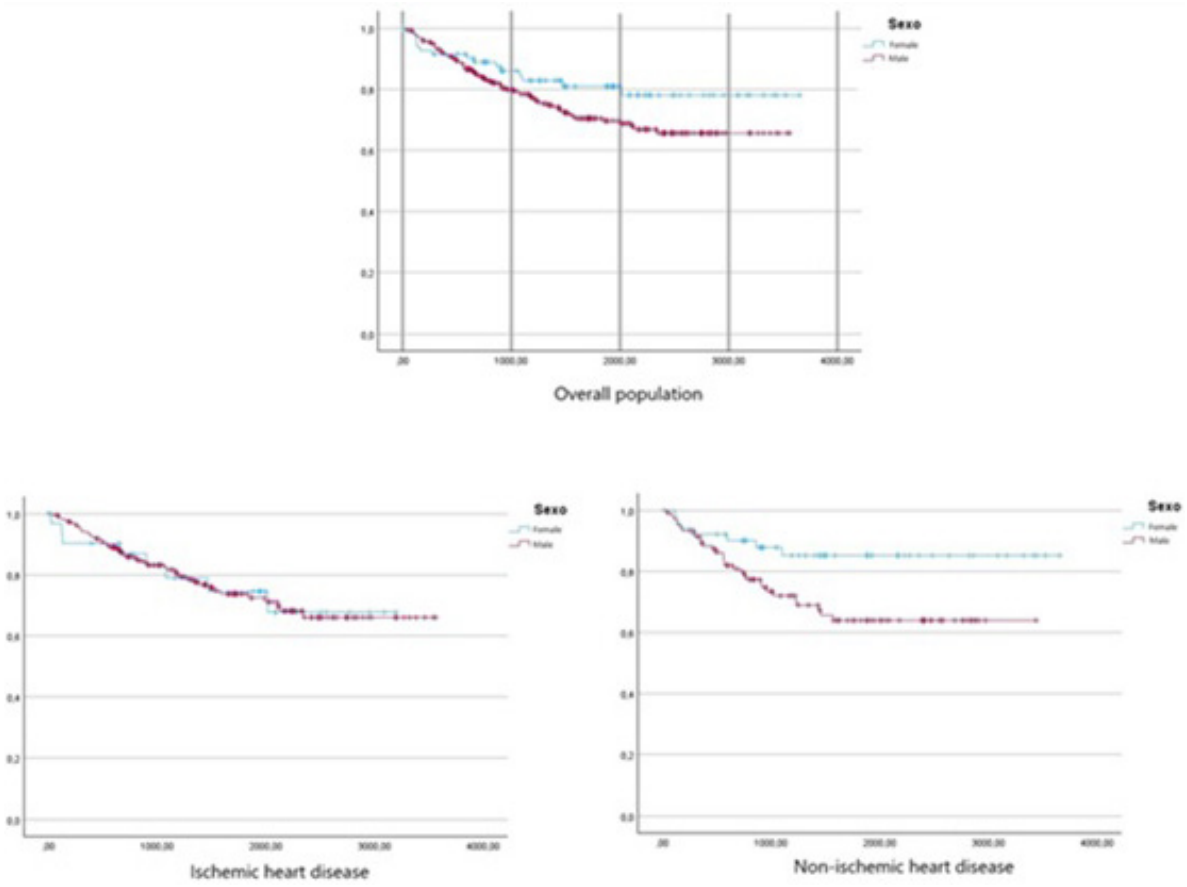

Figure PO 101

(28.9% vs. 33%; p = 0.482). There was an episode of sustained VT/VF in 91 patients (24.1%) during FU,15 female and 76 male (p = 0.144). Kaplan-Meier survival curves were constructed to assess sex differences in arrhythmic event incidence, with statistical significance evaluated using the log-rank test. Regarding the overall population, no significant difference was observed (p = 0.105). When performing a sub-group analysis according to ischemic vs. non-ischemic patients, there was a significant difference in the non-ischemic group (p = 0.023) opposed to the ischemic group (p = 0.980).
Conclusions: In our cohort of ICD/CRT-D patients, there was no significant difference regarding appropriate device therapy between male and female gender. However, in non-ischemic patients, it appears that males have a higher incidence of VT/VF treated via the device.

PO 102. JOINING FORCES FOR GENDER EQUITY IN INTERVENTIONAL CARDIOLOGY: RESULTS OF A NATIONAL SURVEY IN PORTUGAL

Joana Certo Pereira, Rita Barbosa Sousa, Francisco Moscoso Costa, Rita Calé, Catarina Brízido, Gustavo Rodrigues, João Brito, Rui Campante Teles, Diogo Cavaco, Manuel Almeida, Regina Ribeiras, Pedro Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Women remain under-represented in interventional cardiology. This study aimed to assess perceptions and lived experiences of cardiology trainees and specialists, identifying barriers, concerns, and opportunities to promote a more equitable training environment and clinical practice.
Methods: A national online survey was distributed to all cardiology residents and specialists in Portugal. The questionnaire was disseminated with the support of the Portuguese Society of Cardiology, APAPE and APIC. Responses were collected between September and November 2025.
Results: A total of 257 responses were obtained (53% women, mean age 42 ± 13 years, 73% specialists, 53% from the Lisbon region). Overall, both genders agreed that interventional cardiology is still perceived as predominantly male and that gender-related differences in career opportunities persist and that radiation exposure is a major concern. Most participants did not perceive inequality in access to training or in the response to error/feedback – Figure 1 (global results). Among women (n = 136), most reported equal opportunities to act as first operator but identified insufficient training in radiation-protection, inadequate protective equipment for female body types and a lack of female role-models. Among those who considered but did not pursue an interventional career (n = 23; 17%), the main reasons were radiation concerns, family expectations, and a perceived non-inclusive culture. Among women who chose or are pursuing intervention (n = 52; 38%), the main challenges were maternity-related issues and inadequate protective equipment. Pregnancy is often postponed and the number of planed children reduced. Most women suspended invasive activity during pregnancy, but returned to interventional work while breastfeeding. The most valued potential solutions included clear maternity-support policies and protective equipment adapted to female anatomy – Figure 1 (gender specific results - female perspective). Most men recognized these difficulties and reported feeling personally responsible for promoting equity within their teams. Both genders reported that institutional initiatives to reduce gender disparities were largely absent – Figure 1 (gender specific results - male perspective).
Conclusions: National perceptions from both genders indicate that gender inequities persist in interventional cardiology and that few structured institutional efforts are in place to mitigate them. National and institutional policies on radiation protection, maternity support, and appropriate protective equipment may be essential to promote gender equity and increase female representation in interventional cardiology.

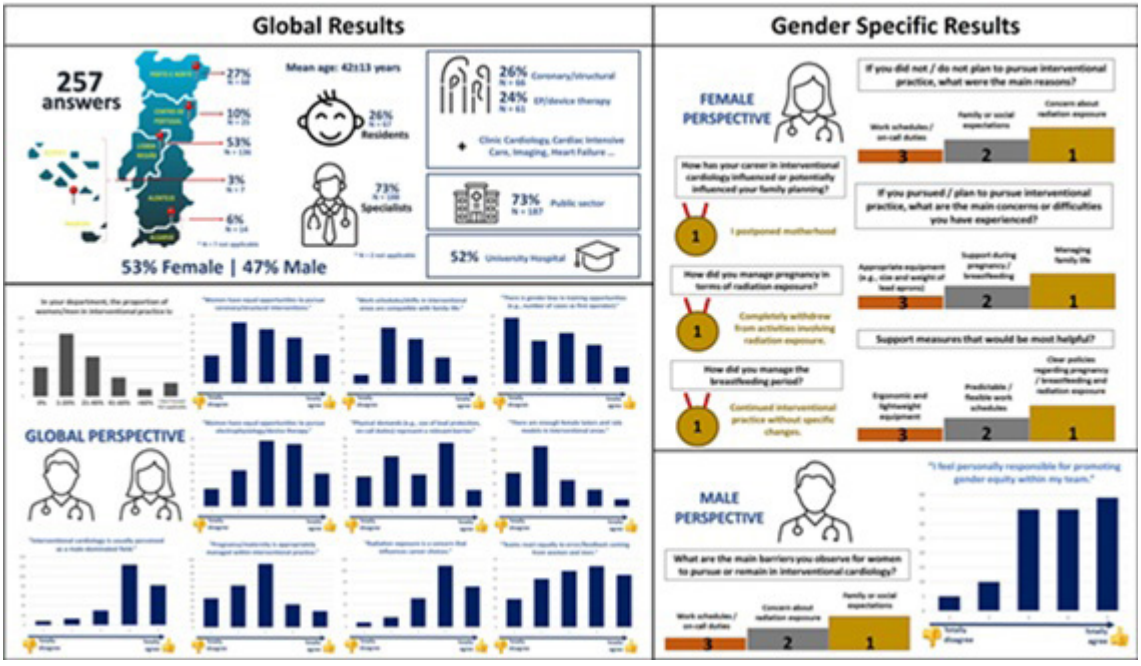

Figure PO 102

Sexta-feira, 24 Abril de 2026 | 14:00-14:55

Área de Posters - Ecrã 2 | Sessão de Posters 18 - Miocardiopatia hipertrófica: genética, fenótipo e desfechos

PO 103. PREVALENCE AND CLINICAL IMPLICATIONS OF DOUBLE SARCOMERE MUTATIONS IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Márcia José Oliveira Presume, Débora Correia, Samuel Azevedo, André Garcia, Rui Gomes, Mariana Ramos, Raquel Montalvão, Margarida Matias, Carlos Aguiar, Oana Moldovan, Sérgio Maltês, Bruno Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Hypertrophic cardiomyopathy (HCM) is a hereditary myocardial disorder, with an autosomal-dominant inheritance pattern. Patients with homozygous or compound heterozygous sarcomere gene mutations often present with a more severe clinical profile, characterized by earlier disease onset, and a higher risk of heart failure and sudden cardiac death (SCD). However, there is conflicting evidence on the precise prognostic predictive value of double mutations.
Objectives: To evaluate the prevalence and clinical implications of carrying double sarcomeric mutations in a contemporary cohort of HCM.
Methods: We conducted a single-center retrospective study including consecutive HCM patients that had undergone genetic testing. Patients were classified as genotype-negative, single sarcomere mutation carries or double sarcomere mutation carriers. For the latter, homozygous and compound heterozygous were considered. For genotype categorization, positive cases were considered whenever likely pathogenic or pathogenic (LP/P) variants were present, as per the ACMG recommendations. The primary outcome was a composite of appropriate implantable cardioverter-defibrillator (ICD) shocks, heart transplantation or all-cause death. Event-free survival was assessed by using Cox regression models and Kaplan-Meier curves.

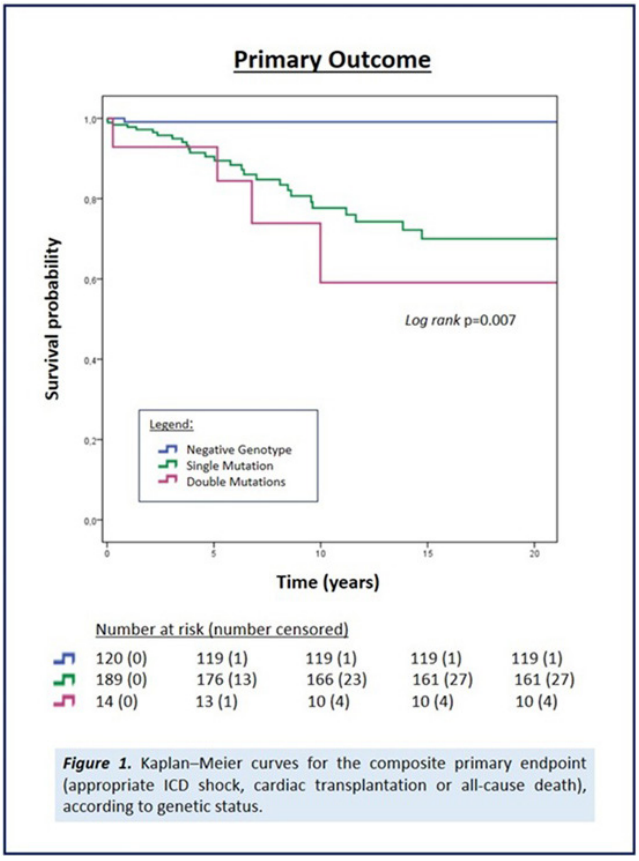

Figure 1. Kaplan–Meier curves for the composite primary endpoint (appropriate ICD shock, cardiac transplantation or all-cause death), according to genetic status.

Results: Of a total of 550 patients with HCM, 323 (58.7%) had been genotyped. Of these, 14 had double mutations, 189 single mutations, and 120 were genotype-negative. Patients with double mutations were younger at diagnosis (41 vs. 57 vs. 63 years; p < 0.001), more often presenting with a positive family history of HCM (35.7 vs. 19.3 vs. 6.7%; p = 0.001) and of SCD (28.6 vs. 9.7 vs. 3.4%; p = 0.002). Moreover, they also presented with higher disease burden:

e.g., NYHA (III-IV 21.4 vs. 19.7 vs. 13.3%; p = 0.001), NT-proBNP (3,684 vs. 1,000 vs. 453 pg/mL; p = 0.005), burnout (42.9 vs. 9.0 vs. 5.0%; p < 0.001) and ICD for secondary-prevention of SCD (28.6 vs. 6.3 vs. 1.7%; p < 0.001). Over a median follow-up of 3.9 [1.9-8.9] years, the primary composite endpoint occurred in 35 patients, of whom 12 had received a heart transplant and 15 died. In the multivariate analysis, adjusted for a family history of SCD, atrial fibrillation, NYHA NT-proBNP and LVEF, a positive genotype was associated with a higher risk of the primary endpoint (HR 5.94 per mutation; 95%CI 1.40-25.21; p = 0.016). Moreover, a significantly higher event rate was observed in double-mutation carriers (log rank p = 0.007) (central figure).
Conclusions: In a contemporary cohort of HCM, approximately 1 in every 25 patients had double gene mutations, whom presented with a more severe phenotype and worse clinical outcomes. Whether double mutations should be used for individualized risk stratification and to guide management decisions should be further investigated in larger cohort studies.

PO 104. BEYOND THE GENOTYPE IN HYPERTROPHIC CARDIOMYOPATHY: PREVALENCE, PHENOTYPIC EXPRESSION AND DISEASE-RELATED OUTCOMES

Helena Santos Moreira, Miguel Rocha, Pedro Mangas Palma, Catarina Marques, Mariana Vasconcelos, Elisabete Martins, Rui André Rodrigues, Ana Lebreiro

ULS São João/Hospital São João.

Introduction: Genetic testing plays a pivotal role in hypertrophic cardiomyopathy (HCM) but its real-world clinical impact remains uncertain.
Objectives: To characterize the genetic profile of a real-world HCM cohort and assess its correlation with phenotypic expression and disease-related outcomes (DRO).
Methods: Single-centre retrospective study of patients (pts) with confirmed HCM and prior genetic testing. Syndromic or infiltrative phenocopies were excluded. DRO included cardiovascular (CV) mortality, CV hospitalizations/urgent visits, device implantation and/or therapies, arrhythmias (ventricular arrhythmias and atrial fibrillation/flutter) and advanced heart failure. Data were obtained from medical record review.
Results: 101 pts were included, 55 male (54.5%), mean age 60 ± 18 years. 29.7% had no identifiable genetic variants (n = 30), 43.6% (n = 44) carried pathogenic/likely pathogenic (P/LP) variants and 26.7% (n = 27) had variants of uncertain significance (VUS). Among genotype-positive (GP) pts, sarcomere variants predominated (n = 38, 86.4%), mostly involving β-myosin heavy chain - MYH7 (n = 16, 36%) and cardiac myosin-binding protein C gene - MYBPC3 (n = 8, 18.2%) genes. Although diagnosis was more common through routine/familial screening (58.4%), genotype-negative (GN) pts were diagnosed significantly later (52 ± 18 vs. 40 ± 21 years; p < 0.001) and due to symptoms (p = 0.006). GP pts had more family history of HCM (47.8% vs. 17.5%; p < 0.001) but without differences in sudden death history. GN pts had a higher rates of arterial hypertension (51.9%, p < 0.001), dyslipidemia (63%, p < 0.001) and diabetes (22.2%, p = 0.019). Asymmetric septal morphology was predominant (n = 77, 76.2%), with similar maximal wall thickness (19 ± 4 mm; *p* = 0.89). GN pts exhibited more left ventricle outflow tract obstruction (LVOTO) (n = 16, 28.1% in GN vs. n = 5, 11.6% in GP, p = 0.046) and systolic anterior motion of the mitral valve/subvalvular apparatus (n = 17, 29.8% in GN vs. n = 6, 14% in GP, p < 0.050). LV ejection fraction (65 ± 5%; p = 0.99) and diastolic parameters were similar. Cardiac MRI showed a higher proportion of late gadolinium enhancement (LGE) > 15% in GP pts (n = 23, 53.3% in GP vs. n = 14, 24.6% in GN, p = 0.016) and broader intramyocardial LGE beyond septal segments (n = 19, 54.3% in GP vs. n = 10, 20.8% in GN, p = 0.017). Biomarkers, namely NTpBNP (p = 0.64) and hs-Troponin I (p = 0.44), were comparable. After a median follow-up of 6 (IQR 9) years, no significant differences were observed in the composite endpoint of DRO (log-rank p = 0.179) (Figure 1).
Conclusions: In our real-world cohort, GP pts exhibited greater myocardial fibrosis, while GN pts showed a higher burden of later diagnosis and obstructive physiology. Despite these genotype-phenotype differences, DRO were similar, underscoring the limitations of current risk models and the need for deeper understanding and integration of genetic testing in HCM.

PO 105. PREDICTION OF GENOTYPE POSITIVITY IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY: VALIDATION OF THE MAYO SCORE IN A LARGE PORTUGUESE HCM COHORT

Samuel Azevedo[1], Márcia Presume[1], André Garcia[1], Rui Gomes[1], Mariana Ramos[1], Raquel Montalvão[1], Margarida Matias[1], Oana Moldovan[2], Carlos Aguiar[1], Francisco Gama[1], Sérgio Maltês[1], Bruno Rocha[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]ULS Santa Maria/Hospital de Santa Maria.

Introduction: Hypertrophic cardiomyopathy (HCM) is a primary hereditary myocardial disorder, with an autosomal-dominant inheritance pattern,

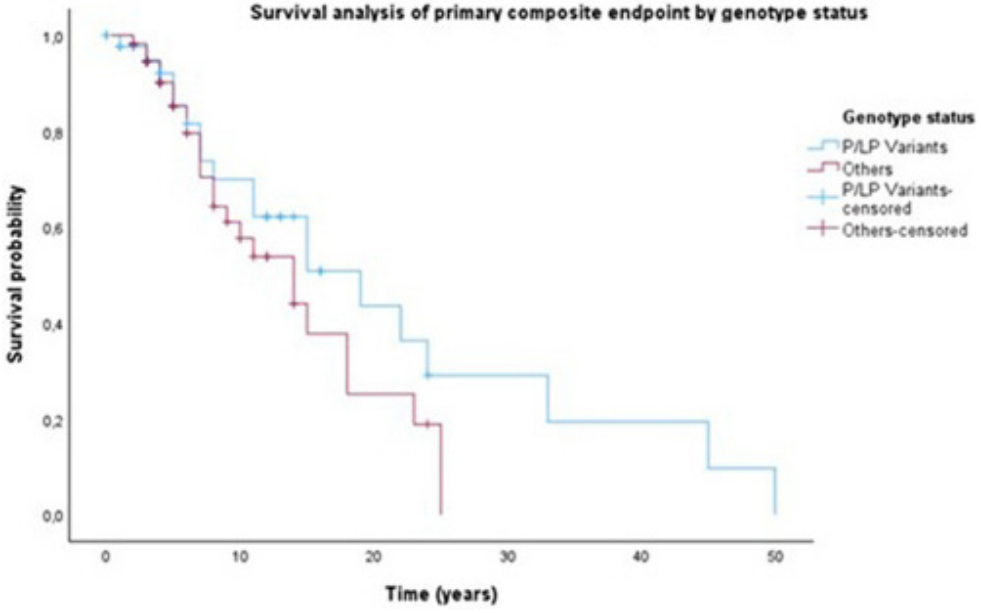

Figure PO 104

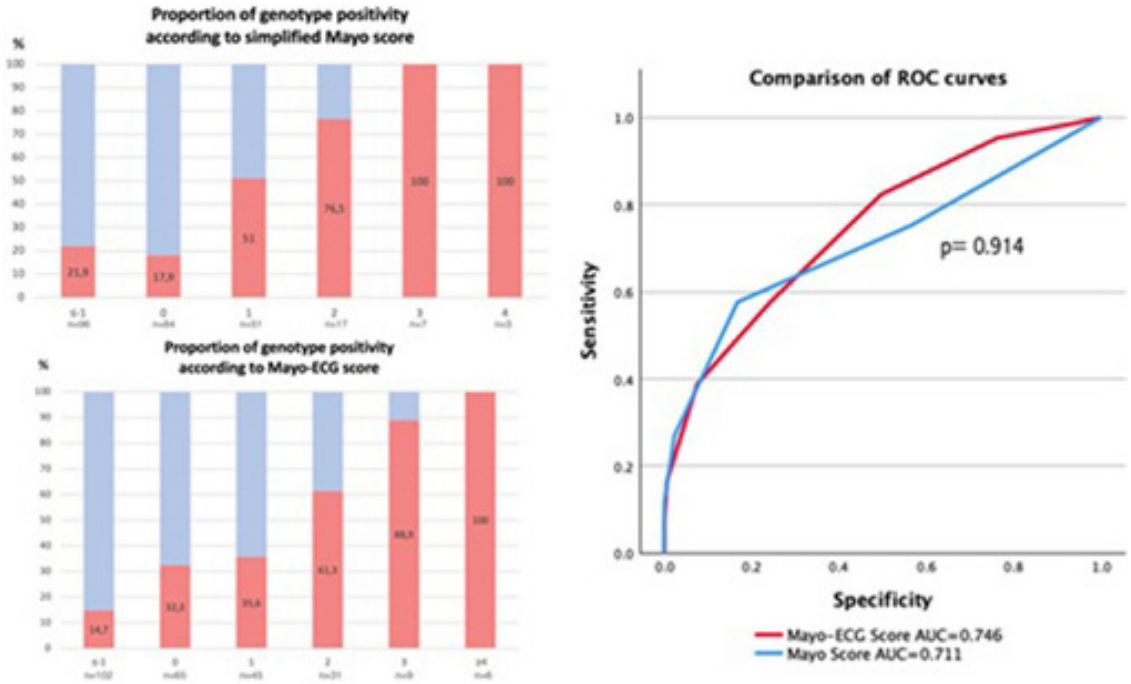

Figure PO 105

mainly caused by mutations in sarcomere genes. Genetic testing has a key role in diagnosis, risk stratification, and family cascade screening. The Mayo score has been proposed as an easy-tool to estimate the pre-test probability of a positive HCM genotype. However, it is yet to be determined whether this prediction tool is useful in Portuguese HCM patients.

Objectives: To evaluate the predictive value of the Mayo score in a Portuguese HCM cohort.

Methods: Retrospective study of all patients with HCM regularly followed in our center up until November 2025.Genotype positivity was defined as the presence of pathogenic or likely pathogenic (P/LP) variants. We applied the simplified version of the Mayo Clinic HCM genotype predictor score: age at diagnosis (< 45 years), family history of HCM and of sudden cardiac death, known hypertension and maximal left ventricular wall thickness (≥ 20 mm), while excluding reverse-curve morphology (due to inconsistent reporting). The modified score using ECG parameters was also evaluated, incorporating atrial fibrillation, intraventricular conduction disturbance (QRS ≥ 120 ms), a Sokolow-Lyon index ≥ 3.5 mV, and precordial T-wave inversion. The predictive performance was assessed using logistic regression, ROC curve analysis and genotype-positivity across score categories.

Results: Overall, 258 patients were included (mean age 55 ± 19 years, 16% family history of HCM; 7% family history of sudden cardiac death; 59% hypertension; median maximal left ventricular wall thickness 17 [14-21] mm). A total of 85 (33%) patients were genotype positive. P/LP variants were most frequently identified in MYBPC3 (n = 35), followed by MYH7 (n = 26). The prevalence of genotype positivity increased progressively with higher scores (Central Figure). In the simplified (clinical) Mayo score, a score of 2, 3 and 4 was observed in 17, 7 and 3 patients, of whom 13 (76.5%), 7 (100%) and 3 (100%) were genotype-positive, respectively. Similarly, in the modified (clinical-ECG) version, a score of 2, 3 and 4 was documented in 31, 9 and 4 patients, of whom 19 (61.3%), 8 (88.9%) and 4 (100%) were genotype-positive, respectively. The discriminative performance of these two versions of the Mayo score was moderate, having an observed AUC of 0.71 (95%CI 0.64-0.78) and 0.74 (95%CI 0.68-0.81), respectively, with neither outperforming the other (p = 0.914).

Conclusions: The Mayo Clinic HCM genotype predictor score is useful for predicting a positive genetic test result in Portuguese HCM Patients. The stepwise increase in the P/LP prevalence across score categories supports the use of this adapted model as a simple and practical tool to optimize genetic testing strategies in routine HCM care.

PO 106. REAL-WORLD PERFORMANCE OF CURRENT SUDDEN CARDIAC DEATH RISK MODELS IN HYPERTROPHIC CARDIOMYOPATHY: A SINGLE-CENTRE STUDY

Helena Sofia Santos Moreira, Pedro Mangas Palma, Miguel Rocha, Catarina Marques, Mariana Vasconcelos, Elisabete Martins, Rui André Rodrigues, Ana Lebreiro

ULS São João/Hospital São João.

Introduction: Sudden cardiac death (SCD) risk stratification in hypertrophic cardiomyopathy (HCM) remains a cornerstone of disease management. However, currently available risk-prediction tools require refinement to balance the risks and benefits of implantable cardioverter-defibrillator (ICD) therapy.

Objectives: To assess SCD risk and compare the performance of contemporary stratification strategies –namely the 2023 European Society of Cardiology (ESC) and 2024 American College of Cardiology/American Heart Association (ACC/AHA) flow-charts– in a real-world HCM population.

Methods: Single-centre retrospective study of patients (pts) followed in a dedicated cardiomyopathy clinic with confirmed HCM. Pts with HCM mimics were excluded. Primary composite endpoint consisted of SCD, sustained ventricular arrhythmias and/or appropriate ICD therapies. Data was extracted from medical records.

Results: A total of 130 HCM pts were included; 53.1% (n = 69) were male, with mean age 62 ± 17 years. Obstructive phenotype was present in 22.3% (n = 29), and pathogenic/likely pathogenic variants were identified in 33.8% (n = 44). Based on clinician judgement and guideline-based risk stratification, 17.7% (n = 23) received an ICD, predominantly for primary prevention (n = 19, 82.6%). At a median follow-up of 6 (IQR 8) years, 6 pts (4.6%) reached the primary endpoint - 5 pts due to appropriate ICD shocks (of which, 3 pts where ICD carriers in a primary prevention setting with an estimated HCM-SCD risk score > 6%) and 1 pt due to SCD. No inappropriate shocks in ICD-carriers were reported. When applied, the ESC 5-year HCM-SCD risk model was a significant predictor of events in Cox regression (HR 1.72; 95%CI 1.15-2.57; p = 0.009) and receiver operating characteristic (ROC) curve analysis yielded modest discrimination (AUC 0.623; 95%CI 0.309-0.937) - figure 1. In contrast, the ACC/AHA risk-marker-based algorithm did not differentiate event-free survival (log-rank p = 0.453), demonstrating limited discriminatory ability in our low-event-rate cohort.

Conclusions: In our real-world HCM population, the ESC model demonstrated superior predictive performance and clinical utility compared with the ACC/

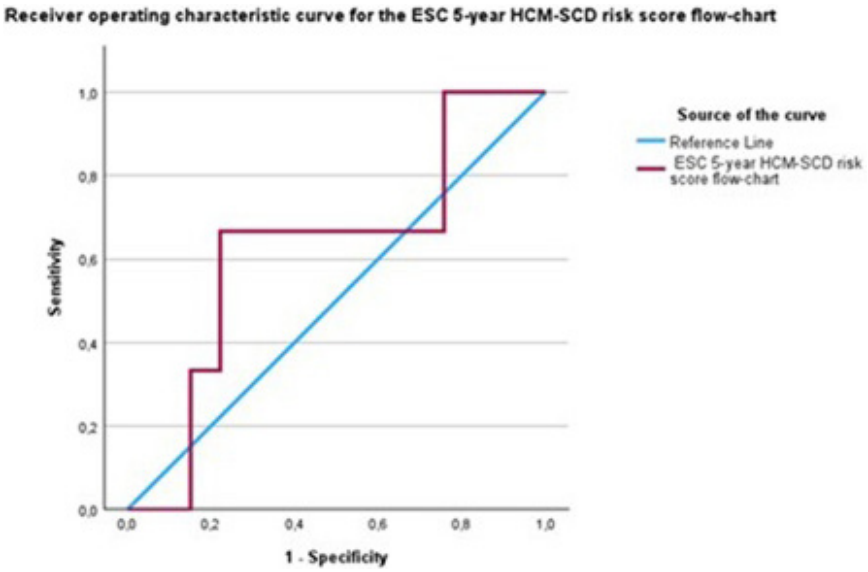

Figure PO 106

AHA risk-marker approach, which was underpowered to detect differences in a population with predominantly low event rates. These findings underscore the need for improved and individualized SCD risk-prediction strategies in HCM.

PO 107. REAL-WORLD PREDICTORS OF ADVERSE OUTCOMES IN HCM: WHO IS REALLY AT RISK?

Ana Rita M. Figueiredo[1], Diogo Ferreira[1], Marta Vilela[1], João Cravo[1], Daniel Inácio Cazeiro[1], Catarina Gregório[1], Beatriz Garcia[1], Oana Moldovan[2], Hugo Madeira[2], Fausto J. Pinto[1], Dulce Brito[1]

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

Introduction: Risk prediction in hypertrophic cardiomyopathy (HCM) remains challenging in clinical practice. Although several prognostic markers have been proposed, real-world patients often show substantial phenotypic variability and evolving disease expression, which may limit the performance of conventional risk models. Identifying which clinical features truly reflect long-term vulnerability to adverse events is therefore essential for optimising management. This study aimed to identify predictors of adverse outcomes in a real-world HCM cohort.

Methods: We conducted a single-centre observational study including consecutive patients diagnosed with HCM according to ESC criteria between 2000 and 2024. All patients underwent genetic testing using a large Next-generation sequencing (NGS) panel. The ESC HCM-Risk-SCD score was calculated at baseline. The primary endpoint was a composite of appropriate ICD therapies, cardiovascular hospitalisation (CVH), and cardiovascular

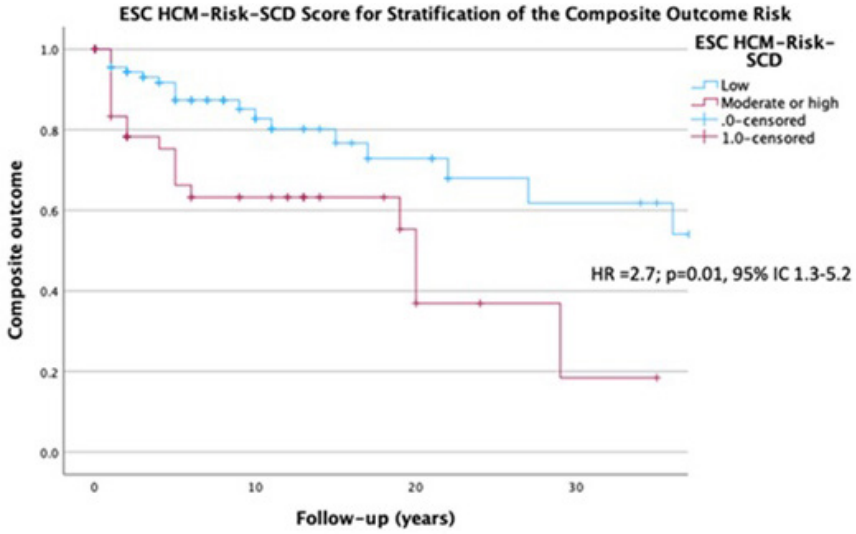

Figure 1. Kaplan–Meier curves for the composite outcome (appropriate ICD therapy, cardiovascular hospitalisation, or cardiovascular death) stratified by ESC HCM-Risk-SCD categories. Patients with moderate–high ESC risk showed a significantly higher incidence of the composite endpoint, with early and progressive divergence of survival curves compared with the low-risk group (HR =2.7; p=0.01, 95% CI: 1.3-5.2).

Figure PO 107

death (CVD). Survival analyses were performed using Kaplan-Meier curves with log-rank testing, and predictors of the composite outcome were assessed using Cox regression.

Results: A total of 153 patients were included (mean age 49 ± 2 years; 49% male). Sarcomeric variants were identified in 141 (90%), with pathogenic/likely pathogenic mutations mainly in *MYH7* (36%) and *MYBPC3* (35%) genes. Baseline left ventricular ejection fraction (LVEF) was 62 ± 0.8%, maximal wall thickness 18 ± 0.4 mm; 15% had obstructive physiology, and 13% were classified as high-risk by ESC HCM-Risk-SCD score. Over a mean follow-up of 10 ± 0.9 years, 34 (22%) patients underwent ICD implantation, 14 (9%) had septal reduction therapy, and 48 (31%) developed new-onset atrial fibrillation. The composite endpoint occurred in 43 patients (28%), including 9 (5%) appropriate ICD therapies, 32 (21%) CVH and 17 (11%) CVD. Patients with events had larger left atrial diameter (49 ± 2 vs. 42 ± 1 mm; p = 0.03), higher ESC HCM-Risk-SCD scores (3.9 ± 0.5 vs. 2.8 ± 0.2; p = 0.04) and higher follow-up NT-proBNP (1,582 [438-3,916] vs. 564 [134-1,458] pg/mL; p = 0.002). Kaplan-Meier analysis (Figure 1) showed significantly higher event rates in patients with moderate-high ESC HCM-Risk-SCD scores, with early and sustained separation of survival curves. In Cox regression, a moderate-high ESC risk category independently predicted the composite endpoint, conferring an approximately three-fold increased hazard compared with low-risk patients (HR 2.7; 95%CI 1.3-5.2; p = 0.01).

Conclusions: In this real-world HCM cohort, larger left atrial size, higher NT-proBNP levels, and a moderate-high ESC HCM-Risk-SCD category were associated with a greater burden of adverse cardiovascular outcomes. The ESC HCM-Risk-SCD score independently predicted the composite endpoint, supporting its prognostic relevance beyond sudden cardiac death.

PO 108. GENETIC INFLUENCES ON PROGNOSIS IN HYPERTROPHIC CARDIOMYOPATHY: WHICH GENES TO FEAR?

Marta Vilela[1], João Cravo[1], Diogo Ferreira[1], Daniel Cazeiro[1], Inês Araújo[1], João Fernandes Pedro[1], Catarina Gregório[1], Beatriz Garcia[1], Oana Moldovan[2], Hugo Madeira[1], Fausto Pinto[1], Dulce Brito[1]

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Introduction: Hypertrophic cardiomyopathy (HCM) is a genetic disorder linked to sarcomeric protein mutations. While the spectrum of genetic mutations implicated in HCM has expanded, uncertainties remain regarding the risks and clinical outcomes associated with different mutations.

Objectives: To assess clinical characteristics and outcomes differences among HCM patients (pts) with *MYBPC3*, *MYH7* and *TPM1* gene mutations.

Methods: A retrospective analysis of HCM patients (probands and relatives) followed at a tertiary center was performed, focusing on those with *MYBPC3*, *MYH7* or *TPM1* gene mutations classified as pathogenic or likely pathogenic (P/LP) per ClinVar. Clinical, laboratory, ECG, and echocardiographic data were collected. Outcomes were analyzed using a composite of all-cause mortality and cardiovascular (CV) hospitalizations.

Results: A total of 123 HCM patients (pts) were included: 47 (38%) with *MYBPC3*, 52 (42%) with *MYH7* and 24 (20%) with *TPM1* mutations. At diagnosis the mean age was 60.5 ± 2.7 years (*MYBPC3*), 40.1 ± 2.6 years (*MYH7*) and 48.3 ± 0.6 years (*TPM1*). Male distribution was 53%, 48% and 46%, respectively. Baseline characteristics at HCM diagnosis, including NYHA class I (78% vs. 56% vs. 75%, p = 0.14), maximum wall thickness (17.9 mm vs. 18.7 mm vs. 17.67 mm, p = 0.6), and presence of left ventricular outflow tract obstruction at rest (21% vs. 21% vs. 16%, p = 0.7), were similar across groups. SCD risk scores at baseline were intermediate/high in 25% (*MYBPC3*), 23% (*MYH7*) and 4% (*TPM1*) pts, increasing at follow-up (FUP) to 36%, 32%, and 29%, respectively. Implantable cardioverter-defibrillator use was higher in *MYH7* pts (35% vs. 11% vs. 8%, p < 0.001) and only 1 appropriate shock registered. Atrial fibrillation (AF) was more frequent in *MYBPC3* and *MYH7* pts compared to *TPM1* (36% vs. 29% vs. 4%, p = 0.002), with high baseline SCD risk score significantly predicting AF development (50% (high SCD risk score) vs. 21% (low risk), p = 0.017). Over a median FUP of 9 years (IQR 3-12), overall mortality was 23%. Kaplan-Meier analysis revealed a trend toward worse outcomes in *MYH7* mutations, with lower cumulative survival free from composite events (p = 0.06). After age adjustment, composite event analysis showed worse outcomes in *MYH7* and *TPM1* mutations, with significantly higher hazard ratios compared to *MYBPC3* (*MYH7*: HR 14; *TPM1:* HR 10, p = 0.03).

Conclusions: In this cohort of HCM patients, *MYH7* gene mutations were associated with worse clinical outcomes and a higher incidence of atrial fibrillation compared to *MYBPC3* and *TPM1* mutations. However, further studies with larger populations are needed to validate these findings and better understand their clinical implications.

A

	MYBPC3	*MYH7*	*TPM1*	
Total patients: 123	47	52	24	
Baseline				
Age, years (mean ±SD)	60.5 (±2.7)	40.1 (± 2.6)	48.3 (± 0.6)	p=0.001
Male, n (%)	25 (53%)	25 (48%)	11 (46%)	NS
Family history of SD, n (%)	18 (38%)	21 (40%)	0	p=0.001
Electrocardiogram				
QRS>120 ms, n (%)	3 (6%)	7 (13%)	1 (4%)	NS
Q wave, n (%)	5 (11%)	11 (21%)	7 (29%)	NS
T wave inversion, n (%)	6 (13%)	21 (40%)	19 (79%)	p=0.001
Echocardiogram				
LV maximum mm (mean ±SD)	17.9 (± 0.7)	18.7 (± 0.9)	17.67 (± 1.1)	NS
LVOT obstruction, n (%)	10 (21%)	11 (21%)	4 (16%)	NS
Left atrial size mm (mean ±SD)	45 (± 8)	41 (± 38)	45 (± 9)	NS
HCM SCD-risk score (ESC)				
Low risk (<4%) n (%)	35 (74%)	40 (77%)	23 (96%)	p=0.046
Intermediate risk (4-6%) n (%)	5 (11%)	8 (15%)	1 (4%)	p=0.046
High risk (>6%) n (%)	7 (15%)	4 (8%)	0	p=0.046
FUP 9 years (IQR 3-12)				
Electrocardiogram				
QRS>120 ms, n (%)	5 (11%)	14 (27%)	2 (8%)	NS
Q wave, n (%)	6 (13%)	12 (23%)	8 (33%)	p=0.003
T wave inversion, n (%)	17 (36%)	22 (42%)	19 (79%)	p=0.005
Echocardiogram				
LV maximum mm (mean ±SD)	18.60 (0.6)	20.61 (0.8)	19 (0.7)	NS
LVOT obstruction, n (%)	2 (4%)	9 (17%)	3 (12%)	NS
Left atrial size mm (mean ±SD)	57.4 (± 2.1)	47.8 (± 1.8)	53.6 (± 2.6)	p=0.003
HCM SCD-risk score (ESC)				
Low risk (<4%) n (%)	30 (64%)	32 (62%)	17 (71%)	NS
Intermediate risk (4-6%) n (%)	9 (19%)	9 (17%)	4 (17%)	NS
High risk (>6%) n (%)	8 (17%)	11 (21%)	3 (12%)	NS
Events				
Non sustain TV, n (%)	5 (11 %)	1 (2%)	6 (25%)	NS
Unexplain syncope, n (%)	2 (4.2%)	6 (1.6%)	0	NS
Atrial fibrillation n (%)	17 (36)	15 (29)	1 (4%)	p=0.002
Septal reduction therapy n (%)	3 (6%)	2 (4%)	2 (8%)	NS
ICD implantation n (%)	5 (11%)	18 (35%)	2 (8%)	p=0.001
ICD apropriate shock n (%)	0	1 (6%)	0	p=0.06
CV hospitalization n (%)	4 (8.5%)	6 (12%)	1 (4%)	p=0.06
Death n (%)	8 (17%)	15 (28%)	5 (20%)	NS

B

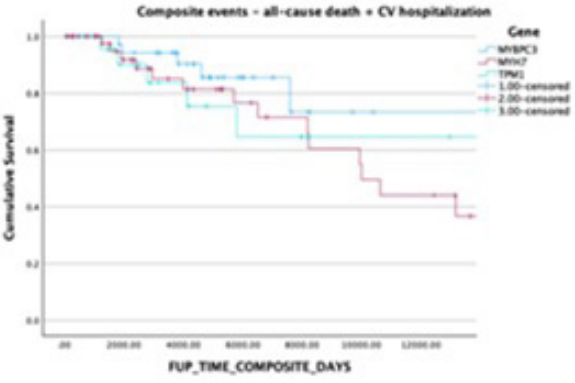

Figure 1: A) Table with clinical characteristics, risk stratification and outcomes in hypertrophic cardiomyopathy patients with *MYBPC3*, *MYH7* and *TPM1* mutations. **B)** Composite outcome of all-cause mortality and cardiovascular hospitalizations in patients with *MYBPC3*, *MYH7* and *TPM1* mutations.

Figure PO 108

Sexta-feira, 24 Abril de 2026 | 14:00-14:55

Área de Posters - Ecrã 3 | Sessão de Posters 19 - Temas quentes em pacing e eletrofisiologia na era atual

PO 109. RETHINKING PACING STRATEGY AFTER TAVI: LBBAP VS. RV PACING

Ana L. Silva, Tatiana Pereira dos Santos, Mariana Rodrigues Simões, Maria João Primo, Ana Luísa Rocha, Inês Cruz, Didier Martinez, Patrícia Alves, Carolina Saleiro, João André Ferreira, Natália António, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Conduction system injury remains one of the most frequent complications following transcatheter aortic valve implantation (TAVI), often requiring permanent pacemaker implantation. While left bundle branch area pacing (LBBAP) has shown physiologically favorable results in other populations, evidence in TAVI patients is still limited.
Objectives: To compare electrical and clinical outcomes between right ventricular pacing (RVP) and LBBAP in patients undergoing pacemaker implantation following TAVI.
Methods: This single-center, retrospective study included consecutive TAVI patients who received either RVP or LBBAP between September 2022 and July 2024. Confirmed LBB capture was defined by QRS transition with output reduction (from non-selective to left ventricular septal pacing or to selective LBB capture), paced V6 RWPT< 75 ms (< 80 ms in LBBB), V6-V1 interpeak interval > 44 ms, or selective capture on programmed stimulation. The primary outcome was a composite of heart failure (HF) emergency department admissions or HF hospitalizations.
Results: A total of 84 patients were included: 52 (61.9%) received RVP and 32 (38.1%) LBBAP. Mean age was 81.7 ± 5.0 years, 66.7% were male, and median follow-up was 30.7 months. Baseline characteristics were similar between groups. Third-degree atrioventricular block was the most frequent indication (71.4%), and 75.0% were in sinus rhythm. Paced QRS duration was significantly shorter with LBBAP (116.0, IQR 16.0 vs. 152.0, IQR 33.0 ms; p < 0.001). QRS variation differed significantly between groups, with RVP resulting in QRS prolongation (+16.5 ± 31.7 ms) and LBBAP producing QRS shortening (-33.8 ± 22.9 ms; p < 0.001). In the LBBAP group, paced LVAT was 75.5 ms (IQR 17.0), and the V6-V1 R-wave interpeak interval was 38.0 ms (IQR 44.0). Pacing thresholds were similar (p = 0.073), although sensing amplitudes were higher with LBBAP (14.5 mV, IQR 7.0 vs. 10.9 mV, IQR 7.2; p = 0.017). Despite lower baseline left ventricular ejection fraction (LVEF) in the LBBAP group (52.0%, IQR 20.0 vs. 57.0%, IQR 11.0; p = 0.028), LVEF improved significantly with LBBAP (+5.0%, IQR 14.7; p < 0.001) but not with RVP (0.0%, IQR 10.3; p = 0.592). The primary composite endpoint occurred in 6.3% of LBBAP patients and 11.5% of RVP patients (p = 0.473). After adjustment for age, sex, and pacing percentage, the difference was not statistically significant (HR 3.192; 95%CI 0.530-19.213; p = 0.205), although the hazard curves separated early in favor of LBBAP.
Conclusions: Although no statistically significant difference in the primary outcome was identified, LBBAP demonstrated more physiological ventricular activation, improved LVEF, and higher sensing amplitudes than RVP. These findings support the potential clinical benefit of LBBAP in TAVI patients and justify further investigation in larger cohorts.

PO 110. RECOVERING INTRINSIC CONDUCTION AFTER TAVI: CAN WE PREDICT IT?

Gonçalo Terleira Batista, Mariana R. Simões, Ana Luísa Silva, Tatiana Pereira dos Santos, Tomas Carlos, Luísa Rocha, Bernardo Resende, Mafalda Griné, Didier Martinez, Ana Rita Ventura, Ana Vera Marinho, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: A significant proportion of patients undergoing TAVI require permanent pacemaker (PPM) implantation, yet many recover intrinsic conduction. Anticipating long-term pacing independence remains difficult as clinical and electrocardiographic markers offer limited predictive value.
Objectives: To characterize patients receiving PPM after TAVI and identify predictors of pacing independence at six months.
Methods: We analysed 176 patients who underwent TAVI between 2020 and 2024 and required PPM implantation within 14 days. Demographic, clinical and conduction-related parameters were collected. Between-group comparisons were performed using independent t-tests or Mann-Whitney U tests for continuous variables and chi-square or Fisher's exact tests for categorical variables. Variables with p < 0.05 entered a multivariable logistic regression model. Pacing dependency at six months was determined by device interrogation. Pacing percentages above 5% were considered indicative of

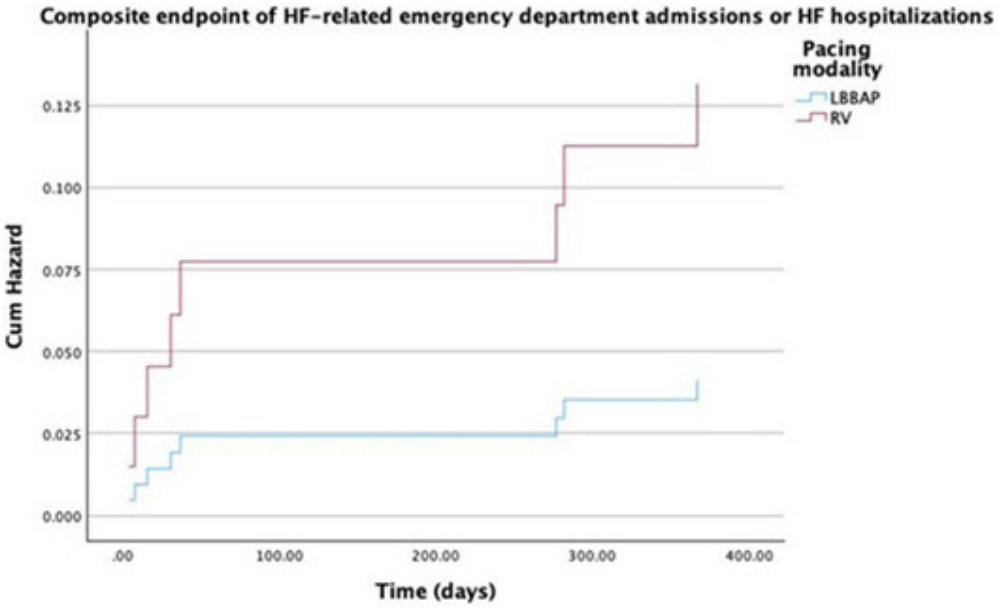

Figure PO 109

dependency and values below 1% were classified as independent. Patients with pacing percentages between 1% and 4% were analysed individually and classified as dependent or independent after consensus review.
Results: Patients requiring PPM had a mean age of 82.6 ± 5.2 years and 82.4% had hypertension 82.4%, 31.5% were diabetic and 26.1% had chronic kidney disease. Overall pacing implantation occurred in 18.5% of TAVI patients, and 23.5% of patients were non-dependent at six months. In bivariate analysis, most clinical characteristics and baseline conduction findings showed no association with pacing independence. A small number of parameters reached statistical significance, including atrial fibrillation prior to TAVI, paroxysmal versus persistent complete AV block after TAVI, QRS duration, and left ventricular ejection fraction. In multivariable logistic regression, paroxysmal complete AV block was the only independent predictor of pacing independence at one year (OR 3.80; 95%CI 1.48-9.76; p = 0.005).
Conclusions: Predict pacing independence following PPM implantation after TAVI is still a challenge. Paroxysmal complete AV block was the only independent marker associated with recovery of intrinsic conduction, suggesting that in selected patients a short observation period may help avoid unnecessary long-term pacing. However, these findings also highlight the importance of accurately defining pacing dependency itself. Further prospective studies are needed to validate these results and refine risk stratification and dependency definitions in this population.

PO 111. FEASIBILITY OF LEFT BUNDLE BRANCH AREA PACING IN POST-VALVULAR OPEN-HEART SURGERY PATIENTS: A COMPARATIVE STUDY WITH RIGHT VENTRICULAR CONVENTIONAL PACING

Tatiana Pereira dos Santos, Luísa Gomes Rocha, Ana L. Silva, Maria João Primo, Didier Martinez, Rita Ventura, Inês Brito e Cruz, Carolina Saleiro, Patrícia Alves, João André Ferreira, Natália António, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Left bundle branch area pacing (LBBAP) is emerging as the preferred physiological pacing strategy, with studies demonstrating better outcomes than conventional right ventricular (RV) pacing. Because LBBAP requires lead penetration through the interventricular septum, prior open-heart surgery may pose technical challenges due to septal fibrosis.
Methods: A single-center, retrospective study included patients who underwent LBBAP between September 2022 and December 2024. Data on pacing indications, prior valve surgery, and procedural characteristics were collected. We evaluated the feasibility of LBBAP in patients with prior valvular surgery–including aortic, mitral, or tricuspid procedures-compared to RV pacing. The primary endpoint was a composite of emergency visits or hospitalizations for heart failure. Median follow-up was 753 days (IQR = 370).
Results: The analysis included 56 post-open-heart surgery patients receiving pacemakers (62.5% male; mean age 68.7 ± 1.66 years). Surgeries were aortic 69.1%, mitral 21.8%, and mixed 8.9% (p = 0.159). Pacing indications were complete heart block 30 (53.6%), bradycardia 11 (19.6%), and second-degree block in the remainder. Thirty-three patients (58.9%) received LBBAP and 23 (41.1%) RV pacing, with no differences in cardiovascular risk factors or surgery type. Median LVEF was 55% (IQR 13.5), slightly lower in LBBAP (52%, IQR 22.25; p = 0.005). Procedure duration was similar (63.9 ± 2.5 min; p > 0.05). Mean intrinsic QRS was 145.4 ± 4.47 ms; paced QRS was narrower with LBBAP (127.4 ± 3.6 ms) versus RV (166.4 ± 6.0 ms; p < 0.001). Capture thresholds and sensed R waves were similar (0.52 ± 0.04 V and 13.7 ± 0.82 mV), p > 0.05. Median ventricular pacing was 90.7% (IQR 87), higher in LBBAP (98.4% [IQR 15.1] vs. 15.6% [IQR 73.4]; p < 0.001). Regarding primary composite endpoint, Kaplan-Meier analysis showed similar 2-year event-free survival for LBBAP and RV (91.2% vs. 88.8%; p = 0.802).
Conclusions: In patients with prior open-heart surgery and potentially altered septal anatomy, LBBAP was feasible and procedurally safe, having achieved narrower paced QRS durations, comparable to conventional RV pacing. Over a 2-year follow-up, clinical outcomes were comparable, supporting LBBAP as a viable and physiologically favorable pacing strategy even in patients with post-surgical septal distortion. The substantially higher ventricular pacing percentages in LBBAP group compared to RV may have an influence on the similar outcomes observed.

PO 112. RISK STRATIFICATION OF LEFT BUNDLE BRANCH BLOCK AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION: ELECTROPHYSIOLOGICAL STUDY VERSUS AMBULATORY MONITORING

Pedro Mangas Palma, Helena Moreira, Miguel Rocha, João Calvão, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Ana Lebreiro, Manuel Campelo, Luís Adão

ULS São João/Hospital São João.

Introduction: Left bundle branch block (LBBB) is a common conduction disturbance after transcatheter aortic valve implantation (TAVI) and has been associated with delayed high-grade AV block and increased permanent pacemaker implantation (PPI). Management varies between invasive evaluation with electrophysiological study (EPS) and conservative approaches employing ambulatory continuous ECG monitoring (AECG). The optimal approach balancing safety, diagnostic yield, and resource utilization remains undefined.

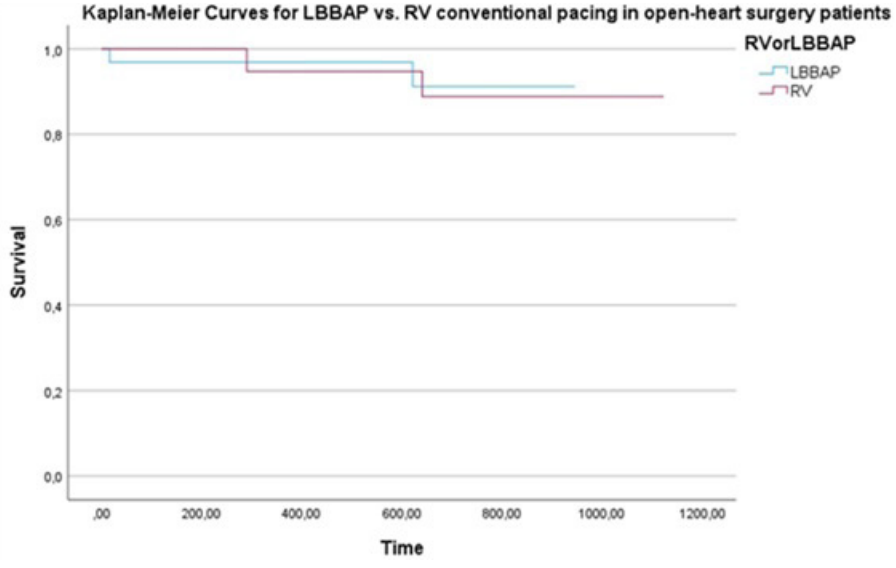

Figure PO 111

Objectives: To compare EPS versus AECG for risk stratification of patients with persistent LBBB after TAVI.
Methods: We conducted a single-centre retrospective cohort study of all patients who underwent TAVI between January 2020 and January 2025. Patients with persistent LBBB before discharge were managed either with EPS or AECG for 7-15 days, according to availability and clinical judgement. Baseline clinical, procedural, and PPI data were recorded. Group comparisons used χ^2 or Fisher's exact tests for categorical variables and t-tests or Wilcoxon rank-sum tests for continuous variables, according to data distribution. Negative predictive value (NPV) for late PPI was calculated for each strategy among patients with normal EPS or AECG.
Results: Of 1,076 TAVI patients, 131 with persistent LBBB underwent risk stratification (EPS n = 53, AECG n = 78). Median age was 81 years; 62% were female, 30% received balloon-expandable valves and 24% had atrial fibrillation. Baseline comorbidities were similar, but EPS patients had longer mean PR (192 vs. 181 ms, p < 0.001) and QRS (157 vs. 149 ms, p = 0.04) intervals. After a median follow-up of 26 months, PPI was significantly more frequent in the EPS group (38% vs. 10%, p < 0.001), reflecting the higher-risk profile of patients selected for EPS. In this group, most PPI procedures were performed at baseline due to a prolonged HV interval (90%). Among 35 patients with normal EPS, 2 (6%) required late PPI (NPV 94%). Both cases were older women treated with self-expanding valves, admitted with paroxysmal advanced AV block. In the AECG group, 4 patients (5%) had high-grade AV block detected early after discharge, leading to prompt PPI; 2 had severe presentations requiring emergency assessment, including 1 with cardiopulmonary arrest. Extending AECG beyond 7 days did not improve diagnostic yield. Among 74 patients with normal AECG, 4 (5%) required late PPI (NPV 95%).
Conclusions: Both strategies showed high NPV for late PPI after TAVI. EPS allows early identification of patients at higher risk, but likely incurs higher costs and more frequent PPI. AECG carries a residual risk of severe late-presenting bradyarrhythmias, although most clinically significant events were detected early after discharge. These findings support a tailored approach based on patient risk profile and local resources.

PO 113. CARDIOPULMONARY EXERCISE PERFORMANCE IN PHYSIOLOGIC VERSUS CONVENTIONAL PACING

Inês Caldeira Araújo[1], Marta Vilela[1], Diogo Ferreira[1], Rita Pinto[2], Ana Nunes[3], Andreia Magalhães[1], Sara Pereira[1], Pedro António[1], Pedro Marques[1], João de Sousa[1], Fausto J. Pinto[1], Nelson Cunha[1]

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Introduction: Right ventricular pacing (RVP) can induce electrical and mechanical dyssynchrony, potentially impairing left ventricular performance and exercise tolerance, especially in patients who experience > 20% of RVP burden. Left bundle branch area pacing (LBBAP) provides a more physiologic alternative by engaging the native His-Purkinje system and preventing pacing induced cardiomyopathy (PICM). However, the impact of RVP on functional capacity among patients who do not develop PICM remains poorly characterized, and no study to date has compared LBBAP and RVP during exercise.
Objectives: To compare exercise capacity and cardiopulmonary response in patients who underwent LBBAP versus RVP implantation and who did not develop PICM, in a real-world cohort.
Methods: A prospective, non-randomized pilot study was conducted including patients undergoing CPET after LBBAP (n = 7) or RVP (n = 7) implantation. Baseline clinical, electrocardiographic, echocardiographic, and procedural characteristics were collected. CPET was performed on a cycle ergometer using a ram protocol. A short programmed atrioventricular interval (120 ms) ensured 100% pacing in each mode during exercise. Groups were compared using appropriate statistical tests.
Results: Baseline demographic, clinical, and echocardiographic characteristics were similar between groups. QRS duration was narrower in the LBBAP group (120 ms vs. 155 ms) and all patients achieved maximal tests (RER > 1.10). Regarding functional capacity measures, although between-group differences did not reach statistical significance, LBBAP showed a consistent trend toward superior performance, including higher achieved workload (127 ± 38 W vs. 99 ± 61 W; p = 0.73) and slightly higher VO2 peak (18.5 ± 2.3 vs. 17.0 ± 6.8 mL/kg/min; p = 0.47). Ventilatory efficiency (VE/VCO2 slope), RER, and chronotropic response were comparable.
Conclusions: In this pilot cohort, LBBAP demonstrated a consistent trend toward improved exercise performance compared with RVP, despite the absence of statistical significance-likely influenced by limited sample size. These findings support the physiologic rationale of LBBAP and suggest that it may mitigate pacing-induced impairment during exercise, highlighting the importance of assessing functional capacity beyond resting left ventricular ejection fraction. Larger prospective studies are needed to validate these preliminary observations.

PO 114. FUNDING IN ARRHYTHMIA: EVOLUTION OF PRICES OF COMPLEMENTARY DIAGNOSTIC METHODS IN CARDIOLOGY IN ACSS AND ADSE

Didier Martinez, Gonçalo Ferraz-Costa, Tatiana Santos, Maria João Primo, Ana Rita Ventura, Inês Brito e Cruz, Elisabete Jorge, Rui Baptista, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Baseline characteristics	LBBAP (n=7)	RVP (n=7)	p value
Age, median (IQR) (years)	67 (54-81)	69 (57-77)	0.383
Male sex, n (%)	7 (100)	6 (86)	1.000
Medical history			
DM, n (%)	5 (71)	4 (57)	1.000
Dislipidemia, n (%)	22 (63)	24 (71)	1.000
Hypertension, n (%)	7 (100)	4 (57)	0.192
Atrial fibrillation, n (%)	3 (43)	0 (0)	0.192
BMI, mean ± SD (kg/m²)	29±6	28±4	0.607
Electrocardiographic parameters			
QRS lenght, median (IQR) (ms)	120 (111-154)	155 (93-202)	1.000
LBBB, n (%)	3 (43)	0 (0)	0.192
RBBB, n (%)	1 (14)	2 (29)	1.000
Echocardiographic parameters			
LVEF, median (IQR) (%)	56 (51-62)	55 (50-64)	1.000
GLS, median (IQR) (%)	-15 (-13-(-17))	-15 (-11-(-20))	0.818
LVEDV/BSA, median (IQR) (mL/m²)	44 (30-57)	58 (45-70)	0.620
LVESV/BSA, median (IQR) (mL/m²)	21 (12-26)	29 (17-36)	0.710
LA volume/BSA, median (IQR) (mL/m²)	26 (16-38)	33 (19-45)	0.620

CPET parameters	LBBAP (n=7)	RVP (n=7)	p value
Exercise time, mean ± SD (min)	14:51±04:32	11:43±05:31	0.730
Power, mean ± SD (W)	127.25±38.20	99.00±60.81	0.730
VO_2 peak, mean ± SD (mL/kg/min)	18.52±2.30	17.04±6.82	0.468
VE/VCO_2 slope, mean ± SD	30.60±3.31	28.34±4.06	0.655
RER, mean ± SD	1.12±0.02	1.13±0.03	0.903
Peak HR, mean ± SD (bpm)	107±11	128±18	0.287

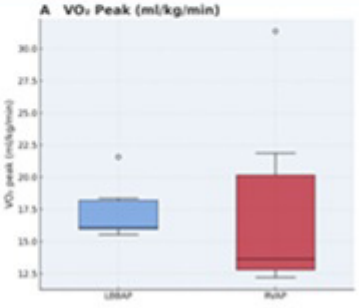


Figure PO 113

Table 1: Summary of non-invasive CDEs, with tariffs for 2021 and 2024, ADSE/ACSS ratio and the real variation year 2021–2024 for each subsystem.

Procedure	ADSE 2021 (2024€)	ACSS 2021 (2024€)	ADSE 2024 (2024€)	ACSS 2024 (2024€)	ADSE/ACSS 2024 (%)	Δ real ADSE 21–24 (%)	Δ real ACSS 21–24 (%)
EKG	6,24	7,49	5,69	6,50	87,54	-8,85	-13,18
Cardiac Doppler		61,28		53,20			-13,18
24h Holter	40,27	50,33	36,71	43,70	84,00	-8,83	-13,18
48 h Holter		100,67		87,40			-13,18
ABPM	38,18	68,19	33,15	59,20	56,00	-13,18	-13,18
Exercise stress test	46,60	36,97	42,48	32,10	132,34	-8,84	-13,18
TOE	230,36	319,97	200,00	277,80	71,99	-13,18	-13,18
TTE without Doppler	88,25	44,69	76,62	38,80	197,47	-13,18	-13,18
TTE with Doppler	88,25	61,28	76,62	53,20	144,02	-13,18	-13,18

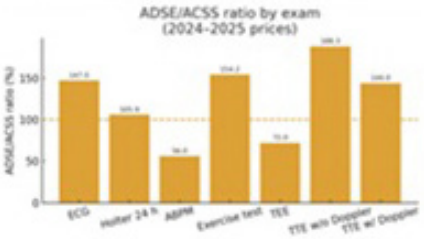


Figure 1: ADSE/ACSS ratio by cardiology exam (2024–2025 tariffs). Bars represent the percentage ratio between ADSE and ACSS tariffs for each diagnostic test. The dashed horizontal line marks price parity (100%).

Figure PO 114

Introduction: Complementary diagnostic exams (CDE), in cardiology account for a substantial share of healthcare expenditure and are reimbursed according to different fee schedules issued by the Central Administration of the Health System (ACSS) and by the public health insurance scheme for civil servants (ADSE).
Objectives: To compare, in nominal and real terms, the tariffs assigned by both payers to the main cardiology CDE between 2021 and 2025.
Methods: We carried a descriptive, retrospective study based on the official ACSS and ADSE tariff lists for CDE, covering EKG, 24-hour Holter monitoring, ambulatory blood pressure monitoring (ABPM), exercise stress testing (EST), transthoracic echocardiography (TTE) with and without Doppler, and transoesophageal echocardiography (TOE). Annual tariffs were collected and converted into 2024 euros using the consumer tariff index from Statistics Portugal. Absolute and relative differences and the ADSE/ACSS tariff ratio were calculated.
Results: In every year, ADSE reimbursed at higher levels than ACSS for ECG, Holter monitoring, EST and TTE without Doppler. In 2024, the ADSE/ACSS ratio ranged from 105.9% for Holter monitoring to 188.3% for TTE without Doppler and was 147.0% for ECG and 154.2% for the EST (figure 1). In absolute terms, this corresponded, to €5.7 vs. €3.9 for ECG, €36.7 vs. €34.6 for Holter monitoring, €42.5 vs. €27.6 for the exercise stress test and €76.6 vs. €40.7 for TTE without Doppler. Despite these relative differences, real tariffs decreased for both payers between 2021 and 2024: real variation was -8.9% for ECG and the exercise stress test, -8.8% for Holter monitoring and -13.2% for TTE without Doppler, with an identical -13.2% reduction in ACSS tariffs for all four examinations. In 2025, marked asymmetry was observed for other procedures: the ADSE tariff for ABPM was around 44% lower than the ACSS contracted tariff, whereas TTE with Doppler maintained a differential in favour of ADSE (approximately 44% higher). For transoesophageal echocardiography, the ADSE tariff was about 28% lower than the ACSS/SNS tariff (Table 1).
Conclusions: There is a misalignment between ACSS and ADSE tariffs for cardiology CDE, with ADSE reimbursing, on average, around 50% more than ACSS but with important exceptions such as ABPM and TOE. The reduction in tariffs in real terms, reflected in the real change (Δ) values in Table 1, suggests erosion of funding in a context of inflation and pressure on human and technological resources. A coordinated, inflation-indexed review of fee schedules, alignment between payers, and monitoring of the impact of these differentials on service organisation, appear essential to promote greater equity, transparency and sustainability in cardiology. This work illustrates the usefulness of simple economic analyses based on administrative data to inform negotiation and regulatory processes concerning CDE.

Sexta-feira, 24 Abril de 2026 | 15:00-15:55

Área de Posters - Ecrã 1 | Sessão de Posters 20 - Gestão moderna de arritmias: do mapeamento à monitorização

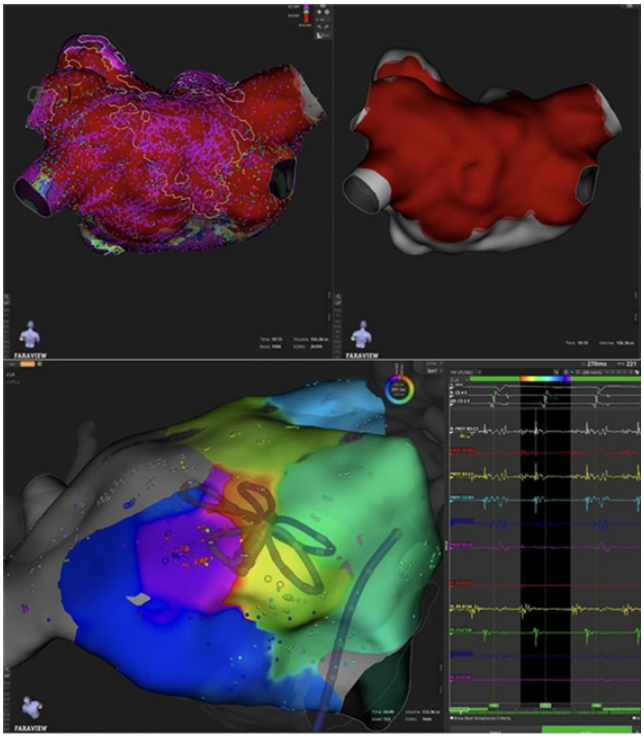
PO 115. HIGH-DEFINITION MAPPING-GUIDED PULSED FIELD ABLATION USING THE OPAL HDX SYSTEM: A SINGLE-CENTER EXPERIENCE

Samuel Azevedo, Pedro Galvão Santos, Daniel Gomes, Rita Barbosa Sousa, Daniel Matos, Gustavo Rodrigues, João Carmo, Francisco Moscoso Costa, Pedro Carmo, Diogo Cavaco, Francisco Bello Morgado, Pedro Pulido Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: High-definition electroanatomic mapping may enhance the precision and efficiency of catheter ablation. The OPAL HDx system (Boston Scientific) integrates ultra-high-density mapping with a streamlined FARAPULSE pulsed field ablation (PFA) workflow, yet real-world evidence on its added value remains limited. We report our initial single-center experience evaluating procedural efficiency, safety, and short-term outcomes using OPAL HDx-guided PFA.
Methods: We analyzed 175 consecutive atrial arrhythmia ablation procedures performed between February and November 2025 using the OPAL HDx mapping system integrated with the FARAPULSE PFA platform. All procedures were performed under general anesthesia. Baseline clinical variables included cardiovascular comorbidities, ongoing antiarrhythmic drug therapy, left atrial volume index (LAVI), left ventricular ejection fraction (LVEF), and history of prior catheter ablation. Procedural performance metrics included total procedure duration, fluoroscopy time, and radiation dose. Safety endpoints encompassed periprocedural and early postprocedural complications (i.e., cardiac tamponade, stroke, vascular access complications, and death). Arrhythmia recurrence - defined as documented atrial fibrillation or atrial flutter on electrocardiogram, Holter monitoring, or clinical records - was evaluated during follow-up.

Results: The mean patient age was 64 ± 10 years, 61.7% were male, and cardiometabolic comorbidities were prevalent. Atrial fibrillation accounted for 90% of procedures (43% paroxysmal), while atrial flutter represented the remaining 10%; 25% of cases were redo ablations. Regarding ablation lesion sets, 45% underwent pulmonary vein isolation (PVI) alone; 29% received PVI plus a posterior wall isolation (PWI); and 10% underwent PVI plus PWI and an additional linear lesion (e.g., mitral line, anterior wall, roof line, and/or cavotricuspid isthmus). The mean procedure duration was 57 ± 26 minutes, fluoroscopy time was 9.8 ± 6.7 minutes, and a radiation dose of 155 ± 147 mGy. No periprocedural complications were observed. The median follow-up duration was 153 days (IQR 80-227). During follow-up, arrhythmia recurrence occurred in 11 patients (6.3%), with a median time to recurrence of 205 days (IQR 153-243).



Conclusions: In this real-world experience, the OPAL HDx system enabled rapid high-resolution mapping with low fluoroscopy exposure and an excellent safety profile when used as the primary mapping platform for PFA-guided ablation of atrial fibrillation and flutter. These findings support the clinical efficiency and safety of Farapulse integrated in the OPAL HDx mapping software with promising short and mid term results.

PO 116. NOT ALL LBBB ARE EQUAL: IMPACT OF LBBB MORPHOLOGY AND SUPER-RESPONSE IN CRT PATIENTS

Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Joana Guerreiro Pereira, Daniela Carvalho, Raquel Fernandes, João Sousa Bispo, Dina Bento, Pedro Azevedo, Rui Candeias, Hugo Alex Costa, Jorge Mimoso

ULS Algarve/Hospital de Faro.

Introduction: One of the most potent predictors of cardiac resynchronization therapy (CRT) benefit is the presence of left bundle branch block (LBBB). Differences in LBBB morphology –i.e., true complete LBBB (tcLBBB) due to conduction system degeneration or LBBB like pattern (lpLBBB) with conduction delay reflecting myocardial pathology– are often seen in the clinical setting and may impact response to CRT. Although, an association with LBBB morphology and response/super-response to CRT is not fully established.

Objectives: To assess the association LBBB morphology/pattern and super-response in CRT patients.
Methods: A retrospective analysis between 2020 and 2023 included 95 patients who underwent CRT implantation. Collected data included demographics, cardiovascular risk factors and echocardiographic and electrocardiographic parameters. Super-response to CRT was defined as an absolute increase in left ventricular ejection fraction (LVEF) ≥ 10% and/or ≥ 30% reduction in left ventricular end-systolic volume and/or ≥ 20% reduction in left ventricular end-diastolic volume (LVEDV). Patients were classified according to LBBB morphology (lpLBBB vs. tcLBBB). LBBB European Society of Cardiology criteria was used to identify tcLBBB morphology. Predictors of super-response were identified using multivariate logistic regression.
Results: The final cohort consisted of 88 patients, of whom 51 (58%) with lpLBBB and 37 (42%) with tcLBBB. The mean age was 69.5 ± 10.4 years, with 77.3% being male. Mean baseline QRS duration was 166 ± 24 ms, with a wider QRS at baseline in tcLBBB (178 ± 21 ms, p = 0.006). Mean biventricular pacing was 95.9%, without differences between groups. QRS reduction ≥ 26 ms (51.4%, p < 0.001), baseline LBBB > 150 ms (98.8%, p = 0.001), use of mineralocorticoids receptor antagonists drugs (81.1%, p = 0.047), QRS variation (28.2 ± 20.5, p < 0.001) and the degree of LVEF improvement (29.7% → 44.2%, p = 0.001) and LVEDV reduction (210 ml → 159 ml, p = 0.006) were more frequent among tcLBBB. CRT super-response occurred in 23 patients (39.7%), significantly more frequent in tcLBBB (62.5%, p = 0.003). tcLBBB independently predicted super-response, increasing the likelihood by 21-fold (OR = 21.54, p = 0.015). Other predictors were QRS variation ≥ 26 ms (OR = 9.612, p = 0.043), non-ischemic etiology (OR = 20.14, p = 0.009) and the use of ACEi (OR = 15.16, p = 0.022).
Conclusions: In this cohort, tcLBBB morphology prior to CRT implantation was associated/predictor with more pronounced reverse remodeling, as reflected by improvements in LVEF, LVEDV, and super-response rates during medium- to long-term follow-up. These findings reinforce the concept that tcLBBB morphology is an important and specific surrogate of LV electrical activation and response to resynchronization. Further studies are needed to confirm these findings and determine their impact on hard clinical outcomes.

PO 117. LOW-ACTIVITY ALERTS AS A PROGNOSTIC MARKER IN ICD/CRT

Inês Almeida, Margarida Câmara Farinha, Inês Coutinho dos Santos, Maria Inês Barradas, Fabiana Duarte, Luís Oliveira, Carina Machado, André Viveiros Monteiro, António Fontes, Nuno Pelicano, Miguel Pacheco, Emília Santos

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: Remote monitoring of ICD/CRT devices allows continuous quantification of daily physical activity. Sustained reductions in activity ("low burden activity") have been associated with worse outcomes, but national evidence remains scarce.
Objectives: To evaluate the association between low activity and a composite endpoint (urgent HF visit, HF hospitalization, stroke, ACS, and all-cause mortality) in ICD/CRT patients under remote monitoring.
Methods: We conducted a single-center cohort retrospective study of 130 patients. Low activity was defined as < 1 hour/day of physical activity; patients were divided into Group 1 (low-activity alerts) and Group 2 (no alerts). Proportional hazards were evaluated using a Cox model adjusted for age, sex, chronic kidney disease (CKD), and device type (reference: transvenous ICD; comparators: CRT-P, CRT-D, and subcutaneous ICD). Due to missing data in some covariates, the multivariable analysis followed a complete-case approach (N = 95). The mean follow-up was 8 years.
Results: A total of 130 ICD/CRT patients were included, 63 with low-activity alerts and 64 controls. Most baseline characteristics were similar between groups, with no significant differences in sex, atrial fibrillation, coronary disease, hypertension, dyslipidemia, obesity, sleep apnea, psychiatric disease, malignancy, or smoking. Low-activity patients were older (72 vs. 62 years; p < 0.01) and had a higher prevalence of chronic kidney disease (30% vs. 10%; p < 0.01). Diabetes and prior malignancy were more common in this group but did not reach significance (both p ≈ 0.07). Device type differed between groups (p = 0.04), with more CRT-P/CRT-D devices among low-activity patients and more transvenous ICDs in controls. NYHA class,

			LBBB morphology			
			lpLBBB (n=51, 58%)	tcLBBB (n=37, 42%)	Total (n=95)	p value
Gender	Male	n (%)	38,0 (74,5)	30,0 (81,1)	68,0 (77,3)	
	Female	n (%)	13,0 (25,5)	7,00 (18,9)	20,0 (22,7)	0,468
Age	*Mean±SD - years*		67,1±11,8	70,8±9,70	69,5±10,4	0,765
Hypertention		n (%)	36,0 (72,0)	25,0 (67,6)	61,0 (70,1)	0,655
Diabetes (type 2)		n (%)	29,0 (58,0)	20,0 (54,1)	49,0 (56,3)	0,714
Dyslipidemia		n (%)	41,0 (82,0)	24,0 (64,9)	65,0 (74,7)	0,069
Smoker		n (%)	17,0 (34,0)	19,0 (51,4)	36,0 (41,4)	0,104
Obesity		n (%)	11,0 (22,0)	9,00 (24,3)	20,0 (23,0)	0,799
Alcool		n (%)	10,0 (20,0)	12,0 (32,4)	22,0 (25,3)	0,187
Atrial fibrillation		n (%)	16,0 (32,0)	10,0 (27,0)	26,0 (29,9)	0,616
Ventricular tachycardia		n (%)	7,00 (14,0)	3,00 (8,10)	10,0 (11,5)	0,394
Chronic renal disease		n (%)	18,0 (36,7)	12,0 (33,3)	30,0 (35,3)	0,746
LBBB > 150ms		n (%)	29,0 (65,9)	30,0 (96,8)	59,0 (78,7)	**0,001**
QRS reduction ≥26ms		n (%)	8,00 (15,7)	19,0 (51,4)	27,0 (30,7)	**<0,001**
Need ventricular pacing		n (%)	15,0 (33,3)	4,00 (15,4)	19,0 (26,8)	0,100
Non-ischemic heart disease		n (%)	22,0 (47,8)	20,0 (60,6)	42,0 (53,2)	0,262
Optimized medical therapy	***ARNi***	n (%)	27,0 (55,1)	22,0 (59,5)	49,0 (57,0)	0,686
	ACEi/ARB	n (%)	16,0 (32,7)	13,0 (35,1)	29,0 (33,7)	0,81
	MRA	n (%)	30,0 (61,2)	30,0 (81,1)	60,0 (69,8)	**0,047**
	SGLT2i	n (%)	33,0 (67,3)	25,0 (67,6)	58,0 (67,4)	0,983
	Beta-blocker	n (%)	42,0 (85,7)	33,0 (89,2)	75,0 (87,2)	0,633
	AAR	n (%)	13,0 (26,5)	8,00 (21,6)	21,0 (24,4)	0,6
LVEF - pre	*Mean±SD - %*		33,1±11,9	29,7±7,47	33,3±11,1	0,062
LVEF - pos	*Mean±SD - %*		33,8±11,4	44,2±14,1	40,7±14,1	**0,018**
			p=0,868	**p=0,001**	**p=0,009**	
LVEDV-pre	*ml*		187±63,1	210±96,3	196±77,5	0,247
LVEDV-pos	*ml*		158±53,7	159±85,8	168±92,9	0,071
			p=0,107	**p=0,006**	**p=0,001**	
QRS duration pre-CRT	*ms*		161±26,1	178±21,1	166±23,5	**0,006**
QRS variation	*ms*		14,3±19,5	28,2±20,5	20,2±20,9	**<0,001**
BiV	*%*		98,3±2,42	96,2±4,13	95,9±7,59	0,476

		LBBB morphology			
Mean follow-up 35 months		lpLBBB (n=51, 58%)	tcLBBB (n=37, 42%)	Total (n=95)	p value
Super-response	n (%)	8,00 (23,5)	15,0 (62,5)	23,0 (39,7)	**0,003**

Figure PO 116

LVEF, and other comorbidities were similar. Low activity was associated with a higher cumulative incidence of events (log-rank p = 0.043). In the adjusted Cox model, low activity remained independently associated with the endpoint (HR 3.20; 95%CI 1.61-6.35; p = 0.001). Female sex showed a borderline protective effect (HR 0.44; 95%CI 0.19-1.00; p = 0.050). Among device types, CRT-D was independently protective (HR 0.33; 95%CI 0.15-0.72; p = 0.006), while CRT-P and subcutaneous ICD were not significant. The overall model was significant (LRT χ^2 = 28.3; df = 7; p < 0.001), with a concordance statistic of 0.696.

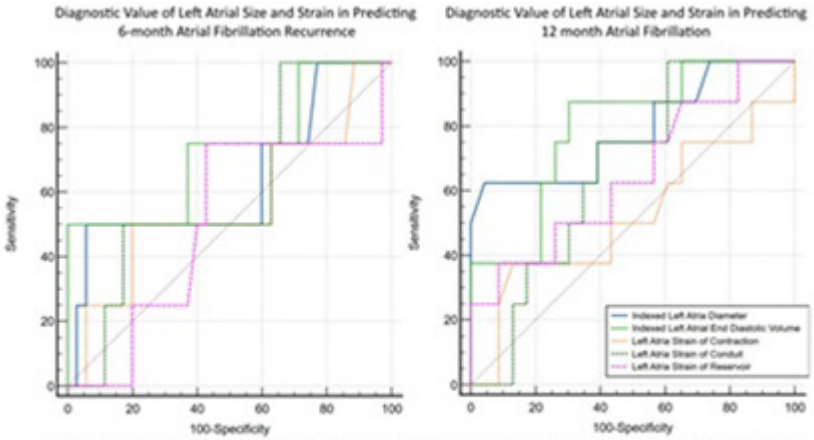
Conclusions: A device-derived measure of < 1 hour/day of physical activity identifies ICD/CRT patients at higher risk of major cardiovascular events, even after multivariable adjustment. Remote monitoring may serve as an effective tool for early risk stratification and more targeted follow-up.

PO 118. THE PROGNOSTIC VALUE OF LEFT ATRIAL SIZE AND STRAIN IN PREDICTING ATRIAL FIBRILLATION RECURRENCE AT 6 AND 12 MONTHS AFTER PULMONARY VEIN ISOLATION

Ana Lucy Calvo, Luísa Pinheiro, Emídio Mata, Bárbara Lage Garcia, Ana Marta Pinto, Filipa Castro, Margarida de Castro, Mário Lourenço, Ana Sofia Gonçalves, Sílvia Ribeiro, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Left atrial (LA) volume and LA strain (LAS) offer insights into structural and functional changes of the LA and may help predict atrial fibrillation (AF) recurrence after pulmonary vein isolation (PVI).



Diagnostic performance of pre-procedural left atrial (LA) size and strain parameters in predicting atrial fibrillation (AF) recurrence after pulmonary vein isolation (PVI).
Receiver-operating characteristic (ROC) curves are shown for (A) 6-month and (B) 12-month AF recurrence. Indexed LA diameter and LA end-diastolic volume demonstrated the highest discriminatory ability at both follow-up time points, while LA strain parameters (reservoir, conduit, and contraction) showed limited predictive value.

Figure PO 118

Objectives: To assess the predictive value of pre-procedural LA morpho-functional echocardiographic parameters in determining AF recurrence at 6 and 12 months post-PVI.
Methods: Single-center retrospective study analyzing AF patients who underwent initial PVI (2015-2024), with available pre-procedural echocardiogram. LAS and volume measurements were reviewed, and AF recurrence at 6 and 12 months was determined using available 12-lead ECG and Holter monitoring. Receiver operating characteristic analysis assessed the predictive value of LA parameters.
Results: Seventy-two patients met inclusion criteria; follow-up was available for 60 at 6 months and 51 at 12 months. Median echocardiography-to-PVI interval was 312 days [IQR 120-610]. AF recurrence occurred in 9 (15.0%) and 15 (29.4%) patients at 6 and 12 months, respectively. At 6 months, indexed LA diameter had the highest predictive value (AUC 0.68, p = 0.21; optimal cutoff > 24.3 mm/m^2; sensitivity 57.1%; specificity 91.7%), followed by Indexed LA end-diastolic volume (AUC 0.64, p = 0.26; cutoff > 41 mL/m^2; sensitivity: 55.6%; specificity: 85%). Among strain parameters, LAS of conduit (LAScd) performed best (AUC 0.64, p = 0.28; cutoff ≤ 7.8%; sensitivity: 60%; specificity: 80.6%), whereas LAS of reservoir (LASr) and LAS of contraction (LASct) showed limited discrimination (AUCs 0.59 and 0.54). At 12 months, indexed LA diameter was the only significant predictor (AUC 0.72, p = 0.02; cutoff > 23.6 mm/m^2; sensitivity 53.9%; specificity 90.6%). indexed LA end-diastolic volume (AUC 0.67, p = 0.07) and LAScd (AUC 0.66, p = 0.11) demonstrated moderate, non-significant predictive ability.
Conclusions: Despite some echocardiographic parameters showing moderate discriminatory ability, none achieved robust statistical significance except for the indexed LA diameter at 12 months. These findings are likely influenced by several limitations, including potential selection bias, a small sample size reducing statistical power, and patient dropout during follow-up. Moreover, variability in the interval between echocardiographic assessment and PVI may have affected the accuracy of pre-procedural measurements in predicting long-term outcomes.

PO 119. SUBCUTANEOUS ICDS IN DIALYSIS PATIENTS: ARE THE EXPECTED ADVANTAGES REAL? A SYSTEMATIC REVIEW AND META-ANALYSIS

Leonor Magalhães, David Vicente Marques, Margarida Figueiredo, Sofia Jacinto, Hélder Santos, Pedro Silva Cunha, Guilherme Portugal, Ana Lousinha, Rui Cruz Ferreira, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: The subcutaneous implantable cardioverter-defibrillator (S-ICD) should be considered according to current guidelines for dialysis patients for its extravascular system, by preserving and reducing vascular access complications and may lower infection risk. However, evidence regarding long-term safety and efficacy remains limited. The number of dialysis patients receiving S-ICDs has now surpassed those implanted with transvenous ICDs (TV-ICDs), highlighting the need to evaluate real-world outcomes.
Methods: A systematic review with meta-analysis was conducted comparing (1) S-ICD and TV-ICD outcomes in dialysis patients, and (2) S-ICD outcomes according to dialysis status (dialysis vs. non-dialysis). Searches were performed in PubMed, ClinicalTrials.gov, and Embase using the terms “defibrillation”, “hemodialysis”, “dialysis”, and “ICD”. The primary endpoints were overall complications, infections and efficacy (appropriate and inappropriate shocks).
Results: For comparison of S-ICD and TV-ICD outcomes in dialysis patients, 3 studies were included (n = 4,751; 2,094 S-ICD and 2,647 TV-ICD). Mean age of 62 years, 69.2% male, mean LVEF 27.4%, ischemic etiology in 64%, and primary prevention in 86.9%. The mean follow-up was 58 months. Among dialysis patients, no significant differences were found between S-ICD and TV-ICD regarding total complications (p = 0.78) or infection rates (p = 0.24) [Figure 1A and 1B]. For comparison of dialysed status vs. non-dialysed outcomes in S-ICD recipients, another three additional studies were analyzed (n = 1,802; 265 dialyzed, 1,537 non-dialyzed). Mean age of 55 years, mean LVEF 29.1%, ischemic etiology in 43.8%, and 74.7% had primary prevention indications, with a mean follow-up of 10.5 months. Within the S-ICD cohort, dialysis patients showed a trend toward higher overall complications, without significance (p = 0.65) as the infection risk (p = 0.57) compared with non-dialysis recipients [Figure 2A and 2B]. Regarding safety, the rate of appropriate shocks was higher in dialysis patients (p < 0.00001), while inappropriate shocks were comparable (p = 0.94) [Figure 2C and 2D].
Conclusions: Despite theoretical advantages and current guideline support, in our analysis, the S-ICD did not demonstrate lower complication or infection rates compared with TV-ICDs in dialysis patients, during medium-term follow-up. Likewise, among S-ICD recipients, dialysis status did not significantly impact safety outcomes. Device efficacy was preserved across groups. These findings suggest that while S-ICDs remain a reasonable option in dialysis patients, their superiority over transvenous systems in reducing complications has yet to be confirmed.

PO 120. SAME-DAY DISCHARGE AFTER AF ABLATION: REAL-WORLD FEASIBILITY AND SAFETY IN A NATIONAL COHORT

Mariana Caetano Coelho, Fernando Nascimento Ferreira, Pedro Silva Cunha, Guilherme Portugal, Bruno Valente, Hélder Santos, Ana Lousinha, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

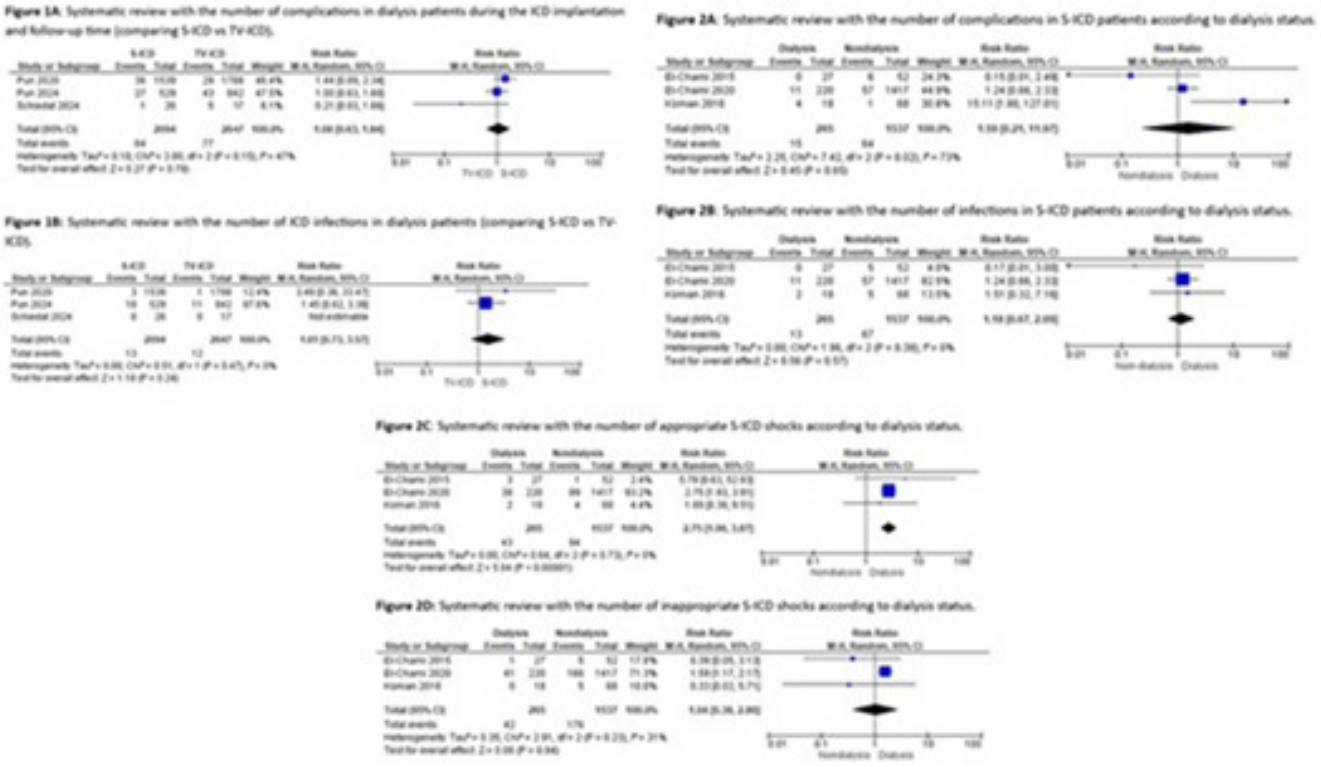
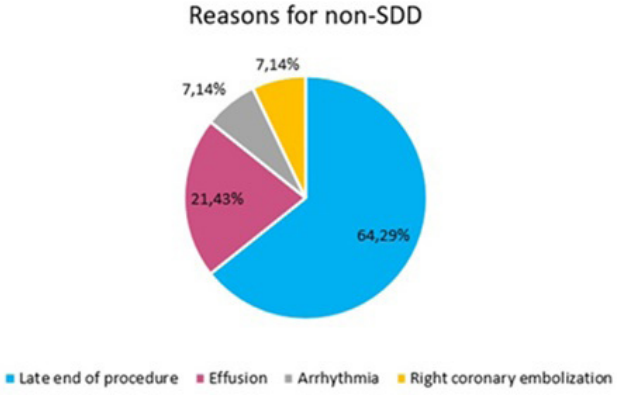


Figure PO 119

Introduction: Same-day discharge (SDD) after atrial fibrillation (AF) ablation has become increasingly common in specialized centers, driven by improvements in procedural safety and peri-procedural monitoring. However, national data on SDD adoption and outcomes remain limited.
Objectives: To evaluate the feasibility, safety, and clinical outcomes of a standardized institutional SDD protocol following catheter ablation (CA) for AF.



Methods: We conducted a prospective single-center study including 129 patients undergoing CA for paroxysmal or persistent AF between January 2023 and March 2025. All patients were managed under a standardized SDD protocol, with hospitalization reserved for those not meeting discharge criteria. Baseline characteristics, procedural details, complications, 30-day readmissions, and 12-month arrhythmia recurrence were analyzed.
Results: Of the 129 patients, 115 (89%) achieved SDD. Baseline characteristics were comparable between groups, except for a significantly smaller left atrial size in SDD patients (33 ± 11.5 mm) compared with non-SDD patients (43.5 ± 14.1 mm; $p = 0.007$). The most common cause of SDD failure was late procedure completion (64.3%). The 30-day readmission rate was low overall (3.1%). Acute complications were significantly lower in the SDD group (0.9% vs. 1.6%; $p < 0.001$), with no significant differences in subacute events. At 12-month follow-up, freedom from atrial arrhythmia was similar between SDD and non-SDD groups (89.6% vs. 85.7%; $p = 0.619$).
Conclusions: A standardized SDD protocol following AF ablation proved highly feasible and safe, with high same-day discharge rates, low complication and readmission rates, and comparable long-term arrhythmia outcomes. These findings support the broader adoption of SDD protocols in routine clinical practice.

Sexta-feira, 24 Abril de 2026 | 15:00-15:55

Área de Posters - Ecrã 2 | Sessão de Posters 21 - Por dentro do miocárdio: da genética aos resultados

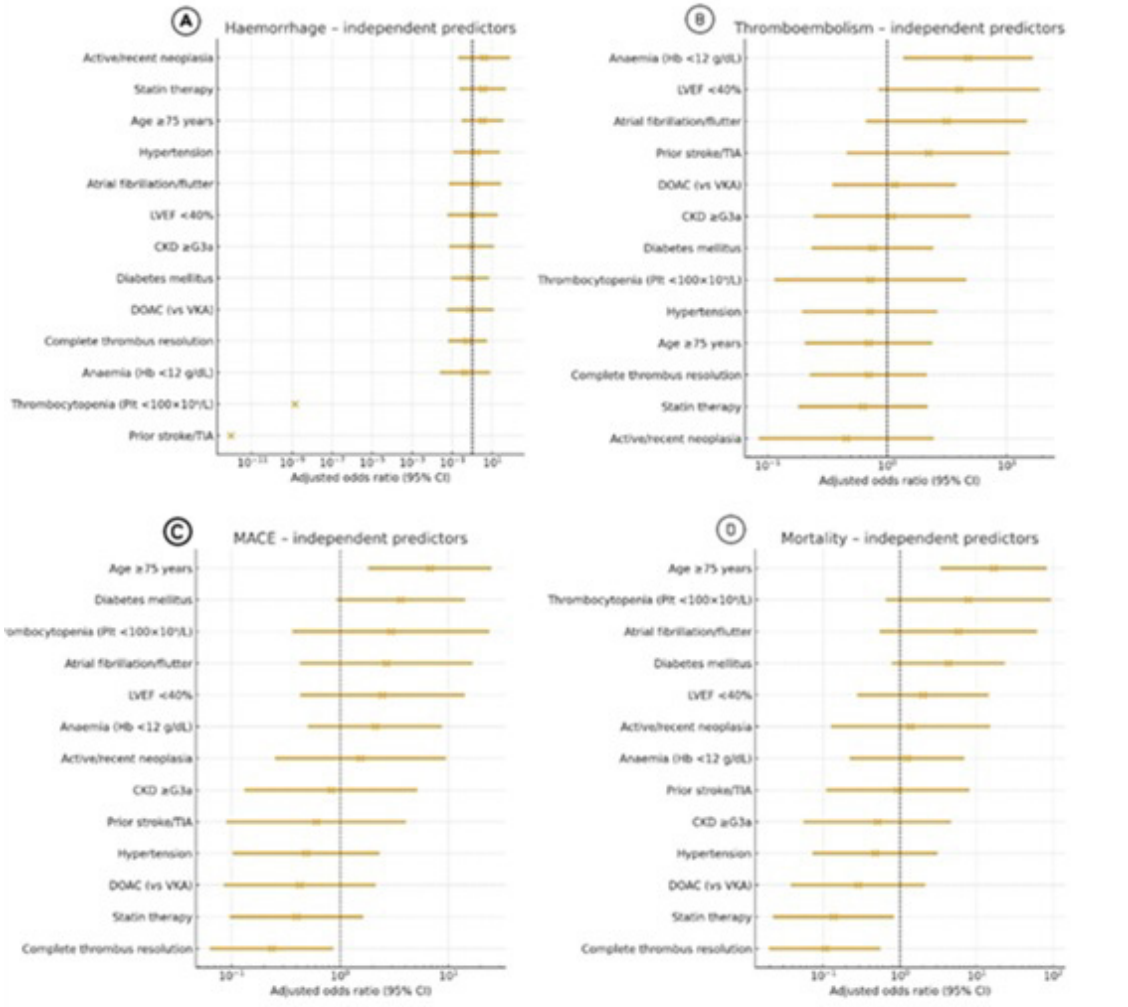
PO 121. LEFT VENTRICULAR THROMBUS IN CARDIOMYOPATHY: CONTEMPORARY DETERMINANTS OF RESOLUTION, EVENTS AND SURVIVAL

Luana Alves, Joana Conde Gonçalves, Erivaldo Andrade, Tiago Prata Branco, Benedita Couto Viana, Sandra Amorim, Rui André Rodrigues

ULS São João/Hospital São João.

Introduction: Left ventricular thrombus (LVT) is a serious complication of ischemic and non-ischemic cardiomyopathies, carrying risks of embolic events, bleeding, and death. Predictors of thrombus resolution and their prognostic impact remain uncertain in contemporary practice.
Objectives: To identify clinical, echocardiographic, and laboratory determinants of LVT resolution and assess their prognostic relevance for major cardiovascular events and mortality.

Figure 2. Independent predictors of haemorrhage, thromboembolism, MACE and mortality in left-ventricular thrombus



Forest plots (A–D) show adjusted odds ratios (log scale) and 95% CIs for prespecified covariates. Models are adjusted for age ≥75 years, chronic kidney disease (CKD ≥G3a), anaemia (Hb <12 g/dL), thrombocytopenia (platelets <100×10⁹/L), diabetes, hypertension, atrial fibrillation/flutter, prior stroke/TIA, active/recent neoplasia, LVEF <40%, statin therapy, anticoagulant class (DOAC vs vitamin-K antagonist) and complete thrombus resolution (complete-case analyses). Panel A: Haemorrhage; Panel B: Thromboembolism; Panel C: MACE; Panel D: Mortality. Interpret haemorrhage estimates with caution due to few events.

Methods: We analyzed 102 patients with echocardiographically confirmed LVT admitted to a tertiary care centre between January 2022 and December 2023. Thrombus resolution was defined as complete disappearance on follow-up imaging. Variables were grouped into clinical (age, sex, cardiomyopathy type, atrial fibrillation/flutter), laboratory (anemia = hemoglobin < 12 g/dL; thrombocytopenia = platelets < 100 × 10^9/L; lipid profile; C-reactive protein; inflammatory indices), and imaging (LVEF, LV aneurysm, wall-motion abnormalities, number, size and location of thrombi, and thrombus morphology - fresh vs. calcified). The choice of anticoagulation (vitamin K antagonists or DOACs) was left to physician discretion. Primary endpoints were major bleeding, thromboembolism, major adverse cardiovascular events (MACE), and all-cause mortality. Logistic regression identified independent predictors; Kaplan-Meier analysis evaluated survival by thrombus resolution.
Results: Median age was 65 (IQR 59-75) years, 84% were male and 70% had ischemic cardiomyopathy. Complete resolution occurred in 61 (59.8%) patients, with no significant difference between anticoagulant classes. Independent predictors of resolution were ischemic cardiomyopathy (OR 8.90, 95%CI 1.01-78.9; p = 0.049), fresh morphology (vs calcified: OR 0.15, 95%CI 0.03-0.81; p = 0.027), and higher HDL (OR 1.08; p = 0.012). During follow-up, thromboembolism occurred in 26.5%, major bleeding 4.9%, MACE 42.2%, and mortality 34.5%. Anaemia predicted thromboembolic events (OR 3.65, 95%CI 1.31-10.2; p = 0.014). Mortality was independently associated with thrombocytopenia (OR 13.8, 95%CI 1.76-108; p = 0.014) and age ≥ 75 years (OR 5.92, 95%CI 1.86-18.8; p = 0.003). Thrombus resolution was protective for both MACE (OR 0.27, 95%CI 0.10-0.73; p = 0.014) and mortality (OR 0.16, 95%CI 0.05-0.53; p = 0.005). Kaplan-Meier curves confirmed improved survival with thrombus resolution (log-rank p < 0.01).
Conclusions: High HDL, ischemic substrate, and fresh morphology independently predict LVT resolution. Anaemia marks excess thromboembolic risk, while advanced age and thrombocytopenia predict death. Thrombus resolution confers marked protection against MACE and mortality. These findings highlight the interplay between myocardial substrate, thrombus biology, and systemic risk, supporting an integrated, individualized strategy to improve LVT outcomes.

PO 122. FOLLOWME FABRY PATHFINDERS REAL-WORLD REGISTRY IN SPAIN AND PORTUGAL: CARDIAC AND RENAL OUTCOMES WITH MIGALASTAT IN PATIENTS WITH FABRY DISEASE

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Fabry disease (FD) is a progressive lysosomal disorder caused by *GLA* gene variants and characterised by multisystemic dysfunction, predominantly affecting the renal, cardiac and nervous systems. We present data from migalastat-treated patients in Spain and Portugal from the real-world followME Fabry Pathfinders registry (EUPAS20599). Patients ≥ 12 years with confirmed FD and estimated glomerular filtration rate (eGFR) ≥ 30 mL/min/1.73 m^2 were enrolled. Retrospective and prospective data were analysed from patients with amenable *GLA* variants who received migalastat for ≥ 2 years. Left ventricular hypertrophy (LVH) was defined as left ventricular mass index (LVMi) > 115 g/m^2 in males and > 95 g/m^2 in females. In total, 73 patients (69.9% male) were included. At enrolment, median age was 58.0 years. The three most common *GLA* variants were p.F113L (n = 37; 50.7%), p.S238N (n = 17; 23.3%) and p.R301Q (n = 6; 8.2%). As of August 2025, median migalastat exposure was 4.4 years (range 2.0-6.8). At baseline, median LVMi was 132.4 g/m^2 (n = 46; range 62.3-296.2 [with LVH: 152.6 g/m^2, n = 32, range 109.1-296.2; without LVH: 92.6 g/m^2, n = 14, range 62.3-109.7]) and median eGFR calculated using the Chronic Kidney Disease Epidemiology Collaboration equation ($eGFR_{CKD-EPI}$) was 92.1 mL/min/1.73 m^2 (n = 66; range 30.5-126.9 [males: 94.7 mL/min/1.73 m^2, n = 46, range 42.6-126.9; females: 85.2 mL/min/1.73 m^2, n = 20, range 30.5-107.0]). Overall LVMi median annualised rate of change (ARC) was 0.20 g/m^2 (n = 59; 95% confidence interval [95%CI] -2.31 to 2.98 [LVH: -0.47 g/m^2, n = 41, 95%CI -7.67 to 3.24; without LVH: 0.89 g/m^2, n = 18, 95%CI -1.18 to 5.29]). Overall median $eGFR_{CKD-EPI}$ ARC was −1.32 mL/min/1.73 m^2 (n = 73; 95%CI -1.79 to -0.65 [males: -1.58 mL/min/1.73 m^2, n = 51, 95%CI -2.06 to -0.70; females: -1.01 mL/min/1.73 m^2, n = 22, 95%CI -2.92 to 0.15]). No treatment-related treatment-emergent serious adverse events or discontinuations were reported. During a median 4.4 years, these results appear consistent with previously published followME registry data. Cardiac geometry and renal function were stable and migalastat was well tolerated in a population of patients with primarily late-onset variants and cardiac involvement at baseline.

PO 123. SIXTEEN-YEAR FOLLOW-UP OF CARDIAC SARCOIDOSIS IN A SOUTHERN EUROPE POPULATION: CLINICAL OUTCOMES AND PROGNOSTIC INSIGHTS

Pedro Miguel Ventura, Mariana Salvador, João Borges-Rosa, Rodolfo Silva, Lino Gonçalves, Gracinda Costa, Maria João Vidigal Ferreira

Centro Académico e Clínico de Coimbra (Coimbra Hospital and University Center and Faculty of Medicine of University of Coimbra Consortium).

Introduction: Sarcoidosis is a granulomatous disease of unknown cause, and cardiac involvement occurs in a minority of patients. Cardiac sarcoidosis (CS) may lead to conduction disturbances, ventricular arrhythmias, heart failure (HF), or even sudden death, though many cases remain asymptomatic.
Objectives: To evaluate the long-term clinical outcomes of patients with suspected CS in a Southern European population over a 16-year follow-up period.
Methods: We reviewed all [^{18}F]FDG-Positron Emission Tomography (PET) reports of patients assessed for suspected sarcoidosis from 2009-2025. Patients with biopsy-confirmed sarcoidosis were evaluated using Hearth Rhythm Society (HRS) criteria to identify probable cardiac involvement. The primary outcome was a composite of HF hospitalization, arrhythmias requiring intervention, pacemaker implantation for complete heart block, and all-cause mortality.
Results: Out of 960 [^{18}F]FDG-PET scans, 314 patients had histologically confirmed extracardiac sarcoidosis. Of these, 27 (8.6%; 41% female; mean age 58.8 ± 13.2 years) were classified as probable cardiac sarcoidosis per HRS criteria, based on [^{18}F]FDG-PET (n = 15), cardiovascular magnetic resonance (CMR) (n = 11), or unexplained LVEF < 40% (n = 1). Most patients had no cardiac symptoms (59.3%) during follow-up, and atrial fibrillation occurred in 29.6%, while coronary artery disease and significant valvular disease each occurred in 7.4%. After a median follow-up of 43 [17-104] months, the composite outcome occurred in eleven patients (40.7%): 22.2% had HF hospitalizations; 22.2% had uncontrolled arrythmia requiring intervention (three titration of betablockers due to high burden of premature ventricular complex/non-sustained ventricular tachycardia (VT), two atrial flutter ablation, and one implanted cardiac resynchronization therapy with a defibrillator (CRT-D) due to non-sustained VT and left ventricle systolic disfunction); 14.8% implanted a pacemaker due to complete heart block at a median age of 66 [58-72] years. Additionally, five-patients (18.5%) died during follow-up, two of cardiovascular causes (HF and intestinal ischemia).

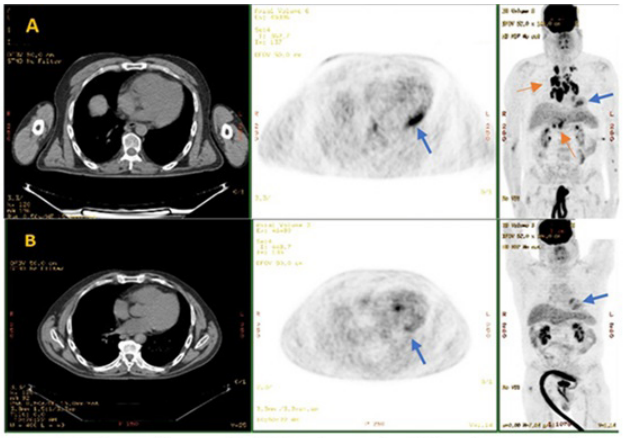


Figure 1. A 53-year-old man with CNS involvement (myelitis) and paraparesis but no cardiac symptoms underwent [18F]FDG-PET, revealing hypermetabolic supra- and infradiaphragmatic lymphadenopathy (orange arrows) and focal uptake in the basal septal and lateral walls of the left ventricle (blue arrows) (A). After adding methotrexate to prednisolone, follow-up [18F]FDG-PET showed marked reduction in both lymph node but only mild reduction in myocardial uptake (B).

Conclusions: Probable cardiac involvement was identified in 8.3% of this Southern European extracardiac sarcoidosis cohort, mostly occurring in asymptomatic patients. Over a median follow-up of 3.6 years, nearly half of the patients experienced major adverse events highlighting the need for vigilant cardiac monitoring in this population.

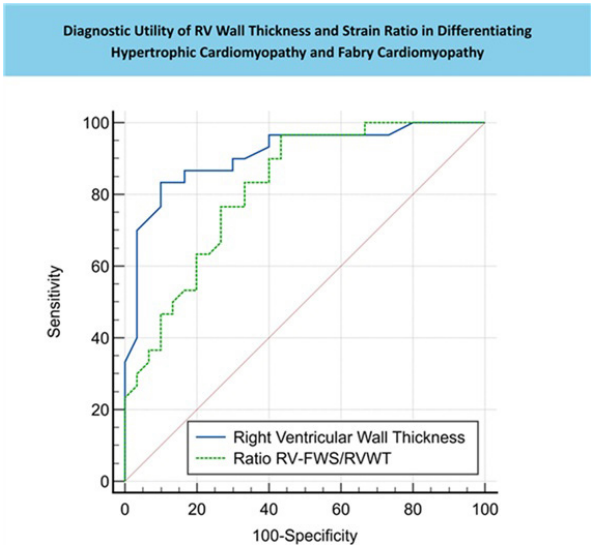
PO 124. ASSESSING THE DIAGNOSTIC VALUE OF RIGHT VENTRICULAR STRAIN AND THICKNESS IN THE DIFFERENTIAL DIAGNOSIS OF FABRY CARDIOMYOPATHY AND HYPERTROPHIC CARDIOMYOPATHY

Mariana Tinoco, Emídio Mata, Luísa Pinheiro, Tamara Pereira, Margarida Castro, Bárbara Lage Garcia, Mário Lourenço, Filipa Castro, Filipa Cordeiro, Marina Fernandes, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Cardiac involvement in Fabry Disease (FD) and Hypertrophic Cardiomyopathy (HCM) presents with overlapping features, making differentiation challenging. Two-dimensional speckle-tracking echocardiography (2D-STE) offers a detailed assessment of right ventricle (RV)

myocardial mechanics. Parameters such as RV free wall strain (RV-FWS), RV wall thickness (RVWT), and their ratio may provide a unique opportunity to integrate structural and functional characteristics, potentially enhancing the accuracy of differential diagnosis.
Objectives: To evaluate the diagnostic performance of RVWT, RV-FWS, and the RV-FWS/RVWT ratio in distinguishing FD from HCM.
Methods: This retrospective study analyzed matched controls (n = 30) and cohorts of FD (n = 30) and HCM (n = 30) patients referred for cardiomyopathy evaluations between 2014 and 2021. Two blinded researchers assessed RV function using echocardiography and 2D-STE. Continuous variables were compared using the Student's t-test or Mann-Whitney U test, depending on the data distribution. Diagnostic performance of RVWT, RV-FWS, and their ratio was evaluated using receiver operating characteristic (ROC) analysis. Pairwise comparison of ROC curves among these parameters was performed using DeLong's method.
Results: RVWT was higher in FD (mean = 7.42 ± 1.08 mm) compared to HCM (mean = 5.49 ± 0.89 mm), with p < 0.001. RV-FWS showed no significant difference between FD (mean = 25.02 ± 3.98%) and HCM (mean = 25.05 ± 3.75%), with p = 0.976. The RV-FWS/RVWT ratio was higher in HCM (mean = 4.71 ± 1.18) compared to FD (mean = 3.43 ± 0.70), with p < 0.001. In ROC analysis, RVWT had an area under the curve (AUC) of 0.911 (95%CI: 0.809-0.969, p < 0.001) with an associated cutoff of > 6.5 mm, sensitivity of 83.33%, and specificity of 90.00%. The RV-FWS/RVWT ratio demonstrated an AUC of 0.820 (95%CI: 0.699-0.907, p < 0.001) with a cutoff of ≤ 4.34, sensitivity of 96.67%, and specificity of 56.67%. When comparing AUC, RVWT was significantly higher than the RV-FWS/RVWT ratio (p = 0.0351).



Conclusions: Although the RV-FWS/RVWT ratio demonstrated high sensitivity, it did not significantly enhance diagnostic accuracy compared to RVWT alone. The structural and functional patterns of RV involvement differ between FD and HCM, but these differences were not sufficiently captured by this ratio to provide substantial additional diagnostic benefit. RVWT remains a more reliable parameter for distinguishing between these conditions.

PO 125. IMPACT OF IRON OVERLOAD ON ECHOCARDIOGRAPHIC PARAMETERS IN A COHORT OF PATIENTS WITH HEREDITARY HAEMOCHROMATOSIS

Tiago Prata Branco, Benedita Couto Viana, Erivaldo Andrade, Luana Alves, Joana Gonçalves, Bernardo Cruz, Emanuel Oliveira, Miguel Rocha, Helena Moreira, Ricardo Lopes, Carla Sousa, Rui Rodrigues

ULS São João/Hospital São João.

Introduction: Hereditary haemochromatosis may lead to myocardial iron deposition, potentially resulting in structural and functional cardiac alterations detectable by echocardiography. However, the extent to which biochemical markers of iron overload correlate with echocardiographic parameters in clinical practice remains uncertain, particularly in adequately treated patients.
Objectives: To evaluate the association between markers of iron overload (serum ferritin and transferrin saturation) and echocardiographic parameters in patients with hereditary haemochromatosis.
Methods: A cross-sectional study was conducted in 48 patients with confirmed hereditary haemochromatosis who underwent transthoracic echocardiography. Demographic, clinical, therapeutic and biochemical data (ferritin and transferrin saturation), as well as echocardiographic indices of systolic function, diastolic function and ventricular remodeling, were collected. Correlation analyses were performed to evaluate associations between iron markers and echocardiographic variables.
Results: Mean age was 57.8 years, 72% were male, and mean BMI was 27.6 kg/m^2. Hypertension was present in 47%, diabetes in 22%, chronic liver disease in 12.5% and significant alcohol consumption in 19%. Coronary artery disease occurred in 3.1% and atrial fibrillation in 12.5%. Most patients were treated with phlebotomy (87.5%) and 6.3% received iron-chelating therapy. Median ferritin was 418.3 ng/mL and median transferrin saturation 41%. The median interval between diagnosis and echocardiography was 3 years, and 78% of patients had only one echocardiographic assessment. Left ventricular systolic function was preserved in 87.5%, with a median LVEF of 57.5%. Ventricular geometry was normal in 50%, while 28% showed concentric remodeling, 12.5% concentric hypertrophy and 9.5% eccentric hypertrophy. Diastolic function was normal in 72%, Grade I in 9% and Grade II in 19%; no Grade III dysfunction was observed. No statistically significant associations were found between ferritin or transferrin saturation and any echocardiographic parameter, including systolic function, diastolic function or ventricular remodeling.
Conclusions: In this cohort of predominantly treated patients evaluated relatively early in the disease course, iron overload markers did not correlate with echocardiographic findings. These results suggest an absence of measurable cardiac involvement at this stage, possibly reflecting effective iron depletion and the short time between diagnosis and imaging. The fact that most patients had only one echocardiographic assessment limits evaluation of temporal progression. Longitudinal studies are needed to determine whether cardiac alterations emerge later and whether biochemical markers may help predict such changes.

PO 126. PREDICTORS OF EARLY LEFT VENTRICULAR RECOVERY IN TAKOTSUBO SYNDROME: A SINGLE-CENTER STUDY

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Introduction: Takotsubo syndrome (TTS) typically presents with acute, left ventricular systolic dysfunction characterized by wall motion abnormalities which are usually reversible over days to weeks. However, timing and completeness of left ventricular ejection fraction (LVEF) recovery are heterogeneous, and clinical predictors of early recovery remain only partially understood.
Objectives: To identify potential predictors of LVEF recovery at discharge in patients with TTS.
Methods: We conducted a retrospective, single-center study including patients diagnosed with TTS between 2008 and 2025. Demographic, clinical, echocardiographic, and laboratory data were collected from admission to discharge. Patients were categorized according to LVEF recovery status at discharge. Univariate and multivariate logistic regression analyses were performed to identify independent predictors of LVEF recovery.
Results: A total of 137 patients (mean age 72 ± 17 years, 85% female) were included, 85% of whom with the classical TTS pattern. An identifiable trigger was documented in 69% of cases, of which 53% were acute physical stressors. Overall, 58% of patients had reduced LVEF on admission, with recovery at discharge observed in 53% of them. On univariate analysis, younger age (69.5y vs. 76.1y, p = 0.014; OR 1.053, 95%CI [1.009-1.099], p = 0.018), higher

LVEF on admission (40.2% vs.32.5%, p < 0.001; OR 1.207, 95%CI [1.096-1.330], p < 0.001), and presence of an identifiable emotional stressor (OR 3.3, 95%CI [1.131-9.804], p = 0.029) were associated with LVEF recovery. Inflammatory and myocardial injury biomarkers (C-reactive protein, troponin T, and NT-proBNP) did not differ between groups. On multivariate analysis, only higher LVEF was an independent predictor of LVEF recovery at discharge (OR 1.39, 95%CI [1.136-1.704], p = 0.001).

Conclusions: In this cohort of TTS patients, higher baseline LVEF independently predicted early recovery of LVEF at discharge. Younger age and emotional stressors also appeared to favor recovery, though without independent significance. These findings suggest that initial LVEF is a key determinant of short-term ventricular improvement, underlining the potential importance of early echocardiographic assessment in prognostic evaluation.

Sexta-feira, 24 Abril de 2026 | 15:00-15:55

Área de Posters - Ecrã 3 | Sessão de Posters 22 - Imagem em hemodinâmica complexa e doença valvular

PO 127. INFLUENCE OF BSA-BASED LVOT DIAMETER ESTIMATION ON GRADING OF AORTIC STENOSIS

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[1]ULS Alentejo Central/Hospital do Espírito Santo de Évora. [2]ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: The continuity equation is widely used to calculate the aortic valve area (AVA), which is essential for evaluating the severity of aortic stenosis (AS). A key component of this calculation is accurately measuring the left ventricular outflow tract (LVOT) area. Variations in how the LVOT area is determined can significantly affect the final AVA measurement, potentially leading to misclassification of stenosis severity. Traditional methods can be subject to operator variability. In order to provide a more standardized approach, formulas have been developed to estimate the LVOT diameter (LVOTd) based on body surface area (BSA). The impact of using these formulas on the reclassification of AS severity in patient populations remains understudied.

Objectives: Assess how different methods of estimating the LVOT area impact AS grading.

Methods: Retrospective study. Consecutive patients with diagnosis of moderate/severe AS between January 2020 and April 2025 were included. Predicted LVOTd by BSA was calculated by the formula: (5.7*BSA + 12). To compare the classification of AS between the two methods, McNemar test was used.

Results: A total of 1,273 patients were included, with 56% being male, with a mean age of 77 ± 9 years. Echocardiographic data showed a mean maximum jet velocity (MaxVel) of 4.0 ± 0.7 m/s, a mean transaortic pressure gradient (MG) of 39 ± 15 mmHg, a mean aortic valve area (AVA) of 0.89 ± 0.26 cm^2, an indexed AVA (iAVA) of 0.50 ± 0.14 cm^2/m^2, and a velocity time integral ratio (DVI) of 0.25 ± 0.07. Table 1 presents the incidence of moderate and severe AS, along with AVA and iAVA values. AVA and iAVA calculated from the predicted LVOT diameter based on BSA tended to be slightly higher. Notably, AVA derived from the LVOT diameter predicted by BSA was associated with a lower prevalence of severe high-gradient (HG) AS and a lower prevalence of low-flow, low-gradient (LFLG) AS. Using AVA predicted by BSA values led to reclassification from severe (according to the standard method) to non-severe in a significant proportion of patients (9.3%; McNemar test p < 0.001). A subanalysis of 1,112 patients with BSA ≥ 2 m^2 showed similar findings, with a reclassification from severe to non-severe in 8.1% of patients (McNemar test p < 0.001). Regarding gender (population characteristics are summarized in Table 2), similar reclassification patterns were observed in both groups, with a significant proportion shifting from severe to non-severe AS – 5.4% in males and 12.9% in females (both p < 0.001 in McNemar test).

Conclusions: Our study suggests that, despite efforts to minimize errors associated with LVOT diameter measurement, estimating the LVOT diameter using BSA-based formulas leads to significant reclassification of aortic

Table 1 – Aortic stenosis grading parameters and classification based on both methods.

	Measured LVOT	Predicted LVOT by BSA	Measured LVOT (BSA ≤2)	Predicted LVOT by BSA (BSA ≤2)	Measured LVOT (Male)	Predicted LVOT by BSA (Male)	Measured LVOT (Female)
AVA (cm2; mean ± SD)	0.89 ± 0.26	0.98 ± 0.28	0.88 ± 0.25	0.96 ± 0.27	0.96 ± 0.25	1.01 ± 0.26	0.82 ± 0.24
AVAi (cm2/m2; mean ± SD)	0,50 ± 0.14	0.55 ± 015	0.51± 0.07	0.55 ± 0.15	0.51 ± 0.13	0.54 ± 0.13	0.49 ± 0.14
Moderate AS (%)	33.9	42.6	31.6	39.7	42.7	48.1	22.8
Severe AS (%)	66.1	57.4	68.4	60.3	57.3	51.9	77.2
HG severe AS (%)	38.3	33.9	38.7	34.8	33.5	30.7	44.2
LFLG severe AS (%)	27.8	23.5	29.7	25.5	23.8	21.2	33.0

Table 1

Table 2 – Baseline population characteristics by gender.

	Male (n=707)	Female (n=566)	P value
Age (years; mean ± SD)	76 ± 9	79 ± 8	<0.001
MaxVel (m/s; mean ± SD)	4.01 ± 0.68	4.04 ± 0.65	0.393
MG (mmHg; mean ± SD)	38.80 ± 14.61	39.68 ± 14.37	0.287
AVA (cm2; mean ± SD)	0.96 ± 0.25	0.82 ± 0.24	<0.001
AVAi (cm2/m2; mean ± SD)	0.51 ± 0.13	0.49 ± 0.14	0.002
DVI (mean ± SD)	0.25 ± 0.06	0.25 ± 0.07	0.180

Table 2

Figure PO 127

stenosis severity. These results underscore the impact of LVOT measurement methodology on AS grading and suggest that formula-based estimations may influence clinical decision-making.

PO 128. AORTIC VALVE AREA DETERMINATION BY PLANIMETRY: COMPARISON OF TWO-DIMENSIONAL AND THREE-DIMENSIONAL TRANSESOPHAGEAL ECHOCARDIOGRAPHY - A SYSTEMATIC REVIEW AND META-ANALYSIS

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[1]ULS Almada-Seixal/Hospital Garcia de Orta. [2]Faculdade de Medicina da Universidade de Lisboa.

Introduction: Accurate quantification of aortic valve area (AVA) is essential in the evaluation of aortic stenosis (AS), particularly for guiding clinical decisions regarding intervention. While two-dimensional (2D) Transesophageal echocardiography (TEE) is widely used for AVA planimetry, three-dimensional (3D) TEE may offer superior accuracy due to improved anatomical visualization. We aimed to compare AVA measurements by 2D versus 3D TEE in patients with AS.
Methods: We conducted a systematic review and meta-analysis of studies reporting AVA measurements using both 2D and 3D TEE in adult patients with AS. Paired measurements, means and standard deviations, or correlations between techniques were extracted. The primary outcome was the mean difference in AVA (cm^2) between modalities. Secondary outcomes included pooled correlation coefficients and assessment of heterogeneity. Analyses were performed using random-effects models. Eight studies comprising 381 patients were included. The pooled mean absolute difference between 2D and 3D TEE was 0.16 cm^2 (95%CI 0.09-0.23; $p < 0.001$), indicating that 3D TEE yielded slightly smaller AVA measurements overall (Figure: forest plot). Heterogeneity was low, and sensitivity analyses excluding older equipment showed consistent findings. Most studies demonstrated low risk of bias in patient selection and flow/timing, with some concerns regarding index-test and reference-standard domains.
Conclusions: 3D TEE provides slightly smaller AVA measurements than 2D TEE, with low heterogeneity and acceptable study quality. While both modalities may be clinically useful, 3D TEE may offer more accurate anatomical assessment. Standardized imaging protocols and multicenter validation are warranted to enhance reproducibility and ensure consistent evaluation of aortic stenosis severity.

PO 129. PREDICTORS AND PROGNOSTIC SIGNIFICANCE OF FALSE-POSITIVE RESULTS IN DOBUTAMINE STRESS ECHOCARDIOGRAPHY

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Introduction: Although dobutamine stress echocardiography (SE) has high specificity, a subset of patients presents false-positive (FP) results, and their clinical profile and prognostic impact remain uncertain.
Objectives: To identify clinical and echocardiographic predictors of FP results on SE and to evaluate their prognostic implications.
Methods: Retrospective study of 355 consecutive patients undergoing SE for ischemia assessment over a one-year period. A FP result was defined as a positive SE for ischemia in the absence of ≥ 50% coronary artery (CA) lesion in a major artery of the corresponding coronary territory on angiography. Patients were classified as FP+ or FP0 regarding the presence (FP+) or the absence of FP result on SE. Demographics, risk factors, clinical, laboratory and echocardiographic variables were analyzed. Variables with $p < 0.10$ in univariate analysis were considered for multivariable logistic regression. Median follow-up was 8 years (FP+: 7.5 [1-9] vs. FP0: 8 [1-9]).
Results: FP results occurred in 4.5% (n = 16). Compared with FP0, FP+ patients had higher mean arterial pressure (MAP) at rest (99.3 ± 16.25 vs. 75.8 ± 17.0 mmHg; p = 0.001) and at peak stress (145 [113-150] vs. 101.5 [63-161] mmHg; p = 0.009), and more frequently exhibited a hypertensive response (37.5% vs. 8.0%; p < 0.001). No significant differences were observed in age, sex, comorbidities, baseline ventricular function, CA disease, medication or complete left bundle branch block. In multivariable analysis, peak MAP was the strongest independent predictor of FP (OR 1.07; 95%CI 1.01-1.14; p = 0.031). A separate model including basal MAP also demonstrated a significant association, with basal MAP independently predicting FP (OR 1.05; 95%CI 1.01-1.09; p = 0.044). During follow-up, there were no significant differences between FP+ and FP0 in heart failure hospitalizations (18.8% vs. 25%; p = 0.742), myocardial infarction (12.5% vs. 12%; p = 1.000) or all-cause mortality (12.5% vs. 20%; p = 0.715). Kaplan-Meier curves showed no difference in cumulative MI risk (log-rank p = 0.893).
Conclusions: FP results on SE are associated with a more pronounced hypertensive response and higher MAP during stress. However, FP results were not associated with increased long-term risk of myocardial infarction,

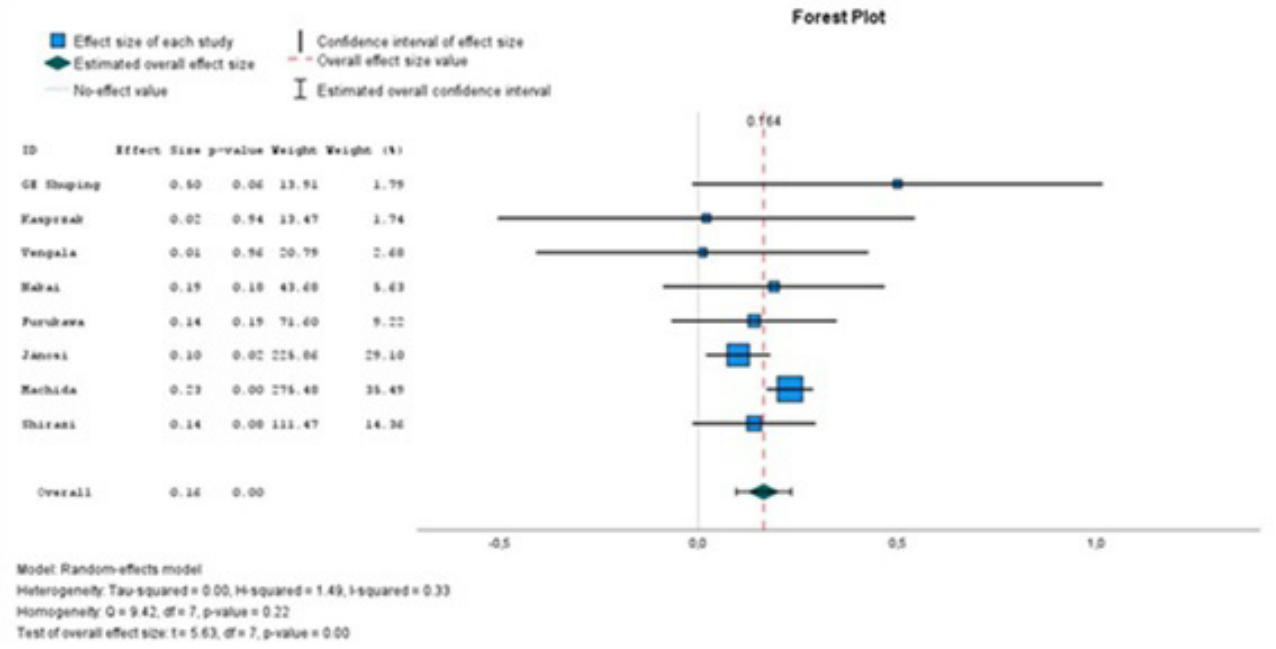

Figure PO 128

heart failure or mortality, suggesting that FP primarily reflects a hemodynamic phenotype without adverse prognostic impact.

PO 130. LOOKING BEYOND STANDARD ASSESSMENTS: EXPLORING THE DIAGNOSTIC POTENTIAL OF THE MG/AVA RATIO IN LFLG AS

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Introduction: Low-flow, low-gradient (LFLG) aortic stenosis (AS) is characterized by discordant grading on resting echocardiography. Recent evidence showed that mean gradient (MG)/aortic valve area (AVA) ratio can be useful in LFLG AS to confirm AS severity.
Objectives: Evaluate the diagnostic accuracy and prognostic significance of the MG/AVA ratio in our patient population with LFLG AS.
Methods: Multicenter, retrospective study. We included consecutive patients (pts) admitted for LFLG AS between 2021 and 2023. The severity of AS was determined using DSE or AVC. The optimal threshold of the MG/AVA ratio for diagnosing severe aortic stenosis was determined using Youden's index. Prognosis included all-cause mortality and heart failure (HF) hospitalizations.

Parameter	Value
Age (years; median [IQR])	81 [8]
Male sex (n (%))	52 (57%)
Comorbidities	
Coronary artery disease (n (%))	32 (35%)
Atrial fibrillation (AF) (n (%))	48 (53%)
Hypertension (n (%))	75 (82%)
Dyslipidemia (n (%))	69 (76%)
Diabetes mellitus (n (%))	43 (47%)
Echocardiography parameters	
Aortic maximum velocity (m/s; mean ± SD)	3.3 ± 0.5
Mean transvalvular gradient (mmHg; mean ± SD)	25.5 ± 7.8
Aortic valve area (AVA) (cm^2; mean ± SD)	0.7 ± 0.2
Indexed AVA (cm^2/m^2; mean ± SD)	0.4 ± 0.1
Velocity Time Integral ratio (DVI) (mean ± SD)	0.2 ± 0.1
Left ventricular ejection fraction (LVEF) (%; mean ± SD)	42 ± 13
MG/AVA ratio (median [IQR])	35.0 [25.9]

Table 1 - Baseline characteristics of the study population.

Results: A total of 91 pts were included. Baseline characteristics are summarized in Table 1. Based on echocardiography data, 65% of pts were classified as classical LFLG-AS (cLFLG-AS) and 35% as paradoxical LFLG-AS (pLFLG-AS). DSE or AVC data were available in 55% of pts, with 46% classified as having true severe AS and 54% as non-severe. Pts with higher MG/AVA ratio (47.4 vs. 31.3, p = 0.005) were more likely to have true severe AS. ROC analysis demonstrated that the ratio had moderate diagnostic accuracy (AUC 0.769). The optimal threshold for diagnosing true severe AS was 34.5 (specificity 75%, sensitivity 74%). Regarding prognosis, the optimal threshold ratio did not significantly predict all-cause mortality (p = 0.466) or HF hospitalizations (p = 0.278). In a subgroup analysis of pts with cLFLG-AS, the median MG/AVA ratio was 33.9 (IQR 22.9). Pts with higher ratios (44.8 vs. 30.9, p = 0.036) were more likely to have true severe AS. ROC analysis indicated moderate diagnostic accuracy (AUC 0.735), with an optimal threshold of 29.4 (specificity 67%, sensitivity 78%). Similar to the overall cohort, the ratio was not associated with mortality (p = 0.712) or HF hospitalization (p = 0.311). Regarding the more specific thresholds, a ratio of 50.3 (specificity 92%, sensitivity 37%) for LFLG AS and a ratio of 47.2 (specificity 89%, sensitivity 32%) for classical LFLG AS do not demonstrate any significant prognostic impact.
Conclusions: The MG/AVA ratio demonstrated moderate diagnostic accuracy in differentiating true severe AS in pts with LFLG AS. However, this parameter was not significantly associated with prognosis regarding all-cause mortality or HF hospitalizations.

PO 131. WHEN CHEST PAIN ISN'T CORONARY: COULD A HIDDEN GRADIENT BE THE HEART OF THE PROBLEM?

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Introduction: Angina without obstructive coronary artery disease (CAD) is reported more frequently in women than in men. An intraventricular gradient (IVG) during exercise is a recognised non-ischaemic mechanism of chest pain. This study evaluated whether a substantial proportion of women develop exercise-induced IVG as a potential explanation for their symptoms, and whether this prevalence differs from that in men, thereby supporting the need for targeted assessment in women presenting with angina and no obstructive CAD.
Methods: Prospective, multicentre trial with 3 years duration including consecutive patients referred for exercise stress echocardiography (ESE) due to angina without prior CAD. IVG was defined as ≥ 50 mmHg.
Results: A total of 150 patients were included, 48 women and 102 men, mean age of approximately ± 55 years. Among women, 10 showed an IVG during exercise (20.8%), and 5 demonstrated ischemia (10.4%). Among men, 5 exhibited an IVG (4.9%), and 16 showed ischemia (15.7%). IVG was significantly higher in women than in men (20.8% vs. 4.9%; p = 0.006). The distribution of ischemia did not differ meaningfully between women and men (10.4% vs. 15.7%; p = 0.54).

Table 1. Patients' Demographic and Exercise Stress Echocardiography Data	
Demographics (n = 150)	
Mean Age (Years) ± SD	55.3 ± 17.8
Sex *n* (%)	
Female	48 (32%)
Male	102 (68%)
Exercise Stress Echocardiography (n = 150)	
Female	
Intraventricular Gradient During Exercise	10 (20.8%)
Ischemic Heart Disease	5 (10.4%)
Male	
Intraventricular Gradient During Exercise	5 (4.9%)
Ischemic Heart Disease	16 (15.7%)

Conclusions: IVG was significantly higher in women than in men. This study highlights that dynamic intraventricular obstruction may be an important, often overlooked contributor to symptoms in women, reinforcing the need to actively search for this cause when evaluating female patients with chest pain and no obstructive CAD.

PO 132. ANTICOAGULATION IN INTRAVENTRICULAR THROMBUS: CONTEMPORARY TRENDS AND COMPARATIVE EFFECTIVENESS OF WARFARIN VERSUS DIRECT ORAL ANTICOAGULANTS

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Introduction: Intraventricular thrombus (IVT) is a clinically significant finding, associated with increased risk of systemic embolization and adverse cardiovascular outcomes. Although vitamin K antagonists–particularly

warfarin–have long constituted the mainstay of therapy, the use of direct oral anticoagulants (DOACs) has expanded in recent years. This study sought to assess temporal trends in anticoagulation strategies and to compare the effectiveness of warfarin and DOACs in achieving thrombus resolution.
Methods: We conducted a retrospective analysis of patients with echocardiographically confirmed IVT between January 2022 and December 2023. Clinical data, echocardiographic findings and anticoagulation strategies were retrieved from patient records. Prescription patterns were analyzed over time, and comparative effectiveness between anticoagulant classes was assessed using Kaplan-Meier survival analysis truncated at 24 months, with complete thrombus resolution as the event of interest.
Results: A total of 102 patients were included (median age 65 years; 84% male). A pronounced temporal shift in anticoagulation strategy was observed: warfarin prescription declined from 88.9% in 2022 to 52.9% in 2023 ($p < 0.001$), reflecting a substantial rise in DOAC prescriptions. Follow-up echocardiography was available for 80 patients; others were censored due to death or loss to follow-up. In survival analysis, both warfarin and DOACs demonstrated comparable cumulative probabilities of complete thrombus resolution over 24 months (log-rank $p = 0.94$).
Conclusions: This real-world cohort illustrates an ongoing paradigm shift in the management of IVT, characterized by a transition from warfarin to DOAC therapy. Both classes achieved similar long-term rates of thrombus resolution, suggesting equivalent effectiveness in clinical practice. These findings reinforce the role of DOACs as a feasible and effective therapeutic alternative to warfarin. Prospective randomized trials are needed to confirm their comparative efficacy and optimize anticoagulation strategies in this high-risk population.

Sexta-feira, 24 Abril de 2026 | 16:30-17:25

Área de Posters - Ecrã 1 | Sessão de Posters 23 - Choque cardiogénico: preditores, suporte e desfechos

PO 133. AMI-CS: BRIDGE-TO-RECOVERY OR BRIDGE-TO-ADVANCED THERAPIES - HOW LONG SHOULD WE WAIT?

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Introduction: Cardiogenic shock (CS) following acute myocardial infarction (AMI-CS) carries extremely high mortality despite advances in revascularization and short-term mechanical circulatory support (MCS). Progression to advanced heart failure (HF) requiring heart transplantation (HT) or durable left ventricular assist device (LVAD) represents the ultimate dismal outcome of refractory pump failure. We aimed to characterize AMI-CS clinical trajectory and identify predictors of transition to advanced HF therapies.

Baseline population characteristics

Age (years)	59 years old (51-65; max 73, min 29)
Female (n, %)	34, 30%
Smoking status (n, %)	
• Active smoker	46 (41,1%)
• Past smoker	13 (11,6%)
Hypertension	68 (60,7%)
Hypercholesterolemia	66 (58,9%)
Diabetes Mellitus	45 (40,2%)
Previous acute coronary syndrome	25 (22,3%)
Previous percutaneous coronary intervention	22 19,6%)
Previous coronary artery bypass graft	6 (5,4%)
Peripheral artery disease	11 (9,8%)
Stroke	8 (7,1%)
Chronic kidney disease	6 (5,4%)

Table1: Baseline population characteristics.

Hospitalization

Length of hospital stay (median, IQR)	11 days (4-26)
Length of coronary ICU stay (median, IQR)	6 days (2-14)
SCAI SHOCK Stages Classification on admission	
B (n, %)	5 (4,5%)
C (n, %)	55 (49,1%)
D (n, %)	30 (26,8%)
E (n, %)	22 (19,6%)
Cardiac arrest on admission	
Out-of-hospital cardiac arrest (n, %)	19 (17%)
In-hospital cardiac arrest (n, %)	5 (4,5%)
Revascularization data	
Percutaneous coronary intervention	85 (75,9%)
Final TIMI 3 score	63 (56,3%)
Coronary artery bypass surgery	9 (8%)
Mortality	
In hospital mortality	55 (49,1%)
ICU mortality	49 (43,8%)
All cause mortality at hospitalization and follow-up	62 (55,4%)
Heart transplant or LVAD	16 (14,3%)
During index Hospitalization	10 (8,9%)

Table2: Clinical parameters and outcomes during hospitalization.

Fig.1: Transitions in patient clinical status from day 5 to day 30. The figure depicts the evolution from shock recovery, advanced support dependence, and non-survival at day 5 to outcomes at day 30, including recovery, ongoing support dependence, heart transplant/LVAD, and mortality

Figure PO 133

Methods: Single-center, retrospective study including all consecutive patients admitted with AMI-CS between 2017-2025 to a cardiac intensive care unit. Patients > 70 years were excluded, as they don't comply with institutional criteria for advanced HF therapies. Data were collected at admission, day 5, and day 30. Although there is no defined timing to determine irreversibility of pump failure after MI, a 5-day deadline was used, as it is usually considered adequate to initiate advanced HF therapies evaluation at our institution. Patient status at 5 and 30 days was defined as recovered from CS, support-dependent (INTERMACS 3 or worse) or dead. Predictors of 30-day mortality and need for HT or LVAD during index admission or follow-up were obtained through univariate analysis.
Results: From a total of 227 AMI-CS patients, 112 were included (mean age 59 ± 10 years, 30% women). Most presented in SCAI stage C or D (n = 85, 76%), and 24 (21%) with cardiac arrest. Median LVEF was 25% (20-35%) and MCS was required in 34 patients (31%). At day 5, 37 (33%) had recovered, 44 (38%) were support-dependent, and 31 (28%) had died. By day 30, 47 (42%) had recovered, 9 (8%) remained support-dependent, 50 (45%) had died and 6 (5%) underwent HT or LVAD. Among support-dependent patients at day 30, 4 underwent HT later during index hospitalization, one after discharge, and the remaining 4 died. Predictors of 30-day mortality included initial and day 5 SCAI stage (p = 0.002), cardiac arrest (p = 0.02) and ventricular dysfunction (p = 0.016), particularly left ventricular and biventricular. The need for advanced HF therapies was predicted by MCS use (p = 0.05), longer MCS duration (p = 0.016), lower LVEF (p = 0.038), support-dependent status at day 5 (p = 0.03), and ongoing MCS at day 5 (p = 0.03). The type of mechanical circulatory support influenced 30-day outcomes (p < 0.001), as patients supported with IABP or Impella had better recovery and survival, while more complex MCS were linked to worse outcomes and higher likelihood of HT or LVAD.
Conclusions: AMI-CS patients are a high-risk population with high mortality. Persistent hemodynamic instability, prolonged and complex MCS, and lower LVEF were the strongest predictors of need for advanced HF therapies. Early recognition of irreversible myocardial failure is essential to optimize referral and timing for LVAD or transplantation.

PO 134. EXPERIENCE WITH LEVOSIMENDAN IN CARDIOGENIC SHOCK: INOTROPE WEANING AND CLINICAL OUTCOMES IN A REAL-WORLD COHORT

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Introduction: Cardiogenic shock (CS) is associated with high mortality and frequent dependence on inotropes. Levosimendan has been proposed to facilitate weaning from inotropes and mechanical circulatory support (MCS), but real-world evidence is limited.

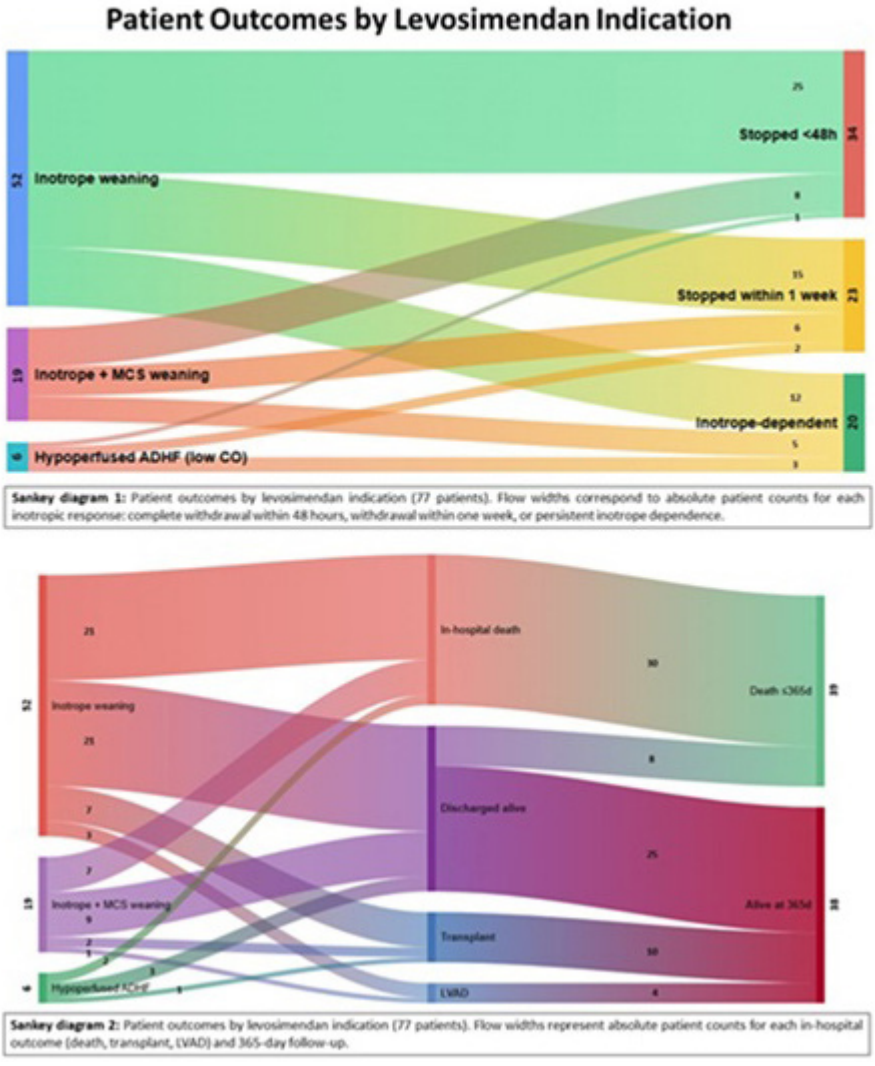

Figure PO 134

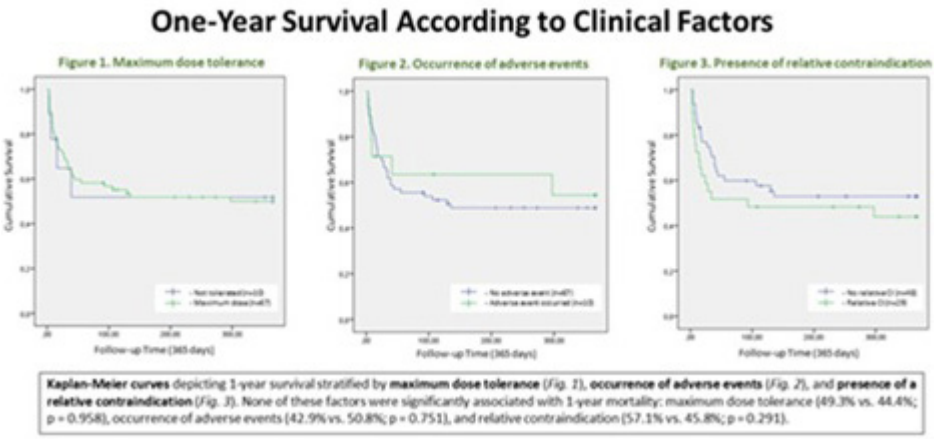

Figure PO 134 ***(cont.)***

Objectives: To describe our experience with levosimendan use in CS, focusing on inotrope weaning, safety, and prognostic factors.
Methods: We conducted a retrospective observational study including 77 patients treated with levosimendan for CS between January 2017 and August 2025. Data collected included demographics, etiology, timing and success of catecholamine and/or MCS withdrawal, maximum tolerated dose, adverse events, and contraindications. Between-group comparisons were performed using chi-square or Fisher's exact tests for categorical variables and Student's t-test or Mann-Whitney U test for continuous variables, as appropriate. One-year mortality was assessed using Kaplan-Meier survival analysis and compared between groups using the log-rank (Mantel-Cox) test.
Results: Mean age was 64 ± 16 years; 78% were male. CS etiologies were post-acute myocardial infarction (51%), acute non-ischemic (13%), acute-on-chronic (36%). The main indication for levosimendan was inotrope weaning (67.5%), followed by combined inotrope and MCS weaning (24.7%), and hypoperfused acute decompensated heart failure (HF) (7.8%). Complete inotrope withdrawal was achieved within 48 hours in 44.2% of patients, within one week in 29.9%, while 26.0% remained inotrope-dependent. 11 patients (15%) required repeated infusions; 4 were referred to a levosimendan day-hospital program. During hospitalization, 30 patients died, 10 underwent heart transplantation, and 4 received a left ventricular assist device (LVAD). 12 patients experienced a cardiovascular-related hospital readmission; among them, 9 (75%) were readmitted for decompensated HF, and 4 of these (33%) required a new levosimendan infusion cycle. The maximum infusion rate (0.2mcg/kg/min) was tolerated in 88% of cases. Adverse events occurred in 13%, mainly arrhythmias (11.7%). No severe adverse events occurred. 48 patients (62%) had no relative contraindications. Among those with relative contraindications, the most frequent were elevated ALT (24.7%) and renal replacement therapy (6.5%). There were no significant associations with 1-year mortality for maximum dose tolerance (49.3% vs. 44.4%; p = 0.958), occurrence of adverse events (42.9% vs. 50.8%; p = 0.751), or the presence of a relative contraindication (57.1% vs. 45.8%; p = 0.291).
Conclusions: Levosimendan appears to be a well-tolerated and safe option in CS, with modest efficacy in facilitating inotrope withdrawal. Failure to tolerate the maximum dose, occurrence of adverse events, or presence of relative contraindications were not significant predictors of worse 1-year mortality outcomes.

PO 135. ALERT SCORE: A NOVEL TOOL TO PREDICT ADVERSE OUTCOMES IN CARDIOGENIC SHOCK DURING CATHETERIZATION

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Introduction: Cardiogenic shock complicates ~10% of acute myocardial infarctions, with an estimated mortality of 40-50%. Although evidence remains limited, mechanical circulatory support devices may improve outcomes in this setting. Identifying which patients would benefit from mechanical support versus those adequately managed with medical therapy alone remains challenging.

	Composite endpoint (n=21)	No composite endpoint (n=30)	p-value
Demographics			
Age (years)	72.5 ± 10.6	65.6 ± 11.6	0.024
Female gender	10	7	0.070
Weight (kg)	71.5 ± 12.2	72.1 ±9.1	0.342
Body mass index (kg/m^2)	25.9 ± 4.0	26.1 ±3.1	0.487
Previous medical history			
Heart failure	3	3	0.640
Diabetes	7	8	0.607
Arterial hypertension	14	19	0.806
Dyslipidaemia	9	16	0.944
Smoking	4	12	0.112
Overweight	8	14	0.543
Known coronary disease	2	8	0.129
Assessment upon admission			
EKG meeting STEMI criteria (n)	19	19	0.206
Killip-Kimball Classification (n) I II III IV	 4 4 3 9	 16 5 0 2	0.002
Systolic blood pressure (mmHg)	116.6 ± 23.0	124.0 ± 26.2	0.487
Diastolic blood pressure (mmHg)	66.4 ± 12.8	77.6 ± 12.5	0.021
Heart rate on admission (bpm)	88.7 ± 22.6	74.0 ± 17.1	0.041
Time from symptom onset to emergency department arrival ≤1 hour 1-4 hours 4-12 hours >12 hours	 1 8 6 2	 0 8 8 2	0.739
Time from emergency arrival to catheterization ≤30 minutes 30 minutes to 1 hour 1 to 4 hours >4 hours	 4 10 4 2	 4 9 3 2	0.993
First laboratory test results			
Lactate levels (mmol/L)	5.4 ± 4.0	2.0 ± 1.9	0.026
Creatinine (mg/dL)	1.4 ± 0.7	1.2 ± 1.3	0.169
Maximal high-sensitivity Troponin I (ng/L)	23031 ± 39192	8523 ± 19701	0.085
Haemoglobin (g/dL)	13.9 ± 2.2	14.5 ± 1.4	0.435
High-sensitivity C-reactive protein (mg/dL)	3.6 ± 4.5	1.4 ± 2.1	0.083
Catheterization information			
Urgent procedure (n)	21	22	0.010
Duration of the procedure (minutes)	72.9 ± 29.5	88.8 ±39.6.3	0.177
Contrast administered (mL)	385.2 ± 401.8	209.8 ± 170.3	0.962
Number of diseased major vessels (n)	2.0 ± 0.7	1.8 ±0.7	0.484
Culprit artery Right coronary Anterior descending Circumflex Left main Obtuse marginal	 5 15 1 0 0	 11 13 4 1 1	0.314
Complications related with the procedure	1	1	0.796

Objectives: To identify pre-catheterization predictors of adverse outcomes and develop a scoring system to aid in early identification of patients who may require mechanical circulatory support.
Methods: Retrospective data from January 2023 to June 2025 were collected for catheterizations requiring intra-procedural vasopressors. Demographic, clinical, and laboratory data available prior to catheterization were collected from medical records. The primary composite endpoint comprised intraprocedural death, in-hospital death, or sustained shock > 24 hours. Group comparisons were conducted using Chi-square and Mann-Whitney U tests, with $p < 0.05$ considered statistically significant. Significant variables informed the ALERT Score. Logistic regression evaluated score-outcome associations, and predictive performance was assessed via receiver operating characteristic (ROC) curve analysis and area under the curve (AUC).
Results: A total of 51 patients were included, 43 (84.3%) undergoing urgent procedures; 17 women (33.3%), with a mean age of 68.5 ± 11.6 years. The composite endpoint occurred in 21 (41.2%). Adverse outcomes were associated with age, DBP, heart rate, lactate, procedural urgency, and Killip class. ROC cut-offs: age > 69.5y (Sn 71.4%, Sp 70%), DBP < 57 mmHg (Sn 100%, Sp 73.7%), HR > 92.5 bpm (Sn 47.4%, Sp 87%), lactate > 2.2 mmol/L (Sn 77.8%, Sp 83.3%). The ALERT Score (0-6) assigned 1 point per criterion: age ≥ 70 years, DBP < 57 mmHg, HR ≥ 93 bpm, urgent procedure, Killip ≥ III, lactate > 2.2 mmol/L. Patients with adverse outcomes had higher scores (3.3 ± 1.4 vs. 1.2 ± 0.9; $p < 0.001$). Higher scores strongly predicted the composite endpoint (OR 4.86; $p < 0.001$, 95%CI 2.05-11.5). ROC analysis showed excellent discrimination (AUC 0.886; $p < 0.001$; 95%CI: 0.794-0.977).
Conclusions: The ALERT Score, based on six pre-catheterization variables, predicts adverse outcomes in patients needing intra-procedural vasopressors and may guide early mechanical support decisions. Larger prospective studies are needed to validate the score and determine its role in guiding mechanical support implementation.

PO 136. PREDICTORS AND CLINICAL IMPACT OF INVASIVE MECHANICAL VENTILATION IN CARDIOGENIC SHOCK PATIENTS

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Introduction: Invasive mechanical ventilation (IMV) is a respiratory support used in patients with cardiogenic shock (CS) to reduce work of breathing and mitigate secondary organ dysfunction. Despite its clinical importance, the determinants leading to IMV initiation in CS and the extent to which IMV independently influences outcomes remain insufficiently defined.
Objectives: The aim of the study was to predict IMV use and to evaluate its impact on CS patients.
Methods: Retrospective analysis of CS patients in a cardiac unit in 5 years was conducted. Demographics, comorbidities, diagnosis, analytic data at presentation, SCAI classification, clinical and analytic data at admission, additional support, and in-hospital mortality were registered. Patients who needed IMV were compared to patients without IMV. Chi-square, Mann-Whitney, Kruskal-Wallis and logistic regression were used.
Results: In 175 patients with CS, IMV was needed in half of the patients (n = 89, 50.9%). A comparison of patients with and without IMV is in Table 1. Age was lower in patients submitted to IMV (60 [19] *versus* 73 [19] years old, $p < 0.001$). Regarding comorbidities, smoking habits were associated with higher need of IMV (OR = 2.318, p = 0.009) and history of heart failure (OR = 0.380, p = 0.016) and atrial fibrillation (OR = 0.242, p = 0.006) with lower need. SCAI classification correlated with IMV ($R^2 = 0.193$, $p < 0.001$). Lower systolic blood pressure at admission ($p < 0.001$) and NTproBNP (p = 0.021) and higher lactate levels ($p < 0.001$) were verified in patients submitted to IMV. In the multivariate logistic analysis ($R^2 = 0.411$, $p < 0.001$), IMV use was independently predicted by

Table 1. Characteristics of patients with and without invasive mechanical ventilation

Characteristics	Total (n = 175)	No IMV (n = 86)	IMV (n = 89)	p value
Age, years, median [IQR]	67 [23]	73 [19]	60 [19]	**<0.001**
Female sex, n (%)	47 (26.9%)	26 (30.2%)	21 (23.6%)	0.394
Hypertension, n (%)	101 (57.7%)	56 (65.1%)	45 (50.6%)	0.066
Dyslipidemia, n (%)	99 (56.6%)	53 (61.6%)	46 (51.7%)	0.233
Diabetes, n (%)	61 (34.9%)	34 (39.5%)	27 (24.7%)	0.209
Active smoking, n (%)	75 (42.9%)	28 (32.6%)	47 (52.8%)	**0.009**
Obesity, n (%)	52 (29.7%)	27 (31.4%)	25 (28.1%)	0.741
Family history of CV disease, n (%)	9 (5.1%)	4 (4.7%)	5 (5.6%)	0.772
Heart failure, n (%)	37 (21.1%)	25 (29.1%)	12 (13.5%)	**0.016**
Coronary artery disease, n (%)	39 (22.3%)	18 (20.9%)	21 (23.6%)	0.719
Atrial fibrillation/flutter, n (%)	22 (12.6%)	17 (19.8%)	5 (5.6%)	**0.006**
Diagnosis				0.568
Acute coronary syndrome, n (%)	112 (64.0%)	54 (62.8%)	58 (65.2%)	
Acute heart failure, n (%)	32 (18.3%)	21 (24.5%)	11 (12.4%)	
Electrical storm, n (%)	9 (5.1%)	2 (2.3%)	7 (7.9%)	
Myocarditis, n (%)	5 (2.9%)	0 (0.0%)	5 (5.6%)	
Progression of valvular disease, n (%)	5 (2.9%)	2 (2.3%)	3 (3.4%)	
Complete atrioventricular block, n (%)	5 (2.9%)	5 (5.8%)	0 (0.0%)	
Tachycardiomyopathy, n (%)	3 (1.7%)	2 (2.3%)	1 (1.1%)	
Cardiomyopathy (other), n (%)	4 (2.3%)	0 (0.0%)	4 (4.4%)	
SCAI classification				**<0.001**
Stage A, n (%)	14 (8.0%)	11 (12.8%)	3 (3.4%)	
Stage B, n (%)	28 (16.0%)	21 (24.4%)	7 (7.9%)	
Stage C, n (%)	65 (37.1%)	30 (34.9%)	35 (39.3%)	
Stage D, n (%)	41 (23.4%)	20 (23.3%)	21 (23.6%)	
Stage E, n (%)	27 (15.4%)	4 (4.6%)	23 (25.8%)	
Left ventricle ejection fraction				0.152
Preserved	28 (16.0%)	17 (19.8%)	11 (12.4%)	
Mildly reduced	13 (7.4%)	4 (4.7%)	9 (10.1%)	
Moderately reduced	48 (27.4%)	28 (32.5%)	20 (22.5%)	
Severely reduced	86 (49.1%)	37 (43.0%)	49 (55.0%)	
Analytic data at admission				
Systolic BP, mmHg, median [IQR]	100 [45]	101 [30]	80 [115]	**<0.001**
NTproBNP, pg/mL, median [IQR]	5888 [11169]	7404 [16443]	4202 [9378]	**0.021**
High sens T troponin, ng/L, median [IQR]	499 [3009]	361 [1883]	547 [6469]	0.055
Lactate, U/L, median [IQR]	2.9 [4]	2.1 [3]	4.2 [6]	**<0.001**
Additional support				
Renal replacement therapy	22 (12.6%)	6 (7.0%)	16 (18.0%)	**0.039**
Mechanical circulatory support	74 (42.3%)	29 (33.7%)	45 (50.6%)	**0.032**
Mortality outcomes				
Death at 30 days, n (%)	69 (39.4%)	28 (32.6%)	41 (46.1%)	0.089
Death at 1 year, n (%)	75 (42.9%)	31 (36.0%)	44 (49.4%)	0.093

Figure PO 136

age (p = 0.006), SCAI classification (p = 0.027) and blood pressure (p = 0.042). Renal replacement therapy (OR = 2.922, p = 0.039) and mechanical circulatory support use (OR 2.010, p = 0.032) were higher in IMV patients. Mortality did not differ significantly between patients with and without IMV.
Conclusions: In this cohort of patients with CS, IMV was required in approximately half of cases. Younger age, higher SCAI shock stage, and lower systolic blood pressure independently predicted the need for invasive ventilatory support. Patients requiring IMV also demonstrated more severe clinical and analytic derangement and more frequently required advanced supportive therapies. Despite these indicators of greater illness severity, in-hospital mortality did not significantly differ between patients with and without mechanical ventilation. These findings highlight key predictors of ventilatory need and suggest that IMV itself may serve as a marker of disease severity rather than adversely influence on survival in CS.

PO 137. CATHETER BASED LEFT VENTRICULAR ASSISTANCE WITH IMPELLA®: AN EIGHT YEAR SINGLE CENTRE EXPERIENCE IN HIGH-RISK PCI AND CARDIOGENIC SHOCK

Didier Martinez, Tatiana Santos, Maria João Primo, Ana Rita Ventura, Inês Brito e Cruz, Gonçalo Costa, Elisabete Jorge, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Catheter-based left ventricular assist devices, particularly the Impella® system, are increasingly used to provide haemodynamic support in cardiogenic shock (CS) and high-risk percutaneous coronary intervention (HR-PCI). We sought to characterise our single-centre experience and outcomes in patients supported with Impella® between 2017 and 2025, and to compare those treated for CS with patients undergoing HR-PCI.
Methods: We retrospectively analysed all consecutive patients receiving Impella® support between July 2017 and 2025. Clinical, laboratory, echocardiographic, angiographic and procedural data were collected. Coronary artery disease burden was graded using the British Cardiovascular Intervention Society Jeopardy Score (BCIS-JS). Follow-up data on major adverse cardiovascular events (MACE), heart-failure admissions, New York Heart Association (NYHA) functional class and survival were obtained where available. Patients were stratified by indication (HR-PCI vs. CS).
Results: Forty-four patients were included (mean age 67.6 ± 11.4 years; 33 (75.0%) male). Indications were HR-PCI in 35 (77.7%) and CS in 9 (21.0%). Most presented with chronic coronary syndrome (25, 57.0%), while 16 (36.3%) had acute coronary syndrome. Multivessel disease was present in 28 (62.2%) and left-main involvement in 12 (26.7%). Mean left ventricular ejection fraction was 30.9 ± 12.1%, and median BCIS-JS was 8. Hypertension was common (32, 71.1%) and significantly more frequent in HR-PCI than CS patients (p = 0.005). Stroke occurred in 2 patients (4.4%) and major haemorrhage in 7 (15.6%). Lower-limb ischaemia, access-site pseudoaneurysm, haemolysis and infection occurred in 1 (2.2%), 2 (4.4%), 2 (4.4%) and 1 (2.2%) patient, respectively. In-hospital mortality was 32.0% and significantly higher in patients supported for CS than in those undergoing HR-PCI (CS: 7 [77.78%] vs. HR-PCI 2 [5.71%], p < 0.001). There were no differences regarding complications. Composite endpoint of MACE, heart failure admissions and death occurred in only 6 patients (17.10%).
Conclusions: Over an eight-year period, Impella® supported catheter-based left ventricular assistance was a feasible strategy to enable HR-PCI in patients with complex coronary artery disease and markedly impaired left ventricular function, with relatively low rates of stroke, major bleeding and adverse mid-term outcomes among survivors. In contrast, patients receiving Impella® for established CS experienced very high in-hospital mortality and a concentration of early adverse events, underscoring that the benefit of Impella® in CS remains uncertain and should be considered within a framework of careful patient selection and multidisciplinary decision-making.

PO 138. SEX-RELATED DIFFERENCES IN ETIOLOGY, MANAGEMENT, AND OUTCOMES OF CARDIOGENIC SHOCK

Márcia José Oliveira Presume, Maria Inês Soares, Rita Barbosa, Catarina Santos-Jorge, Rui Miguel Gomes, Samuel Azevedo, Rita Carvalho, Margarida Matias, Ana Rita Bello, João Presume, Jorge Ferreira, Catarina Brízido

ULS Lisboa Ocidental/Hospital de Santa Cruz.

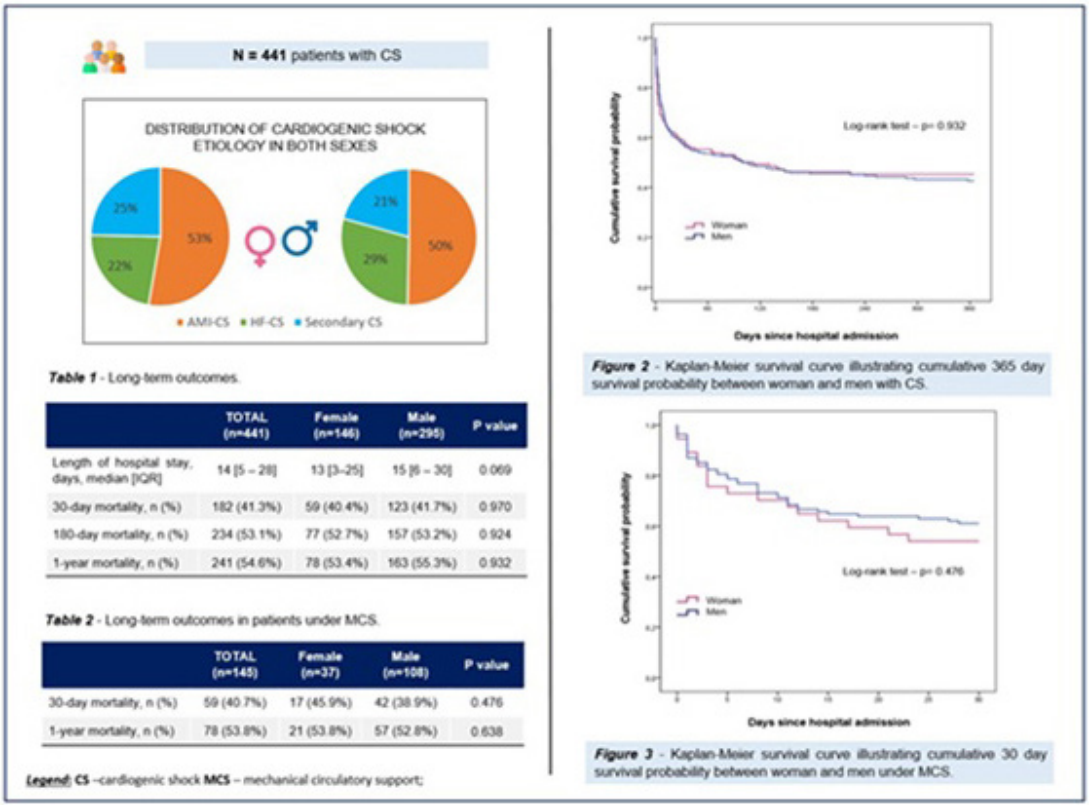


Figure PO 138

Introduction: Cardiogenic shock (CS) is a critical condition and a major cause of mortality despite advances in revascularization and mechanical circulatory support (MCS). Emerging evidence highlights important sex-related differences. Therefore, understanding these disparities is essential.
Objectives: This study aimed to evaluate sex-related differences among patients with CS admitted to our center.
Methods: We conducted a single-center retrospective analysis of CS patients admitted between 2016 and 2025 at our center. A descriptive evaluation including comorbidities, etiology, and management was performed. Additionally, sex-related differences in mortality were assessed.
Results: A total of 441 patients with CS were included, 146 woman and 295 men. Median age was 67 years [57-78.5]; women were older (71 vs. 67 years; p = 0.036), had higher BMI (p = 0.002), and smaller body surface area (p < 0.001). Smoking was more frequent in men (p < 0.001), who also had higher rates of prior acute myocardial infarction (AMI) (p = 0.009), prior PCI (p = 0.011), peripheral arterial disease (p = 0.008), COPD (p = 0.011), and device implantation (ICD p = 0.002; CRT p = 0.048). Regarding etiology, AMI-CS was predominant and comparable between sexes (52.7% vs. 50.5%; p = 0.659). Acute on chronic CS occurred in 30.4% of patients (26.7% vs. 32.2%; p = 0.238). Most patients presented with SCAI stage C (28.4% VS 30%) or D (38.7% and 36.5%), with no differences between sexes (p = 0.394). Use of MCS was more frequent in men (36.6% vs. 25.3%; p = 0.018). VA-ECMO rates were comparable (11% vs. 15.9%; p = 0.160), but venting was used more often in men (5.5% vs. 11.5%; p = 0.042). Inotropes were nearly universal (97.7%), with the use of > 3 agents being more frequent in men (17.8% vs. 27.8%; p = 0.022), as levosimendan (13.7% vs. 24.1%; p = 0.011). Invasive mechanical ventilation was less frequent in women (46.6% vs. 57.6%; p = 0.028). Peak creatinine and CRP were higher in men (p = 0.007 and p = 0.002, respectively), whereas nadir Hb, minimum platelets and minimum eGFR did not differ (p > 0.05). Lactate at presentation was similar between sexes (3.1 vs. 3.2 mmol/L; p = 0.890). Median hospital stay was 14 days (p = 0.069). Overall mortality was 57.4%, similar between sexes (55.5% vs. 58.3%; p = 0.572). 30-day and 1-year mortality were also comparable (40.4% vs. 41.7% and 53.4% vs. 55.3%; both p > 0.05). Kaplan-Meier survival showed no significant difference in survival (*log-rank* p > 0.05). In the MCS subgroup (n = 145), women showed numerically higher 30-day mortality (45.9% vs. 38.9%), though not statistically significant (p > 0.05).
Conclusions: In this cohort, women with CS presented at an older age and with fewer comorbidities, with no major sex-related differences in etiology or initial severity. They received MCS less frequently. Short- and long-term mortality were similar between sexes, despite numerically higher early mortality in women treated with MCS.

Sexta-feira, 24 Abril de 2026 | 16:30-17:25

Área de Posters - Ecrã 2 | Sessão de Posters 24 - Endocardite infeciosa: estratificação de risco, tratamento e desfechos

PO 139. SUPERIOR PREDICTIVE VALUE OF THE MODIFIED AEPEI SCORE IN SURGICAL INFECTIVE ENDOCARDITIS: INSIGHTS FROM AN 8-YEAR COHORT

Rodrigo Neves Brandão, Inês Madeira Santos, Luís Cotrim, Tiago Mesquita, Inês Pereira Miranda, Filipa Gerardo, Carolina Mateus, Miguel Santos

ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca.

Introduction: Risk stratification in infective endocarditis (IE) remains challenging, particularly in the perioperative setting where early postoperative mortality is substantial. Several prognostic models have been proposed, including IE-specific scores (modified AEPEI, PALSUSE) and classical cardiac surgery scores (logistic EUROSCORE and EUROSCORE II).
Objectives: Comparatively evaluate the performance of these four models in predicting early postoperative mortality in patients undergoing surgery for IE, including a stratified analysis for native valve endocarditis (NVE) and prosthetic valve endocarditis (PVE).
Methods: Single center, retrospective, observational study including IE patients between January 2017 and October 2025. The modified AEPEI, PALSUSE, logistic EUROSCORE, and EUROSCORE II were calculated for all patients. The primary endpoint was early all-cause mortality (defined as in-hospital mortality or early post-op mortality - death within the first month). Discriminatory ability was assessed using ROC-AUC analysis, and independent predictors were identified through multivariable logistic regression. A stratified analysis was also performed for NVE and PVE.
Results: From a total of 183 patients, 55% (n = 100) were male and the mean age was 69.5 ± 11.9 years. From the latter, 126 had surgical indication. Modified AEPEI score demonstrated the best discriminative performance (AUC 0.715; OR: 2.06; 95%CI [1.36, 3.12]; p < 0.001) and was the only independent predictor of early mortality in the multivariable model (OR 2.044; 95%CI [1.32, 3.16]; p = 0.001). The PALSUSE score showed moderate discrimination (AUC 0.613; OR: 1.33; 95%CI [1.00, 1.78]; p = 0.048). Classical surgical scores performed worse: logistic EUROSCORE (AUC 0.608; OR: 1.01; 95%CI [0.99, 1.03; p = 0.016) and EuroSCORE II (AUC 0.610; OR: 1.03; 95%CI [1.00, 1.07]; p = 0.047). In NVE, only the modified AEPEI (AUC 0.679; OR.1.80; 95%CI [1.12, 2.88] p = 0.014) and PALSUSE (AUC 0.660; OR: 1.71; 95%CI [1.09, 2.68]; p = 0.020) remained significant, though with low sensitivity. In PVE, the modified AEPEI score clearly outperformed all others (AUC 0.770; OR: 2.87; 95%CI [1.14, 7.22]; p = 0.025) and was the only significant independent predictor in multivariable analysis (p = 0.035), whereas PALSUSE and EuroSCOREs offered no discriminative value.
Conclusions: The modified AEPEI score emerged as the strongest and most consistent predictor of early postoperative mortality in patients undergoing surgery for IE, outperforming all other scores both in the overall surgical population and within disease subtypes, particularly in PVE. Curiously, PALSUSE showed mild usefulness confined to NVE. These results reinforce the need for dedicated disease-specific prognostic models in this high-risk population instead of general surgical risk scores.

PO 140. EFFECTIVENESS OF A STRUCTURED MULTIDISCIPLINARY TEAM IN IMPROVING OUTCOMES IN INFECTIVE ENDOCARDITIS

Bárbara Antunes Rocha, João Faria, Carla Ferreira, Filipe Vilela, Mónica Dias, Sofia Fernandes, Inês Conde, Rita Marques, Luísa Graça, Juliana Martins, Alberto Salgado, Carlos Galvão Braga

ULS Braga/Hospital de Braga.

Introduction: Infective endocarditis (IE) carries substantial morbidity and mortality, and multidisciplinary care is recommended in contemporary guidelines. Endocarditis Teams aim to optimise diagnostic pathways, antimicrobial therapy, timing of surgery, and overall outcomes. A multidisciplinary Endocarditis Team composed of specialists in Cardiology, Internal Medicine, and Infectious Diseases was implemented in our centre. This study evaluated its impact on clinical management, complications, and mortality.
Methods: We conducted a retrospective cohort study of consecutive adults diagnosed with IE between April 2021 and July 2025, with a minimum follow-up of three months. Patients were stratified into pre-team (n = 52) and post-team (n = 94) groups. Baseline characteristics, microbiology, imaging use, treatment pathways, and complications were compared. Mortality was assessed using chi-square analysis and multivariable logistic regression adjusting for age, sex, prosthetic valve, Staphylococcus aureus infection, and stroke. Risk ratios (RR) were also calculated.
Results: Baseline demographics and clinical features were similar between groups, with no significant differences in sex distribution, age, prosthetic valve prevalence, *S. aureus* infection (42.3% vs. 23.4%, p = 0.17), or surgical rates (40.4% vs. 47.9%, p = 0.393). Length of hospital stay, time to antibiotic initiation, duration of antibiotic therapy, time to advanced imaging, and time from surgical indication to operation showed no significant differences.

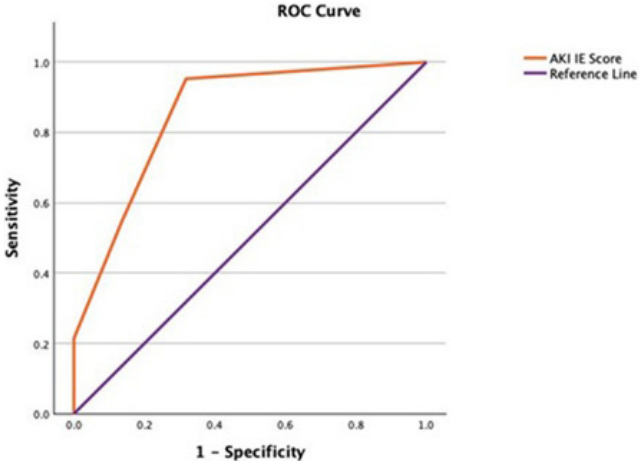
Rates of cardiac, neurological, pulmonary, abdominal, limb, or other complications were also comparable (all p > 0.05). However, mortality was significantly lower after the introduction of the multidisciplinary Endocarditis Team (chi-square p = 0.002). In adjusted analysis, team implementation remained independently associated with reduced mortality (OR 0.393, 95%CI 0.181-0.853; p = 0.018), corresponding to a relative risk reduction of approximately 60% (RR 0.328). IE recurrence remained infrequent and similar across groups (1.9% vs. 5.3%, Fisher p = 0.422).
Conclusions: The introduction of a structured multidisciplinary Endocarditis Team was independently associated with a significant reduction in mortality. Given that baseline characteristics, microbiological patterns, complications, and management timelines were similar between groups, the mortality benefit is unlikely to reflect differences in case severity. Instead, it likely stems from improved diagnostic supervision, more systematic antimicrobial optimisation, and greater consistency with guideline-directed care. These findings support the routine integration of multidisciplinary teams as an effective strategy to improve outcomes in infective endocarditis.

PO 141. PREDICTING ACUTE KIDNEY INJURY IN PATIENTS WITH INFECTIVE ENDOCARDITIS: THE AKI-IE SCORE

João Gouveia Fiuza, Gonçalo R. M. Ferreira, Mariana Duarte Almeida, Francisco Rodrigues dos Santos, Oliver Kungel, Luís Afonso Santos, Júlio Gil, António Costa

ULS Viseu Dão-Lafões/Hospital de São Teotónio.

Introduction: Acute kidney injury (AKI) affects a significant proportion of patients with infective endocarditis (IE) and is associated with increased mortality. Early identification of high-risk patients could enable targeted preventive strategies.



Objectives: To determine the prevalence of AKI in IE, identify baseline predictors, and develop a simple risk stratification score.
Methods: Retrospective single-centre cohort of 64 consecutive patients with blood culture-positive IE over a 5-year period. AKI was defined by KDIGO criteria. Baseline variables included demographics, comorbidities, risk scores and laboratory parameters. Multivariable logistic regression identified independent predictors. A simplified risk score was derived.
Results: Mean age was 69 ± 12 years, 67% male. AKI occurred in 42 patients (65.6%). In-hospital mortality (IHM) was 25%. Patients with AKI were significantly older (72 ± 12 vs. 62 ± 9 years, p < 0.001), had higher qSOFA (1.1 ± 1.0 vs. 0.1 ± 0.4, p < 0.001), SOFA (5.1 ± 3.5 vs. 2.8 ± 2.1, p = 0.007) and SHARPEN scores (11.4 ± 2.0 vs. 8.4 ± 1.9, p < 0.001), and more often had prior heart failure (40.5% vs. 13.6%, p = 0.045). Baseline creatinine, echocardiographic parameters, white blood cell and platelet counts, liver enzymes and vegetation size were similar between groups. In multivariable analysis, independent predictors were age (OR 1.11 per year, p = 0.005) and qSOFA (OR 8.51 per point, p = 0.008). Prior heart failure was not independently associated with AKI (OR 3.04, p = 0.205). The AKI-IE Score incorporated age ≥ 70 years (1 point), prior heart failure (1 point; retained for clinical relevance and consistency with its univariable association) and qSOFA ≥ 1 (2 points). In this cohort, observed scores ranged from 0 to 3 points. The score demonstrated excellent discrimination (area under the curve 0.854, p < 0.001) and stratified patients into three risk groups: low risk (score 0, 12% AKI incidence, n = 17), high risk (score 1, 81% incidence, n = 21; and score 2, 82% incidence, n = 17) and very high risk (score 3, 100% incidence, n = 9). For identifying patients requiring intensified prevention (score ≥ 2), specificity was 86% and positive predictive value 88%, with sensitivity 55%. IHM was higher in patients with AKI (33.3% vs. 9.1%, OR 5.0, p = 0.038).
Conclusions: AKI affects two-thirds of IE patients and confers a 5-fold increase in IHM. The AKI-IE Score uses three readily available baseline variables to stratify patients into three distinct risk groups. This simple tool may support rational allocation of preventive measures and intensive monitoring to high-risk patients.

PO 142. INFECTIVE ENDOCARDITIS: EPIDEMIOLOGY AND PROGNOSIS OF A CONTEMPORARY COHORT

João Pedro Ferreira Faria[1], Bárbara Antunes Rocha[1], Vera Araújo[2], Carla Oliveira Ferreira[1], Filipe Silva Vilela[1], Mónica Dias[1], Sofia Fernandes[1], Inês Conde[1], Catarina Vieira[1]

[1]ULS Braga/Hospital de Braga. [2]Escola de Medicina da Universidade do Minho.

Introduction: Infective Endocarditis (IE) remains a life-threatening disease whose incidence and mortality have not declined despite advances in diagnostics and management. This study aimed to characterize contemporary IE cases and identify predictors of in-hospital mortality and survival at one and five years after the acute event.
Methods: This retrospective cohort study included patients hospitalized at a tertiary hospital with definite or possible IE between January 2014 and December 2020. Demographic, clinical, microbiological, imaging, therapeutic, and outcome data were analyzed using univariate and multivariate logistic regression to identify variables associated with and determine independent predictors of in-hospital death. Survival was estimated using Kaplan-Meier analysis.
Results: The study included 158 patients (mean age 64.9 ± 15.9 years, 63.3% male). IE was community-acquired in 60.1%, healthcare-associated in 36.1%, and related to intravenous drug use in 3.8%. The most frequent predisposing cardiac factor was prosthetic valve material (29.1%), although native valves were more often involved (70.3%) than prosthetic valves (17.1%). *Staphylococcus aureus* (33.9%) and *Enterococcus* spp. (16.1%) were the most frequently isolated agents. Severe valvular regurgitation occurred in 57.5%. Cardiac surgery was indicated in 55.7% but performed in only 32.3%. Major in-hospital complications included severe valve dysfunction (46.8%), embolic events (43.7%), and acute kidney injury (38.0%). In-hospital mortality was 32.9%, mainly due to multiorgan failure and septic shock. Independent predictors of in-hospital death were age ≥ 65 years (OR = 2.43, p = 0.046), hypertension (OR = 2.96, p = 0.032), constitutional symptoms (OR = 4.53, p = 0.010), leukocytosis (OR = 2.90, p = 0.008), and left-ventricular dysfunction (OR = 4.66, p = 0.016). Post-discharge mortality reached 16.3% at 1 year and 44.9% at 5 years.
Conclusions: In patients with IE, in-hospital mortality remains high, largely reflecting disease severity and lower-than-expected cardiac surgery rate. Early identification of high-risk patients may guide closer monitoring and expedite surgical management, potentially improving outcomes.

PO 143. NATIVE VS. PROSTHETIC/DEVICE ENDOCARDITIS: A COMPARATIVE ANALYSIS

Joana Guerreiro Pereira, Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Raquel Menezes Fernandes, Pedro de Azevedo, Jorge Mimoso

ULS Algarve/Hospital de Faro.

Introduction: Infective endocarditis (IE) in prosthetic valves or cardiac devices (PV/D-IE) is increasingly prevalent and often perceived as more severe than native-valve IE (NV-IE).
Objectives: To compare EI patients with or without PV/D regarding clinical characteristics, management and outcomes.
Methods: Retrospective analysis of patients diagnosed with IE between January 2017 and December 2024 in our Hospital. Patients were stratified as NV-IE or PV/D-IE. Clinical characteristics, microorganisms, complications, organ support, surgical management and outcomes were assessed. Group differences were evaluated and Cox regression explored predictors of mortality.

Results: Among 87 patients with a median age of 62,7 years-old, 73 had NV-IE (84%) and 14 had PV/D-IE (16%; of which 10 patients with PV-IE, 2 with D-IE and 2 with mixed PV+D-IE). PV/D-IE patients had more coronary artery disease (21% vs. 3%, p = 0.006), rheumatic heart disease (14% vs. 1%, p = 0.015) and peripheral artery disease (21% vs. 5%, p = 0.044). *Staphylococcus aureus* predominated in both groups (61% vs. 46%, p = 0.43). PV/D-IE showed a higher EuroSCORE II (23.5% vs. 3.5%, p < 0.001) and higher rates of abscess/fistula (54% vs. 19%, p = 0.007).Surgery was performed more frequently in PV/D-IE (64% vs. 37%, p = 0.057).There were no significant differences between groups regarding reoperation (33% vs. 13%, p = 0.14), recurrence (0% vs. 12%, p = 0.33), rehospitalization (44% vs. 31%, p = 0.43), or overall mortality (71% vs. 51%,

Table 1 – Demographic and clinical characteristics of patients with IE.

				Native Valve	Prothesis/Device	Total	P-value
				n=73 (84%)	n=14 (16%)	87	
Age (years)			*Mean±SD*	62.5 ± 15.1	68.9 ± 11.5	63.5 ± 14.7	0.13
Male			n (%)	50 (68%)	10 (71%)	60 (69%)	0.83
Medical History	Coronary disease		n (%)	2 (3%)	3 (21%)	5 (6%)	**0.006**
	Heart failure		n (%)	10 (14%)	3 (21%)	13 (15%)	0.46
	Congenital heart disease		n (%)	3 (4%)	0 (0%)	3 (3%)	0.44
	Reumathic heart disease		n (%)	1 (1%)	2 (14%)	3 (3%)	**0.015**
	Previous cardiac surgery		n (%)	4 (5%)	14 (100%)	18 (21%)	**<0.001**
	COPD/Asthma		n (%)	9 (12%)	2 (14%)	11 (13%)	0.84
	Hypertension		n (%)	36 (49%)	7 (50%)	43 (49%)	0.96
	Diabetes Mellitus		n (%)	19 (26%)	5 (36%)	24 (28%)	0.46
	Dyslipidemia		n (%)	22 (30%)	6 (43%)	28 (32%)	0.35
	Obesity		n (%)	7 (16%)	0 (0%)	7 (13%)	0.18
	Low weight (IM<18)		n (%)	1 (2%)	1 (10%)	2 (4%)	0.23
	Chronic kidney disease		n (%)	15 (21%)	2 (14%)	17 (20%)	0.59
	Peripheral artery disease		n (%)	4 (5%)	3 (21%)	7 (8%)	**0.044**
	Demencia		n (%)	2 (3%)	0 (0%)	2 (2%)	0.53
	Stroke		n (%)	8 (11%)	3 (21%)	11 (13%)	0.28
	Chronic liver disease		n (%)	6 (8%)	1 (7%)	7 (8%)	0.89
	Atrial fibrillation or flutter		n (%)	15 (21%)	5 (36%)	20 (23%)	0.22
	HIV infection		n (%)	3 (4%)	0 (0%)	3 (3%)	0.44
	Active Cancer		n (%)	6 (8%)	0 (0%)	6 (7%)	0.27
	Previous IE		n (%)	1 (1%)	0 (0%)	1 (1%)	0.66
Charlson index > 5			n (%)	20 (27%)	4 (29%)	24 (28%)	0.79
Cardiovascular device	Prosthetic heart valve		n (%)	4 (5%)	11 (79%)	15 (17%)	**<0.001**
	Transcatether heart valve		n (%)	2 (3%)	2 (14%)	4 (5%)	0.059
	PM/CRT/ICD		n (%)	3 (4%)	5 (36%)	8 (9%)	**<0.001**
Prosthetic heart valve	Aortic position	Mechanic valve	n (%)	1 (1%)	4 (29%)	5 (6%)	**<0.001**
		Biologic valve	n (%)	1 (1%)	6 (43%)	7 (8%)	
		Transcatether heart valve	n (%)	2 (3%)	1 (7%)	3 (3%)	
	Mitral position	Mechanic valve	n (%)	0 (0%)	2 (14%)	2 (2%)	**0.04**
		Biologic valve	n (%)	0 (0%)	1 (7%)	1 (1%)	
		Ring valve	n (%)	1 (1%)	0 (0%)	1 (1%)	
	Tricuspid position	Ring valve	n (%)	0 (0%)	1 (7%)	1 (1%)	**0.03**
Ability to perform daily activities	Independent on all activities		n (%)	59 (87%)	12 (86%)	71 (87%)	0.34
	Dependent on some activities		n (%)	4 (6%)	2 (14%)	6 (7%)	
	Dependent on most activities		n (%)	5 (7%)	0 (0%)	5 (6%)	
Endocarditis as the 1ª diagnosis			n (%)	28 (38%)	3 (23%)	31 (36%)	0.23
Location of the infection	Aortic position		n (%)	38 (52%)	11 (79%)	49 (56%)	0.11
	Mitral position		n (%)	30 (41%)	3 (21%)	33 (38%)	0.49
Positive blood cultures			n (%)	59 (83%)	13 (93%)	72 (85%)	0.35
Microorganisms	Staphylococcus aureus		n (%)	29 (46%)	8 (61%)	37 (49%)	0.43
	Enterococcus		n (%)	14 (22%)	1 (8%)	15 (19%)	
	Others		n (%)	20 (32%)	4 (31%)	24 (32%)	
Vegetation size ≥ 10 mm			n (%)	33 (73%)	4 (57%)	37 (71%)	0.38
Complications	Severe valve disfunction		n (%)	38 (52%)	7 (50%)	45 (52%)	0.89
	Abcess/Fistula		n (%)	14 (19%)	7 (54%)	21 (24%)	**0.007**
	Emboli		n (%)	32 (44%)	3 (21%)	35 (40%)	0.12
	Shock		n (%)	17 (24%)	3 (21%)	20 (23%)	0.86
	Continuous dyalisis		n (%)	2 (3%)	1 (7%)	3 (3%)	0.41
	Non Invasive Ventilation		n (%)	10 (14%)	0 (0%)	10 (11%)	0.14
Euroscore II			*Median (IQR)*	3.5 (2.0 – 5.8)	23.5 (13.8 – 40.6)	4.1 (2.2 – 10.1)	**<0.001**

p = 0.15), which remained high. In multivariable analysis, PV/D-IE was borderline significantly associated with increased mortality (HR 3.24, 95%CI 1.00-10.43, p = 0.049), along with Charlson index ≥ 3, shock, continuous dialysis, and need for non-invasive ventilation. Surgery was strongly protective (HR 0.18, 95%CI 0.07-0.42, p < 0.001). The interaction analysis between surgery and PV/D-IE was not significant (HR 4.01, 95%CI 0.70-22.9, p = 0.119), suggesting similar benefit of surgery in both subgroups.
Conclusions: Compared with NV-IE, PV/D-IE affects more comorbid patients and is associated with more invasive complications. Although all-cause mortality did not differ, PV/D-IE was independently associated with higher adjusted mortality. Surgical treatment remained the strongest protective factor across groups and no differential effect was observed in PV/D-IE. These findings highlight the need for early recognition and standardized Heart-Team assessment, particularly in patients with prosthetic heart material.

PO 144. SURGICAL SCORES PREDICTING MORTALITY IN NON-SURGICAL ENDOCARDITIS: UNEXPECTED STRENGTH IN LONG-TERM MORTALITY STRATIFICATION

Rodrigo Neves Brandão, Inês Madeira Santos, Luís Cotrim, Tiago Mesquita, Inês Pereira Miranda, Filipa Gerardo, Carolina Mateus, Miguel Santos

ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca.

Introduction: Risk stratification in infective endocarditis (IE) remains a major challenge, particularly among patients without surgical indication. Although several biomarkers and scores have been proposed to estimate short-term risk in IE patients, their prognostic relevance for long-term mortality is less well established. Most prognostic models applied in IE were originally developed to surgical cohorts, and their performance in patients managed conservatively is still unknown.
Objectives: Assess the efficacy of four surgical prognostic scores, originally developed for a surgical population, in predicting long-term mortality in patients with IE managed conservatively.
Methods: Retrospective single center analysis of patients hospitalized with IE from January 2017 until October 2025. Four scores discriminative performance for (1) a composite outcome of 6-month and 1-year mortality, (2) 6-month all-cause mortality, and (3) 1-year all-cause mortality was assessed using ROC-AUC analysis. Associations with mortality were evaluated using logistic regression, individually and in a multivariable model incorporating all scores simultaneously.
Results: From a total of 183 patients, 57 were managed conservatively. For the composite outcome, logistic EuroSCORE (AUC 0.71; OR: 1.04; 95%CI [1.0,1.06]; p = 0.014) and EuroSCORE II (AUC 0.70; OR: 1.06; 95%CI [1.0,1.11]; p = 0.037) demonstrated the highest discriminative ability, followed by PALSUSE (AUC 0.67; OR: 2.32; 95%CI [1.14,4.67]; p = 0.019); the modified AEPEI did not reach statistical significance (AUC 0.658; OR: 1.62; 95%CI [0.92, 2.82]; p = 0.089). Regarding 6-month mortality, logistic EUROSCORE (AUC 0.73; OR: 1.04; 95%CI [1.01,1.07]; p = 0.008), EuroSCORE II (AUC 0.72; OR: 1.07; 95%CI [1.01, 1.14]; p = 0.023) and PALSUSE (AUC 0.69; OR:2.56; 95%CI [1.23,5.38]; p = 0.012) were significant predictors. For 1-year mortality, PALSUSE exhibited the strongest predictive performance (AUC 0.72; OR: 2.97; 95%CI [1.33,6.63]; p = 0.008), followed by logistic EUROSCORE (AUC 0.70; OR: 1.03; 95%CI [1.0,1.06]; p = 0.022). In all timepoints, the modified AEPEI score showed limited discriminatory value and in multivariable model incorporating all scores only PALSUSE approached significance for 1-year mortality (p = 0.05).
Conclusions: In patients with IE managed without surgery, scores originally designed for surgical risk stratification-particularly logistic EUROSCORE and EUROSCORE II-demonstrated unexpectedly robust capacity to predict both «early» and late mortality, outperforming the IE-specific AEPEI model. Notably, PALSUSE emerged as a relevant score for long-term (1-year) predicted all-cause mortality. These findings suggest that in conservatively managed IE, long-term prognosis may be driven predominantly by baseline comorbidity and global physiological risk-domains better captured by surgical risk scores.

Sexta-feira, 24 Abril de 2026 | 16:30-17:25

Área de Posters - Ecrã 3 | Sessão de Posters 25 - Resultados e recorrência após ablação de FA

PO 145. TEMPORAL PROFILE OF EARLY ARRHYTHMIA RECURRENCE AND ITS IMPACT ON LONG-TERM RECURRENCE AFTER ABLATION FOR ATRIAL FIBRILLATION AND ATRIAL FLUTTER

Francisco Lemos Sousa, Francisca Martins Nunes, Maria Leonor Moura, Inês Rodrigues, António Gonçalves, André Lobo, Marta Catarina Almeida, Rafael Silva Teixeira, Paulo Fonseca, João Almeida, Marco Oliveira, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Early atrial arrhythmias are common after catheter ablation for atrial fibrillation (AF) and atrial flutter (AFL). While many early

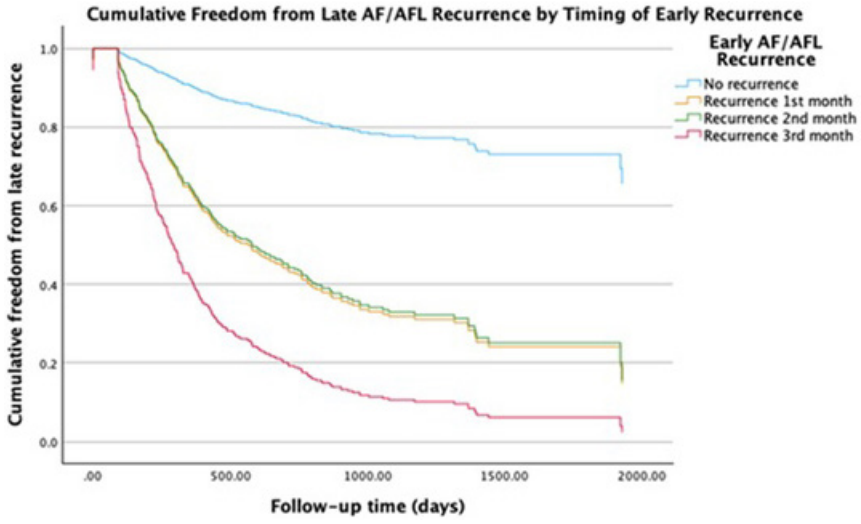


Figure PO 145

recurrences may reflect transient inflammation, others may indicate persistent arrhythmogenic substrates. Whether the timing of early recurrence within the blanking period carries different prognostic significance remains uncertain.
Objectives: To determine how AF/AFL recurrence in the 1st, 2nd, or 3rd month after ablation affects late AF/AFL recurrence.
Methods: We performed a retrospective study of patients undergoing AF/AFL ablation between 2017-2021. Demographics, comorbidities, AF/AFL characteristics, atrial measurements and procedural variables were collected. Early AF/AFL recurrence was categorised into four groups (no recurrence, recurrence in the 1st month, 2nd month or 3rd month post-ablation); recurrence ≥ 90 days was considered late recurrence. Prediction of late recurrence was assessed using Cox proportional hazards models.
Results: A total of 767 patients were included (mean age 58 ± 11 years); 275 (35.9%) were women and 592 (77.2%) had paroxysmal AF. Early recurrence occurred in 94 (12.2%). During a median follow-up of 25.3 months (IQR 17.3-36.7), 202 patients (26.3%) experienced late recurrence. In multivariable Cox analysis, early recurrence timing showed a graded prognostic impact: recurrence in the 1st month was associated with increased late recurrence risk (HR 4.54; 95%CI 3.15-6.54; p < 0.001), as was recurrence in the 2nd month (HR 4.40; 95%CI 2.44-7.96; p < 0.001). Recurrence in the 3rd month demonstrated the strongest association (HR 8.91; 95%CI 4.66-17.03; p < 0.001). Survival curves showed progressively earlier and steeper divergence from the non-recurrence group across months.
Conclusions: Early AF/AFL recurrence shows timing-dependent prognostic value. Recurrence in the 1st or 2nd month was similarly associated with higher late recurrence risk compared with no early recurrence, while recurrence in the 3rd month showed the strongest association. Timing-based assessment of early recurrence may support refined post-ablation risk stratification and follow-up planning.

PO 146. SAFETY AND EFFICIENCY OF SAME-DAY DISCHARGE AFTER ELECTIVE ATRIAL FIBRILLATION ABLATION: IMPACT OF VASCULAR CLOSURE DEVICES AND ABLATION TECHNIQUE

João Reis Sabido, Marta Vilela, Daniel Cazeiro, Diogo Ferreira, João Cravo, Inês Araújo, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Same-day discharge (SDD) following atrial fibrillation (AF) ablation is an emerging strategy to improve patient experience and optimize healthcare resources. Despite its potential benefits, concerns regarding safety and applicability across different ablation technologies remain.
Objectives: To evaluate the safety and feasibility of SDD after elective AF ablation and assess the influence of vascular closure devices and ablation modality on discharge timing.
Methods: We conducted a single-center retrospective study of AF patients undergoing ablation between January 2023 and November 2025. Pulmonary vein isolation (PVI) was the primary strategy, complemented by cavo-tricuspid isthmus (CTI) ablation in patients with atrial flutter. SDD was considered after a minimum 4-hour observation period, provided patients met predefined criteria: hemodynamic stability, absence of immediate complications, and adequate home support. Outcomes included 30-day emergency readmissions and complication rates.
Results: A total of 462 patients were included (pulsed field ablation [PFA] 50.9%, cryoablation [CA] 47.2%, radiofrequency 1.9%). Acute PVI success was 99.3%, and CTI ablation was performed in 20% of cases. Mean procedure time was 75.7 ± 35.8 min. SDD was achieved in 69.6% of patients, reflecting 81.7% of the procedures ending before 4 pm. Thirty-day emergency readmission rates were similar between SDD and overnight stay (ONS) groups (7.8% vs. 12.5%, p = 0.19), as were complication rates (0.4% vs. 2.6%, p = 0.07). SDD rates were comparable between PFA and CA (82.6% vs. 80.6%, p = 0.69). Vascular closure devices were used in 31.2% of cases, significantly reducing time to discharge compared to figure-of-eight suture (314 min vs. 344 min, p = 0.03).
Conclusions: SDD after elective AF ablation is safe and feasible with careful selected patients, without increasing 30-day complications or readmissions. Vascular closure devices further shorten discharge time, and outcomes are consistent across PFA and CA techniques. These findings support broader implementation of SDD protocols, provided structured selection criteria is ensured.

PO 147. EPICARDIAL FAT/BMI INDEX AS A PREDICTOR OF LATE AF RECURRENCE AFTER CATHETER ABLATION: INSIGHTS FROM A SINGLE-CENTRE STUDY

Francisca Martins Nunes, Leonor Moura, Francisco Lemos de Sousa, Inês Rodrigues, António Gonçalves, Marta Catarina Almeida, André Lobo, Inês Neves, Marta Leite, Rafael Teixeira, João Almeida, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Obesity is a major risk factor for atrial fibrillation (AF), partly through increased epicardial adipose tissue (EAT), which promotes atrial remodeling. Although higher epicardial fat volumes (EFV) correlate with AF burden, their prognostic value after ablation remains uncertain. Emerging data suggest that the metabolic disproportionality of EAT may better reflect arrhythmogenic risk. We aimed to assess whether an epicardial fat/BMI (EF/BMI) index improves prediction of late AF recurrence after ablation.
Methods: We performed a single-center retrospective study of AF patients undergoing catheter ablation (2017-2021) with available EAT measurements. EFV was quantified by cardiac CT, and EF/BMI was calculated as EFV/BMI (kg/m^2). Late recurrence was defined as AF beyond a 90-day blanking period. Continuous variables were expressed as mean ± SD or median, IQR. Group comparisons used t-test, Mann-Whitney U or chi-square tests. Variables associated with recurrence in univariate analysis entered a multivariable logistic regression model. Discriminative performance was assessed with ROC analysis.
Results: Among 383 patients, 26.3% developed late recurrence. Mean age was 57.4 ± 11.4 years and 64% were male. Recurrence was associated with higher EFV (77 [51-103] vs. 72 [49-96] mL; p = 0.022) and higher EF/BMI (3.05 [2.2-3.9] vs. 2.59 [1.9-3.5]; p = 0.021). In univariate analysis, EF/BMI showed a stronger effect (OR = 1.26; p = 0.006) than EFV (OR = 1.008; p = 0.006). The EF/BMI ROC curve yielded an AUC of 0.57 (p = 0.021). In multivariable

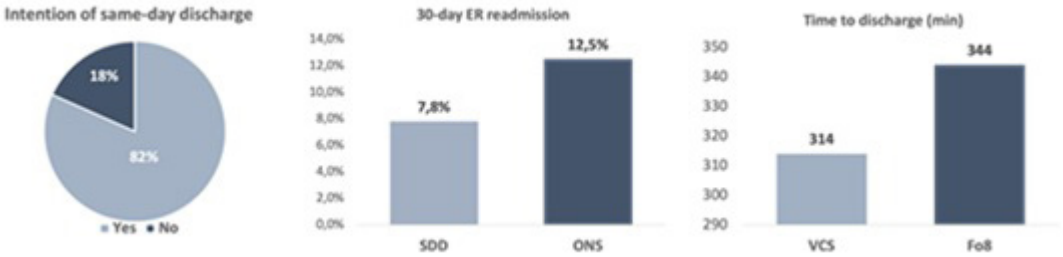


Figure PO 146

analysis, EF/BMI independently predicted recurrence (OR 1.25; p = 0.013), second only to AF phenotype (OR 2.61; p < 0.001). EFV lost significance when EF/BMI was included, reflecting collinearity. Discussion: These results highlight the mechanistic role of epicardial adiposity in post-ablation arrhythmogenic vulnerability. Relative fat burden (EF/BMI) provided incremental discriminatory value over absolute EFV, supporting the relevance of metabolic disproportionality in AF substrate remodeling. Although the AUC indicates modest standalone prediction, this aligns with other markers and underscores the potential benefit of integrating EF/BMI into multiparametric clinical models.
Conclusions: The EF/BMI index is a simple, reproducible metric that independently predicts late AF recurrence after catheter ablation. Further studies should validate these findings and define optimized thresholds to refine individualized AF risk stratification.

PO 148. DIAGNOSTIC PERFORMANCE OF PRE-PROCEDURAL LEFT ATRIAL SIZE AND STRAIN IN PREDICTING LONG-TERM ATRIAL FIBRILLATION RECURRENCE AFTER PULMONARY VEIN ISOLATION

Bárbara Lage Garcia, Emídio Mata, Filipa Castro, Luísa Pinheiro, Margarida de Castro, Daniela Ferreira, Joana Gomes, Sílvia Ribeiro, Lucy Calvo, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

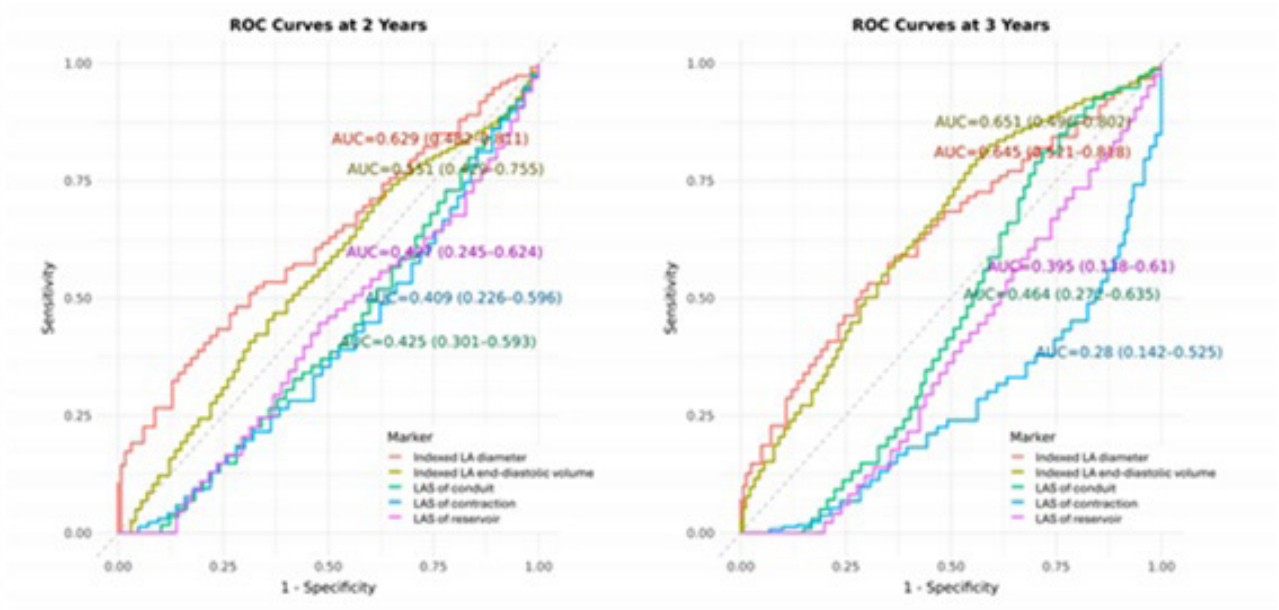
Introduction: Pulmonary vein isolation (PVI) is a key treatment for atrial fibrillation (AF), yet recurrences are common. Left atrial (LA) size and strain (LAS) reflect structural and functional remodeling and may help predict post-ablation outcomes.
Objectives: Evaluate the predictability of pre-procedural echocardiographic LA parameters in AF recurrence at 24 and 36 months after first-time PVI.
Methods: This retrospective, single-center study included patients with AF who underwent first-time PVI between 2015-2024 and had available pre-procedural echocardiogram. AF recurrence was determined by 12-lead ECG or Holter monitoring during follow-up. Time-dependent ROC analyses using the nearest-neighbor method assessed the predictive value of LA parameters for recurrence at 2 and 3 years, with AUCs, bootstrapped 95% confidence intervals (CI), and optimal cut-offs determined.
Results: The analysis included 72 patients. No differences were detected in comorbidities, except for higher prevalence of diabetes in AF recurrence (p = 0.003). Median time from echocardiography to PVI was 312 days (IQR 120-610), and median follow-up was 335.5 days (IQR 158.5-765.2). Annualized AF recurrence, from Kaplan-Meier analysis, was 19.9% per patient-year. At 2-years, indexed LA diameter showed the greatest discriminatory ability for predicting AF recurrence (AUC = 0.629 [0.482-0.811] cut-off = 22.2 mm/m²; 46.6% sensitivity; 73.4% specificity), followed by the indexed LA end-diastolic volume (AUC = 0.551 [0.429-0.755] cut-off = 35.3 mL/m²; 45.3% sensitivity; 64.5% specificity). LAS parameters showed limited predictive value, with AUCs below 0.45 across reservoir, conduit, and contraction phases. At 3 years, similar patterns were observed. Indexed LA diameter (AUC = 0.645 [0.521-0.818] cut-off = 21.5 mm/m²; 53.1% sensitivity; 69.8% specificity) and indexed LA volume (AUC = 0.651 [0.496-0.802] cut-off = 28.2 mL/m²; 79.7% sensitivity; 44.0% specificity) continued to outperform LAS-derived indices. Overall, structural LA measures demonstrated modest but superior predictive ability compared with LAS.
Conclusions: The modest predictive performance observed may reflect several limitations, including the small sample size, variable intervals between imaging and PVI and selection bias. These factors restrict the generalizability of the findings and the strength of conclusions on the prognostic value of LA parameters. Larger prospective studies are warranted to clarify the role of LAS in predicting AF recurrence after PVI.

PO 149. PATIENT-REPORTED QUALITY OF LIFE AFTER ATRIAL FIBRILLATION ABLATION: A REAL-WORLD STUDY

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

ULS Lisboa Ocidental/Hospital de Santa Cruz.

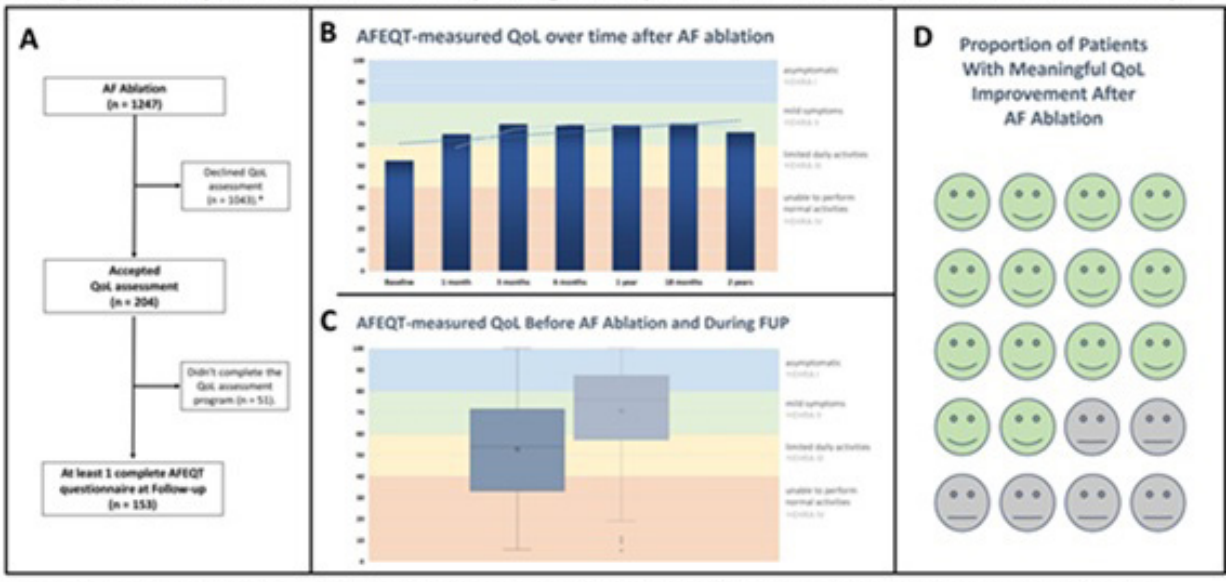
Introduction: Patients with atrial fibrillation (AF) often experience reduced quality of life (QoL), making patient-reported outcome measures (PROMs) essential in patient-centred care. Although catheter ablation improves symptoms, PROM-based QoL outcomes remain variably reported. We



Diagnostic performance of pre-procedural left atrial (LA) size and strain parameters in predicting long-term atrial fibrillation recurrence after pulmonary vein isolation. Receiver-operating characteristic (ROC) curves at 2 years (left) and 3 years (right) are shown for indexed LA diameter, indexed LA end-diastolic volume, and LA strain (LAS) components of reservoir, conduit, and contraction function. Effect estimates are expressed as area under the curve (AUC) with 95% confidence intervals. Indexed LA diameter and LA volume demonstrated the highest discriminatory ability at both follow-up time points

Figure PO 148

Figure 1. Quality of life (QoL) improvement after atrial fibrillation (AF) ablation assessed by the AFEQT score. (A) Flowchart of QoL assessment with AFEQT questionnaire after AF ablation. (B) Longitudinal evolution of QoL from baseline to two years post-ablation, showing a progressive increase in AFEQT scores over time. Background color bands illustrate the approximate correspondence between AFEQT values and EHRA symptom status. (C) Distribution of AFEQT scores before ablation and at mean follow-up, demonstrating a significant overall improvement in QoL. (D) Proportion of patients who achieved a clinically meaningful QoL improvement, defined as a >5-point increase in AFEQT at follow-up.



*Reasons for refusal included logistical limitations (e.g. long distance between the patient's residence and the study center), fatigue with frequent hospital contacts and technological or capability barriers to completing questionnaires. AF – Atrial Fibrilation; QoL – Quality of life; AFEQT - AF Effect on Quality-of-Life (questionnaire)– FUP – follow up.

Figure PO 149

assessed changes in AF-related QoL in a population submitted to AF ablation using the AF Effect on Quality-of-Life (AFEQT) questionnaire.
Methods: Consecutive patients undergoing catheter ablation for AF were invited and prospectively enrolled between May 2023 and May 2025. QoL was assessed at baseline on the day of ablation (prior to the procedure) and at 1, 3, 6, 12, 18, and 24 months post-ablation. The AFEQT questionnaire includes 20 items scored from 1 to 7 and converted to a 0-100 scale, where 0 represents severely impaired QoL and 100 represents no negative QoL impact. We assessed the change in AFEQT overall score from baseline to follow-up. A clinically meaningful improvement was defined as a > 5-point increase in the overall score. A 7-day Holter was performed at discharge to detect early recurrence (ER), and AF recurrence during follow-up was assessed using Holter or 12-lead ECG. Procedural and safety outcomes were recorded.
Results: Of 1247 patients submitted to AF ablation during this period, 204 accepted the invitation and 153 completed at least one AFEQT questionnaire at follow-up and were analysed (age 62 ± 11 years; 95 men; 43% paroxysmal AF) (Figure 1A). Of those, energy source was pulsed-field ablation in 65 patients (43%) and the majority (n = 84, 54%) underwent pulmonary vein isolation only. No major adverse events were observed until discharge. ER on the 7-day Holter occurred in 17 patients (11%). After AF ablation, AFEQT scores increased progressively from baseline to 2-year follow-up (Figure 1B. After a mean follow-up of 14 ± 4 months, the overall AFEQT score improved significantly (53 ± 23 to 71 ± 22; 95%CI 14.654-21.632; p < 0.001) (Figure 1C). Most patients (n = 109, 71%) achieved a clinically meaningful QoL improvement (> 5-point AFEQT increase) (Figure 1D). AF recurrence at follow-up was observed in 28% (n = 43) of the patients. Importantly, QoL also improved significantly in this subgroup (54 ± 23 to 67 ± 22; 95%CI 6.927-19.670; p < 0.001), with 66% achieving a clinically meaningful improvement, suggesting symptomatic benefit despite intermittent arrhythmia recurrence.
Conclusions: In a real-world cohort of AF ablation patients, PROM-based AFEQT assessment showed a significant improvement in QoL over time, irrespective of recurrency status, with most patients achieving a clinically meaningful benefit and low rates of early recurrence on systematic monitoring. These findings support the routine feasibility and clinical value of integrating PROMs into post-ablation follow-up.

PO 150. BEYOND THE BLANKING PERIOD: PREDICTORS OF SUSTAINED RHYTHM SUCCESS AFTER ATRIAL FIBRILLATION AND ATRIAL FLUTTER ABLATION

Francisco Lemos Sousa, Maria Leonor Moura, Francisca Martins Nunes, Inês Rodrigues, António Gonçalves, Marta Catarina Almeida, André Lobo, Rafael Teixeira, Paulo Fonseca, João Almeida, Marco Oliveira, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Catheter ablation improves rhythm control in atrial fibrillation (AF) and atrial flutter (AFL), yet late recurrence continues to limit long-term success. A range of clinical and structural variables may shape outcomes, but their relative predictive value remains unclear.
Objectives: To determine whether early AF/AFL recurrence (< 90 days) predicts late recurrence and to identify additional clinical and structural predictors after catheter ablation.
Methods: We conducted a retrospective cohort study of consecutive patients who underwent AF/AFL ablation between 2017-2021. Baseline demographics, comorbidities, arrhythmia characteristics, atrial measurements and procedural data were collected. Early recurrence was defined as AF/AFL < 90 days and late recurrence as ≥ 90 days. Predictors of late recurrence were assessed using Cox proportional hazards models, including variables with p < 0.10 in univariate analysis or considered clinically relevant.
Results: A total of 767 patients were included. The mean age was 58 ± 11 years; 275 (35.9%) were women and 592 (77.2%) had paroxysmal AF. Early AF/AFL recurrence occurred in 94 (12.2%) patients. Over a median follow-up of 25.3 months (IQR 17.3-36.7), late AF/AFL recurrence occurred in 202 (26.3%) patients. In multivariable Cox analysis, early recurrence remained the strongest independent predictor of late recurrence (HR 4.37; 95%CI 3.12-6.12; p < 0.001). Female sex was also associated with higher recurrence risk (HR 1.57; 95%CI 1.14-2.16; p = 0.006). The number of years since AF diagnosis (HR 1.04 per year; 95%CI 1.00-1.08; p = 0.049) and left atrial diameter (HR 1.03 per mm; 95%CI 1.00-1.06; p = 0.050) were additional predictors, while age was not significant (p = 0.960).

Conclusions: Early recurrence during the blanking period is a strong independent predictor of late AF/AFL recurrence. Female sex, longer AF duration and larger left-atrial diameter further contribute to risk stratification, whereas age was not associated with outcomes. These findings reinforce the prognostic value of early post-ablation rhythm status and highlight the need for careful monitoring during the blanking period.

Sexta-feira, 24 Abril de 2026 | 17:30-18:25

Área de Posters - Ecrã 1 | Sessão de Posters 26 - Implantação transcateter da válvula aórtica (TAVI): desfechos, complicações e biomarcadores

PO 151. THROUGH THE MESH: CORONARY ACCESS AFTER TAVI

Joao Santos Fonseca, Marta Vilela, Daniel Cazeiro, Diogo Ferreira, Joao Fernandes Pedro, Sofia Esteves, Cláudia Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Cardoso, Fausto J. Pinto, Pedro Carrilho Ferreira

Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Transcatheter aortic valve implantation (TAVI) has become a standard treatment for severe aortic stenosis in patients over 75 years. As survival improves, the need for coronary angiography (CA) and percutaneous coronary intervention (PCI) after TAVI is increasing. However, the procedure may be technically challenging due to valve design and positioning.
Objectives: To evaluate the feasibility, procedural characteristics, and outcomes of coronary angiography and PCI performed after TAVI.
Methods: Retrospective, single-center study of consecutive patients who underwent CA (with or without PCI) after TAVI. Demographic characteristics, procedural data, type of previously implanted valves and catheters used in the CA were collected from patients' records. Procedural times and radiation and contrast doses were compared with a control group of 100 age-matched patients without transcatheter heart valves who underwent diagnostic CA. Finally, success rates of catheterization (defined as selective, nonselective and unsuccessful catheterization) were analyzed according to each valve family (Evolut®, Sapien®, Navitor® and Acurate®).
Results: Among 1418 patients who underwent TAVI in the study period, a total of 37 patients (median age 83 years, 54% male) underwent CA in our institution. Of those, 3 (8%) patients underwent coronary physiology assessment, and 19 (51%) patients required PCI (21 vessels). One of the patients had been submitted to TAVI in another centre. Overall median procedure time, fluoroscopy time, radiation dose, and contrast volume were 56 min, 16 min, 1,073 mGy, and 153 mL, respectively. Compared with controls, TAVI patients who underwent diagnostic CA had significantly longer procedural (35 vs. 21 min, p = 0.015) and fluoroscopy times (7 vs. 4 min, p = 0.001), and higher radiation (494 vs. 203 mGy, p < 0.001) and contrast doses (81 vs. 59 mL, p = 0.006). LCA catheterization was successful in 100% of patients (89% selective), while RCA catheterization success was 94% (79% selective). The Judkins left and right catheters were the most frequently utilized, and no additional catheters were required for diagnostic CA. PCI success rate was 76%, with unsuccessful catheterization accounting for only one failure. The Evolut valve family was associated with the highest rate of nonselective or failed catheterizations (OR 9.6 [1.45-63.5], p = 0.019).
Conclusions: Coronary angiography after TAVI is feasible, although associated with longer procedural times and greater radiation exposure. The Evolut valve design may present increased challenges for selective coronary engagement, emphasizing the importance of valve selection and procedural planning in patients who may potentially require future coronary access.

Overall procedural times, radiation and contrast doses

	Total (n=37)	Diagnostic CA only (n=16)	Diagnostic CA + iFR/ Angioplasty (n=21)
Procedure time (min)*	56 [35-103]	35 [17-49]	93 [56-149]
Fluoroscopy time (min)*	16 [7-26]	7 [4-17]	18 [15-55]
Radiation (mGy)*	1073 [466-2993]	494 [438-1072]	2179 [472-3957]
Contrast volume (mL)*	153 [79-228]	81 [56-138]	195 [140-306]

** Values presented as median [interquartile range]*

Comparison between TAVR and no TAVR (diagnostic CA only)

	TAVR (n=16)	No TAVR (n=100)	p-value (Mann-Whitney)
Procedure time (min)*	35 [17-49]	21 [16-29]	**0.015**
Fluoroscopy time (min)*	7 [4-17]	4 [2-6]	**0.001**
Radiation (mGy)*	494 [438-1072]	203 [114-317]	**<0.001**
Contrast volume (mL)*	81 [56-138]	59 [50-72]	**0.006**

** Values presented as median [interquartile range]*

Coronary artery success rates

	Selective catheterization	Nonselective catheterization	Selective + nonselective catheterization	Unsuccess
LCA (n=36)*	32 (89)	4 (11)	36 (100)	0 (0)
RCA (n=33)*	26 (79)	5 (15)	31 (94)	2 (6)
Both (n=32)*	24 (75)	6 (19)	30 (94)	2 (6)

** Values presented as frequency (percentage)*

Catheterization success according to valve families

LCA (n=33)	Selective catheterization	Nonselective catheterization	Selective + nonselective catheterization	Unsuccess
Sapien (n=14)	14 (100)	0 (0)	14 (100)	0 (0)
Evolut (n=14)	11 (79)	3 (21)	14 (100)	0 (0)
Navitor (n=2)	1 (50)	1 (50)	2 (100)	0 (0)
Acurate (n=3)	3 (100)	0 (0)	3 (100)	0 (0)

RCA (n=30)	Selective catheterization	Nonselective catheterization	Selective + nonselective catheterization	Unsuccess
Sapien (n=13)	12 (92)	1 (8)	13 (100)	0 (0)
Evolut (n=11)	5 (45)	4 (36)	9 (82)	2 (18)
Navitor (n=3)	3 (100)	0 (0)	3 (100)	0 (0)
Acurate (n=3)	3 (100)	0 (0)	3 (100)	0 (0)

Both (n=29)	Selective catheterization	Nonselective catheterization	Selective + nonselective catheterization	Unsuccess
Sapien (n=13)	12 (92)	1 (8)	13 (100)	0 (0)
Evolut (n=11)	5 (45)	4 (36)	9 (82)	2 (18)
Navitor (n=2)	1 (50)	1 (50)	2 (100)	0 (0)
Acurate (n=3)	3 (100)	0 (0)	3 (100)	0 (0)

Evolut valve family failed / nonselective catheterizations:
OR: 9.600 [CI 1.451-63.500], p=0.019

PO 152. PLATELET DECLINE AFTER TAVI: ASSOCIATION WITH ACUTE KIDNEY INJURY AND VON WILLEBRAND FACTOR PROFILES

Erivaldo Figueiredo[1], Emanuel Oliveira[1], Catarina Amaral Marques[1], Teresa Pinho[1], Catarina Faria[2], Isabel Miranda[2], Francisca Saraiva[2], Fábio Trindade[2], Marta Tavares Silva[1], Adelino Leite-Moreira[1], Rui André Rodrigues[1], Carla Sousa[1]

[1]ULS São João/Hospital São João. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Platelet decline is a frequent early alteration after transcatheter aortic valve implantation (TAVI) and may reflect procedural trauma, systemic inflammation, or endothelial shear stress. Its relationship with acute kidney injury (AKI) remains insufficiently defined, and potential links with von Willebrand factor (vWF) physiology have not been well explored.
Objectives: To evaluate the association between post-TAVI platelet decline and AKI, and to determine whether platelet dynamics correlate with vWF antigen levels or high-molecular-weight multimer (HMWM) ratios.

Methods: We retrospectively analyzed TAVI patients with paired baseline and 48-hour platelet measurements. Platelet decline was expressed as percentage change (Δplatelets%), with a ≥ 30% reduction considered clinically relevant. AKI was defined according to KDIGO criteria. Hemostatic assessment included vWF antigen and HMWM ratios measured before TAVI and at 48 hours. Statistical analyses included t-tests for continuous variables, chi-square testing for categorical variables, Pearson correlations for linear associations, and Haldane-Anscombe correction for odds ratio estimation when required.
Results: Ninety-eight patients were included (mean age 78.9 ± 17.1 years, 68.2% women), and 85 had complete platelet, renal, and vWF data. The mean platelet decline was -29.8 ± 14.4%. AKI occurred in 6/85 (7.1%). Patients who developed AKI showed a substantially greater platelet decline compared with those without AKI (-47.7 ± 6.5% vs. -28.5 ± 13.9%; p = 0.00016). A ≥ 30% decline identified 41/85 patients (48.2%), among whom AKI was more frequent (14.6% vs. 0%; p = 0.027). After Haldane-Anscombe correction, the estimated odds ratio for AKI associated with ≥ 30% platelet decline was 16.3, indicating a strong relationship despite the low event rate. Platelet decline did not correlate with vWF antigen or HMWM ratios measured either pre-TAVI or at 48 hours (all p > 0.12). Similarly, vWF parameters did not differ between those with and without AKI (all p > 0.29). Multimeric trends were parallel across platelet-decline strata, suggesting that platelet fall and vWF behavior represent distinct physiological responses in the early post-TAVI period.
Conclusions: Platelet decline was strongly associated with AKI after TAVI, whereas no relationship was observed between platelet dynamics and vWF antigen or multimeric profiles. These findings support platelet decline as an early, readily available signal of post-procedural kidney injury, underscoring the importance of its routine monitoring and the need for further mechanistic studies.

PO 153. VON WILLEBRAND FACTOR ABNORMALITIES IN SEVERE AORTIC STENOSIS: ASSOCIATIONS WITH VALVE STRUCTURE, HEMODYNAMICS AND CHANGES AFTER TAVI

Erivaldo Figueiredo[1], Emanuel Oliveira[1], Catarina Amaral Marques[1], Ana Isabel Pinho[1], Catarina Faria[2], Isabel Miranda[2], Francisca Saraiva[2], Fábio Trindade[2], Marta Tavares Silva[1], Adelino Leite- Moreira[1], Rui André Rodrigues[1], Carla Sousa[1]

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Introduction: Severe aortic stenosis promotes shear-mediated degradation of high-molecular-weight von Willebrand Factor (vWF) multimers, a key mechanism in Heyde's syndrome. The contribution of anatomical narrowing, Doppler hemodynamics, and aortic valve calcium burden to this disruption remains uncertain. Prior studies report recovery of vWF multimers within 24-72 hours after relief of shear stress. Clarifying determinants of vWF loss and peri-procedural changes after TAVR may refine bleeding risk stratification.
Objectives: To assess the relationship between anatomical severity, Doppler hemodynamics, and aortic valve calcium burden with shear-related vWF abnormalities, and to characterize peri-procedural vWF changes after TAVR.
Methods: We retrospectively analysed prospectively collected data from consecutive patients undergoing TAVI (2022-2024). Total vWF and vWF multimer ratio were measured before and 48 hours after TAVR. Echocardiography provided AVA, indexed AVA, Vmax, and gradients; CT quantified aortic valve calcium by Agatston scoring. Associations were assessed with Spearman correlation. Differences in multimer ratio by AVA category (≤ 0.8 vs. > 0.8 cm^2) were evaluated with the Mann-Whitney U test, and peri-procedural total vWF changes with the Wilcoxon signed-rank test.
Results: Ninety-eight patients were included (mean age 78.9 ± 17.1 years, 68.2% women). Among 47 with paired samples, total vWF showed no significant peri-procedural change (76.9% vs. 75.8%, p = 0.67). Neither baseline vWF nor its variation correlated with AVA, Vmax, gradients, or CT calcium burden (all p ≥ 0.10). Baseline multimer ratio showed no correlation with Doppler severity or calcific load (ρ ≤ 0.18), and AVA as a continuous measure was not associated with multimer ratio (ρ = 0.17, p = 0.12). However, AVA ≤ 0.8 cm^2 was associated with significantly lower multimer ratios (53.5 vs. 58.0, p = 0.007). Doppler-defined severity did not discriminate multimer loss.
Conclusions: In contrast to prior literature describing a strong and consistent association between aortic stenosis severity and shear-related loss of high-molecular-weight vWF multimers, our cohort demonstrated this pattern only in the most critically stenotic anatomies. Total vWF remained stable peri-procedurally, and the multimer ratio showed limited discriminatory value outside extreme disease. These findings suggest that, in contemporary TAVI candidates, shear-mediated vWF depletion may be less tightly aligned with conventional severity markers than previously reported, underscoring the need for larger studies to clarify its reliability as a biomarker of hemostatic vulnerability.

PO 154. DEVELOPMENT OF A PREDICTIVE MODEL FOR PRE-INTERVENTION ADVERSE OUTCOMES IN PATIENTS WITH SEVERE AORTIC STENOSIS AWAITING TRANSCATHETER AORTIC VALVE IMPLANTATION

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Introduction: Degenerative aortic stenosis is a leading cause of cardiovascular (CV) morbidity worldwide, and transcatheter aortic valve implantation (TAVI) increasingly replaces surgery, even in younger patients (pts). As TAVI availability remains limited and waiting times long, predictive models to identify pts at risk of clinical deterioration while awaiting intervention may be useful.
Objectives: To develop a predictive model for pre-intervention outcomes in pts with severe aortic stenosis (SAS) awaiting TAVI.
Methods: Single-center retrospective cohort study including consecutive SAS pts who underwent pre-TAVI cardiac computed tomography (CCT) protocol (June 2022-October 2025). Clinical, transthoracic echocardiography (TTE) and CCT data were collected. Pts were followed from CCT until TAVI, death, or November 15, 2025 (median follow-up: 12 months). Pre-intervention outcomes included a composite of heart failure (HF) hospitalization and all-cause mortality. Pts with outcomes (group 1) were compared with those without (group 2). Independent predictors identified through multivariable logistic regression were used to construct a predictive model; discrimination was assessed by ROC curve analysis.
Results: A total of 289 pts underwent pre-TAVI CCT (152 males, 52.6%; mean age 81 ± 5 years). During follow-up, 149 pts (51.6%) underwent TAVI (median time from CCT to TAVI: 10 [5-15] months). Pre-intervention outcomes occurred in 52 pts (18.0%), including HF hospitalization (n = 31) and all-cause mortality (n = 30). Group 1 pts more frequently had exertional angina (23.1 vs. 11.5%, p = 0.028), atrial fibrillation (42.3 vs. 20.3%, p < 0.001) and diuretic use (65.4 vs. 41.4%, p = 0.002). Baseline ECG showed more bundle branch block (42.6 vs. 27.4%, p = 0.041) and wider QRS (median 115 [46] vs. 98 [39] ms, p = 0.020). No significant differences were found in CCT parameters, including aortic valve calcium score (2,297 ± 1,133 AU vs. 2,560 ± 1,332 AU, p = 0.387). Echocardiography showed higher median left ventricular mass index (159 [42] vs. 145 [59] g/m^2, p = 0.017), greater left atrial volume index (LAVi) (60 ± 20 vs. 53 ± 15, p = 0.002) and lower absolute global longitudinal strain (-10.3 ± 1.7% vs. -16.9 ± 4.6%, p = 0.028). NT-proBNP levels were also higher in group 1 (3630 [6430] vs. 1130 [2235] pg/mL, p < 0.001). Multivariable logistic regression identified QRS duration (OR 1.010, CI 1.000-1.021, p = 0.048) and LAVi (OR 1.024, CI 1.005-1.043, p = 0.012) as independent predictors. The resulting model [p = 1/(1+exp(-(-3.939 + 0.010 × QRS + 0.024 × LAVi))] showed acceptable discrimination (AUC = 0.636), with a sensitivity of 69% and specificity of 51% (Figure 1).
Conclusions: QRS prolongation and increased LAVi independently predicted pre-intervention outcomes in SAS pts awaiting TAVI, with modest performance. This model may help identify higher-risk pts who could benefit from prioritized intervention.

	Total (n=289)	Group 1 (n=52)	Group 2 (n=237)	p-value
Male sex (n, %)	152 (52,6)	29 (55.8)	123 (51.9)	0.613a
Age at time of exam (years) – mean ± SD	81,3 ± 5,4	81.9 ± 6.0	81.2 ± 5.3	0.348c
Past medical history				
Overweight/Obesity	211 (73)	38 (73.1)	173 (73)	0.990a
BMI (kg/m2) – mean ± SD	28,4 ± 4,7	28.9±5.5	28.3 ± 4.5	0.420c
Diabetes	107 (37,2)	24 (46.2)	83 (35.2)	0.138a
Dyslipidemia	186 (64,6)	32 (61.5)	154 (65.3)	0.612a
Hypertension	240 (83)	44 (84.6)	196 (82.7)	0.739a
History of smoking	31 (10,8)	4 (7.7)	27 (11.4)	0.430a
Prior myocardial infarction	14 (4.8)	3 (5.8)	11 (4.6)	0.723b
Prior percutaneous coronary intervention	*29 (10)*	*6 (11.5)*	*23 (9.7)*	*0.690a*
Prior CABG	*7 (2,4)*	*1 (1.9)*	*6 (2.5)*	*1.000b*
History of peripheral artery disease	*10 (3,5)*	*1 (1.9)*	*9 (3.8)*	*0.696b*
Prior stroke/transient ischemic attack	*36 (12.5)*	*5 (9.6)*	*31 (13.1)*	*0.493a*
Chronic kidney disease (CKD)	*27 (9,4)*	*6 (11.5)*	*21 (8.9)*	*0.599b*
CKD on Dialysis	*5 (1.7)*	*2 (3.8)*	*3 (1.3)*	*0.221b*
Pulmonary disease	*38 (13,1)*	*7 (13.5)*	*31 (13.1)*	*0.941a*
History of cancer	*34 (11,8)*	*4 (7.7)*	*30 (12.7)*	*0.314a*
Atrial Fibrillation	***70 (24,2)***	***22 (42.3)***	***48 (20.3)***	***<0.001a***
Prior implanted pacemaker	*30 (10,4)*	*7 (13.5)*	*23 (9.7)*	*0.421a*

Table 1. Patient's baseline characteristics (a – chi-square test; b- Fisher's exact test; c- t-student test)

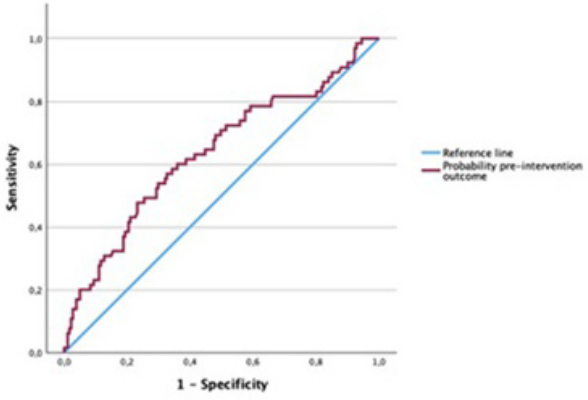

Figure 1. ROC curve analysis for the predictive probability of the pre-intervention outcome

Figure PO 154

PO 155. THE INFLAMMATORY BURDEN INDEX AS A SIMPLE AND ACCESSIBLE TOOL TO PREDICT CLINICAL OUTCOMES AFTER TAVR

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Introduction: Inflammation is increasingly recognized as a central contributor to the pathogenesis and prognosis of cardiovascular disease. Recent evidence suggests that inflammatory status significantly affects both procedural success and long-term outcomes following transcatheter aortic valve replacement (TAVR). The inflammatory burden index (IBI), a composite marker of systemic inflammation and immune balance, has not yet been evaluated in the TAVR setting.

Objectives: To assess the impact of pre-procedural inflammatory status, measured by the IBI, on clinical outcomes after TAVR.

Methods: Consecutive patients undergoing TAVR at our center between July 2020 and October 2024 were included. The primary endpoint was a composite of all-cause mortality or heart failure hospitalization. IBI was calculated as high-sensitivity C-reactive protein (hs-CRP) × neutrophils/lymphocytes. Receiver operating characteristic (ROC) curve analysis with the Youden index was used to determine the optimal IBI cut-off for predicting the primary endpoint.

Results: A total of 400 patients were included (53% male; mean age 82 ± 5 years). 75 patients reached the primary endpoint during a mean follow-up of 347 ± 45 days (range 184-365 days). Patients meeting the primary endpoint more frequently had bicuspid aortic valve (35% vs. 17%, p = 0.027), post-TAVR stroke (56% vs. 18%, p = 0.004) and bleeding events (36% vs. 17%, p = 0.013). Regarding laboratory values, patients who died or were hospitalized had higher creatinine (1.3 vs. 1.0 mg/dL, p = 0.032), NT-proBNP (3,720 vs. 1,690 pg/mL, p = 0.035) and IBI (4.7 vs. 2.0, p = 0.006). No other significant demographic, echocardiographic, or clinical differences were observed. In a binary logistic regression including all significant variables, IBI emerged as an independent predictor of the primary endpoint (p = 0.041). ROC analysis showed moderate discriminatory power (AUC = 0.624) with an optimal cut-off of 3,1 (sensitivity 61%, specificity 59%). Besides IBI, bicuspid aortic valve (p = 0.012) and stroke (p = 0.014) were independent predictors of death or heart failure hospitalization.

Conclusions: Higher pre-procedural inflammatory burden, as measured by the IBI, is independently associated with increased risk of all-cause mortality

or heart failure hospitalization after TAVR. An IBI cut-off of 4.3 demonstrated moderate predictive ability. These findings suggest that systemic inflammation contributes meaningfully to post-TAVR prognosis and that IBI may serve as a simple, accessible tool for risk stratification. Additionally, bicuspid aortic valve anatomy and post-procedural stroke also emerged as important independent predictors of adverse outcomes.

PO 156. EARLY VON WILLEBRAND FACTOR DYNAMICS AND SUBCLINICAL HEMOLYSIS AFTER TAVI

Erivaldo Figueiredo[1], Luana Alves[1], Emanuel Oliveira[1], Catarina Amaral Marques[1], Catarina Faria[2], Isabel Miranda[2], Francisca Saraiva[2], Fábio Trindade[2], Marta Tavares Silva[1], Adelino Leite-Moreira[1], Rui André Rodrigues[1], Carla Sousa[1]

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Introduction: Severe aortic stenosis induces high shear forces leading to loss of high-molecular-weight von Willebrand factor (vWF) multimers. Although transcatheter aortic valve implantation (TAVI) rapidly normalizes shear, the relationship between early peri-procedural changes in vWF and biochemical evidence of hemolysis remains unclear. Understanding this interaction may refine the interpretation of early post-procedural laboratory abnormalities and identify a shear-related hemostatic phenotype.
Objectives: To evaluate the association between early peri-procedural vWF variation and biochemical markers of subclinical hemolysis following TAVI.
Methods: We retrospectively analyzed TAVI patients with paired pre-procedural and 48-hour vWF measurements. Total vWF was analyzed as percentage change from baseline (ΔvWF%). Patients were classified as vWF-recoverers with ≥ 10% increase at 48 hours. Hemolysis markers included hemoglobin (Hb), haptoglobin, reticulocyte count, and lactate dehydrogenase (LDH). Subclinical hemolysis was defined as ΔHb ≤ −1.5 g/dL plus Δreticulocytes ≥ +0.2%. Group comparisons used the Mann-Whitney U test, and correlations were assessed with Spearman's rho.
Results: Ninety-eight patients were included (mean age 78.9 ± 17.1 years, 68.2% women). Among 47 patients with paired measurements, median ΔvWF% was +3.3%, with 42.6% classified as recoverers. Subclinical hemolysis occurred exclusively among non-recoverers, affecting 16.7% of this subgroup (3/18), while no events were observed in recoverers (0/13; Fisher p = 0.245). Among 17 patients with paired LDH data, LDH increased modestly overall (+24 U/L), yet the rise was markedly greater in non-recoverers (+43 U/L) compared with recoverers (-6 U/L), although not statistically significant (p = 0.088). A consistent pattern emerged whereby impaired vWF recovery aligned with higher hemolytic activity: ΔvWF% correlated inversely with ΔLDH (ρ = -0.41; p = 0.18), and LDH demonstrated a borderline significant inverse correlation with haptoglobin decline (ρ = -0.49; p = 0.075). Reticulocyte response was also numerically higher in non-recoverers, reinforcing the coherence of the hemolytic profile.

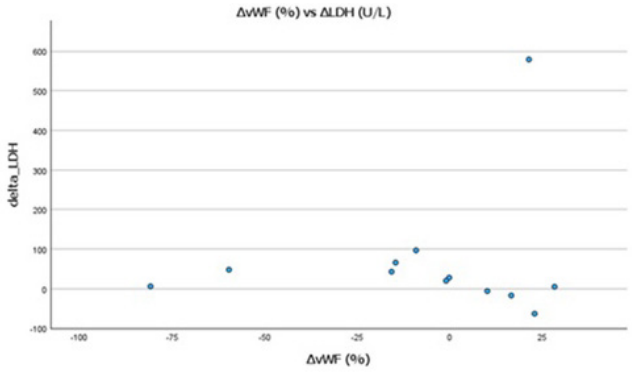

Figure 1. Relationship between ΔvWF% and ΔLDH at 48h post-TAVR. No significant linear association was observed, although higher LDH increases tended to cluster among patients with impaired vWF recovery.

Conclusions: Impaired early recovery of vWF after TAVI is associated with a biochemical pattern consistent with subclinical hemolysis, despite limited statistical power. These findings suggest that early vWF dynamics may reflect residual shear or prosthesis-related biomechanical stress and impaired early vWF recovery after TAVI may serve as a relevant marker to identify patients at increased risk of subclinical hemolysis, supporting closer post-procedural monitoring and potentially guiding early management strategies.

Sexta-feira, 24 Abril de 2026 | 17:30-18:25

Área de Posters - Ecrã 2 | Sessão de Posters 27 - Abordagem e avanços terapêuticos na hipertensão pulmonar

PO 157. BEYOND PULMONARY PRESSURE: HFA-PEFF REVEALS HIDDEN RISK IN CTEPH

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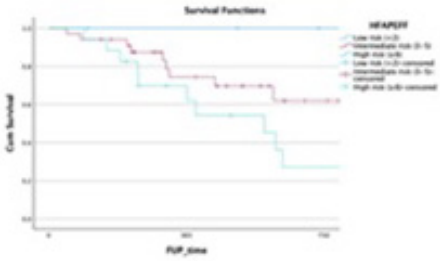
Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH) is a severe form of pulmonary hypertension with persistently high morbidity and mortality. Risk stratification usually relies on right-sided hemodynamics and functional status. Many patients have comorbidities that affect prognosis. The HFA-PEFF score, created to diagnose and stratify heart failure with preserved ejection fraction (HFpEF), integrates structural, functional and biomarker domains. Whether this multidimensional tool adds prognostic value in CTEPH is unknown. We aimed to evaluate the prognostic relevance of the HFA-PEFF score in a well-phenotyped cohort of confirmed CTEPH patients.
Methods: This study included patients with CTEPH diagnosed and followed at a tertiary PH centre between December 2013 and May 2024. Patients were stratified into low, intermediate, or high-risk of HFpEF according to the HFA-PEFF score. The primary endpoint was the composite of all-cause mortality and hospitalizations for any cause. Clinical, biochemical, imaging and hemodynamic variables were extracted from baseline assessment.
Results: A total of 54 patients (64.8% female) with a mean age of 66.2 years were included. The most frequent comorbidities included obstructive sleep apnea (20.4%) and pulmonary disease (25.9%). At baseline, the median NT-proBNP was 963.5 pg/mL [IQR 3,738]; Echocardiography, pulmonary function tests and hemodynamic parameters are at Table 1. Most patients received targeted therapy (74.1%) and 35% underwent pulmonary endarterectomy. Regarding the functional status at baseline, the mean 6-minute walking distance was 264.6 ± 117.5 meters and 84% of the patients were in OMS class II-III. Based on the HFA-PEFF score, 7.4% of patients were had low risk of HFpEF, 61.1% had intermediate risk and 31.5% had high risk. After a median follow up of 12 months, the primary endpoint occurred in 33 patients (61.1%)- 27 hospitalizations and 6 deaths. Stratification according to HFpEF score showed that high-risk group experienced a higher incidence of events over time, while those in the low-risk group had a lower incidence. The difference between the groups was statistically significant (log-rank p = 0.041), indicating that the HFA-PEFF score effectively stratifies patients' risk of events (Figure 1).
Conclusions: In this real-world CTEPH cohort, higher HFA-PEFF scores were strongly linked to greater hospitalization and mortality risk. These results indicate that the score reflects not only coexisting HFpEF but also serves as a prognostic marker in CTEPH. The algorithm appears to identify a vulnerable CTEPH-HFpEF phenotype with a clearly worse trajectory. Incorporating HFA-PEFF into baseline assessment may enhance risk stratification and support more individualized therapy.

Sex, n (%)	
Female	35 (64.8)
Male	18 (33.3)
Age (years), mean ± SD	66.2 ± 12.8
BSA (m²), mean ± SD	1.9 ± 0.2
Comorbidities, n (%)	
Obstructive sleep apnea	11 (20.4)
Pulmonary disease	14 (25.9)
Coronary artery disease	2 (3.7)
Valvular heart disease	1 (1.9)
6-minute walking distance (m), mean ± SD	264.6 ± 117.5
CHMS class	
I	7 (13)
II	36 (66.7)
III	9 (17.3)
Laboratory parameters	
Haemoglobin (g/dL), mean ± SD	14.3 ±2.4
NTproBNP (pg/mL), median [IQR]	963.5 [3737.5]
Echocardiogram	
Right atria area (cm²), mean ± SD	23.1± 8.9
FAC (%), median [IQR]	23.5 [15]
Right ventricle basal diameter (mm), mean ± SD	45.5 ± 9.0
Right ventricle medium diameter (mm), mean ± SD	37.5 ± 7.2
TAPSE (mm), mean ± SD	17.8 ± 5.1
S' (cm/s), median [IQR]	9.5 [3]
PASP (mmHg), mean ± SD	64.3 ± 23.9
TAPSE/PASP (mm/mmHg), mean ± SD	0.35 ± 0.2
RVOT acceleration time (ms), mean ± SD	80.6 ± 22
Index left atrial volume (mL/m2), median [IQR]	32 [15]
Left ventricular ejection fraction (%), median [IQR]	61 [6]
Diastolic function	
Normal	18 (54.5)
Diastolic dysfunction grade I	12 (22.2)
Diastolic dysfunction grade II	3 (5.6)

Pulmonary function test	
FEV1 (L), mean ± SD	1.9 ± 0.6
FEV1 (%), mean ± SD	82.1 ± 19.0
FVC (L), mean ± SD	2.6 ± 0.8
FVC (%), mean ± SD	88.1 ± 21.2
FEV1/FVC, mean ± SD	74.1 ± 8.7
TLC (L), mean ± SD	4.9 ± 1.0
TLC (%), mean ± SD	96.6 ± 13.7
DLCO (%), mean ± SD	68.8 ± 11.5
Right heart catheterization	
Systolic pulmonary artery pressure (mmHg), mean ± SD	76.3± 24.1
Diastolic pulmonary artery pressure (mmHg), median [IQR	26 [12]
Medium pulmonary artery pressure (mmHg), mean ± SD	43.5 ± 13.4
Right atrium pressure (mmHg), median [IQR]	7 [6]
Pulmonary capillary wedge pressure (mmHg), median [IQR]	11.5 [6]
Systolic volume TD (mL), median [IQR]	52.4 [25]
Cardiac output TD (L/min), mean ± SD	4.2 ± 1.1
Cardiac index TD (L/min/m²), mean ± SD	2.4 ± 0.4
Pulmonary vascular resistance (wU), mean ± SD	8.3 ± 4.9
SvO_2 (%), median [IQR]	67 [9]
$SvAO_2$ (%), mean ± SD	93.4 ± 3.4
Therapeutic	
Specific therapy	40 (74.1)
Double	21 (38.9)
Triple	4 (7.4)
Pulmonary endarterectomy	19 (35.2)
Follow up	
Hospitalization	27 (50)
Cardiovascular	12 (22.2)
Non-cardiovascular	7 (12.9)
Death	6 (11.1)
Cardiovascular	2 (3.7)
Non-cardiovascular	2 (3.7)
HFA-PEFF score, n (%)	
0-1	4 (7.4)
2-4	33 (61.1)
5-6	17 (31.5)
H/PEF score, n (%)	
< 2	7 (13.0)
2-5	44 (81.5)
≥ 6	3 (5.6)

Table 1- Baseline Characteristics.



Graph 1- Kaplan-Meier survival curves stratified by HFA-PEFF categories, demonstrating clear separation in outcomes across low-, intermediate-, and high-risk groups.

Figure PO 157

PO 158. HEMODYNAMIC PROFILE OF PATIENTS WITH CTEPH AND A PRIOR EPISODE OF ACUTE PE TREATED WITH CDT

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Introduction: Pulmonary embolism (PE) is an important risk factor for chronic thromboembolic pulmonary hypertension (CTEPH). Catheter-directed therapy (CDT) is an emerging treatment modality for acute PE. It allows to achieve rapid thrombus reduction and to improve right ventricular function in the acute setting. However, whether CDT influences long-term pulmonary vascular remodeling or alters the progression to CTEPH remains uncertain.
Objectives: To compare hemodynamic variables between CTEPH patients with a history of acute PE treated with CDT and those managed without CDT.
Methods: Retrospective analysis of consecutive patients with prior PE and established CTEPH under regular follow-up at a specialized PH center. Echocardiographic and hemodynamic parameters were collected and compared between those with CDT and those without. Chi-square test and t-test for independent samples were used to compare groups.
Results: 38 patients with CTEPH and prior PE were evaluated (mean age 66 ± 15.2 years, 64% females). 84.6% had an intermedia-high PE, 29% (n = 11) treated with CDT. CDT group was younger (57.1 ± 22.3 vs. 70.1 ± 9.5 years, p = 0.088) and predominantly female (91%). Hemodynamic assessment showed significantly higher cardiac output (6.0 ± 1.2 vs. 4.6 ± 1.2 L/min; p = 0.002) and cardiac index (3.2 ± 0.7 vs. 2.5 ± 0.5 L/min/m²; p < 0.001) in the CDT group. Mean pulmonary artery pressure and pulmonary vascular resistance were lower in CDT-treated patients, although not significantly. Venous oxygen saturation demonstrated a non-significant trend toward higher values (p = 0.052). Echocardiography revealed lower estimated PASP (40.4 ± 15.5 vs. 63.5 ± 22.2 mmHg; p = 0.012) and a higher TAPSE/PASP ratio

Table 1. Demographical, echocardiographic and hemodynamical characteristics of baseline population

	All (n= 38)	With CDT (n = 11)	Without CDT (n = 27)	p
Age in years - mean ± SD	66.4±15.2	57.1±22.3	70.1±9.5	0.088
Female - n (%)	25 (64)	10 (91)	15 (54)	**0.029**
PE Intermediate - high - n (%)	33 (84.6)	11 (100)	20 (74.1)	0.120
NT-proBNP at baseline in pg/ml - median (min- max)	455 (50-11195)	239 (59-5479)	530 (50-11955	0.656
Right Heart Catheterization at baseline				
Mean pulmonary artery pressure in mmHg - mean ± SD	58.5±11.1	53.7±9.0	60.5±11.4	0.088
Pulmonary vascular resistance in WU - mean ± SD	5.3±2.8	4.6±2.5	5.6±2.9	0.378
Cardiac Output in L/min – mean ± SD	5.0±1.3	6.0±1.2	4.6±1.2	**0.002**
Cardiac Index in L/min/m2 – mean ± SD	2.7±0.6	3.2±0.7	2.5±0.5	**<0.001**
Right atrium pressure in mmHg - median (max-min)	10 (3-35)	10 (5-20)	10 (3-35)	0.995
Venous oxygen saturation in % - mean ± SD	63.9±7.5	67.6±5.2	62.4±7.8	0.052
Transthoracic echocardiogram at baseline				
Right atrium volume indexed in ml/m2 – mean ± SD	31.5±18.4	22.6±9.2	35.9±20.3	0.073
TAPSE in mm – mean ± SD	22.7±11.8	22.78±2.3	22.61±13.9	0.972
Annular tricuspid s' velocity in cm/s – mean ± SD	80.0±32.17	72.3±13.9	85.1±39.4	0.313
Estimated PASP in mmHg – mean ± SD	57.08±25.4	40.4±15.5	63.5±22.2	**0.012**
TAPSE/PASP ratio – mean ± SD	0.39±0.21	0.53±0.09	0.34±0.21	**0.035**
Right ventricular dilatation - n (%)	18 (46.2)	4 (36.4)	14 (50)	0.386
Left ventricular D-shape - n (%)	15 (38.5)	4 (36.4)	11 (39)	0.802

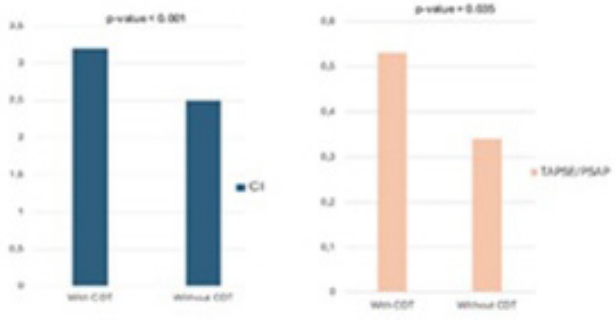

Figure PO 158

(0.53 ± 0.09 vs. 0.34 ± 0.21; p = 0.035) in the CDT group, while other right heart structural parameters did not differ.
Conclusions: Overall, CDT during acute PE was associated with a more favorable hemodynamic profile at CTEPH diagnosis. These findings are in alignment with recent clinical trials and registries that suggest early catheter-directed reperfusion may positively influence long-term pulmonary vascular remodeling, potentially attenuating disease severity or even lowering the likelihood of progression to CTEPH. More data and long-term follow-up are needed to prove this theory.

PO 159. EARLY REAL-WORLD EXPERIENCE WITH SOTATERCEPT IN HIGH-RISK PULMONARY ARTERIAL HYPERTENSION: A FIVE-PATIENT CASE SERIES

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ULS São José/Hospital de Santa Marta.

Introduction: Pulmonary arterial hypertension (PAH) is a progressive disease caused by pulmonary vascular remodeling. Sotatercept, the first approved activin signalling inhibitor, offers a novel non-vasodilator therapeutic approach. Based on RCT, it is used as add-on therapy after 3 months therapy in symptomatic patients.
Methods: Descriptive observational case series of WHO group 1 PAH patients (P) who started sotatercept in a tertiary referral centre in 2025.
Results: 5 consecutive P were included [2 idiopathic PAH, 2 heritable PAH (BMPR2), and 1 connective tissue disease-associated PAH] with a median time of diagnosis of 18 months (3-60). All patients were under optimised triple therapy for a median of 25 months (2-40). Patients presented WHO functional class II-III and intermediate-high risk (REVEAL Lite 2 score 6-8). The median 6-minute walk distance was 369 m and NT-proBNP was 252 pg/mL (53.9-871). Right heart catheterization showed a median mean pulmonary artery pressure (mPAP) of 42 mmHg (33-52), right atrial pressure 5.16 mmHg (3.93-6.23), and cardiac index of 3.11 L/min/m² (2.57-3.23). On baseline echocardiography, all P presented systolic D-shaped left ventricle and 3 of 5P presented reduced right ventricular (RV) longitudinal strain [median Free wall strain of 15.9% (7.5-24.1) and global longitudinal strain of 15% (8-22)]; TAPSE of 21 mm (10-27) and RV fractional area change of 39% (29-42). On cardiac magnetic resonance, the median RV Ejection Fraction was 54% (40-57), RV end-systolic volume index of 44.5 mL/m² (36-55), and stroke volume index of 49 mL/m² (37-61). Sotatercept was initiated on a day care unit regime with structured revaluations. The follow-up remains limited, only two completed 24 weeks (w) after first dose. All reached 12w after administration. Preliminary NT-proBNP analysis showed a 62.5% reduction at 3w and, by 12w, 3P reached < 50 pg/mL. Regarding adverse effects, 3P experienced hemoglobin (Hb) increase of > 2 g/dL (at 12w), but only 1 required one dose omission (Hb 14 > 18.4 g/dL), with subsequent stabilization and drug resume. 4 in 5 P maintain the same level of platelets during the FUP (all > 220 000 × 10^3/L); 1P with previous known thrombocytopenia (89,000 × 10^3/uL) improved to 97 000 × 10^3/uL, at 12w. 1P experienced two episodes of mild, self-limited epistaxis on the first month. Another patient had a 72 hours hospitalization non related to sotatercept (prostacyclin overdosage). No major events led to permanent treatment discontinuations. Using a novel strategy, 3P were monitored with CardioMEMS, enabling real-time documentation of progressive reduction in mPAP.
Conclusions: In our small cohort, sotatercept seems to be associated with early and sustained reductions in NT-proBNP and mPAP on remote monitoring, with hematologic safety and no major adverse events. These early real-world data mark the first step on novel disease-modifying strategy in PAH.

PO 160. WHEN SPESI FALLS SHORT: THE MSPESI RAISES THE BAR IN PULMONARY EMBOLISM RISK STRATIFICATION

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Introduction: Pulmonary embolism (PE) remains a major cause of in-hospital mortality in Intensive Care Units (ICUs). Existing prognostic models often fail to accurately identify patients at highest risk who may benefit from

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intensified management. This study aimed to identify independent predictors of poor prognosis and to develop a modified predictive score for patients with intermediate-high and high-risk PE.

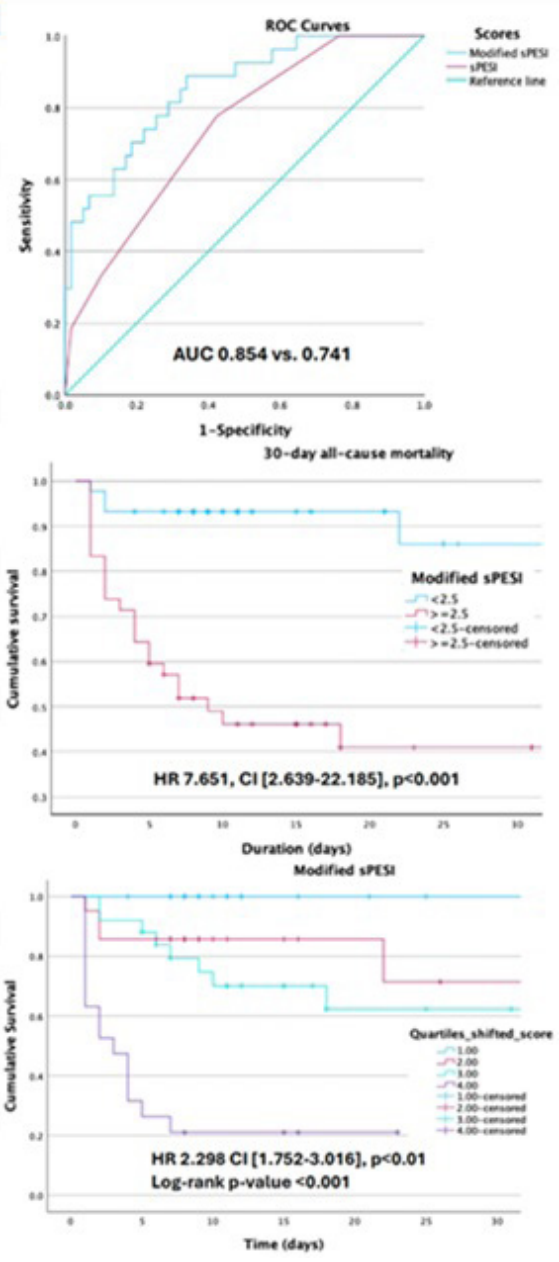
Methods: This retrospective, observational, single-center study included patients with intermediate-high or high-risk PE (according to the ESC guidelines) admitted to the ICU between 2020 and 2024. Independent predictors of outcomes were identified using multivariate Cox regression analysis. The simplified Pulmonary Embolism Severity Index (sPESI) was modified to create a new model, the modified sPESI (msPESI), which was then compared with the original sPESI for prognostic performance.

Results: A total of 87 patients were included (mean age 56 ± 17 years, 52% female). Comorbidities included previous PE (8%), prior venous thromboembolism (9%), cancer (21%), thrombophilia (16%) and recent bed rest (30%). On admission, mean hemoglobin was 12.1 ± 2.9 g/dL, median troponin T was 85 [170] ng/L, median NT-proBNP 2,560 [5,508] pg/mL, and median lactate 22.0 [38.8] mg/dL. Only 1 patient had sPESI = 0, all others had sPESI ≥ 1. Regarding reperfusion therapies, 43% patients received fibrinolysis and 5% underwent thrombectomy. During ICU stay, 63% patients developed obstructive shock, 33% had cardiac arrest, 9% required extracorporeal membrane oxygenation, 25% experienced major bleeding and 32% died. Higher sPESI scores were independently associated with 30-day mortality (HR 1.774, 95%CI 1.079-2.918, p = 0.024). In multivariate analysis (adjusted for age, sex, NT-proBNP and troponin), lactate (HR 1.014, 95%CI 1.006-1.022; p < 0.001) and hemoglobin at admission (HR 0.762, 95%CI 0.649-0.898; p = 0.001) were independent predictors of events. Based on these results, the msPESI was developed using variables readily obtained from arterial blood gas analysis: msPESI = 0.573 * sPESI + 0.014 * Lactate (mg/dL) - 0.272 * [Hb (g/dL) - 13] + 0.35. The msPESI outperformed sPESI in predicting 30-day mortality (AUC 0.854 vs. 0.741). The optimal cut-off value was msPESI = 2.5, yielding 89% sensitivity and 66% specificity. Patients with an msPESI > 2.5 had a 7.6-fold higher risk of 30-day mortality (HR 7.651, 95%CI 2.639-22.185, p < 0.001) and higher msPESI scores strongly correlated with increased mortality (HR 2.298, 95%CI 1.752-3.016, p < 0.001).

Conclusions: The msPESI showed significantly better performance than the original sPESI in predicting short-term mortality among critically ill patients with PE. As a simple tool integrating two readily accessible parameters, it may assist in early risk stratification and guide clinical decision-making.

TABLE 1. Demographics and clinical presentation

Age (years), mean ± SD	55.9 ± 16.6
Sex (female), n (%)	45 (51.7)
BMI (kg/m²), mean ± SD	29.8 ± 7.5
Comorbidities, n (%)	
Previous PE	7 (8.0)
Previous VTE	8 (9.2)
Hypertension	49 (56.3)
Diabetes mellitus	15 (17.2)
Cancer	18 (20.7)
Thrombophilia	14 (16.1)
Recent surgery	16 (18.4)
Recent bed rest	30 (34.5)
Positive SARS-CoV-2 test	4 (4.6)
Laboratory analysis at admission	
Hemoglobin (g/dL), mean ± SD	12.1 ± 2.9
Creatinine (mg/dL), median [IQR]	1.1 [0.7]
T troponin (ng/L), median [IQR]	85 [170]
NTproBNP (pg/mL), median [IQR]	2560 [5508]
Lactate (mg/dL), median [IQR]	22.0 [38.8]
TTE at admission	
TAPSE (mm), median [IQR]	14 [7]
PASP (mmHg), mean ± SD	49.7 ± 13.0
TAPSE/PASP ratio, mean ± SD	0.4 ± 0.2
RV dilation, n (%)	70 (80.5)
Risk stratification at admission	
Shock index, median [IQR]	0.9 [0.6]
sPESI, n (%)	
sPESI 0	1 (1.1)
sPESI 1	14 (16.1)
sPESI 2	16 (29.9)
sPESI 3	31 (35.6)
sPESI 4	9 (10.3)
sPESI 5	6 (6.9)
Reperfusion strategy, n (%)	
Fibrinolysis	37 (42.5)
Thrombectomy	4 (4.6)
Anticoagulation, n (%)	78 (89.7)
UFH	65 (74.7)
LMWH	13 (14.9)
Clinical course during ICU stay, n (%)	
Obstructive shock	55 (63.2)
Cardiac arrest	29 (33.3)
VA-ECMO	8 (9.2)
Major bleeding (BARC 3 or higher)	22 (25.3)
Death	28 (32.2)



PO 161. FROM PE TO CTEPH: STILL LOST IN TRANSLATION

Lourenço Aguiar, Tiago Lobão, João Luz, Mário Ferraz, Débora Repolho, Bárbara Ferreira, Sofia Alegria, Otília Simões, Filipa Ferreira, Hélder Pereira

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH) is a potentially curable cause of pulmonary hypertension. It has been hypothesized that a prior episode of acute pulmonary embolism (PE) may facilitate earlier recognition and diagnosis of CTEPH at a less severe stage.
Methods: We conducted a single-center retrospective study that included 95 consecutive patients diagnosed with CTEPH between 2005 and 2024. Data were collected on prior PE events, CTEPH risk factors (hypothyroidism, splenectomy, inflammatory bowel disease, myeloproliferative disorders, antiphospholipid syndrome, and cancer), WHO class, echocardiographic parameters (right atrial and ventricular size, sPAP, TAPSE), and hemodynamic variables (mPAP, PAWP, CI, PVR, arterial O2 saturation). Patients were stratified by the presence of prior PE, and among those with prior PE, according to time from PE to CTEPH diagnosis (< 12 vs. ≥ 12 months).
Results: Of the 95 patients included, 66 (69%) had a documented history of PE. The median time from PE to CTEPH diagnosis was 21.5 months in patients with prior PE and 19.0 months from first symptoms to CTEPH diagnosis in those without prior PE (p = ns), indicating that prior PE did not lead to a significantly earlier diagnosis. Clinical, echocardiographic and hemodynamic characteristics were also comparable, suggesting that prior PE did not identify a lower-risk phenotype (Table 1). The prevalence of established CTEPH risk factors (hypothyroidism, splenectomy, inflammatory bowel disease, myeloproliferative disorders, antiphospholipid syndrome, cancer) was also similar between groups. Among patients with prior PE, 21 (32%) were diagnosed within 12 months and 45 (68%) after ≥ 12 months. No significant differences were found between these groups regarding NYHA class, right atrial size, right ventricular dilatation, sPAP, cardiac index, mPAP, PAWP, PVR, or arterial oxygen saturation. The only significant difference was observed in TAPSE, which was lower in patients diagnosed < 12 months (16.2 [14-20] vs. 19.0 [16-22] mm, p = 0.049) (Table 2).
Conclusions: The diagnosis of CTEPH in our cohort was still late and at a high-risk stage. Having a prior PE did not result in a shorter time to CTEPH diagnosis or a less severe phenotype at presentation. The presence of PE in the medical history does not appear to enable earlier recognition of CTEPH or diagnosis at a lower-risk stage. Among patients with prior PE, only TAPSE was significantly lower in those diagnosed within 12 months, suggesting that post-PE investigations are likely performed mainly in more symptomatic patients rather than as part of systematic screening. Systematic post-PE screening strategies might be needed to detect CTEPH patients at an earlier and potentially lower-risk stage.

PO 162. ECHOING THE NEED FOR OXYGEN IN CTEPH

Tiago Lobão, Sofia Alegria, Filipa Ferreira, Débora Repolho, Ana Claúdia Vieira, Bárbara Ferreira, Paula Fazendas, Lourenço Aguiar, Diogo Cunha, Liliana Brochado, Adriana Silva, Hélder Pereira

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Chronic thromboembolic pulmonary hypertension (CTEPH) is characterized by elevated pulmonary artery pressure due to persistent obstruction by fibrotic material. In patients with resting hypoxemia (PaO2 < 60 mmHg), long-term oxygen therapy (LTOT) is indicated. Transthoracic echocardiography (TTE)-derived pulmonary artery systolic pressure (PASP) is widely used to screen for pulmonary hypertension, but its ability to predict LTOT requirement in CTEPH remains unclear.
Objectives: To evaluate whether TTE-derived PASP predicts the need for long-term oxygen therapy in patients with CTEPH.

Table 1 - Comparison of patients with and without prior PE

Variable	PE (n=66)	No PE (n=29)	p-value
Time do diagnosis (months)	21.5 [9.3-69.3]	19.0 [6.0-60.0]	ns
NT pro-BNP (pg/mL)	967 [108-3555]	952 [120-3200]	ns
PASP (mmHg)	80.9 ± 30.5	81.7 ± 31.1	ns
TAPSE (mm)	18.4 ± 4.7	18.5 ± 5.3	ns
mPAP (mmHg)	44.3 ± 13.0	43.3 ± 13.8	ns
PVR (WU)	9.0 ± 5.1	9.5 ± 4.9	ns
WHO III-IV (%)	72.7%	72.4%	ns

Data are presented as mean ± SD for normally distributed variables, and as median [IQR] otherwise.

A p-value < 0.05 was considered statistically significant.

Table 2 - Patients with prior PE: <12 vs ≥12 months to diagnosis

Variable	<12m (n=21)	≥12m (n=45)	p-value
NT pro-BNP (pg/mL)	959 [108-3555)	975 [113-2065]	ns
sPAP (mmHg)	79.1 ± 30.6	81.8 ± 30.8	ns
TAPSE (mm)	16.8 ± 3.9	19.2 ± 4.9	0.015
mPAP (mmHg)	47.2 ± 12.8	42.9 ± 13.0	ns
CI (L/min/m²)	2.4 [1.9-2.7]	2.1 [1.9-2.5]	ns
PVR (WU)	10.5 ± 5.6	9.5 ± 5.4	ns
WHO III-IV (%)	78.3%	69.8%	ns

Data are presented as mean ± SD for normally distributed variables, and as median [IQR] otherwise.

A p-value < 0.05 was considered statistically significant.

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Methods: We conducted a retrospective study of patients with confirmed CTEPH who initiated follow-up between 2015 and 2023. Baseline data were collected. Patients were considered on LTOT if oxygen was prescribed during follow-up. Group differences were assessed using the t-test. Associations between pulmonary artery systolic pressure (PASP) and LTOT were evaluated with univariate logistic regression, followed by multivariate logistic regression adjusting for age and NT-proBNP. ROC curves assessed PASP's discriminatory ability and optimal cut-off using Youden's index.
Results: Among 64 patients, 24 (37%) required long-term oxygen therapy (LTOT). The cohort was predominantly female (64%), median age of 66 years (IQR 54-75). Mean PASP was 79.8 ± 30.7 mmHg, median NT-proBNP 888 pg/mL (IQR 243-2,200), and 65% were in NYHA class III. PASP was significantly higher in the LTOT group (67.7 vs. 99.8 mmHg; p < 0.001). In univariate logistic regression, higher PASP was associated with increased odds of LTOT (OR 1.049, 95%CI 1.02-1.08; p < 0.001). ROC analysis showed good discriminatory ability (AUC 0.803, 95%CI 0.695-0.911; p < 0.001). The optimal cut-off was PASP ≥ 80 mmHg (87.5% sensitivity, 67.5% specificity), with 14.5-fold higher odds of LTOT (OR 14.5, 95%CI 3.7-57.7; p < 0.001). In a multivariate model including NT-proBNP and age, PASP remained associated with LTOT need (p = 0.04; OR 1.045, 95%CI 1.014-1.077).
Conclusions: In this CTEPH patient cohort, higher PASP was associated with the need for oxygen therapy. Each 1 mmHg increase in PASP increased the odds of needing LTOT by 4.5%. A PASP threshold of ≥ 80 mmHg was associated with a 14.5-fold increase in the likelihood of LTOT need and provided good sensitivity. These findings suggest that TTE-derived PASP may help identify patients that need LTOT.

Sexta-feira, 24 Abril de 2026 | 17:30-18:25

Área de Posters - Ecrã 3 | Sessão de Posters 28 - Do diagnóstico à decisão: cuidados orientados por imagem na era moderna

PO 163. EVALUATION OF COLLATERAL CIRCULATION AND ISCHEMIA IN CTO USING [^{13}N]NH3 PET-CT: INSIGHTS FROM QUANTITATIVE PERFUSION ANALYSIS

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Introduction: In chronic total coronary occlusions (CTO), myocardial perfusion distal to the occlusion is maintained through collateral vessels arising from adjacent arteries, which may limit ischemia and partially preserve ventricular function. Angiographic classifications such as Rentrop or Werner are commonly used to grade collateralization, although their relationship with myocardial ischemic burden remains insufficiently defined. This study sought to assess whether angiographic collateral characteristics in CTO correlate with quantitative myocardial ischemic burden using [^{13}N]NH_3 positron emission tomography computed tomography (PET-CT).
Methods: We performed a prospective, single-centre observational study of patients with CTO who underwent coronary angiography and quantitative myocardial perfusion with [^{13}N]NH_3 PET-CT, analyzed with the PCARDP (PMOD Cardiac PET Analysis Tool) software. Patients with insufficient data were excluded. Collateralization was categorized as well developed (WD) when both Rentrop grade 3 and Werner collateral connection score 2 or 3 were present, whereas the remaining were categorized as poorly developed (PD). Baseline characteristics and myocardial perfusion in the CTO territory were compared between the two groups.
Results: Fifteen patients were enrolled, with a mean age of 66.8 ± 4.2 years and a predominance of males (80%). The right coronary artery was the most involved vessel (60%). WD collaterals were identified in 9 patients (60%). Quantitative PET analysis of myocardial ischemic burden revealed no significant differences between patients with WD and PD collaterals in hyperaemic myocardial blood flow (1.24 ± 0.53 vs. 1.25 ± 0.38 mL·min^{-1}·g^{-1}, p = 0.971), resting myocardial blood flow (0.66 ± 0.17 vs. 0.74 ± 0.32 mL·min^{-1}·g^{-1}, p = 0.513), or myocardial flow reserve (1.91 ± 0.59 vs. 1.91 ± 0.81, p = 0.893).

Table 1. Angiographic characteristics of chronic total coronary occlusion (CTO) vessels and collateral circulation (n = 15).

CTO vessel, n (%)	
Left anterior descending coronary artery	3 (20.0)
Left circumflex coronary artery	3 (20.0)
Right coronary artery	9 (60.0)
Rentrop grade, n (%)	
Grade 1	0 (0.0)
Grade 2	6 (40.0)
Grade 3	9 (60.0)
Werner score, n (%)	
Score 0	0 (0.0)
Score 1	2 (13.3)
Score 2	10 (66.7)
Score 3	3 (20.0)
Well-developed collaterals, n (%)	9 (60.0)

CTO: chronic total coronary occlusion.

Table 2. Quantitative parameters of myocardial perfusion in patients with chronic total coronary occlusion (CTO) (n=15).

	WD collaterals (n=9)	PD collaterals (n=6)	*p*-value
hMBF (mL·min^{-1}·g^{-1}), mean (SD)	1.24 (0.53)	1.25 (0.38)	0.971
rMBF (mL·min^{-1}·g^{-1}), mean (SD)	0.66 (0.17)	0.74 (0.32)	0.513
MFR (absolute value), mean (SD)	1.91 (0.59)	1.91 (0.81)	0.893

hMBF: hyperaemic myocardial blood flow; MFR: myocardial flow reserve; PD: poorly developed; rMBF: rest myocardial blood flow; WD: well-developed

Conclusions: Angiographic assessment of collateral circulation in CTO did not correlate with quantitative ischemic burden measured by [^{13}N]NH_3 PET-CT. These findings suggest that angiographic collateral grading alone may be insufficient to predict the extent of ischemia and should be used cautiously when guiding decisions regarding revascularization.

PO 164. PROGNOSTIC SIGNIFICANCE OF MRI-DERIVED LUNG WATER DENSITY IN CARDIAC AMYLOIDOSIS

Mariana Silveira Ramos, Débora Correia, Rui Gomes, Gonçalo Cunha, Pedro Freitas, Carlos Aguiar, Bruno M. Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Lung Water Density (LWD), quantified by thoracic magnetic resonance imaging (MRI), is a validated non-invasive marker of pulmonary congestion. A cut-off of > 21.2% was previously established and externally validated in heart failure (HF). However, it has not been evaluated specifically in cardiac amyloidosis. Its prognostic value in this population, characterized by restrictive physiology, remains unclear.
Objectives: To evaluate the prognostic value of LWD in patients with cardiac amyloidosis.
Methods: We performed a retrospective study of patients with cardiac amyloidosis (TTR - transthyretin amyloidosis; and AL - light-chain amyloidosis) who underwent standardized thoracic MRI between 2018 and 2025. Quantitative lung water was computed using validated MRI sequences, and patients were stratified using the published LWD > 21.2% threshold for HF. The primary endpoint was a composite of all-cause death or hospitalization for HF. The main secondary endpoints included 30-month survival and composite event-free survival. Kaplan-Meier curves were truncated at 30 months, and

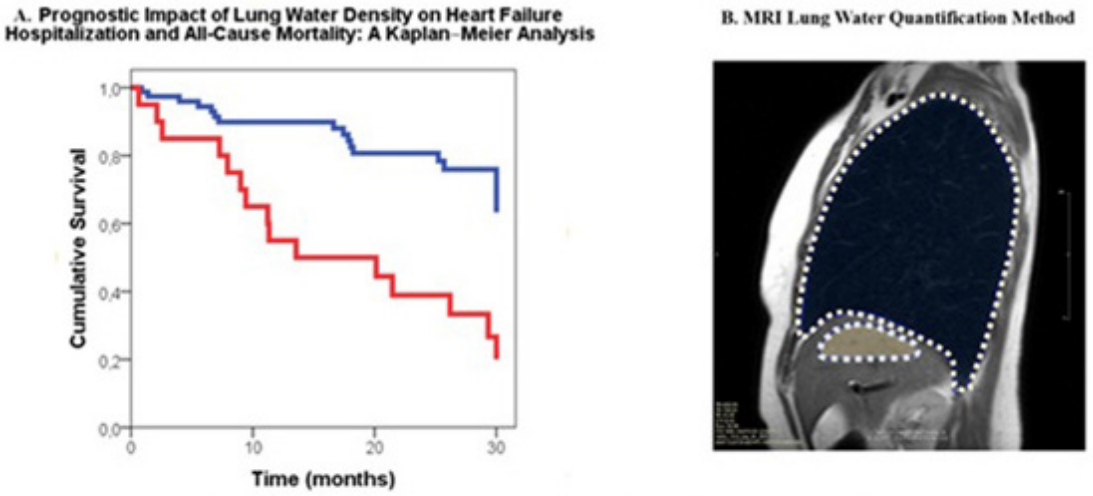

Figure 1. A. Kaplan–Meier survival analysis showing the prognostic impact of MRI-derived Lung Water Density (LWD) in cardiac amyloidosis. Patients with elevated LWD (>21.2%, red curve) exhibited significantly lower 30-month event-free survival compared with those with normal LWD (≤21.2%, blue curve). **B.** Simplified MRI methodology for quantifying Lung Water Density. Lung and hepatic operator-defined regions of interest (ROIs) are delineated in the parasagittal plane at the maximal lung cross-section, typically near the right mid-clavicular line. LWD is computed as the lung-to-liver signal intensity ratio, multiplied by 0.7, providing an objective non-invasive measure of pulmonary congestion.

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Cox proportional hazards regression (univariable and multivariable) assessed the prognostic impact of LWD.
Results: We included 101 patients (mean age 81 ± 8 years; 87% male; 93% ATTR). Overall, 20 patients had increased LWD (median 26%, IQR 23-28) and 81 had LWD < 21.2% (median 15%, interquartile range [IQR] 12-18). Baseline characteristics were similar between groups, except for left ventricular ejection fraction, which was greater in patients with low LWD (48 ± 11 vs. 40 ± 17, p = 0.020). During 30 months follow-up, 29 patients died and 17 had HF hospitalization. Patients with elevated LWD had significantly higher rates of the 30-month composite endpoint (16.0% vs. 68.8%, p < 0.001). In the multivariable model, adjusted for amyloid protein subtype, clinical congestion and NYHA, LWD remained has a strong predictor of the primary outcome (HR: 5.26; 95%CI 2.04-12.5, p = 0.001).
Conclusions: Elevated MRI-derived lung water emerged as a powerful independent predictor of adverse outcomes in patients with cardiac amyloidosis, strongly associated with reduced survival and a substantially higher incidence of cardiovascular events. These findings support LWD as a clinically meaningful, objective biomarker of congestion and risk stratification in cardiac amyloidosis.

PO 165. HEART RATE CONTROL IN CCTA: THE INCREMENTAL BENEFIT OF ADDING IVABRADINE TO BETA-BLOCKERS

Raquel Fernandes da Silva, Marta Paralta de Figueiredo, Diogo Brás, Gustavo Sá Mendes, David Neves, Ângela Bento, Renato Fernandes, Rita Caldeira da Rocha, Manuel Trinca, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Optimal heart rate (HR) control is critical for high-quality coronary CT angiography (CCTA). Although beta-blockers (BB) are standard premedication, many patients remain above target HR or have contraindications to BB use. Ivabradine offers an alternative mechanism for HR reduction in patients in sinus rhythm, yet its added value in patients already on chronic BB therapy during routine CCTA remains insufficiently defined.
Objectives: To evaluate the impact of Ivabradine, alone or combined with BBs, on HR dynamics and image quality in CCTA, and to examine whether Ivabradine provides HR reduction independently of age and chronic BB use.
Methods: A retrospective analysis of 447 consecutive CCTA studies performed between 2023 and 2025 was conducted. Patients were classified according to premedication strategy into two groups: BB alone or BB plus Ivabradine. Mean, minimum, and maximum HR values during scanning were recorded. Image quality was graded using a four-point ordinal scale (bad, reasonable, good, or very good). Group comparisons were performed using nonparametric tests; associations between HR parameters and image quality were assessed with Spearman correlations; and multivariable linear regression adjusted for age and chronic BB therapy was used to identify independent predictors of HR.
Results: Of the 447 CCTA studies, 280 (62.6%) received BB alone and 167 (37.4%) received BB plus Ivabradine. Image quality correlated with mean and maximum HR (both p < 0.001), with no association for minimum HR. Image quality did not differ significantly between groups (p = 0.131). In ordinal regression adjusted for age, chronic BB therapy and mean HR, image quality remained independently associated with mean HR (p < 0.001), while premedication strategy was not significant (p = 0.883). Among patients on chronic BB therapy, BB plus Ivabradine resulted in lower maximum HR versus BB alone (p = 0.016). In multivariable linear analysis, Ivabradine independently predicted lower mean HR during CCTA (p = 0.032).
Conclusions: Ivabradine, when added to chronic BB therapy, independently reduces mean HR and significantly attenuates HR peaks during CCTA. Although image quality did not differ significantly between groups, the overall physiological and statistical evidence suggests that Ivabradine can still be useful in CCTA premedication, particularly in beta-blocked patients or in centres using scanners that are more sensitive to heart-rate variability.

PO 166. CORONARY CT AS A FIRST-LINE STRATEGY FOR BYPASS GRAFT ASSESSMENT: DIAGNOSTIC CONCORDANCE AND PREDICTORS OF OCCLUSION

Raquel Fernandes da Silva, Marta Paralta de Figueiredo, Diogo Brás, Gustavo Sá Mendes, David Neves, Ângela Bento, Renato Fernandes, Rita Caldeira da Rocha, Manuel Trinca, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Assessment of coronary bypass graft patency is essential in symptomatic post-CABG patients. While invasive coronary angiography (ICA) is the reference standard, coronary CT angiography (CTCA) provides a non-invasive alternative. Robust real-world evidence on diagnostic accuracy and predictors of graft occlusion remains limited.
Objectives: To evaluate diagnostic agreement between CTCA and ICA for graft occlusion, report sensitivity/specificity metrics, and identify predictors of graft occlusion and discordance.

Methods: Retrospective cohort of 35 post-CABG patients (72 grafts) who underwent CTCA and ICA. Grafts were classified by type (arterial vs. venous) and coronary territory. OM and secondary branch grafts in this cohort were predominantly venous. Occlusion was considered only when complete graft occlusion was present on the reference test. Concordance was assessed with Cohen's kappa and chi-square; diagnostic accuracy (sensitivity, specificity, positive and negative predictive values) was calculated. Predictors of occlusion and patterns of discordance (CTCA under- or overestimation) were analysed.
Results: Among 72 grafts (52.8% arterial, 47.2% venous), ICA identified 16 occlusions (22.2%). Venous grafts demonstrated markedly higher occlusion rates than arterial grafts (41.2% vs. 5.3%; $p < 0.001$). CTCA showed excellent agreement with ICA (concordance 93.1%; Cohen's kappa = 0.877, $p < 0.001$). Diagnostic performance of CTCA for detecting complete graft occlusion: sensitivity 87.5%, specificity 98.2%, PPV 93.3%, NPV 96.5%. Overall discordance was low (6.9%), mainly due to CTCA underestimation (5.6%). Coronary territory significantly influenced occlusion prevalence (higher in OM and secondary branches; $p = 0.003$), but neither graft type nor territory predicted CTCA-ICA discordance.
Conclusions: CTCA demonstrates very high diagnostic accuracy for detection of complete bypass graft occlusion with excellent agreement with ICA and high sensitivity and specificity. Venous grafts and specific territories bear greater occlusion burden, yet CTCA performance remains robust across types and territories. These findings support the use of CTCA as a reliable first-line imaging strategy in symptomatic post-CABG patients, with potential to reduce diagnostic ICA in selected cases.

PO 167. REAL-WORLD UTILIZATION OF CARDIAC COMPUTED TOMOGRAPHY FOR ACUTE CARDIOVASCULAR EVALUATION IN THE EMERGENCY DEPARTMENT

Inês Arrobas Rodrigues, Inês Neves, António Gonçalves, Leonor Moura, Francisco Sousa, Francisca Nunes, Marta Almeida, Diogo Ferreira, Fábio Nunes, Rita Faria, Nuno Ferreira, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction and objectives: Cardiac computed tomography (CCT) is established for evaluating obstructive coronary artery disease (CAD) in patients with low to moderate pre-test probability. However, its utility in the emergency department (ED) extends to broader cardiovascular assessment. The aim of this study was to review the clinical indications and impact of CCT performed in the ED of our centre.
Methods: All patients admitted to the ED who underwent urgent CCT between January 2020 and December 2024 were included. A descriptive analysis of CCT indications was conducted. Patients assessed for suspected CAD were further evaluated regarding ED diagnosis and clinical outcomes during follow-up (FU).
Results: Over a median FU of 1070 days (IQR 556-1,401), 210 patients underwent urgent CCT. Coronary CT angiography (CCTA) was mainly performed in patients with chest pain to exclude obstructive CAD (80%), acute aortic syndrome (13%) and pulmonary embolism (9.5%). A triple-rule-out strategy was used in 8% of cases, and dual-energy protocol in 2% when CAD was excluded but diagnostic uncertainty persisted. CCT was also used to guide pericardiocentesis (12.4%), exclude intracardiac thrombus (3.8%), and assess suspected myocardial perforation (1.8%). Among patients who underwent CCTA for CAD assessment (n = 170), 58% were male and most had no prior atherosclerotic disease. Hypertension, dyslipidaemia and diabetes were present in 45%, 49% and 13% of patients, respectively. CCTA was most commonly performed for chest pain suggestive of non-cardiac origin (58%), with low levels of high-sensitivity cardiac troponin (12 ng/dL, IQR 5-64). CCTA revealed no or non-obstructive CAD in 77% of patients, obstructive CAD in 15.3%, and was inconclusive in 6.5%. Following CCTA, 23.5% of patients required invasive coronary angiography and 11.8% underwent invasive treatment. The most frequent final ED diagnoses included non-specific chest pain (48.8%), acute coronary syndrome (11.2%), and peri/myocarditis (12.4%). During FU, 28.2% of patients reported recurrent chest pain, 2.4% of patients underwent invasive revascularization, and 0.6% had an acute coronary syndrome. At 1 year, one patient died (prosthetic aortic valve endocarditis).
Conclusions: CCT is a valuable tool for the differential diagnosis of chest pain in the ED, providing accurate and safe assessments without compromising patient prognosis. Its additional role in guiding pericardiocentesis and providing rapid anatomic characterization further supports its broad integration in ED workflows.

PO 168. GENETIC INFLUENCES ON CLINICAL AND IMAGING OUTCOMES IN DILATED CARDIOMYOPATHY

Mónica Dias[1], Andreia Sousa[1], Sabrina Diniz Padrão[2], Sofia Fernandes[1], Carla Ferreira[1], Filipe Vilela[1], Bárbara Rocha[1], João Faria[1], Nuno Salomé[1], Carla Marques Pires[1]

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Introduction: Dilated cardiomyopathy (DCM) is a heterogeneous disease influenced by both genetic and environmental factors, often leading to heart failure and arrhythmias. Advances in genetic screening and imaging have improved diagnosis and prognosis, but their implementation remains inconsistent in clinical practice.
Objectives: This study aimed to correlate genetic variants with imaging findings, clinical outcomes, and therapeutic responses, as well as to characterize the population with DCM based on etiology. Additionally, it sought to evaluate the diagnostic work-up performed in this population.
Methods: A single-center retrospective observational study was conducted including patients with diagnosis of dilated cardiomyopathy from 2020 to 2024. A full characterization, according to baseline characteristics, diagnostic workup and genetic or non-genetic etiology was performed.
Results: The study included 309 patients with diagnosis of DCM, mean age of 68 ± 14 years, 65% male. Of those considered to have idiopathic DCM (73%), only 52% underwent cardiac magnetic resonance (CMR) and 12% genetic testing. Familial DCM accounted for 3% of the cases; acquired forms (25%) were mainly alcohol- and chemotherapy-related, yet genetic testing was performed in only 5% and 7% of these cohorts, respectively. Titin mutations were linked to higher LVEF (38.2% vs. 31.5%, p = 0.04) and better treatment response, while filamin C mutations were associated with more arrhythmic events (67% vs. 22%, p < 0.01). Patients reaching the composite endpoint of ventricular arrhythmic events and heart failure progression had larger LV diameters (66 ± 5 vs. 59 ± 5 mm, p = 0.03), higher LA volumes (52 ± 7 vs. 45 ± 6 mL/m^2, p = 0.02), lower left ventricle ejection fraction (29 ± 4% vs. 37 ± 4%, p < 0.01), and more prevalence of CMR fibrosis (72% vs. 45%, p = 0.02).
Conclusions: Idiopathic DCM was the most common form of DCM, but familial cases were likely underdiagnosed due to low genetic testing, particularly in subgroups of acquired toxic DCM. Titin mutations favored recovery of function, while filamin C increased arrhythmic risk. Worse outcomes were linked to fibrosis and cardiac dysfunction. Expanding screening as recommended by guidelines could enhance diagnosis, improving treatment with impact on prognosis.

Sábado, 25 Abril de 2026 | 08:00-08:55

Área de Posters - Ecrã 1 | Sessão de Posters 29 - Pacing sem elétrodos e inovação em dispositivos

PO 169. A DECADE OF LEADLESS PACEMAKER IMPLANTATION: TECHNICAL PERFORMANCE, SAFETY AND DEVICE LONGEVITY

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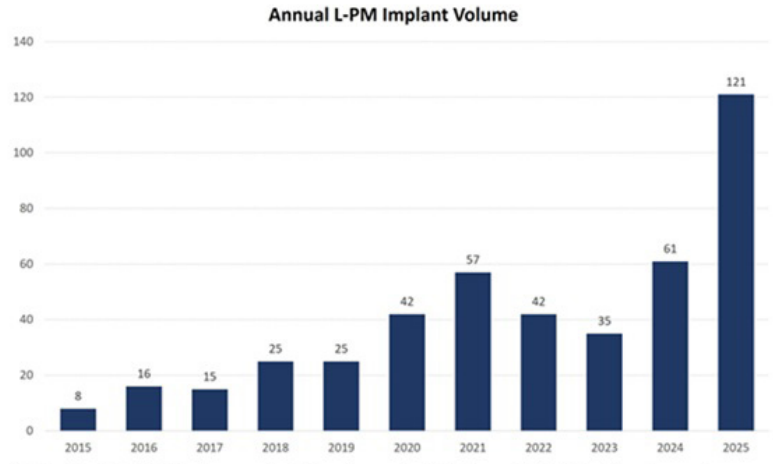
Introduction: Leadless pacemakers (L-PM) eliminate the need for transvenous leads and pacemaker pockets, reducing lead-related

L-PM implantations from May 2015 to November 2025 (N = 447)	
Baseline characteristics of the patients	
Age (years)	80.0±9.4
Male sex	285 (64%)
Indications for permanent pacing	
High-degree atrioventricular block	288 (64%)
Atrial fibrillation with pauses	119 (27%)
Other	38 (9%)
Specific scenarios	
L-PM after conventional device extraction	37 (8%)
L-PM after percutaneous structural intervention	77 (17%)
Procedural characteristics	
Duration (min)	41.1±24.7
Fluoroscopy time (min)	4.4±3.8
Acute major complications	
Pericardial effusion	4 (0.9%)
Conversion to a transvenous pacemaker	2 (0.4%)
L-PM Pacing mode	
VVI	278 (62%)
VDD	167 (36%)
Follow-up characteristics (mean follow-up of 2.5 ± 2.3 years; 60 pts > 5year FUP)	
Pacing threshold (V)	0.60 (versus 0.64 at baseline)
R-wave amplitude (mV)	12.5 (versus 12.3 at baseline)
Ventricular pacing (percentage)	59±39
L-PM end-of-life	1 (0.4%)
Upgrade to CRT/LBBAP	3 (1.2%)
Death from any cause*	119 (27%)



V –Volts; mV – millivolts; L-PM Leadless pacemaker; CRT - cardiac resynchronization therapy; LBBAP - left bundle branch area pacing
*a mean of 83.2 ± 38.3 years old and 2.1±1.8years after L-PM implantation; no death was device-related.

Figure PO 169

complications. After more than a decade of clinical use worldwide, real-world data on long-term performance and management of end-of-life devices remain limited. We report a 10-year single-center experience focusing on procedural practice evolution, long-term pacing parameters, safety and battery longevity.

Methods: Single-center prospective registry including all consecutive patients undergoing ventricular L-PM implantation from May 2015 to November 2025. Clinical characteristics, procedural data, pacing parameters and estimated battery longevity were collected at implant and at latest follow-up (FUP).

Results The cohort included 447 patients (mean age 80.0 ± 9.4 years; 64% male). Successful implantation occurred in 445 patients (99.6%). Main pacing indications were high-grade AV block (64%) and atrial fibrillation with pauses (27%). Notably, 8% of implants were performed after extraction of an infected conventional system and 17% following transcatheter structural heart procedures. Procedural efficiency improved over the years, with global mean procedure and fluoroscopy times of 41.1 ± 24.7 min and 4.4 ± 3.8 min. Acute major complications were infrequent: pericardial effusion occurred in 0.9% (one tamponade), and 0.4% required conversion to a transvenous pacemaker (one due to acute L-PM dysfunction and the other due to a small RV cavity). Additionally, two lymphatic access-site complications were reported, one requiring surgical treatment. No device dislodgment occurred. During a mean FUP of 2.5 ± 2.3 years, pacing parameters remained stable (threshold: 0.64 to 0.60V; R-wave amplitude: 12.3 to 12.5 mV). Mean ventricular pacing was 59 ± 39% and estimated battery longevity was > 8 years in 84%. Among those with > 5-year of FUP (N = 60; mean FUP 6.7 ± 2.4 years), 80% maintained > 5 years of predicted longevity. Three upgrades to CRT or LBBAP occurred due to pacing-induced LV dysfunction. One true end-of-life event occurred 6 years post-implant (100% VP, high thresholds), successfully managed with a second L-PM. There were 119 deaths (27%), none device-related.

Conclusions: Over 10 years of experience, L-PM implantation proved to be a robust and safe pacing modality in routine practice, maintaining stable electrical performance and excellent battery durability, with only one device reaching end-of-life. Ongoing FUP will clarify long-term replacement strategies and lifetime device management in this growing population.

PO 170. THE JUGULAR APPROACH FOR LEADLESS PACEMAKER IMPLANTATION

Fernando Ferreira, Pedro Silva Cunha, Sofia Jacinto, Margarida Figueiredo, Manuel Brás, Hélder Santos, Guilherme Portugal, Bruno Valente, Ana Lousinha, Paulo Osório, Rui Cruz Ferreira, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Leadless pacemakers have emerged as a valuable alternative to conventional transvenous pacing systems, particularly in patients with higher infectious risk, limited venous access or severe chronic renal disease. The femoral vein is the stablished traditional access, but the approach through internal jugular vein has been proposed as an alternative to simplify the device delivery, reduce procedural time and allow for earlier mobilization. However, data on the efficacy and safety of the jugular approach remain limited.
Objectives: To evaluate the initial experience of leadless pacemaker implantation via right jugular access.
Methods: A retrospective cohort study including adult patients who underwent leadless pacemaker implantation through the jugular vein between January and October 2025 at a tertiary centre. Baseline clinical characteristics and procedural variables were collected. Univariate analysis, including chi-square and Mann-Whitney U were used in between-group comparisons (jugular vs. femoral access). A p-value < 0.05 was considered statistically significant.
Results: A total of 13 consecutive patients (mean age 80.7 ± 6.3 years; 38% female) underwent jugular leadless pacemaker implantation. The main indications were previous device infection (31%) and severe chronic kidney disease or dialysis (46%). The majority of the procedures were performed in outpatients (86%) and in patients with atrial fibrillation (77%). Implantation success was achieved in all patients. At implantation, mean sensing amplitude was 7.8 ± 2.5 mV, impedance 749 ± 142 Ω, and threshold 0.5 V (0.25-2.0). When compared with the femoral approach series of our centre (n = 72), the jugular approach was associated with shorter fluoroscopy time (3.5 vs. 5.4 min, p = 0.025), shorter total procedure time (51.7 ± 6.9 vs. 59.3 ± 21.9 min, p = 0.045), and shorter hospitalization duration (p = 0.026). No major procedural complications were observed.
Conclusions: Leadless pacemaker implantation via jugular access is safe and feasible with high success and adequate electrical performance. Compared with the usual femoral approach, appeared to be associated with shorter fluoroscopy and procedure times, as well as reduced hospitalization length. Larger prospective studies are needed to confirm these observations.

PO 171. VERY LONG-DWELL TIME LEADS: STILL A CONCERN IN TRANSVENOUS LEAD EXTRACTION? SAFETY AND CLINICAL OUTCOMES

Leonor Magalhães, Raquel França Moreira, Margarida G. Figueiredo, Sofia Jacinto, Hélder Santos, Guilherme Portugal, Pedro Silva Cunha, Ana Lousinha, Pedro Coelho, Rui Cruz Ferreira, Bruno Valente, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Lead dwell time significantly increases procedural complexity due to fibrotic adhesions along the venous system, cardiac chambers, and tricuspid valve, and is a major predictor of extraction failure and complications. The Pisa Technique (PT), a rotational sheath-based approach, has shown low complication rates in large registries. We aimed to assess the safety and efficacy of very long dwell time lead (VLDTL) extraction.
Methods: Retrospective single-center analysis of consecutive patients undergoing transvenous lead extraction (TLE) between February 2013 and December 2024, comparing those with VLDTL group (≥ 10 years) with a contemporary cohort with recent leads (< 10 years, non-VLDTL group). Demographics, procedural characteristics, clinical and radiological success, complications, and mortality were analyzed.
Results: Among 283 patients, 116 underwent VLDTL extraction (227 leads), with a median dwell time of 149 months (IQR 132-180), compared with 48 months (36-84) in the non-VLDTL Group. The longest implanted lead reached 432 months; 108 patients had leads aged 10-20 years, and 8 patients > 20 years. VLDTL patients were predominantly male (75.9%), with a median age of 75 years (59-81) and a median left ventricular ejection fraction of 55% (50-60). Baseline characteristics were largely comparable, except for a lower prevalence of diabetes mellitus (p = 0.047), dilated cardiomyopathy (p = 0.006), and LVEF < 50% (p = 0.039) in the VLDTL group. VLTDL group had a higher proportion of CIED infection as extraction indication (83.2% vs. 70.3%, p = 0.017) and differences in device types (CRT devices more common in non-VLDTL Group; p = 0.033) [Table 1]. VLDTL extraction required significantly more frequent use of the PT (p < 0.001) [Table 2]. There were

Baseline Characteristics (n=13)		
Age – years	80,7	(±6,3)
Female – n (%)	5	(38)
Origin		
Outer patient – n (%)	4	(31)
Hospitalized – n (%)	3	(23)
Ambulatory – n (%)	6	(46)
Rhythm		
Atrial Fibrillation – n (%)	10	(77)
Sinus Rythm – n (%)	3	(23)
Motive		
Infectious – n (%)	4	(31)
Chronic Kidney Disease – n (%)	3	(23)
Dialysis – n (%)	3	(23)
Tricuspid Disease – n (%)	1	(8)
Other – n (%)	2	(16)
Success – n (%)	13	(100)

	Jugular access (n=13)		Femoral access (n=72)		p value
Ambulatory – n (%)	6	(46)	15	(21)	0,017
Hospitalized – n (%)	7	(54)	57	(79)	
Fluoroscopy time – min	3,5	(2-10)	5,4	(1-18)	0,025
Procedure Time – min	51,7	(±6,9)	59,3	(±21,9)	0,045
Hospitalization length – days	1	(1-6)	1	(1-79)	0,026

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	≥10 years leads (n=116)	<10 years leads (n=167)	p value
Age - median (IQR), years	75 (59-81)	71 (60-81)	0.434
Male sex - n (%)	88 (75.9)	117 (70.1)	0.179
Cardiovascular risk factors - n (%)			
Hypertension	58 (50.0)	93 (55.7)	0.143
Diabete mellitus	30 (25.9)	55 (32.9)	**0.047**
Previous Cardiac Disease - n (%)			
Heart Failure	36 (31.0)	27 (16.2)	0.056
Dilated cardiomyopathy	15 (12.9)	37 (22.2)	**0.006**
Hypertrophic cardiomyopathy	2 (1.7)	3 (1.8)	0.839
Coronary artery disease	19 (16.4)	27 (16.2)	0.416
Valvular disease	14 (12.1)	31 (18.6)	0.168
CKD (eGFR <60ml/min) - n (%)	38 (32.8)	50 (29.9)	0.361
Median LVEF (IQR), %	55 (50-60)	55 (44-60)	0.162
LVEF <50% - n (%)	24 (20.7)	55 (32.9)	**0.039**
Previous LE attempts - n (%)	5 (4.3)	16 (9.6)	0.134
Median follow up time, months	36 (15-76)	41 (18-71)	0.544

Table 1 – Baseline demographic and clinical characteristics of patients undergoing transvenous lead extraction according to lead dwell time (≥10 years vs <10 years).

	≥10 years leads (n=116)	<10 years leads (n=167)	p value
Median lead dwell time (IQR), months	149 (132-180)	48 (36-84)	
Main indication for extraction			**0.017**
Infection	97 (83.2)	128 (70.3)	
Non infectious	19 (16.8)	54 (29.7)	
Device			
PMD	82 (70.7)	99 (59.3)	**0.034**
CRT-D/CRT-P	18 (15.5)	42 (25.1)	**0.030**
ICD	16 (13.8)	25 (15.0)	0.911
Median number of extracted leads (IQR)	2 (1.25-2)	2 (1.0-2.0)	0.201
Extraction procedure - n (%)			**<0.001**
Simple traction	9 (7.8)	43 (25.7)	
PISA technique	107 (92.2)	124 (74.3)	
3 ou more extracted leads - n (%)	21 (18.1)	30 (18.0)	0.984

Table 2- Procedural characteristics and extraction strategies according to lead dwell time (≥10 years vs <10 years).

	≥10 years leads (n=116)	<10 years leads (n=167)	p value
Clinical success	111 (95.7)	154 (98.9)	0.091
Radiologic sucess	100 (86.2)	175 (96.2)	**0.002**
Procedure-related complications			
Major complications	5 (4.3)	3 (1.7)	0.126
Minor complications	7 (6.0)	9 (5.3)	0.070
Median follow up time, months	36 (15-76)	41 (18-71)	0.544
Mortality (all causes)	28 (24.1)	36 (22.0)	0.120
In-hospital	7 (6.0)	6 (3.5)	0.169
During the 1st year	7 (6.0)	11 (6.6)	0.508

Table 3- Clinical and radiological success, procedure-related complications, and mortality according to lead dwell time (≥10 years vs <10 years).

CKD, Chronic kidney disease; CRT-D, cardiac resynchronization therapy–defibrillator; CRT-P, cardiac resynchronization therapy–pacemaker; ICD, implantable cardioverter-defibrillator; IQR, Interquartile Range; LE, Lead extraction; LVEF , Left ventricular ejection fraction; PMD, Pacemaker

Figure PO 171

no differences regarding clinical success (with a high rate of 95.7%), however radiological success decreased significantly compared to non VLDTL group (85.1% vs. 96.2%, p = 0.001). Major and minor complications occurred in 5 and 7P, respectively, without significant differences between groups (p = 0.126 and p = 0.070). No intraprocedural deaths were recorded. 7 in-hospital deaths occurred, only one procedure-related. Over a median follow-up of 36 months (15-76), all-cause mortality reached 24.1% [Table 3]. VLDT group was a strong predictor of extraction radiologic failure, being associated with a more than fourfold increase (OR 4.29, 95%CI 1.63-11.34, p = 0.003).
Conclusions: Our single-center experience shows that although extraction of long dwell time leads entails greater procedural complexity and danger, it increases the risk of procedural failure (radiological), but not of complications or mortality. That confirms that percutaneous extraction using the Pisa Technique is safe, feasible, and highly effective even in very old leads.

PO 172. COMPARATIVE REAL-WORLD PERFORMANCE OF FIRST- AND SECOND-GENERATION OF MICRA AV LEADLESS PACEMAKER: INSIGHTS FROM A TWO-CENTER EXPERIENCE

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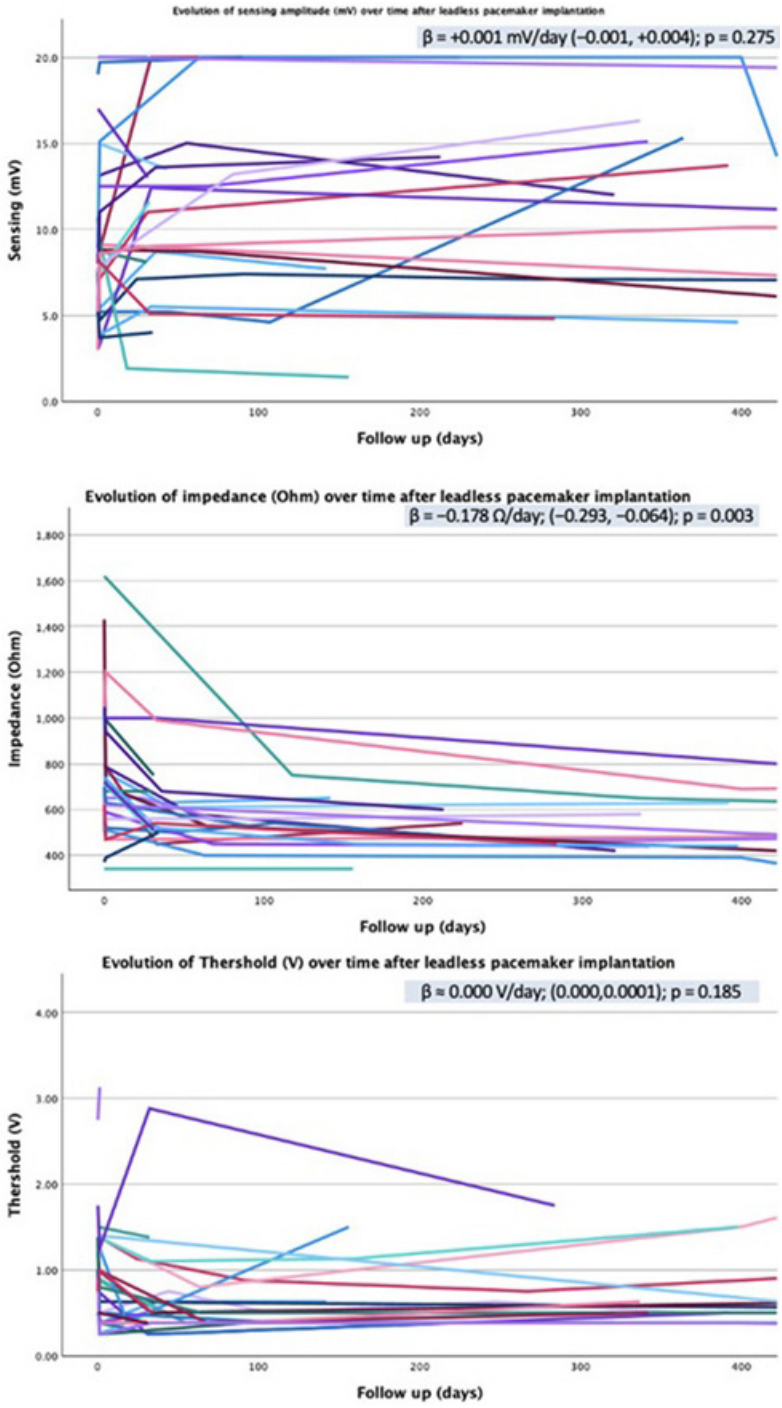
Introduction: Micra AV (Medtronic) was the first-generation leadless pacemaker (LP) capable of ventricular pacing and mechanical atrial sensing (VDD mode), but with a high variability in AV synchrony (AVS) reported. A second generation, Micra AV2, is now available, promising higher automatic tracking capability and longer battery life. However, real-world data of AVS reliability and device long-term performance is scarce.
Objectives: We sought to access real-world effectiveness of Micra AV pacemakers, comparing both device generations regarding electrical performance, atrioventricular tracking, reprogramming requirements and battery status.
Methods: This was a two-center analysis including consecutive patients implanted with a Micra AV for atrioventricular block, screened and assessed before discharge and during follow-up (1- and 6- month post-implant). Patients were divided in first- (Micra AV1) and second-generation (Micra AV2) devices and compared regarding AVS and atrial mechanical sensed-ventricular pacing (AM-VP), ventricular pacing burden without AVS (%VP-only), reprogramming needs and battery longevity.
Results: Forty-two patients were included (Micra AV1 n = 28; Micra AV2 n = 14). Baseline characteristics were comparable, with similar distribution of major cardiovascular comorbidities. AVS was better in Micra AV2 group with significantly higher AM-VP at all timepoints (pre-discharge: 3.1% vs. 47.8%, p = 0.02; 1 month: 30.9% vs. 72.4%, p = 0.03; 6 months: 13.6% vs. 76.2%, p = 0.008). In contrast, individualized reprogramming was more frequent in Micra AV1 patients (61.3% vs. 21.4%, p = 0.02). This was even more evident in patients with higher ventricular pacing burden (> 20%). In this subgroup, Micra AV2 maintained markedly better atrial mechanical synchrony throughout follow-up (pre-discharge: 1.9% vs. 64.6%, p = 0.028;1 month: 5.1% vs. 76.6%; p = 0.049; and 6 months: 5.9% vs. 79% p = 0.035) and less reprograming (77.8% vs. 22.2%, p = 0.033). Regarding battery parameters, Micra AV2 group had better projected longevity in the overall cohort (battery voltage 2.58V vs. 2.56V; p = 0.001) and in high-burden patients (battery voltage 2.58V vs. 2.56V; p = 0.025).
Conclusions: Micra AV2 pacemakers demonstrated enhanced atrial-mechanical tracking, reduced need for reprogramming and superior battery estimates compared to first generation devices. These findings support improved device efficiency in real-world practice of Micra AV2.

PO 173. LEADLESS PACEMAKERS IN DIALYSIS PATIENTS: HOW DO THEY PERFORM?

Fernando Nascimento Ferreira[1], Margarida Câmara Farinha[2], Sofia Jacinto[1], Ricardo Bernardo[1], Guilherme Portugal[1], Bruno Valente[1], Sónia Oliveira[2], André Viveiros Monteiro[2], Ana Lousinha[1], Pedro Silva Cunha[1], Rui Cruz Ferreira[1], Mário Oliveira[1]

[1]ULS São José/Hospital de Santa Marta. [2]Hospital do Divino Espírito Santo, Ponta Delgada.



Introduction: Leadless pacemakers represent a major advancement in cardiac pacing, particularly for patients in whom traditional transvenous systems pose higher procedural and long-term risks. Individuals with end-stage renal disease (ESRD) on dialysis are especially vulnerable due to limited vascular access, central venous stenosis, and increased infection risk. By eliminating transvenous leads and subcutaneous pockets, leadless pacemakers reduce these complications while preserving venous integrity. However, data on their long-term electrical performance in dialysis patients remain scarce. Evaluating the evolution of pacing parameters–sensing amplitude, impedance, and capture threshold–is essential to confirm their reliability in this high-risk group.

Objectives: Evaluate the evolution of pacing parameters during the first year after leadless pacemaker implantation in patients under dialysis.

Methods: We conducted a retrospective two-centre cohort study including consecutive patients who underwent leadless pacemaker implantation between 2016 and 2025 under dialysis. Baseline clinical and procedural data were collected. Pacing parameters (sensing amplitude, impedance, and capture threshold) were recorded at implantation and during follow-up interrogations. Linear mixed-effects models were used to assess changes in pacing parameters over time.

Results: A total of 36 patients (mean age 71.8 ± 10.2 years, 31% female) were included. The majority (58.3%) had atrial fibrillation. Implantation was most frequently in the mid-septum (56%) using Micra VR (53%). At implantation, mean sensing was 7.6 mV (range 3.0-20.0), impedance 695 Ω (341-1,620), and threshold 1.00 V @ 0.24 ms (0.38-2.75). During follow-up (median 335 days, (1-2,533)), mixed-effects analysis showed no significant change in sensing

(β = +0.001 mV/day; 95%CI −0.001 to +0.004; p = 0.275) and in capture threshold (β ≈ 0.000 V/day; 95%CI 0.000-0.0001; p = 0.185). Conversely, impedance decreased significantly over time (β = −0.178 Ω/day; 95%CI −0.293 to −0.064; p = 0.003), corresponding to approximately −5.4 Ω per month.
Conclusions: In dialysis patients, leadless pacemaker performance remained stable during the first year of follow-up, with preserved sensing and capture thresholds and a mild, expected decrease in impedance. These findings support the procedural and functional safety of leadless pacing in this high-risk population, although larger studies with longer follow-up are warranted to confirm long-term device stability and performance.

PO 174. 10-YEAR EXPERIENCE OF SUBCUTANEOUS IMPLANTABLE CARDIOVERTER DEFIBRILLATOR IMPLANTATION IN A TERTIARY CARE CENTER

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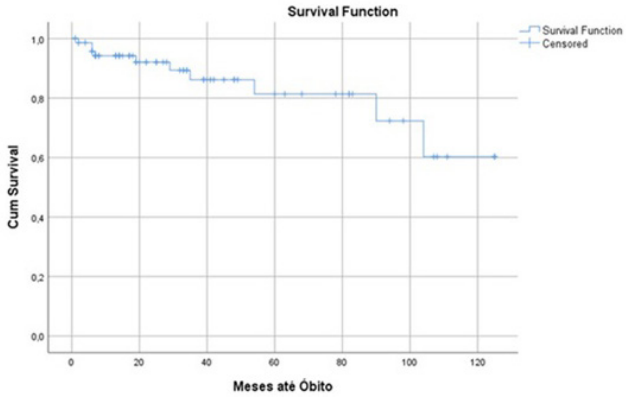
ULS São José/Hospital de Santa Marta.

Introduction: Subcutaneous implantable cardioverter defibrillators (S-ICD) have emerged as an alternative to transvenous ICD, mainly in young patients, in those where there is limited venous access or if the risk of cardiac implantable device infection is deemed significant.
Objectives: To analyze the complication rates and clinically significant outcomes for patients who have undergone S-ICD implantation in a tertiary care center.

Baseline Population Characteristics (n = 76)

Age (years) – mean ± std	40.49 ± 16.00
Female gender – n (%)	18 (23.7%)
Previous ICD – n (%)	10 (13.2%)
Previous S-ICD – n (%)	2 (2.6%)
Secondary prevention – n (%)	19 (25.0%)
Cardiomyopathy – n (%)	44 (57.9%)
Primary electrical disease – n (%)	8 (10.5%)
Ischemic heart disease – n (%)	7 (9.2%)
Sensing vectors screening data – n (%)	40 (52.6%)
Defibrillation threshold testing – n (%)	69 (90.8%)
Defibrillation threshold power (J) – mean ± std	64.87 ± 4.93
Impedance (Ω) – mean ± std	67.00 ± 18.66



Methods: A retrospective analysis of all patients who underwent S-ICD implantation until November 2025 was performed. Data on mortality and clinically significant events (ventricular arrhythmias, inappropriate therapy, loss of sensing vectors, oversensing or undersensing and lead-related complications) were retrieved and time-to-event analysis was also performed.
Results: The first S-ICD implantation was performed in June 2015, with a total of 76 S-ICD implantations and a median follow-up time of 2.03 years. The S-ICD was the first cardiac implantable device in 86.8% of cases, with 2 patients already having a previous S-ICD. In 75.0% of cases the device was implanted as a primary prevention strategy, predominantly in a background of a pre-existing cardiomyopathy (in 57.9% of cases). There were no immediate procedural complications recorded; however, early loss of sensing vectors occurred in 2 cases. Late complications including lead displacement or fracture (2.6%) and device infection (1.3%) were infrequent. Clinically significant events occurred in 28.9% of patients (mainly regarding non-lead-related events, such as sustained ventricular arrhythmias and inappropriate therapy), while the mortality rate during follow-up was 13.2% (Figure 1). The sensing vector screening profile was fully obtained in 52.6% of cases (26.3% of patients had passed in all 3 sensing vectors, 23.7% in 2 and 2.6% in 1). However, there were no meaningful differences in mortality or clinically significant events in spite of the variances in the number of adequate screening sensing vectors obtained. The defibrillation threshold (DFT) test was not performed in 9.2% of cases due to clinical pre-procedural contraindications. The non-DFT group showed a greater proportion of clinically significant events (p = 0.040), particularly global mortality (p = 0.015) and cardiovascular mortality (p = 0.004), but not inappropriate therapy (p = 0.376). Time-to-event analysis also showed an increase in overall mortality (log-rank test, p = 0.048) and cardiovascular mortality (log-rank test, p = 0.035) in the non-DFT cohort.
Conclusions: S-ICD implantation is safe with a low complication rate. Nonetheless, there is a need for an adequate follow-up to treat the possible complications and clinically significant events. Finally, the absence of the DFT test after the S-ICD implantation may serve as a marker of adverse clinical outcomes, mainly increased mortality.

Sábado, 25 Abril de 2026 | 08:00-08:55

Área de Posters - Ecrã 2 | Sessão de Posters 30 - Intervenções valvulares cirúrgicas e transcateter para além da válvula aórtica

PO 175. LONG-TERM OUTCOMES OF TAVR VS. SAVR IN BICUSPID AORTIC VALVE PATIENTS: INSIGHTS FROM THE REAL-WORLD PRACTICE

Débora da Silva Correia, Catarina Santos-Jorge, Samuel Azevedo, Afonso Félix Oliveira, Sérgio Madeira, Eduardo Infante Oliveira, Luís Raposo, Tiago Nolasco, João Brito, Manuel Almeida, Rui Campante Teles, Pedro Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Bicuspid aortic valves (BAV) pose unique challenges for transcatheter aortic valve replacement (TAVR), yet real-world practice increasingly includes TAVR in these patients. However, guideline recommendations remain limited due to scarcity of long-term outcome data.
Objectives: To compare long-term outcomes following surgical aortic valve replacement (SAVR) versus TAVR in patients ≥ 70 years with BAV.
Methods: Single-centre, retrospective observational study including consecutive patients aged ≥ 70 years who underwent TAVR or SAVR between 2017 and 2024 at a tertiary centre. Clinical records were reviewed to obtain baseline characteristics, procedural data, and long-term outcomes, including the progression of bioprosthetic valve dysfunction (BVD) over time and the primary composite endpoint of all-cause mortality and rehospitalization. Procedural outcomes and BVD were assessed using standardized definitions based on VARC-3 criteria.

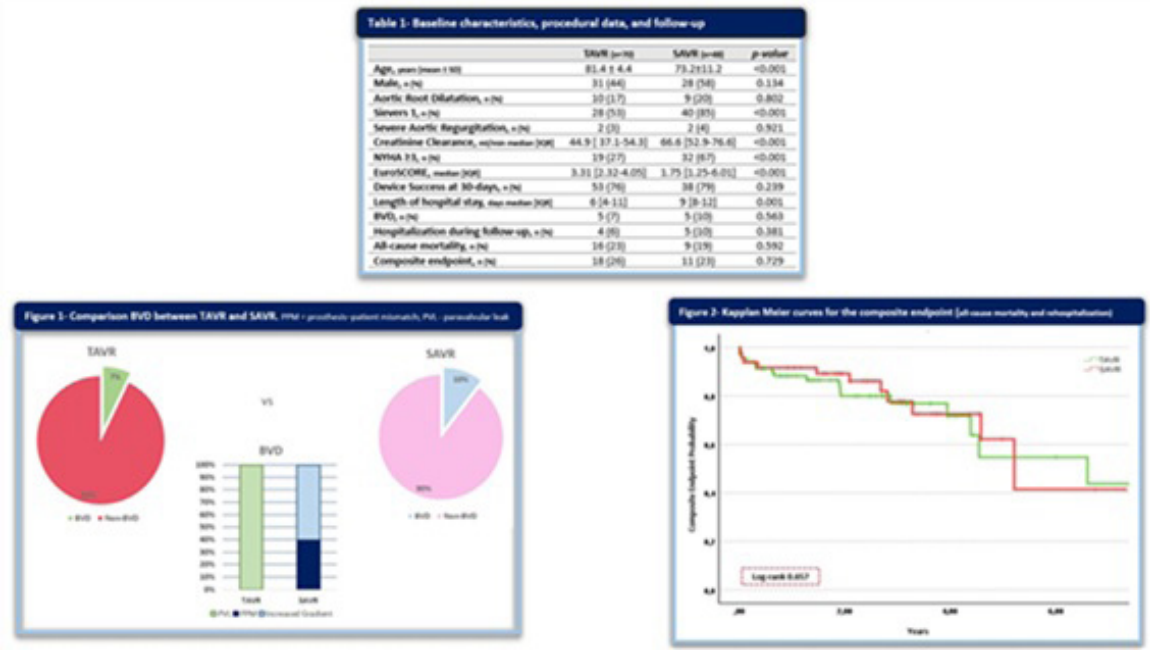


Figure PO 175

Results: A total of 118 patients were included (TAVR n = 70; SAVR n = 48). TAVR patients were older (81 ± 4.4 vs. 73 ± 11.2 years) with worse renal function. SAVR patients presented lower interventional risk. Most cases were elective (80%). Self-expanding valves were used in 76% of TAVR procedures; all SAVR patients received a biological prosthesis. Device success at 30-days was similar between groups (76% in TAVR vs. 79% in SAVR, p = 0.231) (Table 1). The mean follow-up period was 953 ± 763 days. The incidence of BVD did not differ significantly between the groups (7% in TAVR vs. 10% in SAVR, *p* = 0.563), predominantly due to non-structural BVD. In the TAVR group, all cases of BVD were due to at least moderate paravalvular regurgitation. In the SAVR group, two patients exhibited prosthesis-patient mismatch, while three developed hemodynamic valve deterioration due to leaflet degeneration, resulting in increased transvalvular gradients (Figure 1). All-cause mortality during follow-up was comparable between groups (TAVR 23% vs. SAVR 19%, *p* = 0.592), as were rates of rehospitalization (TAVR 6% vs. SAVR 10%, *p* = 0.381). The composite endpoint of death or rehospitalization did not differ significantly between TAVR and SAVR cohorts (26% vs. 23%, *p* = 0.729) (Figure 2).
Conclusions: In this real-world cohort of patients ≥ 70 years with bicuspid aortic valves, long-term outcomes were comparable between TAVR and SAVR. These findings suggest that, in contemporary practice, TAVR may offer similar long-term safety and efficacy to SAVR in this population. Larger studies are needed to confirm these results and guide clinical decision-making.

PO 176. DIRECT ORAL ANTICOAGULANTS VERSUS VITAMIN K ANTAGONISTS FOR RHEUMATIC MITRAL STENOSIS POST-BIOPROSTHETIC MITRAL VALVE REPLACEMENT

João Pedro Ferreira Faria[1], Bárbara Antunes Rocha[1], Pedro Lança Pereira[2], Carla Oliveira Ferreira[1], Filipe Silva Vilela[1], Mónica Dias[1], Sofia Fernandes[1], Inês Conde[1], Catarina Vieira[1]

[1]ULS Braga/Hospital de Braga. [2]Escola de Medicina da Universidade do Minho.

Introduction: In patients with rheumatic mitral stenosis (RMS) undergoing bioprosthetic mitral valve replacement (MVR), long-term anticoagulation is often indicated. However, evidence regarding the use of direct oral anticoagulants (DOAC) in this specific population is scarce and inconclusive. This study aimed to compare the incidence of major thromboembolic and hemorrhagic events in RMS patients after bioprosthetic MVR treated with vitamin K antagonists (VKA) versus DOAC.
Methods: This retrospective cohort study included all patients followed at a tertiary hospital with RMS who underwent bioprosthetic MVR between January 2003 and December 2024 and had an indication for long term anticoagulation. Demographic, clinical, echocardiographic, laboratory, and outcome data were analyzed using univariate and multivariate logistic regression to identify variables associated with all-cause mortality and major events, defined as ischemic or embolic stroke, intracranial hemorrhage, or severe gastrointestinal bleeding.
Results: The study included 39 patients (89.7% female; median age 70 years). Before surgery, 89.2% had moderate-to-severe mitral stenosis, and 51.4% had multivalvular disease. After surgery, 71.8% received VKA and 23.2% received DOAC. Over a median follow-up of up to 20 years, 35.9% of patients died, 43.6% were hospitalized, 15.4% experienced thrombotic events, and 12.9% had major hemorrhagic events. No statistically significant differences were observed between VKA and DOAC in the occurrence of major events (p = 0.577) or mortality (p = 1.000). Left ventricular (LV) systolic dysfunction (p = 0.011; OR = 29.4) and anemia (p = 0.014; OR = 18.8) were independent predictors of all-cause mortality. Multivalvular disease (p = 0.020) and LV dysfunction (p = 0.012) were associated with major events, although not independently.
Conclusions: In patients with RMS undergoing bioprosthetic MVR, DOAC therapy demonstrated similar safety and efficacy to VKA regarding thromboembolic, hemorrhagic, and mortality outcomes. These findings support the potential use of DOAC as a safe alternative for anticoagulation in RHS patients after bioprosthetic valve replacement.

PO 177. ECHOCARDIOGRAPHIC DETERMINANTS OF TRICUSPID REGURGITATION PERSISTENCE AFTER SURGICAL ANNULOPLASTY

Ricardo Carvalheiro, Pedro Félix, Miguel Figueiredo, Vera Vaz Ferreira, Rui Cerejo, Manuel Magalhães, António Tomás, Hagen Kahlbau, Ana Isabel Galrinho, Rui Rodrigues, Rui Cruz Ferreira, Pedro Coelho

ULS São José/Hospital de Santa Marta.

Introduction: Determinants of residual or recurrent tricuspid regurgitation (TR) after tricuspid valve surgery remain a matter of debate. This study

Variable	Value
Age, years (mean ± SD)	64.7 ± 14.6
Female sex, n (%)	133 (65.5%)
NYHA class (median [IQR])	3 [2–3]
LVEF, % (mean ± SD)	56.2 ± 8.0
RV parameters	
TAPSE, mm (mean ± SD)	18.8 ± 4.4
s' TV, cm/s (mean ± SD)	10.6 ± 3.3
RV FAC, % (mean ± SD)	40.2 ± 7.7
RV GLS, % (mean ± SD)	−15.6 ± 5.0
Free-wall strain, % (mean ± SD)	−18.1 ± 6.2
RV basal diameter, mm (mean ± SD)	47.7 ± 8.96
Tricuspid annulus diameter, mm (mean ± SD)	41.3 ± 6.1
RA volume indexed (RAVi), mL/m² (median [IQR])	53.9 [38.0–74.5]
TR grade (median [IQR])	3 [2–3]
Severe Mitral Regurgitation, n (%)	79 (39.7)
Severe Mitral Stenosis, n (%)	43 (22.4)
Severe Aortic Regurgitation, n (%)	7 (3.7)
Severe Aortic Stenosis, n (%)	23 (12.1)
Concomitant procedures, n (%)	182 (89.7)
CABG	28 (14.1%)
AF ablation	25 (12.6%)
Left Atrial Appendage closure	61 (30.7%)
Mitral Valve Surgery	135 (67.8%)
Aortic Valve Surgery	54 (27.1 %)

Table 1. Baseline Characteristics

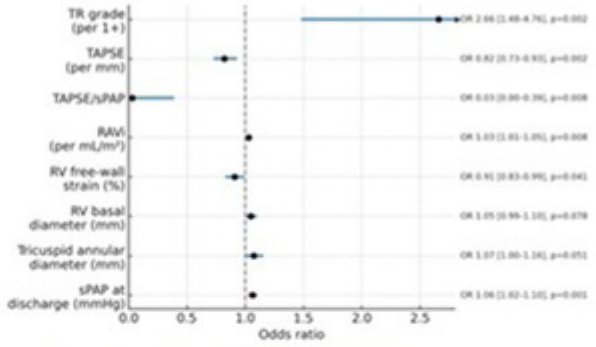


Figure 1. Univariable predictors of significant TR at 1 year

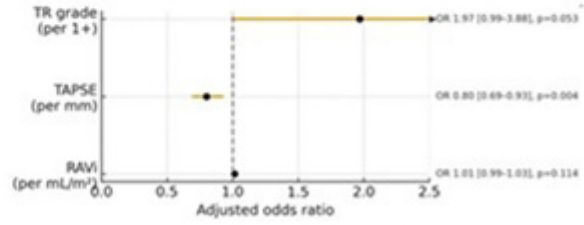


Figure 2. Multivariable predictors of significant TR at 1 year

Figure PO 177

evaluated echocardiographic predictors of significant postoperative TR at 1-year follow-up.

Methods: We retrospectively analyzed 203 patients undergoing tricuspid annuloplasty in a single center between 2018 and 2024. Baseline clinical and echocardiographic variables were evaluated. Significant TR at 1 year follow-up was defined as grade ≥ 2+. Univariable and multivariable logistic regressions were performed to examine associations between echocardiographic variables and TR severity at follow-up.

Results: Baseline characteristics are summarized in Table 1. TR grading at 1 year was available in 155 patients, of whom 35 (22.6%) had significant TR. On univariable analysis, preoperative TR grade (OR 2.66 [1.48-4.76], p = 0.002), TAPSE (OR 0.82 [0.73-0.93], p = 0.002), TAPSE/sPAP (OR 0.03 [0.00-0.39], p = 0.008), right atrial volume indexed (RAVi) (OR 1.03 [1.01-1.05], p = 0.008), and RV free-wall strain (OR 0.91 [0.83-0.99], p = 0.041) were significant predictors. RV basal diameter (p = 0.078) and tricuspid annular diameter (p = 0.051) showed borderline associations, while FAC was not associated with TR recurrence. Mitral regurgitation grade was significant but became non-associated after accounting for mitral surgery. Variables entered into the multivariable model were preoperative TR grade, TAPSE, and RAVi. In the adjusted analysis, TAPSE remained the only independent predictor of significant postoperative TR (OR 0.80 [0.69-0.93], p = 0.004), while preoperative TR grade showed only a borderline association (OR 1.97 [0.99-3.88], p = 0.053) and RAVi was not independently significant (OR 1.015 [0.994-1.033], p = 0.114). Substituting TAPSE with TAPSE/sPAP worsened model performance, confirming that TAPSE alone offered the strongest and most stable predictive value in this cohort. Notably, while preoperative sPAP was not associated with postoperative TR (p = 0.069), sPAP at discharge was significantly associated (OR 1.06 [1.03-1.10], p = 0.001).

Conclusions: Reduced preoperative RV longitudinal function, as reflected by TAPSE, was the strongest independent predictor of significant residual or recurrent TR one year after tricuspid annuloplasty, while TR grade, RAVi, TAPSE/sPAP, and RV strain showed relevant univariable associations. The lack of association between baseline sPAP and outcomes, contrasted with the strong predictive value of postoperative sPAP, suggests that preoperative pulmonary pressures may be confounded by TR severity and left-sided disease, and that sPAP after surgery better reflects the true pulmonary vascular load that drives TR persistence. These findings highlight the pivotal role of RV function and pulmonary hemodynamics in determining durability after tricuspid surgery.

PO 178. PROGNOSTIC VALUE OF THE TRI-SCORE IN CONCOMITANT SURGERY FOR SECONDARY TRICUSPID REGURGITATION

Ricardo Carvalheiro, Pedro Félix, Vera Vaz Ferreira, Miguel Figueiredo, Rui Cerejo, Manuel Magalhães, António Tomás, Hagen Kahlbau, Ana Isabel Galrinho, Rui Rodrigues, Rui Cruz Ferreira, Pedro Coelho

ULS São José/Hospital de Santa Marta.

Introduction: The TRI-SCORE was originally developed as a risk model for predicting 30-day mortality in patients undergoing isolated tricuspid valve surgery. Whether the TRI-SCORE retains prognostic value in a broader and more complex surgical population remains uncertain.

Methods: We conducted a retrospective, single-center cohort study of adults who underwent tricuspid valve repair for secondary TR performed concomitantly with other cardiac procedures between January 2018 and December 2024. The primary outcome was 5-year all-cause mortality. Secondary outcomes included 30-day mortality, 5-year heart-failure (HF) hospitalization or tricuspid reintervention, and 1-year postoperative TR severity. TRI-SCORE was calculated preoperatively for each patient.

Results: A total of 182 patients were included (mean age 65.2 ± 14.6 years; 65.4% female). Right-ventricular dysfunction was present in 19.8%, and mean TAPSE was 18.6 ± 4.1 mm. Mean LVEF was 56.2 ± 8.3% and estimated GFR 64.6 ± 26.7 mL/min. Median NYHA class was 3 (IQR 2-3), and the median daily furosemide-equivalent dose was 40 mg (IQR 20-60). Atrial fibrillation/flutter was present in 74%. Baseline TR severity was moderate in 40.0%, severe in 36.1%, and torrential in 10.0%. Concomitant procedures included mitral valve surgery (67.8%), left atrial appendage closure (34.3%), aortic valve intervention (27.1%), coronary artery bypass grafting (15.7%), and surgical AF ablation (14%). Median TRI-SCORE was 3 (IQR 1-4). Scores of 0-1 accounted for 33% of the cohort, intermediate scores of 2-4 for 44%, and high-risk scores ≥ 5 for 23%. The TRI-SCORE demonstrated strong and consistent prognostic performance across all evaluated endpoints. For 30-day mortality, each 1-point increase in TRI-SCORE conferred a hazard ratio (HR) of 1.45 (95%CI 1.15-1.82; p = 0.002), with excellent discriminatory ability (AUC 0.842, 95%CI 0.753-0.931). Over long-term follow-up, the TRI-SCORE remained independently associated with 5-year all-cause mortality (HR 1.56 per point, 95%CI 1.27-1.91; p < 0.001). For the secondary composite of 5-year HF hospitalization or tricuspid reintervention, the risk also increased

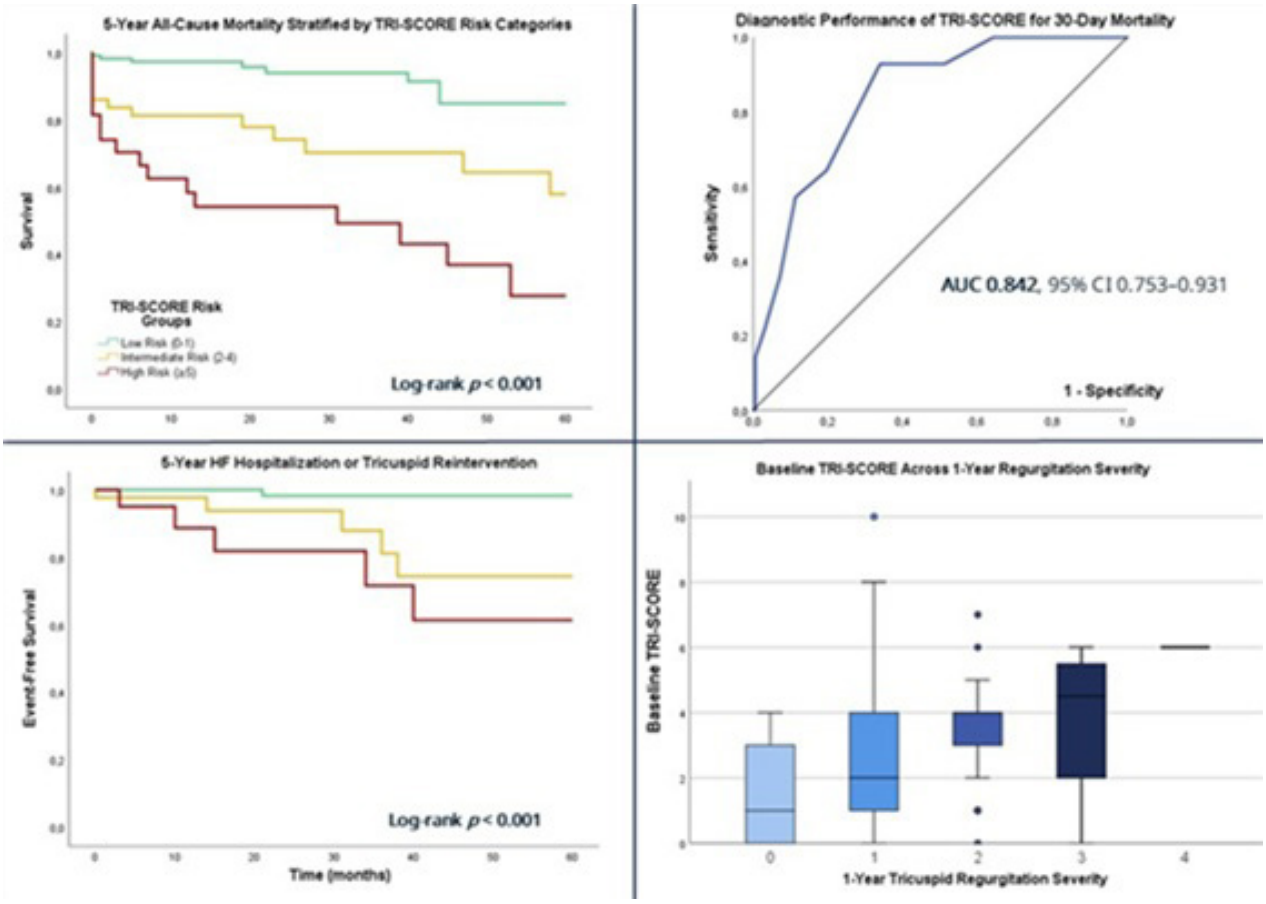


Figure PO 178

progressively with TRI-SCORE (HR 1.40 per point, 95%CI 1.24-1.59; p < 0.001). Furthermore, higher TRI-SCORE values predicted greater residual TR at 1 year (ρ = 0.31; p < 0.001), indicating increased TR recurrence in patients with worse baseline status.

Conclusions: In this contemporary cohort of patients undergoing concomitant surgery for secondary TR, the TRI-SCORE was strongly predictive not only of early postoperative mortality but also of long-term survival, HF-related events, and residual TR. These findings substantially extend the applicability of the TRI-SCORE beyond its original validation setting, highlighting its potential for preoperative risk stratification in non-isolated cardiac surgery involving the tricuspid valve.

PO 179. TRANSCATHETER TRICUSPID EDGE-TO-EDGE REPAIR: A REAL-WORLD SINGLE-CENTER EXPERIENCE

Márcia José Oliveira Presume, Catarina Santos-Jogre, Samuel Azevedo, Rita Barbosa, Margarida Matias, Paula Ratinho, Marisa Trabulo, Pedro Araújo Gonçalves, Eduardo Infante de Oliveira, Regina Ribeiras, Rui Campante Teles, Manuel de Sousa Almeida

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Severe tricuspid regurgitation (TR) is a challenging condition with high morbidity, particularly in advanced stages. Transcatheter tricuspid edge-to-edge repair (T-TEER) has emerged as a therapeutic option for patients at high surgical risk. We aimed to describe the baseline profile, procedural characteristics, safety, and mid-term clinical outcomes of patients undergoing T-TEER.

Methods: We conducted a single-center retrospective analysis of consecutive patients who underwent T-TEER between 2021 and 2025 at our center. Baseline clinical, echocardiographic, and procedural data were collected. Outcomes were assessed at discharge, 6 months and 1 year, including functional status, heart-failure rehospitalizations, and mortality.

Results: A total of 35 patients were included (mean age 80 ± 4 years; 74.3% female). Most patients were highly symptomatic (NYHA class III-IV in 68.6%), and presented a high comorbidity burden, including atrial fibrillation (97.1%), hypertension (71.4%), dyslipidemia (51.4%), diabetes mellitus (37.1%) and chronic kidney disease (22.9%). Regarding prior cardiac interventions, 37.1% patients had a history of left-sided valve surgery. All patients were on chronic oral anticoagulation, and 91.4% on loop diuretics. Median NT-proBNP was 1,877 pg/mL [1,177-2,708], and the median TRI-SCORE was 4 (range 2-9). TR was predominantly secondary (88.6%), mainly due to annular dilation (62.9%), and was classified as severe, massive or torrential in 40%, 20% and 40% of patients, respectively. Right ventricular (RV) dysfunction was present in 28.6%, with atrial and ventricular dilation in 97.1% and 80% of patients, respectively. Right heart catheterization, performed in 45.7%, showed predominantly mild precapillary and combined pulmonary hypertension. Most procedures were elective (80%), with a median hospital stay of 2 days [1-10]. The PASCAL system was used in 68.6% of procedures, with a median of 2 devices per patient. A reduction of at least two grades in TR severity was achieved in 57.2% of patients, with residual TR less than or equal to moderate in 68.5%. Partial device detachment occurred in 17.1%, and RV dysfunction was documented in 22.9%. Bleeding complications, for any cause, occurred in 8.6%. At 6 months, 77.1% reported symptomatic improvement, with 71.4% in NYHA class I-II. Heart failure readmissions occurred in 17.1%. Overall mortality was 20%, with a 30-day mortality of 5.7% and 1-year mortality of 14.3%.

Conclusions: In this cohort, T-TEER was associated with symptomatic improvement and acceptable mid-term outcomes. These findings reinforce T-TEER as a feasible and effective therapeutic option in carefully selected patients, although larger studies with longer follow-up are needed.

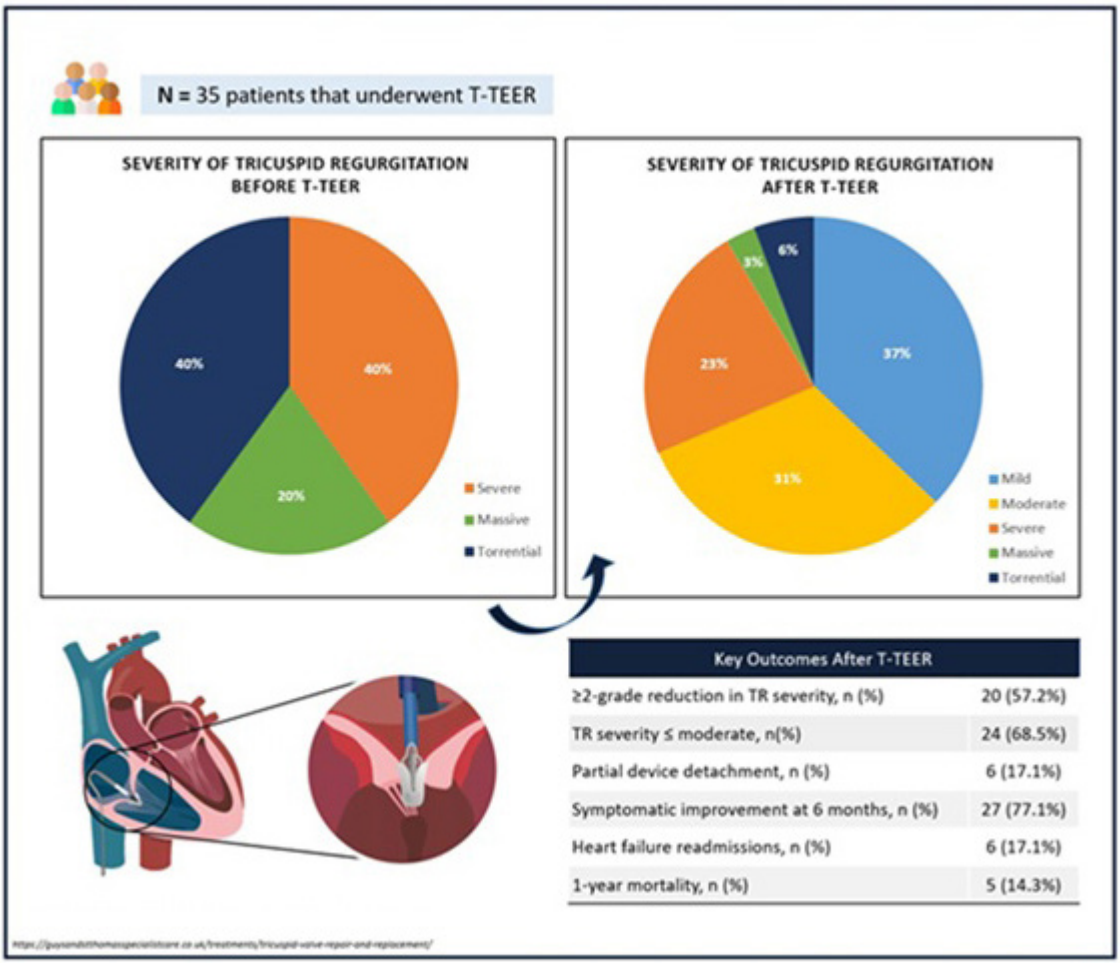


Figure PO 179

Sábado, 25 Abril de 2026 | 08:00-08:55

Área de Posters - Ecrã 3 | Sessão de Posters 31 - Intervenção transcateter na válvula aórtica: acesso, futilidade e anatomia complexa

PO 180. DECENTRALIZING IS THE KEY: TAVI WITHOUT CARDIAC SURGERY BACKUP - A META-ANALYSIS

Marta Paralta de Figueiredo, Rafael Viana, Rita Louro, Raquel Silva, António Almeida, Manuel Trinca

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Aortic stenosis (AS) is the most common valvular heart disease requiring intervention, with prevalence rising alongside global aging trends. Transcatheter aortic valve implantation (TAVI) has revolutionized AS management and expanded to broader populations. Current guidelines recommend TAVI only in centers with on-site cardiac surgery (CS) backup. However, procedural advancements have reduced the need for emergent cardiac surgery (ECS), prompting debate over this requirement. This meta-analysis evaluated the safety and feasibility of TAVI performed in centers without immediate CS backup.

Methods: A systematic review and meta-analysis were conducted following the PRISMA guidelines. The protocol was registered with PROSPERO (CRD420251044095). PubMed, CENTRAL, and Scopus were systematically searched through April 2025. Studies comparing outcomes of TAVI performed with and without on-site CS or reporting outcomes in non-CS centers were included. The outcomes were in-hospital mortality, 30-day death, ECS, stroke, and permanent pacemaker implantation (PPI). Meta-analyses of comparative studies and pooled proportions were performed using random-effects models.

Results: Five observational studies were analyzed, including 21654 patients (19373 with and 2281 without on-site CS). No significant difference in in-hospital mortality was observed between groups (RR 1.1, 95%CI [0.6-1.9], p = 0.8). Thirty-day mortality was also similar (RR 1.2, 95%CI [0.5-2.6], p = 0.72). ECS was rare (0%, 95%CI [0-2]), with a pooled RR of 0.8 (95%CI [0.2-2.4], p = 0.7). Stroke rates did not differ (RR 1.1, 95%CI 0.8-1.5), and no difference in PPI was found (RR 1.2, 95%CI 0.6-2.3), though heterogeneity was high for this outcome. Pooled in-hospital mortality in non-surgical centers was 4% (95%CI 3-5%), and 30-day mortality was 6% (95%CI 4-7%). Sensitivity analyses in propensity score-matched populations confirmed findings with reduced heterogeneity and consistent results.

Conclusions: TAVI performed in centers without on-site CS appears safe, with outcomes comparable to those at surgical centers. These findings support a potential reappraisal of current guideline restrictions to improve access and equity in TAVI delivery in order to shorten waitlists and reduce worsening aortic stenosis mortality.

PO 181. PROGNOSTIC INDICATORS IN LOW-FLOW, LOW-GRADIENT AORTIC STENOSIS: INSIGHTS FROM A MULTICENTER STUDY

António Maria Fervença Rocha Almeida[1], Marta Figueiredo[1], Rafael Viana[1], Adriana Silva[2], Rita Louro[1], Cátia Trigo[2], Joana Vasconcelos[2], Isabel João[2], Manuel Trinca[1]

[1]ULS Alentejo Central/Hospital do Espírito Santo de Évora. [2]ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Low-flow, low-gradient (LFLG) aortic stenosis (AS) is characterized by discordant findings on resting echocardiography, posing diagnostic challenges. Current evidence suggests that patients with LFLG AS have higher all-cause mortality and heart failure (HF) hospitalizations compared to other AS subtypes.
Objectives: To identify baseline characteristics that predict clinical outcomes in patients with LFLG AS.
Methods: Multicenter, retrospective study. We included consecutive patients admitted with LFLG AS between 2021 and 2023 who underwent echocardiography while in sinus rhythm. Patients with missing echocardiographic data were excluded. Data collected included demographics, resting echocardiographic parameters, N-terminal pro B-type natriuretic peptide (NT-proBNP), and aortic valve calcium score (AVCS). The primary outcome was a composite of all-cause mortality and HF hospitalization; secondary outcomes included all-cause mortality and HF hospitalization individually.

Demographic data	
Age (years; mean ± SD)	79 ± 8
Male (n, (%))	30 (6)
Comorbidities (n (%))	
Coronary artery disease	20 (40)
Atrial fibrillation (AF)	12 (24)
Hypertension	42 (84)
Dyslipidemia	42 (84)
Diabetes mellitus	27 (54)
Smoking history	11 (22)
Echocardiography parameters	
Maximum velocity (m/s; mean ± SD)	3.37 ± 0.48
Maximum gradient (mmHg; mean ± SD)	46.52 ± 11.97
Mean transvalvular gradient (mmHg; mean ± SD)	26.74 ± 7.65
Aortic valve area (AVA) (cm^2; mean ± SD)	0.74 ± 0.15
Indexed AVA (cm^2/m^2; mean ± SD)	0.41 ± 0.08
Velocity Time Integral ratio (DVI) (mean ± SD)	0.22 ± 0.04
Left ventricular ejection fraction (LVEF) (%; mean ± SD)	42 ± 13
Moderate/severe mitral regurgitation (n (%))	18 (36%)
Moderate/severe aortic regurgitation (n (%))	13 (26%)
Aortic valve calcium score (Agatston units; mean ± SD)	2727 ± 1369
NT-proBNP (ng/L; mean ± SD)	7882 ± 10806

Table 1 - Baseline characteristics of the study population.

Results: A total of 51 patients were included, with 60% being male. Baseline characteristics are summarized in Table 1. Based on echocardiography data, 66% of patients were classified as classical LFLG and 34% as paradoxical LFLG. Regarding outcomes, 64% met the primary outcome, 46% had HF hospitalization and 48% died. Univariate analysis revealed that hypertension (69% vs. 38%, p = 0.030), smoking (82% vs. 59%), AF (83% vs. 57%, p = 0.026), classical LFLG (76% vs. 41%, p = 0.034), and lower LVEF (39% vs. 48%, p = 0.027) were associated with the primary outcome. However, no independent predictors were found. Predictors of HF hospitalization included lower DVI (0.21 vs. 0.23; p = 0.039), lower LVEF (38% vs. 46%; p = 0.041), history of AF (37% vs. 82%; p = 0.010), and classical LFLG AS (62% vs. 20%; p = 0.007). Multivariate analysis showed that AF (p = 0.008), DVI (p = 0.024), and LVEF (p = 0.035) were independent predictors of HF hospitalization. There were no significant predictors for all-cause mortality.
Conclusions: In our cohort of patients with LFLG AS, hypertension, smoking history, AF, classical form of LFLG, and reduced LVEF were associated with the composite outcome of all-cause mortality and HF hospitalization. However, no independent predictors for this combined endpoint were identified. Regarding HF hospitalization, AF, lower DVI and reduced LVEF were independently associated with more hospitalization. Although several baseline characteristics were linked to adverse outcomes, no predictors of all-cause mortality were established. These results highlight the importance of comprehensive baseline evaluation for risk stratification and management in this challenging population. Further studies are necessary to validate our findings.

PO 182. TRANSCATHETER AORTIC VALVE IMPLANTATION IN A CENTRE WITHOUT A CARDIAC SURGERY DEPARTMENT BUT WITH IMMEDIATE ONSITE SURGICAL BACKUP: FIRST REPORT ON SAFETY AND FEASIBILITY

Ana Rita F. Pereira[1], Rita Calé[1], Rui Campante Teles[2], Tiago Nolasco[3], Ana Cristina Martins[1], João Brito[2], Paulo Oliveira[3], Hugo Vilela[4], Pedro Tiago Santos[1], Rafael Maniés Pereira[5], Hélder Pereira[1]

[1]ULS Almada-Seixal/Hospital Garcia de Orta. [2]Hospital de Santa Cruz, ULS Lisboa Ocidental, Cardiology. [3]Hospital de Santa Cruz, ULS Lisboa Ocidental, Cardiac Surgery. [4]Hospital de Santa Cruz, ULS Lisboa Ocidental, Anesthesiology. [5]Cardiothoracic Surgery Research Unit, Centro Cardiovascular da Universidade de Lisboa (CCUL@RISE), Faculdade de Medicina da Universidade de Lisboa.

Introduction: Transcatheter aortic valve implantation (TAVI) is an established alternative to surgical replacement for severe aortic stenosis. Although its safety and efficacy are well supported, current guidelines recommend performing TAVI only in centres with on-site cardiac surgery. Growing experience, device improvements, proctoring and the development of structured Heart Teams may enable safe expansion of TAVI to non-surgical centres with immediate surgical standby, potentially reducing procedural waiting times.
Objectives: To evaluate procedural and short-term outcomes of TAVI performed in a non-cardiac surgery centre with on-site surgical backup.
Methods: Prospective, single-centre, observational study including a total of 53 consecutive patients (mean age 84 ± 4 years, 55% female, median EuroSCORE II 2.5 [IQR 1.9-3.2]) who underwent TAVI between June/2024 and June/2025 at a non-surgical cardiac centre. The program was developed in partnership with a tertiary centre with high-volume structural interventions and cardiac surgery, operating under a structured collaboration model that includes regular Heart Team meetings, operator training, on-site proctoring, and surgical standby. Primary endpoints were technical success and 30-day device success. Secondary endpoints included 30-day mortality, stroke, major vascular complications, moderate/severe paravalvular leak (PVL), and new permanent pacemaker implantation. Endpoints followed Valve Academic Research Consortium-3 (VARC-3) definitions.
Results: Femoral access was used in 98.1%. Supra-valvular self-expanding valves (SEV) were implanted in 92.5% (88% non-resheathable, 12% resheathable) and balloon-expandable (BEV) in 7.5%. Technical and 30-day device success were achieved in 98.1% and 96.2%, respectively. Thirty-day mortality was 1.9%; stroke 3.8%; major vascular complications 1.9%. New permanent pacemaker implantation occurred in 11.3%. There were no intra-procedural deaths, emergency conversions, valve embolization, coronary obstruction or moderate/severe PVL.
Conclusions: Our findings support the feasibility and safety of TAVI procedures performed in a centre without a dedicated cardiac surgery department, provided that procedures are supported by structured collaboration, operator training, proctoring, and local on-site surgical standby. Further studies and long-term data are warranted to validate that these outcomes are consistent with those of pivotal TAVI trials.

Baseline Characteristics	
Age – yr	84 ± 4 years
Female sex – no. (%)	29 (55%)
EuroSCORE II	2.5 [IQR 1.9–3.2]
NYHA class III or IV – no. (%)	13 (24.5%)
Past medical history	
Coronary artery disease – no (%)	15 (28.3%)
Cerebrovascular disease – no (%)	3 (5.7%)
Chronic obstructive pulmonary disease – no (%)	4 (7.5%)
Permanent pacemaker – no (%)	8 (15.1%)
Estimated glomerular filtration rate < 60 mL/min	29 (54.7%)
Transthoracic echocardiogram	
Mean aortic valve gradient – mmHg	49.5±13.1
Left ventricular ejection fraction – %	58.2±8.6%
Moderate or severe regurgitation – no (%)	15 (28.3%)
Endpoints	
Technical success	52 (98.1%)
30-day device success	51 (96.2%)
30-day mortality	1 (1.9%)
30-day stroke	2 (3.8%)
30-day major vascular complications	1 (1.9%)
30-day moderate or severe paravalvular leaks	0
30-day new permanent pacemaker implantation	6 (11.3%)

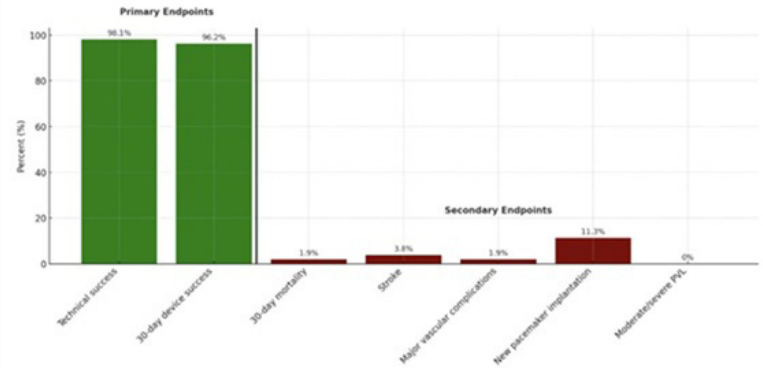


Figure PO 182

PO 183. NOT SO SMART: PHENOTYPE AND OUTCOMES OF SMALL AORTIC VALVE ANNULUS

Marta Paralta de Figueiredo, Rafael Viana, Rita Louro, Raquel Silva, António Almeida, Diogo Brás, Rita Rocha, David Neves, Gustavo Mendes, Filipe Alpalhão, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Transcatheter aortic valve implantation (TAVI) has revolutionized the management of severe aortic stenosis (AS). However, some factors, such as aortic valve annular size, remain critical to procedural success.
Objectives: We aimed to characterize patients(pts) with SAA undergoing TAVI, compare outcomes with the self-expanding valve (SEV) group of SMART trial, and identify predictors for adverse events.
Methods: We retrospectively analyzed patients who underwent TAVI at our institution between 2021 and 2024. SAA was defined as an aortic annulus area (AAA) lower than 4,3cm^2 on CT. We documented demographic, echocardiographic and CT-scan pre-TAVI data. Outcome was a composed by death, stroke or heart failure hospitalization (HFh).
Results: We included 300 pts, with 55% (n = 166) having SAA, which was predominantly female (80,7%, n = 134), with a mean age of 83 ± 5 years and mean STS 5,8 ± 5,2%. Table1 represents characteristics of our and SMART trial pts. Our pts had a median aortic gradient of 50,4 ± 13,6 mmHg, mean maximum velocity of 4.5 ± 0.57 m/s, mean aortic valvular area of 0.71 ± 0.21 cm^2 and an AAA of 3,6 ± 0,47 cm^2. 98% of our pts were submitted to SEV. Mean follow-up was 599 ± 339 days, with the outcome occurring in 21.7% of pts (death 10.8%, stroke 5.4%, HFh 6.0%). Our population had a higher incidence of composed outcome (21% vs. 9.4%), with differences across components: death (10.8% vs. 5.1%), stroke (5.4% vs. 3.1%), and HFh (6% vs. 3.8%).Univariate analysis showed associations between the outcome and atrial fibrillation (AF; 44% vs. 13.5%, p < 0.001), previous myocardial infarction (MI; 13.9% vs. 3.9%, p = 0.028), glomerular filtration rate (GFR) below 30 mL/min/1.73 m^2 (33.3% vs. 6.3%, p < 0.001), and higher STS scores (8.5% vs. 5.4%, p = 0.028). Multivariate analysis identified AF and GFR below 30 mL/min/1.73 m^2 as independent predictors of the primary outcome.
Conclusions: Primary outcome was higher in our population compared to the SMART trial. Differences in pts characteristics may explain these disparities. Despite a lower prevalence of cardiovascular events, our cohort was older, had higher STS scores, and a smaller aortic annulus area. AF, GFR below 30 mL/min/1.73 m^2, previous MI, and higher STS scores were associated with the composite outcome, with AF and lower GFR identified as independent predictors.

PO 184. PREDICTORS OF TAVI FUTILITY IN A TERTIARY CENTRE

Tomás M. Carlos, Bernardo Resende, Luísa Gomes Rocha, Mafalda Griné, Gonçalo Terleira Batista, Ana Luísa Silva, Tatiana Santos, Mariana Simões, Luís Leite, Marco Costa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

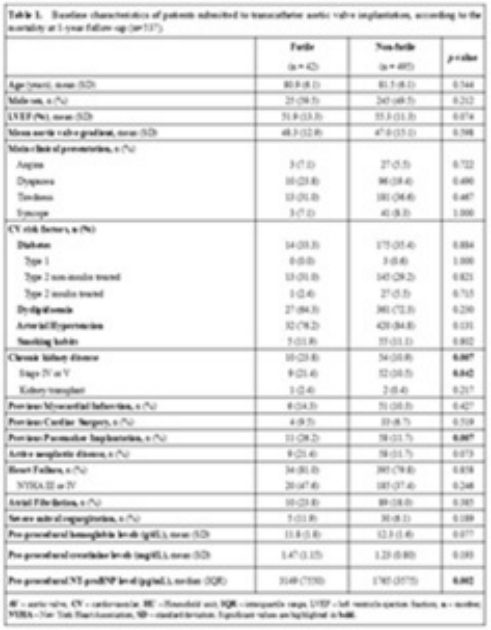
Introduction: Transcatheter aortic valve implantation (TAVI) has expanded rapidly worldwide and is now being offered to increasingly older and more fragile patients with severe aortic stenosis. Although TAVI provides substantial benefits, it may be futile in patients with < 1-year life expectancy or an expected functional improvement < 25%. Existing prognostic scores offer support in candidate selection, yet their ability to fully capture individual clinical complexity remains limited. This study aimed to identify additional baseline clinical predictors of TAVI futility in a real-world cohort, beyond conventional nutritional and frailty scores, to improve pre-procedural evaluation and support more informed decision-making.
Methods: We performed a single-centre retrospective study including 639 consecutive patients undergoing TAVI between March 2020 and September 2023. After excluding those without follow-up or those who died during the index hospitalisation, 537 patients were analysed. Futility was defined as all-cause mortality at 1 year. Baseline characteristics were compared between groups, and predictors of 1-year mortality were assessed using binary logistic regression. Survival differences across subgroups were evaluated using Kaplan-Meier analysis.
Results: One-year mortality occurred in 42 patients (7.8%). Compared with non-futile cases, these patients had higher rates of stage IV-V chronic kidney disease (21.4% vs. 10.5%; p = 0.042), prior pacemaker implantation (26.2% vs. 11.7%; p = 0.007), and higher NT-proBNP levels (3,149 vs. 1,765 pg/mL; p = 0.002), although the latter was not significant after adjustment. ROC analysis showed limited discriminative value of LVEF, with a Youden index of 21% and AUC 0.418 (p = 0.09). However, in multivariable analysis, lower LVEF remained a significant predictor of futility (OR 0.97 per %, CI 0.94-1.00; p = 0.045), together with stage IV-V chronic kidney disease (OR 2.77; CI 1.17-6.59; p = 0.021) and prior pacemaker implantation (OR 3.64; CI 1.54-8.61; p = 0.003). Kaplan-Meier curves confirmed reduced survival across these high-risk groups.
Conclusions: One-year mortality following TAVI was strongly associated with advanced chronic kidney disease, prior pacemaker implantation, and reduced LVEF. These readily identifiable baseline characteristics may help refine pre-procedural risk stratification and support clinical decision-making regarding TAVI futility.

PO 185. TRANSCATHETER VERSUS SURGICAL AORTIC VALVE REPLACEMENT IN BICUSPID AORTIC STENOSIS: BASELINE CHARACTERISTICS AND EARLY CLINICAL OUTCOMES

C. Santos-Jorge, Débora da Silva Correia, Rita Barbosa Sousa, Márcia Presume, Márcio Madeira, Tiago Nolasco, Luís Raposo, Afonso Félix de Oliveira, Eduardo Infante Oliveira, João Brito, Rui Campante Teles, Manuel Almeida

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Transcatheter aortic valve implantation (TAVI) has become a less invasive alternative to surgical aortic valve replacement (SAVR) for severe aortic stenosis, particularly in elderly or high-risk patients. This study aimed to assess clinical characteristics, procedural performance, and early outcomes of TAVI versus SAVR in patients with bicuspid aortic valve stenosis.
Methods: A retrospective, single-center analysis included 118 consecutive patients treated between 2015 and 2017: 70 undergoing TAVI and 48 SAVR. Baseline demographics, imaging data, periprocedural complications, and early outcomes were compared.
Results: TAVI patients were older (81.4 ± 4.4 vs. 73.2 ± 11.2 years, p < 0.001) and had more comorbidities, including chronic kidney disease (84% vs. 31%, p < 0.001), chronic pulmonary disease (13% vs. 0%, p = 0.010), and permanent atrial fibrillation (19% vs. 2.1%, p = 0.023). They showed higher surgical risk (EuroSCORE 3.31 [2.3-4.1] vs. 1.74 [1.3-2.8], p < 0.001), lower hemoglobin (12.6 [11.6-13.8] vs. 14 [12.5-14.5] g/dL, p = 0.001), and higher NT-proBNP (1,570 [659-4,462] vs. 459 [193-1,474] pg/mL, p = 0.008). LVEF was lower in TAVI (55 [51-60] vs. 65 [55-65], p < 0.001) and AVA smaller (0.62 [0.5-0.8] vs. 0.7 [0.6-0.9] cm^2, p = 0.027). Technical success at the end of the procedure was high and comparable between groups (TAVI 95.7% vs. SAVR 89.6%, p = 0.193). Similarly, device success at 30 days did not differ significantly (TAVI 75.7% vs. SAVR 79.2%, p = 0.239). However, moderate-to-severe paravalvular leak (15.9% vs. 0%, p = 0.004), complete atrioventricular block (21.4% vs. 2.1%, p = 0.009), and pacemaker implantation (22.9% vs. 6.3%, p = 0.016) occurred more frequently in the TAVI cohort. No significant differences were observed in stroke (2.9% vs. 0%, p = 0.238) or in-hospital mortality (4,3% vs. 0%, p = 0.150).
Conclusions: Compared with SAVR, TAVI patients were older, had greater comorbidity and risk scores, and achieved high procedural success with shorter hospitalization, albeit with higher rates of conduction disturbances and paravalvular leak.



	Futile (n = 42)	Non-futile (n = 495)	p-value
Age (years), mean (SD)	80.9 (6.1)	81.3 (6.1)	0.744
Male sex, n (%)	25 (59.5)	245 (49.5)	0.212
LVEF (%), mean (SD)	51.9 (13.3)	55.3 (11.3)	0.074
Mean aortic valve gradient, mean (SD)	48.3 (12.8)	47.0 (15.1)	0.598
Main limit of presentation, n (%)			
Angina	3 (7.1)	27 (5.5)	0.722
Dyspnoea	10 (23.8)	90 (18.4)	0.400
Tiredness	13 (31.0)	181 (36.8)	0.447
Syncope	3 (7.1)	41 (8.3)	1.000
CV risk factors, n (%)			
Diabetes	14 (33.3)	173 (35.4)	0.884
Type 1	0 (0.0)	3 (0.6)	1.000
Type 2 non-insulin treated	13 (31.0)	143 (29.2)	0.823
Type 2 insulin treated	1 (2.4)	27 (5.5)	0.715
Dyslipidaemia	27 (64.3)	361 (72.3)	0.230
Arterial Hypertension	32 (78.2)	420 (84.8)	0.131
Smoking habit	7 (11.8)	77 (11.1)	0.802
Chronic kidney disease	10 (23.8)	54 (10.9)	**0.007**
Stage IV or V	9 (21.4)	52 (10.5)	**0.042**
Kidney transplant	1 (2.4)	2 (0.4)	0.217
Previous Myocardial Infarction, n (%)	8 (34.3)	51 (10.3)	0.427
Previous Cardiac Surgery, n (%)	4 (9.5)	33 (6.7)	0.519
Previous Pacemaker Implantation, n (%)	11 (26.2)	58 (11.7)	**0.007**
Active neoplastic disease, n (%)	8 (21.4)	58 (11.7)	0.073
Heart Failure, n (%)	34 (81.0)	393 (79.8)	0.858
NYHA III or IV	26 (67.4)	183 (37.4)	0.248
Atrial Fibrillation, n (%)	10 (23.8)	89 (18.0)	0.385
Severe mitral regurgitation, n (%)	5 (11.9)	30 (6.1)	0.189
Pre-procedural hemoglobin levels (g/dL), mean (SD)	11.8 (1.8)	12.3 (1.8)	0.077
Pre-procedural creatinine levels (mg/dL), mean (SD)	1.47 (1.15)	1.23 (0.80)	0.193
Pre-procedural NT-proBNP level (pg/mL), median (IQR)	3149 (7350)	1765 (3575)	**0.002**

AV – aortic valve, CV – cardiovascular, IRC – Hemodialysis, IQR – interquartile range, LVEF – left ventricle ejection fraction, n – number, NYHA – New York Heart Association, SD – standard deviation. Significant values are highlighted in bold.

Predictors	Odds Ratio (OR)	95% Confidence Interval	p-value
Age (years)	0.99	0.93-1.04	0.598
Active neoplastic disease	1.66	0.65-4.23	0.286
CKD – stage IV or V	2.77	1.17-6.59	**0.021**
Hemoglobin levels	0.83	0.67-1.02	0.073
NT-proBNP levels (log)	1.06	0.79-1.42	0.683
LVEF (%)	0.97	0.94-1.00	**0.045**
Previous pacemaker implantation	3.64	1.54-8.61	**0.003**
Previous myocardial infarction	1.33	0.49-3.65	0.578

CKD – chronic kidney disease, log – logarithm, LVEF – left ventricle ejection fraction. Significant values are highlighted in bold.

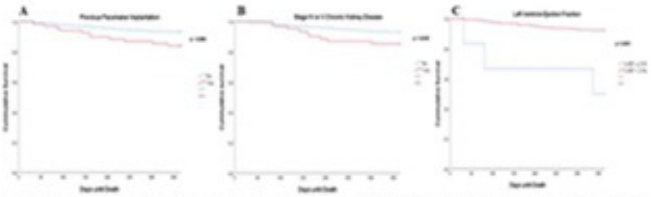


Figure 1 - Kaplan-Meier analysis comparing time to death, according to: A. previous pacemaker implantation; B. stage IV or V chronic kidney disease; C. LVEF ≤ or > 21% (Youden index).

Figure PO 184

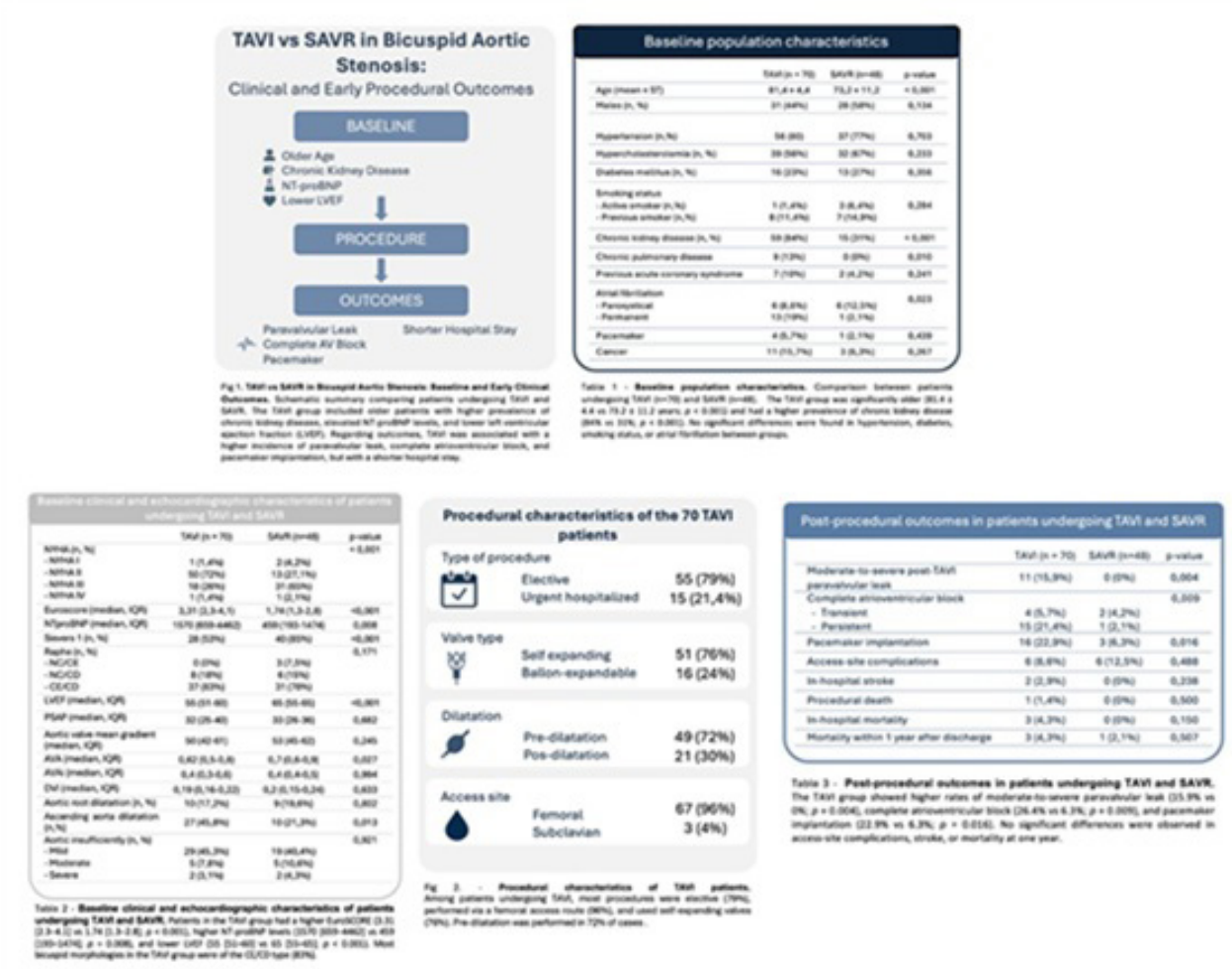


Figure PO 185

Sábado, 25 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 1 | Sessão de Posters 32 - Comportamento, mente e metabolismo

PO 186. PERSISTENT SMOKING HABITS AFTER ACUTE CORONARY SYNDROME

Rui Miguel Gomes, Márcia Presume, C. Santos-Jorge, André Moniz Garcia, Marisa Trabulo, Jorge Ferreira, Pedro Adragão, Carlos Aguiar

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Smoking cessation after an acute coronary syndrome (ACS) is essential for secondary prevention, yet many patients relapse early and continue smoking. Identifying factors associated with persistent smoking may help refine targeted cessation strategies.
Methods: Patients admitted with ACS to a tertiary center during 2023-2024 who were active smokers at presentation and alive at 12 months were screened. Those who consented completed a structured telephone questionnaire describing smoking behavior throughout the year following discharge. Clinical, behavioral, environmental, and outcome variables were analyzed to identify predictors of persistent smoking at 12 months.
Results: Among 861 ACS admissions, 254 were active smokers; 236 survived to 12 months, and 184 agreed to participate. At one year, 85 patients (46%) remained active smokers. Persistent smokers demonstrated significantly higher nicotine dependence scores (Fagerström Test for Nicotine Dependence) ($p < 0.001$), increased pre-event cigarette consumption ($p = 0.002$), and markedly greater exposure to household smoking (72% vs. 33%; $p < 0.001$). Early relapse was strongly associated with long-term persistence, with 57% smoking within 7 days of discharge compared with only 5% among those who quit ($p < 0.001$). Cardiac outcomes showed persistent that smokers required more unplanned cardiac evaluations or rehospitalizations (20% vs. 12%; $p = 0.048$) and underwent repeat coronary assessment more often (15% vs. 8%; $p = 0.041$). However, no significant differences were observed in 12-month mortality ($p = 0.72$) or recovery of left ventricular function ($p = 0.31$). Multivariable analysis confirmed that smoking within 7 days post-discharge (odds ratio 14.37; 95%CI 3.46-59.68; $p < 0.001$) and household smoking exposure (odds ratio 11.02; 95%CI 2.64-45.94; $p = 0.001$) were the only independent predictors of persistent smoking.
Conclusions: Nearly half of smokers hospitalized with ACS during 2023-2024 remained active smokers at one year. Early relapse and household exposure were the strongest determinants of persistent smoking and were also associated with an increase in subsequent cardiac evaluations. These findings highlight the importance of immediate, structured cessation support-initiated during hospitalization and reinforced soon after discharge, particularly for patients exposed to smoking environments.

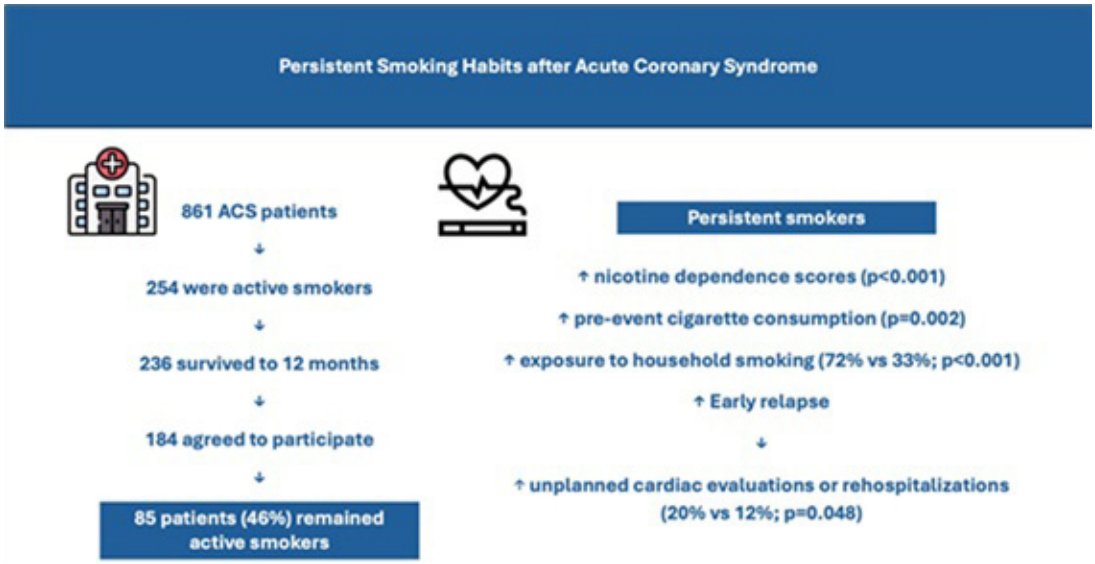


Figure PO 186

PO 187. CONICITY INDEX: AN UNDERRATED ANTHROPOMETRIC MARKER OF CARDIOVASCULAR RISK

Ivo Santos Palmeiro, Joana Silva Ferreira, Patrícia Bernardes, Marco Tomaz, David Campos, Catarina Lagoas Pohle, Jéni Quintal, Quitéria Rato, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Obesity is a recognized cardiovascular risk factor (CVRF), but current cardiovascular (CV) risk calculators SCORE2/OP don't take it directly into account. Specific tools are needed to better assess obesity and predict CV risk among this population.
Objectives: We sought to find the anthropometric indicator of adiposity that best correlates to cardiovascular risk.
Methods: We conducted an observational study including all participants in a local CV screening event that took place in May 2025. Demographic, anthropometric, clinical and laboratory data were collected on-site. 10-year risk of CV events was calculated using SCORE2/OP. Physical activity was assessed using the International Physical Activity Questionnaire (IPAQ). We compared different anthropometric parameters and explored their association with cardiovascular risk. The conicity index (CI) was calculated as: waist circumference/[0.109 × √ (body weight/height)].

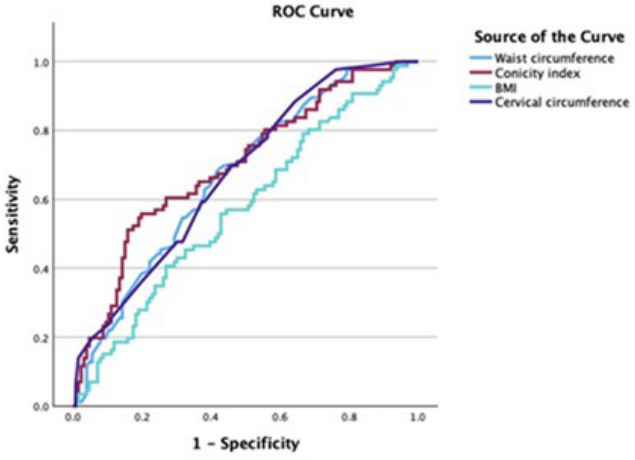


Fig. 1 – ROC analysis of CI, BMI, cervical and waist circumferences.

Results: A total of 436 individuals screened were included in our analysis (median age 68 years; 69% female). We identified 24 (7.9%) individuals with low CV risk, 146 (48.0%) with moderate CV risk, 62 (20.4%) with high CV risk and 72 (23.7%) with very high CV risk. In our cohort, mean CI was 1.30 ± 0.10, mean BMI was 26.5 ± 4.5 Kg/m², mean waist circumference was 93.2 ± 11.6 cm and mean cervical circumference was 36.3 ± 3.5 cm. Over half of the cohort (52%) had low physical activity (IPAQ 1), 48% had arterial hypertension, 14% had diabetes mellitus and 11% had obstructive sleep apnoea. Spearman correlation showed that CI (ρ 0.42, $p < 0.01$), cervical circumference (ρ 0.31, $p < 0.01$) and waist circumference (ρ 0.29, $p < 0.01$) were all significantly associated with a higher SCORE2/OP, with CI having the strongest correlation. BMI failed to show correlation (ρ 0.08, $p = 0.17$). On ROC analysis, CI outperformed BMI, cervical and waist circumference as a marker of high/very-high CV risk (AUC 0.719, $p < 0.01$, Figure 1), with an optimal cutoff ≥ 1.36 (54% sensitivity, 83% specificity).
Conclusions: Our results suggest that the conicity index may be the most useful anthropometric measure, showing the strongest correlation with cardiovascular risk, and should therefore be considered when assessing overweight population. Further large-scale studies are required to confirm its added value as a predictor of atherosclerotic events.

PO 188. ATTEMPTED BEFORE, ACHIEVED NOW: CYTISINICLINE IN A STRUCTURED SMOKING CESSATION PROGRAM

João Martins Neves[1], João Cravo[1], Alda Jordão[2], Sílvia Fiuza[3], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[1], Nelson Cunha[1], Fausto J. Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Internal Medicine Department, ULS Santa Maria. [3]Department of Cardiology, ULS Santa Maria.

Introduction: Smoking cessation is essential for secondary prevention after cardiovascular events. Although several behavioural strategies and pharmacological therapies are available, their effectiveness remains variable, and the optimal approach to support cessation is still uncertain.
Objectives: To assess the efficacy of a structured smoking cessation program using cytisinicline.
Methods: This single-center prospective study included cardiac rehabilitation patients who voluntarily entered a structured smoking cessation program between 2024 and 2025. Nicotine dependence was assessed using the Fagerström Test. All patients received cytisinicline with or without concomitant nicotine replacement therapy for 25 days and were followed for

a mean of 6 months, with medication adherence and smoking status evaluated at baseline and during follow-up.
Results: A total of 24 patients were enrolled in the smoking cessation program (mean age 56 ± 2 years; 21 [88%] male). Coronary artery disease was present in 71% (multivessel 13%); peripheral artery disease in 8%. Hypertension and dyslipidemia occurred in 54% each; diabetes in 29%. Mean smoking duration was 38 ± 2 years and mean smoking burden was 41 ± 3 pack-years. Severe nicotine dependence was identified in 9 patients (38%) and 14 (58%) had previously attempted smoking cessation. Smoking duration was significantly associated with ischemic heart disease (38 vs. 29 years, p = 0.03) and peripheral artery disease (51 ± 1.4 vs. 36 ± 11 years, p = 0.001). In multivariable analysis, smoking duration remained independently associated with coronary artery disease, with a 14.8% increase in the odds per additional smoking year (OR 1.148; p = 0.043), after adjustment for hypertension and diabetes. All patients underwent a 25-day regimen of cytisinicline and nicotine replacement therapy, except one who discontinued early due to gastrointestinal side effects. By the end of treatment, 12 (50%) patients achieved complete cessation, 7 (29%) reduced tobacco use and 5 (21%) continued smoking. Over a 7 ± 1-month follow-up, 3 of the 12 quitters (25%) relapsed, while all 7 patients who reduced consumption maintained this reduction. No significant associations were observed between cessation success and smoking duration, burden, or nicotine dependence. Compared with cardiac rehabilitation patients not enrolled in the structured cessation program (~10% cessation), this program achieved a markedly higher cessation rate of 37%.
Conclusions: In our cohort, cytisinicline was well tolerated and demonstrated a beneficial effect on smoking cessation. These findings suggest that structured smoking cessation programs can substantially improve cessation rates in high-risk cardiovascular patients.

PO 189. DEREGULATION OF POTASSIUM HOMEOSTASIS WAS A MARKER OF MORTALITY IN A CARDIOVASCULAR DISEASE POPULATION

Gonçalo Bettencourt Abreu[1], Maria Isabel Mendonça[2], Francisco Sousa[1], Matilde Ferreira[1], Francisca Escórcio Silva[1], Mariana Rodrigues[2], Eva Henriques[2], Sónia Freitas[2], A. Cardoso[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

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

Introduction: Dyskalaemia is a predictor of mortality in sepsis and is associated with higher in-hospital and post-discharge mortality, independent of renal function and illness severity. Dyskalemia causes abnormal impulse generation and conduction in the heart, which can be fatal. Whether it is an independent marker of mortality in cardiovascular (CV) disease is under investigation.
Objectives: To investigate whether potassium (K) levels above or below the optimal threshold are associated with increased all-cause and CV mortality in individuals with established atherosclerotic CV disease, with an extended follow-up.

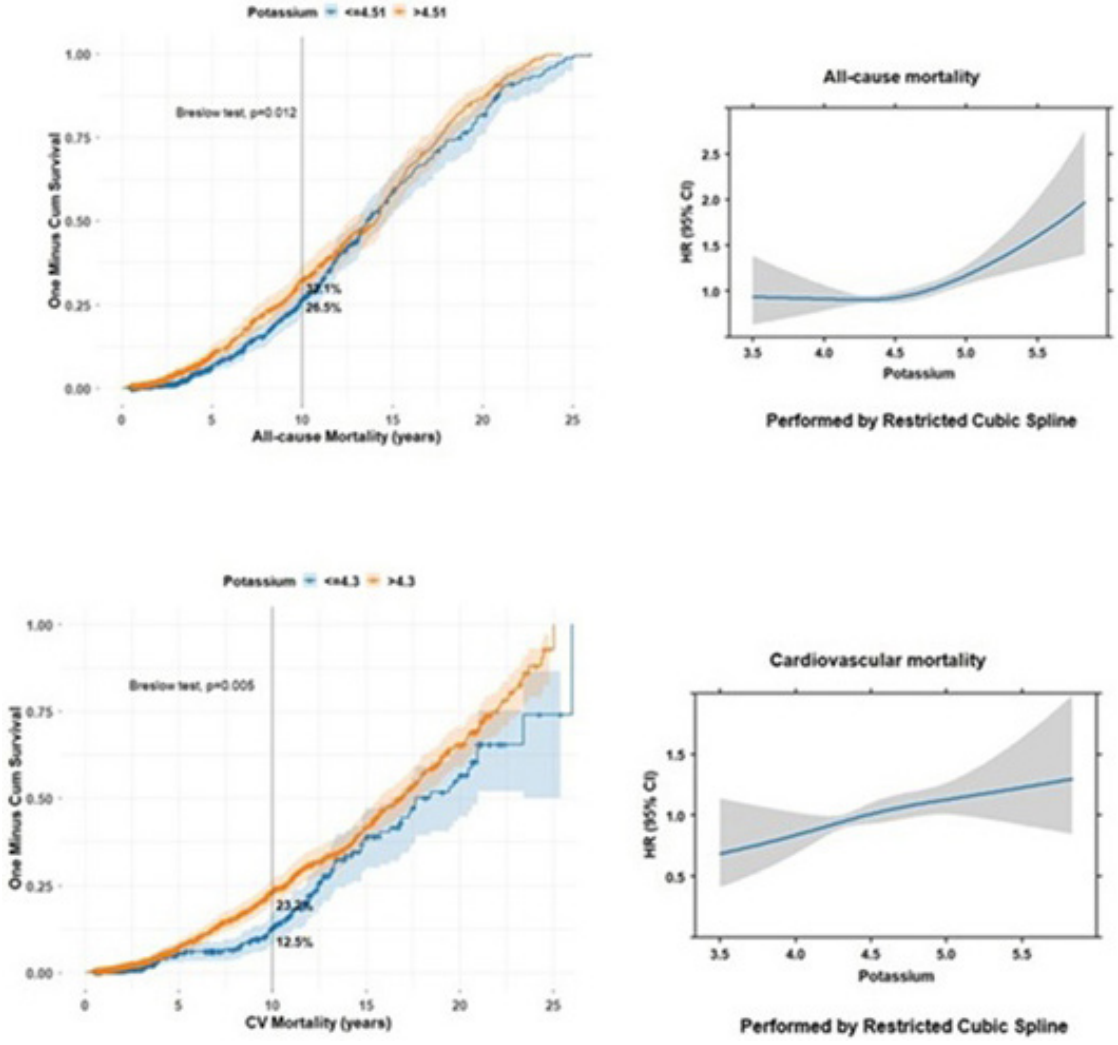


Figure PO 189

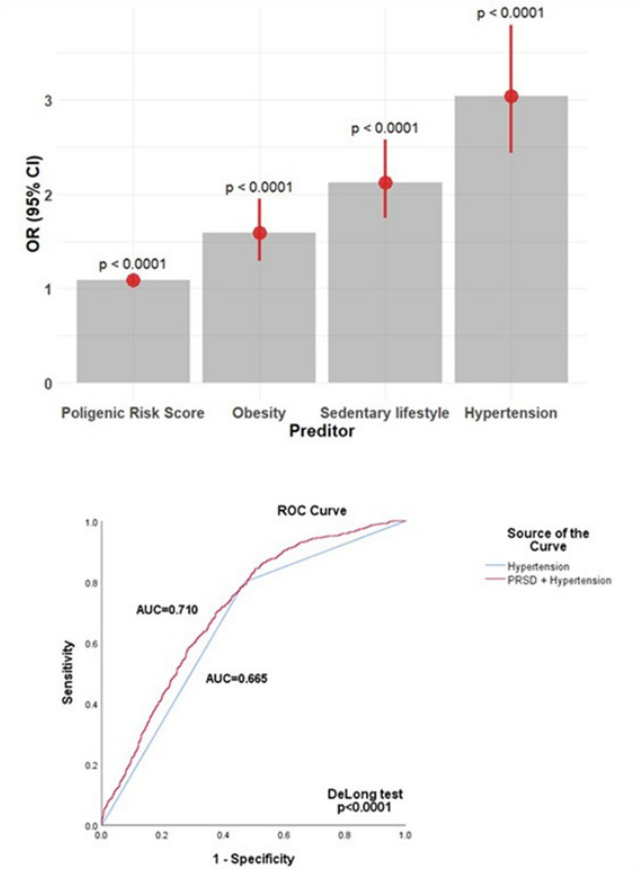
Methods: We analyzed 1,720 patients with cardiovascular disease to assess all-cause and cardiovascular mortality according to K thresholds over 7.6 ± 6.7 years of follow-up. The population-specific optimal K cutoff value was identified using the Youden J index derived from ROC curve analysis. Kaplan-Meier analysis evaluated survival, and Cox regression assessed the independent variables associated with all-cause and CV mortality.
Results: For all-cause mortality (n = 550), 52.9% presented a cutoff point K > 4.51, and 77.8% showed a cutoff point K > 4.3 for CV mortality (n = 361). The Kaplan-Meier curves for all-cause and CV mortality indicated that patients with K above the cutoff had a higher event rate throughout follow-up. Specifically, at the end of 10 years, the event probability was 32.1% vs. 26.5% for the all-cause group (p = 0.012), and the same was observed for CV mortality, with 23.2% vs. 12.5% (p = 0.005). For all-cause mortality, after adjusting for confounding variables (traditional risk factors and chronic kidney disease [CKD]), the Cox regression showed that K levels above and below the cut point remained in the equation (OR = 1.193 and OR = 0.838; p = 0.041, respectively), together with smoking, diabetes, and hypertension. For CV mortality, it is likewise an independent predictor above and below K levels (OR = 1.387 and OR = 0.721; p = 0.010, respectively), together with smoking and diabetes.
Conclusions: In this study, diskalemia (hyper and hypokalemia) is associated with mortality. However, hyperkalemia had a worse prognosis, being more relevant in CV mortality. This association persists even after adjustment for CKD and traditional risk factors, supporting the view that potassium homeostasis is a meaningful independent biomarker of CV and all-cause mortality. On the other hand, normal kalemia was protective, with a significant OR < 1.

PO 190. COMBINING POLYGENIC RISK SCORES WITH CLINICAL AND BEHAVIORAL FACTORS FOR PREDICTING TYPE 2 DIABETES

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

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

Introduction: Type 2 diabetes mellitus (T2DM) is one of the fastest-growing noncommunicable multifactorial and polygenic diseases, leading to many health complications and significant morbidity and mortality.
Objectives: Investigate the predictive capacity of a polygenic risk score (PRS-D) with genetic variants associated with T2DM, and evaluate the increase in predictive value when other behavioural/clinical risk factors are added.
Methods: A case-control study was conducted with T2DM patients from our dataset Centre and controls without diabetes or pre-diabetes. DNA samples were genotyped for 15 genetic polymorphisms associated with T2DM and oxidation (IGF2BP2 rs4402960, PPARG rs1801282, TCF7L2 rs7903146, SLC30A8 rs1326634, MC4R rs17782313, ADIPOQ rs266729, FTO rs8050136, TAS2R50 rs1376251, HNF4A rs1884613, MTHFD1L rs6922269, MTHFR677 rs1801133, MTHFR rs1298, PONN108 rs705379, PON192 rs662, PON55 rs854560). A weighted PRS-D was calculated by summing all risk alleles multiplied by their respective odds ratios (ORs). T2DM risk was assessed using multivariable logistic regression, and the area under the receiver operating characteristic curve (AUC) was calculated to evaluate predictive power of PRS-D alone and combined with clinical and behavioural factors (hypertension, obesity, and sedentary lifestyle).
Results: Our population included 2,097 participants: 846 T2DM patients (mean age 55.3 ± 6.9; 78.7% male) and 1,251 controls (mean age 51.4 ± 8.5; 71.9% male). PRS-D was significantly higher in patients than controls (12.5 ± 2.6 vs. 12.0 ± 2.5; p < 0.0001). Bivariate analysis of risk factors showed that patients had 79.9% hypertension, 44.3% obesity, and 63.6% sedentary lifestyle. Adding the PRS-D improved model discrimination, increasing the AUC for physical inactivity (0.614 → 0.691), hypertension (0.665 → 0.710), and obesity (0.598 → 0.689). DeLong test confirmed significance (p < 0.0001). After adjusting for age and sex, PRS-D, physical inactivity, obesity, and hypertension remained significantly associated with T2DM. PRS-D increased risk by 9.1% per unit (OR = 1.091; 95%CI: 1.050-1.133), while physical inactivity (OR = 2.121), obesity (OR = 1.588), and hypertension (OR = 3.042) showed robust independent associations.



Conclusions: PRS-D is associated with T2DM susceptibility and improves disease prediction even with a limited number of loci. Further study may optimize its use for clinical and public health applications, though classical risk factors remain the strongest predictors.

PO 191. DEPRESSION SCREENING IN HEART FAILURE - PROGNOSIS IMPACT OF DEPRESSIVE SYMPTOMS ASSESSED BY THE PHQ9

Raquel Montalvão[1], Joana Pereira[1], Maria Inês Soares[1], Mariana Ramos[1], Margarida Matias[1], João Presume[1], Inês Araújo[2], Cândida Fonseca[2]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]ULS Lisboa Ocidental/Hospital de S. Francisco Xavier.

Introduction: The coexistence of cardiovascular disease and mental health disorders may have synergistic effects, worsening both psychological well-being and cardiovascular prognosis. Depression is a prevalent comorbidity in heart failure (HF) patients and is associated with increased mortality and morbidity. Current European HF guidelines and mental health consensus recommend addressing depression using questionnaires, including the Patient Health Questionnaire-9 (PHQ-9), which is a 9-item questionnaire that can be self-administered in less than 3 minutes.
Objectives: To evaluate the use of PHQ-9 in a Portuguese cohort of HF patients as a practical approach for the screening and management of depression in patients with HF.
Methods: A prospective study was conducted, enrolling consecutive patients followed at a heart failure clinic over a period of 3 months. Patients answered the PHQ-9 before the appointment. During the visits, physicians

Figure 1- Approach protocol for screening and management of depression in the Heart Failure consultation.

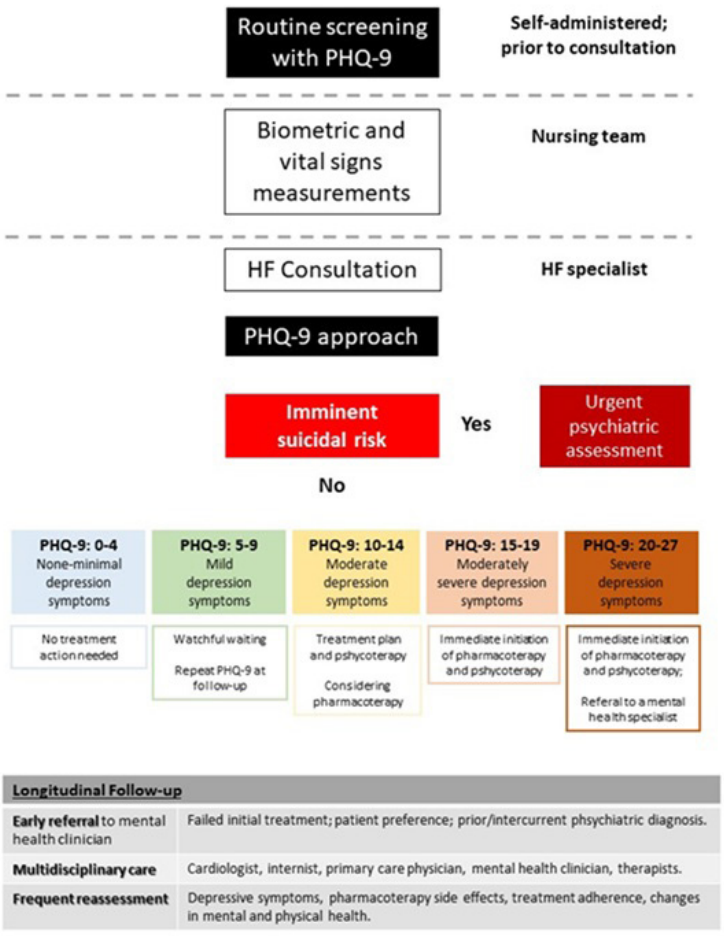


Figure PO 191

evaluated the results and managed depression according to the study protocol (Figure 1). The severity of depression was evaluated by PHQ-9 at baseline. Outcome at 90-day follow-up included serum NT-proBNP levels, HF symptom severity assessed by the NYHA classification, and a composite endpoint of all-cause mortality and HF exacerbation.

Results: Of the 124 included patients, 84 (68%) were male and the mean age was 74 (12) years. The majority of patients (82%) had a NYHA class of I or II and 48% had preserved ejection fraction. There were 29 patients (23%) with a previous diagnosis of depression and on antidepressants. After the evaluation of PHQ-9, 52% (n = 65), 27% (n = 33), 10% (n = 12), 8% (n = 10) and 3% (n = 4) had minimal, mild, moderate, moderately severe, and severe depression symptoms, respectively. Of the patients without previous depression diagnosis, 49% (n = 46) had at least mild depressive symptoms. The presence of depressive symptoms was associated with higher levels of serum NT-proBNP (r = 0.31; p < 0.001) and worse HF symptoms (p < 0,001). Over a mean follow-up of 152 (27) days, patients who met the composite outcomes (death or HF exacerbation) had a significantly higher PHQ-9 score (10 ± 7 vs. 5 ± 5; p < 0,001).

Conclusions: This study confirmed the high prevalence of depressive symptoms in a real-world cohort of HF patients and that screening for depression can be efficiently integrated in the HF consultation. A higher burden of depressive symptoms was associated with higher serum NT-proBNP levels, more severe symptoms and higher incidence of all-cause mortality or heart failure hospitalization. These findings support the importance of routine depression assessment to improve prognosis in heart failure management.

Sábado, 25 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 2 | Sessão de Posters 33 - Cardiopatia congénita e hipertensão pulmonar: da evidência à ação

PO 192. DOES AORTIC VALVE MORPHOLOGY INFLUENCE AORTIC STENOSIS PROGRESSION AND OUTCOMES? A COMPARATIVE STUDY OF BICUSPID AND TRICUSPID AORTIC VALVES

Maria Leonor Moura, Marta Catarina Almeida, Rafael Teixeira, Francisca Martins Nunes, Francisco Lemos de Sousa, Inês Arrobas Rodrigues, António Gonçalves, André Lobo, Marta Leite, Inês Neves, Rita Faria, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Bicuspid aortic valve (BAV) is a congenital heart defect associated with early valve dysfunction, most commonly aortic stenosis (AS). Factors related to AS progression rate and prognostic implications in these patients are still poorly understood.

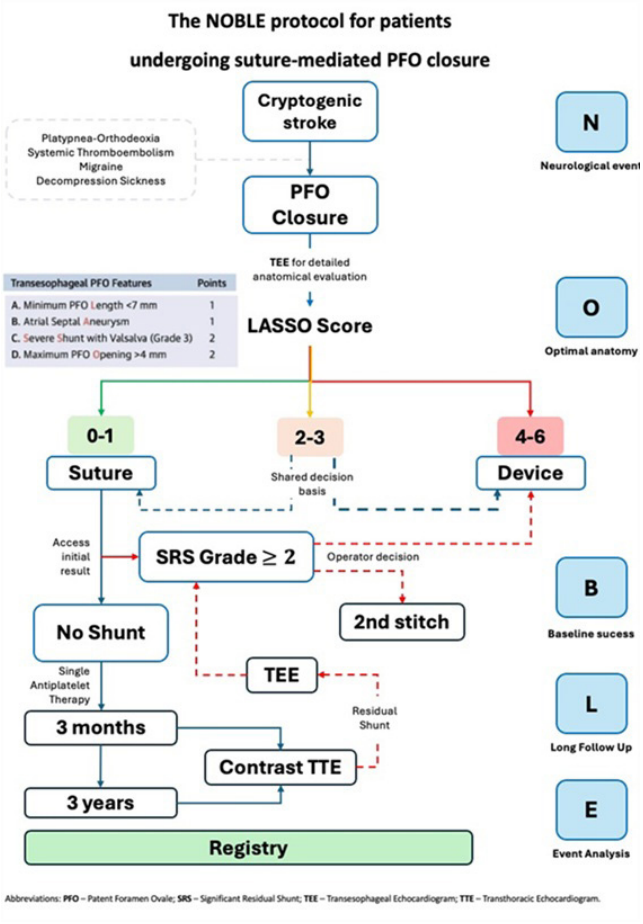
Objectives: The aim of this study was to compare AS patients with BAV and tricuspid aortic valves (TAV), exploring AS progression rate, its predictors and impact on mortality.
Methods: Retrospective data of patients with native AS from a single center were collected. Patients with more than one transthoracic echocardiogram and preserved left ventricular ejection fraction were included. BAV patients were identified using confirmatory CT scans and were age and sex-matched to TAV controls in a 1:1 ratio. A mixed-effects non-linear model was used to assess potential biphasic progression of aortic peak velocity (APV). AS progression rate was calculated by a core model parameter and compared between patients with BAV and TAV. Linear regression was used to explore predictors of AS progression and Cox proportional hazards model to compare mortality between BAV and TAV patients.
Results: 80 matched patient-pairs were included (age 54 ± 11 years, 40% female). TAV patients had higher prevalence of hypertension (81% vs. 41%, p < 0.001), diabetes (39% vs. 8%, p < 0.001), dyslipidemia (71% vs. 26%, p < 0.001) and obesity (36% vs. 10%, p < 0.01). Differences in baseline APV between patients with BAV and TAV did not reach statistical significance (2.9 ± 0.9 vs. 2.7 ± 1.0 m/s, p = 0.05). Follow-up time was higher for patients with TAV (5.9 ± 2.6 vs. 4.6 ± 2.8 years, p < 0.01). AS progression rate was lower in BAV patients (0.02 ± 0.04 vs. 0.11 ± 0.04 m/s per year, p < 0.001). No comorbidities were significantly associated with AS progression. TAV patients had higher all-cause mortality (HR = 11.2, 95%CI 1.47-85.7, p = 0.02). However, TAV was not an independent predictor of mortality in the multivariate analysis adjusted for comorbidities and AS progression rate.
Conclusions: This study suggests that, although BAV is associated with earlier development of valve dysfunction, progression may be more gradual in BAV than TAV patients. The differences in progression rate were not attributable to initial disease severity, which emphasizes the need to focus on cardiovascular risk factor control in this population.

PO 193. THE NOBLE PROTOCOL FOR PATIENTS UNDERGOING SUTURE-MEDIATED PFO CLOSURE

Inês Gomes Campos[1], Joel Monteiro[1], Diana Ribeiro[2], Ana Rodrigo Costa[1], José Luís Ferraro[1], Mauro Moreira[1], Marta Tavares Silva[3], João Carlos Silva[3], André Luz[2], Rui André Rodrigues[3], Aurora Andrade[1], Achilles Gaspardone[4]

[1]ULS Tâmega e Sousa/Hospital Padre Américo. [2]ULS Santo António/Hospital de Santo António. [3]ULS São João/Hospital São João. [4]UOC Cardiology Hospital Sant'Eugenio, Rome.

Introduction: Suture-mediated patent foramen ovale (PFO) closure has emerged as a promising alternative to traditional device-based strategy. However, long-term data reveal rates of significant residual shunt (SRS) up to 25-40%, highlighting the importance of optimal patient selection. Additionally, sporadic cases of late PFO reopening reinforce the need for prolonged and structured follow-up.
Objectives: To develop the first systematic protocol for patients undergoing suture-mediated PFO closure. Discussion: The protocol follows the acronym NOBLE. N - Neurological events: Most patients are referred for PFO closure after cryptogenic stroke. Other indications considered in a case-by-case basis include platypnea-orthodeoxia syndrome, systemic thromboembolism, migraine and decompression sickness. O - Optimal Anatomy: Detailed anatomical assessment is essential. SRS is strongly associated with specific septal features, and scoring systems are valuable tools for identifying suitable candidates. LASSO score (PFO length < 7 mm: 1 point; atrial septal aneurysm: 1, severe Valsalva shunt: 2; PFO opening > 4 mm: 2) was recently proposed by Gaspardone *et al.* and externally validated in a large Portuguese registry. Patients scoring 0-1 have a 94% success rate (effective PFO closure) vs. 61% for scores 4-6. Although predictive capacity is moderate, its use is strongly recommended. B - Baseline Success: Suture-mediated closure allows immediate assessment of residual shunt. SRS at the end of the procedure should be addressed - by additional sutures or adding a device - according to patient's anatomy, ensuring optimal PFO closure. L - Long follow-up: Clinical assessment and contrast echocardiography are crucial in the first 3 months, when most SRS are identified. Sporadic cases of late PFO reopening, up to 5 years post-procedure, have been reported. A repeated contrast echocardiographam at 3-year follow-up is therefore advised. E - Event Analysis: A prospective clinical registry validating this protocol is recommended as it provides real-world, consecutive patient data with extended follow-up and detailed clinical variables. This enables robust identification of predictors of long-term SRS, particularly given the limited predictive performance of existing risk scores.



Conclusions: This protocol offers the first structured approach for suture-mediated PFO closure, optimizing patient selection, procedural strategy and long-term follow-up, grounded in the experience of leading experts and supported by the largest multinational registries available.

PO 194. REDUCED ICU LENGTH OF STAY WITH FLOWTRIEVER MECHANICAL THROMBECTOMY IN ACUTE PE: A RETROSPECTIVE COHORT STUDY

Mariana Caetano Coelho, Julien Lopes, Daniela Pinheiro, Bárbara Lacerda Teixeira, Andre Grazina, João Reis, Pedro Costa, Ana Galrinho, Melanie Ferreira, Pedro Coelho, Rui Cruz Ferreira, Luís Almeida Morais

ULS São José/Hospital de Santa Marta.

Introduction: Pulmonary embolism (PE) is a life-threatening condition that often requires rapid reperfusion to prevent right-ventricular failure and prolonged intensive care stay. Modern percutaneous strategies such as catheter-directed thrombolysis (CDT) improve pulmonary pressures but are limited by bleeding risk and the frequent need for ICU monitoring to manage thrombolytic infusion. Mechanical thrombectomy has emerged as an alternative that provides faster hemodynamic improvement without thrombolytics. Among these devices, the FlowTriever system has shown significant potential to reduce ICU utilization. The FLARE trial demonstrated

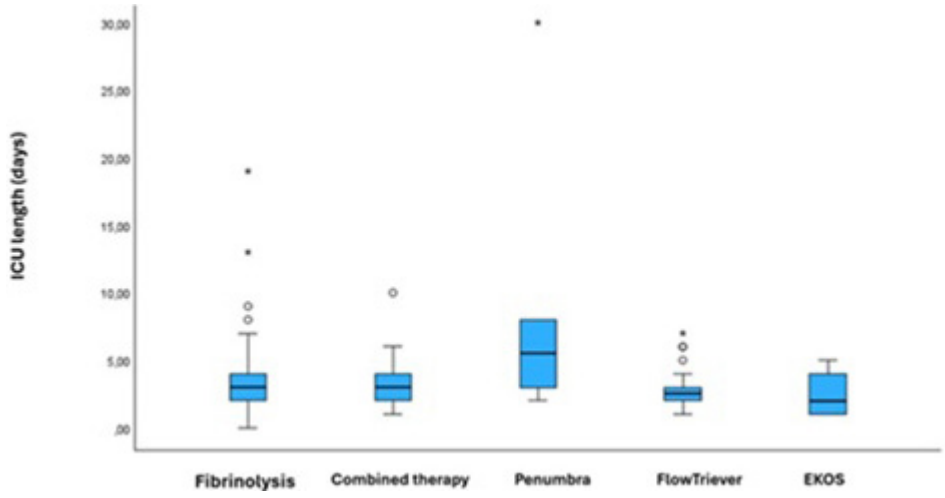


Figure PO 194

that 41% of treated patients required no ICU stay, and the mean ICU duration was only 1.5 days. Real-world data from the FLASH registry similarly reported rapid clinical stabilization and low rates of ICU admission. Comparative observational studies also suggest shorter ICU stays with FlowTriever versus standard catheter-based therapies.

Objectives: The aim of this study is to evaluate whether the FlowTriever mechanical thrombectomy system reduces ICU length of stay compared with other percutaneous treatment strategies for acute pulmonary embolism.

Methods and results: We conducted a retrospective analysis of all patients treated for acute pulmonary embolism at our center between 2020 and 2025. A total of 159 patients were included, with a median age of 62 years (IQR ± 16) and 48% women. Based on hemodynamic presentation, 9% were classified as high-risk PE, while the remainder met criteria for intermediate-high-risk PE. Patients were grouped according to the reperfusion strategy used: systemic fibrinolysis (n = 99), combined fibrinolysis plus mechanical therapy (n = 12), Penumbra thrombectomy (n = 6), FlowTriever thrombectomy (n = 37), and EKOS catheter-directed thrombolysis (n = 5). The primary endpoint was ICU length of stay, measured in days and compared across treatment modalities. Baseline characteristics were similar across treatment groups, with no statistically significant differences in age (p = 0.95), sex distribution (p = 0.25), high-risk presentation (p = 0.301), syncope (p = 0.766), or dyspnea (p = 0.253). A higher proportion of cardiac arrest events was observed in the EKOS group, although this difference did not reach statistical significance (p = 0.053). In this cohort with acute pulmonary embolism, ICU length of stay varied significantly across reperfusion strategies (ANOVA F = 5.48; p < 0.001). FlowTriever was associated with the shortest ICU stay (2.78 days), followed by EKOS (3.1 days), fibrinolysis (3.42 days), combined therapy (3.7 days), and Penumbra (9 days).

Conclusions: FlowTriever demonstrated a consistent trend toward shorter ICU stays compared with other percutaneous techniques, suggesting a potential clinical advantage as well as economic and logistical benefits.

PO 195. OPTIMIZING PATIENT SELECTION FOR PERCUTANEOUS SUTURE-MEDIATED PATENT FORAMEN OVALE CLOSURE: EXTERNAL VALIDATION OF LASSO SCORE

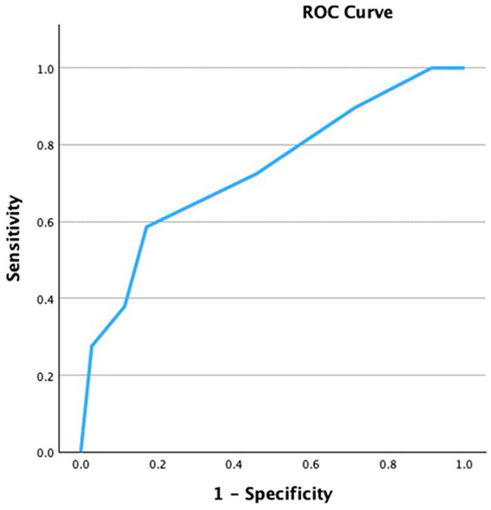
Inês Gomes Campos[1], Joel Monteiro[1], Bruno Bragança[1], Mauro Moreira[1], José Luís Ferraro[1], Ana Rodrigo Costa[1], Rafaela G. Lopes[1], Marta Tavares Silva[2], João Carlos Silva[2], Rui André Rodrigues[2], Aurora Andrade[1], Achilles Gaspardone[3]

[1]ULS Tâmega e Sousa/Hospital Padre Américo. [2]ULS São João/Hospital São João. [3]UOC Cardiology Hospital Sant'Eugenio, Rome.

Introduction: Percutaneous suture-mediated patent foramen ovale (PFO) closure has proven to be safe and effective at short-term follow-up. Longer-term data show non-negligible rates of significant residual shunt (SRS), underscoring the need for improved patient selection. LASSO score was recently proposed by Gaspardone *et al.*, but lacks external validation.

Objectives: To validate LASSO score in the largest Portuguese cohort of suture-mediated PFO closure patients and to compare it with the previously internally validated SWAT score.

Methods: Single-center retrospective observational registry of consecutive patients admitted for percutaneous suture-mediated PFO closure between January 2020 and November 2025. The recently proposed LASSO score (PFO length< 7 mm: 1 point; atrial septal aneurysm: 1 point, severe shunt with Valsalva: 2 points; PFO opening > 4 mm: 2 points) was calculated. LASSO's accuracy to predict SRS was compared with the previously derived SWAT score, developed and internally validated in the same population, using the DeLong test.



Results: 79 patients were included (mean age 48.5 ± 12.6 years, 55.7% female), 95% referred for cryptogenic stroke and transit ischemic attack, with high RoPE score (median 6). Median PFO length was 10.0mm (IQR 8.3), width 3.0 mm (IQR 2.0) with baseline severe spontaneous shunt in 44.6%. Atrial septal aneurysm was present in 41.6%. Patients were followed up to 5 years (mean 854 ± 523 days). Thirty patients (40.0%) had SRS (grade ≥ 2) at follow-up. Patients with SRS scored a significantly higher LASSO (2.52 vs. 3.62, p = 0.006). LASSO score showed good prediction accuracy (AUC 0.731; 95%CI 0.606-0.856). The previously derived SWAT score showed comparable discrimination (AUC 0.733; 95%CI 0.608-0.857, p = ns).

Conclusions: This study provides the first external validation of the newly proposed LASSO score, confirming its discriminative performance in a real-world cohort. Its accuracy was comparable with the previously developed

SWAT score, suggesting that both are valuable tools for optimizing patient selection for percutaneous suture-mediated PFO closure.

PO 196. COMPARISON OF TRANSCATHETER AND SURGICAL REPAIR OF SUPERIOR SINUS VENOSUS ATRIAL SEPTAL DEFECT: INSIGHTS FROM A TERTIARY CENTER

Francisco Barbas de Albuquerque[1], Konstantinos Dimopoulos[1], Andreas Hoschtitzky[2], Wei Li[1], Michael A Gatzoulis[1], Alexander Kempny[1]

[1]Adult Congenital Heart Centre and National Centre for Pulmonary Hypertension, Royal Brompton and Harefield Hospitals, Guy's and St Thomas's NHS Foundation Trust, Imperial College, London, United Kingdom. [2]Department of Paediatric and ACHD surgery Royal Brompton Hospital/Evelina's Children Hospital, Guy's and St Thomas's NHS Foundation Trust, Imperial College, London, United Kingdom.

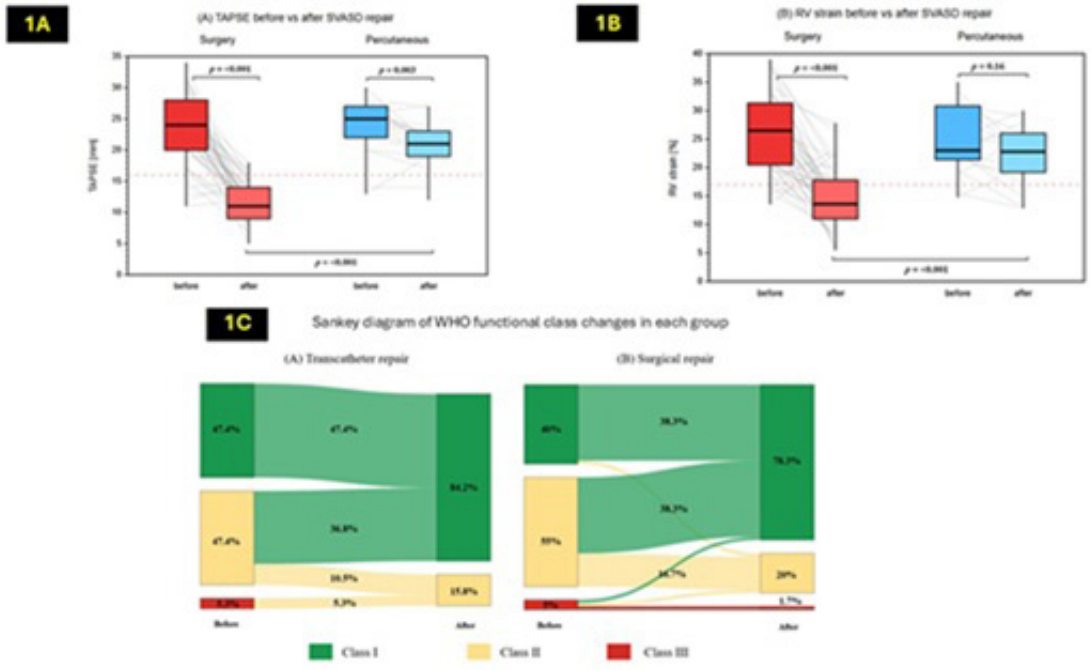
Introduction: Surgical repair (SR) has been the standard treatment for superior sinus venosus atrial septal defect (SVASD), but transcatheter repair (TR) has recently emerged as a less invasive alternative. This study compared TR and SR outcomes regarding procedural success, outcomes, and right ventricular (RV) remodeling and function.
Methods: Single-center retrospective study of adults (≥ 18 years) who underwent repair of SVASD.
Results: Ninety patients were included (TR = 21, SR = 69; median age 57 vs. 47 years, p = 0.011). In the SR group, the technique most used was single-patch repair (n = 40) and concomitant tricuspid annuloplasty was performed in six patients. In SR group, the covered AndraTec Optimus XXL stent was used in majority of cases (n = 15) and pulmonary vein protection was performed 62% of cases. Both groups showed significant RV reverse remodeling by echocardiography and cardiac MRI. Post-repair, tricuspid annular plane systolic discursion (TAPSE) remained normal in 91.3% after TR, compared to just 8.3% in SR group, p < 0.001 (Figure 1A). There was also significant reduction of RV free-wall strain after SR, but not TR (Figure 1B). Procedural success was 100% in both groups. Residual shunt was more frequent after TR (28.5% vs. 1.4%, p < 0.001), although it was mild in majority of patients (n = 5, 83%) and significant in 1 (17%) patient only. Both groups had a significant improvement in WHO functional class after repair (Figure 1C). Hospital stay was shorter after TR group (1 [1-2] vs. 7 [6-9] days, p < 0.001). SR group had a longer follow-up time, as compared to TR group (78 [9-142] vs. 20 [4-37] months, p = 0.001). During follow-up, in the TR group, one patient had surgery due to residual shunt, two patients had re-intervention with stent post-dilation and one had pacemaker implantation; in the SR group, two patients had pacemaker implantation, two had SVC obstruction managed conservatively and one had IVC obstruction requiring balloon dilation. No pulmonary vein obstruction was observed in either group.
Conclusions: This study demonstrates safety of TR for SVASD, with both TR and SR promoting RV remodeling. Following TR, RV function remained stable, whilst it significantly declined after SR. TR offered shorter hospitalization but was associated with a higher incidence of residual shunting, albeit mild in majority of patients.

PO 197. REFINING RISK IN PULMONARY ARTERIAL HYPERTENSION: SHOULD WE LOOK TO THE RIGHT HEART?

Adriana Silva, Sofia Alegria, Filipa Ferreira, Ana Cláudia Vieira, Bárbara Ferreira, Débora Repolho, João Luz, Otília Simões, Hélder Pereira

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Risk stratification is essential in pulmonary arterial hypertension (PAH), guiding both prognosis and therapeutic decisions. Current models are mainly based on clinical and functional variables such as WHO functional class, six-minute walk distance, and natriuretic peptides. However, these tools do not include right ventricular (RV) function, an important determinant of outcome in PAH. Echocardiographic parameters reflecting RV contractility and ventriculo-arterial coupling may refine risk assessment.
Objectives: To evaluate the prognostic performance of echocardiographic indices of RV systolic function in group 1 PAH.
Methods: Seventy-eight patients with PAH were followed for 12 months in a referral center. The composite endpoint included death, lung transplantation or initiation of intravenous prostanoids. Baseline echocardiography evaluated included tricuspid annular plane systolic excursion (TAPSE), systolic pulmonary artery pressure (sPAP), TAPSE/sPAP and TAPSE/tricuspid regurgitant velocity (TRV) ratios, tricuspid annular systolic velocity (tricuspid S'), right atrial (RA) area, and tricuspid regurgitation (TR) severity.



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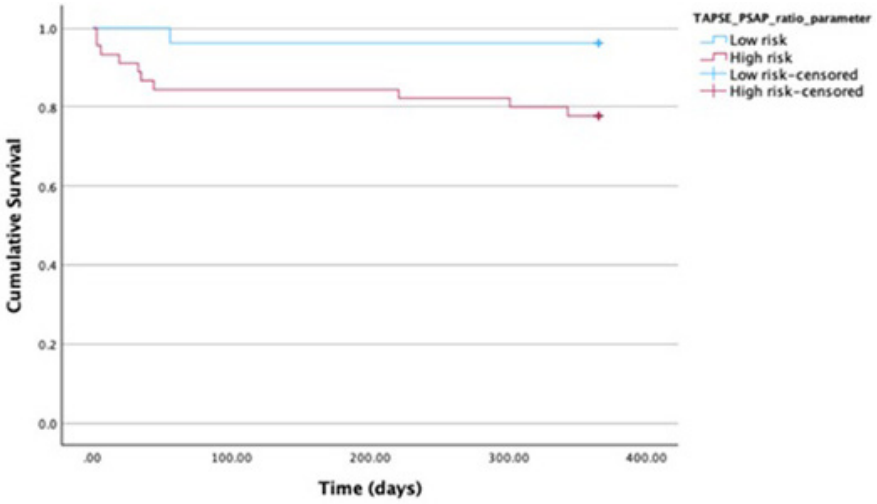


Figure 1. Survival curves stratified by TAPSE/PSAP ratio (low-risk vs. high-risk).

Figure PO 197

Prognostic performance was assessed with Cox regression and ROC analyses; optimal thresholds were derived using the Youden index. Survival distributions were compared using Kaplan-Meier.
Results: The mean age was 52 ± 17 years, 69% were female. WHO functional class III-IV was present in 79.5% of the cohort. Eleven patients (14%) reached the endpoint. In univariate Cox analysis, lower TAPSE (HR 0.85, p = 0.018), S′ (HR 0.77, p = 0.039), TAPSE/TRV (HR 0.56, p = 0.037) and TAPSE/sPAP (HR 0.09, p = 0.064) were associated with events. ROC analysis demonstrated good discriminative ability: TAPSE < 18 mm (AUC 0.738, sensibility 73%, specificity 70%); tricuspid S′ < 9 cm/s (AUC 0.747, sensibility 75%, specificity 71%); TAPSE/TRV < 3.7 mm·s/m (AUC 0.719, sensibility 70%, specificity 68%), TAPSE/sPAP < 0.25 mm/mmHg (AUC 0.710, sensibility 67%, specificity 70%). The AUC-derived TAPSE/PSAP ratio cut-off separated the cohort into two prognostic groups, with the high-risk category showing significantly poorer survival (Log-Rank p = 0.042) (Figure 1).
Conclusions: TAPSE, tricuspid S′, TAPSE/TRV, and TAPSE/sPAP were associated with adverse outcomes and exhibited moderate predictive accuracy. These simple, non-invasive measures may complement current clinical risk scores, refining prognostic stratification in PAH.

Sábado, 25 Abril de 2026 | 09:00-09:55

Área de Posters - Ecrã 3 | Sessão de Posters 34 - INOCA, MINOCA e a zona cinzenta da doença coronária

PO 198. INVASIVE CORONARY FUNCTIONAL TESTING: INSIGHTS FROM A SINGLE CENTRE

Mariana Rodrigues Simões[1], Gonçalo Terleira Batista[1], Tomás Miguel[2], Manuel Santos[1], Luís Paiva[1], Marco Costa[1], Lino Gonçalves[1]

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

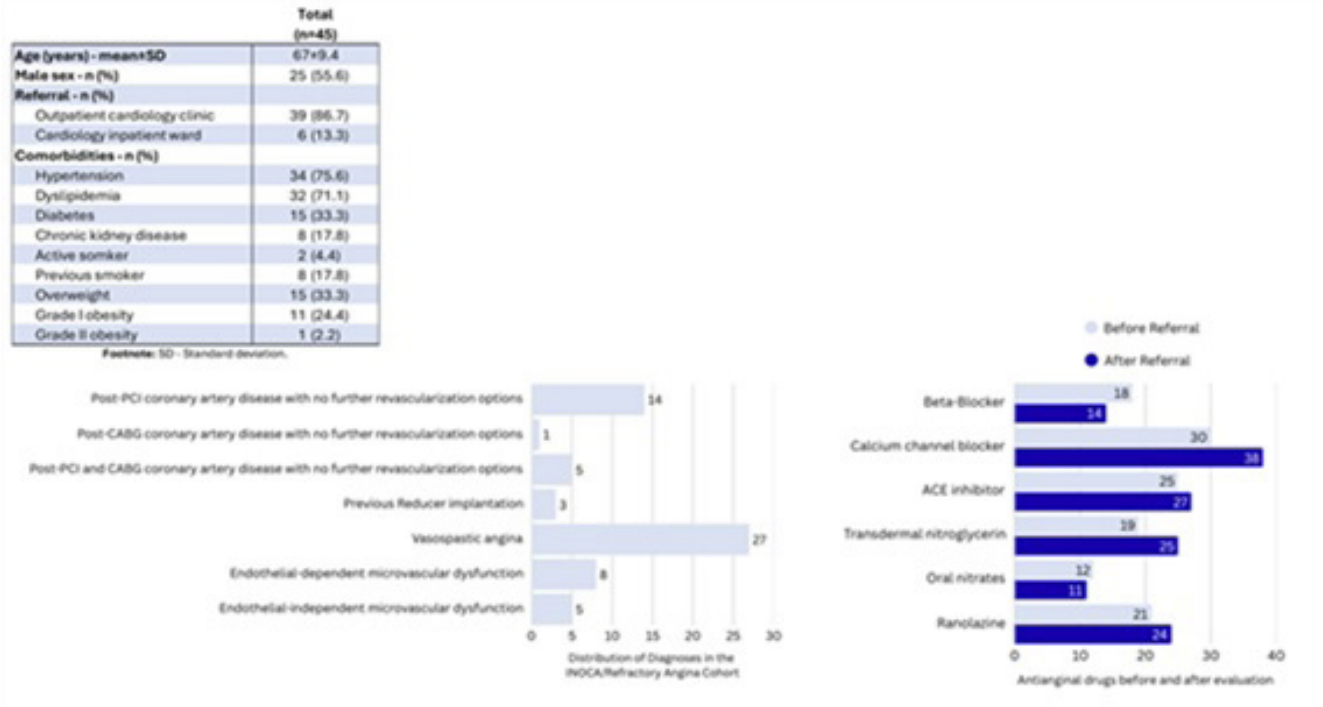
Introduction: Growing evidence has shown that structural and functional abnormalities of the coronary microvasculature are highly prevalent and are associated with an increased burden of cardiovascular disease.
Methods and objectives: We conducted a single-centre, retrospective, observational study of patients with ischemia with no obstructive coronary arteries (INOCA) or angina with no obstructive coronary arteries (ANOCA) who underwent invasive coronary functional testing with an acetylcholine- and adenosine-based protocol between November 2022 and November 2025. We assessed testing results and long-term outcomes, including symptoms, emergency department (ED) visits, and repeat angiography.
Results: A total of 43 patients were included (23 men and 20 women), with a median age of 60 years (IQR 17) and a mean follow-up time of 16.3 ± 11.6 months. Twenty-seven patients had an INOCA diagnosis and 16 had ANOCA. Hypertension was present in 25 patients, hyperlipidemia in 31, diabetes mellitus in 7, and 6 reported past or current smoking. Invasive functional testing was positive in 27 patients (63%): 15 demonstrated macrovascular vasospasm, 8 had coronary microvascular dysfunction, and 4 exhibited both mechanisms. Electrocardiographic (ECG) changes occurred in 11 patients (10 with a ST-segment depression and 1 with ventricular tachycardia (VT)). The VT episode occurred in a patient with macrovascular vasospasm; among the remaining ECG changes, 7 occurred in patients with vasospasm, 1 with microvascular dysfunction, and 2 in those with both mechanisms. Eighteen patients reported chest pain during testing, but only 15 had disease: 10 with macrovascular spasm, 1 with microvascular dysfunction, and 4 with both. Positive test rates were similar between ANOCA (62%) vs. INOCA (63%) patients (p = 0.967). By the end of follow-up, 10 patients reported exertional chest pain of those, 8 had a positive test (3 with vasospasm, 2 with microvascular dysfunction, and 3 with both). Six patients presented to the ED with chest pain: all with positive testing- 2 with microvascular dysfunction, 2 with vasospasm, and 2 with both). Two patients (one with vasospasm and one with combined mechanisms) underwent repeat coronary angiography, with no progression of obstructive coronary disease.
Conclusions: In patients with ANOCA/INOCA, invasive functional testing identifies the underlying mechanisms. Larger patients' cohorts may further clarify how each mechanism contributes to different clinical outcomes.

PO 199. IMPLEMENTATION OF THE FIRST DEDICATED INOCA AND REFRACTORY ANGINA CLINIC IN PORTUGAL: EARLY EXPERIENCE AND CLINICAL IMPACT

Inês Ferreira Neves, Miguel Marques Antunes, André Ferreira, Tiago Mendonça, Tiago Pereira da Silva, Duarte Cacela, Rui Cruz Ferreira, Ruben Ramos

ULS São José/Hospital de Santa Marta.

Introduction: Ischemia with non-obstructive coronary arteries (INOCA) and refractory angina represent a growing clinical challenge, frequently leading to recurrent hospital visits, delayed diagnosis, and suboptimal management.



	Total (n=45)
Age (years) - mean±SD	67±9.4
Male sex - n (%)	25 (55.6)
Referral - n (%)	
Outpatient cardiology clinic	39 (86.7)
Cardiology inpatient ward	6 (13.3)
Comorbidities - n (%)	
Hypertension	34 (75.6)
Dyslipidemia	32 (71.1)
Diabetes	15 (33.3)
Chronic kidney disease	8 (17.8)
Active somker	2 (4.4)
Previous smoker	8 (17.8)
Overweight	15 (33.3)
Grade I obesity	11 (24.4)
Grade II obesity	1 (2.2)

Footnote: SD - Standard deviation.

Figure PO 199

Despite increasing recognition of coronary microvascular dysfunction and vasospastic angina, dedicated care pathways remain limited in Portugal.
Objectives: To describe the early outcomes of the first specialized INOCA and refractory angina consultation implemented in our hospital center.
Methods: A multidisciplinary clinic was established in January 2025, integrating interventional cardiologists with expertise in coronary physiology and chronic total occlusions (CTOs), cardiologists with advanced cardiovascular imaging expertise, and individualized pharmacologic management. A standardized assessment pathway was developed, including structured symptom evaluation, stratified non-invasive testing, invasive coronary function assessment when clinically indicated, and personalized therapeutic planning. We conducted a prospective evaluation of the first cohort of patients referred for suspected INOCA or refractory angina.
Results: During the first year, the clinic received 56 referrals, of whom 45 patients are currently being followed (mean age 67 ± 9.4 years; 55.6% male). Vasospastic angina was the most frequent diagnosis, identified in 27 patients (60%), followed by coronary artery disease after PCI and/or CABG without further revascularization targets (44.4%). The mean time from referral to first consultation was 65 ± 36 days. Significant improvements were observed in both angina severity and functional capacity: CCS class decreased by a mean of 0.76 ± 0.83 ($p < 0.001$), and NYHA class improved by 0.24 ± 0.44 ($p = 0.021$). No emergency department visits or urgent hospital admissions occurred during follow-up.
Conclusions: The establishment of the first dedicated INOCA and refractory angina clinic in Portugal proved both feasible and clinically impactful. Structured evaluation and personalized management enabled more accurate diagnosis and meaningful symptom improvement in a complex and frequently under-recognized patient population.

PO 200. MINOCA SYNDROME STRATIFIED BY SEX: WHAT DIFFERS?

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

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

Introduction: Myocardial infarction with non-obstructive coronary arteries (MINOCA) may arise from genetic susceptibility, involving mechanisms linked to coronary microvascular dysfunction and thrombotic events. Evidence suggests sex-related differences in MINOCA presentation, although findings remain inconsistent.
Objectives: Stratify the MINOCA population by sex according to the main genetic, behavioural, and traditional risk factors in a Southern European population.
Methods: This prospective, single-centre cohort included 1,633 patients admitted with myocardial infarction between January 2000 and December 2023. Coronary angiography was assessed by two interventional cardiologists using the Leaman Score to quantify coronary artery disease (CAD) burden; a score of 0 defined MINOCA. MINOCA patients were stratified by sex and compared with obstructive (MI-CAD). Thirty-three single-nucleotide polymorphisms (SNPs) previously associated with CAD were genotyped using TaqMan assays. Associations between genetic variants and traditional risk profile and MI-CAD were evaluated for both sex, using bivariate and multivariate logistic regression.
Results: MINOCA was diagnosed in 87 (5.3%) of patients: 29 women and 58 men. Women with MINOCA showed lower prevalence of type 2 diabetes ($p = 0.005$) and metabolic syndrome ($p = 0.003$), and reported higher physical activity ($p < 0.0001$) compared with MI-CAD women. Genetic variants PON1 rs854560 ($p = 0.040$) and CDKN2B rs4977574 ($p = 0.036$) showed significance; but after multivariate adjustment, only CDKN2B GG remained independently associated with MI-CAD ($p = 0.020$). Only type 2 diabetes ($p = 0.025$), age ($p = 0.012$) and physical inactivity ($p = 0.008$) retained independent associations. Men with MINOCA showed lower rates of hypertension ($p = 0.033$), diabetes ($p = 0.021$), and metabolic syndrome ($p = 0.042$) versus MI-CAD. Significant SNPs associations included TCF21 rs12190287 ($p < 0.0001$), FTO rs9939609 ($p = 0.048$), and PCSK9 rs562556 ($p = 0.038$). When adjusted in multivariate logistic regression, TCF21 GC+CC ($p < 0.0001$) and PCSK9 GA+AA ($p = 0.042$) remained independently associated with MI-CAD, along with age ($p < 0.0001$).
Conclusions: Women and men with MINOCA exhibit a more favourable cardiometabolic profile than those with MI-CAD, with lower metabolic risk burden. Both sexes presented genetic contributors to MI-CAD, particularly variants in TCF21, CDKN2B, PCSK9, FTO and PON1, supporting a genetic predisposition to mechanisms such as endothelial dysfunction, vasospasm, and thrombotic events.

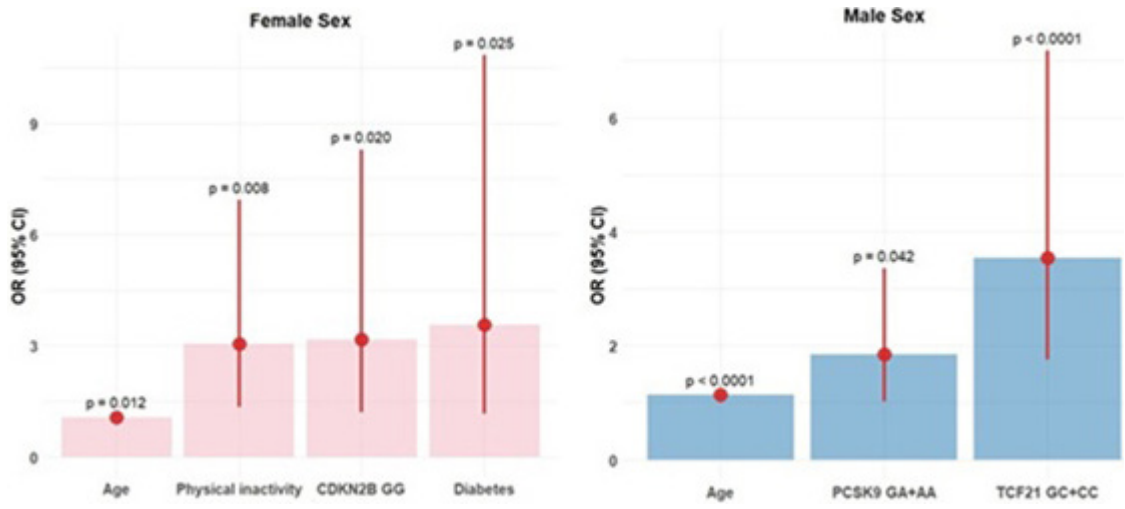


Figure PO 200

PO 201. PROGNOSIS OF MINOCA COMPARED TO OBSTRUCTIVE MYOCARDIAL INFARCTION: A COMPARATIVE ANALYSIS

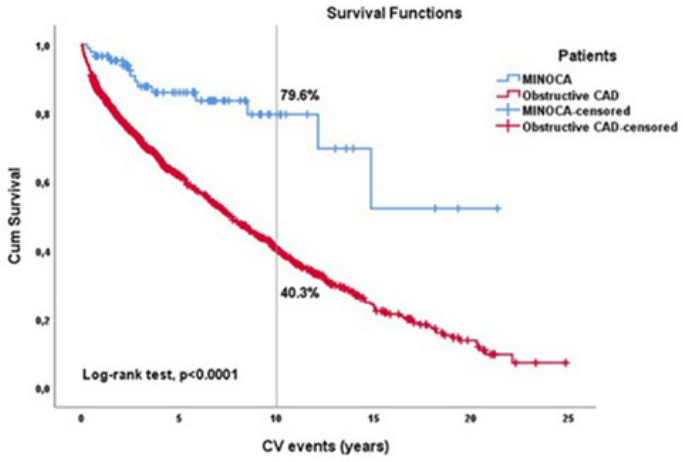
Gonçalo Bettencourt Abreu[1], Maria Isabel Mendonça[2], Francisco Sousa[1], Matilde Ferreira[1], Francisca Escórcio Silva[1], Sónia Freitas[2], Mariana Rodrigues[2], Eva Henriques[2], Sofia Borges[2], António Drumond[1], Ana Célia Sousa[2], Roberto Palma dos Reis[3]

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

Introduction: Some studies showed that the prognosis for patients with Myocardial Infarction (MI) with No Obstructive Coronary Artery Disease (MINOCA) is more favourable compared to those with Obstructive Coronary Artery Disease (CAD). However, it has been proven to be worse than the general population.

Objectives: Evaluate the prognostic value of the MINOCA compared to MI with obstructive CAD in a Southern European population.

Methods: A prospective, single-centre, observational cohort study was performed from January 2000 to December 2023. A total of 1,633 patients with MI were admitted and underwent coronary angiography, being followed for a mean of 7.6 ± 6.7 years. Angiography was evaluated by two interventional cardiologists, who classified it according to the Leaman Score (which quantifies the total burden of CAD based on plaque location, type, and degree of stenosis). A score of zero was established to define MINOCA. Demographic, traditional risk factors and biochemical data were obtained from all patients. Patients with MINOCA were compared to those with obstructive coronary arteries. The primary outcome was the occurrence of cardiovascular events (CVEs) from all causes (MI, revascularisation, heart



Variables independently associated with CV events

Variables	B	S.E.	Wald	df	HR (95% CI)	P value
Physical inactivity	0.241	0.085	7.971	1	1.273 (1.077-1.505)	0.005
Diabetes	0.161	0.079	4.185	1	1.175 (1.007-1.371)	0.041
Obstructive CAD (vs MINOCA)	1.162	0.271	18.349	1	3.197 (1.878-5.441)	<0.0001

Variables excluded from the equation: sex; age; smoking; hypertension; obesity; dyslipidemia; alcohol>300g/week. CV – Cardiovascular; CAD – Coronary artery disease; MINOCA – Myocardial infarction with No Obstructive Coronary Arteries. B – Beta coefficient; S.E. – Standard error; df – degrees of freedom; HR – Hazard ratio; CI – Confidence interval; Statistically significant at p<0.05.

Figure PO 201

failure, stroke, peripheral arterial disease, and death). Cox regression analysis identified variables independently associated with CVEs and estimated risk in these populations. Kaplan-Meier assessed event-free survival over time.
Results: Of 1,633 patients with MI, only 87 patients (5.3%) had MINOCA, and 1,546 (94.7%) had obstructive CAD. Within MINOCA, 16.1% had CVEs, and 42.2% had CVEs in those with obstructive CAD. The Kaplan-Meier analysis showed that MINOCA patients had a higher event-free probability throughout follow-up. Specifically, at 10 years, the event-free rate was 79.6% vs. 40.3% in the MI with obstructive CAD. After Cox regression analysis, the risk of CVEs for patients with MI with obstructive CAD was three times higher than that of those with MINOCA (HR = 3.2; 95%CI: 1.9-5.4; p < 0.0001). The other variables independently associated with CVEs were diabetes (p = 0.041) and physical inactivity (p = 0.005).
Conclusions: Although MINOCA patients show a significantly better prognosis than those with obstructive MI, the condition is not benign. The broader MINOCA spectrum remains associated with recurrent symptoms, frequent healthcare use, and a long-term risk profile that, while lower than obstructive CAD, progressively converges over time.

PO 202. GENETIC AND CLINICAL DETERMINANTS OF OBSTRUCTIVE MYOCARDIAL INFARCTION COMPARED WITH MINOCA: INSIGHTS FROM A SOUTHERN EUROPEAN COHORT

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

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dr.ª Maria Isabel Mendonça. [3]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Myocardial infarction with nonobstructive coronary arteries (MINOCA) may arise from genetic susceptibility, particularly through mechanisms involving coronary microvascular dysfunction and thrombotic events. Behavioural triggers –such as smoking, substance use, stress, cold exposure, and certain medications– can also provoke coronary artery spasm. However, the underlying genetic contributors remain incompletely defined.
Objectives: Identify the genetic, behavioural, and traditional risk factors associated with obstructive myocardial infarction (MI) compared with MINOCA in a Southern European population.
Methods: This prospective, single-centre observational cohort study included 1,633 patients fulfilling myocardial infarction criteria and admitted between January 2000 and December 2019. All underwent coronary angiography, evaluated by two interventional cardiologists using the Leaman Score; a score of 0 defined MINOCA. Traditional risk factors, behavioural variables, and biochemical markers were analysed. Peripheral DNA was genotyped using TaqMan assays for 33 CAD-related SNPs. Associations between genetic variants and traditional risk factors associated with obstructive MI were examined using bivariate and multivariate logistic regression.
Results: Among the 1,633 patients, 87 (5.3%) were classified as MINOCA. Compared with patients with obstructive MI, MINOCA individuals showed significantly lower prevalence of hypertension, type 2 diabetes, and metabolic syndrome, and reported higher physical activity. In bivariate analyses, five SNPs were significantly associated with the obstructive MI when compared with MINOCA group: TCF21 GC+CC rs12190287 (90.8% vs. 80.5%, respectively), PON RR rs662 (9.4% vs. 1.1%), CDKN2B GG rs4977574 (38.2% vs. 26.4%), ADIPOQ CG+GG rs266729 (42.4% vs. 54.0%), and PCSK9 GA+AA rs2114580 (45.1% vs. 32.2%) (dominant and recessive models). After multivariate adjustment, four variants remained independently associated with obstructive MI: TCF21 GC+CC (OR = 2.67; p = 0.001), CDKN2B GG (OR = 1.94; p = 0.011), PCSK9 GA+AA (OR = 1.93; p = 0.008), and PON 192 RR (OR = 9.20; p = 0.030). Among traditional risk factors, type 2 diabetes (p = 0.017), age (p < 0.0001), and sex (p < 0.0001) were also independent predictors of obstructive MI.
Conclusions: MINOCA patients presented lower rates of cardiometabolic risk factors than those with obstructive MI. Genetic variants in TCF21, CDKN2B, PCSK9, and PON 192 emerged as independent contributors to obstructive MI.

PO 203. CULPRIT VESSEL DISTRIBUTION DOES NOT PREDICT OMI RECLASSIFICATION IN ACUTE CORONARY SYNDROMES

Marta Leite, André Lobo, Francisca Nunes, Francisco Sousa, Leonor Moura, Marta Almeida, Fabio Nunes, Gualter Santos Silva, Claúdio Espada Guerreiro, Francisco Sampaio, Pedro Braga, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: The Occlusion Myocardial Infarction (OMI) framework challenges the traditional STEMI-based approach by emphasizing direct identification of coronary occlusion rather than relying solely on ECG criteria. This study examined whether the culprit vessel influences reclassification patterns when applying the OMI paradigm.
Methods: We retrospectively analyzed 330 ACS patients initially classified as STEMI or NSTEMI. OMI was defined by angiographic occlusion (TIMI flow ≤ 2) and/or markedly elevated troponin levels (Troponin T > 1,000 ng/L or Troponin I > 5,000 ng/L) in the presence of regional wall motion abnormalities. Patients were then stratified into STEMI, NSTEMI-OMI, or NSTEMI-non-OMI. Culprit vessels were categorized as left main (LM), left anterior descending (LAD), left circumflex (LCx), or right coronary artery (RCA).
Results: Of 327 patients with complete data, 193 (59.0%) were STEMI. Their culprit vessels were LAD in 91 cases (47.2%), RCA in 60 (31.1%), LCx in 39 (20.2%), and LM in 3 (1.6%). Among 134 NSTEMI patients, OMI reclassification identified 52 NSTEMI-OMI and 82 NSTEMI-non-OMI. In NSTEMI-OMI, culprit vessels were RCA in 23 cases (44.2%), LAD in 18 (34.6%), and LCx in 9 (17.3%). In NSTEMI-non-OMI, the LAD accounted for 38 cases (46.3%), the RCA for 27 (32.9%), and the LCx for 16 (19.5%). When examined by vessel territory, LAD lesions (n = 147) were classified as STEMI in 61.9%, NSTEMI-OMI in 12.2%, and NSTEMI-non-OMI in 25.9%. For RCA lesions (n = 110), these proportions were 54.5%, 20.9%, and 24.5%, respectively. LCx lesions (n = 64) showed a similar distribution. Although RCA lesions showed a numerical trend toward higher misclassification, differences across territories were not statistically significant (p = 0.522).
Conclusions: OMI misclassification occurred across all coronary territories, indicating that diagnostic under-recognition is not driven by anatomical distribution alone. Coronary occlusion consistent with the OMI framework may arise in any vascular territory, independent of culprit vessel location, underscoring the need for diagnostic strategies beyond traditional ECG-based STEMI criteria.

Sábado, 25 Abril de 2026 | 11:00-11:55

Área de Posters - Ecrã 1 | Sessão de Posters 35 - Medir o que importa na reabilitação cardíaca

PO 204. ACCURACY AND PROGNOSTIC VALUE OF CALCULATED VERSUS CPET-DERIVED METS IN PHASE II CARDIAC REHABILITATION

Sofia Esteves, João Cravo, Catarina Sena Silva, Daniel Inácio Cazeiro, Inês Araújo, Paula Sousa, Alda Jordão, Inês Aguiar-Ricardo, Nelson Cunha, Pedro Alves da Silva, Fausto J. Pinto, Ana Abreu

Department of Cardiology, Unidade Local de Saúde de Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Cardiac rehabilitation (CR) programs frequently rely on estimated metabolic equivalents (METs) derived from exercise testing formulas; however, the accuracy and clinical validity of these calculated METs relative to directly measured values remains uncertain.
Objectives: To evaluate the agreement between calculated METs and cardiopulmonary exercise test (CPET)-derived METs, and to assess their prognostic implications.

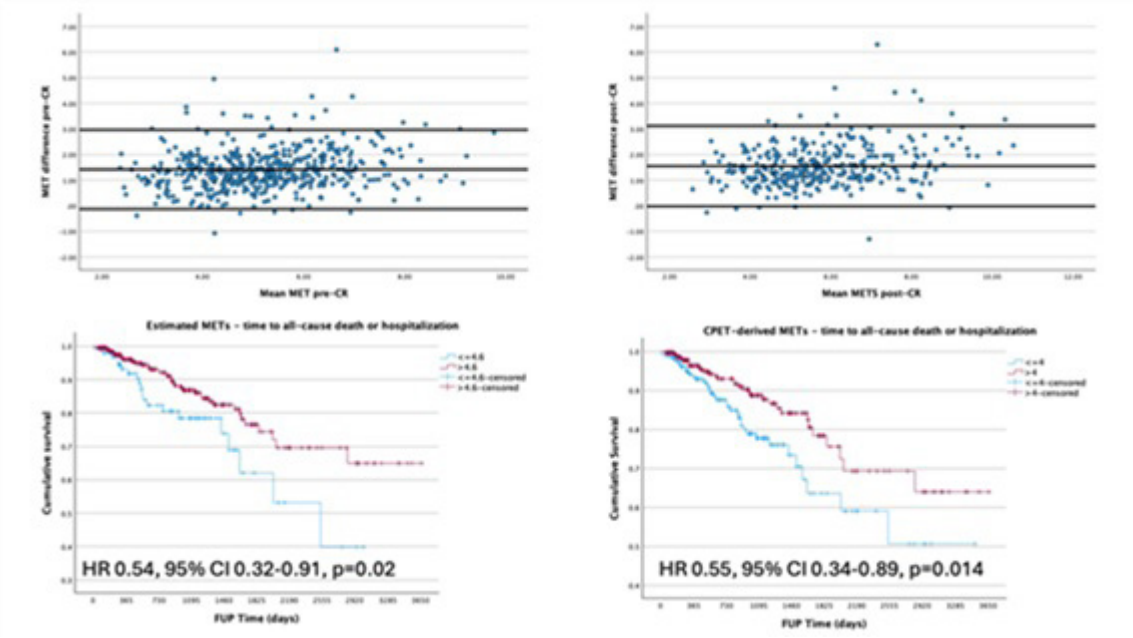


Figure PO 204

Methods: We conducted an observational, single-center study with patients enrolled in a phase II CR program between 2015 and 2025. CPETs performed at admission and after completion of the program were analyzed. CPET-derived METs were calculated as peak VO_2 divided by 3.5. Estimated METs were obtained using the "Cycle Ergometer Metabolic Calculator". Agreement between both methods was assessed using Pearson correlation, intraclass correlation coefficients (ICC), and Bland-Altman analyses. Prognostic performance was evaluated using ROC analysis to identify optimal MET cutoffs and Cox proportional hazards models for all-cause mortality and hospitalization.
Results: Of 697 patients, 567 (81%) were included (total 842 CPETs, mean age 61 years, 80% male). Mean estimated and CPET-derived METs were 5.9 and 4.5 pre-CR, and 6.5 and 5.0 post-CR, respectively. Although correlations were strong in both CPETs (r = 0.843 and 0.877; p < 0.001), agreement was only moderate (ICC 0.55 and 0.59). Bland-Altman plots demonstrated substantial positive bias (+1.4 and +1.5 METs), with wide limits of agreement (−0 to +3 METs). In the pre-CR CPET, estimated METs predicted mortality with an ROC-derived cutoff of 4.6 METs (HR 0.54, 95%CI 0.32-0.91, p = 0.02). CPET-derived METs showed a similar result (HR 0.55, 95%CI 0.34-0.89, p = 0.014) but at a lower cutoff of 4.0 METs, indicating systematic overestimation by estimated values.
Conclusions: Although calculated METs correlate strongly with CPET-derived METs, their moderate agreement, systematic overestimation, and altered prognostic thresholds may limit their reliability for individual clinical assessment and risk stratification.

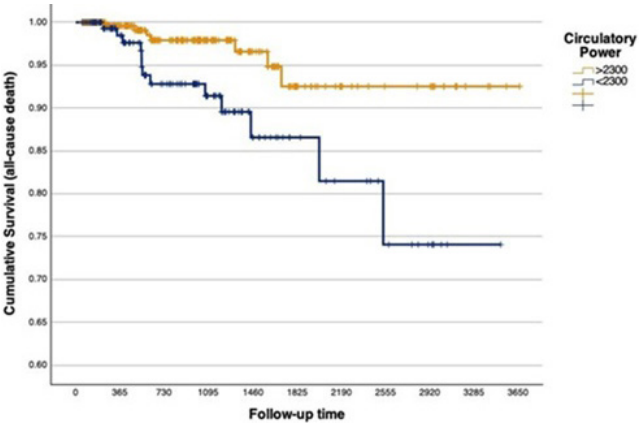
PO 205. A MATTER OF POWER - THE PROGNOSTIC VALUE OF PEAK CIRCULATORY POWER ACROSS THE EJECTION FRACTION SPECTRUM

Catarina Sena Silva[1], Marta Vilela[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], João Cravo[1], Gisela Afonso[2], Marta Ramalhinho[2], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[1], Nelson Cunha[1], Fausto J. Pinto[1], Ana Abreu[1]

[1]Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Physical and Rehabilitation Medicine Department, ULS Santa Maria.

Introduction: Peak circulatory power (PCP), a CPET-derived index obtained by the product of peak oxygen consumption and peak systolic arterial pressure, has been proposed as a prognostic marker in several heart-failure phenotypes. Whether PCP predicts mortality across the full left-ventricular ejection-fraction (LVEF) spectrum remains insufficiently defined.

Objectives: To investigate the ability of PCP to predict mortality in an unselected population entering a phase II cardiac rehabilitation (CR) program.
Methods: We retrospectively analyzed patients enrolled in a phase II CR program from 2015 to 2025 who completed CPET prior to initiation. ROC analysis was used to evaluate the discriminative ability of peak PCP and identify an optimal cutoff for mortality prediction. Survival was assessed using Kaplan-Meier curves and Cox proportional-hazards models.



Results: A total of 479 patients were included (mean age 61 years; 80% male; mean LVEF 50%). Over a mean follow-up of 2.5 years, 20 deaths occurred. Peak PCP demonstrated fair discriminatory power for mortality (AUC 0.64), with an optimal threshold of < 2,300 mL/kg/min·mmHg, yielding 68% sensitivity and 63% specificity. Patients below this cutoff exhibited significantly higher mortality (log-rank p = 0.006). PCP < 2,300 mL/kg/min·mmHg was associated with increased mortality on univariate analysis (HR 3.350, 95%CI 1.335-8.404, p = 0.01) and remained an independent predictor after adjustment age, sex and LVEF (HR 2.985, 95%CI 1.040-8.567, p = 0.042).
Conclusions: In our cohort, PCP is a predictor of all-cause mortality, regardless of LVEF. A low PCP (< 2,300 mL/kg/min·mmHg) identifies individuals at substantially elevated risk, reinforcing its role as a simple, non-invasive CPET-derived metric for prognostic assessment. Larger, prospective studies are warranted to validate these observations and clarify its potential integration into routine risk stratification.

PO 206. FUNCTIONAL SIGNIFICANCE OF ATRIAL REMODELING ONE YEAR AFTER INFARCTION: RELATIONSHIP WITH PERFORMANCE AND RESPONSE TO CARDIAC REHABILITATION

Benedita Couto Viana, Erivaldo Andrade

ULS São João/Hospital São João.

Introduction: Atrial remodeling (AR) after acute myocardial infarction (AMI) may reflect the severity of ischemic injury or a chronic substrate linked to cardiovascular risk factors. These persistent alterations are markers of increased hemodynamic load and reduced functional reserve. Their influence on recovery during cardiac rehabilitation (CR) remains uncertain.
Methods: We studied 148 consecutive patients admitted with AMI (2013-2015) to a tertiary care center who subsequently completed a structured CR program initiated about one month after the event and lasting 8-12 weeks. AR was assessed at one year using the Atrial Remodeling Score (ARS) (0 = none; ≥ 1 = remodeling), integrating: 1) structural-left atrial volume index > 34 mL/m²; 2) electrical-presence of at least two of the following abnormalities: P-wave duration ≥ 120 ms, P-wave terminal force in V1 ≤ -4,000 μV·ms, or advanced interatrial block; and 3) biochemical-BNP in the upper tertile (≥ 56.1 pg/mL). Functional parameters at CR entry and completion were compared across ARS categories.
Results: Baseline characteristics included a mean age of 54.5 ± 10.0 years, 87% male, BMI 27.2 ± 3.2 kg/m², smoking in 74%, dyslipidemia in 64.9%, hypertension in 38.5%, diabetes in 15.6%, and STEMI in 69.6%. AR status was available for 134 patients, of whom 54 (40.3%) had AR. The mean number of CR sessions was 12.7 ± 4.0. At baseline, patients with AR showed lower MET performance (8.13 ± 2.32 vs. 8.75 ± 2.05; p = 0.088) and consistent trends toward reduced energy expenditure (p = 0.057), higher perceived exertion (p = 0.073), and higher double product (p = 0.090), indicating a less favorable initial hemodynamic profile. Improvement in METs during CR was significantly greater in the AR group (2.67 ± 1.40 vs. 2.10 ± 1.61; p = 0.027). Final functional capacity remained comparable between groups despite persistent AR (10.79 ± 2.30 vs. 10.85 ± 2.15; p = 0.97).
Conclusions: AR at one year may represent a structural remnant of more severe ischemic injury or a pre-existing substrate associated with a less favorable early hemodynamic response, identifying patients who begin CR in a more compromised functional state. Nevertheless, these individuals achieved similar-and proportionally greater, owing to a lower baseline-functional gains, indicating that AR does not limit the benefit derived from post-infarction rehabilitation.

PO 207. AGE-RELATED DIFFERENCES AFTER CARDIAC REHABILITATION: A RETROSPECTIVE OBSERVATIONAL STUDY

Carla Oliveira Ferreira, Bárbara Rocha, Filipe Silva Vilela, João Faria, Sofia Nogueira Fernandes, Mónica Dias, Inês Conde, Carlos Galvão Braga, Cátia Costa Oliveira

ULS Braga/Hospital de Braga.

Introduction: Cardiac rehabilitation is an essential pilar of secondary prevention in cardiovascular disease, combining exercise training and lifestyle interventions to improve functional capacity, symptom control and quality of life. Its benefits on mortality, morbidity, and psychological well-being are well established. Despite these benefits, older adults remain consistently underrepresented in CR programs, with only about 20% of eligible patients participating. This study aimed to evaluate and compare the benefits of a cardiac rehabilitation program (CRP) between older (≥ 65 years) and younger (< 65 years) patients.
Methods: A retrospective observational study was conducted on 124 patients who participated in the CRP between June 2017 and April 2025. Patients were stratified into two age groups: ≥ 65 years and < 65 years. Sociodemographic, clinical analytical data and data related to exercise stress test, such as functional capacity and cardiac autonomic regulation parameters, were collected at the beginning and at the end of phase II.
Results: The cohort had a mean age of 50 ± 12 years, and 31 (25%) patients were female. At baseline, younger patients had a lower prevalence of chronic kidney disease compared with older patients (6 [6.5%] vs. 10 [32.3%], p < 0.001). Younger participants achieved higher absolute METs and chronotropic index values both before and after the CRP, whereas recovery heart rate did not differ significantly between groups. Following rehabilitation, both groups demonstrated significant improvements in METs (younger patients, from 8.805 to 9.632, p < 0.001; older patients, from 6.015 to 7.522, p < 0.001) and in exercise endurance (younger patients, from 7:54 to 8:51 min, p < 0.001; older patients, from 4:51 to 6:34 min, p < 0.001). The relative improvement in METs was greater among older patients (1.222 vs. 0.826, p = 0.018). Improvement in NYHA functional class was significant in the younger group (p = 0.021), but not in the older group (p = 0.276).
Conclusions: Participation in a structured cardiac rehabilitation program significantly improved exercise capacity and endurance in both younger and older patients. Older patients have shown a higher improvement in their functional capacity exercise test when compared to younger patients, without significantly improving their NYHA classification.

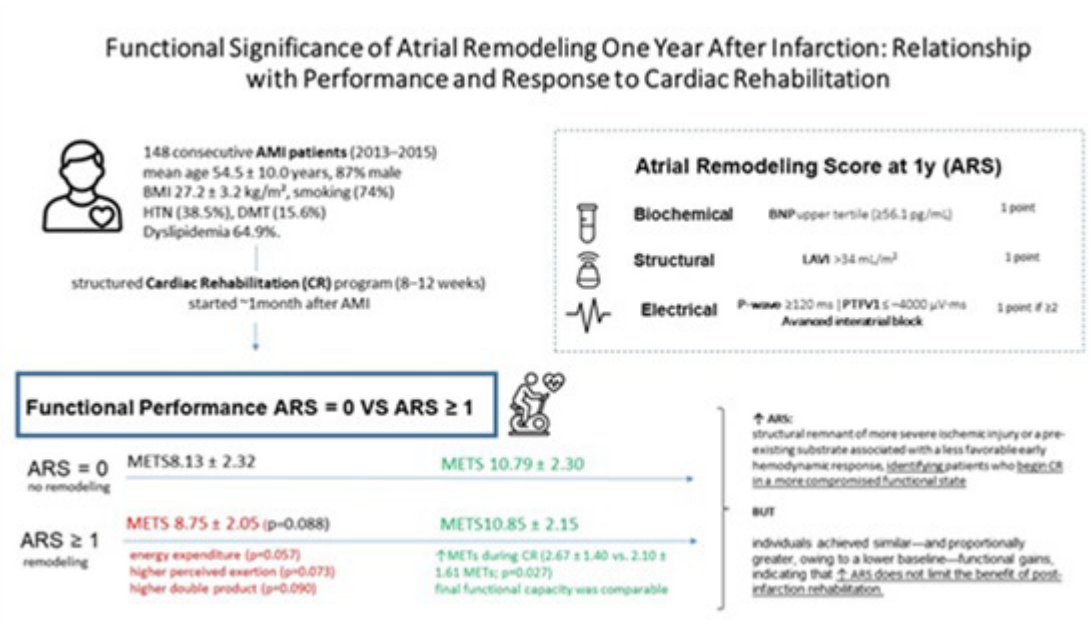


Figure PO 206

PO 208. THE ROAD TO STRENGTH: FUNCTIONAL PROGRESS AFTER REHABILITATION

Fabio Viveiros[1], Marta Vilela[1], Matilde Reis[2], Mariana Ferreira[3], Madalena Carvalho[4], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[5], Nelson Cunha[5], Fausto J. Pinto[1]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Faculdade de Medicina, Universidade de Lisboa. [3]Psychiatry and Mental Health Department, ULS Santa Maria. [4]Physical and Rehabilitation Medicine Department, ULS Santa Maria. [5]Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Increasing evidence supports that greater muscle strength is associated with reduced cardiovascular mortality and morbidity, yet its relationship with physical activity and cardiopulmonary performance during cardiac rehabilitation (CR) remains insufficiently explored.
Objectives: To analyze the evolution of muscle strength in patients undergoing a phase II CR program and to investigate the correlation between muscle strength, functional capacity assessed by cardiopulmonary exercise testing (CPET), and other functional measures.
Methods: Prospective, single-center observational study including patients enrolled in a phase II CR program from 2016 to 2024. The evaluation involved standardized assessments: 6-Minute Walk Test (6MWT), International Physical Activity Questionnaire (IPAQ), Timed Up and Go (TUG), and FICSIT Balance Test, along with clinical and CPET data. Muscle strength was assessed through upper and lower limb testing, including bilateral grip strength. Statistical analyses included Pearson correlation and pre-/post-program comparisons.
Results: A total of 446 patients were included (80% men, mean age 61.1 ± 11.4 years), with multiple cardiovascular risk factors such as hypertension (66.8%), diabetes (28.2%), dyslipidemia (70.4%), and a history of smoking (61.1%). The most prevalent etiology was ischemic cardiomyopathy (85.2%), with 43.1% presenting single-vessel coronary disease. Post-CR, significant improvements were observed in: Functional capacity by 6MWT (444.6 ± 95.8 m to 541.8 ± 102.9 m; $p < 0.001$); Physical activity by IPAQ (median 231 to 1,406; $p < 0.001$); TUG (from 9.3 [8.2-10.8] to 7.9 [6.9-9.0] seconds; $p < 0.001$); FICSIT (from 18.1 ± 6.0 to 23.5 ± 6.4; $p < 0.001$); Muscle strength of upper and lower limbs ($p < 0.001$ for both); Bilateral grip strength (left: 31.4 ± 9.3 to 34.2 ± 10.3, $p < 0.001$; right: 32.8 ± 9.6 to 35.5 ± 10.6, $p < 0.001$). Moderate, statistically significant correlations were found between upper and lower limb muscle strength and exercise duration during CPET ($r = 0.4$-0.5, $p < 0.001$), as well as peak oxygen uptake (VO2 peak) ($r = 0.4$, $p < 0.001$). Patients with poor functional capacity post-CR (VO2 < 18 mL/kg/min) exhibited significantly lower values across all assessed measures compared to those who achieved ≥ 18 mL/kg/min, emphasizing the role of VO2 peak as a key discriminator of overall functional status.
Conclusions: Phase II CR is associated with marked improvements in muscle strength, functional capacity, and exercise performance. Moderate correlations between muscle strength and CPET parameters –especially VO2 peak– suggesting that increased muscle strength contributes to better cardiorespiratory performance. Routine muscle strength assessment may support individualized interventions and help identify patients at higher functional risk.

PO 209. IMPACT OF CARDIAC REHABILITATION ON FUNCTIONAL AND METABOLIC OUTCOMES IN PATIENTS WITH PRESERVED AND NON-PRESERVED LEFT VENTRICULAR EJECTION FRACTION

Bárbara Antunes Rocha, Carla Ferreira, João Faria, Filipe Vilela, Mónica Dias, Sofia Fernandes, Inês Conde, Cátia Costa Oliveira, Carlos Galvão Braga, Jorge Marques

ULS Braga/Hospital de Braga.

Introduction and objectives: Cardiac rehabilitation (CR) is a cornerstone of secondary prevention in cardiovascular disease, combining exercise training, risk factor optimisation, and patient education to improve prognosis and quality of life. In heart failure, CR enhances exercise tolerance and promotes better control of modifiable risk factors. Differences in cardiac function and comorbidity profiles between patients with preserved and non-preserved left ventricular ejection fraction (LVEF) may influence their response to rehabilitation. This study aimed to assess the effects of a phase II CR programme in patients with non-preserved LVEF and to compare changes in cardiovascular risk factors, chronotropic response, and functional capacity with those observed in patients with preserved LVEF.
Methods: A retrospective study was conducted including patients with ischaemic or non-ischaemic heart disease referred for CR between June 2017 and March 2025. Participants were stratified according to baseline LVEF into preserved (≥ 50%) and non-preserved (< 50%) groups. Clinical and laboratory assessments were performed at the first and final CR consultations, including body mass index (BMI), lipid profile, chronotropic index, and functional capacity derived from exercise testing.
Results: A total of 124 patients were included, 69 with preserved and 55 with non-preserved LVEF. Patients with non-preserved LVEF were more frequently hypertensive, exhibited higher NYHA class and BNP levels, and had lower baseline functional capacity. After completion of the phase II CR programme, both groups showed a statistically significant improvement in functional capacity and a reduction in LDL cholesterol. A significant increase in the chronotropic index was observed in patients with preserved LVEF, whereas no significant change occurred in those with non-preserved LVEF. However, no significant differences were found between groups in the magnitude of overall improvements.
Conclusions: Phase II cardiac rehabilitation produced significant improvements in exercise capacity and LDL cholesterol in both preserved and reduced LVEF groups. Despite a less favourable baseline profile, patients with reduced LVEF achieved functional gains comparable to those with preserved LVEF, underscoring the value of CR in this high-risk population. These results reinforce cardiac rehabilitation for all eligible patients, while highlighting the need to tailor programme delivery for the high-risk reduced-LVEF subgroup.

Sábado, 25 Abril de 2026 | 11:00-11:55

Área de Posters - Ecrã 2 | Sessão de Posters 36 - Reabilitação para todos: equidade, inovação e impacto a longo prazo

PO 210. MORTALITY AND CLINICAL OUTCOMES AFTER MYOCARDIAL INFARCTION: THE IMPACT OF CARDIAC REHABILITATION IN ROUTINE CARE

Maria Leonor Moura, Francisca Rafaela Nunes, Francisco Lemos de Sousa, Inês Arrobas Rodrigues, António Gonçalves, Marta Catarina Almeida, André Lobo, Marta Leite, Inês Neves, Eduardo Vilela, Rita Faria, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Myocardial infarction (MI) remains highly prevalent across cardiology departments. Routine care after MI includes cardiac rehabilitation (CR), whose impact on fitness, risk profile, and quality of life has been increasingly recognized over recent years.
Objectives: The aim of this study is to examine the medium-term impact of CR after MI on symptoms, cardiovascular (CV) hospital admissions and mortality.
Methods: This retrospective study enrolled consecutive MI admissions from 2021 to 2022 in a Portuguese cardiology department. Demographic data, clinical comorbidities and MI information were collected. Three outcomes were analysed in 2025: presence of symptoms (defined as NYHA class ≥ 2), cardiovascular-related in patient admissions and mortality. Group

comparisons (CR vs. non CR) were made using Chi-square or Fisher's exact tests. A secondary age-adjusted analysis was made using logistic regression.
Results: 337 patients post-MI were initially included. 27 (8%) patients were not referred to cardiac rehabilitation due to physical limitation and were excluded from analysis to decrease bias. 310 were referred to CR programme, 77% (237) were males and the mean age was 67 ± 13 years. 11% (40) missed the first appointment. Of those who were referred and attended the first consultation, 123 patients did a complete CR program (37%). CR programme complete attendance was associated with a significantly lower symptomatic burden (16% vs. 33%, p = 0.001). Although CV admissions were not prevalent in this sample (8%), there was also a significant decrease in those who went to CR (3% vs. 12%, p = 0.008). Mortality occurred in 26 patients, less frequently in those in CR programme (3% vs. 10%, p = 0.02). When adjusted to age (considered the most important confounder), CR attendance was still significantly associated with a protective effect on symptoms (OR = 0.44; 95%CI 0.24-0.81; p = 0.008) and CV admissions (OR = 0.31; 95%CI 0.10-0.95; p = 0.04). While mortality still showed a tendency to be more prevalent in those who had not participated in CR, when adjusted for age, there was not a statistically significant difference between groups (p = 0.163).
Conclusions: In this study, there was evidence of persistent benefit in CR after MI, with lower symptom burden and hospital admissions. CR also showed a trend to lower mortality, but not independently of age. Systematic referral of these patients should be routinely considered and prioritized to enhance CV outcomes.

PO 211. CLOSING THE GAP: SEX-BASED DIFFERENCES IN BENEFITS AND PARTICIPATION IN CARDIAC REHABILITATION

Ana Rita Andrade[1], Diogo Ferreira[1], Graça Araújo[2], José Costa[2], Inês Aguiar-Ricardo[1], Pedro Alves da Silva[1], Nelson Cunha[1], Fausto J. Pinto[1], Ana Abreu[1]

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

Introduction: Although women benefit from cardiac rehabilitation (CR) as much as or more than men, significant gaps in access, participation, and outcomes remain an issue. Addressing these disparities requires increased awareness and the adoption of targeted, women-centered strategies in CR.

	Women			Men			p-value
Age (yr) (mean ±SD)	59.99±10.96			61.22±11.49			NS
Adherence to CR (%) (median (IQR))	92.26 [77.78-100]			93.75 [83.33-100]			0.04
CPET parameters	Baseline	After CR	p-value	Baseline	After CR	p-value	
VO_2 peak (mL/kg/min) (mean ± SD)	13.27±3.81	14.83±3.65	<0.001	16.33±4.57	18.20±5.24	<0.001	NS
% predicted VO_2 peak (mean ± SD)	65.40±18.31	72.76±16.37	<0.001	62.11±15.61	68.70±16.11	<0.001	0.013
VO2 1st threshold (mL/kg/min) (mean ± SD)	9.54±2.58	10.03±2.24	0.001	10.78±2.66	11.65±2.84	<0.001	NS
VO2 2nd threshold (mL/kg/min) (mean ± SD)	13.74±3.33	14.63±2.55	0.002	15.72±4.04	17.34±4.50	<0.001	NS
Peak $PETCO_2$ (mmHg) (mean ± SD)	32.70±4.21	33.55±4.31	<0.001	33.49±4.65	34.73±4.61	<0.001	NS
VE/VCO2 slope (L/min) (mean ± SD)	34.22±8.37	32.15±5.67	0.001	31.23±6.33	30.15±6.64	<0.001	NS
Peak load (W) (mean ± SD)	72.17±31.76	85.86±37.00	<0.001	107.42±37.61	125.98±45.17	<0.001	NS

Objectives: This study aims to examine how sex impacts adherence and physiological response in cardiac rehabilitation.
Methods: Prospective observational single-center study including patients enrolled in a phase II CR program between 2015 and 2025. The program involved assessments by cardiologists, nutritionists and psychologists, with exercise sessions twice a week. Clinical, laboratory, echocardiographic and CPET data were collected.
Results: Among 695 patients, 20% were women (n = 140). Age was similar between sexes (p = 0.255), and the prevalence of major comorbidities – including ischemic cardiomyopathy, hypertension, diabetes, and dyslipidemia– did not differ, except for a higher prevalence of smoking history among men (OR 1.78). Women showed slightly lower adherence to the rehabilitation program compared with men (median 92.3% [77.8-100] vs. 93.8% [83.3-100]; p = 0.04), with adherence defined as the ratio of completed to scheduled sessions. As presented in Table 1, both sexes experienced significant improvements across multiple CPET parameters following cardiac rehabilitation, including peak VO2 (pVO2), percentage of predicted pVO2, VO2 at the first and second thresholds, peak PETCO2, VE/VCO2 slope, and peak workload. Despite lower program adherence, women demonstrated similar gains to men in all measures, except for the percentage of predicted VO2 peak, which was higher in female patients (p = 0.013).
Conclusions: Even with slightly lower participation, women achieved exercise and functional gains equivalent to men, underscoring the effectiveness of cardiac rehabilitation in both sexes.

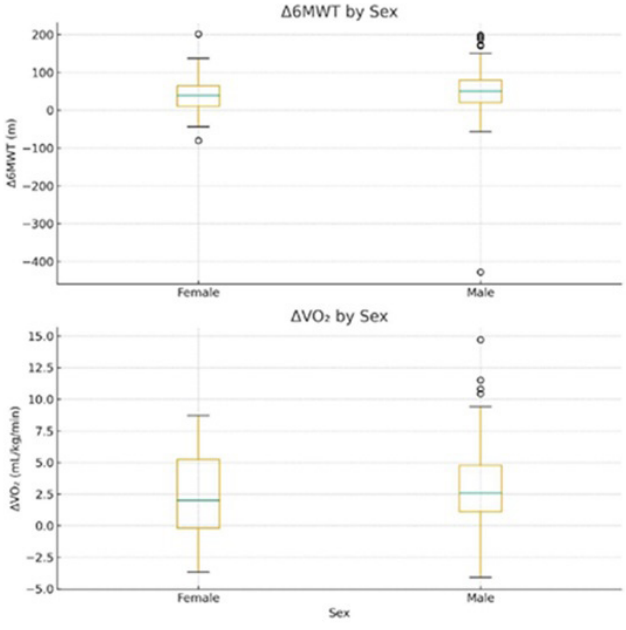
PO 212. SEX DIFFERENCES IN ADHERENCE AND FUNCTIONAL OUTCOMES IN PHASE II CARDIAC REHABILITATION: A SINGLE-CENTER COHORT

Felipe Leão, Francisco Rocha Cardoso, Ana Raquel Santos, Daniela Pinheiro, Joana Silva, Joana Pinto, Miguel Trindade, Vânia Martins, Carlos Franco, Rui Costa, Rui Cruz Ferreira, Pedro Rio

ULS São José/Hospital de Santa Marta.

Introduction: Sex disparities in referral, participation and outcomes of cardiac rehabilitation (CR) are well described, with women historically under-represented and often perceived to derive smaller functional benefits. Whether these differences persist in modern, structured CR programs remains uncertain.

	N	Adherence_mean	Δ6MWT_mean	ΔVO2_mean
Female	82.0	92.13	42.0	2.58
Male	248.0	93.95	49.97	2.99



Methods: We analyzed 330 consecutive patients enrolled in a Phase II CR program between 2020 and 2025. Patients were referred to standard Phase

II CR based on established clinical indications. Adherence was assessed as the percentage of completed sessions, with high adherence defined as ≥ 80% of prescribed sessions. Functional capacity was evaluated using the 6-minute walk test (6MWT) and cardiopulmonary exercise testing (VO2 peak) before and after CR. Sex-specific comparisons were performed using t-tests or Mann-Whitney U tests, with significance set at $p < 0.05$. Functional follow-up was available in the majority of patients.

Results: Of 330 patients, 75% were male (n = 248). Median age did not differ between sexes (Female: 60 vs. Male: 57 years; p = 0.18). High adherence was observed in 85.5% of females and 90.5% of males (p = 0.43). Mean adherence percentage was similarly high in both groups (Female: 92.1 ± 16.1% vs. Male: 93.9 ± 14.1%; p = 0.46). Complete functional assessment was available in 214 patients. Men showed higher absolute 6MWT distances at baseline (480 ± 85 vs. 561 ± 90 m; $p < 0.001$) and after CR (522 ± 83 vs. 611 ± 103 m; $p < 0.001$), yet Δ6MWT did not differ significantly (Female: +42 ± 47.8 m vs. Male: +50 ± 61.6 m; p = 0.34). Similarly, men demonstrated higher absolute VO2 values at baseline and post-CR (both $p < 0.001$), but gains were comparable (ΔVO2: Female +2.58 ± 3.44 vs. Male +2.99 ± 3.54 mL/kg/min; p = 0.62). Functional follow-up completion did not differ by sex.

Conclusions: Despite lower representation, women demonstrated high adherence and achieved functional improvements comparable to men. Although men exhibited higher absolute performance, sex did not influence the magnitude of improvement. These findings align with contemporary literature showing that, once enrolled and adherent, women benefit from CR to the same extent as men, highlighting the importance of equitable referral pathways.

PO 213. ADHERENCE AND COST-RELATED OUTCOMES OF A HYBRID TELEMONITORED CARDIAC REHABILITATION AFTER ACUTE MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW

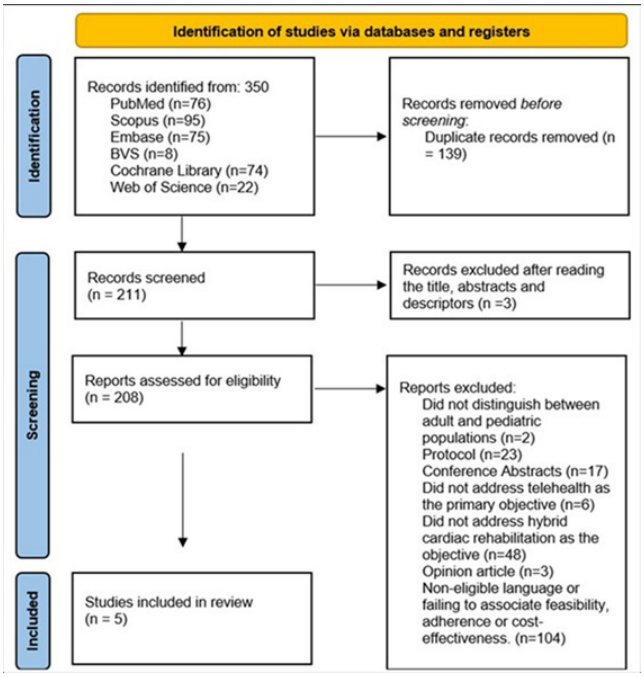
Pinheiro Candjondjo[1], José Moreira[2], Miguel Mendes[3], Artur Lopes[4], Jorge Mimoso[1], Teresa Magalhães[5]

[1]ULS Algarve/Hospital de Faro. [2]University of Évora. [3]ULS Lisboa Ocidental/Hospital de Santa Cruz. [4]ULS Alentejo Central/Hospital do Espírito Santo de Évora. [5]NOVA National School of Public Health, NOVA University.

Introduction: Hybrid telemonitored cardiac rehabilitation (HTCR), which integrates in-hospital care with telehealth technologies, has emerged as a flexible and accessible alternative to address the challenges and barriers of participation and adherence. AIM: To evaluate the adherence and cost-related outcomes of HTCR programs for patients after acute myocardial infarction (AMI) compared to Centre-based cardiac rehabilitation (CBCR).

Methods: The systematic review and meta-analysis were registered in the International Prospective Register of Systematic Review (PROSPERO) with registration number CRD420251243824. This review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA-2020) guidelines, analyzing studies published in the last decade. The databases utilized for this review included PubMed, SCOPUS, EMBASE, Cochrane Library, Virtual Health Library and Web of Science. Inclusion criteria encompassed peer-reviewed randomized controlled trials (RCTs), focusing on HTCR programs for adults after AMI and reporting outcomes related to adherence and cost-related outcomes. The quality of the included RCTs was assessed using the Cochrane ROB_2 (Risk of Bias 2.0) tool.

Results: After screening 350 articles, 5 studies RCTs fulfilled the defined inclusion criteria and were considered in the review and only two economic evaluations met the review inclusion criteria. This review included a total of 526 participants, of which 425 were male (80.6%). The weighted mean age of the participants was 59.0 years. According to the risk of bias, 60% of the studies present a low risk and only 25% present a high risk. Findings consistently highlighted the high patient adherence to the HTCR rates compared to CBCR attributed to the flexibility and accessibility of telemonitored components. In terms of cost-related outcomes, the two studies have demonstrated cost reductions associated with the impact of the HTCR program. Together, these studies indicate that HTCR may reduce overall economic burden through decreased healthcare utilisation, lower patient-level indirect costs and favourable cost-effectiveness profiles, despite heterogeneity in how cost-related outcomes were defined across studies.



Conclusions: HTCR represents a transformative approach to cardiac rehabilitation, offering a scalable, patient-center model that improves participation, adherence and clinical outcomes, while reducing healthcare costs and, are thus, as cost-effective as CBCR, despite the available evidence on hybrid models of cardiac rehabilitation after AMI remains limited, especially with regard to economic evaluation.

PO 214. BEYOND THE VALVE: HOME-BASED REHABILITATION AND FUNCTIONAL RECOVERY AFTER TAVI

Raquel Fernandes da Silva, Marta Paralta de Figueiredo, Rúben Almeida Pinto, Teresa Costa, Ana Narra, Humberto Marreiros, Madalena Rangel, João Pais, Rita Caldeira da Rocha, Filipa Pisa, Manuel Trinca, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Transcatheter aortic valve implantation (TAVI) has markedly improved prognosis in elderly patients with severe aortic stenosis; however, persistent frailty and functional limitation remain frequent, negatively impacting autonomy and quality of life. Participation in conventional centre-based cardiac rehabilitation may be limited in this population, highlighting the relevance of structured home-based rehabilitation strategies.

Objectives: To evaluate the safety, feasibility and clinical effectiveness of a structured Vivifrail-guided home-based exercise programme on functional, muscular and psychosocial outcomes in patients following TAVI.

Methods: A prospective cohort study included consecutive patients undergoing TAVI enrolled in a 12-week personalised home-based cardiac rehabilitation programme, initiated one month after the procedure. Assessments were performed before TAVI, at programme initiation and after completion of the intervention. Functional capacity was evaluated using the 6-minute walk test and Short Physical Performance Battery (SPPB). Secondary outcomes included handgrip strength, quality of life (HeartQoL) and psychological status (HADS).

Results: Twenty-one patients were included (mean age 82.6 ± 4.1 years; 71.4% female). The programme demonstrated a favourable safety profile, with no major exercise-related adverse events. Significant improvements were observed in functional capacity: 6MWT distance increased from 263 ± 99 m to 308 ± 116 m ($p < 0.001$) and SPPB scores improved from 7.8 ± 2.1 to 9.2 ± 2.0 ($p < 0.001$). Handgrip strength increased significantly ($p = 0.02$). HeartQoL global scores improved ($p = 0.01$), and HADS total scores decreased from 11.9 ± 5.4 to 8.3 ± 4.6 ($p < 0.001$), with reductions in both anxiety ($p = 0.003$) and depression ($p < 0.001$). No significant changes were observed in cognitive function (MMSE, $p = 0.14$) or independence in activities of daily living (Katz, $p = 0.06$; Lawton-Brody, $p = 0.59$).
Conclusions: A structured Vivifrail-guided home-based cardiac rehabilitation programme following TAVI is safe, feasible and associated with significant improvements in functional performance, muscle strength and quality of life. These findings support its role as an effective strategy to optimise recovery and promote functional independence in frail elderly patients after TAVI.

PO 215. THE ROLE OF PHASE III CARDIAC REHABILITATION IN SUSTAINING EXERCISE CAPACITY AND QUALITY OF LIFE: A ONE-YEAR COHORT STUDY

Filipa Cazeiro[1], Catarina Silva[2], Daniel Inácio Cazeiro[2], Madalena Lemos Pires[1], Mariana Borges[1], Gonçalo Sá[1], Fausto J Pinto[3], Ana Abreu[4], Rita Pinto[1]

[1]Faculdade de Medicina da Universidade de Lisboa. [2]Serviço de Cardiologia, CAML, ULS Santa Maria, Faculdade de Medicina, Universidade de Lisboa. [3]Serviço de Cardiologia, CCUL@RISE, CAML, ULS Santa Maria, Faculdade de Medicina, Universidade de Lisboa. [4]Instituto de Saúde Ambiental, CCUL@RISE, CAML, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Cardiac rehabilitation (CR) is a cornerstone of secondary prevention for cardiovascular disease (CVD) patients, improving functional capacity, quality of life (QoL), and long-term outcomes. While the benefits of phase II CR are well established, evidence on the impact of phase III CR programs remains limited.
Objectives: To evaluate the effects of a maintenance phase III CR program on QoL and functional capacity over 1 year.
Methods: Single-centre prospective cohort study including CVD patients enrolled in a phase III supervised exercise-based community CR program (2/3x per week, combined training 60 min). Clinical data, cardiopulmonary exercise test (CPET) results, and 36-Item Short Form Survey (SF-36) responses were collected at baseline and at 1-year follow-up.
Results: Our cohort included 99 patients (79.8% male; mean age 61.1 ± 10.2 years, 15.1% type II diabetes). The majority (85.9%) were referred after an acute coronary syndrome. Most participants (86.7%) attended phase III sessions 3 x/week. Analysis of QoL revealed significant improvements at 1-year follow-up in several domains, including general health (59.6 ± 17.8 to 63.7 ± 20.2, $p = 0.005$), role-physical (77.5 ± 34.2 to 84.9 ± 29.0, $p = 0.028$), physical functioning (79.2 ± 17.3 to 84.7 ± 16.8, $p < 0.001$), and the physical component summary score (49.5 ± 9.5 to 51.6 ± 9.7, $p = 0.008$). Conversely, the bodily pain score decreased (78.1 ± 20.7 to 74.1 ± 23.6, $p = 0.049$). Attending the program 3x/week resulted in greater gains in peak workload (17.0 ± 21.5 vs. 7.3 ± 15.4 W, $p = 0.002$) and peak VO2 (1.7 ± 3.4 vs. 0.5 ± 3.2 mL/kg/min, $p = 0.046$) at 1 year. Younger patients (< 62 years) showed greater gains in general health (5 [0,16] vs. 0 [-7,10], $p = 0.016$) and mental health (4 [0, 8] vs. 0 [-8, 8], $p = 0.046$), as well as in CPET performance (peak workload $p = 0.003$; peak VO2 $p = 0.023$). Diabetic patients showed worsening in physical functioning (-5 [-15, 5] vs. 5 [0, 15], $p = 0.032$) and social functioning (-9.2 ± 16.1 vs. 2.2 ± 14.8; $p = 0.008$). Both diabetic and non-ischemic patients demonstrated less improvement in peak workload (5 [0, 17] vs. 12W [1, 25], $p = 0.055$; 0 [-9, 14.3] vs. 11W [2, 25], $p = 0.01$, respectively).
Conclusions: Phase III CR yields lasting gains in physical function, exercise capacity, and QoL. Attending 3x/week supports sustained improvement, especially in younger patients, while some high-risk groups may require tailored care. Overall, structured phase III CR remains essential for continued cardiac recovery and secondary prevention.

Sábado, 25 Abril de 2026 | 11:00-11:55

Área de Posters - Ecrã 3 | Sessão de Posters 37 - Estratégias avançadas em arritmias ventriculares e ablação

PO 216. LONG-TERM OUTCOME OF TRANSCATHETER CRYOABLATION FOR ATRIOVENTRICULAR NODAL TACHYCARDIA AND SEPTAL ACCESSORY PATHWAYS

Marta Catarina Bernardo[1], Fernando Nascimento Ferreira[2], Hélder Santos[2], Ana Lousinha[2], Guilherme Portugal[2], Bruno Valente[2], Pedro Sousa Cunha[2], Mário Oliveira[2]

[1]ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro. [2]ULS São José/Hospital de Santa Marta.

Introduction: For atrioventricular nodal tachycardia (AVNRT) and right-septal accessory pathways (AP) ablations with risk of atrioventricular (AV) block, cryoablation is accepted as a safer option.
Objectives: Evaluate the efficacy, safety and recurrence rates of focal catheter cryoablation for the treatment of AVNRT and septal right-sided AP.
Methods: We performed a retrospective single-center study of patients undergoing focal cryoablation between 2007 and 2025 with the electrophysiologic diagnosis of AVNRT or AP based on electrophysiological criteria. Clinical, electrophysiological, and follow-up data were systematically collected from hospital electronic medical records. Clinical characteristics, procedural data, safety and recurrence were analysed.

BASAL CHARACTERISTICS	
SEX (Males)	23 (47%)
AGE (years)	28 (IQR 17-50)
INDICATION FOR THE PROCEDURE	
Wolff-Parkinson-White syndrome	27 (55%)
Documented SVT	18 (36,7%)
Palpitations	4 (8,2%)
PRIOR PROCEDURE	7 (14,3%)
PRIOR CONDUCTION ABNORMALITIES	6 (12,2%)
First degree AV block	3
Left bundle branch block	1
Bifascicular Block	1
Intermittent Mobitz I AV block	1
TOTAL (PATIENTS)	**49**

Table 1- Basal characteristics of the patients submitted to cryoablation procedure

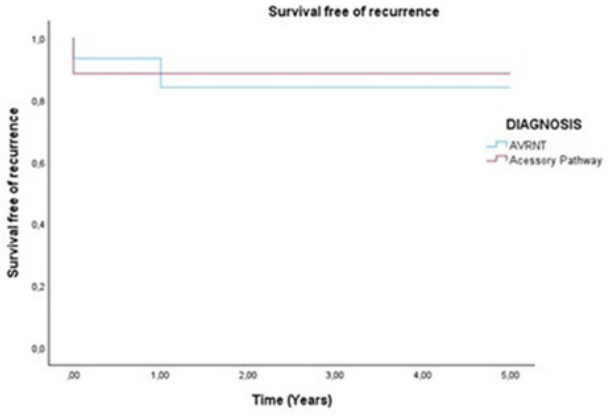


Figure 1- Kaplan-Meier curve of survival free of recurrence after 5 years of follow-up comparing AVNRT and AP patients. Caption: AVNRT- Atrioventricular nodal reentry tachycardia (AVNRT), AP- Accessory Pathway

Results: We included 49 patients, median age 28 years (IQR 17-50) referred for the procedure due to Wolff-Parkinson-White syndrome (WPW, 55%); documented tachycardia (37%) and recurrent palpitations in the remaining patients. Seven patients had previously undergone radiofrequency ablation, with arrhythmia recurrence. Six patients were older than 65 years, and these ones had pre-existing slight conduction system abnormalities. Electrophysiologic evaluation revealed AVNRT in 30,6% and right septal AP in 69,4% (Table 1). Acute procedural success was 82% in WPW and 100% in AVNRT. The unsuccessful cases involved low-risk AP in oligosymptomatic patients, one of them with transient AV block during application. All cases with a history of previous unsuccessful ablation/recurrence achieved acute success with cryoenergy and none experienced further recurrences during follow-up (FUP). Zero-fluoroscopy procedures were performed in 24% of cases. No major complications were reported. Over a median FUP of 13 (IQR 1-60) months, recurrence occurred in 5 patients (10,2%; 2 with AVRNT and 3 with AP) (Figure 1).
Conclusions: Cryoablation is an effective and safe approach for the treatment of patients with supraventricular arrhythmias involving the perinodal area, with good acute success rates, low recurrence rates and a favourable safety profile. These findings are especially relevant in younger patients where minimizing the risk of permanent AV block is critical. These results also suggest a role for cryoablation in older patients with baseline conduction system abnormalities.

PO 217. CATHETER ABLATION OF PREMATURE VENTRICULAR CONTRACTIONS IMPROVES QUALITY OF LIFE AND REDUCES HEALTHCARE UTILIZATION: A REAL-WORLD COHORT STUDY

Patrícia Bernardes, Leonor Parreira, Dinis Mesquita, Cláudia Encarnação, Duarte Chambel, Alexandra Gonçalves, Jéni Quintal, Catarina Pohle, David Campos, Marco Tomaz, Sara Gonçalves, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Premature ventricular contractions (PVCs) can cause significant symptoms and impaired quality of life (QoL). Catheter ablation is highly effective, but real-world data integrating arrhythmic outcomes with patient-reported measures remain limited.
Objectives: This study aimed to evaluate the impact of successful PVC ablation on QoL, symptom burden, arrhythmic outcomes, and healthcare utilization in a real-world cohort.
Methods: We conducted a retrospective, single-centre, observational before-and-after study including 103 consecutive patients (46% women; mean age 59 ± 16 years) who underwent successful PVC ablation between 2007 and 2025. Patients with unsuccessful ablation, alternative causes of symptoms, or death during follow-up were excluded. Clinical characteristics, cardiovascular risk factors, β-blocker and antiarrhythmic drug (AAD) use, and healthcare utilization were recorded. QoL was assessed using the EQ-5D-5L index, EQ-VAS, and the ASTA symptom questionnaire, administered via structured telephone interview. PVC burden was quantified by 24-hour Holter monitoring, and LVEF was measured echocardiographically before and ≥ 6 months after ablation.

Table 1: Clinical, echocardiographic, and patient-reported outcomes before and after premature ventricular contraction (PVC) ablation. Data are presented as mean ± SD or median [IQR], as appropriate.

Variable	Pre-ablation	Post- ablation	*p-value*
Age, years (mean ± SD)	59 ± 16	—	—
Female sex, n (%)	47 (46%)	—	—
PVC count / 24 h, median [IQR]	20 471 [13 247–34 379]	23 [3–218]	<0.001
PVC burden, %	24.7	0.8	<0.001
LVEF, % (mean ± SD)	54 ± 9	56 ± 8	0.09
EQ-5D-5L index (mean ± SD)	0.74 ± 0.16	0.85 ± 0.14	<0.001
EQ-VAS (mean ± SD)	67 ± 15	84 ± 15	<0.001
ASTA symptom score (mean ± SD)	51.7 ± 14.7	29.2 ± 16.8	<0.001
Antiarrhythmic drug use, n (%)	37 (36%)	8 (8%)	<0.001
β-blocker use, n (%)	76 (74%)	26 (25%)	<0.001
Unplanned visits for palpitations, n (%)	15 (14.6%)	1 (1.0%)	<0.001
Recurrence, n (%)	—	13 (12.6%)	—

Abbreviations: AAD = antiarrhythmic drug; ASTA = Arrhythmia-Specific questionnaire in Tachycardia and Arrhythmia; EQ-5D-5L and EQ-VAS = EuroQol instruments; LVEF = left ventricular ejection fraction; PVC = premature ventricular contraction; QoL = quality of life.

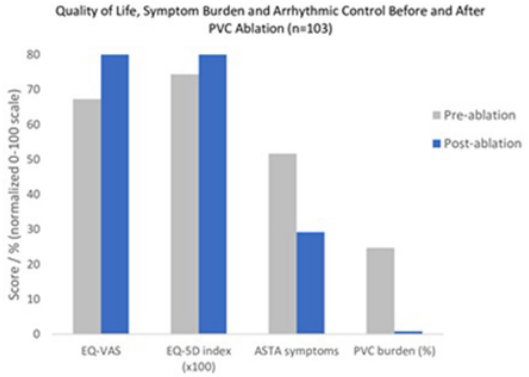


Figure 1. Changes in quality of life (EQ-5D-5L index, EQ-VAS), symptom burden (ASTA), and arrhythmic control (PVC burden) before and after successful PVC ablation (n=103). All parameters improved significantly (p<0.001). Bars represent mean values (±SD for EQ and ASTA; median for PVC burden).

Results: Median PVC count decreased from 20,471 [IQR 13,247-34,379] to 23 [IQR 3-218] per 24 hours (p < 0.001), corresponding to a burden reduction from 24.7% to 0.8% (p < 0.001). Mean LVEF increased from 54 ± 9% to 56 ± 8% (p = 0.09). QoL improved significantly: EQ-5D-5L index 0.74 ± 0.16 → 0.85 ± 0.14 (p < 0.001), EQ-VAS 67 ± 15 → 84 ± 15 (p < 0.001), and ASTA symptom score 51.7 ± 14.7 → 29.2 ± 16.8 (p < 0.001). AAD use declined from 36% to 8% (p < 0.001) and β-blocker use from 74% to 25% (p < 0.001). Unplanned visits for palpitations decreased from 14.6% to 1% (p < 0.001). Recurrence occurred in 13 patients (12.6%), yielding a sustained success rate of 87.4%.
Conclusions: In this real-world cohort, catheter ablation of PVCs led to sustained improvements in quality of life, symptom burden, and arrhythmia control, with a marked reduction in healthcare utilization and medication use. These findings reinforce the patient-centred value of PVC ablation beyond arrhythmia suppression.

PO 218. ECGI TAKES THE LEAD – A GAME CHANGER IN IDIOPATHIC VENTRICULAR TACHYCARDIA ABLATION

Daniel Inácio Cazeiro[1], Diogo Ferreira[1], Marta Vilela[1], João Cravo[1], Yu Wang[2], Ana Bernardes[3], Joana Brito[1], Afonso Nunes Ferreira[1], Gustavo Lima da Silva[1], Nuno Cortez-Dias[1], Fausto J. Pinto[1], João de Sousa[1]

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Introduction: Precise localization of arrhythmogenic foci is critical for the success of radiofrequency catheter ablation (RCA) in patients with premature ventricular contractions (PVCs) or idiopathic ventricular tachyarrhythmias (IVT). Reliable preprocedural tools that aid localization are therefore of significant clinical interest.
Objectives: To evaluate the diagnostic accuracy of electrocardiographic imaging (ECGi) compared with conventional 12-lead ECG in identifying the site of origin of IVTs.
Methods: In this retrospective, single centre study, consecutive patients undergoing RCA for PVCs or ITVs were included. All patients underwent 12-lead ECG, and 32% also underwent ECGi with a 252-electrode vest and thoracic CT scan (CardioInsight®). ECG locations from 12 lead recordings were interpreted by both arrhythmologists and nonarrhythmologists. For ECGi, the earliest activated site was considered the arrhythmia origin. Electrophysiology (EP) study with successful ablation defined the reference standard.
Results: Thirty-seven patients were analyzed (mean age 53 ± 14.6 years, 45.9% male). Compared with 12-lead ECG, ECGi demonstrated superior sensitivity (90.9% vs. 56.9%), specificity (99.4% vs. 97.1%), and overall diagnostic accuracy (98.9% vs. 94.6%; all p = 0.025). Furthermore, ECGi use was associated with significantly shorter EP procedure times (92.1 ± 23.3 vs. 157.9 ± 62.5 minutes; p < 0.05).

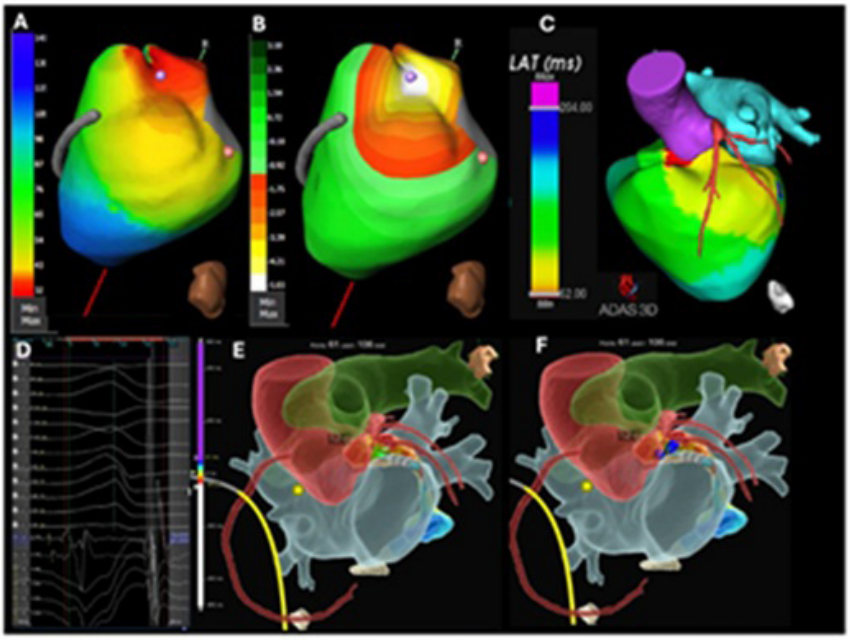

Figure 1: A. ECG imaging demonstrating the activation map of the PVC with the earliest activated area (origin of the PVC) in the LV summit; **B.** ECG imaging isopotential map showing high voltage activated area in the same area; **C.** Segmentation of ECGi into ADAS 3D software before integration into the invasive 3D mapping system; **D.** 12-lead ECG of the clinical PVC ; **E.** 3D invasive mapping system with earliest activated area in the same epicardial area mapped through the coronary sinus directly with the ablation catheter (no need to use multipolar catheter); **F.** final ablation setting with total suppression of the PVC (dark blue dots).

Figure PO 218

Conclusions: ECGi provided more accurate localization of arrhythmia origins than conventional 12-lead ECG and was associated with shorter procedure times. Incorporating ECGi into pre-procedural planning may improve efficiency and outcomes in RCA.

PO 219. SCAR-RELATED VENTRICULAR TACHYCARDIA ABLATION USING A DUAL-ENERGY LATTICE-TIP ABLATION SYSTEM GUIDED BY PRE-PROCEDURAL IMAGING

Daniel Inácio Cazeiro[1], Joana Brito[1], Diogo Ferreira[1], Marta Vilela[1], Afonso Nunes Ferreira[1], Catarina Almeida Barreiros[2], Joana Quaresma[3], Sónia Teixeira[4], Gustavo Lima da Silva[1], João de Sousa[1], Fausto J. Pinto[1], Nuno Cortez-Dias[1]

[1]Department of Cardiology, Unidade Local de Saúde de Santa Maria, CAML, CCUL@RISE, Faculty of Medicine, University of Lisbon. [2]Department of Anesthesiology, Unidade Local de Saúde de Santa Maria. [3]Department of Cardiology, Unidade Local de Saúde de Santa Maria. [4]Medtronic Portugal, Centro Empresarial Torres de Lisboa.

Introduction: Catheter ablation for scar-related ventricular tachycardia (VT) remains challenging due to limitations in ventricular mapping and the need for deeper lesions to eliminate intramural conduction channels.
Objectives: To evaluate the feasibility, safety, and acute efficacy of a structured multimodal planning strategy combined with a hybrid high-energy ablation protocol for scar-related VT.
Methods: We prospectively studied consecutive patients undergoing endocardial VT ablation guided by pre-procedural imaging integration. Multidetector computed tomography (MDCT) and late gadolinium enhancement cardiac magnetic resonance (LGE-CMR) were segmented and co-registered into the mapping system to prioritize zones of interest. A standardized hybrid protocol–radiofrequency followed by pulsed-field ablation at each site–was applied. Acute success was defined as complete elimination of local abnormal ventricular activity (LAVA) and VT non-inducibility.
Results: Nineteen patients (mean age 68 ± 8 years; 74% ischemic cardiomyopathy; 63% VT storm) were included. Imaging predicted LAVA-bearing segments with sensitivity/specificity of 80%/85% for MDCT and 67%/75% for LGE-CMR. Complete LAVA abolition was achieved in 94.7% of patients, and VT non-inducibility in 73.7%. One major vascular complication occurred; no deaths or cardiac perforations were observed. After a median follow-up of 106 days, VT recurrence occurred in 10.5% of patients.
Conclusions: A structured imaging-guided workflow combined with hybrid RF-PFA ablation is feasible and safe, achieving high acute success in scar-related VT. Further studies should confirm long-term outcomes and optimize energy delivery parameters.

PO 220. BEYOND THE ENDOCARDIUM – OUTCOMES OF INITIAL EPICARDIAL VENTRICULAR TACHYCARDIA ABLATION GUIDED BY ADVANCED IMAGING

Catarina Sena Silva[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], Marta Vilela[1], João Cravo[1], Rita Leal[2], Joana Brito[1], Afonso Nunes Ferreira[1], Gustavo Lima da Silva[1], Nuno Cortez-Dias[1], Fausto J. Pinto[1], João de Sousa[1]

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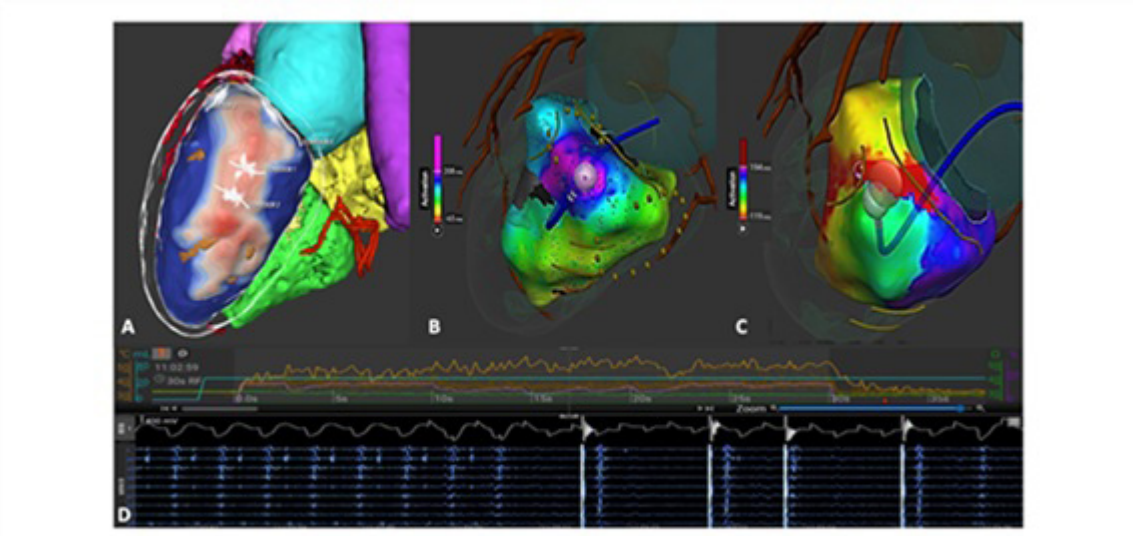
Introduction: Conventional VT ablation typically combines endocardial and epicardial mapping. Advanced imaging (cardiac CT and MRI) can identify substrates predominantly epicardial, supporting a paradigm shift: epicardial-only ablation from the outset.
Objectives: To compare safety and effectiveness of initial epicardial-only versus combined endo-epicardial VT ablation guided by pre-procedural imaging in structural heart disease.



Patient with ischemic cardiomyopathy in the context of an inferior acute myocardial infarction. MCDT analyzed with ADAS 3D reveals wall thinning in the inferior wall and three predicted arrhythmogenic channels in the basal and mid segments (**panel A**). Late activation map with corrected annotations showing LAVA collected during right ventricular pacing (**panel B**). **Panel C** shows the clinical VT activation map with a dual-loop circuit using the basal corridor predicted by ADAS 3D analysis. After the first radiofrequency application conversion to sinus rhythm was observed (**panels C and D**).

Figure PO 219

Methods: Retrospective single-centre study (2015-2025) including all patients undergoing VT ablation with epicardial access after systematic imaging (CT in all; MRI when feasible). Imaging findings guided procedural strategy: epicardial-only or combined approach. Procedures used subxiphoid access under general anesthesia, high-density epicardial mapping, and epicardial RF ablation when abnormal electrograms were confirmed.

Results: Fifty-four patients (59 procedures; mean age 62; 89% male; mean LVEF 36%) were analyzed: 80% dilated and 20% ischemic cardiomyopathy; 83% had ICDs. Indications: sustained VT (44%) or ICD shocks (56%), with 60% in electrical storm. Epicardial-only was performed in 31 procedures; combined in 28. Epicardial RF was delivered in 95% of cases; in 5% of all procedures, no abnormal substrate was found, exposing patients to unnecessary epicardial access. Median procedure time: 130 min; fluoroscopy: 17 min; RF: 33 min. Periprocedural complications occurred in 29% (major 15%, including 1 death [1.7%]); tamponade requiring drainage: 5%. Major complications were less frequent with epicardial-only (10% vs. 21%, p = NS). During a mean follow-up of 2.2 years, VT recurrence occurred in 11 (22%) patients, 11 (22%) died, and 4 (9%) underwent heart transplantation. Kaplan-Meier survival at 1 and 5 years: 88% and 61%; VT-free survival: 88% and 60%. Outcomes did not differ significantly between groups.

Conclusions: Pre-procedural multimodality planning based on advanced imaging appropriately identifies patients in whom arrhythmogenic substrate requires epicardial access. Moreover, it delineates a subgroup in which an exclusively epicardial approach achieves durable arrhythmia control with an acceptable safety profile, comparable or superior to that obtained with the conventional combined strategy. This strategy may redefine patient selection and procedural planning for complex VT substrates.

	Total (n=59)	Epicardial (n=31)	Endocardial + Epicardial (n=28)
Periprocedural complications – n (%)	**17 (28.8)**	**8 (25.8)**	**9 (32.1)**
Major	**9 (15.3)**	**3 (9.7)**	**6 (21.4)**
Acute tamponade with percutaneous drainage	3 (5.1)	1 (3.2)	2 (7.1)
Significant pericardial effusion with percutaneous drainage	3 (5.1)	1 (3.2)	2 (7.1)
Retroperitoneal bleeding leading to death	1 (1.7)	0 (0.0)	1 (3.6)
Cardiogenic shock	1 (1.7)	0 (0.0)	1 (3.6)
Hemothorax with percutaneous drainage	1 (1.7)	1 (3.2)	0 (0.0)
Minor	**8 (13.6)**	**5 (16.1)**	**3 (10.7)**
Acute pericarditis (no relevant pericardial effusion)	5 (8.6)	5 (16.1)	0 (0.0)
Pseudoaneurysm / AV fistula (no intervention required)	2 (3.4)	0 (0.0)	2 (7.1)
Access site infection	1 (1.7)	0 (0.0)	1 (3.6)

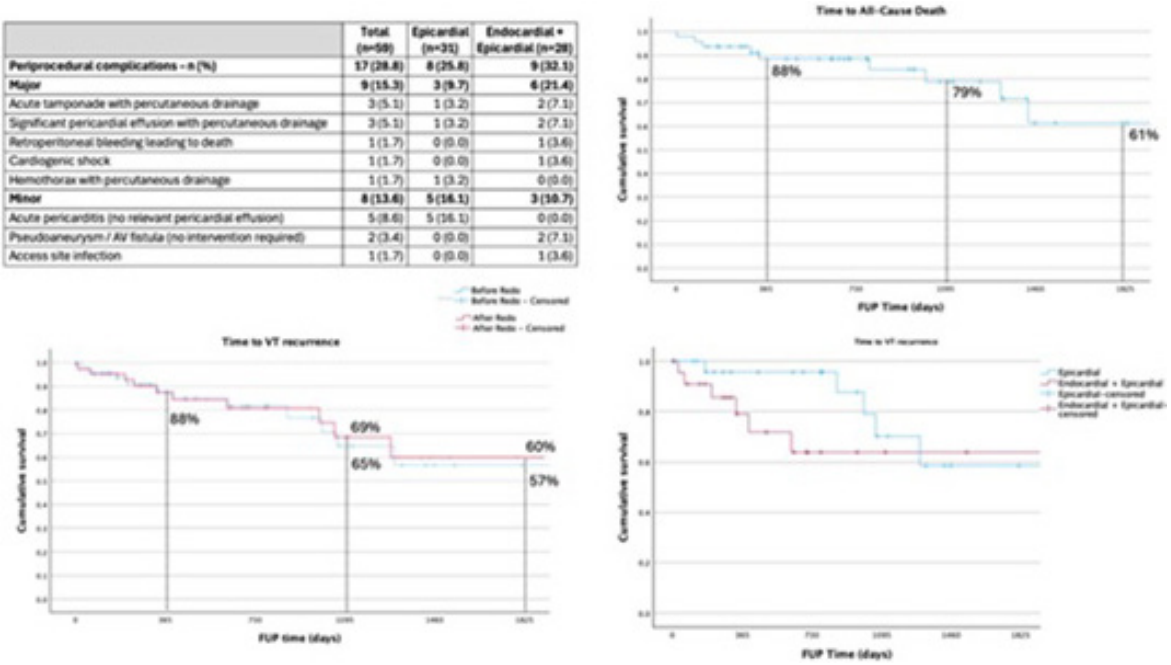


Figure PO 220

PO 221. ARTIFICIAL INTELLIGENCE VS. CARDIOLOGISTS FOR PVC LOCALIZATION – STILL A LONG WAY TO GO

Nuno Madruga, João Cravo, João Ribeiro, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Artificial intelligence (AI) has shown promise in electrocardiographic (ECG) interpretation, yet its capacity to accurately localize the origin of idiopathic ventricular arrhythmias remains uncertain. Precise identification of premature ventricular complex (PVC) sites of origin is essential for ablation planning and mechanistic understanding, but the real-world performance of general-purpose AI models for this task is largely unknown.
Objectives: To assess the diagnostic accuracy of AI engines in identification of the origin of idiopathic PVCs from ECG images, and to compare their performance with that of cardiologists (both arrhythmologists and non-arrhythmologists).
Methods: We retrospectively analyzed 12-lead ECG from patients with idiopathic PVCs and structurally normal hearts who underwent invasive EP mapping and ablation. Each ECG was uploaded to ChatGPT® and Microsoft CoPilot®, and both engines were prompted to identify the most likely site of origin. An additional clarifying question was used when PVC recognition seemed uncertain. The heart was divided into 16 anatomical segments: right ventricular (RV) outflow tract (4), aortic cusps (3), mitral papillary muscles (2), left ventricular (LV) summit (1), and remaining LV and RV wall regions (6). The "gold standard" reference for PVC origin was established by invasive EP study, defined as the site of acute successful ablation (disappearance of the targeted arrhythmia).
Results: A total of 35 patients were included (mean age 53 years, 46% male). Correct identifications occurred by both AI engines in 9 (26%) patients, exclusively within the RVOT region. Mean sensitivity, specificity, and accuracy were 26%, 95%, and 91%, respectively. For cardiologist interpretation, corresponding values were 46%, 96%, and 93%, with no statistically significant difference compared with ChatGPT® (p = 0.051) or CoPilot® (p = 0.07). The trend toward better human performance did not reach statistical significance, likely due to sample size limitations.
Conclusions: Both ChatGPT® and Microsoft CoPilot® showed limited sensitivity and spatial discrimination for localizing idiopathic PVC origins, performing below experienced clinicians and failing outside the RVOT. Despite high specificity, these models remain unsuitable for clinical localization tasks, underscoring the need for domain-specific ECG datasets and dedicated training. The coexistence of multiple ECG-based localization algorithms may further hinder accuracy, as general-purpose AI cannot yet identify or apply the appropriate diagnostic criteria.

Sábado, 25 Abril de 2026 | 12:30-13:25

Área de Posters - Ecrã 1 | Sessão de Posters 38 - Encerramento estrutural e desfechos cirúrgicos: do PFO ao bloco operatório

PO 222. PFO CLOSURE AND RECURRENT STROKE - BEYOND THE ROPE SCORE

Ana Rita Andrade, Daniel Inácio Cazeiro, João Neves, João Silva Marques, Miguel Nobre Menezes, Pedro Cardoso, Fausto J. Pinto, Ana Rita Francisco

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

Introduction: Patent foramen ovale (PFO) is a recognized potential source of paradoxical embolism and has been implicated in cryptogenic stroke and transient ischemic attack (TIA). Percutaneous PFO closure reduces recurrent events in carefully selected patients; however, the degree of benefit may vary with individual clinical and anatomical characteristics. In routine practice, treatment decisions are increasingly guided by risk evaluation tools, such as the Risk of Paradoxical Embolism (ROPE) score, which estimates the likelihood of a causal PFO-stroke relationship.
Objectives: To assess the long-term effectiveness of percutaneous PFO closure and explore outcomes across varying levels of PFO-stroke causal probability as defined by the ROPE score.
Methods: We conducted a retrospective cohort study of patients who underwent percutaneous PFO closure between 2011 and 2023. Baseline characteristics and follow-up data on recurrent TIA or stroke were extracted from medical records. To illustrate expected recurrence, a simulated dataset was created using actual follow-up times truncated at 2 years, assigning each patient a 2-year recurrence probability based on published

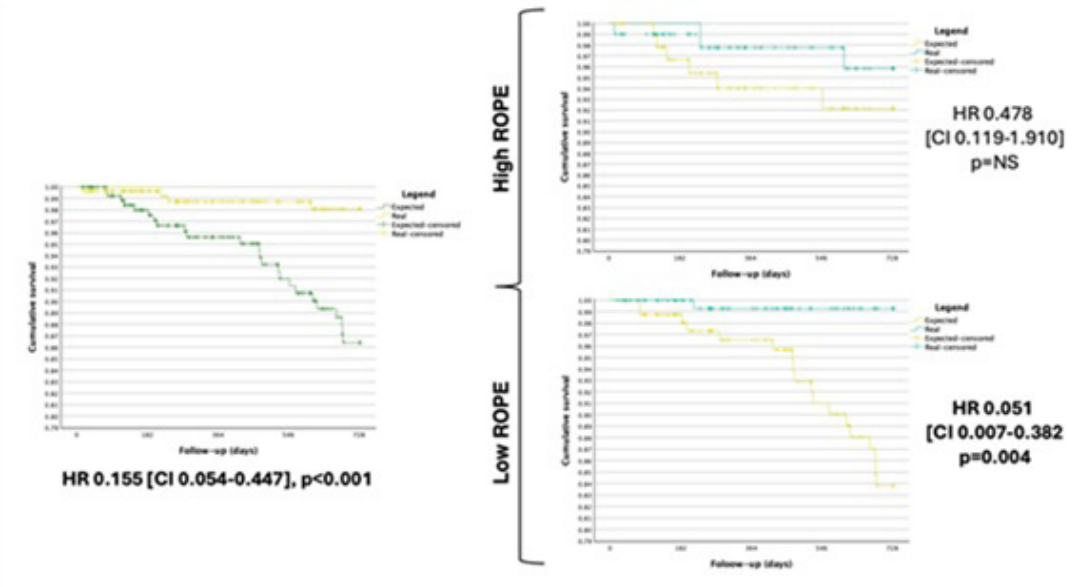


Figure PO 222

estimates. Kaplan-Meier and Cox analysis compared time to TIA/stroke recurrence between the simulated and study groups.
Results: A total of 271 patients were included (mean age 50 years, 51% female). Hypertension, diabetes and smoking history were present in 35%, 7% and 7% of patients, respectively; cortical infarct was detected in 64%. The mean ROPE score was 6. Recurrent TIA/stroke occurred in 4 patients, compared with 24 expected. The study group demonstrated a significantly longer time-to-event than the simulation group [HR 0.155, CI 0.054-0.047, p < 0.001]. Interestingly, when stratified by ROPE score, patients with higher scores (≥ 7) had recurrence rates comparable to expected values, whereas those with lower scores (< 7) had only one event [HR 0.051, CI 0.007-0.382, p = 0.004).
Conclusions: Recurrent stroke or TIA after PFO closure was markedly lower than expected, particularly among patients with lower ROPE scores. These findings support the effectiveness of PFO closure across the whole cohort and suggest benefit even in patients with lower causal probability, provided treatment is individualized within the broader clinical context. More robust, prospective studies are needed to confirm these findings.

PO 223. HAVING CLOSURE THAT LASTS – LONG-TERM SAFETY AND EFFICACY OF PFO OCCLUSION

João Martins Neves, Diogo Ferreira, Ana Rita Andrade, João Silva Marques, Miguel Nobre Menezes, Pedro Cardoso, Fausto J. Pinto, Ana Rita Francisco

Department of Cardiology, ULS Santa Maria, CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: Patent foramen ovale (PFO) closure is an established treatment option for patients (pts) with a history of cryptogenic stroke or transient ischemic attack (TIA) in whom the PFO is considered to have a causal role. Current guidelines recommend patient selection based on clinical, anatomical, and imaging characteristics to estimate the likelihood of PFO-related stroke. Despite growing evidence from randomized trials demonstrating the benefit of PFO closure in selected populations, real-world data on long-term outcomes, particularly across different levels of causal probability, remain limited.
Objectives: To report the experience of PFO closure at a single center and to evaluate long-term clinical outcomes.
Methods: Single-center, retrospective study of consecutive pts who underwent percutaneous PFO closure due to stroke or TIA from 2011 to July 2025. Demographic, clinical, and imaging data were collected from medical records. Kaplan-Meier survival analysis was used to estimate recurrence-free survival according to ROPE score and Pascal classification.
Results: A total of 330 pts were included (mean age 50 years, 51% female). The most frequent risk factors were dyslipidemia (47%), hypertension (36%) and smoking history (35%). History of migraine, previous venous thromboembolism and thrombophilia had been reported in 14%, 9% and 8% of pts, respectively. Stroke (median NIHSS 3) or TIA were the main indications for closure (75% and 25%, respectively). The mean ROPE score was 6 ± 2. According to Pascal classification, 14% of pts' events were classified as "unlikely", 58% as "possible," 28% as "probable," and 1% as "highly probable" PFO-related. All pts were submitted to PFO closure with an Amplatzer® PFO Occluder or Amplatzer® Talisman Occluder. Mean procedural time was 56 minutes. Most pts were discharged on double antiplatelet therapy or oral anticoagulation alone, with no severe major bleeding complications reported. During a mean follow-up time of 3 years, a total of 13 stroke/TIA recurrences were recorded after PFO closure. A recurrent event occurred earlier in pts with low ROPE score (≤ 7) and "unlikely"/"possible" Pascal classification, although differences were not statistically significant.
Conclusions: PFO closure was associated with excellent procedural safety and low long-term recurrence rates. Although earlier recurrence was observed sooner in pts with lower causal probability, statistical significance was not reached - likely reflecting the small number of events. These findings underscore both the overall effectiveness of PFO closure in routine practice and the robustness of outcomes achieved through structured patient selection and procedural expertise.

PO 224. SEX DIFFERENCES IN CLINICAL CHARACTERISTICS AND OUTCOMES AFTER PFO CLOSURE

Emanuel de Oliveira, Bernardo Cruz, Joana Conde Gonçalves, Catarina Martins da Costa, Gonçalo Pestana, Carla Sousa, Marta Tavares Silva, Rui André Rodrigues

ULS São João/Hospital São João.

Introduction: Patent foramen ovale (PFO) is present in up to 25% of adults and accounts for approximately 5% of all strokes. Sex-specific differences in patient characteristics and outcomes after percutaneous PFO closure remain

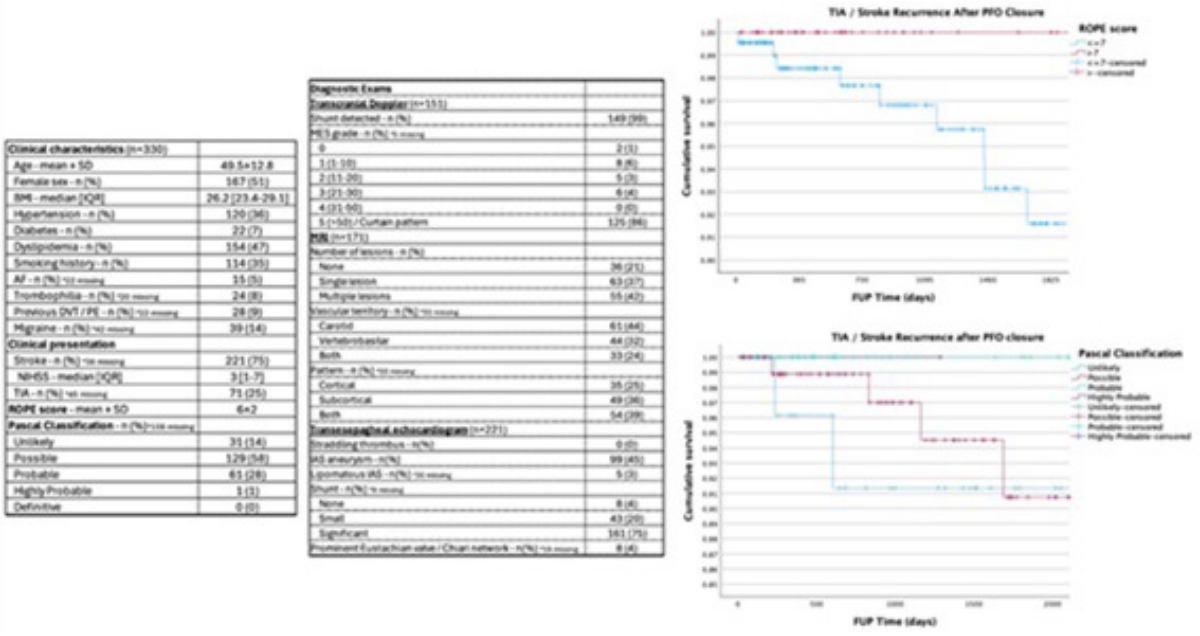


Figure PO 223

poorly understood. We evaluated demographic, anatomical and clinical outcome differences between men and women undergoing PFO closure.
Methods: This single-center retrospective study included consecutive patients who underwent PFO closure between January 1, 2020, and October 31, 2025. Patients were grouped by sex. Demographic, anatomical and clinical data were collected from electronic medical records and compared using appropriate statistical tests.
Results: A total of 234 patients were included (121 women, 113 men) with similar mean ages (51 vs. 49 years, p = 0.345). The indication for closure did not differ between groups, with cryptogenic ischemic stroke being the most frequent indication in both sexes. Most baseline comorbidities-including diabetes, hypertension, dyslipidemia, autoimmune disease and thrombophilia-were similar. Men were significantly more frequently smokers (10% vs. 21%, p = 0.027), while women had a higher prevalence of atrial septal aneurysm (59% vs. 41%, p = 0.013). The mean follow-up was similar in both groups (398 vs. 394 days, p = 0.615). Although adverse outcomes were rare, two clinically relevant sex-related differences were observed: women experienced more all-cause hospitalizations after PFO closure (7 vs. 0, p = 0.009) and had higher post-procedural mortality (5 vs. 0, p = 0.028), all from non-cardiovascular causes. Importantly, women who died were substantially older than those who survived (73 vs. 50 years, p < 0.001). No differences were observed in procedural complications, significant residual shunt, atrial fibrillation or stroke.
Conclusions: Despite similar baseline characteristics and closure indications, women demonstrated a higher-risk anatomical profile and significantly higher rates of hospitalizations and mortality after PFO closure. Although limited by low event numbers, these findings suggest meaningful sex-related differences that warrant further investigation.

PO 225. PREDICTING POSTOPERATIVE VASOACTIVE-INOTROPIC SUPPORT USING A QUANTILE REGRESSION MODEL

Tiago Velho[1], Rafael M. Pereira[2], Francisco Luís[2], Manuel Abecasis[1], Nuno Carvalho Guerra[1], Ricardo Ferreira[1], Luís Ferreira Moita[2], Ângelo Nobre[1]

[1]ULS Santa Maria/Hospital de Santa Maria. [2]Faculdade de Medicina da Universidade de Lisboa.

Introduction: Patients submitted to cardiac surgery frequently require postoperative vasopressor or inotropic support. High doses of these agents are associated with increased postoperative complications. Few studies have examined preoperative clinical or laboratory predictors of postoperative Vasoactive-Inotropic Score (VIS). Identifying patients at risk of requiring high vasoactive support may improve peri-operative risk stratification and optimization. This study aimed to identify preoperative factors associated with elevated postoperative VIS.
Methods: We performed an observational, retrospective study including consecutive patients submitted to major cardiac surgery. The primary endpoint was to identify preoperative clinical and laboratory predictors of the highest postoperative VIS in the first 24 hours (VISmax24h). Clinical variables were collected from medical records. VISmax24h was calculated for each patient. Continuous variables are presented as median (IQR) and analysed with Mann-Whitney or Kruskal-Wallis tests; associations were assessed using Spearman correlation. A Quantile Regression model was used to examine predictors across the VISmax24h distribution. Analyses were performed using R.
Results: A total of 1,429 patients were included. Median VISmax24h was 5 (IQR 0-16), and 35% had a VIS of 0. Higher VISmax24h values were observed in females (p = 0.011), patients with respiratory disease (P = 0.01), chronic kidney disease (p = 0.001), cerebrovascular disease (p = 0.02), depressed left ventricular function (p < 0.001), urgent/emergent surgery (p < 0.001) and ≥ 3 procedures (p < 0.001). VISmax24h was significantly lower in patients with dyslipidaemia (p = 0.001). VISmax24h showed a strong positive correlation with SOFA score at 24h and a moderate positive correlation with preoperative NT-proBNP. In Quantile Regression, predictors of higher postoperative VISmax24h across multiple quantiles included preoperative NT-proBNP, female sex, cerebrovascular disease, urgency of surgery, procedure type and number of procedures. Dyslipidaemia remained associated with lower VISmax24h.
Conclusions: Most patients require some degree of vasoactive support after cardiac surgery, though with considerable variability. Preoperative NT-proBNP, female sex, cerebrovascular disease, urgency of surgery and surgical complexity were associated with higher postoperative VISmax24h, while dyslipidaemia was associated with lower values. Quantile Regression offers a refined approach to identifying patients with increased postoperative vasoactive needs and may support improved peri-operative stratification and resource planning.

PO 226. PREDICTING SUCCESS OF CONCOMITANT SURGICAL ABLATION IN PERSISTENT ATRIAL FIBRILLATION

David Vicente Marques, Mariana Caetano Coelho, Sofia Delgado, Rui Cerejo, Guilherme Portugal, Ana Lousinha, Bruno Valente, Pedro Silva Cunha, Hagen Kahlbau, Rui Rodrigues, Pedro Coelho, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Atrial fibrillation (AF) is the most common arrhythmia in clinical practice, frequently associated with cardiac conditions with indication for surgical intervention. AF ablation is the best option for long term rhythm control. Surgical AF ablation may be considered in patients (P) who undergo cardiac surgery. However, concomitant AF ablation is still underperformed in AF P submitted to cardiac surgery.
Methods: The sample included 49 P (67.0 ± 9.6 years, 57.1% male) who underwent surgical AF ablation (2020-2024) concomitant with elective cardiac surgery. A retrospective single-center analysis was performed, with two groups regarding the heart rhythm during median-term follow-up (sinus rhythm - SR - vs. AF recurrence). The mean follow-up was 469 days (± 382 days). Demographic, perioperative and echocardiographic variables and type of surgery were extracted. Variables were compared with Mann-Whitney U or Fisher's exact test, as appropriate. Odds ratios (OR) with 95%CI were calculated.
Results: There were 26 P (53.1%) in SR and 47,9% recurrences of atrial arrhytmias (AF - 20, AT/AFL - 3) at the last point of follow-up. There were no significant differences found in echocardiographic features. SR at 1 month after surgery was significantly associated with SR maintenance at 1 year (OR 7.09; 95%CI; p = 0.006) and at the end of follow-up visit the same number of P. In our analysis, the use of cryotherapy compared to radiofrequency showed statistical significance in sustained SR at 1 year follow up, with 3.7 times more likelihood of outcome achievement (CI95% 1.06-12.87; p = 0.045). Table 1 shows comparative demographics for both these groups. Pulmonary veins isolation or "MAZE" technique did not show statistical significance in achieving SR maintenance.

Table 1. Important demographics and surgery specification differences for cryotherapy and radio frequency groups.

Variable	Cryotherapy (n=21)	Radiofrequency (n=28)	p-value
Sex (male)	10 (47.6%)	18 (64.3%)	0.24
Age (years)	61.7 ± 9.4	67.5 ± 9.8	**0.04**
Anti-arrhythmic therapy	5 (23.8%)	11 (39.3%)	0.083
LVEF	56.2% ± 8.7%	54.4% ± 8.3%	0.44
iLAV	52.6 ml/m2 ± 29.8	43.04 ml/m2 ± 13.4	0.086
Paroxystic AF	13 (61.9%)	19 (67.9%)	0.765
Surgery time	240 min ± 58	185 min ± 56	**<0.001**
AF ablation only	3 (14.3%)	19 (67.9%)	**<0.001**
Valvuloplasty	11 (52.4%)	3 (10.7%)	**0.003**
Valve substitution	9 (42.9%)	6 (21.4%)	0.129
Esternotomy	18 (85.7%)	16 (57.1%)	0.058

Table 1: Characteristics comparison between cryotherapy and radiofrequency groups. Atrial fibrillation (AF), indexed left atrial volume (iLAV), left ventricular ejection fraction (LVEF).

Conclusions: Concomitant AF ablation during cardiac surgery can be an effective option for maintaining SR. Cryotherapy was associated with significantly higher rates of sustained SR at 1-year follow-up. Moreover, early post-operative rhythm was strongly predictive of long-term success, suggesting that early heart rhythm assessment may help identifying patients who need close follow-up and further interventions.

Sábado, 25 Abril de 2026 | 12:30-13:25

Área de Posters - Ecrã 2 | Sessão de Posters 39 - Fenótipos de estenose aórtica, imagem e fisiopatologia

PO 227. COMPUTED TOMOGRAPHY AORTIC VALVE CALCIUM SCORES ACROSS ECHOCARDIOGRAPHIC PHENOTYPES IN PATIENTS EVALUATED FOR TRANSCATHETER AORTIC VALVE IMPLANTATION

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ULS Região de Leiria/Hospital de Santo André.

Introduction: Computed tomography (CT) aortic valve calcium score (AVCS) is used for severity grading in low-gradient aortic stenosis (AS), yet its distribution across echocardiographic phenotypes in real-world transcatheter aortic valve implantation (TAVI) candidates is incompletely characterised.
Objectives: To compare AVCS across high-gradient (HG), low-flow low-gradient (LFLG) and normal-flow low-gradient (NFLG) AS phenotypes, and to evaluate European Society of Cardiology (ESC) calcium severity categories within these groups.
Methods: We retrospectively analysed consecutive patients undergoing pre-TAVI cardiac CT at our centre (June 2022-October 2025). Only patients with a reported AVCS were included. AS phenotypes were defined using standard ESC criteria, including aortic valve area (AVA), mean transvalvular gradient, peak velocity (Vmax) and stroke volume index (SVI). Patients with discordant high-gradient AS (n = 3) or without a definable phenotype (n = 44) were excluded. AVCS was analysed as a continuous variable and categorised using sex-specific ESC thresholds: unlikely severe (men < 1,600 AU; women < 800 AU), grey zone (men 1,600-2,000 AU; women 800-1,200 AU) and likely severe (men > 2,000 AU; women > 1,200 AU).
Results: Ninety-three patients had both valid AVCS and phenotype classification (HG = 77, LFLG = 9, NFLG = 7). Median (interquartile range [IQR]) AVCS was: HG 2,331 (1,656-3,404) AU, LFLG 1,489 (1,115-3,086) AU and NFLG 2,485 (1,282-2,668) AU. AVCS as a continuous variable did not differ significantly between groups (Kruskal-Wallis p = 0.285). However, ESC calcium categories showed distinct patterns: HG and NFLG displayed similarly high proportions of "likely severe" AVCS (83% and 86%, respectively), whereas LFLG was more heterogeneous, with one-third classified as "unlikely severe". The distribution of ESC calcium categories differed numerically across phenotypes, although the Fisher-Freeman-Halton test did not reach statistical significance (p = 0.055).

Phenotype	n	Median AVCS (IQR)	AVCS ESC thresholds – categories*		
			Unlikely severe n (%)	Grey zone n (%)	Likely severe n (%)
HG	77	2331 (1656–3404)	3 (3.9%)	10 (13.0%)	64 (83.1%)
LFLG	9	1489 (1115–3086)	3 (33.3%)	1 (11.1%)	5 (55.6%)
NFLG	7	2485 (1282–2668)	0 (0%)	1 (14.3%)	6 (85.7%)

Table 1. Aortic valve calcium scores and ESC severity categories across AS phenotypes

Abbreviations: IQR – interquartile range; AVCS - aortic valve calcium score in Agatston units; HG – high-gradient; LFLG – low-flow, low-gradient; NFLG – normal-flow, low-gradient. *ESC thresholds are sex-specific.

Conclusions: Although AVCS did not differ statistically across phenotypes, its distribution revealed clinically relevant differences. NFLG patients demonstrated calcium burdens similar to HG AS, consistent with preserved structural severity despite lower gradients. LFLG patients were more variable, with a subset showing low calcium scores compatible with non-severe disease. These findings support a complementary role for AVCS in the assessment of low-gradient AS in TAVI candidates.

PO 228. LOW-FLOW LOW-GRADIENT AORTIC STENOSIS: AORTIC VALVE AREA ESTIMATED BY CONTINUITY EQUATION VERSUS PROJECTED AORTIC VALVE AREA

Adriana Silva[1], Paula Fazendas[1], João Pais[2], Rafael Viana[2], Liliana Brochado[1], Oliveira Baltazar[1], Isabel João[1], Hélder Pereira[1], Ana Almeida[3]

[1]ULS Almada-Seixal/Hospital Garcia de Orta. [2]ULS Alentejo Central/Hospital do Espírito Santo de Évora. [3]Centro Cardiovascular da Universidade de Lisboa.

Introduction: Stratifying severity in low-flow low-gradient (LFLG) aortic stenosis (AS) can be clinically challenging. The projected aortic valve area (AVAproj), estimating aortic valve area (AVA) at normal transvalvular flow, has been proposed as a more reliable marker of true stenosis. The TOPAS study previously showed the prognostic relevance of AVAproj.

Parameter	Rest	Peak	p-value
Heart rate (beats per minute; mean ± SD)	78 ± 15.8	108 ± 29	< 0.001
% Predicted max heart rate achieved (%; mean ± SD)	–	75 ± 21	
Systolic blood pressure (mmHg; mean ± SD)	111 ± 19.3	117 ± 19.1	0.066
Diastolic blood pressure (mmHg; mean ± SD)	63.0 ± 13.7	66 ± 16.1	0.135
LVOT diameter (mm)	20.6 ± 1.9	–	
Mean transaortic pressure gradient (mmHg; mean ± SD)	23.1 ± 7.2	30.3 ± 9.9	< 0.001
VTI aortic (cm, mean ± SD)	65.8 ± 17.6	65.7 ± 12.6	0.973
LVOT VTI (cm, mean ± SD)	13.2 ± 3.4	15.6 ± 2.7	0.004
LVOT-to-aortic VTI ratio (mean ± SD)	0.21 ± 0.05	0.24 ± 0.06	0.001
Aortic valve area (cm^2; mean ± SD)	0.68 ± 0.18	0.77 ± 0.15	< 0.001
Stroke volume index (ml/m^2; mean ± SD)	23.9 ± 7.0	28.3 ± 5.30	0.003
Total stroke volume (mL)	43.3 ± 11.4	51.0 ± 8.2	< 0.001
Transvalvular flow rate (mL; mean ± SD)	143.1 ± 33.1	190.6 ±25.3	< 0.001
Projected AVA at normal flow (cm^2)	–	0.90 ± 0.27	
Valvuloarterial impedance (ZVA) ($mmHg \cdot mL^{-1} \cdot m^{-2}$; mean ± SD)	5.0 ± 2.3	5.2 ± 1.23	0.223
FEVE (%; mean ± SD)	34.5 ± 8.8	36.7 ± 11.1	0.003
Ejection fraction (n (%))			0.003
Severely reduced	12 (50.0%)	5 (20.8%)	
Moderately reduced	9 (37.5%)	9 (37.5%)	
Mildly reduced	2 (8.3%)	2 (8.3%)	
Preserved	0 (0 %)	3 (12.5%)	
Global Longitudinal Strain	6.6 ± 3.3	7.7 ± 3.0	0.116
Flow reserve (%; mean ± SD)	–	22 ± 20	

Table 1. Echocardiographic parameters of the study population.

Objectives: To compare AS severity classification based on AVA estimated by continuity equation at peak dobutamine stress echocardiography (AVA-CE) versus AVAproj and evaluate their prognostic value in predicting the

composite outcome of aortic valve replacement (AVR) or all-cause mortality at 2 years.
Methods: Single-center retrospective study including individuals with AS who underwent dobutamine stress echocardiography (DSE). Reclassification rates were analyzed. Logistic regression models were constructed to assess the association of AS severity with the composite outcome.
Results: From a total of 57 patients (pts) with AS submitted to DSE, we included 24 pts with transvalvular flow rate at peak stress< 250 mL/s. The mean age was 69 ± 10 years, 83% were male. Echocardiographic parameters are summarized in Table 1. AVA-CE was significantly different from the AVAproj (p = 0.044). When using categorical severity classification (severe vs. moderate), 22 pts (92%) were classified as having true severe stenosis with AVA-CE and 14 pts (58%) were classified as having severe stenosis with projected AVA. Between rest and AVA-CE, only 1 pt changed classification (1 from severe to moderate) (p = 1.000). When comparing AVAproj to AVA-rest, 9 initially classified as severe were reclassified as moderate (p = 0.004). When comparing AVAproj to AVA-CE, 8 classified as moderate by AVAproj were classified as severe by AVA-CE (p = 0.008). Two logistic regression models were developed to predict the combined endpoint of AVR or death at 2 years. The first model, including rest LVEF and AVA-CE severity classification, did not reach statistical significance overall (p = 0.056), and neither variable was individually predictive. The second model, which included rest LVEF and AVAproj classification, was statistically significant (p = 0.005), with AVAproj classification showing a strong association with the outcome (OR 16.17, 95%CI 1.29-301.81, p = 0.050).
Conclusions: AVAproj differed significantly from AVA-CE and demonstrated superior prognostic value. These findings support the clinical relevance of including AVAproj in the evaluation of AS.

PO 229. LEFT VENTRICULAR DYSFUNCTION IN PATIENTS WITH HIGH-GRADIENT AND LOW-FLOW LOW-GRADIENT AORTIC STENOSIS

Inês Arrobas Rodrigues, Leonor Moura, António Gonçalves, Francisco Sousa, Francisca Nunes, Marta Almeida, André Lobo, Rafael Teixeira, Francisco Sampaio, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction and objectives: Left ventricular (LV) systolic dysfunction is a well-established marker of adverse prognosis in moderate-to-severe aortic stenosis (AS). The mechanisms underlying LV dysfunction are multifactorial and may differ across hemodynamic AS phenotypes. This study aimed to characterize contributing factors to LV dysfunction in patients with high-gradient (HG) versus low-flow low-gradient (LFLG) AS and to compare survival outcomes between these groups.
Methods: Patients with moderate-to-severe AS and reduced LV ejection fraction (LVEF < 50%) were retrospectively identified. Patients with HG severe AS (mean gradient [MG] ≥ 40 mmHg and aortic valve area [AVA] ≤ 1,0 cm^2) and patients with LFLG AS (AVA ≤ 1 cm^2, MG < 40 mmHg, and stroke volume index ≤ 35 ml/m^2) were analysed. The aetiology of LV dysfunction (valvular, ischemic, desynchrony, cardiomyopathy and other) was determined using additional diagnostic modalities available for each patient (electrocardiography, coronary angiography, computed tomography, and cardiac magnetic resonance imaging). Survival differences between the two groups were assessed using time-to-event analyses.
Results: 282 patients with severe AS and LVEF< 50% were included, of whom 111 had LFLG AS and 37 had HG AS. Baseline characteristics were comparable between groups, except for coronary artery disease, more frequent in the LFLG group (48.6% vs. 35.1%, p = 0.056) and beta-blocker use, less common in HG patients (29.7% vs. 70.3%, p < 0.001). Median LVEF was also lower in the LFLG group (40,7% vs. 49%, p < 0,001). In the LFLG group, 73.9% of patients had at least one concomitant contributor of LV dysfunction beyond AS, most commonly ischemic heart disease (47.7%), followed by desynchrony (18%), and cardiomyopathies (2%). Only 17.1% had AS as the sole mechanism of LV dysfunction. In contrast, LV dysfunction was attributed exclusively to AS in 54.1% of HG patients (p < 0.001), while 45.9% had at least one additional contributing factor (p = 0.002). Kaplan-Meier analysis showed significantly worse survival in the LFLG group (median survival of 3.8 vs. 8.7 years, log-rank p < 0.001). In multivariable Cox regression, LFLG status remained independently associated with mortality (HR 2.23; 95%CI 1.30-3.81; p = 0.004).
Conclusions: Among patients with AS and reduced LVEF, LFLG patients more frequently had concomitant non-valvular mechanisms of LV dysfunction and had significantly worse survival than HG patients, even after multivariable adjustment for comorbid conditions.

PO 230. LEFT-VENTRICULAR GEOMETRIC PATTERNS ACROSS HEMODYNAMIC PHENOTYPES OF SEVERE AORTIC STENOSIS

Inês Arrobas Rodrigues, António Gonçalves, Leonor Moura, Francisco Sousa, Francisca Nunes, Marta Almeida, André Lobo, Inês Neves, Fábio Nunes, Rafael Teixeira, Francisco Sampaio, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction and objectives: Aortic stenosis (AS) increases left-ventricular (LV) afterload, leading to compensatory hypertrophy and remodeling that may become maladaptive. The determinants of the heterogeneous LV response to chronic pressure overload remain uncertain. This study evaluated LV geometry across severe AS phenotypes and examined its association with prognosis.

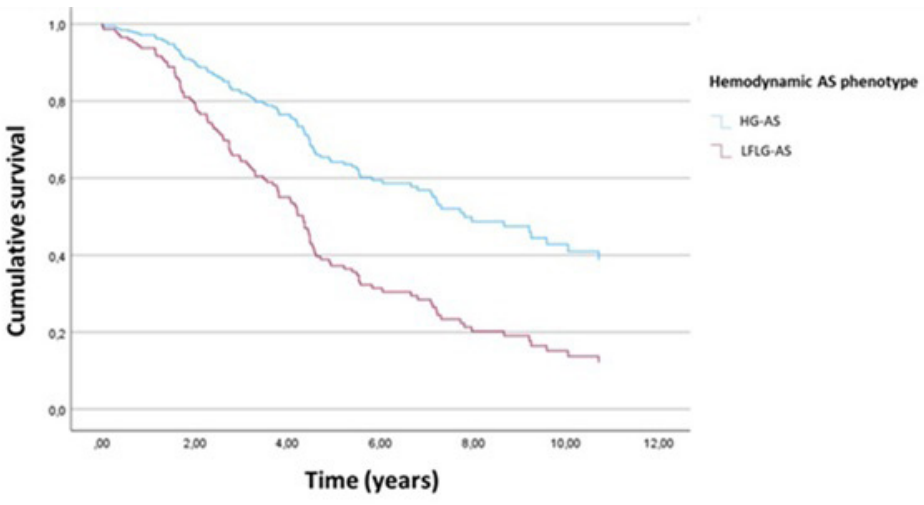


Figure PO 229

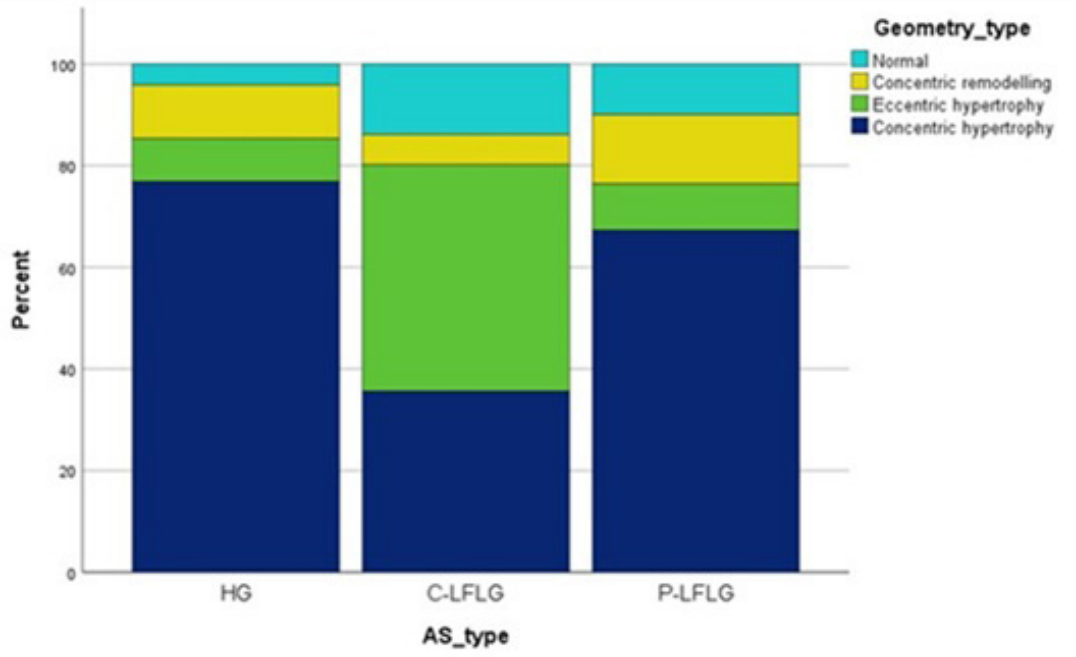


Figure PO 230

Methods: Patients with severe AS diagnosed between 2012 and 2020 were retrospectively identified and classified into 3 phenotypes: high-gradient (HG) (mean gradient [MG] ≥ 40 mmHg, aortic valve area [AVA] ≤ 1.0 cm^2), classical low-flow, low-gradient (c-LFLG) (AVA ≤ 1.0, MG< 40, stroke volume index [SVi] ≤ 35 mL/m^2, LVEF < 50%), and paradoxical LFLG (p-LFLG) (AVA ≤ 1.0, MG< 40, Svi ≤ 35, LVEF ≥ 50). LV geometric patterns were defined according to standard cut-offs for relative wall thickness (RWT) and LV mass index (LVMI): normal geometry (normal RWT/normal LVMI), concentric remodeling (increased RWT/normal LVMI), concentric hypertrophy (CH) (increased RWT/increased LVMI), and eccentric hypertrophy (EH) (normal RWT/increased LVMI). The association between LV geometry and mortality was assessed using a multivariate logistic regression.
Results: A total of 569 echocardiograms from 380 patients (53.2% females, mean age 77.8 ± 8.4 years) were analysed: 341 (59.9%) had HG, 118 (20,7%) c-LFLG, and 110 (19,3%) p-LFLG AS. p-LFLG patients were more often females (66% vs. 54% in HG and 42% in c-LFLG; p = 0.012); c-LFLG patients had higher prevalence of coronary artery disease (43% vs. 22% in HG and 25% in p-LFLG; p < 0.001). As expected, SVi and MG were lower in both LFLG phenotypes compared with HG AS, while LVEF was lower in c-LFLG. AVA was similar across groups. c-LFLG patients had larger indexed LV end-diastolic volumes (72 ± 24.5 mL/m^2 vs. 57 ± 15.6 in HG and 49 ± 14.3 in p-LFLG) and a higher prevalence of > grade II mitral regurgitation (62% vs. 34% in HG and 41% in p-LFLG). LV geometric patterns differed significantly across AS phenotypes (χ^2, p < 0.001). CH predominated in both HG and p-LFLG (76.8% and 67.3%, respectively), whereas c-LFLG showed a more heterogeneous distribution, with higher prevalence of EH (44.6%) (Figure 1). In multivariate analysis, LV geometry was not independently associated with mortality (p = 0.192).
Conclusions: LV geometry varied across AS phenotypes, with CH predominating in HG and p-LFLG, and a higher prevalence of EH in c-LFLG AS. In this cohort, LV geometric pattern was not associated with mortality.

PO 231. HIGH-RISK FEATURES IN SEVERE AORTIC STENOSIS: A PROSPECTIVE ASSESSMENT BEFORE AORTIC VALVE REPLACEMENT

Luís Cotrim[1], Rodrigo Brandão[2], Tiago Mesquita[2], Inês Miranda[2], Filipa Gerardo[2], Inês Santos[2], Mariana Passos[2], Inês Fialho[2], David Roque[2], Carlos Morais[2]

[1]ULS Estuário do Tejo/Hospital de Vila Franca de Xira. [2]ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca.

Introduction: Severe aortic stenosis (AS) frequently progresses to clinical instability when definitive valve intervention is postponed. Despite aortic valve replacement (AVR) being the recommended therapy, procedural waiting times remain long, and a meaningful proportion of patients experience major adverse cardiovascular events (MACE) before reaching intervention. Improved delineation of vulnerable phenotypes may enhance prioritization and surveillance during this pre-interventional period.
Objectives: To characterize the clinical and echocardiographic determinants of MACE in individuals with severe AS awaiting AVR.
Methods: A prospective cohort was assembled including consecutive patients with severe AS assessed by a single-center Heart Team between January 2019 and June 2022. Detailed clinical history, laboratory profiles, and advanced echocardiographic measurements were obtained at baseline. MACE was defined as a composite of all-cause mortality, heart failure (HF) hospitalization, non-fatal myocardial infarction and non-fatal stroke. Outcomes were tracked until AVR. Median follow-up duration was 187 days (IQR 59-352).
Results: The study enrolled 255 patients (mean age 76.7 ± 10.7 years; 48.1% male). Several factors demonstrated independent prognostic relevance. A prior hospitalization for HF was strongly associated with subsequent MACE (HR 2.77; 95%CI 1.66-4.62; p < 0.001). Advanced symptom burden, reflected by NYHA class ≥ III, also conferred increased risk (HR 2.64; 95%CI 1.58-4.39; p < 0.01). Left ventricular systolic dysfunction emerged as a major determinant of adverse events (HR 2.86; 95%CI 1.71-4.78; p < 0.001). Pulmonary hypertension provided additional prognostic information (HR 2.16; 95%CI 1.27-3.66; p < 0.01). In contrast, right ventricular dysfunction was not predictive (HR 2.34; 95%CI 0.45-12.08; p = 0.31). Valvular regurgitation significantly contributed to risk stratification: moderate-severe tricuspid regurgitation (HR 10.88; 95%CI 1.41-83.94; p < 0.05) and moderate-severe mitral regurgitation (HR 5.91; 95%CI 1.50-23.34; p < 0.05) identified a distinctly high-risk subgroup. Laboratory indices, including creatinine, haemoglobin and NT-proBNP, did not exhibit meaningful associations with MACE.
Conclusions: In patients with severe AS awaiting AVR, markers of clinical decompensation and impaired cardiac hemodynamics, namely prior HF hospitalization, significant symptomatic limitation, left ventricular systolic dysfunction and pulmonary hypertension, were key predictors of adverse events. Concomitant moderate-severe tricuspid or mitral regurgitation further delineated individuals at high risk. These results emphasize the need for more structured risk-based pathways to optimize care for patients during the pre-interventional period.

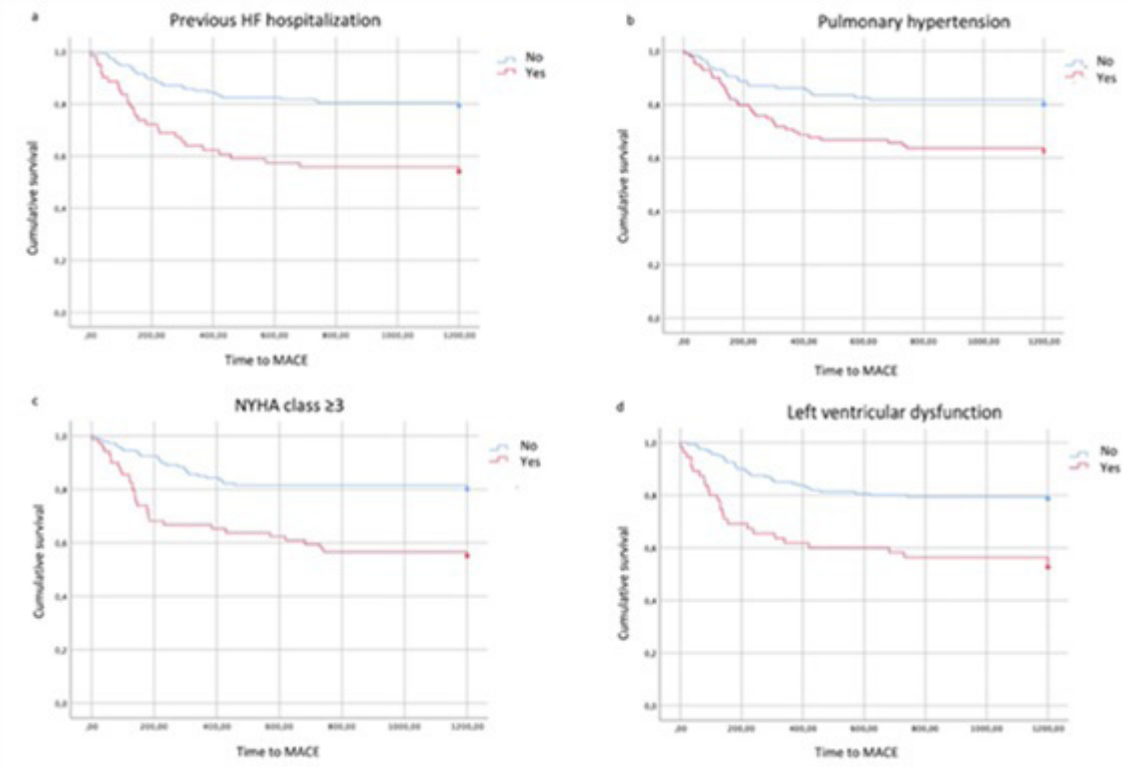


Figure 1 – Time to MACE in patients with severe aortic stenosis (AS) awaiting aortic valve replacement (AVR)

Figure PO 231

PO 232. PREDICTORS OF MORTALITY IN PARADOXICAL LOW-FLOW, LOW-GRADIENT AORTIC STENOSIS

Maria Leonor Moura, Francisco Lemos de Sousa, Rafael Teixeira, Francisca Martins Nunes, Inês Arrobas Rodrigues, António Gonçalves, Marta Catarina Almeida, André Lobo, Marta Leite, Inês Neves, Rita Faria, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Paradoxical low flow, low gradient aortic stenosis (PLFLGAS) is a relatively common subtype of severe aortic stenosis characterized by preserved ejection fraction in spite of low stroke volume and low transvalvular gradients.
Objectives: The aim of this study was to evaluate three-year mortality in PLFLGAS and its associated and predictive factors.
Methods: A retrospective study was conducted, including patients with PLFLGAS from 2012 to 2020. PLFLGAS was defined as aortic valve area ≤ 1.0 cm^2, mean gradient < 40 mmHg, stroke volume index (SVI) < 35 mL/m^2, and left ventricular ejection fraction (LVEF) ≥ 50%. Mortality related data, demographic characteristics, echocardiographic parameters and clinical comorbidities were collected. Statistical analyses were performed using IBM SPSS Statistics version 30. Mann-Whitney and chi-square tests were used to test the correlations. Univariate logistic regression was used to identify predictors of mortality.
Results: A total of 90 patients were included in this study. At three-year follow up, 24% (n = 22) died. Most of these were females (64%) and the median age was 83 years (IQR 8). The mean LVEF was 56%. Mortality was significantly associated with lower LVEF (p = 0.002) and age (p = 0.010). Aortic valve ejection time (AVET) was higher and LVOT peak gradient was lower in those who died (p = 0.010 and p = 0.048). Markers of right ventricular dysfunction appeared to be relevant: although TAPSE was not significantly different across groups, PASP was higher in patients who died when compared to those who did not (p = 0.019). These also had larger right atrial area (p = 0.003) and reduced right ventricular-arterial coupling (p = 0.033). Concomitant valvular disease, particularly aortic regurgitation (p = 0.036) and mitral regurgitation (p = 0.023) were also associated with mortality in PLFLGAS patients. Mortality was predicted in univariate analysis by age (OR 1.13; 95%CI 1.04-1.23; p = 0.004), LVEF (OR 0.86; 95%CI 0.76-0.97; p = 0.011) and right atrial area (OR 1.15; 95%CI 1.05-1.26; p = 0.003). Mitral regurgitation severity was also significant as a predictor of 3-year mortality (Omnibus Wald = 7.053, p = 0.029).
Conclusions: Three year mortality in PLFLGAS was influenced by age, LVEF, clinical comorbidities and right ventricular dysfunction. Recognition of these factors may help guiding management decisions and underscore the importance of a comprehensive evaluation in these patients.

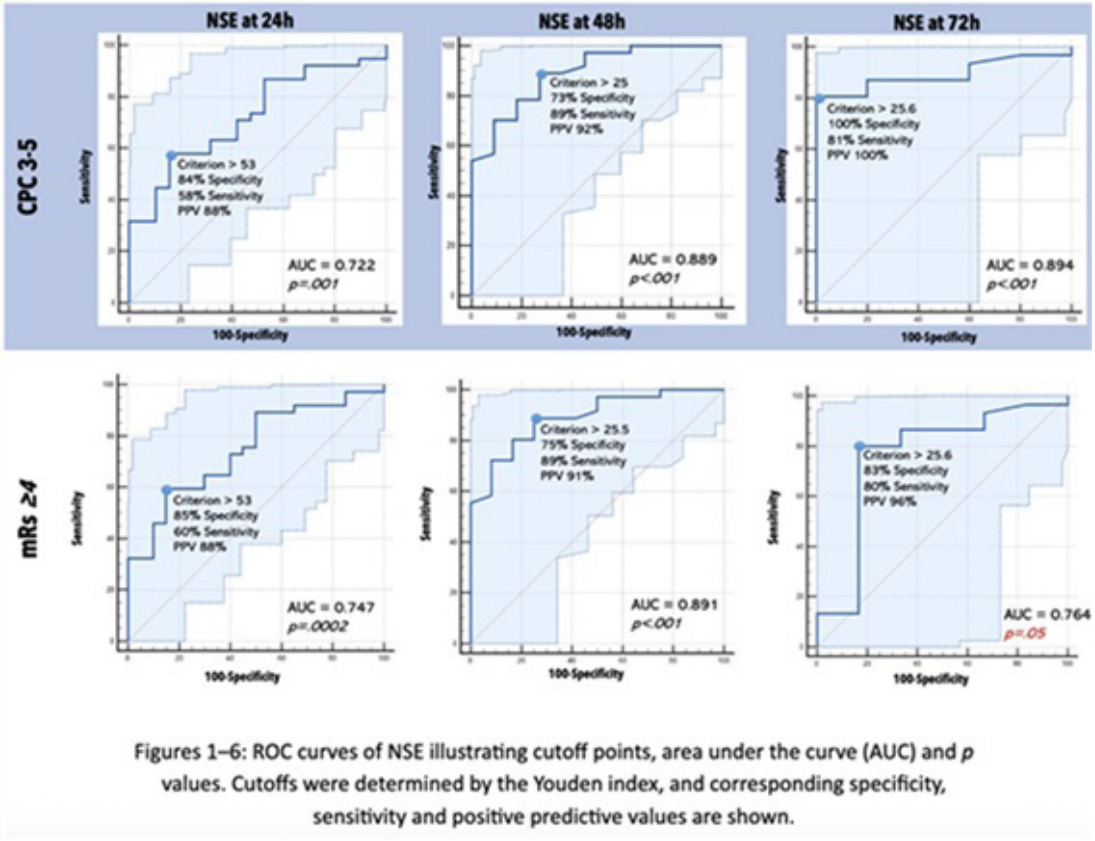
Sábado, 25 Abril de 2026 | 12:30-13:25

Área de Posters - Ecrã 3 | Sessão de Posters 40 - Pós-paragem cardíaca e desfechos na UCI cardíaca

PO 233. THE ROLE OF NEURON-SPECIFIC ENOLASE AS A PREDICTOR OF NEUROLOGICAL RECOVERY AND FUNCTIONAL STATUS IN A SELECTED CARDIAC INTENSIVE CARE UNIT POPULATION

Margarida Urpina Matias[1], Rita Barbosa[1], Maria Inês Soares[1], Raquel Montalvão[1], João Machado[2], Márcia Presume[1], Ana Rita Bello[1], Mariana Sousa Paiva[1], João Presume[1], Jorge Ferreira[1], Catarina Brízido[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]ULS Lisboa Ocidental/Hospital de S. Francisco Xavier.



Figures 1–6: ROC curves of NSE illustrating cutoff points, area under the curve (AUC) and *p* values. Cutoffs were determined by the Youden index, and corresponding specificity, sensitivity and positive predictive values are shown.

Figure PO 233

Introduction: Neuron-specific enolase (NSE) is a biomarker of neuronal injury with strong prognostic value for neurologic outcome after sudden cardiac arrest (CA). Recommended cutoffs in the 2025 European Resuscitation Council (ERC) Guidelines derive from several studies, but a universal threshold is lacking.
Objectives: To evaluate NSE performance as a prognostic predictor in CA intensive care unit (CICU) cohort; to define optimal NSE cutoffs, comparing with guideline-recommended values.
Methods: Retrospective analysis of consecutive CICU patients admitted after in-hospital or out-of-hospital CA (IHCA or OHCA), between 2015-2025. Comatose patients (GCS < 8) with multimodal neuroprognostication and NSE at 24, 48, and 72 hours after ROSC were included. Neuroprognosis followed ERC criteria. Neurological status at 30 days was classified according to the Cerebral Performance Category (CPC) scale, as good (CPC 1-2) or poor (CPC 3-5), and disability by modified Rankin Scale (mRS). ROC curves identified optimal NSE cutoffs for CPC 3-5 and mRS ≥ 4 and estimated positive predictive value (PPV).
Results: 94 patients (mean age 62 ± 17 y, 66% male) were included, 32% had ICHA and 68% OHCA. Mean no-flow time was 1.8, median low-flow time was 15 [8.5-18.8], and time to ROSC 25 [16-40] min. A shockable rhythm was present in 65%, 70% underwent coronary angiography, and 6% had a non-cardiac cause for CA. Among 90 patients completing neuroprognostication, a third had poor prognosis, 37% were indeterminate, and 7% were brain dead. At 30 days, 71% had CPC 3-5, and 68% significant functional dependence (mRS ≥ 4). Mortality at 30 days was 62%. Median NSE values at 24, 48 and 72 hours were 49 [32-91], 45 [25-122] and 41 [23-101] ng/mL, respectively. NSE values were significantly higher in patients with very likely poor neuroprognosis; and in CPC 3-5 (122 vs. 39, p = 0.0005, 162 vs. 32, p < 0.0001 and 145 vs. 28, p = 0.0005; 58 vs. 36, p = 0.007, 46 vs, p = 0.0001 and 45 vs. 22, p = 0.005; respectively). NSE at 48 h showed highest accuracy for predicting poor CPC and mRS ≥ 4 (AUC 0.89, p < 0.001). The optimal 48h cutoff of 25 ng/mL (Youden index) yielded 72-75% specificity, 89% sensitivity and 91-92% PPV. Higher 48h NSE values further increased PPV, with 48.5 ng/mL providing 100% PPV and specificity but 54% sensitivity. NSE at 24 and 72 h also performed well (AUC > 0.7, p < 0.05). A 48 h level > 60 ng/mL, as currently recommended, had 100% PPV for CPC 3-5 and mRS ≥ 4.
Conclusions: this CICU CA cohort, NSE showed good prognostic performance at all recommended time points, with maximal accuracy at 48 h. A cutoff of 48.5 ng/mL at 48 hours was the most accurate for predicting poor CPC and mRS ≥ 4 at 30 days, slightly lower than guideline-recommended values, suggesting population-dependent cutoffs and reinforcing the importance of multimodal neuroprognostication.

PO 234. POOR NEUROPROGNOSIS AFTER SUDDEN CARDIAC ARREST: END-OF-LIFE PRACTICES AND POTENTIAL ORGAN DONORS IN A CARDIAC INTENSIVE CARE UNIT COHORT

Margarida Urpina Matias[1], Catarina Santos-Jorge[1], Maria Inês Soares[1], Raquel Montalvão[1], Márcia Presume[1], João Machado[2], Ana Rita Bello[1], Mariana Sousa Paiva[1], João Presume[1], Jorge Ferreira[1], Catarina Brízido[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]ULS Lisboa Ocidental/Hospital de S. Francisco Xavier.

Introduction: Hypoxic-ischemic brain injury after sudden cardiac arrest (CA) is central to CA management, as major efforts focus on its prevention during pre- and post-CA care, and it is a key determinant of prognosis after ROSC. European Resuscitation Council (ERC) guidelines define criteria for poor neuroprognosis, but their application does not invariably lead to withdrawal of life-sustaining therapies (WLST). Moreover, these patients may be candidates for solid organ donation after brainstem or circulatory death (DBD or DCD, respectively).
Objectives: To characterize end-of-life practices in post-CA patients classified as having poor neuroprognosis according to ERC guidelines, and to identify potential DBD and DCD donors.
Methods: Single-center retrospective study of consecutive post-CA patients admitted to a CICU between 2015-2025, presenting comatose (GCS < 8) after

ROSC and undergoing multimodal neuroprognostication. The 2021 and 2025 ERC guidelines algorithms were applied to classify neuroprognosis as good, indeterminate or poor. Patients were evaluated regarding end-of-life decisions (WLST or No Escalation of Treatment [NoET]) and cause of death. For donation purposes, potential donors were categorized as 18-45 years old (ideal), 45-55 (acceptable) and 55-70 (marginal); patients > 70 were considered unlikely donors.

Results: Among 94 patients, 26% (n = 24) had good, 37% (n = 35) indeterminate and 37% (n = 35) poor neuroprognosis, according to ERC criteria. Of the latter, only 6 (17%) progressed to brainstem death; 2 went into circulatory arrest after WLST, and the remaining 4 after NoET. Among the remaining 29 patients with poor neuroprognosis, WLST was instituted in 11 (38%) and NoET in 8 (28%). Ten patients either died from "refractory circulatory shock" (n = 5), suggesting treatment escalation, or had no clear end-of-life plan (n = 5). Five patients (17%) with poor neuroprognosis underwent tracheostomy, all aged > 55 years. None of the 6 brainstem-dead patients were considered for DBD, although all but one were < 70 years. Regarding DCD, 19 (66%) patients with poor neuroprognosis were potential donors (2 ideal, 3 acceptable, 14 marginal). From those, 2 were resuscitated with ECPR and could have been considered Maastricht II donors, while the remaining 17 could have been Maastricht III donors if national legislation allowed; none were evaluated for DCD.

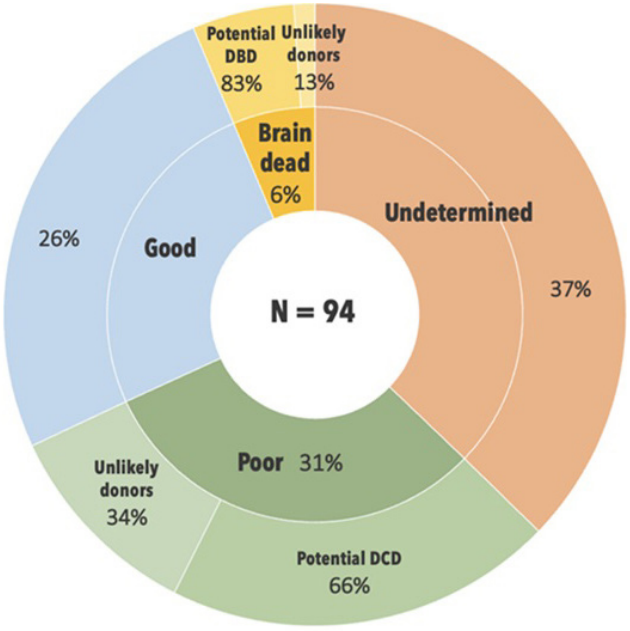


Figure 1: Distribution of neurological prognosis and potential organ donors after cardiac arrest

Conclusions: Around 40% of resuscitated CA patients were classified as having poor neuroprognosis, yet only a minority (one fifth) of hypoxic-ischemic brain injuries evolved to brainstem death. Despite a substantial proportion of potential donors, neither DBD nor DCD was implemented. End-of-life decisions, particularly WLST, were underused in this context (< 40%).

PO 235. CLINICAL PROFILE AND OUTCOMES OF RESUSCITATED CARDIAC ARREST PATIENTS: A 10-YEAR ANALYSIS OF IHCA AND OHCA COMATOSE PATIENTS AT A CARDIAC INTENSIVE CARE UNIT

Margarida Urpina Matias[1], Maria Inês Soares[1], Raquel Montalvão[1], Márcia Presume[1], João Machado[2], Ana Rita Bello[1], Mariana Sousa Paiva[1], João Presume[1], Jorge Ferreira[1], Catarina Brízido[1]

[1]ULS Lisboa Ocidental/Hospital de Santa Cruz. [2]ULS Lisboa Ocidental/Hospital de S. Francisco Xavier.

Introduction: Sudden cardiac arrest (CA) remains a major public health concern with high morbimortality and economic burden. Despite improvements in pre- and in-hospital resuscitation protocols and expanding ECPR use, survival and neurological recovery remains limited.

Objectives: To describe clinical and event-related characteristics and identify factors associated with poor neurologic and functional outcomes in comatose CA patients admitted to a cardiac intensive care unit (CICU).

Methods: Retrospective analysis of consecutive comatose patients (GCS< 8) admitted to a CICU after resuscitation from in-hospital or out-of-hospital CA (IHCA or OHCA), between 2015-2025. Patients underwent multimodal neuroprognostication and were stratified according to probability of poor neurological outcome according to 2025 European Resuscitation Council (ERC) Guidelines. The primary outcome was neurological status at 30 days, using the Cerebral Performance Category (CPC) scale, categorizing patients as good (1-2) vs. poor (3-5). Bivariate analyses were performed using Chi-Square and Mann-Whitney.

Results: 94 patients (mean age 62 ± 17 y, 70% male) were included; 32% had IHCA. Most OHCA were witnessed (90%) and 72% received bystander CPR. Mean no-flow time was 1.8, median low-flow time was 15 [8.5-18.8], and time to ROSC 25 [16-40] minutes. Post-ROSC care included TTM targeting normothermia in 62%, though 35% developed fever within 72 hours. According to ERC criteria, one third of 90 patients completing neuroprognostication were classified with poor neurological prognosis. At 30 days, 71% had CPC 3-5 and 62% died, mainly from early hemodynamic instability and multiorgan failure, and later from withdrawal of life-sustaining therapies. Baseline features and comorbidities were similar across prognosis groups. Poor neuroprognosis and CPC 3-5 were more frequent in OHCA (96% vs. 55%; $p = 0.0001$; and 76% vs. 48%; $p = 0.008$, respectively). Longer low-flow time correlated with poor ERC prognosis ($p = 0.04$) and CPC 3-5 ($p = 0.01$), while no-flow and time-to-ROSC did not differ. Initial rhythm (shockable rhythm occurred in 65%, pulseless electrical activity in 26%), and ECPR use (10%, n = 9) showed no association with outcomes. STEMI on post-ROSC ECG was significantly linked to poor neuroprognosis ($p = 0.02$). After admission, coronary revascularization and LVEF were not related to CPC or ERC neuroprognosis. Fever during the first 72 h occurred more frequently in patients with poor neuroprognosis, despite not meeting statistical significance (50% vs. 29%, $p = 0.08$).

Conclusions: Despite rapid and mostly witnessed resuscitation, OHCA and longer low-flow time were consistently higher in patients with poor neuroprognosis and functional outcomes at 30 days. This study suggests pre-hospital conditions and primary cardiovascular prevention are still the main targets to improve post-CA outcomes.

PO 236. BEYOND THE FIRST EPISODE: PREDICTORS OF NOAF RECURRENCE AFTER ICU STAY

João Reis Sabido[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], Marta Vilela[1], João Cravo[1], Sofia Esteves[1], João Pedro[1], Catarina Silva[1], Inês Araújo[1], Fausto J. Pinto[2], João Ribeiro[3], Doroteia Silva[4]

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Introduction: New-onset atrial fibrillation (NOAF) is common among critically ill patients and is associated with increased morbidity and mortality. Although often considered transient, many patients experience recurrence after discharge. Identifying predictors of atrial fibrillation (AF) recurrence is essential to improve risk stratification, follow-up, and management strategies.

Objectives: This study aimed to determine independent predictors of NOAF recurrence and their prognostic significance.

Methods: This retrospective, single-centre study, included consecutive Intensive Care Unit (ICU) patients who developed NOAF during the ICU stay.

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS	NOAF (n=140)
Sex, n (%)	
Female	49 (35)
Male	91 (65)
Age, median [IQR]	70 [16]
Comorbidities, n (%)	
Hypertension	94 (67.1)
Dyslipidaemia	54 (38.6)
Diabetes	45 (32.1)
Obesity	27 (19.3)
Smoking (active or previous)	38 (27.1)
Hyperthyroidism	2 (1.4)
Chronic kidney disease	18 (12.9)
Obstructive Sleep Apnea	8 (5.7)
Heart failure	9 (6.4)
Reason for ICU admission, n (%)	
Sepsis/septic shock	106 (75.7)
Cardiogenic shock	5 (3.6)
Obstructive shock	2 (1.4)
Haemorrhagic shock	8 (5.7)
Trauma	6 (4.3)
Post-major surgery	4 (2.9)
Stroke	6 (4.3)
Echocardiographic parameters	
Left ventricle ejection fraction (%), median [IQR]	50 [20]
Left ventricle end-diastolic volume (mL/m2), median [IQR]	49.8 [37.6]
Left atrial end-systolic volume (mL/m2), mean ± SD	32.4 ±11.1
Mitral regurgitation	30 (21.4)
Mild, n (%)	25 (17.9)
Moderate, n (%)	5 (3.6)
SOFA at admission, median [IQR]	7 [6]
CHA2DS2-VASc score, median [IQR]	3 [2]
NOAF treatment strategy, n (%)	
Rhythm control	122 (87.1)
Electric cardioversion	29 (20.7)
Chemical cardioversion	122 (87.1)
Frequency control	7 (5)
Clinical events during ICU stay, n (%)	68 (48.6)
AF recurrence	68 (48.6)
Death	46 (32.9)
Medications at discharge, n (%)	
Beta-blockers	32 (22.9)
Amiodarone	12 (8.6)
Propafenone	1 (0.7)
Digoxin	11 (7.9)
Anticoagulants	39 (27.9)
Events at follow up, n (%)	
Death from cardiovascular cause	11 (7.9)
Death from non-cardiovascular cause	53 (37.9)
Hospitalization from cardiovascular cause	8 (5.7)
Stroke	3 (2.1)
AF recurrence	61 (43.6)

Figure PO 236

Clinical, laboratory, and echocardiographic data were collected from hospital records. A multivariate Cox regression analysis was performed to identify independent predictors of AF recurrence.

Results: A total of 140 patients with NOAF were included, 65% of whom were male, with a median age of 70 years. Cardiovascular comorbidities were frequent, including hypertension (67.1%), dyslipidaemia (38.6%), and diabetes (32.1%). Most patients were admitted to the ICU due to sepsis or septic shock (75.7%), with a median SOFA score at admission of 7. A rhythm-control strategy was adopted in 87.2% of patients, with AF recurrence observed in 48.6%. ICU mortality was 32%. The median CHA2DS2-VASc score was 3, and at ICU discharge 27.9% of patients were anticoagulated. Regarding antiarrhythmic therapy, 22.9% were discharged on amiodarone, 8.6% on beta-blockers, and 7.9% on digoxin. During follow-up, 43.6% of patients experienced AF recurrence, 7.9% died from cardiovascular causes, 37.9% from non-cardiovascular causes, 5-7% were hospitalised for cardiovascular events, and 2.1% suffered a stroke (Table 1). In the multivariate analysis, only amiodarone use at discharge was independently associated with a reduced risk of AF recurrence during follow-up (HR: 0.112, 95%CI 0.015-0.929, p = 0.042), after adjustment for age, diabetes, dyslipidaemia, obesity, obstructive sleep apnoea, and chronic kidney disease.

Conclusions: In this cohort, AF recurrence occurred in nearly half of the patients during both ICU stay and follow-up. Importantly, amiodarone use at discharge was independently associated with a lower risk of AF recurrence, suggesting a potential protective effect. These findings highlight the burden of NOAF in critically ill patients and the need for tailored rhythm management strategies.

PO 237. MECHANICAL COMPLICATIONS AFTER ACUTE MYOCARDIAL INFARCTION: A 15-YEAR SINGLE-CENTER EXPERIENCE

André Moniz Garcia, Catarina Santos Jorge, Maria Francisca Castro, João Presume, Pedro Magro, Ana Rita Bello, Christopher Strong, Catarina Brizido, Marisa Trabulo, Jorge Ferreira

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Acute myocardial infarction (AMI) can lead to mechanical complications (MC) from rupture or tearing of infarcted myocardium. Their presentation depends on whether the rupture is complete or contained, and on the structure involved-free wall, septum, or papillary muscles. Although uncommon, MCs carry very high mortality and remain insufficiently described. This study reviews MC cases in a single tertiary center, focusing on presentation, management, and in-hospital outcomes.

Methods: This retrospective observational study reviewed records from 2010 to 2025. Patients were included if they developed an MC after admission for MI and were managed at this center with available clinical data. The primary endpoint was in-hospital mortality.

Results: Among 104 MC cases post-AMI, 56% were male and mean age was 72 ± 11 years. Coronary angiography was performed in 81% of patients, but only 62% within 24 hours of symptom onset. Revascularization was complete in 31%, incomplete in 22%, and not attempted in 47%, largely due to non-viable myocardium and multivessel disease. MC types were ventricular septal defect (VSD) in 44%, acute severe mitral regurgitation (MR) in 21%, pseudoaneurysm in 21%, and free wall rupture (FWR) in 14% (one had both MR and FWR). At diagnosis, 58% were in cardiogenic shock, and 50% required mechanical circulatory support (IABP 84%, ECMO 4%, both 12%). Surgery was performed in 67% (CABG in 21%), with a median symptom-to-surgery time of 3 days (IQR 1-10). In-hospital mortality was 50% and 58% at 1 year. Surgical management achieved 76% in-hospital survival versus only 6% in non-operated patients. In patients with MR (n = 22), 32% required preoperative IABP and 9% needed combined IABP-ECMO support. Nearly two-thirds underwent surgery, with in-hospital mortality of 45%; all survivors had surgery. Among those with VSD (n = 46), defects were apical in 50% and basal/posterior in 41%, 9% mid-septal. Mechanical support was common (IABP 32%, IABP + ECMO 9%), and 74% underwent surgical repair (26% requiring reoperation). In-hospital mortality was 52%, with only one survivor managed conservatively. Pseudoaneurysm (n = 22) had had the most favorable outcome: 82% were surgically repaired, yielding an in-hospital mortality of 22%, with only one non-operative survivor. Free wall rupture (n = 15) carried the worst prognosis. Only 40% underwent surgery. Overall survival was 7%, only one patient who underwent surgical repair (Figure 2).

Conclusions: Mechanical complications are rare but highly lethal post-MI events, especially without surgery. Over 15 years, nearly one hundred cases were identified, with approximately half of patients dying during hospitalization. Surgical management significantly improved survival, underscoring the need for early recognition, rapid stabilization, and timely intervention.

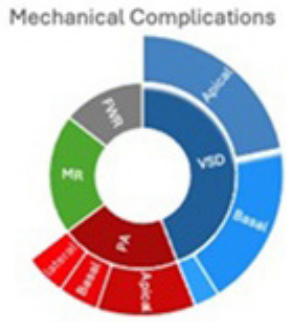

Figure 1a: Mechanical complication distribution and location

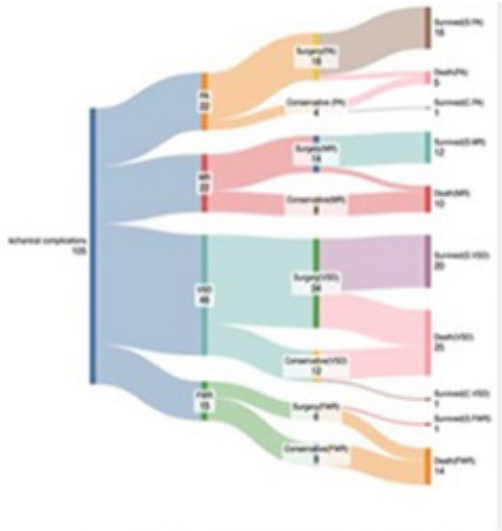

Figure 1b : Sankey that follows type of MC, intervention and outcome of studied population

Figure PO 237

PO 238. VENO-ARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION IN CARDIOGENIC SHOCK

Marta Catarina Ferreira de Almeida, André Lobo, Marta Leite, Inês Neves, Adelaide Dias, Marisa Silva, Marta Ponte, Pedro Teixeira, Gualter Silva, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Veno-arterial extracorporeal membrane oxygenation (ECMO) is a mechanical circulatory support (MCS) used in patients with cardiogenic shock (CS).
Objectives: The aim of the study was to identify predictors of ECMO implantation.
Methods: Retrospective analysis of CS patients in a cardiac unit in 5 years was conducted. Comorbidities, diagnosis, analytic data at presentation, SCAI classification, MCS used, and 30-days and 1-year mortality were registered. Chi-square, Mann-Whitney and logistic regression were used.

Table 1. Baseline characteristics, diagnosis, SCAI classification, analytic data at admission, mechanical circulatory support and mortality outcomes in patients with and without VA-ECMO

Characteristics	Total (n = 175)	No ECMO (n = 150)	ECMO (n = 25)	p value
Age, years, median [IQR]	67 [23]	71 [21]	56 [16]	**<0.001**
Female sex, n (%)	47 (26.9%)	37 (24.7%)	10 (40.0%)	0.142
Hypertension, n (%)	101 (57.7%)	93 (62.0%)	8 (32.0%)	**0.008**
Dyslipidemia, n (%)	99 (56.6%)	90 (60.0%)	9 (36.0%)	**0.030**
Diabetes, n (%)	61 (34.9%)	58 (38.7%)	3 (12.0%)	**0.011**
Active smoking, n (%)	75 (42.9%)	62 (41.3%)	13 (52.0%)	0.384
Obesity, n (%)	52 (29.7%)	47 (31.3%)	5 (20.0%)	0.346
Heart failure, n (%)	37 (21.1%)	34 (22.7%)	3 (12.0%)	0.296
Coronary artery disease, n (%)	39 (22.3%)	34 (22.7%)	5 (20.0%)	0.805
Atrial fibrillation/flutter, n (%)	22 (12.6%)	22 (14.7%)	0 (0%)	**0.047**
Diagnosis				**0.002**
Acute coronary syndrome, n (%)	112 (64.0%)	98 (65.3%)	14 (56.0%)	
Acute heart failure, n (%)	32 (18.3%)	30 (20.0%)	2 (8.0%)	
Electrical storm, n (%)	9 (5.1%)	6 (4.0%)	3 (12.0%)	
Myocarditis, n (%)	5 (2.9%)	1 (0.7%)	4 (16.0%)	
Progression of valvular disease, n (%)	5 (2.9%)	5 (3.3%)	0 (0%)	
Complete atrioventricular block, n (%)	5 (2.9%)	5 (3.3%)	0 (0%)	
Tachycardiomyopathy, n (%)	3 (1.7%)	3 (2.0%)	0 (0%)	
Cardiomyopathy (other), n (%)	4 (2.3%)	2 (1.3%)	2 (8.0%)	
SCAI classification				**<0.001**
Stage A, n (%)	14 (8.0%)	12 (8.0%)	2 (8.0%)	
Stage B, n (%)	28 (16.0%)	25 (16.7%)	3 (12.0%)	
Stage C, n (%)	65 (37.1%)	60 (40.0%)	5 (20.0%)	
Stage D, n (%)	41 (23.4%)	38 (25.3%)	3 (12.0%)	
Stage E, n (%)	27 (15.4%)	15 (10.0%)	12 (48.0%)	
Analytic data at admission				
Systolic BP, mmHg, median [IQR]	100 [45]	100 [36]	75 [108]	**0.033**
Hemoglobin, g/dL, median [IQR]	13.4 [4]	13.4 [3]	13.5 [5]	0.447
Creatinine, mg/dL, median [IQR]	1.3 [0.9]	1.3 [0.9]	1.4 [0.8]	0.625
NTproBNP, pg/mL, median [IQR]	5888 [11169]	6144 [11308]	2610 [10069]	0.070
High sens T troponin, ng/L, median [IQR]	499 [3009]	410 [2495]	2118 [9943]	0.087
Lactate, U/L, median [IQR]	2.9 [4]	2.6 [4]	5.4 [8]	**0.002**
C reactive protein, mg/dL, median [IQR]	1.7 [7]	1.9 [6]	1.2 [10]	0.933
Mechanical circulatory support				
Intra-aortic balloon pump / Impella®	63 (36.0%)	49 (32.7%)	14 (56.0%)	**0.041**
Mortality outcomes				
Death at 30 days, n (%)	70 (40.0%)	54 (36.0%)	15 (60.0%)	**0.028**
Death at 1 year, n (%)	79 (45.1%)	60 (40.0%)	15 (60.0%)	0.081

Figure PO 238

Results: In 175 patients with CS, 25 had ECMO implantation. A comparison of patients with and without ECMO use is in Table 1. Age was lower in patients with ECMO (56 *versus* 71 years, p < 0.001). History of hypertension (OR = 0.288, p = 0.008), dyslipidemia (OR = 0.375, p = 0.030), diabetes (OR = 0.216, p = 0.011) and atrial fibrillation (OR = 0.837, p = 0.047) were negatively associated with ECMO implantation. Diagnosis (R^2 = 0.213, p = 0.002) and SCAI classification (R^2 = 0.185, p < 0.001) correlated with ECMO. Lower systolic blood pressure (p = 0.033) and higher lactate levels (p = 0.002) were verified in patients submitted to ECMO. Logistic regression predicted ECMO use (R^2 0.534, p < 0.001), but only age (p 0.006) and SCAI classification (p 0.016) remained significant in the multivariable model. Intra-aortic balloon pumps (IABP) or Impella® heart pump use was higher in ECMO patients (OR = 2.623, p = 0.041). Mortality was different only at 30-days (OR 2.667, p 0.028).
Conclusions: Younger age and greater initial severity as reflected by higher SCAI classification were independent predictors of ECMO implantation. Patients older and with comorbidities had lower odds of ECMO support. Patients supported tended to have severe hemodynamic compromise (class E of SCAI in almost half, lower systolic blood pressure, higher lactate levels, higher need for IABP/Impella®). These findings highlight tailored ECMO implantation selection primarily driven by patient age and shock severity at presentation.

Sábado, 25 Abril de 2026 | 14:30-15:25

Área de Posters - Ecrã 1 | Sessão de Posters 41 - Intervenções estruturais cardíacas e resultados

PO 239. SIMPLE, YET POWERFUL: THE MITRASCORE AS A PREDICTOR OF MORTALITY AFTER MITRAL TRANSCATHETER EDGE-TO-EDGE REPAIR

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Introduction: The MitraScore is a recently developed risk stratification tool designed to predict mortality after mitral transcatheter edge-to-edge repair (M-TEER). It integrates eight easily obtainable clinical parameters into a single score, allowing for rapid bedside assessment. However, its external validation in real-world populations remains limited.
Objectives: To evaluate the prognostic performance of the MitraScore in predicting all-cause mortality among patients undergoing M-TEER at our centre.
Methods: We conducted a retrospective single-centre study including all consecutive patients who underwent M-TEER between 2013 and October 2025. Clinical and laboratory data were obtained from electronic medical records. The MitraScore was calculated by assigning one point for each of the following: age ≥ 75 years, anemia, eGFR < 60 mL/min/1.73 m^2, left ventricular ejection fraction (LVEF) < 40%, peripheral artery disease, chronic obstructive pulmonary disease, high-dose diuretics, and absence of renin-angiotensin system inhibitor therapy. Survival was analysed using Kaplan-Meier curves and Cox regression. Diagnostic accuracy of the MitraScore for all-cause mortality was assessed using ROC analysis.
Results: A total of 95 procedures were performed, with 86 patients included in the final analysis (mean age 74 ± 11 years, 63% male). Underlying heart disease was primary mitral regurgitation in 43%, ischemic cardiomyopathy in 29%, non-ischemic dilated cardiomyopathy in 27%, and hypertrophic cardiomyopathy in 1%. Mean LVEF was 44 ± 15%, hemoglobin 12.6 ± 1.8 g/dL, and eGFR 50 ± 22 mL/min/1.73 m^2. Peripheral artery disease and COPD were present in 11% and 15% of patients, respectively. Over a median follow-up of 42 months, all-cause mortality was 22%, 35%, and 59% at 12, 24, and 60 months, respectively. Mean MitraScore was 3 ± 1. The score demonstrated good discriminatory performance (AUC = 0.686), with each 1-point increase associated with a 50% higher risk of mortality (HR 1.50; 95%CI 1.21-1.86; *p* < 0.001). The optimal cut-off for mortality prediction was ≥ 3 (70% sensitivity, 68% specificity).
Conclusions: The MitraScore showed good performance in predicting all-cause mortality after M-TEER in our real-world cohort, confirming its validity as a simple and practical risk stratification tool in this population.

PO 240. THE RIGHT HEART'S NEW REALITY: A LONGITUDINAL ASSESSMENT AFTER TRANSCATHETER TRICUSPID VALVE REPLACEMENT WITH EVOQUE

Tatiana Pereira dos Santos, Ana L. Silva, Gonçalo Ferraz Costa, Ana Botelho, José Luís Martins, Manuel Santos, Luís Paiva, Elisabete Jorge, Marco Costa, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

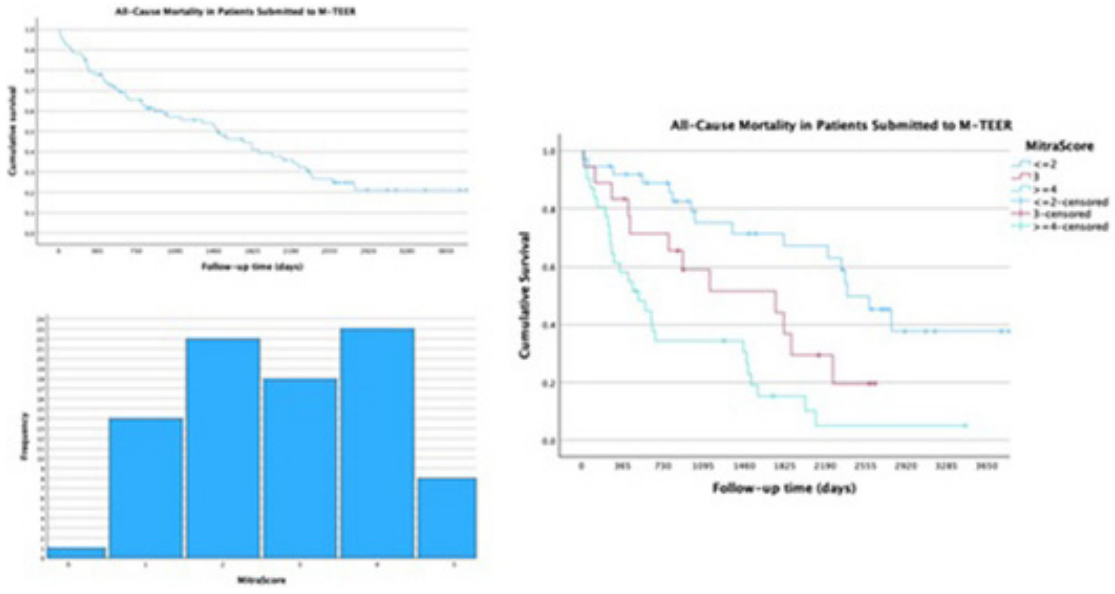
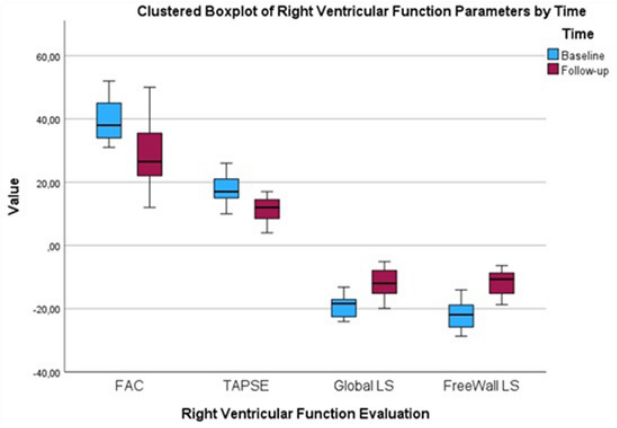


Figure PO 239

Introduction: Severe tricuspid regurgitation (TR) can now be treated with Transcatheter Tricuspid Valve Replacement (TTVR) using the EVOQUE system. Right ventricular (RV) dysfunction predicts adverse outcomes, but the long-term effects of TTVR on RV performance is unclear.
Methods: Single-center prospective analysis of patients who underwent TTVR between October 2024-October 2025. RV function was assessed by echocardiography using tricuspid annular plane systolic excursion (TAPSE), fractional area change (FAC), and both global and free-wall right ventricular longitudinal strain before and after TTVR. Median imaging follow-up (FUP) was 2 months (IQR 1-5). Secondary endpoints were heart-failure hospitalization and all-cause mortality.
Results: The cohort included 18 patients (55.6% female; median age 79.5 (IQR 10) years). Hypertension was present in 88.9%, diabetes in 16.7%, atrial fibrillation in 94.5%, and chronic kidney disease in 50%. Most patients (55.6%) had torrential TR, whereas 27.8% had severe and 16.7% massive TR. Median NT-proBNP was 1,801.5 pg/mL (IQR 3,084.8). Seventeen patients underwent baseline right-heart catheterization, 70.6% (12/17) had pulmonary hypertension. Hemodynamic values included mean pulmonary artery pressure 23.8 ± 1.8 mmHg, right atrial pressure 10.8 ± 1.2 mmHg, pulmonary vascular resistance 2.5 ± 0.4 WU, and cardiac index 2.1 (IQR 0.76) L/min/m^2. FUP echocardiography was performed in 16 patients and showed significant declines across all RV parameters: TAPSE (17.5 ± 1.3 vs. 10.1 ± 1.2 mm), FAC (39.8 ± 2.1% vs. 28.1 ± 2.8%), RV global strain (-19.3 ± 1.1% vs. -11.9 ± 1.4%), and RV free-wall strain (-22.4 ± 1.4%vs.-11.8 ± 1.2%) (p < 0.001). TR in FUP was as follows: 22.1% no/trace, 55.6% mild, and 11.1% moderate. All-cause mortality was 11.1% (2 patients) with 2 heart-failure hospitalizations. No associations were found between invasive or pre-TTVR echocardiographic parameters and adverse events, which may be related to the limited sample size.



Conclusions: TTVR was associated with a short-term decline in RV functional indices, likely from acute afterload mismatch after TR elimination. This early change appears to reflect RV remodeling rather than irreversible dysfunction. Because prosthesis-related restriction limits TAPSE reliability, RV strain and 3D volumetric imaging (using cardiac magnetic resonance) may better assess post-TTVR RV performance. Larger, long-term studies may clarify RV remodeling trajectories and identify patients most likely to benefit clinically.

PO 241. DETERMINANTS AND PROGNOSTIC IMPACT OF RESIDUAL MITRAL REGURGITATION AFTER TRANSCATHETER EDGE-TO-EDGE REPAIR

C. Santos-Jorge, Rita Barbosa Sousa, Débora Silva Correia, Márcia Presume, Marisa Trabulo, Afonso Félix de Oliveira, Pedro Gonçalves, Eduardo Infante Oliveira, João Brito, Regina Ribeiras, Rui Campante Teles, Manuel Almeida

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Percutaneous edge-to-edge (E2E) transcatheter mitral repair has become an established therapeutic option for patients with moderate-to-severe or severe mitral regurgitation (MR) who are at high surgical risk. Long-term clinical outcomes and predictors of adverse events remain incompletely defined. This study aimed to characterize a real-world cohort undergoing E2E mitral repair and to identify clinical and echocardiographic factors associated with mortality and heart failure (HF) hospitalization after the procedure.
Methods: We retrospectively evaluated 107 consecutive patients deemed eligible and treated with transcatheter E2E mitral repair between 2015 and 2025 at a single center. Clinical, echocardiographic, and procedural data were collected and analyzed.
Results: The median age was 77 years (IQR 69-82), and 66 (61.7%) were male. Ischemic etiology was present in 20 (18.7%) cases, and secondary MR in 66 (61.7%). Most patients were in advanced functional class [New York Heart Association (NYHA) III-IV, 68.3%] and under diuretic therapy (n = 92, 86%). The median left ventricular ejection fraction was 45% (IQR 36-55), and NT-proBNP levels were 2,483 pg/mL (IQR 1,090-6,569). Following the intervention, MR reduction to mild was achieved in 60 (64.5%) patients. At one-year follow-up, 27 (25.2%) had required hospitalization for HF and 18 (16.8%) had died. Higher pre-procedural effective regurgitant orifice area (EROA; p = 0.045) and left ventricular end-diastolic volume (p = 0.029) were independently associated with more severe post procedural MR, as was the presence of atrial fibrillation (p = 0.048). Increasing residual MR severity was significantly related to both HF hospitalization (p = 0.013) and all-cause mortality (p = 0.029). Increasing MR severity independently predicted higher NYHA classification and therefore worse functional status (p = 0.004).
Conclusions: Transcatheter E2E mitral repair led to reduction of MR severity and improvement in functional capacity. Residual MR is associated to adverse outcomes and independently linked to higher heart failure hospitalization, mortality, and poorer functional recovery. Optimizing MR reduction through careful patient selection and procedural refinement is essential to maximize long-term survival and quality-of-life benefits.

PO 242. IS ROUTINE ANGIOGRAPHIC FOLLOW-UP NECESSARY AFTER DCB ANGIOPLASTY? INSIGHTS FROM A FOUR-YEAR SINGLE-CENTRE REGISTRY

José Luís Ferraro, Inês Bastos Castro, Carla Almeida, Joel Ponte Monteiro, Rui Pontes Dos Santos, Ana Rodrigo Costa, Rafaela Gonçalves Lopes, Inês Gomes Campos, Aurora Andrade

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Introduction: The role of routine angiographic reassessment after percutaneous coronary intervention (PCI) remains debated, particularly in the context of drug-coated balloon (DCB) angioplasty. This study evaluates whether planned angiographic follow-up provides meaningful clinical or procedural benefit after successful DCB treatment.
Methods: Consecutive patients treated with DCB between May 2021 and May 2025 were included. Demographic, procedural and angiographic data were analysed. De decision for angiographic reassessment was scheduled on operator basis. These patients were compared at follow up to identified clinically relevant findings or changed management.
Results: A total of 150 patients were included, of whom 16 (10.7%) underwent planned angiographic reassessment and 134 (89.3%) did not. The mean time to angiographic reassessment was 82 days. Baseline demographic characteristics were similar between groups (mean age 67.25 ± 10.32 vs. 63.69 ± 9.76 years, p = 0.229, predominantly men (p = 0.841). Cardiovascular risk burden was high with no significant differences between the two groups for hypertension, dyslipidemia, diabetes mellitus, or previous coronary disease. Clinical presentation (STEMI, NSTEMI, unstable angina, CCS) at admission was similar between groups (p = 0.126). The proportion of intra-stent restenosis versus *de novo* lesions was comparable (p = 0.259). The prevalence of chronic total occlusions (CTO) was significantly higher in the planned angiographic follow-up group compared with the no-follow-up group (37.5% vs. 1.5%, p < 0.001). There were no significant differences in DEB diameter (2.69 ± 0.56 vs. 2.59 ± 0.39 mm, p = 0.867), DEB length (18.42 ± 4.9 vs. 21.25 ± 5.3 mm, p = 0.368) or inflation time (69.9 ± 21.8 vs. 64.7 ± 13.1 seconds, p = 0.433). All control angiographies showed preserved angiographic results, with no need for additional optimisation or further

therapeutic intervention. Findings were consistent across subgroups, including non-small-vessel, ISR and bifurcation subgroups.
Conclusions: In this real-world cohort, DCB-treated lesions showed durable angiographic stability and extremely low rates of clinically driven repeat procedures. The absence of actionable findings in all patients undergoing scheduled angiographic reassessment strongly suggests that routine planned angiographic surveillance after successful DCB-PCI could be unnecessary. A follow-up strategy driven by symptoms or clinical change appears safe and appropriate.

PO 243. LONG-TERM OUTCOMES AFTER TEER FOR PRIMARY MITRAL REGURGITATION: CLINICAL AND ECHOCARDIOGRAPHIC PREDICTORS FROM A 10-YEAR COHORT

Francisco Lemos Sousa[1], Francisca Nunes[1], Maria Leonor Moura[1], Inês Rodrigues[1], António Gonçalves[1], André Lobo[1], Marta Almeida[1], Sílvia Diaz[2], Gustavo Pires de Morais[1], Bruno Melica[1], Ricardo Fontes-Carvalho[1]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Transcatheter edge-to-edge repair (TEER) is guideline-endorsed for symptomatic primary mitral regurgitation (PMR) in patients at elevated surgical risk. Long-term outcomes remain variable, and robust predictors of mortality or heart-failure (HF) hospitalization after TEER are not well established.
Methods: We conducted a retrospective single-centre cohort study including consecutive PMR patients who underwent TEER between 2015-2025. The primary endpoint was a composite of all-cause mortality or HF hospitalization. Time-to-event analyses were performed using Cox proportional hazards models. Variables with clinical relevance and/or p < 0.10 in univariable analyses were entered into multivariable modelling. Hazard ratios (HRs) with 95% confidence intervals (CI) were reported.
Results: Among 67 patients, mean age was 78 ± 8 years; 39 (58%) were male and 41 (61%) had atrial fibrillation (AF). Moderate-or-greater tricuspid regurgitation (TR) was present in 46 (69%). During follow-up, 33 (49.3%) reached the primary endpoint. In univariable Cox analysis, baseline left-atrial (LA) volume (HR 1.006 per mL; 95%CI 1.002-1.010; p = 0.008) and moderate-or-greater TR (HR 2.45; 95%CI 1.01-5.98; p = 0.048) were associated with the endpoint, while AF showed a nonsignificant trend (HR 2.19; p = 0.057). In the multivariable model, LA volume remained the only independent predictor (HR 1.005 per mL; 95%CI 1.000-1.010; p = 0.032), whereas TR (HR 1.26; p = 0.675) and AF (HR 1.37; p = 0.537) were not independently associated with outcomes.
Conclusions: In this 10-year TEER cohort, larger baseline LA volume was the only variable independently associated with the composite outcome of death or HF hospitalization in our model. These findings suggest that left-atrial enlargement may hold prognostic value after TEER for PMR, although validation in larger, adequately powered studies is required.

PO 244. MITRAL VALVE REGURGITATION: EMERGING THERAPIES AND THEIR LONG-TERM IMPACT

Rita Barbosa Sousa, Catarina Santos-Jorge, Afonso Félix de Oliveira, João Brito, Sara Guerreiro, Pedro Gonçalves, Pedro Freitas, Eduardo Infante Oliveira, Marisa Trabulo, Manuel Almeida, Regina Ribeiras, Rui Campante Teles

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Mitral regurgitation (MR) can significantly impair patients' quality of life and, without timely intervention, may progress to heart failure and increase the risk of death. In recent years, transcatheter edge-to-edge mitral valve repair (MTEER) and transcatheter mitral valve replacement (TMVR) have emerged as an important therapeutic strategy.
Objectives: To examine the clinical course of patients with moderate-to-severe or severe MR and to determine the impact of percutaneous treatment on cardiovascular hospitalization and mortality.
Methods: Single center retrospective analysis of patients with moderate-to-severe or severe MR demonstrated in transesophageal echocardiogram (TOE) performed between 2016 to 2025. We evaluated baseline characteristics and whether patients were treated with surgery, percutaneously or conservative management. The primary outcome was a composite of cardiovascular hospitalization and mortality. Secondary outcomes included the individual components of the primary outcome, NYHA class, NT-proBNP levels, and furosemide dose at 1y-follow-up.
Results: A total of 362 patients were included (63% male; median age 77 years [IQR 67-84] and median EuroScore 3.2 [IQR 1.9-5.0]). Most patients had severe MR (75%, n = 82). In the group of patients referred for surgery (n = 127, 35%), individuals were younger (p < 0.001), had a lower median EuroScore (p < 0.001) and median NT-proBNP levels (p = 0.002), fewer presented with NYHA class III-IV (p < 0.001) and most had primary MR (92%, n = 117). Consequently, they had less primary outcome events at 1y (9%, p < 0.001), with no cardiovascular hospitalizations. In the group of patients treated percutaneously (n = 109, 30%), MTEER was performed in 100 patients

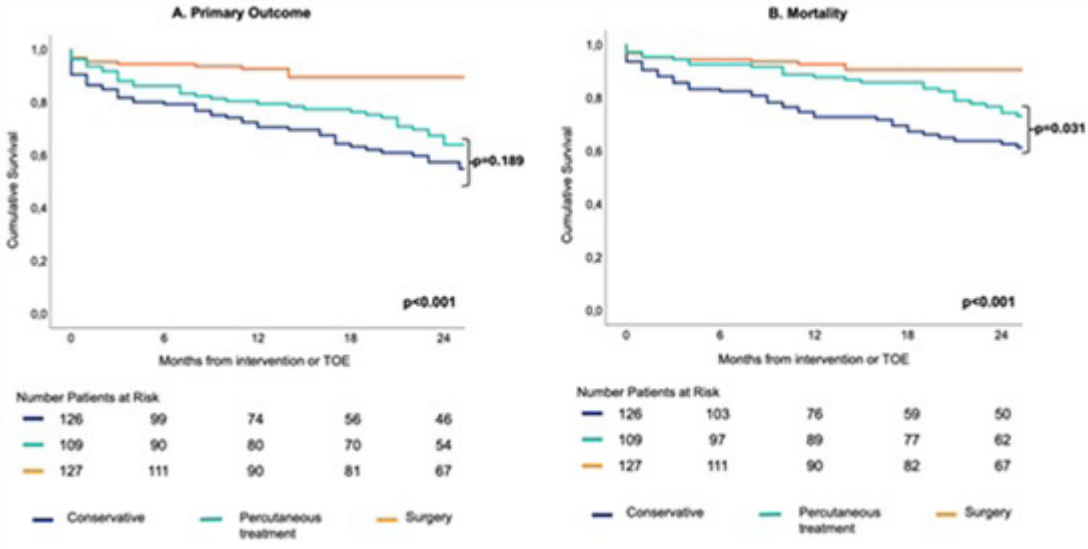


Figure 1 - Kaplan–Meier estimates of primary outcome **(A)** and mortality **(B)** and during follow-up.

Figure PO 244

and 9 underwent TMVR. Compared with the conservatively treated group (n = 126, 35%), patients receiving percutaneous therapy were more frequently ischemic (p = 0.006) with secondary MR etiology (p < 0.001), more symptomatic (p < 0.001) and requiring higher furosemide doses (p = 0.009). At 1-year follow-up, the percutaneous treatment group had lower mortality (12% vs. 26%, p = 0.031). There were no significant differences in the primary outcome, cardiovascular hospitalizations or other secondary outcomes. However, at 1-year follow-up after percutaneous treatment, patients showed a significant reduction in MR severity (p < 0.001), NYHA class (p < 0.001), and furosemide dose (p = 0.001), with no significant change in NT-proBNP levels (p = 0.558). In contrast, patients managed conservatively experienced an increase in NT-proBNP (p < 0.001), worsening NYHA class (p < 0.001), and a higher furosemide dose (p = 0.029).
Conclusions: M-TEER and TMVR proved to be safe procedures that can save lives and improve quality of life when applied in carefully selected candidates.

Sábado, 25 Abril de 2026 | 14:30-15:25

Área de Posters - Ecrã 2 | Sessão de Posters 42 - Para além da hipertrofia: as faces ocultas da doença miocárdica

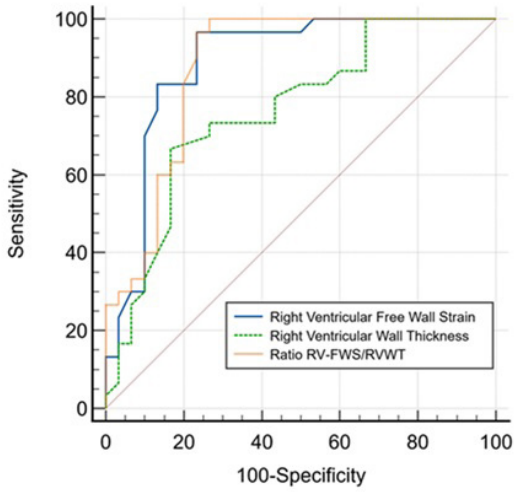
PO 245. DIAGNOSTIC PERFORMANCE OF RIGHT VENTRICLE WALL THICKNESS, STRAIN, AND THEIR RATIO IN DIFFERENTIATING FABRY CARDIOMYOPATHY FROM WILD-TYPE TRANSTHYRETIN CARDIAC AMYLOIDOSIS

Bárbara Lage Garcia, Luísa Pinheiro, Emídio Mata, Tamara Pereira, Margarida de Castro, Daniela Ferreira, Mário Lourenço, Filipa Cordeiro, Marina Fernandes, Lucy Calvo, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Cardiac involvement in Fabry disease (FD) and wild-type transthyretin cardiac amyloidosis (CA) often overlaps, complicating differential diagnosis. Two-dimensional speckle-tracking echocardiography (2D-STE) enables detailed assessment of right ventricular (RV) mechanics. Parameters such as RV free wall strain (RV-FWS), wall thickness (RVWT), and their ratio integrate structural and functional information, potentially improving diagnostic accuracy.
Objectives: To assess the diagnostic performance of RVWT, RV-FWS, and the RV-FWS/RVWT ratio in differentiating FD from CA.
Methods: This retrospective study included FD (n = 30) and CA (n = 30) patients referred for cardiomyopathy evaluation between 2014 and 2021. RV was assessed by echocardiography and 2D-STE by two blinded researchers. RV-FWS was analysed in absolute values. Diagnostic performance was evaluated using receiver operating characteristic (ROC) curve analysis, with pairwise ROC comparisons performed by DeLong's method.
Results: CA patients were significantly older compared to FD patients (84 ± 5 vs. 53 ± 7.25 years; p < 0.001). NT-proBNP levels were markedly higher in CA compared to FD (5,841 ± 11,742 vs. 467 ± 1,203 pg/mL; p < 0.001). Cardiac parameters revealed significantly lower RV-FWS in CA (15.9 ± 6.3%) versus FD (25.0 ± 4.0%; p < 0.001), higher RVWT in CA (9.0 ± 1.75 mm) versus FD (7.42 ± 1.08 mm; p < 0.001), and a lower RV-FWS/RVWT ratio in CA (1.91 ± 1.0) compared to FD (3.43 ± 0.7; p < 0.001). In ROC analysis, RV-FWS demonstrated an area under the curve (AUC) of 0.89 [0.78-0.96] (p < 0.001) with a cutoff of > 18.8 to identify FD (sensitivity: 96.7%; specificity:76.7%). RVWT showed an AUC of 0.76 [0.64-0.87] (p < 0.001) with a cutoff of ≤ 7.7 to identify FD, (sensitivity: 66.7%; specificity: 83.3%). The RV-FWS/RVWT ratio exhibited an AUC of 0.88 [0.77-0.95] (p < 0.001) with a cutoff of > 2.21 to identify FD (sensitivity: 100%; specificity: 73.3%). Pairwise comparisons showed no difference between RV-FWS and RV-FWS/RVWT (p = 0.763), a borderline difference between RV-FWS and RVW T (p = 0.072), and a significant difference between RVWT and RV-FWS/RVWT (p = 0.017).

Diagnostic Utility of RV Wall Thickness and Strain Ratio in Differentiating Fabry's Cardiomyopathy and Wild-Type Transthyretin Cardiac Amyloidosis



Conclusions: The findings suggest that RV-FWS provides valuable insights for the differential diagnosis of FD and CA. However, the RV-FWS/RVWT ratio does not seem to add significant value to diagnostic accuracy, as there was no significant difference in its performance compared to RV-FWS alone. Further validation in larger cohorts is warranted to confirm these findings.

PO 246. INTEGRATED EDEMA-TROPONIN PHENOTYPING REVEALS DISTINCT INFLAMMATORY AND STRUCTURAL PROFILES IN ACUTE MYOCARDITIS

Francisca Martins Nunes, Francisco Lemos de Sousa, Leonor Moura, Inês Rodrigues, António Gonçalves, André Lobo, Marta Catarina Almeida, Inês Neves, Marta Leite, Rita Faria, Nuno Dias Ferreira, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Acute myocarditis shows heterogeneous inflammatory and structural involvement. Troponin reflects necrosis, whereas CMR edema represents inflammatory burden; however, their combined use to define clinically meaningful phenotypes remains unexplored. We aimed to classify patients using integrated edema-troponin profiles and compare structural, functional and biochemical characteristics across phenotypes.
Methods: We studied 126 patients with acute myocarditis. Edema extent and troponin T were dichotomized at the medians (6 segments; 884 ng/L), generating four phenotypes: High-Edema/High-TnT (1), High-Edema/Low-TnT (2), Low-Edema/High-TnT (3) and Low-Edema/Low-TnT (4, reference). Global differences were assessed with Kruskal-Wallis tests and pairwise Mann-Whitney U comparisons. Outcomes included LDH, NT-proBNP, indexed left ventricular mass (LVMi), left ventricular ejection fraction (LVEF) and follow-up late gadolinium enhancement (LGE) burden.
Results: Significant overall differences were observed for LDH (p < 0.001), LVMi (p = 0.003), LVEF (p = 0.007), NT-proBNP (p = 0.018) and LGE extent (p = 0.001). Phenotype 1 showed markedly higher LDH (p < 0.001), increased LVMi (p < 0.001), higher NT-proBNP (p = 0.0019), lower LVEF (p = 0.009) and greater fibrosis (p = 0.001) versus phenotype 4. Phenotype 2 showed elevated NT-proBNP (p = 0.033) and reduced LVEF (p = 0.004). Phenotype 3 displayed increased LDH (p = 0.001) but preserved structural and functional measures. Discussion: Integrating edema and troponin demonstrated four biologically coherent phenotypes. High-Edema/High-TnT reflected

concordant inflammatory-necrotic injury, explaining its greater remodeling, dysfunction and fibrosis, in line with existing CMR-pathology correlations. High-Edema/Low-TnT represented predominantly inflammatory injury with transient dysfunction, whereas Low-Edema/High-TnT corresponded to a necrotic-dominant mismatch with minimal structural involvement. The Low-Edema/Low-TnT phenotype aligned with mild or resolving myocarditis. These findings highlight that edema and troponin capture complementary injury pathways.
Conclusions: A simple edema-troponin classification identifies clinically relevant myocarditis phenotypes with distinct biological, structural and functional profiles, offering a practical tool to refine early risk assessment.

PO 247. PROGNOSTIC VALUE OF NUTRITIONAL AND FUNCTIONAL STATUS IN PATIENTS WITH ATTR-CM: INSIGHTS FROM A TERTIARY REFERRAL CENTER

Maria Inês Vicente Soares, Rita Almeida Carvalho, Rui Gomes, Débora Correia, Rita Amador, Tânia Laranjeira, Carlos Aguiar, Sérgio Maltês, Bruno Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

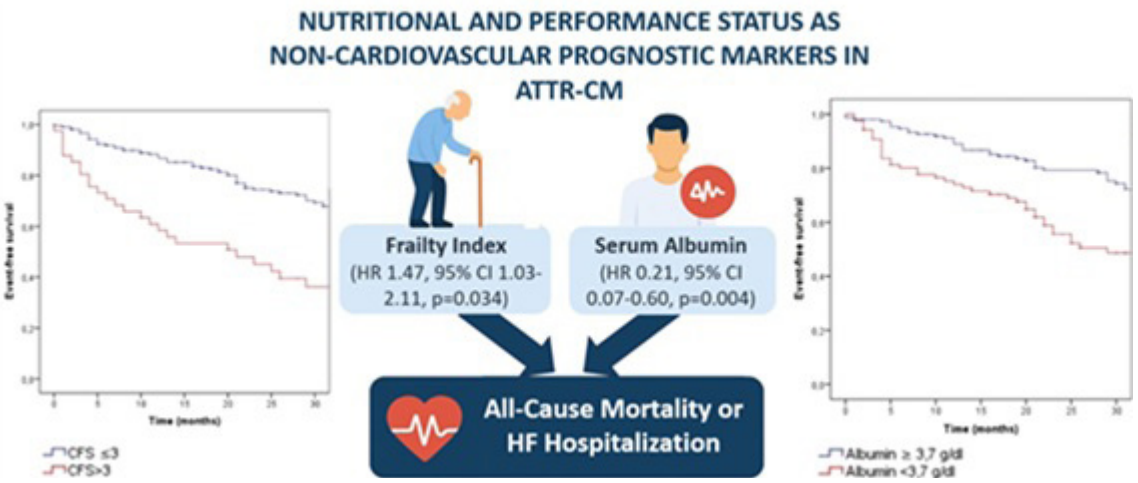
Introduction: Nutritional and performance status assessed by serum albumin and Clinical Frailty Scale (CFS) are well-recognized prognostic markers in patients with Heart Failure (HF). Their added value in transthyretin cardiac amyloidosis (ATTR-CM) relative to other well-established markers remains to be further elucidated.
Objectives: To evaluate the prognostic impact of serum albumin and frailty in ATTR-CM.
Methods: All consecutive patients diagnosed with ATTR-CM followed in our center from 2019-2025 were included. As per site protocol, serum albumin and CFS are systematically measured at the time of diagnosis, and made available in the electronic chart. The primary endpoint was a composite of all-cause death or first hospitalization for HF. Optimal cut-off values were determined by ROC curve analysis. Kaplan-Meier curves were generated to estimate event-free survival. Univariate and multivariable logistic regression model was then performed, adjusting for clinically relevant variables.
Results: A total of 279 patients were included (82% male; mean age: 83 ± 7 years; 62% on tafamidis; median serum albumin 3.8 [3.5-4.0] g/dL; median CFS 3 [2-4]). ROC curve analysis identified albumin < 3.7 g/dL and CFS > 3 as the optimal cutoffs (sensitivity 49% and 68%, and specificity 54% and 94%, respectively). Patients with serum albumin < 3.7 g/dL had significantly worse NYHA (III-IV: 32 vs. 15%; p = 0.004) and higher NT-proBNP (3,359 vs. 2,140 pg/mL; p = 0.004). Likewise, those with a CFS > 3 were more likely to have worse NYHA (III-IV: 38 vs. 17%; p = 0.001) and higher NT-proBNP (5,718 vs. 2,140 pg/mL; p = 0.002), and presented with a higher prevalence of atrial fibrillation (85 vs. 63%; p = 0.003), lower serum albumin (3.6 vs. 3,8 g/dL; p = 0.021), and more often with persistent peripheral congestion (59 vs. 39%; p = 0.01) and combined diuretic therapy with mineralocorticoid receptor antagonists (52 vs. 35%; p = 0.023). In multivariable logistic regression (adjusted for age, left ventricular ejection fraction, NT-proBNP, NYHA, and tafamidis therapy), both albumin (HR 0.22; 95%CI 0.09-0.54; p = 0.001) and CSF (HR 1.43; 95%CI 1.03-1.98; p = 0.032) were independently associated with the primary outcome. Moreover, both markers predicted adverse events consistently across age groups, disease stages, and tafamidis treatment status (Central Figure).
Conclusions: We found that serum albumin and CFS were independently associated with a higher incidence of all-cause mortality or HF hospitalization in ATTR-CM. These easily obtainable clinical measures underscore the importance of incorporating nutritional and functional status assessment as part of the routine risk stratification strategy, adding value beyond traditional cardiovascular parameters.

PO 248. GENETIC TESTING IN PATIENTS WITH TRANSTHYRETIN AMYLOID CARDIOMYOPATHY (ATTR-CM): HIGH DIAGNOSTIC YIELD IN PATIENTS PRESENTING WITH HEART FAILURE

Maria Inês Vicente Soares, Mariana Ramos, Rita Amador, Rui Gomes, Débora Correia, Tânia Laranjeira, Carlos Aguiar, Sérgio Maltês, Bruno Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Cardiac Amyloidosis (ATTR-CM) results from the deposition of wild-type (wtATTR-CM) or mutated/variant (hATTR-CM) transthyretin in the myocardium. Differentiating these subtypes is essential to guide targeted therapies, genetic counselling and family screening.
Objectives: To evaluate the temporal trends of genetic testing and the diagnostic yield in patients diagnosed with ATTR-CM.
Methods: Single-center retrospective study including consecutive patients with ATTR-CM followed in a dedicated cardiomyopathy unit care, up to November 2025. Diagnosis of cardiac amyloidosis followed the recommended multi-step algorithm. Genetic testing for transthyretin variants was performed using next-generation sequencing (NGS), with confirmation by Sanger sequencing. All transthyretin (TTR) variants were classified according to ACMG guidelines.
Results: A total of 304 patients with confirmed ATTR-CM were included, corresponding to a mean of 43 diagnoses per year (33 in 2019, 14 in 2020, 42 in 2021, 72 in 2022, 53 in 2023, 59 in 2024 and 31 in 2025). Of these, 196 patients (64%) underwent genetic testing (mean age of 82 ± 7 years, 80% male), corresponding to an average of 28 test requests per year. When analyzed per year, 15%, 43%, 39%, 43%, 43%, 59% and 64% of the cohort in 2019 to 2025, respectively, were genetically tested. The number of tests increased steadily from the start of the program (5 in 2019; 15 in both 2020



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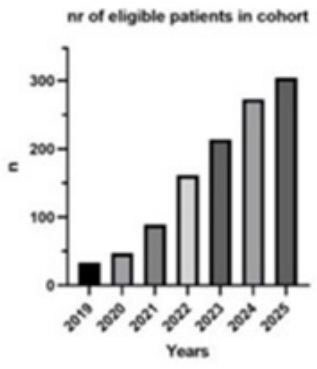

Figure 1 – Nr of eligible patients in cohort from 2019 to 2025

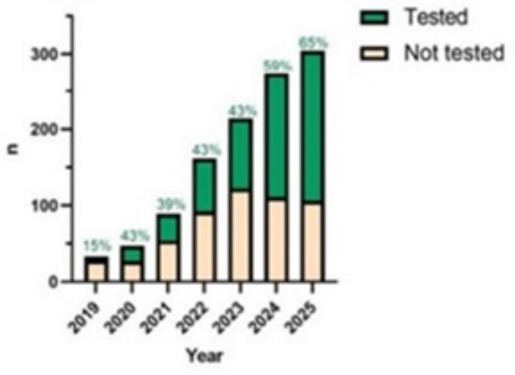

Figure 2 – Proportion of genetically tested vs untested patients in cohort from 2019 to 2025

	Age (years)	Sex	Variant	Zygosity	Clinical Presentation	Extracardiac Manifestations
1	77	Female	Val50Met	Heterozygous	Atrial fibrillation	Polyneuropathy
2	75	Male	Val142Ile	Heterozygous	Atrial fibrillation	Bilateral CTS
3	74	Male	Val142Ile	Heterozygous	Heart Failure	Bilateral CTS
4	71	Male	Val50Met	Heterozygous	Heart Failure	Severe polyneuropathy; Bilateral CTS
5	78	Male	Val142Ile	Heterozygous	Heart Failure	--
6	87	Male	Val142Ile	Heterozygous	Heart Failure	Lumbar canal stenosis
7	80	Female	Val142Ile	Heterozygous	Heart Failure	--
8	67	Male	Val142Iso	Heterozygous	Heart Failure	--
9	71	Male	Val50Met	Heterozygous	Heart Failure	Severe polyneuropathy
10	72	Male	Val50Met	Heterozygous	Bradyarrythmia	Severe polyneuropathy
11	75	Male	Val50Met	Heterozygous	Heart Failure	--
12	76	Female	Val50Met	Heterozygous	Bradyarrythmia	Polyneuropathy
13	78	Male	Val50Met	Heterozygous	Heart Failure	Polyneuropathy
14	69	Female	Val142Ile	Heterozygous	Heart Failure	--
15	68	Male	Val142Ile	Heterozygous	Heart Failure (incidental finding DCM study)	--
16	74	Male	Val142Ile	Homozygous	Heart Failure	CTS
17	63	Male	Val142Ile	Heterozygous	Heart Failure	--
18	67	Female	TTR Val142Ile	Heterozygous	Heart Failure	--
19	84	Male	TTR Val142Ile	Heterozygous	Heart Failure	--
20	73	Male	TTR Val50Met	Heterozygous	Heart Failure	Polyneuropathy
21	60	Male	TTR Val142Ile	Heterozygous	Heart Failure	--

Table 1 – Summary of characteristics of patients with positive genetic testing after confirmed ATTR-CM in the cohort

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and 2021; 34 in 2022; 23 in 2023; 70 in 2024; 36 in 2025 - with 25 additional ongoing tests). Pathogenic TTR variants were identified in 21 patients (11%). These patients presented with a mean age of 73 ± 7 years (range 41-93). The most frequently identified variant was Val142Ile (n = 13), followed by Val50Met (n = 8). Compared with wtATTR-CM, those with hATTR-CM were significantly younger (73 ± 7 vs. 81 ± 6 years; p < 0.001). No significant differences were noted in cardiac disease severity at baseline. Most hATTR-CM patients presented firstly with cardiovascular manifestations, mainly heart failure (HF) (76%, n = 16). Additionally, two patients presented with atrial fibrillation and other two with severe bradycardia requiring pacing. Extra-cardiac features varied by genotype: there was a higher burden of peripheral polyneuropathy in Val50Met carriers, whereas Val142Ile carriers generally showed minimal or mild extra-cardiac manifestations, with occasional subtle features (e.g., bilateral carpal tunnel syndrome).

Conclusions: Genetic testing has progressively become part of the standard of care in ATTR-CM. We found a diagnostic yield of 11% in ATTR-CM population presenting primarily with HF. Our study supports the standardization of routine genetic testing, as the identification of hATTR-CM has direct implications for targeted therapies, cascade screening and follow-up of relatives.

PO 249. A PROPENSITY-MATCHED COHORT STUDY ON ANGIOTENSIN-CONVERTING ENZYME INHIBITORS AND ANGIOTENSIN II RECEPTOR BLOCKERS THERAPY IN TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

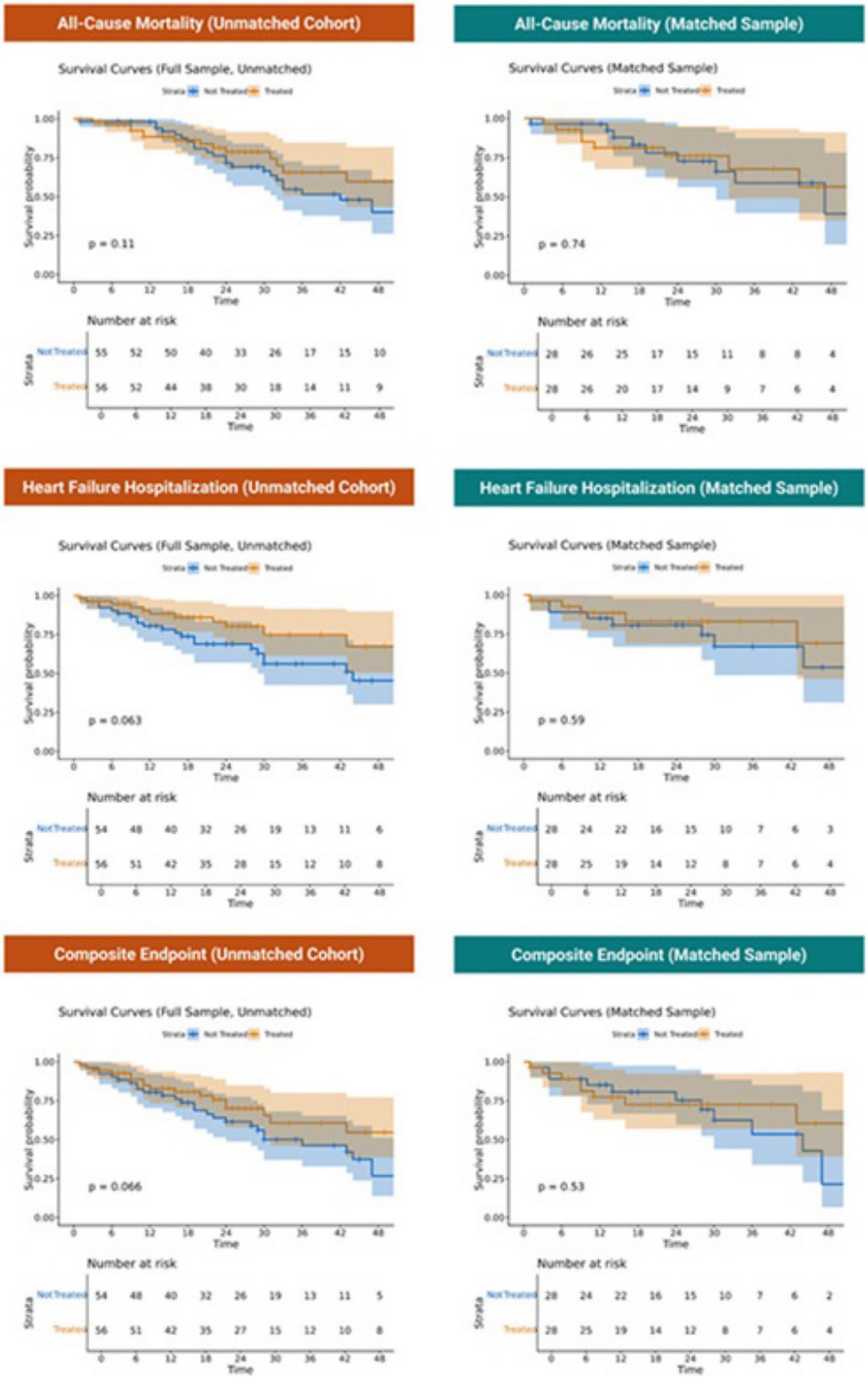
Emídio Mata, Luísa Pinheiro, Margarida Castro, Bárbara Lage Garcia, Tamara Pereira, Filipa Cordeiro, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Evidence supporting the use of angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers (ACEI/ARB) in heart failure (HF) due to transthyretin amyloid cardiomyopathy (ATTR-CM) remains limited.

Objectives: To evaluate the association between ACEI/ARB therapy and clinical outcomes in patients with ATTR-CM.

Methods: We performed a single-center, retrospective cohort study of consecutive patients with confirmed ATTR-CM diagnosed between 2014 and 2023 (n = 110). Patients were classified as ACEI/ARB-treated or untreated. Propensity score (PS) matching using 12 clinical covariates



Kaplan–Meier survival curves comparing patients with transthyretin amyloid cardiomyopathy (ATTR-CM) who were treated with angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers (ACEI/ARB) versus those who were not. Outcomes are presented for the unmatched (left) and propensity score–matched (right) cohorts and include all-cause mortality (top), heart failure hospitalization (middle), and the composite of all-cause mortality and heart failure hospitalization (bottom). P values are derived from log-rank tests. Shaded regions denote 95% confidence intervals, and numbers at risk are displayed beneath each curve.

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yielded 28 matched pairs (n = 56). The primary endpoint was all-cause mortality; secondary endpoints included HF hospitalization (HFH) and a composite of mortality and HFH. Outcomes were assessed with Kaplan-Meier estimates and Cox proportional hazards models with treatment assigned at baseline.
Results: In the PS-matched cohort (mean age 81.0 ± 4.6 years; 61.5% male), ACEI/ARB therapy was not associated with a reduction in all-cause mortality (HR 0.86 [0.42-1.78], p = 0.684) over a median follow-up of 23 months (IQR 16-41.25). Similar results were observed in the unmatched cohort (HR 0.61 [0.34-1.12], p = 0.112). The annualized mortality rate was comparable between treated and untreated patients (14.4% vs. 16.6% per person-year). ACEI/ARB therapy was also not associated with a reduction in HF hospitalization. The PS-matched HR for HFH was 0.74 [0.27-2.03] (p = 0.56), consistent with the unmatched cohort (HR 0.52 [0.26-1.05], p = 0.07). Annualized HFH rates were similar between groups (9.9% vs. 12.5% per person-year). The composite of all-cause mortality or HF hospitalization showed no significant difference in either the unmatched (HR 0.58 [0.32-1.05], p = 0.07) or PS-matched cohort (HR 0.75 [0.32-1.77], p = 0.51). Annualized composite event rates were likewise similar (14.9% vs. 18.9% per person-year).
Conclusions: In this propensity-matched cohort of patients with ATTR-CM, ACEI/ARB therapy was not associated with improvements in all-cause mortality, HF hospitalization, or the composite of these outcomes. These findings suggest that ACEI/ARB therapy may not confer meaningful clinical benefit in the ATTR-CM population and highlight the need for prospective research to clarify optimal medical management in this disease.

PO 250. ATRIAL FIBRILLATION IN FAMILIAL AMYLOID POLYNEUROPATHY: PREVALENCE, CLINICAL PROFILE, AND ANTICOAGULATION CHALLENGES

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Introduction: With longer survival, cardiac involvement, including atrial fibrillation (AFib), is increasingly recognized in familial amyloid polyneuropathy (FAP). While AFib generally warrants anticoagulation due to thromboembolic risk, the co-occurrence of transthyretin-related cerebral amyloid angiopathy (CAA) creates a dilemma due to the risk of intracranial hemorrhage. Current guidelines are extrapolated from general ATTR studies, but no dedicated data exist specifically in FAP patients.
Methods: Retrospective study of TTR V30M mutation patients, followed at a national referral center since 2019. Clinical records were reviewed for AFib occurrence, management, anticoagulation, and thrombotic or hemorrhagic events.
Results: Among 238 patients with the TTR V30M mutation, AFib occurred in 9.2% (n = 22) and was more frequent in those with cardiomyopathy (27.1% vs. 4.7%, p < 0.001). Patients with AFib had a mean age of 66.1 ± 13.5 years, a median disease duration of 11 (IQR 8) years, were predominantly female (54.5%), and most had pacemaker implantation (86.4%). A rhythm-control strategy was used in 45.5% of patients, mostly using amiodarone (90%), whereas beta-blocker use was rare (9.1%). In half of the patients Afib was assumed permanent. Overall, the mean CHA2DS2-VA score was 2.0 ± 1.5, with 36.4% of patients scoring 0/1 and the majority (31.8%) scoring 3. Anticoagulation was prescribed in 77.3% (n = 17), predominantly with direct-acting oral anticoagulants (DOAC) (82.4%, n = 14). Antiplatelet therapy was not used in any patient. Among patients not receiving anticoagulation (22.7%), the main reasons were concern for intracranial hemorrhage due to suspected/established CAA (n = 3), perceived low thromboembolic risk (n = 1), and fall risk (n = 1). One patient was referred for left atrial appendage closure. Notably, one patient with suspected CAA did receive anticoagulation. During a median follow-up of 47 months from anticoagulation initiation, only one minor gynecologic bleeding was reported. No thrombotic or major bleeding events, including intracranial hemorrhage, occurred.
Conclusions: AFib in TTR V30M FAP is relatively uncommon but associated with cardiomyopathy. While most AFib patients received anticoagulation, a subset was deferred over perceived bleeding risk. Management requires careful individualization, and the absence of major thrombotic or hemorrhagic events suggest that anticoagulation is feasible in selected real-world FAP patients. Larger, prospective studies are needed to guide optimal strategies in this population.

Sábado, 25 Abril de 2026 | 14:30-15:25

Área de Posters - Ecrã 3 | Sessão de Posters 43 - Da disseção da artéria coronária às decisões antitrombóticas e de reperfusão nas síndromes coronárias agudas

PO 251. SPONTANEOUS CORONARY ARTERY DISSECTION: REAL-WORLD DATA FROM 16 YEARS OF EXPERIENCE

Joana Conde Gonçalves, Luana Alves, Benedita Viana, Tiago Branco, Erivaldo Figueiredo, Emanuel Oliveira, Bernardo Cruz, Mariana Paiva, Rui Rodrigues

ULS São João/Hospital São João.

Introduction: Spontaneous coronary artery dissection (SCAD) is an increasingly recognized cause of acute coronary syndromes, predominantly affecting young and middle-aged women without traditional atherosclerotic risk factors. Despite growing awareness, uncertainties persist regarding the influence of age and medical therapy on long-term outcomes.
Methods: We retrospectively analyzed 64 patients with angiographically confirmed SCAD admitted between November 2009 and August 2025 at a tertiary cardiology center. Demographic, clinical, angiographic, therapeutic, and follow-up data were collected. The primary endpoint was major adverse cardiovascular events (MACE), defined as cardiovascular death, myocardial infarction, stroke, or hospitalization for heart failure.
Results: The cohort was predominantly female (93.8%) with a median age of 51 years. Hypertension, dyslipidemia and diabetes were present in 51.6%, 37.5%, and 4.7%, respectively. The left anterior descending artery was most frequently involved (57.8%), with type 2 dissection predominating (62.5%). Most patients were managed conservatively (90.6%). At discharge, 79.7% received beta-blockers and 68.8% statins. Age was not associated with differences in clinical presentation (non-ST-segment elevation myocardial infarction in 60.9%; p = 0.73), angiographic pattern (vessel involvement p = 0.64; dissection type p = 1.00), or treatment strategy (p = 0.67). During a median follow-up of 69 months, MACE occurred in 14.1% of patients and cardiovascular death in 3.1%, with no significant variation by age (all p > 0.05). Regarding medical therapy, neither beta-blocker nor statin use was significantly associated with lower rates of MACE or recurrent ischemic events (all p > 0.05), although a trend toward greater left ventricular recovery was observed among beta-blocker-treated patients (86.7% vs. 66.7%; p = 0.78).
Conclusions: In this single-center cohort, SCAD predominantly affected middle-aged women and was successfully managed conservatively in most cases. Age did not influence clinical presentation or outcomes. Beta-blockers and statins were frequently prescribed but showed no clear association with improved prognosis, reflecting the limited evidence supporting routine use in SCAD. These findings highlight the need for individualized management and prospective studies to define optimal medical therapy and long-term follow-up strategies in this non-atherosclerotic condition.

PO 252. EVALUATION OF EARLY HEPARIN USE PRIOR TO CATHETERIZATION IN STEMI: A REAL-WORLD COHORT STUDY

Raquel Fernandes da Silva, Marta Paralta de Figueiredo, Rita Caldeira da Rocha, Gustavo Sá Mendes, Diogo Brás, David Neves, Ângela Bento, Renato Fernandes, Manuel Trinca, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: In ST-elevation myocardial infarction (STEMI), achieving early thrombus control may help preserve coronary perfusion and limit myocardial damage. Although intraprocedural unfractionated heparin (UFH) is standard during primary PCI, the benefit of giving a pre-hemodynamic dose (pre-HD, 5,000 U) earlier in the pre-hospital or emergency setting remains unclear.
Objectives: To evaluate whether pre-HD heparin is associated with reduced in-hospital all-cause mortality, 30-day major adverse cardiovascular events (MACE), and increased bleeding, and to determine whether its association with in-hospital mortality is independent of clinical confounders.
Methods: We retrospectively analysed 192 STEMI patients treated with primary PCI between 2023 and 2024. Patients were divided according to UFH strategy: intraprocedural UFH only or additional pre-HD UFH (5000 U). Primary endpoints were in-hospital mortality and bleeding; secondary endpoint was 30-day MACE. Variables with $p < 0.10$ in univariable analysis were entered into a multivariable logistic regression to determine whether pre-HD UFH was independently associated with mortality.
Results: Baseline characteristics were similar between groups: mean age 64.7 ± 12.9 years, 73.4% male, hypertension 62.0%, diabetes 32.3%, Killip ≥ II 13.5%, and creatinine 1.00 ± 0.53 mg/dL. Pre-HD UFH was given in 48% of patients. In-hospital mortality was lower in the pre-HD group (6.7% vs. 20.6%, $p = 0.004$). Bleeding occurred in 9.9%, with no significant difference between groups ($p = 0.140$). MACE at 30 days was 18.9%, with a trend towards fewer events in the pre-HD group (13.3% vs. 24.2%, $p = 0.059$). No differences were observed in symptom-to-contact, contact-to-ECG or contact-to-cath lab delays. In multivariable analysis, pre-HD UFH was independently associated with lower in-hospital mortality (OR 0.25; $p = 0.035$).
Conclusions: Early administration of UFH (5000 U) before cath lab arrival was independently associated with reduced in-hospital mortality in STEMI, without increasing bleeding, and with a favorable trend in 30-day MACE. These findings support the potential benefit of initiating anticoagulation earlier in STEMI management.

PO 253. SPONTANEOUS CORONARY ARTERY DISSECTION: INTEGRATED PHENOTYPIC, ANGIOGRAPHIC, THERAPEUTIC, AND PSYCHOSOCIAL DETERMINANTS OF OUTCOMES FROM A 10-YEAR TERTIARY-CENTRE REGISTRY

Luana Alves, Joana Conde Gonçalves, André Cabrita, Benedita Couto Viana, Erivaldo Andrade, Tiago Prata Branco, Luís Santos, Tânia Proença, Sandra Amorim, Rui André Rodrigues

ULS São João/Hospital São João.

Introduction: Spontaneous coronary artery dissection (SCAD) is a non-atherosclerotic cause of acute coronary syndromes, mainly affecting young and middle-aged women without traditional cardiovascular risk factors. Its heterogeneous presentation and uncertain management highlight the need for integrated evaluation of anatomical, hormonal, and psychosocial determinants.
Objectives: To identify hormonal, angiographic, and psychosocial predictors of acute and long-term outcomes in a 10-year single-centre SCAD registry.
Methods: We retrospectively analysed 64 patients with angiographically confirmed SCAD admitted between November 2009 and August 2025 to a tertiary cardiac centre. Dissections were classified by Saw's criteria. Hormonal status was defined as reproductive-age or post-menopausal, subdivided into premature and typical-age menopause. Major adverse cardiac events (MACE) included cardiovascular death, myocardial infarction, stroke, or hospitalisation for heart failure. As only one patient underwent coronary artery bypass grafting, treatment comparison was limited to percutaneous coronary intervention (PCI) versus conservative therapy. Quality of life (QoL) was categorised as good or poor during follow-up.

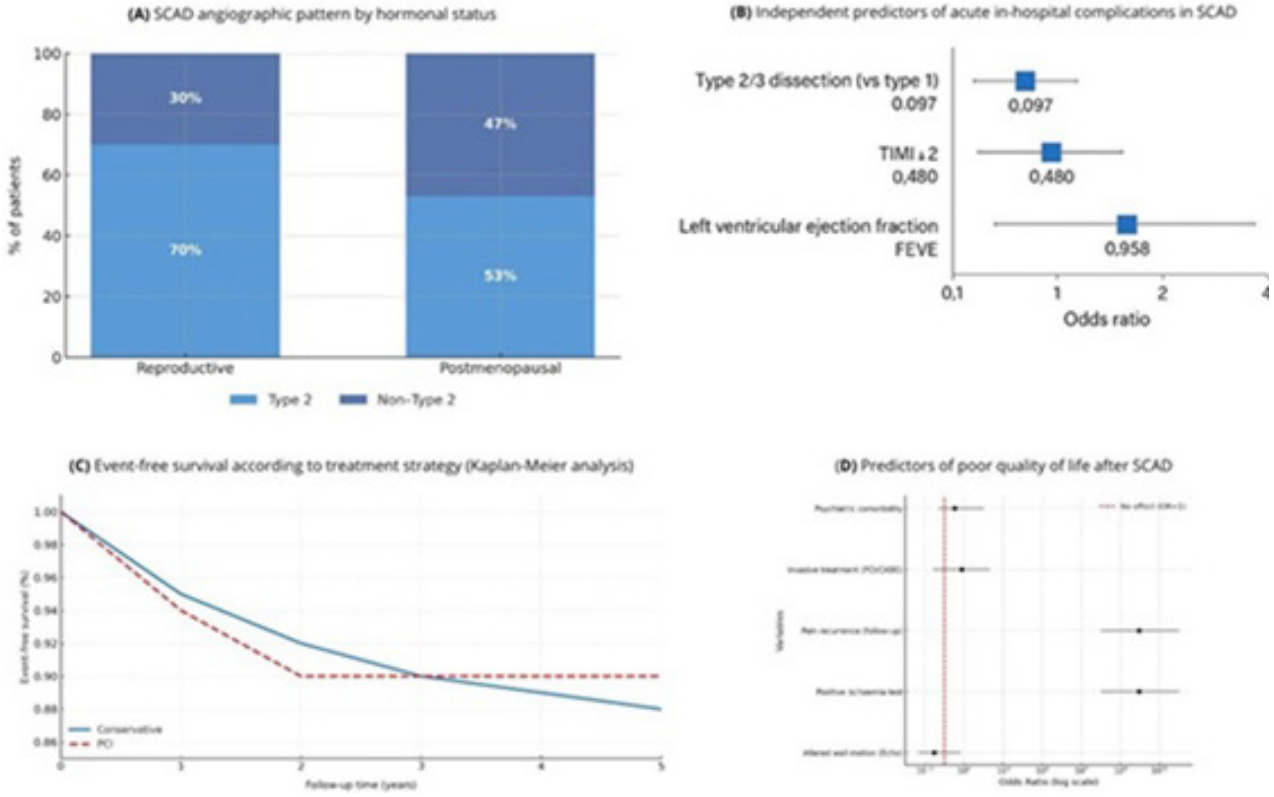

Figure PO 253

Results: The cohort comprised 93.8% women; median age was 51 [IQR 44-64] years. Thirty patients were of reproductive age and thirty were post-menopausal (27 typical, 3 premature). Reproductive-age women more often had trigger-related SCAD (63% vs. 23%; p = 0.002; RR 2.7 [1.3-5.5]) and type 2 dissections, whereas post-menopausal women had higher rates of hypertension and dyslipidaemia (p < 0.01). Premature menopause resembled the reproductive-age phenotype, with lower cardiometabolic burden and predominance of type 2 morphology. Type 2/3 dissections (OR 0.097, 95%CI 0.021-0.451; p = 0.002) and TIMI ≤ 2 flow (OR 0.480, 95%CI 0.235-0.983; p = 0.044) independently predicted acute complications. Conservative management predominated (90.6%), with favourable in-hospital outcomes across strategies (p = 0.86). During follow-up, MACE occurred in 10%, with no angiographic predictors (p = 0.554) or treatment differences (p = 0.72); Kaplan-Meier analysis confirmed similar event-free survival (p = 0.75). Poor QoL occurred in 35.9%, driven by recurrent chest pain (p = 0.002) and positive ischaemia testing (p = 0.015, AUC 0.88).
Conclusions: SCAD predominantly affects women with low atherosclerotic burden and excellent survival under conservative therapy. Hormonal status influences phenotype but not prognosis. Type 2/3 dissections and impaired TIMI flow predict early complications, whereas persistent ischaemic symptoms determine QoL. Long-term outcomes are similar across angiographic subtypes and treatment strategies, supporting conservative management. Multidisciplinary, patient-centred follow-up remains essential for recovery and wellbeing.

PO 254. PRECISE-DAPT SCORE FAILS TO PREDICT CLINICALLY RELEVANT BLEEDING IN ELDERLY PATIENTS WITH ACS

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ULS Região de Aveiro/Hospital Infante D. Pedro.

Introduction: The PRECISE-DAPT score has demonstrated utility in predicting hemorrhagic events associated with dual antiplatelet therapy (DAPT) and in guiding therapy duration in patients with Acute Coronary Syndrome (ACS). However, its predictive accuracy in older adults, a population characterized by increasing ACS prevalence and elevated baseline bleeding risk, remains uncertain.
Objectives: To assess the predictive performance of the PRECISE-DAPT score for clinically significant bleeding in patients aged > 75 years receiving DAPT after ACS.
Methods: A retrospective cohort study was conducted including patients aged ≥ 75 years admitted with ACS between January 2020 and December 2024. Patients with prior DAPT exposure or discharged on oral anticoagulation were excluded. Clinical and laboratory variables required for PRECISE-DAPT calculation–history of prior bleeding, baseline hemoglobin, leukocyte count, and estimated glomerular filtration rate–were collected at discharge. The primary endpoint was BARC (Bleeding Academic Research Consortium) grade ≥ 2 bleeding, defined as requiring at least medical intervention, occurring during the course of DAPT. Discriminatory performance was assessed using receiver operating characteristic (ROC) analysis.
Results: A total of 402 patients (74% male; mean age 80 ± 4 years) were included. Most (92%) received aspirin plus clopidogrel. During a mean follow-up of 9 ± 4 months, 61 patients (18.7%) experienced BARC ≥ 2 bleeding. PRECISE-DAPT scores were similar in patients with and without bleeding (34 ± 10 vs. 32 ± 7; p = 0.54). The proportion classified as high risk (score > 25) was comparably high in both groups and even within this high-risk category the score displayed no discriminative ability (81% vs. 76%; p = 0.48). No significant differences were observed in any individual score components. Overall, the score demonstrated poor discriminatory performance, with an AUC of 0.519.
Conclusions: Among patients aged ≥ 75 years with ACS, the PRECISE-DAPT score demonstrated minimal ability to predict clinically relevant bleeding during DAPT. Accordingly, the score should not be used in isolation to guide DAPT duration in this population but rather integrated with individualized clinical judgment and geriatric-specific bleeding risk stratification tools.

PO 255. WHAT DRIVES SUCCESSFUL REPERFUSION AFTER FIBRINOLYSIS? INSIGHTS INTO TIMING, CARDIAC INJURY, INFLAMMATION AND HAEMODYNAMIC STATUS

Margarida Câmara Farinha, Inês Barroso Almeida, Inês Coutinho Dos Santos, Fabiana Duarte, Maria Inês Barradas, Luís Oliveira, Carina Machado, Nuno Pelicano, Emília Santos, António Fontes, André Viveiros Monteiro, Miguel Pacheco

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: In remote locations, fibrinolysis remains a valuable strategy in ST-Elevation Myocardial Infarction (STEMI) patients. Identifying reliable predictors of fibrinolytic success is essential to optimize decision-making.
Objectives: To determine independent clinical and biochemical predictors of successful reperfusion following fibrinolysis in STEMI patients.
Methods: We retrospectively analysed consecutive STEMI patients who underwent fibrinolysis and were subsequently transferred to our center for facilitated or rescue percutaneous coronary intervention (PCI) between 2020 and 2023 (n = 154). Clinical, laboratory and timing variables were collected. Reperfusion success was defined by ≥ 50% ST-segment resolution accompanied by symptomatic improvement and pre-intervention Thrombolysis in Myocardial Infarction (TIMI) flow grade ≥ 2 in coronarography.
Results: Successful reperfusion was achieved in 64.9% of patients. In univariate analysis, shorter symptom-to-fibrinolysis times was strongly associated with reperfusion success (median 2.12 vs. 3.55 hours; p = 0.027). Chronic antiplatelet therapy was also a predictor of reperfusion (26% vs. 5.6%; p = 0.002). Higher Killip class III-IV was more frequent among patients without reperfusion (29.6% vs. 13%; p = 0.012). Patients without reperfusion also had markedly higher initial troponin levels (median 163 vs. 24.5 ng/L; p < 0.001) and higher C-reactive protein concentrations (median 1.27 vs. 0.54 mg/L; p < 0.001). In contrast, age, sex, body mass index and common cardiovascular comorbidities, including hypertension, diabetes and dyslipidaemia, showed no significant association with reperfusion status (all p > 0.05). In multivariable analysis, independent predictors of successful reperfusion were shorter symptom-to-fibrinolysis time (per 30-minute increase: OR 0.78; p = 0.02), lower initial troponin (log-TnI: OR 0.40; p = 0.004), lower C-reactive protein (log-CRP: OR 0.47; p = 0.009) and absence of Killip class III-IV (OR 0.34; p = 0.028). Chronic antiplatelet therapy remained a strong and independent predictor of reperfusion success (OR 6.92; p = 0.006).
Conclusions: Lower myocardial necrosis, inflammation burden and Killip Class, as well as pre-existing antiplatelet therapy independently predict fibrinolytic success. This easily obtainable data could help identify patients more likely to respond to fibrinolysis and could support decision-making regarding the optimal strategy and timing of subsequent coronary angiography.

PO 256. ANTIPLATELET THERAPY AND PROGNOSIS IN PATIENTS WITH SPONTANEOUS CORONARY ARTERY DISSECTION: A SINGLE-CENTER COHORT STUDY

Carla Oliveira Ferreira, Filipe Silva Vilela, Bárbara Rocha, João Faria, Sofia Fernandes, Mónica Dias, Glória Abreu, Catarina Quina, Carlos Braga, João Costa, Cátia Oliveira, Jorge Marques

ULS Braga/Hospital de Braga.

Introduction: Spontaneous coronary artery dissection (SCAD) is an uncommon cause of acute coronary syndrome (ACS). Current knowledge claims that single antiplatelet therapy (SAPT) management is generally safe and preferred in stable patients, as thrombolytic and antiplatelet therapies may increase bleeding risk, promote extension of intramural hematoma and delay vessel healing. However, evidence on the prognostic impact of SAPT in SCAD remains limited. This study aimed to characterize a consecutive cohort of SCAD patients and to evaluate the association between single versus dual antiplatelet therapy and adverse cardiac and hemorrhagic events.
Methods: This is a single-center, retrospective, longitudinal observational study including 84 patients diagnosed with SCAD admitted between January

2010 and February 2024, accounting for 104 SCAD events. Patients were stratified by antiplatelet therapy at discharge: 37 received single antiplatelet therapy (SAPT) and 44 received dual antiplatelet therapy (DAPT). Adverse outcomes assessed included the composite outcome which comprises SCAD/ACS recurrence, hospitalizations due to heart failure, stroke and all-cause mortality. Hemorrhagic events were also evaluated in this study.
Results: The median age was 55 years, and 83.3% of patients were women. Twenty-seven patients (32.2%) had at least one predisposing factor, the most frequent being multiparity (n = 17, 21%). Sixteen patients (19%) had no identifiable cardiovascular risk factors. Non-ST-elevation myocardial infarction was the presenting manifestation in 64.3% of cases. The left anterior descending artery was most frequently affected (56%), and angiographic type 2 SCAD was the predominant pattern (77%). A conservative approach was the initial management strategy in most patients (n = 67, 79.8%), while 17 (20.2%) underwent percutaneous coronary intervention. SCAD recurrence occurred in 17 patients. There was no statistically significant difference in baseline characteristics between SAPT and DAPT group. The group under DAPT association presented a higher occurrence of heart failure hospitalizations (DAPT: 6 [13.6%] vs. SAPT: 0 [0.0%], p = 0.029), with no significant difference on the composite outcome or occurrence of hemorrhagic events.
Conclusions: Single antiplatelet therapy was not associated with an increased risk of adverse cardiac events, when compared with dual antiplatelet therapy. These findings support a conservative antiplatelet approach in stable SCAD patients, suggesting that routine DAPT may not provide additional benefit for preventing recurrent cardiac events. Given the potential risks associated with dual therapy, including bleeding and delayed vessel healing, individualized antiplatelet strategies should be considered.

Sábado, 25 Abril de 2026 | 15:30-16:25

Área de Posters - Ecrã 1 | Sessão de Posters 44 - Miscelânea: genética, estratificação de risco e mecânica miocárdica

PO 257. INTERNAL VALIDATION OF THE EHMRG SCORE FOR PREDICTING IN-HOSPITAL MORTALITY AND ITS DISCRIMINATIVE ABILITY FOR LEVEL OF CARE

Luís Pedro dos Santos, Mariana Duarte Almeida, Gonçalo R.M. Ferreira, João Gouveia Fiúza, Oliver Kungel, Francisco Rodrigues Santos, Maria Luísa Gonçalves, António Costa

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Introduction: The Emergency Heart Failure Mortality Risk Score (EHMRG) was developed to estimate early mortality in acute heart failure (AHF) using admission data. It is unclear whether higher EHMRG values are also associated with the need for admission to a cardiac intensive care unit (CCU).
Objectives: To assess, in a cohort of patients hospitalized with AHF, the performance of EHMRG in predicting in-hospital mortality and its association with the level/setting of care during hospitalization.
Methods: Single-center retrospective study including 260 consecutive patients admitted with AHF to a Cardiology department in 2024 (ward and CCU). Mean age was 75 ± 11 years and 62% were male. EHMRG variables (age, transport by ambulance, systolic blood pressure, heart rate, oxygen saturation, creatinine, potassium, troponin, active cancer, and prior metolazone use) were collected, the total score was calculated, and patients were classified into EHMRG risk groups (1 to 5b) according to the previously validated score and risk groups, by Lee *et al*. 2012 (Figures 1 and 2). The outcome "in-hospital death" was recorded. An ordinal three-level variable reflecting level of care was created: (1) ward; (2) ward with subsequent transfer to CICU; (3) direct CICU admission. Prognostic performance was assessed using ROC analysis and logistic regression; associations with level of care were evaluated with ANOVA and the chi-square test (IBM SPSS v30).
Results: In-hospital mortality was 10.8%. EHMRG showed good discrimination for predicting mortality: AUC 0.73 (SE 0.042; 95%CI 0.652-0.816; p < 0.001). Mortality increased across risk groups (0%, 5%, 11.5%, 13.0%, 17.9%, and 24.2% for groups 1 to 5b; χ^2 = 15.78; p = 0.007). In univariable logistic regression, EHMRG remained associated with mortality (OR 1.012; 95%CI 1.006-1.018; p < 0.001; Hosmer-Lemeshow p = 0.534), corresponding to an ≈ 12% increase in odds per 10-point increase. EHMRG increased progressively with level of care: ward −3.1 ± 60.5; transferred 33.4 ± 70.0; CICU 44.1 ± 77.0 (ANOVA F = 11.78; p < 0.001), with a significant post-hoc difference between ward and CICU (Tukey). In the categorical analysis, 84% of ward patients were in groups 1-4, whereas 48% of CICU patients were in groups 5a-5b (χ^2 = 34.3; df = 10; p < 0.001).

Variable		Multiplicative component
Age		2 x age
Transported by EMS	No	0
	Yes	60
Systolic blood pressure, mmHg		-1 x SBP
Heart rate, beats/min		1 x heart rate
Oxygen saturation, %		-2 x oxygen saturation
Creatinine, mg/dL		20 x creatinine
Potassium	≤ 3.9 mmol/L	5
	4.0 to 4.5 mmol/L	0
	≥ 4.6 mmol/L	30
Troponin, >ULN	No	0
	Yes	60
Active cancer	No	0
	Yes	45
Metolazone use at home	No	0
	Yes	60
Adjustment factor		12

Figure 1. EHMRG score variables.

EHMRG score	Risk Group	7-Day Mortality Rate
≤-49.1	1	0.5
-49 to -15.9	2	0.3
-15.8 to 17.9	3	0.7
18 to 56.5	4	2.1
56.6 to 89.3	5a	3.3
≥89.4	5b	8.5

Figure 2. EHMRG score risk groups and mortality.

Conclusions: EHMRG retained good performance for predicting in-hospital mortality in this AHF population and reflected clinical severity as expressed by the need for CICU care. Higher scores were observed not only in patients directly admitted to the CICU, but also in those initially admitted to the ward who later required CICU transfer, suggesting potential utility of EHMRG as an emergency department triage tool.

PO 258. INFLUENZA VACCINATION BEFORE AND AFTER ACUTE CORONARY SYNDROME: A MISSED OPPORTUNITY FOR GUIDELINE IMPLEMENTATION

David Matos Monteiro, Bernardo Resende, Gonçalo Ferraz Costa, Mariana Salvador, Pedro Miguel Ventura, Tiago Garcia, Sofia Martinho, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Acute coronary syndrome (ACS) is associated with substantial morbidity and mortality. Accumulating evidence suggests that influenza vaccination reduces cardiovascular events, yet vaccine uptake remains suboptimal. Hospitalisation for ACS may represent a teachable moment to improve immunisation coverage.
Objectives: To compare complete influenza vaccination coverage before and after an ACS event and to assess whether ACS hospitalisation was associated with increased vaccination uptake.

Methods: We conducted a retrospective study of consecutive patients admitted to the cardiac intensive care unit of a tertiary centre. Demographic and clinical characteristics were retrieved from medical records. Complete influenza vaccination status before ACS and after discharge was recorded for each patient. Paired proportions were compared using McNemar's test.
Results: A total of 126 patients met inclusion criteria. Thirty-four died during or after hospitalisation, leaving 92 survivors with documented influenza vaccination status. The cohort was predominantly male (76.2%) with a mean age of 71.6 ± 11.4 years and a high prevalence of cardiovascular risk factors, including hypertension (81.7%), dyslipidaemia (81.7%), and type 2 diabetes (47.6%). Before ACS, 15 patients (16.3%) had completed influenza vaccination. After ACS, this proportion increased to 45.7% ($p < 0.001$), indicating that a substantial number of previously unvaccinated patients were immunised following the index event. Nonetheless, 35.9% of survivors remained unvaccinated after ACS and 10.9% explicitly refused vaccination.
Conclusions: In this high-risk ACS population, influenza vaccination coverage nearly tripled after the acute event, supporting the concept of ACS hospitalisation as an opportunity to initiate secondary-prevention immunisation. However, more than one-third of patients remained unvaccinated, underscoring persistent missed opportunities and the need for structured in-hospital vaccination strategies and systematic post-discharge follow-up to optimise influenza immunisation in ACS patients.

PO 259. GENETIC POLYMORPHISMS MODULATING CORONARY RISK: INSIGHTS FROM A CASE-CONTROL STUDY IN CLINICALLY HIGH-RISK INDIVIDUALS

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Introduction: Coronary artery disease (CAD) remains the leading cause of cardiovascular morbidity and mortality. Traditional cardiovascular risk factors are well established; however, some high-risk individuals remain event-free, whereas others develop CAD, suggesting that genetic variability may influence individual susceptibility.
Objectives: Assess whether selected genetic polymorphisms differ between high-risk individuals who developed CAD and high-risk controls who remained event-free, and determine whether specific alleles confer protection or increased vulnerability to CAD.
Methods: A retrospective case-control study was conducted including 1,067 with confirmed CAD (> 70% stenosis in one major coronary artery; 73.8% men, aged 58.41 ± 7.9 years) and 435 high-risk controls (73.9% men, aged 58.41 ± 3.9 years) (≥ 3 classical CVRFs: hypertension, diabetes, dyslipidaemia, obesity, active smoking, eGFR < 60 mL/min/1.73 m^2 or positive family history). Thirty-three genetic polymorphisms previously associated with CAD were genotyped using TaqMan real-time PCR. Logistic regression was used to identify independent predictors of CAD after adjustment for age and sex. Bivariate analysis evaluated genetic variants differences.
Results: Among high-risk individuals, the LPA rs3798220 TC genotype was significantly more frequent in CAD patients ($p = 0.004$) conferring a 2.5-fold higher likelihood of CAD (OR 2.50, 95%CI 1.31-4.79; $p = 0.006$). The TT genotype predominated in resilient controls, suggesting a protective effect. For PON55 rs854560, the MM genotype was more common among CAD cases and remained independently associated with CAD after adjustment (OR 1.73, 95%CI 1.21-2.48; $p = 0.003$). The LL genotype was more prevalent in controls, again suggesting possible protection. Overall, individuals who remained event-free despite similar clinical risk profiles showed a lower prevalence of risk-associated genotypes (LPA TC and PON55 MM), supporting a genetic contribution to disease resilience.

Variables independently associated with CAD

Variables	B	S.E.	Wald	df	OR (95% CI)	P value
LPA TC	0.917	0.332	7.639	1	2.501 (1.306-4.793)	0.006
PON55			9.151	1		0.010
LM	0.174	0.124	1.973	1	1.190 (0.934-1.517)	0.160
MM	0.550	0.183	9.077	1	1.733 (1.212-2.479)	0.003
Constant	0.695	0.094	55.048	1	2.003	<0.0001

Variables excluded from the equation: 31 polymorphisms, sex and age. CAD – Coronary artery disease; B – Beta coefficient; S.E.: Standard error; df – degrees of freedom; OR – Hazard ratio; CI – Confidence interval; Statistically significant at p<0.05.

Conclusions: In a population exposed to high clinical risk, specific genetic polymorphisms distinguished those who developed CAD from those who did not. PON55 M risk allele has higher enzymatic activity, promoting atherosclerosis, while the LPA C risk allele influences Lp(a) levels contributes to thrombus formation. These findings support the concept that genetic background moderates the biological CAD vulnerability and may partially explain why some "ticking time bombs" remain free of disease.

PO 260. ASSOCIATION OF THE CYP17A1 GENE WITH THE DEVELOPMENT OF INSULIN RESISTANCE

Cláudia C. Sousa[1], Ana Célia Sousa[1], Carolina Olim[1], Alexandra Rodrigues[1], Vasco Nunes[1], Mariana Rodrigues[1], Ana Cardoso[1], Graça Guerra[1], Sofia Borges[1], Maria João Oliveira[1], Maria Isabel Mendonça[1], Roberto Palma dos Reis[2]

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

Introduction: Insulin resistance (IR) is a major cardiovascular risk marker, thus the investigation of genetic and environmental determinants essential. Although multiple genetic variants have been linked to IR, the role of the

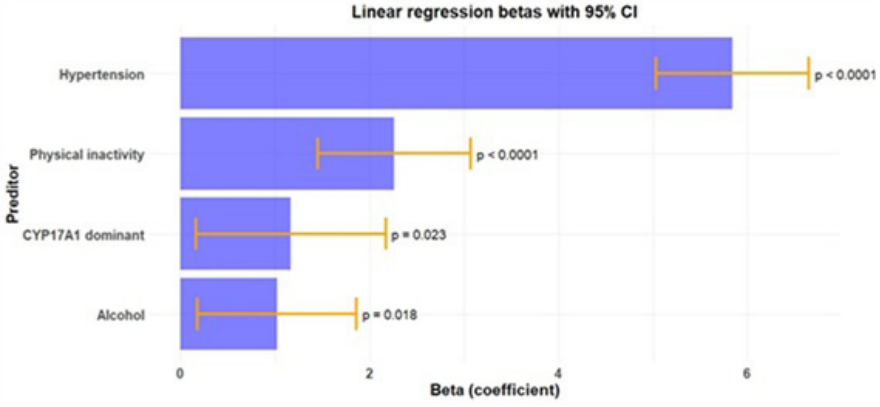


Figure PO 260

CYP17A1 gene remains poorly explored. The Metabolic Score for Insulin Resistance (METS-IR) is a validated, practical, and non-invasive surrogate marker of insulin resistance.
Objectives: Investigate the association between *CYP17A1* and insulin resistance assessed by METS-IR.
Methods: 1,765 adults (mean age 51.0 ± 8.4 years) were evaluated and underwent biochemical testing and DNA sampling for *CYP17A1* genotyping. METS-IR was calculated using the formula: ln[2 × fasting blood glucose (FBG) + triglycerides (TG)] × body mass index (BMI)/ln [High Density Lipoprotein-Cholesterol (HDL-C)]. Genetic inheritance models (dominant, additive, and recessive) were tested against METS-IR; the dominant model showed the best fit. The association between *CYP17A1* and METS-IR was tested by Mann-Whitney. A multivariable regression assessed whether the *CYP17A1* dominant model remained independently associated with METS-IR increase after adjustment for hypertension, physical inactivity, alcohol consumption, and smoking.
Results: Mann-Whitney test showed that carriers of the *CYP17A1* (CT+CC) presented significantly higher METS-IR values (p = 0.022). Multivariable regression showed that *CYP17A1* (CT+CC), hypertension, physical inactivity, and alcohol consumption were independent predictors of METS-IR, with statistical significance (p < 0.0001). Individuals carrying the C allele exhibited METS-IR scores 1.17-fold higher than TT.
Conclusions: The *CYP17A1* polymorphism (CT+CC) is significantly and independently associated with insulin resistance in this population. Individuals with this risk variant may benefit from personalized lifestyle interventions to prevent insulin-resistance progression and reduce future cardiovascular risk.

PO 261. DECOUPLING OF CONTRACTILE SPEED AND MYOCARDIAL WORK: PARADOXICAL PRESSURE-STRAIN LOOP RESPONSES TO DOBUTAMINE IN HIGH-RISK PATIENTS

Lígia Lopes Mendes[1], João Colaço[1], José Ferreira Santos[1], João Pereira[2], Ana Teresa Timóteo[3]

[1]Hospital da Luz Setúbal. [2]Católica Medical School. [3]ULS São José/Hospital de Santa Marta.

Introduction: While dobutamine stress typically increases cardiac output and contractility, its impact on myocardial energetics in patients with structural heart disease is complex. Non-invasive Pressure-Strain Loops (PSL) allow for the simultaneous assessment of deformation (Strain Rate) and total work (Global Work Index - GWI). This exploratory study investigated the hemodynamic response to dobutamine stress using PSL in a cohort of patients with established cardiovascular risk.
Methods: We analysed an exploratory cohort of 11 patients (mean age 75 ± 10 years) with high cardiovascular risk burden, including 91% with hypertension or dyslipidemia and 55% with reduced contractile reserve or established disease. PSL acquisitions were performed at baseline and peak dobutamine stress. Within-subject changes were quantified using rank-biserial correlation (r) and Hodges-Lehmann median differences.
Results: The cohort exhibited a heterogeneous but distinctive "decoupling" pattern between contractile speed and energetic work. Specifically, there was a robust increase in Global Systolic Strain Rate (Median change +0.23 s^{-1}, r = 0.91), with 9 out of 11 (82%) patients classified as responders. Paradoxically, despite this increase in speed, the Global Work Index (GWI) significantly decreased (Median change -326 mmHg%, r = -0.88), with only 2 out of 11 patients showing increased work. This contrasts markedly with healthy volunteer data, where physiological stress typically increases both Strain Rate and GWI uniformly.
Conclusions: In this exploratory high-risk cohort, dobutamine stress increased contractile speed (strain rate) but failed to augment, and often reduced, GWI. This divergence suggests that PSL analysis can detect a "decoupling" of speed and energy in diseased hearts, where increased inotropy does not translate into effective myocardial work. These findings highlight the potential of PSL to identify subtle energetic failure beyond standard wall motion analysis.

PO 262. IMPROVING SECONDARY PREVENTION: VACCINATION UPTAKE IN ACUTE CORONARY SYNDROME SURVIVORS

David Matos Monteiro, Bernardo Resende, Gonçalo Ferraz Costa, Mariana Salvador, Pedro Miguel Ventura, Tiago Garcia, Sofia Martinho, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: The association between respiratory infectious diseases and acute coronary syndrome (ACS) is well established. Current guidelines recommend immunization in patients with coronary artery disease. However, real-world data on vaccination uptake following ACS remain limited.
Objectives: To evaluate vaccination coverage for influenza, pneumococcus, and SARS-CoV-2 after ACS in a high-risk hospital cohort.

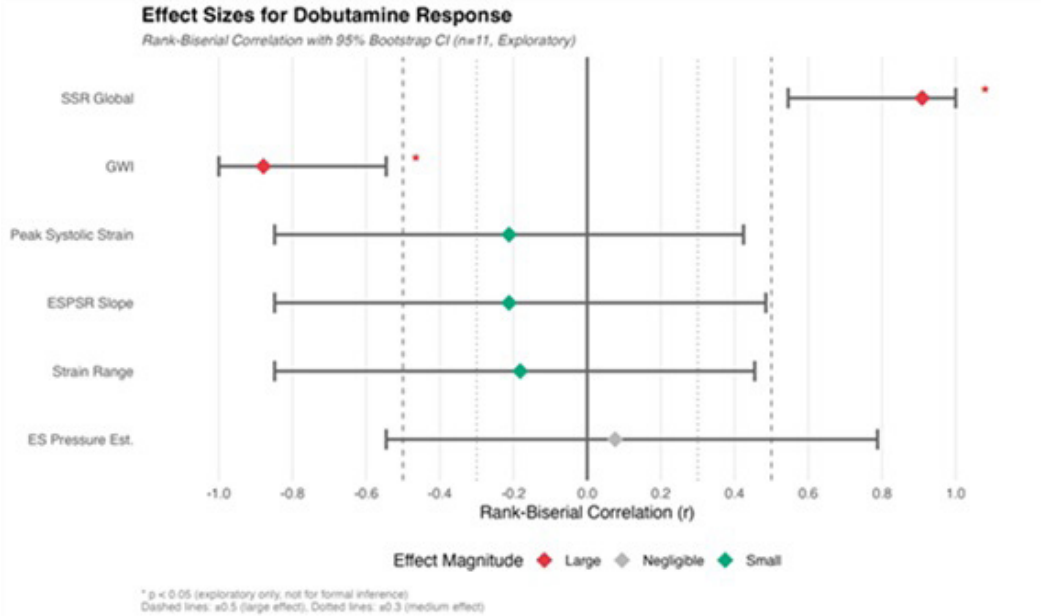


Figure PO 261

Methods: We performed a retrospective analysis of consecutive ACS patients admitted to the cardiac intensive care unit of a tertiary center. Demographic characteristics, comorbidities, coronary anatomy, and vaccination status (influenza, pneumococcal, SARS-CoV-2) before and after the index event were obtained from medical records. Paired proportions were compared using McNemar's test.
Results: A total of 126 patients were included (mean age 71.6 ± 11.4 years; 76.2% male). Traditional cardiovascular risk factors and comorbidities were highly prevalent, and multivessel coronary disease was present in 72.2% of cases. Vaccination data were available for 92 survivors, as 34 patients died without reliable post-discharge information. For influenza vaccination, 42 patients (45.7%) were vaccinated before ACS, and 17 additional patients (18.4%) initiated or completed vaccination after ACS ($p < 0.001$), reducing the proportion of unvaccinated individuals to 35.9%, while 10 patients (10.9%) explicitly refused vaccination. Complete SARS-CoV-2 vaccination was documented in 41 patients (44.6%) before ACS, whereas only 26 (28.3%) remained fully vaccinated at follow-up ($p < 0.001$). In contrast, 42 patients (45.7%) remained unvaccinated and 13 (14.1%) refused vaccination. Pneumococcal vaccination had been performed in 26 patients (28.3%), with 12 additional patients (13.0%) initiating vaccination after ACS ($p < 0.001$).
Conclusions: Despite high cardiovascular risk and substantial event rates after ACS, uptake of recommended vaccinations, particularly SARS-CoV-2 and pneumococcal, remained modest. Hospitalization for ACS appears to be an underused opportunity to initiate and reinforce secondary-prevention vaccination strategies. Nevertheless, significant improvements were observed in influenza and pneumococcal vaccination coverage, whereas SARS-CoV-2 coverage declined over time.

Sábado, 25 Abril de 2026 | 15:30-16:25

Área de Posters - Ecrã 2 | Sessão de Posters 45 - Populações especiais, riscos especiais

PO 263. SPECTRUM OF PRIMARY HYPERALDOSTERONISM IN ADULTS WITH HYPERTENSION: EFFECTS ON LONG TERM CARDIOVASCULAR DISEASE AND ALL CAUSE DEATH

António Afonso Angélico Gonçalves[1], Ana Rita Leite[2], Tiago Godinho[2], Adelino Leite-Moreira[2], João Pedro Ferreira[2], João Sérgio Neves[2]

[1]ULS Gaia e Espinho/Hospital Santos Silva. [2]Faculdade de Medicina da Universidade do Porto.

Introduction: Primary aldosteronism (PA) is a state of autonomous, renin-independent aldosterone production. It is linked with harmful metabolic and cardiovascular effects, however limited research has explored its impact on long term clinical outcomes.
Objectives: To evaluate the impact of subclinical primary aldosteronism in the risk of developing cardiovascular disease.
Methods: We assessed participants from the Generation 3 cohort of the Framingham Heart Study, where plasma renin activity (PRA) and aldosterone to renin ratio (ARR) were measured. We excluded patients without a diagnosis of hypertension. Cardiovascular disease was defined by the history of coronary heart disease, intermittent claudication, congestive heart failure, stroke or transient ischemic attack, or atrial fibrillation. Linear and Cox regression analyses were performed adjusted for relevant baseline variables.
Results: A total of 1,308 patients were included (mean age 43.9 ± 8.1, 34.9% female, 98.0% white, 49.2% with dyslipidemia, 8.7% with diabetes, 6.1% with coronary artery disease, 1.6% with heart failure, 1.4% with atrial fibrillation, 15.7% smokers). A total of 94 (7.2%) had a positive screening for primary hyperaldosteronism. Over a mean follow-up period of 13.8 years, there were 101 first cardiovascular events corresponding to 8.3% of the participants. PRA had a significant negative correlation with incident cardiovascular disease (Hazard Ratio [HR] = 0.76, 95% Confidence Interval [CI] 0.64 to 0.90, $p = 0.001$). ARR had a positive correlation with incident cardiovascular disease (HR = 1.24, 95%CI 1.07 to 1.44, $p = 0.004$). Neither PRA (HR = 0.94, 95%CI 0.74 to 1.20, $p = 0.62$), nor ARR (HR = 1.06, 95%CI 0.85 to 1.31, $p = 0.62$) had a significant correlation with all cause death.
Conclusions: Lower renin levels and increased aldosterone were significantly associated with increased risk for developing cardiovascular disease. Renin and aldosterone measurements may help to stratify cardiovascular risk. Early mineralocorticoid receptor antagonists initiation may provide cardiovascular benefits to the subset of hypertensive patients with suppressed renin and increased aldosterone.

PO 264. REAL-WORLD OUTCOMES OF RENAL DENERVATION IN PATIENTS WITH RESISTANT HYPERTENSION

Gonçalo Terleira Batista

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Resistant hypertension remains a major clinical challenge and an important cardiovascular (CV) risk factor. Renal sympathetic denervation (RDN) has re-emerged as a valuable adjunctive therapy for selected patients who remain hypertensive despite optimal medical management.
Objectives: To characterize the baseline clinical profile of patients undergoing RDN and to evaluate changes in ambulatory blood pressure (BP) parameters during follow-up in a real-world setting.
Methods: We conducted a single-center, observational study including 33 patients with resistant hypertension treated with RDN. Clinical, biochemical, and 24-hour ambulatory BP monitoring (ABPM) data were collected at baseline, 6 months, and 12 months. Continuous variables are presented as mean ± SD, and categorical variables as percentages.
Results: The mean age of the cohort was 62 ± 9 years, and 67% were male. Cardiovascular risk factors were highly prevalent: dyslipidemia (91%) and diabetes mellitus (42%), of which 36% required insulin therapy. Other comorbidities included sleep apnea (58%), coronary artery disease (18%), and prior stroke or transient ischemic attack (15%). Baseline mean 24-hour systolic BP was 152.5 ± 16.3 mmHg, diastolic BP 87.8 ± 16.5 mmHg, and heart rate 69.5 ± 11.8 bpm. The mean number of ablations per procedure was 27.5 ± 9.5. At 12 months, mean daytime systolic BP decreased from 157.9 ± 15.6 mmHg to 140.6 ± 17.9 mmHg (Δ = -17.3 ± 10.1 mmHg; $p < 0.01$), and nighttime systolic BP from 140.6 ± 20.3 mmHg to 125.5 ± 19.2 mmHg (Δ = -15.1 ± 9.8 mmHg; $p < 0.01$). Diastolic BP showed similar reductions (Δ daytime = -8.1 mmHg; Δ nighttime = -5.5 mmHg). Overall, 81.5% of patients were classified as responders, defined as a ≥ 10 mmHg reduction in daytime systolic BP or resolution of symptoms at 12 months. No major periprocedural complications occurred, and renal function and electrolyte levels remained stable during follow-up.
Conclusions: In this real-world cohort of patients with resistant hypertension, RDN resulted in a sustained and clinically significant reduction in ambulatory BP at 12 months, with the majority achieving responder status. These findings support RDN as an effective and safe therapeutic option for patients with long-standing resistant hypertension inadequately controlled with pharmacologic therapy alone.

PO 265. BODY MASS INDEX EXTREMES ASSOCIATION WITH WORSENED DISEASE AND CLINICAL OUTCOMES IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Raquel Montalvão, Margarida Matias, Maria Inês Soares, Mariana Ramos, Márcia Presume, André Garcia, Rui Gomes, Débora Correia, Samuel Azevedo, Carlos Aguiar, Sérgio Maltês, Bruno Rocha

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: Hypertrophic cardiomyopathy (HCM) is a primary myocardial disease that may be associated with worsened prognosis in the presence of other comorbidities. Body mass index (BMI) has been linked to major

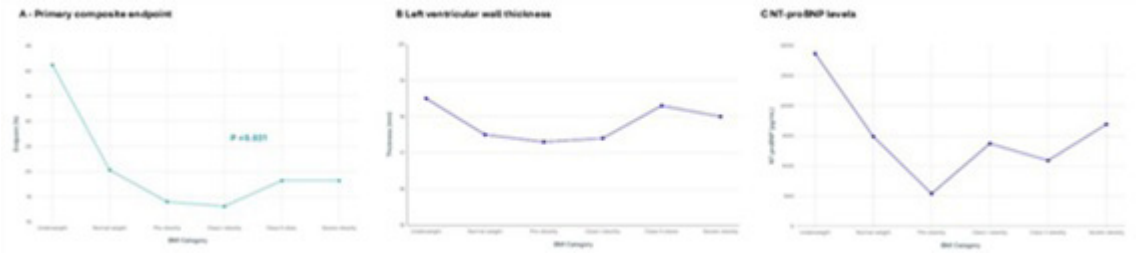


Figure PO 265

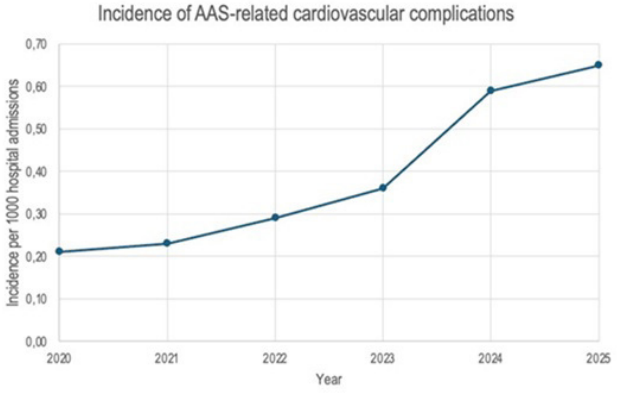
outcomes in heart failure –the so-called obesity paradox. However, whether a similar pattern of association is observed in HCM remains uncertain.
Objectives: To assess whether BMI is linked to disease severity and adverse outcomes in HCM.
Methods: Retrospective analysis of patients with HCM diagnosis followed at a tertiary center. Patients were categorized according to BMI class into 6 groups: underweight (BMI < 20 kg/m^2), normal weight (BMI 20-24.9 kg/m^2), pre-obesity (BMI 25-29.9 kg/m^2), class I (BMI 30-34.9 kg/m^2), class II (BMI 35-39.9 kg/m^2) and class III obesity (BMI > 40 kg/m^2). Patients aged over 16 years and with at least 1 year of follow-up were included. The primary endpoint was a composite of appropriate implantable cardioverter-defibrillator shocks, heart transplantation and all-cause death. Survival analysis was assessed by Kaplan-Meier curves.
Results: A total of 545 HCM patients were included (mean age 66 ± 15 years; 57% male; mean BMI 27.4 ± 4.7 Kg/m^2). Patients were distributed across BMI categories as follows: underweight (17 [3%]); normal weight (153 [28%]); pre-obesity (235 [43%]); class I (107 [20%]); class II (22 [4%]) and class III obesity (11 [2%]). BMI extremes were associated with more syncope (11.8 vs. 15.7 vs. 6.0 vs. 6.5 vs. 13.6 vs. 9.1%; p = 0.045); higher median NT-proBNP levels (2,864 vs. 1,488 vs. 540 vs. 1371 vs. 1,090 vs. 1,691 pg/mL; p = 0.006); greater mean maximum left ventricular wall thickness (18.5 vs. 17.5 vs. 17.3 vs. 17.4 vs. 18.3 vs. 18 mm; p = 0.049); and more frequent apical aneurysm (0% vs. 1.3% vs. 4.3% vs. 1.9% vs. 13.6% vs. 27.3%; p < 0.001), respectively (Central Figure). No significant differences on other clinical or ecocardiographic markers were noted. Over a median follow-up of 4 (2-8) years, 91 (17%) patients reached the primary composite endpoint. Underweight and severe obesity were significantly associated with a higher risk of the composite outcome (41.2 vs. 20.3 vs. 14.0 vs. 13.1 vs. 18.2 vs. 18.2%; p = 0.031; respectively), mainly due a higher risk of death (29.4 vs. 13.7 vs. 11.1 vs. 10.3 vs. 9.1 vs. 18.2%, p = 0.031).
Conclusions: In a contemporary HCM cohort, BMI extremes were associated with a worsened clinical profile and a higher risk of major cardiovascular outcomes. We observed a "U-shaped" risk pattern across BMI categories, suggesting that targeted weight management interventions in underweight and moderate-to-severe obese patients could confer HCM-related benefits.

PO 266. CONTEMPORARY BURDEN AND CLINICAL CHARACTERISTICS OF HOSPITAL ADMISSIONS FOR ANABOLIC-ANDROGENIC STEROID-RELATED CARDIOVASCULAR COMPLICATIONS

Pedro Mangas Palma, Miguel Rocha, Helena Moreira, Bernardo Cruz, Emanuel Oliveira, Joana Gonçalves, Benedita Couto Viana, Tiago Prata Branco, Erivaldo Figueiredo, Paula Dias, Rui André Rodrigues

ULS São João/Hospital São João.

Introduction: The use of anabolic-androgenic steroids (AAS) has risen markedly across Europe in recent years, with a further surge observed following the COVID-19 pandemic. Although AAS misuse is often driven by aesthetic and performance goals, accumulating evidence links chronic exposure to a range of cardiovascular complications, including cardiomyopathy, arrhythmias, and thromboembolic events. However, the contemporary burden and clinical characteristics of severe AAS-related cardiovascular disease are not well characterised.
Objectives: To characterise the contemporary burden and clinical features, management strategies, and outcomes of patients admitted with AAS-related cardiovascular complications.
Methods: We conducted a retrospective observational study of adults with documented AAS use who were admitted to a tertiary-care hospital between 1 January 2020 and 1 December 2025. Cardiac complications were prespecified and identified through clinician documentation and hospital discharge coding in the electronic medical record. Owing to the limited sample size, analyses were primarily descriptive. Continuous variables were presented as medians with interquartile ranges, and categorical variables as counts and percentages. Incidence rates of cardiac complications among AAS users were calculated relative to total cardiac admissions during the study period.
Results: Thirty-five adults with documented AAS use were identified during the study period, all of whom were male amateur athletes. The median age was 29 years (IQR 25-33). The predominant cardiovascular complications were cardiomyopathy or heart failure (n = 15, 43%) and acute coronary syndromes (n = 12, 34%), followed by clinically significant arrhythmias (n = 5, 14%) and other causes (n = 3, 9%). Among patients with heart failure, the median left ventricular ejection fraction at admission was 31% (IQR 26-38), and the median NT-proBNP concentration was 4,250 pg/mL (IQR 2,400-7,600). Comorbid cardiovascular risk factors were frequent, mainly arterial hypertension (n = 13, 37%), dyslipidaemia (n = 19, 54%), and smoking (n = 10, 37%). The incidence of AAS-related cardiac complications was 0.42 per 1,000 hospital admissions, showing a progressive increase from 0.21 per 1,000 in 2020 to 0.65 per 1,000 in 2025 (p < 0.01 for trend). The median length of hospital stay was 6 days (IQR 4-9), and in-hospital mortality was 3% (n = 1).



Conclusions: Cardiac complications among AAS users primarily affect young male amateur athletes, most often presenting with cardiomyopathy or acute coronary syndromes. The rising incidence of such cases underscores the importance of early recognition and targeted prevention strategies.

PO 267. HEAD-UP TILT TEST IN ELDERLY PATIENTS: A RETROSPECTIVE ANALYSIS IN A TERTIARY CENTER

Raquel França Moreira, Helena Fonseca, Sara Laginha, Pedro Silva Cunha, Bruno Valente, Guilherme Portugal, Paulo Osório, Sofia Jacinto, Ana Lousinha, Rui Ferreira, Sérgio Laranjo, Mário Oliveira

ULS São José/Hospital de Santa Marta.

	Non Elderly (n= 164)	Elderly (n = 100)	p value
Front Loaded | n (%)	95 (57.9)	24 (24)	< 0.001
Fast Italian | n (%)	52 (31.7)	67 (67)	
Classic Italian | n (%)	4 (2.4)	1 (1)	
Passive | n (%)	13 (7.9)	8 (8)	

Table 1 – Protocols.

	Non Elderly (n= 164)	Elderly (n = 100)	p value
Minimum measurable systolic blood pressure (mmHg) | Median (IQR)	80 (36)	79.5 (32)	0.692
Maximum measurable systolic blood pressure (mmHg) | Median (IQR)	128 (17)	129.5 (23)	0.302
Minimum measurable diastolic blood pressure (mmHg) | Median (IQR)	51 (24)	49 (24)	0.694
Maximum measurable diastolic blood pressure (mmHg) | Median (IQR)	87 (13)	82 (16)	**0.007**
Minimum measurable heart rate (bpm) | $\bar{x} \pm s$	60.6 ± 15.9	60.3 ± 13	0.863
Maximum measurable heart rate (bpm) | Median (IQR)	105 (32)	87 (22)	**< 0.001**
Average measurable heart rate (bpm) | Median (IQR)	81 (22)	72 (16)	**< 0.001**
Missing | n (%)	1 (0.6)	0	-

Table 2 – Hemodynamic parameters measured during HUTT.

	Non Elderly (n= 164)	Elderly (n = 100)	p value
Negative | n (%)	46 (28)	36 (36)	0.189
Positive | n (%)	115 (70.1)	63 (63)	

Table 3 – Test positivity.

	Non Elderly (n= 164)	Elderly (n = 100)	p value
Negative | n (%)	46 (28)	36 (36)	0.001
Positive Type 1 | n (%)	68 (41.5)	26 (26)	
Positive Type 2A | n (%)	3 (1.8)	3 (3)	
Positive Type 2B | n (%)	20 (12.2)	4 (4)	
Positive Type 3 | n (%)	24 (14.6)	30 (30)	
No positivity criteria | n (%)	3 (1.8)	1 (1)	

Table 4 – Test results.

	Non Elderly (n= 164)	Elderly (n = 100)	p value
Classic OH | n (%)	4 (2.4)	14 (14)	< 0.001
Initial OH | n (%)	3 (1.8)	4 (4)	
Delayed OH | n (%)	1 (0.6)	1 (1)	
Orthostatic intolerance | n (%)	0	1 (1)	
PPS | n (%)	1 (0.6)	0	
POTS | n (%)	6 (3.7)	0	
Dysautonomia | n (%)	1 (0.6)	0	
Cardiovascular autonomic neuropathy | n (%)	0	1 (1)	

Table 5 – Dysautonomia, and Non-adaptive responses. OH – Orthostatic Hypotension; PPS – Psychogenic Pseudosyncope; POTS – Postural Orthostatic Tachycardia Syndrome.

Introduction: The Portuguese population is aging, leading to a higher prevalence of syncope and unexplained falls among older adults. Understanding causes such as polypharmacy, comorbidities, autonomic dysfunction, or hypotension is essential. The Head-Up Tilt Test (HUTT) is a simple and safe tool for assessing syncope in older patients. This study compared HUTT outcomes and therapeutic approaches between elderly and non-elderly patients.

Methods: A retrospective single-centre analysis was performed on 271 consecutive HUTTs and 7 were excluded. Patients aged 70 years or older were considered elderly. Clinical, haemodynamic and autonomic data were reviewed. The statistical analysis comprised chi-square tests and comparisons of proportions and means, with a significance level set at $p < 0.05$.

Results: Among 264 HUTT patients, 37.9% were 70 years or older and 62.1% were younger. Protocol selection differed significantly ($p < 0.001$): the Fast Italian protocol was used more frequently in the elderly (67% vs. 31.7%) (Table 1). As expected, the elderly showed a lower peak (median 87, IQR 22 vs. 105, IQR 32; $p < 0.001$) and average heart rates (72, IQR 16 vs. 81, IQR 22; $p < 0.001$), confirming the chronotropic reserve decrease with age, although chronotropic incompetence rates did not differ significantly ($p = 1$) (Table 2). Overall positivity rates were similar ($p = 0.189$), but response type differed ($p = 0.001$): elderly had more Type 3 (30% vs. 14.6%), and fewer Type 1 (26% vs. 41.5%) and Type 2B (4% vs. 12.2%) responses (Tables 3 and 4). Classical orthostatic hypotension (OH) was more common in older patients and psychogenic pseudosyncope, postural orthostatic tachycardia syndrome, and dysautonomia only occurred in younger patients ($p < 0.001$) (Table 5). No significant differences were seen in therapeutic decisions such as device implantation ($p = 0.3$), electrophysiology study ($p = 0.458$), pharmacological therapy ($p = 1$), and tilt training referral ($p = 0.498$), or syncope recurrence at one year follow up (0.318).

Conclusions: HUTT protocol choice and test results differed significantly between age groups. Elderly patients more often underwent the Fast Italian protocol and showed vasodepressive patterns and classic OH, highlighting the role of age in autonomic changes and hemodynamic response to orthostasis. Interestingly, therapeutic decisions did not differ between the groups, which may suggest that syncope at this age is still undervalued by clinicians.

PO 268. TAVI IN NONAGENARIANS: DISTINCT OUTCOMES IN HEALTHY SURVIVORS

Rita Louro, Rafael Viana, Marta Figueiredo, Raquel Silva, Rute Vitorino, Rita Rocha, Gustavo Sá Mendes, Diogo Brás, David Neves, Ângela Bento, Renato Fernandes, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Severe aortic stenosis is increasingly encountered in adults aged ≥ 90 years, creating uncertainty about intervention in the setting of limited life expectancy and competing mortality risks. Although age is often viewed as a marker of procedural risk, nonagenarians selected for TAVI frequently represent healthy survivors with preserved physiological reserve. Evidence from community centres without surgical backup remains scarce.
Methods: We analysed 463 consecutive TAVI procedures at a single centre without on-site cardiac surgery. Outcomes included peri-procedural complications (periprosthetic leak, high-grade atrioventricular block, vascular and haemorrhagic events, stroke, acute kidney injury and death ≤ 7 days), 30-day and one-year all-cause mortality, cardiovascular readmission and clinical improvement.

	<90 years n=424	≥90 n=39	p value
Baseline characteristics			
Male, n (%)	205 (48.3)	16 (41.0)	0.381
BMI, kg/m2 - median (IQR)	26.3 (5.4)	24.6 (6.3)	0.088
Diabetes, n (%)	158 (37.3)	11 (28.2)	0.308
Dyslipidaemia, n (%)	302 (71.2)	27 (69.2)	0.982
Hypertension, n (%)	365 (86.1)	32 (82.1)	0.750
COPD, n (%)	30 (7.1)	1 (2.6)	0.294
GFR < 60 ml/min/1,73m^2, n (%)	203 (47.9)	27 (69.2)	**<0.05**
CAD, n (%)	92 (21.7)	2 (5.1)	**<0.05**
Atrial fibrilation, n (%)	99 (23.3)	14 (35.9)	0.082
Previous MI, n (%)	40 (9.4)	2 (5.1)	0.392
Previous PCI, n (%)	62 (14.6)	2 (5.1)	0.109
Previous CABG, n (%)	34 (8.0)	0 (0.0)	0.069
Previous Stroke, n (%)	40 (9.4)	0 (0.0)	**<0.05**
Clinical presentation			
AS hospitalization, n (%)	101 (23.8)	13 (33.4)	0.196
Syncope, n (%)	58 (13.8)	7 (17.9)	0.470
HF, NYHA > II, n (%)	203 (47.9)	22 (56.4)	0.583
Angina, CCS > II, n (%)	69 (16.3)	7 (17.9)	0.797
Mean AVG, mmHg - mean±SD	46.2±13.3	50.2±14.4	0.527
AVA, cm2 - mean±SD	0.75±0.22	0.60±0.19	**<0.05**
Maximum Velocity, m/s - median (IQR)	4.30 (0.64)	4.60 (0.80)	0.443
FEVE, % - mean±SD	56.7±11.2	52.3±12.3	0.170
Low Flow - Low Gradient, n (%)	46 (10.9)	8 (20.5)	0.060
Calcium Score, AU - median (IQR)	2265 (1627.0)	2771 (1721.0)	0.150
STS score, % - median (IQR)	4.0 (4.9)	7.7 (9.4)	**<0.05**
Euroscore, % - median (IQR)	2.5 (2.4)	4.4 (4.9)	**<0.05**
Outcomes			
In-hospital, n(%)			
Periprosthetic leak	11 (2.6)	1 (2.6)	0.984
High-grade AV block	79 (18.6)	6 (15.4)	0.603
Vascular complication	32 (7.5)	2 (5.1)	0.572
Hemorragic Complication	33 (7.8)	1 (2.6)	0.240
Stroke	11 (2.6)	0 (0.0)	0.313
Acute Kidney Injury	18 (4.2)	4 (10.3)	0.850
Death within 7 days	9 (2.1)	0 (0.0)	0.358
@ 1 month FUP, n (%)			
Death from all causes	17 (4.0)	3 (7.7)	0.283
@ 1 year FUP, n (%) *			
Death from all causes	33 (10.0)	9 (34.6)	**<0.05**
Readmisson cardiovascular cause	57 (17.2)	5 (19.2)	0.980
Clinical improvement	261 (78.9)	19 (73.1)	0.334

* Complete 1-year follow-up was available for 331 patients aged <90 years and 26 patients aged ≥90 years.

Results: Thirty-nine patients (8.4%) were aged ≥ 90 years. Compared with younger patients (< 90, n = 424), nonagenarians had similar cardiovascular profiles but less coronary artery disease and no previous stroke or CABG, consistent with biological selection. Despite more severe stenosis and higher risk scores, peri-procedural and 30-day outcomes were comparable. At one year, all-cause mortality was higher in nonagenarians (34.6% vs. 10.0%, p < 0.05), while cardiovascular readmissions and symptomatic improvement were similar. No death due to cardiovascular causes was registered. Deaths were often infection or frailty-related, including cases treated as a bridge to major non-cardiac surgery. This pattern suggests long-term outcomes are shaped by age-related competing risks rather than procedural failure, consistent with the healthy survivor framework.
Conclusions: Importantly, in nonagenarians, the clinical value of TAVI lies primarily in improving symptoms and reducing heart-failure burden rather than prolonging survival. For these patients, maintaining functional status, preventing recurrent decompensation, and avoiding hospitalisations are often more meaningful outcomes than incremental gains in life expectancy. It is nonetheless crucial to recognise the difference in 1-year mortality, underlining the need to better identify the healthy survivors. Patients with substantial comorbidities are less likely to derive meaningful benefit from the procedure and should be carefully selected. In these patients, the benefit of TAVI should be evaluated by its capacity to preserve autonomy and clinical stability, rather than survival alone.

Sábado, 25 Abril de 2026 | 15:30-16:25

Área de Posters - Ecrã 3 | Sessão de Posters 46 - Síndromes coronárias agudas: vias, atrasos e impacto das recomendações

PO 269. RAPID-ACCESS CHEST PAIN CONSULTATION: IMPLEMENTATION OF A PROGRAMME FOR EARLY DIAGNOSIS AND PERSONALISED STRATIFICATION OF CORONARY ARTERY DISEASE

Francisca Martins Nunes, Marta Catarina Almeida, Francisco Lemos de Sousa, Leonor Moura, Inês Rodrigues, António Gonçalves, André Lobo, Inês Neves, Marta Leite, Rita Faria, Nuno Dias Ferreira, Ricardo Fontes-Carvalho

ULS Gaia e Espinho/Hospital Santos Silva.

Introduction: Chronic coronary syndrome (CCS) presents in a heterogeneous manner, ranging from stable angina to ischemic heart failure or asymptomatic patients with imaging/electrocardiographic abnormalities. The correct stratification of these patients depends on the availability of complementary diagnostic tests-particularly functional testing as coronary CT angiography (CCTA) and on the rapid response time to first visit, a frequent obstacle to early referral. Thus, there is an unmet need to create innovative organizational models that enable personalized risk assessment and early patient orientation. As such, we developed the Rapid Access Chest Pain Consultation based on structured protocols that integrate clinical assessment, advanced imaging and early intervention.
Methods: This program was implemented in November 2024 covering patients who meet specific acceptance criteria. The consultation request must include a detailed description of the chest pain. If eligible, the patient is summoned and evaluated by a cardiologist, undergoing CCTA on the same day. Then, based on the CAD-RADS 2.0 classification the patient is referred to the attending physician or for additional testing (ischemia study in < 3 months or invasive coronary angiography [ICA] in < 2 weeks, as applicable). Cardiovascular risk factors are optimized and prognosis-modifying and anti-ischemic therapy titrated as needed.
Results: To date, a total of 127 patients have been evaluated, summoned for consultation within a median time of 30 days. Most are men (59.1%) with a mean age of 61.1y. The median pre-test probability (PTP) of CCS was 11.0% (low PTP, 41.5%) which according to guidelines supports using CCTA to rule out CAD. Only 32% had symptoms compatible with cardiac chest pain. 108 (85.0%) patients underwent CCTA with a median calcium score of 53.8 Hounsfield Units. After excluding obstructive CAD 63 patients (49.6%) were discharged to their attending physician. Of the remaining 26.7% were referred for ischemia testing and 13.4% for ICA, performed in a median of 28.5 days (IQR 8.0-25.0). Follow-up was then ensured in cardiology consultations.
Conclusions: This protocol has proven to be feasible and effective, allowing most patients to obtain diagnostic and therapeutic guidance after a single

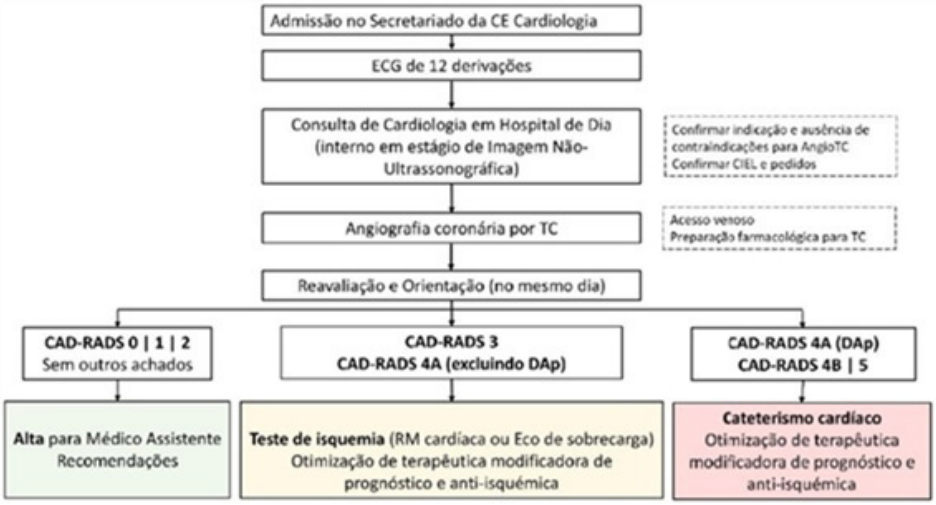


Figure PO 269

hospital visit. The Rapid Access Chest Pain Consultation represents an innovative model of clinical practice with clear gains in care efficiency, early diagnosis and personalization of care.

PO 270. ACUTE CORONARY SYNDROME: WHAT HAS CHANGED 2 YEARS AFTER NEW ESC GUIDELINES?

Isabel Martins Moreira, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, Matilde Pipa, Pedro Rocha Carvalho, Pedro Mateus, Inês Silveira, Ilídio Moreira

ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro.

Introduction: The 2023 European Society of Cardiology (ESC) guidelines for the management of acute coronary syndromes (ACS) introduced major updates, including refined invasive strategy in high-risk patients, a more selective use of pretreatment with P2Y12 inhibitors, and a stronger recommendation for complete revascularization in STEMI. These changes aimed to improve outcomes through safer and more individualized care.
Objectives: To assess the impact of the implementation of the 2023 ESC ACS guidelines on clinical practice and patient outcomes in a real-world setting.
Methods: Single-centre retrospective study including patients hospitalized with ACS and enrolled in the Portuguese Registry of Acute Coronary Syndromes between October 2010 and July 2025. Patients were divided into two groups: before (Group A) and after August 2023 (Group B). Baseline characteristics, management strategies, and outcomes were compared.
Results: A total of 1,455 patients were included (73.3% male, mean age of 67.0 ± 12.8 years); 1,154 (79.3%) in Group A and 301 (20.7%) in Group B. Patients in group A were older (67.3 ± 12.7 vs. 65.6 ± 12.9 years, p = 0.043), less often smokers (23.2% vs. 30.2%, p = 0.012) and had fewer previous percutaneous coronary interventions (PCI) (10.8% vs. 15.6%, p = 0.022). After guideline implementation, STEMI admissions increased (56.8% vs. 45.4%, p < 0.001). There was a higher rate of coronary angiography (99.7% vs. 96.6%, p = 0.004), PCI (85.0% vs. 76.8%, p = 0.002) and staged PCI (28.9% vs. 19%, p = 0.002), with greater use of radial access (94% vs. 70.9%, p < 0.001). In NSTEMI patients, the time to coronary angiography was reduced (18.7 vs. 36.8 hours, p < 0.001). In STEMI patients, fibrinolysis decreased (2% vs. 11.6%, p < 0.001) and pre-catheterization P2Y12 loading was less frequent (59.6% vs. 85.1%, p < 0.001). Regarding medical therapy, use of potent P2Y12 inhibitors (prasugrel/ticagrelor) and additional lipid-lowering agents increased, while clopidogrel, nitrates, and beta-blockers were less prescribed. In-hospital complications decreased, including heart failure (14.0% vs. 21.0%, p = 0.006), cardiogenic shock (1.3% vs. 4.9%, p = 0.006), and mechanical complications (0% vs. 1%, p = 0.035), with shorter hospital stay (5 ± 3 vs. 6 ± 4 days, p = 0.003). In-hospital mortality remained similar (1.0% vs. 1.8%, p = 0.318). Referral for cardiac rehabilitation increased significantly (52.7% vs. 16.9%, p < 0.001).
Conclusions: Implementation of the 2023 ESC ACS guidelines was associated with significant changes in clinical management, particularly in invasive strategy and antiplatelet therapy, leading to fewer in-hospital complications and shorter admissions. These results support their positive impact on real-world clinical practice.

PO 271. IMPACT OF AGE AND COMORBIDITIES ON TREATMENT DELAYS IN ACUTE CORONARY SYNDROME: A RETROSPECTIVE ANALYSIS

António Maria Fervença Rocha Almeida, Marta Figueiredo, Rafael Viana, Rita Louro, Raquel Silva, Diogo Brás, David Neves, Ângela Bento, Renato Fernandes, Lino Patrício

ULS Alentejo Central/Hospital do Espírito Santo de Évora.

Introduction: Ischaemic heart disease is the most common cause of death. Approximately one-third of patients hospitalised for acute coronary syndrome (ACS) are over 75 years of age but these patients are underrepresented in randomised controlled trials, despite mortality rate being twice as high. The mortality in patients presenting with an ACS is associated with many factors such as the time delay to treatment. Hence, we aim to analyse the response time and delays in the emergent coronary referral pathway for our centre taking age in consideration.
Methods and results: We conducted a retrospective analysis of 833 consecutive patients admitted for primary percutaneous coronary angioplasty between January 2022 and April 2025. The median age was 64 ± 14 years, with 73% of participants being male. Key comorbidities included diabetes (27%), dyslipidemia (39%), hypertension (56%), smoking (48%), family history of cardiac disease (5%), and prior myocardial infarction (12%). Most patients (87%) presented in Killip class I. The time variables analyzed included patient delay, ECG delay, diagnostic delay, transport delay, home delay, and procedure time. Additional variables were door-in-door-out time, diagnosis-to-wire time, first medical contact (FMC) to wire, and total ischemia time. Patients over 75 years old were less frequently male (60% vs. 77%, p < 0.001), had less smoking history (14% vs. 58%, p < 0.001), and less family history of cardiac disease (1% vs. 6%, p = 0.006). Conversely, they exhibited more diabetes (33% vs. 25%, p = 0.030), dyslipidemia (48% vs. 36%, p = 0.003), and hypertension (70% vs. 51%, p < 0.001). No differences were found regarding median patient delay (106 min vs. 101 min), transport delay (105 min vs. 86 min), home delay (2 min vs. 2 min), diagnosis-to-wire time (150 min vs. 122 min), or procedure time (61 min vs. 57 min). However, older individuals demonstrated significantly longer ECG delay (22 min vs. 14 min, p < 0.001), diagnostic delay (40 min vs. 22 min, p < 0.001), door-in-door-out time (150 min vs. 76 min, p < 0.001), FMC to wire time (262 min vs. 174 min,

p < 0.001), and total ischemia time (466 min vs. 322 min, p < 0.001). After adjustment for cardiovascular risk factors, age over 75 years was identified as an independent predictor of prolonged ECG delay (p = 0.018), door-in-door-out time (p = 0.004), and FMC to wire time (p = 0.001).
Conclusions: This study shows that our population is significantly delayed compared to the ESC guidelines. Older patients experienced notably longer delays in ECG acquisition, diagnostic processes, and overall treatment times. Factors like diabetes, dyslipidemia, and hypertension were more prevalent in this age group, further complicating timely care. Addressing these delays through targeted interventions focusing on older patients could help reduce treatment times and improve clinical outcomes for those affected by acute coronary syndrome.

PO 272. IS A FAST PATHWAY THE BEST WAY TO ENTER?

Luís Sousa Azevedo, Isabel Martins Moreira, Isabel Nóbrega Fernandes, Pedro Sousa Mateus, Sílvia Leão, Ilidio Moreira

ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro.

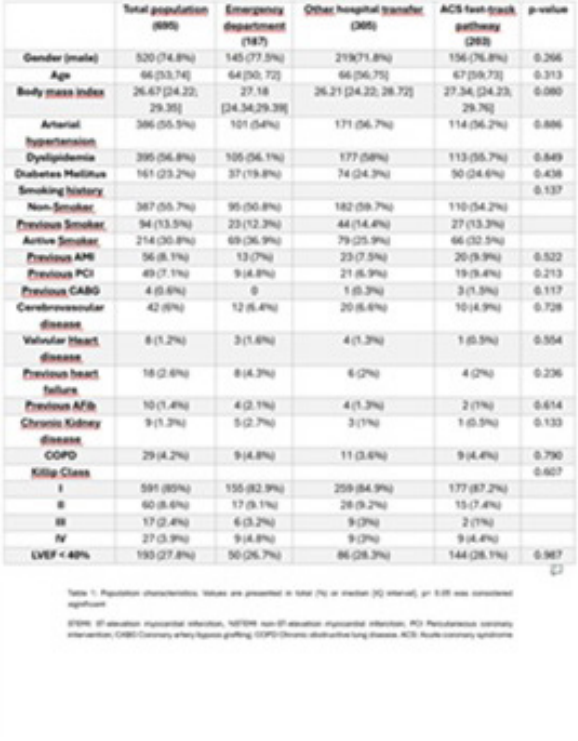
Introduction: Admission protocols such as Acute Coronary Syndrome (ACS) fast-track pathways are designed to accelerate treatment in patients with ST-elevation myocardial infarction (STEMI), with the aim of improving clinical outcomes.
Objectives: We aimed to evaluate whether the mode of admission of STEMI patients, within the context of current protocols implemented in our centre, has an impact on long-term outcomes.
Methods: This retrospective observational study included patients admitted to our centre with STEMI between October 2010 and July 2025, all of whom were recorded in a national registry. Other forms of ACS were excluded. Patients were categorized into three groups according to their mode of admission: transfer from another hospital, admission through the Emergency Department (ED), and admission through the ACS Fast-Track pathway. Differences between groups were assessed using the chi-square test for categorical variables and median comparison tests for continuous variables. To evaluate the impact of admission route on outcomes, we performed a multivariate binary logistic regression for the composite endpoint of all-cause mortality or cardiovascular readmission during the first year after discharge. In this analysis, admission through the ACS Fast-Track pathway was used as the reference category.
Results: A total of 695 patients were included, of whom 520 (74.8%) were male, with a median age of 66 years. Of these, 305 patients (43.9%) were transferred from other hospitals, 203 (29.2%) were admitted via the ACS Fast-Track pathway, and the remaining 187 (26.9%) presented to the ED. No significant baseline differences were observed between groups (Tables 1 and 2). In the multivariate logistic regression for the composite endpoint, no significant differences were found between admission routes (p = 0.466). Neither transfer from another hospital (OR = 0.913; 95%CI 0.513-1.626; p = 0.757) nor ED admission (OR = 9.725; 95%CI 0.218-433.409; p = 0.240) differed significantly from ACS Fast-Track admissions (Table 3).
Conclusions: In this study, the mode of admission was not associated with differences in the composite endpoint of all-cause mortality or cardiovascular readmission during the first year. This may indicate that delays inherent to certain admission routes are compensated by system-level factors-such as pre-activation of the catheterization laboratory for transferred patients, ensuring immediate intervention upon arrival, and rapid recognition of STEMI in the ED. Notably, only 29.2% of patients were admitted through the ACS fast-track pathway, whereas 70.8% arrived at the hospital (our center or a non-PCI capable hospital) by their own means. This observation points to potential limitations in health literacy within our population, leading to inadequate recognition of ACS symptoms and failure to seek appropriate emergency care.

PO 273. IMPACT OF ACTIVE SMOKING ON THE TIMING AND PRESENTATION OF FIRST ACUTE CORONARY SYNDROME

I. Nóbrega Fernandes, I. Martins Moreira, M. Bernardo, L. Sousa Azevedo, M. Pipa, A. Nunes, P. Mateus, I. Moreira

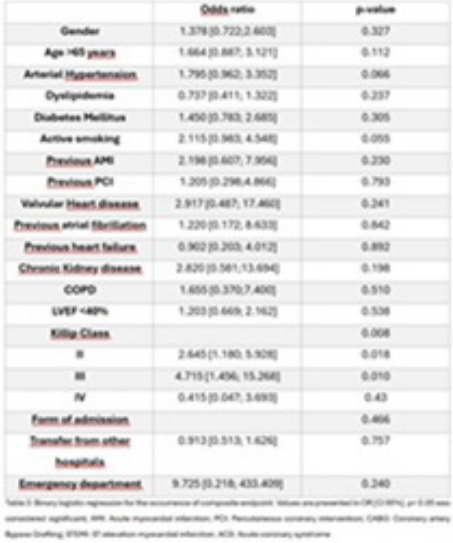
ULS Trás-os-Montes e Alto Douro/Hospital de S. Pedro.

Introduction: Cigarette smoking substantially accelerates the development of coronary atherosclerosis, leading many individuals to experience acute coronary events at a younger age than non-smokers. Describing how these patients present and the complications they develop during hospitalisation may help guide more effective prevention and cessation strategies.



	Total population (695)	Emergency department (187)	Other hospital transfer (305)	ACS fast-track pathway (203)	p-value
Gender (male)	520 (74.8%)	145 (77.5%)	219(71.8%)	156 (76.8%)	0.266
Age	66 [53,74]	64 [50, 72]	66 [56,75]	67 [59,73]	0.313
Body mass index	26.67 [24.22; 29.35]	27.18 [24.34;29.39]	26.21 [24.22; 28.72]	27.34; [24.23; 29.76]	0.080
Arterial hypertension	386 (55.5%)	101 (54%)	171 (56.7%)	114 (56.2%)	0.886
Dyslipidemia	395 (56.8%)	105 (56.1%)	177 (58%)	113 (55.7%)	0.849
Diabetes Mellitus	161 (23.2%)	37 (19.8%)	74 (24.3%)	50 (24.6%)	0.438
Smoking history					0.137
Non-Smoker	387 (55.7%)	95 (50.8%)	182 (59.7%)	110 (54.2%)	
Previous Smoker	94 (13.5%)	23 (12.3%)	44 (14.4%)	27 (13.3%)	
Active Smoker	214 (30.8%)	69 (36.9%)	79 (25.9%)	66 (32.5%)	
Previous AMI	56 (8.1%)	13 (7%)	23 (7.5%)	20 (9.9%)	0.522
Previous PCI	49 (7.1%)	9 (4.8%)	21 (6.9%)	19 (9.4%)	0.213
Previous CABG	4 (0.6%)	0	1 (0.3%)	3 (1.5%)	0.117
Cerebrovascular disease	42 (6%)	12 (6.4%)	20 (6.6%)	10 (4.9%)	0.728
Valvular Heart disease	8 (1.2%)	3 (1.6%)	4 (1.3%)	1 (0.5%)	0.554
Previous heart failure	16 (2.6%)	8 (4.3%)	6 (2%)	4 (2%)	0.236
Previous AFib	10 (1.4%)	4 (2.1%)	4 (1.3%)	2 (1%)	0.614
Chronic Kidney disease	9 (1.3%)	5 (2.7%)	3 (1%)	1 (0.5%)	0.133
COPD	29 (4.2%)	9 (4.8%)	11 (3.6%)	9 (4.4%)	0.790
Killip Class					0.607
I	591 (85%)	155 (82.9%)	259 (84.9%)	177 (87.2%)	
II	60 (8.6%)	17 (9.1%)	28 (9.2%)	15 (7.4%)	
III	17 (2.4%)	6 (3.2%)	9 (3%)	2 (1%)	
IV	27 (3.9%)	9 (4.8%)	9 (3%)	9 (4.4%)	
LVEF <40%	193 (27.8%)	50 (26.7%)	86 (28.3%)	144 (28.1%)	0.987

	Total population (695)	Emergency department (187)	Other hospital transfer (305)	ACS fast-track pathway (203)	p-value
All cause death	34 (4.9%)	12 (6.4%)	14 (4.6%)	8 (3.9%)	0.499
Cardiovascular admission	77 (11.1%)	21 (11.2%)	40 (13.1%)	16 (7.9%)	0.163



	Odds ratio	p-value
Gender	1.378 [0.722,2.603]	0.327
Age >65 years	1.664 [0.887; 3.121]	0.112
Arterial Hypertension	1.795 [0.962; 3.352]	0.066
Dyslipidemia	0.737 [0.411, 1.322]	0.237
Diabetes Mellitus	1.450 [0.783, 2.685]	0.305
Active smoking	2.115 [0.983, 4.548]	0.055
Previous AMI	2.196 [0.607, 7.956]	0.230
Previous PCI	1.205 [0.296,4.866]	0.793
Valvular Heart disease	2.917 [0.467; 17.460]	0.241
Previous atrial fibrillation	1.220 [0.172; 8.633]	0.842
Previous heart failure	0.902 [0.203; 4.012]	0.892
Chronic Kidney disease	2.820 [0.561,13.694]	0.198
COPD	1.655 [0.370;7.400]	0.510
LVEF <40%	1.203 [0.669; 2.162]	0.538
Killip Class		0.008
II	2.645 [1.180; 5.928]	0.018
III	4.715 [1.456; 15.268]	0.010
IV	0.415 [0.047; 3.693]	0.43
Form of admission		0.466
Transfer from other hospitals	0.913 [0.513; 1.626]	0.757
Emergency department	9.725 [0.218; 433.409]	0.240

Figure PO 272

Objectives: To evaluate the influence of active smoking on the age at first acute coronary syndrome (ACS) and to compare clinical presentation and in-hospital evolution between active smokers and non-smokers.
Methods: We analysed all patients hospitalised with a first ACS between October 2010 and June 2025 in a single centre. Individuals were grouped according to current smoking status. Demographic variables, cardiovascular risk factors, presentation type, left ventricular function and in-hospital complications were evaluated. Predictors of younger ACS onset were identified using multivariate linear regression.
Results: Among 1,260 patients (mean age 66.6 ± 12.9 years; 28.7% women), 25.5% were active smokers. Smokers were predominantly men (86.0% vs. 66.3%, $p < 0.001$) and presented at a markedly younger age (55 vs. 71 years, $p < 0.001$). They had lower body mass index (26 vs. 27 kg/m^2, $p = 0.002$) and lower rates of hypertension (33.8% vs. 74.4%, $p < 0.001$), diabetes (10.4% vs. 34.9%, $p < 0.001$) and dyslipidaemia (50.2% vs. 60.8%, $p < 0.001$). Conversely, LDL cholesterol levels were higher on admission (126 vs. 110 mg/dL, $p < 0.001$), and a family history of coronary disease was more common (8.5% vs. 4.2%, $p = 0.003$). Active smokers more often presented with ST-elevation myocardial infarction (62.0% vs. 46.6%, $p < 0.001$) and with lower Killip class (Killip I: 92.8% vs. 85.0%, $p < 0.001$). Left ventricular ejection fraction at discharge was slightly lower (49% vs. 52%, $p = 0.025$). New-onset heart failure (11.2% vs. 20.9%, $p < 0.001$) and atrial fibrillation (4.0% vs. 8.5%, $p = 0.008$) occurred less frequently in smokers. Rates of reinfarction, cardiogenic shock, arrhythmic or mechanical complications, in-hospital mortality (0.6% vs. 2.1%, $p = 0.075$) and one-year mortality (1.9% vs. 3.1%, $p = 0.250$) did not differ between groups. Active smoking independently predicted younger ACS onset, with a mean age reduction of 11.5 years (adjusted $R^2 = 0.39$, $p < 0.001$).
Conclusions: In this cohort, active smokers experienced ACS at a substantially younger age and more often with ST-elevation myocardial infarction. Despite these differences in baseline risk and presentation, in-hospital and one-year outcomes were comparable to those of non-smokers. These findings highlight the substantial influence of tobacco exposure on the early development of coronary disease and reinforce the need for targeted prevention and smoking cessation interventions in younger adults.

PO 274. IMPACT OF CORONARY FAST-TRACK ACTIVATION ON CLINICAL OUTCOMES IN STEMI PATIENTS

Ana Rodrigo Costa, Inês Gomes Campos, Mauro Moreira, José Luís Ferraro, Inês Bastos Castro, Carla Almeida, Rui Pontes dos Santos, Joel Ponte Monteiro, Liliana Reis, Aurora Andrade

ULS Tâmega e Sousa/Hospital Padre Américo.

Introduction: ST-elevation myocardial infarction (STEMI) is a major cardiovascular emergency that requires urgent triage for immediate reperfusion therapy, as delays in reperfusion are linked to increased morbidity and mortality. Timely activation of coronary fast-track protocol is critical to minimize ischemic time and improve clinical outcomes.
Objectives: To assess effectiveness of coronary fast-track protocol to door-to-catheterization time and outcomes in STEMI patients.
Methods: Observational, retrospective, single-center study in a tertiary hospital that included all patients admitted with STEMI between September 2023 and September 2025. Activation of coronary fast-track protocol, treatment times, length of stay and in-hospital mortality were evaluated.
Results: A total of 247 patients were included, with 77.7% male individuals, with a median of age of 62 years. Of these, 17 patients presenting with cardiac arrest on admission –triaged directly to the emergency room– were excluded from the statistical analysis. Coronary fast-track was activated in 76.5% of patients presenting with STEMI. It was associated with significantly shorter door-to-catheterization time (median 54 vs. 186 min; $p < 0.001$) and lower total ischemic time (median 244 vs. 357.5 min; $p < 0.001$). Patients without fast-track activation tended to have longer hospitalizations (median 5 vs. 4 days; $p = 0.085$). Regarding left and right ventricular systolic function and left ventricular diastolic function, there were no significant differences between both groups ($p = 0.257$, $p = 0,275$, $p = 0,069$ respectively). In-hospital mortality was nearly four times higher in patients without fast-track to reperfusion therapy (4.3% vs. 15.6%; $p = 0.006$). Among the patients who were not triaged through the coronary fast-track (n = 45), 57.8% presented with chest pain as the main symptom, which was initially interpreted in triage as not suggestive of acute coronary syndrome.
Conclusions: Activation of coronary fast-track protocol was associated with shorter reperfusion times and significantly lower in-hospital mortality rates among STEMI patients. These findings highlight the importance of systematic triage and objective assessment of chest pain, which should not be subjectively interpreted, to ensure early recognition of STEMI. In addition to improving clinical outcomes, optimized coronary fast-track activation may also reduce hospital length of stay and complications, translating into meaningful organizational and financial benefits for healthcare systems.

Sábado, 25 Abril de 2026 | 17:00-17:55

Área de Posters - Ecrã 1 | Sessão de Posters 47 - Dos dados às decisões: a revolução da IA em cardiologia

PO 275. ARTIFICIAL INTELLIGENCE-BASED DETECTION OF CARDIOVASCULAR OUTCOMES: FROM UNSTRUCTURED DATA TO AUTOMATIC AUDITING AND RESEARCH

Diogo Ferreira, Daniel Cazeiro, Marta Vilela, João Cravo, Cláudia Jorge, Pedro Carrilho Ferreira, João Marques, Pedro Cardoso, Fausto Pinto, Miguel Nobre Menezes

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

Introduction: Most clinical information in electronic health records is unstructured, making large-scale research and quality monitoring dependent on manual review. Large Language Models (LLMs) offer a scalable alternative, though their performance on cardiology documentation is not well defined. We evaluated locally deployed LLMs for extracting key outcomes from cardiology records, using TAVI procedure and discharge reports as a representative test case.
Methods: Procedural reports and discharge summaries from 521 consecutive TAVI cases were analysed for three endpoints: procedural success; any intraprocedural complications from procedural reports; and intra- or post-procedural complications from discharge notes. Three locally deployed general-use LLMs –one resource-intensive (Llama3-70B) and two lighter models (Mistral-7B, Mistral-8B)– were tested. A zero-shot, schema-guided prompting strategy prioritised sensitivity to avoid missed complications. Ground-truth labels came from independent manual review using VARC-3 criteria, with additional non-procedural complications included. Sensitivity, specificity, PPV, NPV, and concordance were calculated.
Results: Procedural success was 99.8%. Manual review found complications in 64 (12.3%) procedural reports and 94 (18.1%) discharge summaries, with a major complication rate of 6.3%. All models showed high sensitivity and NPV for procedural success: Llama3-70B and Mistral-7B reached 100% for both, and Mistral-8B performed similarly (99% sensitivity, 100% NPV). For intraprocedural complications, Llama3-70B maintained high sensitivity (95%) and NPV (99%). Both Mistral models had ≥ 95% NPV, though Mistral-7B showed lower sensitivity (67%). Specificity and PPV were modest, particularly for Mistral-8B (63% specificity, 27% PPV). Detection from discharge summaries was harder. Sensitivity remained high (90% for Llama3-70B; 100% and 98% for Mistral-7B and Mistral-8B) with NPVs of 96-100%, but specificity and PPV were low, especially for the Mistral models (3-27%). Llama3-70B provided the most balanced overall performance.
Conclusions: Locally deployed LLMs were highly sensitive for detecting procedural success and complications, with NPVs near or at 100%. However, lower specificity and PPV–mainly from overinterpreting benign

Procedure_Success	LLM Analysis Time (s) - median [IQR]	LLM Confidence (%) - median [IQR]	TP	TN	FP	FN	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)
Llama-3 (70b)	58.8 [53.6-66.9]	98 [98-99]	520	1	0	0	521	100	100	100	100	100
Mistral (7b)	5.6 [5.3-6.2]	99 [95-99]	520	1	0	0	521	100	100	100	100	100
Mistral (8b)	5.4 [5.1-6.0]	95 [95-95]	517	1	0	3	521	99	100	100	25	99

Procedure_Complications	LLM Analysis Time (s) - median [IQR]	LLM Confidence (%) - median [IQR]	TP	TN	FP	FN	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)
Llama-3 (70b)	69.4 [58.8-82.0]	100 [95-100]	61	399	58	3	521	95	87	51	99	88
Mistral (7b)	10.7 [10.1-11.4]	100 [90-100]	43	417	40	21	521	67	91	52	95	88
Mistral (8b)	15.5 [14.7-16.5]	95 [95-95]	63	286	171	1	521	98	63	27	100	67

Discharge_Complications	LLM Analysis Time (s) - median [IQR]	LLM Confidence (%) - median [IQR]	TP	TN	FP	FN	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)
Llama-3 (70b)	92.3 [82.0-105.3]	95 [90-100]	85	235	172	9	501	90	58	33	96	64
Mistral (7b)	13.8 [12.8-15.2]	90 [90-90]	94	14	393	0	501	100	3	19	100	22
Mistral (8b)	17.8 [16.9-19.0]	95 [95-95]	92	111	296	2	501	98	27	24	98	41

Global	TP	TN	FP	FN	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)
Llama-3 (70b)	666	635	230	12	1543	98	73	74	98	84
Mistral (7b)	657	432	433	21	1543	97	50	60	95	71
Mistral (8b)	672	398	467	6	1543	99	46	59	99	69

Figure PO 275

findings–limit fully autonomous use. Only the resource-intensive model delivered consistently high performance, constraining broader implementation. Still, because complications were absent in over 80% of reports, these models could have reduced manual review by more than 80%, greatly improving efficiency. Their potential for automated auditing and research is clear.

PO 276. FROM FREE TEXT TO INSIGHT: PERFORMANCE OF LLMS IN STRUCTURING PORTUGUESE ANGIOGRAPHY REPORTS AND EXTRACTING FFR/IFR VALUES

Diogo Ferreira[1], João Cravo[1], Marta Vilela[1], Daniel Cazeiro[1], Sofia Morgado[2], Filipa Valdeira[2], Cláudia Soares[2], Fausto Pinto[1], Miguel Nobre Menezes[1]

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Introduction: Coronary angiography and angioplasty reports contain essential anatomical, physiological, and procedural data for research, audits, and quality assessment. However, as unstructured text, extracting variables –such as lesion location, FFR/iFR values, and procedural details–is slow and hard to scale. This limits dataset size, delays research, and hinders quality monitoring. Although Large Language Models (LLMs) show promise in medical text processing, their performance on Portuguese cardiology reports is unknown. This study evaluates whether open-source, locally deployable LLMs can convert free-text angiography reports into structured data for research and quality improvement.

Methods: A total of 1,314 reports (2012-2023) were analyzed. Two tasks were assessed: extraction of FFR/iFR values per vessel and classification of procedure type. The reference standard was established through manual review by cardiology trainees. Llama3, Mistral and Medllama2 models were tested using zero-shot and one-shot prompting and compared with a REGEX baseline. Performance was measured using global concordance, sensitivity, positive predictive value (PPV) and F1-score, with strict exact-value matching for physiological indices.

Results: Of the 1,314 reports, 681 described angiography alone and 633 included angioplasty, totaling 591 FFR and 1,190 iFR values. MedLlama2 was excluded for inconsistent structured output. For procedure classification, REGEX achieved the highest global concordance (0.992) and PPV, while Llama3 one-shot showed the best sensitivity (0.998) and an F1-score of 0.984. For FFR/iFR detection, Llama3 zero-shot demonstrated the strongest performance, with global concordance of 0.948 and sensitivity of 0.872, surpassing both Mistral variants and REGEX. For exact numerical extraction, Llama3 one-shot reached the highest concordance (0.906). REGEX remained highly specific but less sensitive in detecting index presence, reflecting limitations with varied phrasing.

TABLE 1 Results for procedure classification

	Concordance	PPV	Sensitivity	F1
Regex	0.992	0.998	0.984	0.991
Mistral 0-S	0.870	0.790	0.996	0.881
Mistral 1-S	0.867	0.783	1.0	0.879
Llama3 0-S	0.968	0.943	0.994	0.968
Llama3 1-S	0.985	0.971	0.998	0.984

TABLE 2 Results for detection (presence/absence) of FFR/iFR values

	Concordance	PPV	Sensitivity	F1
Regex	0.943	0.832	0.727	0.776
Mistral 0-S	0.915	0.648	0.799	0.714
Mistral 1-S	0.886	0.575	0.627	0.6
Llama 0-S	0.948	0.769	0.872	0.817
Llama3 1-S	0.902	0.608	0.806	0.693

TABLE 3 Results for concordance of the FFR/iFR values extracted

	Concordance
Regex	0.888
Mistral 0-S	0.893
Mistral 1-S	0.903
Llama 0-S	0.885
Llama3 1-S	0.906

Conclusions: Open-source LLMs can accurately structure Portuguese coronary angiography reports, reducing the need for large-scale manual extraction. Llama3 models reliably detect FFR/iFR measurements and show high concordance in exact value extraction, outperforming REGEX and other open-weight models in linguistically complex tasks. This substantially decreases the number of reports requiring human review and enables dataset generation while preserving data privacy. Overall, LLM-based extraction emerges as a practical, deployable solution for research, quality monitoring, and audit, with clear potential to accelerate data-driven cardiovascular care.

PO 277. EXTERNAL VALIDATION OF AN AI-ECG MODEL FOR LEFT VENTRICULAR SYSTOLIC DYSFUNCTION DETECTION - COMPARISON WITH TRANSTHORACIC ECHOCARDIOGRAPHY AND CARDIAC MAGNETIC RESONANCE

Erivaldo Figueiredo

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Introduction: Left ventricular (LV) systolic dysfunction is associated with adverse outcomes but often remains unrecognized. Artificial intelligence (AI) applied to electrocardiography offers a scalable approach for early detection. PMcardio® is a commercially available AI-ECG platform capable of automated LV function estimation, yet its performance relative to transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR) remains insufficiently established in real-world cohorts.
Objectives: To evaluate the diagnostic performance of the PMcardio® AI-ECG model compared with TTE for detecting LV systolic dysfunction using CMR as reference, and to directly compare AI-ECG classification with CMR-defined dysfunction.
Methods: This retrospective study included 384 patients who underwent ECG, TTE, and CMR within ≤ 30 days. The AI-ECG model classified LV function as reduced (≤ 40%), mildly reduced (41-49%), or preserved (≥ 50%). For validation, AI-ECG and TTE were dichotomized as dysfunction (< 50%) or no dysfunction (≥ 50%), using CMR as reference. Diagnostic metrics included sensitivity, specificity, predictive values, accuracy, and AUC. Concordance between TTE and CMR was assessed using Lin's concordance correlation coefficient and Cohen's κ. A subgroup of heart failure (HF) patients was analysed separately. Logistic regression evaluated predictors of AI-ECG misclassification and the association between AI-ECG output and CMR-defined dysfunction.
Results: LV dysfunction was present in 112 patients (29.2%). AI-ECG sensitivity was 85.7% (95%CI 77.5-91.1), specificity 85.3% (95%CI 80.5-89.1), accuracy 85.4%, and AUC 0.86 (95%CI 0.80-0.90). TTE showed sensitivity 92.9% (95%CI 86.8-96.4), specificity 88.6% (95%CI 84.2-91.8), accuracy 89.6%, and AUC 0.97 (95%CI 0.94-0.99). Concordance with CMR was substantial for categorical dysfunction (κ 0.765) and high for continuous LVEF (CCC 0.884). In HF patients (n = 78), AI-ECG performance improved, with sensitivity 92.3%, specificity 75.0%, accuracy 88.5%, and AUC 0.89 (95%CI 0.83-0.94). In multivariable analysis, AI-ECG classification was strongly associated with CMR-defined dysfunction (OR 22.2; 95%CI 10.6-46.5), while age and sex did not predict misclassification.

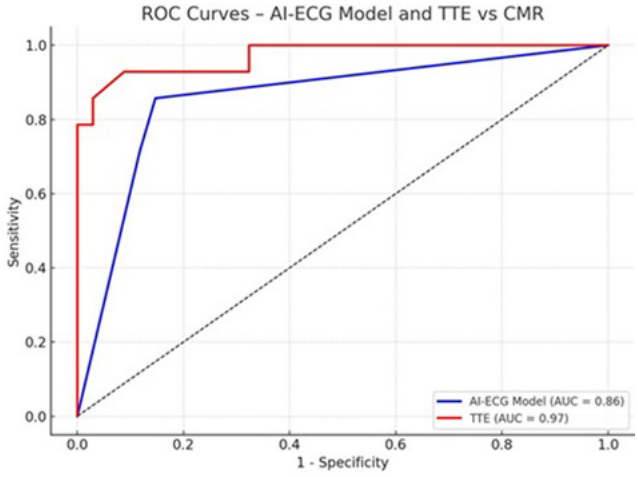

Figure 1. Combined ROC curves comparing the diagnostic performance of the AI-EC(model and transthoracic echocardiography (TTE) for detecting left ventricular systoli dysfunction, using cardiac magnetic resonance (CMR) as the reference. AUC values wer 0.86 for the AI-ECG model and 0.97 for TTE.

Conclusions: The PMcardio® AI-ECG model demonstrated high diagnostic accuracy for detecting LV systolic dysfunction when benchmarked against CMR, with satisfactory performance even in a cohort with high prevalence of dysfunction, supporting its potential role as an accessible screening tool to guide referral for advanced cardiac imaging.

PO 278. AI VS. AI: PERFORMANCE OF TWO LARGE LANGUAGE MODELS FOR ECG-BASED EMERGENT CATH LAB ACTIVATION IN ACUTE CORONARY SYNDROME

Miguel Rocha, Helena Moreira, Pedro Palma, Joana Gonçalves, Emanuel Oliveira, Bernardo Cruz, Benedita Couto Viana, Erivaldo Figueiredo, Luana Alves, Tiago Prata Branco, Ana Isabel Pinho, Rui Simões Rodrigues

ULS São João/Hospital São João.

Introduction: Generative artificial intelligence (AI) models are increasingly available and used for clinical decision support, but their performance in real-world ECG-based triage of acute coronary syndromes (ACS) remains uncertain.
Objectives: To evaluate and compare the performance of two large language models (LLMs), ChatGPT and Perplexity, for emergent cath lab activation decisions based solely on 12-lead ECGs.
Methods: We retrospectively analysed patients from a Portuguese hospital with emergent cath lab activation between January 2024 and December 2025 for suspected ACS. Demographic data, risk factors, culprit artery, left ventricular ejection fraction (LVEF) and right ventricular function (RVF) were collected. Each ECG was presented, with a standardised prompt, to ChatGPT and Perplexity, and the models were asked to: (i) decide on cath lab activation, (ii) provide an ECG diagnosis (e.g. anterior STEMI), (iii) infer the culprit artery, (iv) estimate LVEF as reduced vs. non-reduced (< 40% vs. ≥ 40%), and (v) classify RVF. A cardiologist-adjudicated reference defined whether cath lab activation had been appropriate and whether AI outputs were correct. Accuracy was compared using McNemar's test.
Results: We included 129 patients. Mean age was 63.5 ± 13.8 years; ≈ 77% were male. Hypertension was present in 58.9%, dyslipidaemia in 57.4% and 44.2% were smokers. Median LVEF was 45% (IQR 34-55). The clinician's activation decision was correct in 98.4% of patients. ChatGPT correctly classified cath lab activation in 40.3% and Perplexity in 52.7% of cases (Perplexity vs. ChatGPT p = 0.027; both p < 0.001 vs. clinician). ChatGPT recommended activation in 34.1% and Perplexity in 47.3% of ECGs. Despite an indication for activation in 127 patients, ChatGPT failed to activate the cath lab when it should have in 56.6% of cases and Perplexity in 44.2%. Correct ECG diagnosis was achieved in 13.2% by ChatGPT and 21.7% by Perplexity (p = 0.054), and culprit artery in 16.3% vs. 24.0% (p = 0.10), respectively. For reduced vs. non reduced LVEF, accuracy was 65.1% (ChatGPT) and 57.4% (Perplexity; p = 0.13). RVF was better classified by both LLMs, being 82.2% accuracy for ChatGPT and 75.0% for Perplexity.
Conclusions: In this real-world cohort of emergent cath lab activations, two accessible general-purpose LLMs showed poor to modest performance for ECG-based triage, with Perplexity outperforming ChatGPT but both substantially inferior to expert clinicians and, most importantly, markedly prone to under-activation. Thus, these LLM AIs should not be used for emergent ACS triage.

PO 279. UNLOCKING HIDDEN PROGNOSTIC SIGNALS USING MACHINE-LEARNING - SQUEEZING THE ORANGE

Inês Gomes Campos, Ana Rodrigo Costa, Mauro Moreira, José Luís Ferraro, Inês Bastos Castro, Rafaela G. Lopes, Aurora Andrade, Joel Monteiro

ULS Tâmega e Sousa/Hospital Padre Américo.

Introduction: Traditional statistical tools used in clinical research, such as logistic regression in SPSS, rely on linearity and binary endpoints and often struggle with complex relationships and censoring in survival data. Machine-learning survival models might handle these issues better, but are limited to be used in advanced statistics programs, such as R, and are still not commonly applied in common practice.

Methods: To compare the predictive capabilities of classical and modern approaches, we applied three modeling strategies to a cardiac stress-test cohort. After cleaning and excluding post-outcome variables, the dataset was split into 70% training and 30% testing. Three models were developed: (1) Random Survival Forests (RSF), a machine-learning method that uses decision trees to find complex patterns and predict survival more accurately than traditional models; (2) Penalized LASSO Cox regression (LASSO), a refined version of the Cox model that automatically selects the most important predictors while preventing overfitting; (3) Binary logistic regression, predicting 5-year mortality to reflect SPSS-type analysis. Performance was evaluated on the test set using Harrell's C-index and time-dependent ROC curves.
Results: We included 497 patients (mean age 59.2 ± 9.6; 12.5% female; 73.4% prior MI; 9.8% HF; 31.4% diabetes; 19.1% positive stress tests), collected between 2009 and 2019. Over a mean follow-up of 3,543 ± 1,005 days, 14.7% patients died. RSF achieved C-index 0.961, with AUCs: 0.809 (3 yr), 0.732 (5 yr) and 0.642 (10 yr). LASSO Cox achieved C-index 0.703, with AUCs: 0.305 (3 yr), 0.520 (5 yr) and 0.661 (10 yr). Binary logistic regression showed limited performance (C-index 0.536), consistent with loss of time-to-event information.
Conclusions: This study works as a "proof of concept" that machine-learning survival analysis is not only feasible but gives clear advantages for cardiovascular risk prediction, especially for long-term follow-up data, where interactions between variables become more relevant. In this real-world stress-test cohort, Random Survival Forest clearly outperformed both penalized Cox regression and the more traditional SPSS-type logistic regression.

PO 280. VALID-PS: NON-INVASIVE VALIDATION OF ECHOCARDIOGRAPHIC PRESSURE-STRAIN LOOPS AS HIGHLY REPRODUCIBLE SURROGATES FOR VENTRICULO-ARTERIAL COUPLING

Lígia Lopes Mendes[1], João Colaço[2], José Ferreira Santos[1], João Pereira[3], Ana Teresa Timóteo[4]

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Introduction: The assessment of ventriculo-arterial (VA) coupling provides essential insights into cardiovascular performance but traditionally requires invasive pressure-volume (PV) loops. Non-invasive Pressure-Strain Loops (PSL) combine speckle-tracking echocardiography with estimated left ventricular pressure to quantify Myocardial Work (MW). However, PSL validation against distinct physiological hemodynamic perturbations remains limited. The VALID-PS study aimed to validate PSL-derived indices as physiological surrogates for PV relationships during standardised manoeuvres in healthy volunteers.
Methods: In this prospective, observational, within-subject repeated-measures study, healthy volunteers underwent three standardised manoeuvres: Semi-supine Exercise (contractility/preload challenge, n = 31), Isometric Handgrip (afterload challenge, n = 30), and Passive Leg Raising (PLR) (preload/afterload challenge, n = 30). Six co-primary PSL endpoints were analysed: Arterial Elastance (Ea), End-Systolic Pressure (ESP), Systolic Strain Rate (SSR), Strain Range, Peak Systolic Strain, and Global Work Index (GWI). Intra- and inter-observer reproducibility were assessed in a sub-cohort (n = 15). Multiplicity was controlled using Holm-Bonferroni correction.
Results: PSL analysis successfully tracked predictable physiological shifts across all interventions. Exercise elicited a contractility-dominant response, where Global Work Index (GWI) increased significantly (Effect Size [ES] d = 1.03, p < 0.001), along with Systolic Strain Rate (d = 1.29) and Peak Systolic Strain (d = 0.88), while Arterial Elastance (Ea) remained stable. Conversely, Isometric Handgrip and Passive Leg Raising (PLR) produced afterload-dominant patterns characterised by significant increases in End-Systolic Pressure (Handgrip d = 1.11; PLR d = 1.21) and Ea (Handgrip d = 0.79; PLR d = 0.77, p ≤ 0.001), with minimal changes in strain-based performance. Regarding reliability, PSL parameters demonstrated good to excellent reproducibility, with intra-observer Intraclass Correlation Coefficients (ICC) ranging from 0.86 to 0.90 and inter-observer ICCs ranging from 0.72 to 0.87.
Conclusions: Non-invasive Pressure-Strain Loops are highly reproducible and physiologically sensitive surrogates for assessing VA coupling. The method accurately discriminated between contractility-driven (exercise) and load-driven (handgrip/PLR) hemodynamic states, validating its use as a robust tool for non-invasive serial monitoring in clinical physiology.

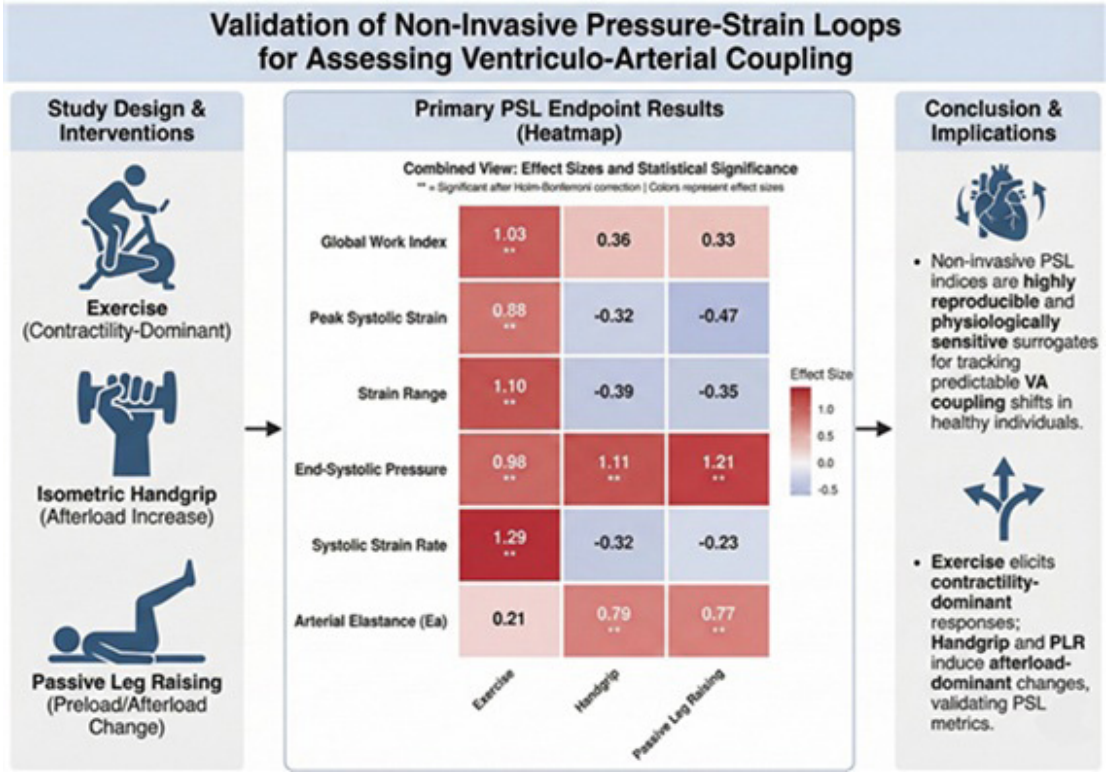

Figure PO 280

Sábado, 25 Abril de 2026 | 17:00-17:55

Área de Posters - Ecrã 2 | Sessão de Posters 48 - Risco arrítmico, tomada de decisão e desfechos nas miocardiopatias

PO 281. EVALUATION OF THE HYPOTHETICAL RISK OF SUDDEN CARDIAC DEATH IN OBSTRUCTIVE HCM PATIENTS TREATED WITH MAVACAMTEN USING THE HCM RISK-SCD SCORE

Mariana Silveira Ramos, Rui Gomes, Rita Lima, Débora Correia, Sérgio Maltês, Tânia Laranjeira, Gonçalo Cunha, Carlos Aguiar, Bruno M. Rocha

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Introduction: Hypertrophic cardiomyopathy (HCM) is associated with an increased risk of sudden cardiac death (SCD). Risk stratification may be performed using the HCM Risk-SCD score, which has been validated in cohorts of patients treated with first-line medical therapy (beta-blockers or calcium channel blockers). Mavacamten, a novel selective cardiac myosin inhibitor, has been shown to reduce left ventricular outflow tract obstruction (LVOTO) and to promote reverse remodeling. Its influence on the estimated HCM Risk-SCD score, which incorporates echocardiographic parameters that may change with therapy, remains unclear.

Objectives: To assess hypothetical changes in the estimated HCM Risk-SCD score in patients with obstructive HCM treated with mavacamten.

Methods: We conducted a prospective observational study including all patients with HCM treated with mavacamten who had been on a stable dose for at least 3 months. Clinical data and transthoracic echocardiograms were reviewed to collect maximal wall thickness (MWT), left atrial diameter (LAD), and maximal LVOTO. The HCM Risk-SCD score was calculated using the ESC online tool. Comparisons were assessed using the Wilcoxon signed-rank test.

Results: Forty patients were included [58% male; median age 62 (61-71) years and follow-up 7 (3-12) months]. Echocardiographic parameters improved significantly in comparison to baseline, with reductions in maximal LVOTO [84 (68-129) vs. 5 (0-39) mmHg; p < 0.001], MWT [18 (16-20) vs. 15 (14-18) mm; p < 0.001], and LAD [43 (39-47) vs. 40 (36-44) mm; p = 0.008]. Mavacamten was associated with a significant reduction in the HCM Risk-SCD score, decreasing from 2.4 (1.7-4.7) to 1.5 (1.1-2.6)%, corresponding to an absolute change of −0.9 (-2.0 to -0.5)% and a relative reduction of -40 (-52 to -26)% (p < 0.001) (Central Figure). At baseline, four patients had a high estimated 5-year SCD risk (> 6%) –all of whom had an implantable cardioverter-defibrillator. During follow-up, three were reclassified in the low-risk category (< 4%), while one remained in the high-risk group. No patient transitioned into a higher risk category after treatment. Per-patient decomposition of the HCM Risk-SCD reduction showed that most of the improvement was driven by changes in LVOTO (median -0.52%), with smaller contributions from MWT (-0.29%) and LAD (-0.08%).

Conclusions: Mavacamten was associated with a significant reduction in the estimated HCM Risk-SCD score. Whether this improvement translates into a true reduction in the 5-year SCD incidence remains uncertain. External validation in large multicenter cohorts with long-term follow-up is required to determine whether the decrease in the hypothetical risk corresponds to reduced mortality.

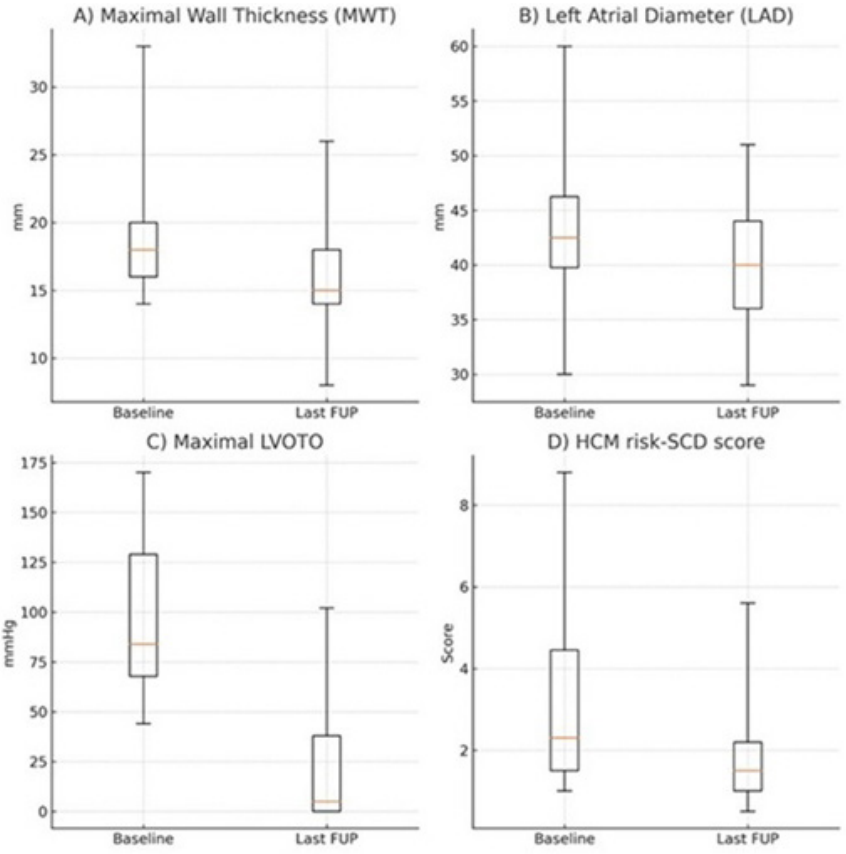

Figure 1. Boxplots showing baseline and last follow-up (FUP) values of structural, hemodynamic, and risk parameters following mavacamten therapy. Boxes represent the interquartile range (IQR), central lines indicate medians, and whiskers extend to the minimum and maximum observed values.

PO 282. ICD DECISIONS IN HYPERTROPHIC CARDIOMYOPATHY: WHO TRULY BENEFITS?

João Cravo[1], Marta Vilela[1], Catarina Gregório[1], Beatriz Garcia[1], Oana Moldovan[2], Hugo Madeira[1], Fausto Pinto[1], Dulce Brito[1]

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

Introduction: Sudden cardiac death (SCD) remains a major challenge in hypertrophic cardiomyopathy (HCM) management. Although the ESC HCM-Risk-SCD score aids risk stratification and implantable cardiac-defibrillator (ICD) decision-making, uncertainty persists for intermediate risk patients. This raises concerns regarding possible over-implantation and device-related complications. Accurately identifying which patients will benefit from appropriate ICD therapies remains an unmet clinical need.
Objectives: To identify clinical predictors of appropriate ICD therapies in HCM patients undergoing primary-prevention ICD implantation.
Methods: Single-centre observational study HCM patients with primary-prevention ICD between 2018 and 2024. Appropriate ICD therapy was defined as ATP/Shock for sustained ventricular arrhythmias. Patients were compared according to appropriate therapies occurrence. Event-free survival was analysed using Kaplan-Meier methods, with time to first appropriate ICD intervention as the primary endpoint.
Results: From a cohort of 156 HCM patients, 34 underwent primary-prevention ICD implantation and were included (mean age 54 ± 4 years, 50% male). Among these patients, next generation sequencing method genetic testing identified *MYBPC3* mutations in 7 (21%) and MYH7 mutations in 4 (12%). 15 (44%) had no pathogenic/likely pathogenic variants. 12% carried more than one sarcomeric mutation. A family history of SCD was present in 30%. At baseline, 9 (27%) were classified as high risk and 13 (38%) as intermediate according to the ESC HCM-Risk-SCD score. Over a mean follow-up of 4 ± 0.6 years, 9 (26%) received at least one appropriate ICD therapy. In univariable analysis, these patients had higher HCM-Risk-SCD scores at implantation (6% ± 1 vs. 4% ± 0.3; p = 0.043) and larger left atrial diameter (62 [55-67] vs. 42 [38-48] mm; p = 0.050). No significant differences were found for age, sarcomeric mutation status, maximal LV wall thickness or LVOT gradient. In multivariable logistic regression, prior syncope was the only independent predictor of appropriate ICD therapy (OR 17.2, 95%CI 1.63-181.1; p = 0.018), independent of age and maximal LV wall thickness. Appropriate ICD therapy was also associated with cardiovascular hospitalization (OR 7.24, 95%CI 1.25-41.8; p = 0.027). Kaplan-Meier analysis showed a median time to first therapy of 5.0 years (95%CI 4.1-5.9), with an estimated mean event-free survival of 7.7 years (95%CI 5.1-10.3). Only 1 patient had inappropriate ICD therapy due to atrial fibrillation.
Conclusions: In this cohort, prior syncope was the most informative marker for subsequent appropriate ICD therapies, while conventional risk factors showed limited discriminatory value. These findings suggest that current stratification may not fully identify those most likely to benefit, highlighting the need for refinement in primary-prevention ICD selection.

PO 283. ARRHYTHMIC PREDICTORS IN NON-DILATED LEFT VENTRICULAR CARDIOMYOPATHY

David Vicente Marques, Leonor Magalhães, Isabel Cardoso, José Viegas, Pedro Brás, Inês Grácio de Almeida, Vera Ferreira, Pedro Silva Cunha, Guilherme Portugal, Mário Oliveira, Sílvia Aguiar Rosa, Rui Cruz Ferreira

ULS São José/Hospital de Santa Marta.

Introduction: Non-dilated left ventricular cardiomyopathy (NDLVC) is characterized by the presence of non-ischemic left ventricle (LV) scarring or fatty replacement, regardless of the presence of regional wall motion abnormalities, or isolated global LV hypokinesia without scarring or dilation. Arrhythmic events play an important prognostic role in a subpopulation of patients with NDLVC, so an accurate identification of individuals with increased arrhythmic risk is of major importance. In this study we aim to analyze a cohort of patients with NDLVC and look for potential predictors of major arrhythmic events (MAE).

A

	ICD therapies (N=9)	No ICD therapies (N=25)	
Age at ICD implantation, years (mean ±SD)	54 ± 4	53 ± 3	NS
Male, n (%)	5 (56)	12 (48)	NS
Sarcomeric mutation, n (%)	5 (56)	14 (56)	NS
Multiple sarcomeric mutations, n (%)	1 (11)	3 (12)	NS
Family history of SCD, n (%)	1 (11)	9 (36)	NS
Unexplained syncope, n (%)	5 (56)	3 (12)	p=0.02
Palpitations, n (%)	7 (78)	9 (36)	p=0.04
Dizziness, n (%)	3 (33)	7 (28)	NS
HCM-Risk-SCD score (mean ± SD)	6 ± 1	4 ± 0.3	p=0.04
High HCM-Risk-SCD score ≥6%, n (%)	3 (33)	6 (24)	NS
NT-proBNP, pg/mL (median [IQR])	1502 (IQR 146-2144)	552 (135-1777)	NS
QTc interval, ms (mean ± SD)	458 ± 21	445 ± 8	NS
Echocardiographic parameters:			
LVEF (%), (mean ± SD)	62 ± 1	59 ± 2	NS
Maximal LV wall thickness, mm (mean ± SD)	19 ± 2	19 ± 1	NS
Severe LV hypertrophy >25 mm, n (%)	2 (22)	3 (12)	NS
LVOT gradient >50 mmHg, n (%)	1 (11)	3 (12)	NS
LA diameter, mm (median [IQR])	62 (IQR 55-67)	42 (IQR 38-48)	p=0.049
sPAP mmHg (mean ± SD)	26 ± 3	30 ± 3	NS
Apical aneurysm, n (%)	0	3 (12)	NS
Follow-up			
Device-related infection, n (%)	1 (11)	1 (4)	NS
Atrial fibrillation/flutter, n (%)	6 (67)	10 (40)	NS
Septal reduction therapy, n (%)	2 (22)	5 (20)	NS
Cardiovascular hospitalization, n (%)	6 (67)	6 (24)	p=0.04
Cardiovascular death, n (%)	2 (22)	1 (4)	NS

B

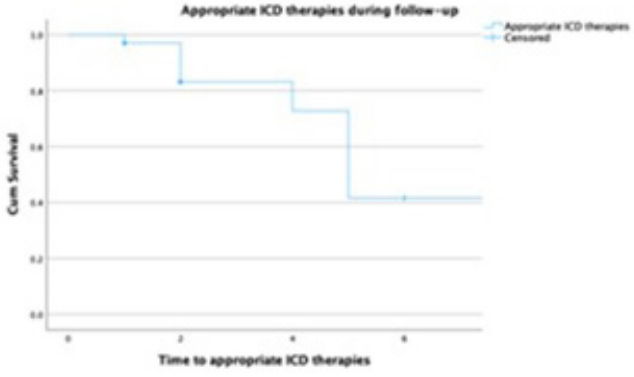

Figure 1: A) Table with baseline clinical, ECG and echocardiographic characteristics, and follow-up outcomes in patients with appropriate ICD therapies versus those without therapy. **B)** Kaplan–Meier curve showing time to first appropriate ICD therapy (ATP/shock). The median therapy-free survival was 5.0 years (95% CI 4.1–5.9), and the mean survival time was 7.7 years (95% CI 5.1–10.3). Tick marks represent censored observations.

Figure PO 282

Table 1: Patient characteristics in our cohort of non-dilated left ventricular cardiomyopathy

Variables (n=48)	
Sex (male)	31 (64.6%)
Age	51 (± 15.1 years)
Mean LVEF	53.27% ± 9.5%
LVEF <45%	9 (18.75%)
Family History SCD	23 (47.9%)
Family History CM	25 (52.1%)
ICD carriers	20 (41.7%)
High risk genes	21 (50%)
NSVT	19 (39.6%)
Septal LGE	29 (60.4%)
Ring like LGE	5 (10.4%)
Mean segments LGE	2.00
Mean T1 mapping	1065ms ± 115ms
Myocardial inflammation	22 (45.8%)
Median NDLVC-5Y risk score	5.68% (IQR 1.87 | 12.30)

Table 1: Baseline characteristics of non-dilated left ventricular cardiomyopathy (NDLVC). Cardiomyopathy (CM), implantable cardioverter-defibrillator (ICD), interquartile range (IQR), late gadolinium enhancement (LGE), left ventricular ejection fraction (LVEF), non-sustained ventricular tachycardia (NSVT), sudden cardiac death (SCD).

Methods: The study enrolled 48 patients (P) (64.6% male, mean age of 51 ± 15.1 years) with NDLVC followed up at a cardiomyopathy outpatient clinic of a tertiary center, for a median follow-up time of 846 days. Retrospective analysis of clinical, electrocardiographic and imaging data were performed. The primary endpoint assessed the occurrence of MAE (ventricular fibrillation, sustained ventricular tachycardia and implantable cardioverter-defibrillator therapy). Statistical analysis was performed using chi-square and Mann-Whitney tests, as appropriate.

Results: Patient characteristics are shown in Table 1. There were 6 P (12.5%) who suffered MAE within the follow-up time. In our analysis, the extension of fibrosis (number of segments affected) on cardiac magnetic resonance (CMR) showed statistical significance in predicting MAE (p = 0.004), with ≥ 3.5 segments affected showing a sensibility of 100% and specificity of 80,5%. Native T1 mapping analysis showed that P with ≥ 1,163 ms had a higher risk of MAE (p = 0.017). ECG analysis showed that T wave inversion (TWI) ≥ 2 leads was positive in predicting MAE (p = 0.016). Of the total, 42 P were submitted to genetic testing, being 21 P (50%) positive for high-risk genes (Filamin C, Lamina, Desmoplakin). In our group, high risk genes did not correlate with MAE. The recently developed NDLVC-5Y risk score did not show a significant association with arrhythmia occurrence (p = 0.369).

Conclusions: In a single-center cohort of patients with NDLVC, the extension of fibrosis on CMR markers and ECG abnormalities were associated with the occurrence of MAE. The number of segments affected with fibrosis, elevated values of native T1 mapping and the presence of T-wave inversion ≥ 2 leads emerged as prognostic markers. NDLVC-5Y risk score did not predict MAE in our cohort, a likely explanation is that all patients with risk score > 20% had a short follow-up (< 3 years). These findings highlight the potential additional value of CMR and electrocardiographic parameters for an integrated arrhythmic risk stratification in NDLVC.

PO 284. CARDIOPULMONARY EXERCISE TESTING: A COMPLEMENTARY TOOL TO ASSESS RISK OF VENTRICULAR ARRYTHMIAS IN HYPERTROPHIC CARDIOMYOPATHY

Daniela Pinheiro, Fernando Nascimento Ferreira, Miguel Marques Antunes, Inês Almeida, Isabel Cardoso, José Viegas, Pedro Brás, Rui Cruz Ferreira, Sílvia Aguiar Rosa

ULS São José/Hospital de Santa Marta.

Introduction: Hypertrophic cardiomyopathy (HCM) is linked to an elevated risk of ventricular arrhythmias (VA) and sudden cardiac death (SCD).

Table 1. Baseline Characteristics, Therapeutics, Imaging and CPET parameters of the Study Population

	Total n=67	Without NSVT n=39	With NSVT n=28	p-value
Baseline characteristics				
Age in years – mean ± SD	57.0 ± 16.0	54.9 ± 16.1	59.9 ± 15.7	0.213
Masculino- n (%)	44 (65.7%)	30 (76.9%)	14 (50.0%)	**0.024**
LP/P variant- n (%)	31 (46.3%)	19 (48.7%)	12 (42.9%)	0.779
Obstructive- n (%)	13 (19.4%)	10 (25.6%)	3 (10.7%)	0.133
Follow-up in months – mean ± SD	69.2 ± 50.0	72.4 ± 45.7	64.6 ± 56.2	0.560
Comorbidities				
Hypertension- n (%)	24 (36.9%)	12 (32.4%)	12 (42.9%)	0.397
Dyslipidemia- n (%)	30 (46.2%)	15 (40.5%)	15 (53.6%)	0.304
Atrial fibrillation - n (%)	13 (20.0%)	8 (21.6%)	5 (17.9%)	0.716
SAOS/SCOEL- n (%)	7 (5.3%)	1 (4.3%)	1 (6.7%)	0.787
COPD/ Asthma - n (%)	1 (1.5%)	1 (2.7%)	0 (0.0%)	0.402
Overweight/Obesity - n (%)	37 (56.9%)	20 (54.1%)	17 (60.7%)	0.600
Tabaco use				
active – n (%)	3 (4.5%)	2 (5.1%)	1 (3.6%)	0.777
previous – n (%)	1 (1.5%)	1 (2.6%)	0 (0.0%)	0.414
Medication				
Amiodarone	2 (3.0%)	1 (2.6%)	1 (3.6%)	0.829
Sotalol	2 (3.0%)	0 (0.0%)	2 (7.1%)	0.097
Disopyramid	4 (6.0%)	3 (7.7%)	1 (3.6%)	0.496
Betablocker	55 (82.1%)	31 (79.5%)	24 (85.7%)	0.521
Cardiac Myosin inhibitors	1 (1.5%)	1 (2.6%)	0 (0.0%)	0.414
Device/Intervention				
ICD	27 (40.3%)	7 (17.9%)	20 (71.4%)	**<0.001**
Primary prevention	23 (34.3%)	5 (12.8%)	18 (64.3%)	**<0.001**
Alcoholic septal ablation	7 (10.4%)	5 (12.8%)	2 (7.1%)	0.474
Myectomy	3 (4.5%)	2 (5.1%)	1 (3.6%)	0.777
Imaging				
ML WT in mm – mean ± SD	21.1 ± 5.1	20.7 ± 4.8	21.7 ± 5.6	0.495
LGE presence - n (%)	27 (40.3%)	18 (46.2%)	9 (32.1%)	0.256
% LGE – median (IQR)	12.9 (6.3-18.9)	9.6 (5.4-16.7)	16.0 (14.0-19.0)	**0.049**
LGE>15% - n (%)	16 (40.0%)	9 (37.5%)	7 (29%)	0.114
CPET parameters				
%FtH – mean ± SD	82.2 ± 12.9	84.9 ± 10.9	78.4 ± 14.7	0.053
HR max in beats/min – mean ± SD	136.6 ± 26.7	143.1 ± 24.6	127.5 ± 27.2	**0.019**
OR peak mean ± SD	1.1 ± 0.1	1.1 ± 0.1	1.0 ± 0.1	0.059
VE/VCO2 slope- mean ± SD	29.8 ± 6.7	27.9 ± 5.8	32.6 ± 7.1	**0.006**
VE/VCO2 class I- n (%)	35 (52.2%)	25 (64.1%)	10 (35.7%)	**0.023**
VE/VCO2 class II- n (%)	22 (32.8%)	11 (28.2%)	11 (39.3%)	0.348
VE/VCO2 class III- n (%)	8 (11.9%)	3 (5.1%)	6 (21.4%)	**0.045**
VE/VCO2 Optimal Point – mean ± SD	24.6 ± 5.0	23.3 ± 4.5	26.3 ± 5.7	**0.021**
pVO2 in ml.Kg/min – mean ± SD	24.5 ± 11.1	25.9 ± 8.6	22.5 ± 13.7	0.247
% of predicted pVO2 – mean ± SD	86.8 ± 21.4	90.3 ± 16.9	81.9 ± 25.9	0.141

COPD: Chronic Obstructive Pulmonary Disease; HR max: Maximum Heart Rate; ICD: Implantable Cardioverter-Defibrillator; IQR: Interquartile Range; LGE: Late Gadolinium Enhancement; LP/P variant: Likely Pathogenic / Pathogenic variant; ML/WT: Maximum Left Ventricular Wall Thickness; n: number; n: number; NSVT: Non-Sustained Ventricular Tachycardia; OHS: Obesity Hypoventilation Syndrome (OHS); pVO2: Peak Oxygen Uptake; QR peak: Peak Respiratory Quotient; SAOS: Sleep Apnea Obstructive Syndrome; SD: Standard Deviation; VE/VCO2: Ventilatory Equivalent for Carbon Dioxide;

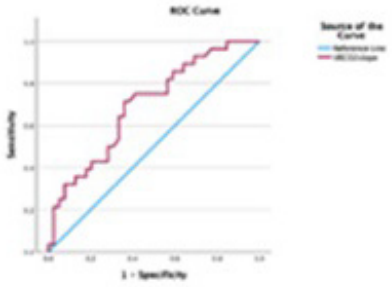

Figure 1. ROC Curve - VE/VCO2 Slope. AUC 0.696. Optimal cut-off: 28.9 (sensitivity 71.4%, specificity 64.1%).

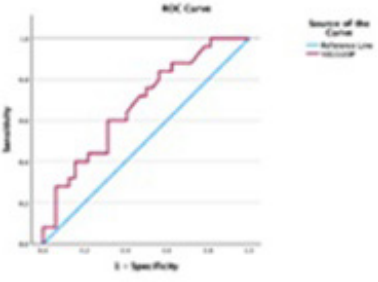

Figure 2. ROC Curve - Cardiorespiratory Optimal Point. AUC 0.678. Optimal cut-off: 24.35 (sensitivity 60%, specificity 69%).

Figure PO 284

Cardiopulmonary exercise test (CPET) parameters, including peak oxygen consumption (pVO2) and ventilatory efficiency (VE/VCO2 slope), are currently employed to assess functional capacity, prognosis, and arrhythmic risk.
Objectives: To evaluate the relationship/association between CPET parameters and VA in HCM patients.
Methods: Single-center retrospective study evaluating the association between CPET parameters and VA in HCM patients (pts) who underwent CPET between 2018-2025. Sustained (SVT) or non-sustained ventricular tachycardia (NSVT) was detected via 24-hour Holter monitoring, implantable loop recorder or implantable cardioverter-defibrillator (ICD).
Results: Sixty-seven consecutive HCM pts underwent CPET (66% male, mean age 57 ± 16 years, 19% with obstructive HCM). In a mean follow-up of 69 ± 50 months, SVT occurred in 7%, and NSVT in 42%. Pts with NSTV included more females (50% vs. 23%, p = 0.024) and had a higher extension of late gadolinium enhancement (LGE) (16% vs. 9.6%, p = 0.049) compared to pts without VAs during follow-up. Pts with NSVTs showed a higher VE/VCO2 slope (p = 0.006), higher cardiorespiratory optimal point (COP) (p = 0.022), and lower maximal heart rate (HR) (p = 0.019) compared to patients without VA. In a univariate regression analysis, a higher VE/VCO2 slope (adjusted OR 1.125, p = 0.009), and higher CROP (adjusted OR 1.14, p = 0.029) were significantly associated with occurrence of NSVT. The prognostic value of VE/VCO2 slope was confirmed in both submaximal (adjusted OR 1.165, p = 0.041) and maximal (adjusted OR 1.115, p = 0.019) exercise testing. The prognostic value of COP was also confirmed for both maximal and submaximal efforts. Maximal HR was significantly associated with NSVTs only in patients with submaximal effort (adjusted OR 0.997, p = 0.021). pVO2 did not show a significant association with VAs (p = 0.222) nor percent of predicted pVO2 (p = 0.117). In a multivariate regression analysis VE/VCO2 slope remained an independent predictor of NSVT even after adjusting for sex, age, genotype, wall thickness, (adjusted OR 1.173, p = 0.037), but not for %LGE (p = 0.546). This multivariate predictive value was only present during maximal CPET tests, not submaximal (p = 0.918). ROC curve analysis showed moderate discriminatory ability for VE/VCO2 slope (AUC = 0.696, p = 0.002, cut-off 28.9). COP was also significant but with lower accuracy (AUC = 0.678, p = 0.012, cut-off 24.35). ROC curve for pVO2 demonstrated poor discriminatory ability (AUC = 0.321).
Conclusions: VE/VCO2 slope was an independent prognostic marker for the prediction of NSVT in patients with HCM, showing a higher predictive value than pVO2 or COP, highlighting the role of CPET as an additional stratification tool for ventricular arrhythmic risk assessment in HCM patients.

PO 285. A PORTRAIT OF NON-DILATED LEFT VENTRICULAR CARDIOMYOPATHY – CLINICAL, ELECTRICAL AND STRUCTURAL FEATURES IN A REAL-WORLD POPULATION

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ULS São José/Hospital de Santa Marta.

Introduction: Non-dilated left ventricular cardiomyopathy (NDLVC) is a recently recognized form of cardiomyopathy which can be characterized by the presence or absence of left ventricular (LV) disfunction without dilation and the presence of non-ischaemic LV scarring or fatty replacement. LV global hypokinesis without scarring may also be considered. This study aims to characterize the population of patients (P) with NDLVC diagnosis with follow up in our center.
Methods: Our analysis enrolled 48 patients (P) with NDLVC diagnosis, followed up at cardiomyopathy outpatient clinic at a tertiary center. A descriptive analysis of clinical, electrocardiographic and imaging data were analyzed. Major arrhythmic events (MAE) were defined as ventricular fibrillation, ventricular tachycardia or implantable cardioverter-defibrillator (ICD) therapies.
Results: The mean age was 51 ± 15.1 years, 64.6% of P were male, 51.1% had family history of sudden cardiac death (SCD) and 53.2% had family history of known cardiomyopathy. Genetic testing available for 42 P, in 24 (57.1%) had pathogenic or likely pathogenic variants, 13 (31%) VUS and 5 (11.9%) were negative. Pathogenic or likely pathogenic (P/LP) variants were detected in the following genes: FLNC (23.8%), LMNA (16.6%), TTN (9.5%) and DSP (9.5%). Analytically creatinine was 0.89 mg/dL (± 0.29 mg/dL), NT-proBNP 84 ± 487 pg/mL (normal range < 50 pg/ml) and high sensitivity troponin T was 7 ng/L ± 2 ng/L (Normal range < 14). On the ECG, 41,7% of P presented low QRS voltage and 47.9% had at least 1 T wave inversion. Atrial fibrillation (at diagnosis) was present in 6.3% of cases, but the prevalence at the end of follow up was 35.4%. Cardiac magnetic resonance evaluation showed a median LV ejection faction (LVEF) of 53% ± 9.5%, presence of late gadolinium enhancement (LGE) in 89.4% of P with a median number of segments affected of 2.00 ± 1.77. The pattern of fibrosis was septal LGE in 60.4% and ring like pattern in 10.4%, with mean native T1 of 1,065 ± 115 ms and mean T2 of 47.8 ± 4.6 ms. RVEF was 60% ± 8.2%. Indexed LV telediastolic volume (iLVTV) was 80 ± 15 mL/m^2 and iRVTV was 73.5 (± 14 mL/m^2). Echocardiographic GLS was -15.4 ± 3.1% and E/e' ratio was 7 ± 2.5. This means that globally systolic and diastolic function is preserved. Inflammation by updated Lake Louise criteria was present in 16.7% of P. About 41.7% of P had an ICD, 6.25% in secondary prevention. We recorded 6 MAE and non-sustained ventricular tachycardia was observed in 40.4% of P, most of them more than 1 time during follow up. Only 8.3% of P had a hospitalization or emergency occurrence due to heart failure decompensation.
Conclusions: NDLVC frequently associates with preserved systolic and diastolic function. P/LP variants were found in 57.1% of P and myocardial fibrosis on CMR is frequent. Inflammation is part of the physiopathologic process and was identified in 16.7% of P.

PO 286. DILATED CARDIOMYOPATHY: DOES THE RIGHT VENTRICLE HAVE AN IMPACT ON PROGNOSTIC OUTCOMES?

Andreia Lopes Sousa[1], Mónica Dias[1], Sabrina Diniz Padrão[2], Sofia Fernandes[1], Carla Ferreira[1], Filipe Vilela[1], Bárbara Rocha[1], João Faria[1], Rui Flores[1], Vítor Hugo Pereira[1], Carla Marques Pires[1]

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Introduction: Dilated cardiomyopathy (DCM) is characterized by ventricular dilatation and systolic dysfunction in the absence of abnormal loading conditions or significant coronary artery disease and remains an important cause of heart failure and cardiac death. Although left ventricular (LV) impairment is classically emphasized, right ventricular (RV) structure and function may have important prognostic implications in DCM.
Objectives: To assess the impact of the right ventricle on clinical outcomes in DCM patients.
Methods: We performed a retrospective, observational, single-center study including patients with DCM who underwent cardiac magnetic resonance (CMR) between 2019 and 2025. Patients were followed for a median of 37 months. RV and LV volumes, mass and ejection fraction (EF) were quantified by CMR. The primary composite endpoint (all-cause mortality, heart failure hospitalization, or ventricular arrhythmia) was analysed.
Results: A total of 153 patients were included, 66% male, with a mean age of 62.5 ± 13.8 years. In our study population, 64.7% had idiopathic DCM. Only 26% (n = 40) underwent genetic testing, of which 17.5% had a pathogenic or likely pathogenic variant. Right and left ventricular ejection fractions were positively correlated, with moderate strength (ρ = 0.533, p < 0.001). A significant difference was found in median RV ejection fraction between patients who did and did not reach the composite outcome (50% vs. 57.5%, p < 0.002). RV end-diastolic volume alone was not associated with the composite outcome. In the multivariable logistic regression model including LVEF and RVEF, only RVEF remained significantly associated with the primary composite endpoint (p = 0.025, odds ratio 0.95; 95% confidence interval 0.91-0.99), whereas LVEF was not significant. Thus, lower RVEF is associated with higher risk, with the odds of an adverse outcome increasing by roughly 5% for every 1% decrease in RVEF.
Conclusions: In this cohort, RVEF assessed by CMR emerged as an independent predictor of adverse outcomes beyond conventional and more frequent parameters such as LVEF. Routine RV assessment may improve risk stratification and guide follow-up and therapeutic decisions in patients with DCM.

Population characteristics			
		n (%)	Mean (±SD)
Age			62,5 (± 13,8) years
Sex	Male	101 (66%)	
	Female	52 (34%)	
Aetiology	Idiopathic	99 (64,7%)	
	Alcoholic	24 (15,7%)	
	Toxic	7 (4,6%)	
	Familial	7 (4,6%)	
	Others	16 (10,4%)	
Genetic test	Positive	7 (4,6%)	
	Negative	33 (21,6%)	
	Not carried out	113 (73,8%)	
Follow-up time			41,2 (± 24,9) months Median: 37 months

Inferential statistics					
Statistical Test	Null hypothesis	Statistical values and significance			Decision
Spearman's Correlation Test	There is no correlation between RVEF and LVEF.	***p* < 0,001**	ρ (rho) = 0,533		Reject the null hypothesis – there is a **positive correlation**, with moderate strength, between **RVEF** and **LVEF**.
Independent-Samples Mann-Whitney U Test	The distribution of RVEF is the same across categories of Composite Outcome.	***p* = 0,002**			**Reject** the null hypothesis – median **RVEF** in the **Positive Outcome** group (50%) is **lower** than in the No Outcome group (57,5%).
Independent-Samples Mann-Whitney U Test	The distribution of RVESV is the same across categories of Composite Outcome.	***p* = 0,011**			**Reject** the null hypothesis – median **RVESV** in the **Positive Outcome** group (76 ml) is **higher** than in the No Outcome group (59,5 ml).
Independent-Samples Mann-Whitney U Test	The distribution of RVEDV is the same across categories of Composite Outcome.	*p* = 0,214			Retain the null hypothesis.
Logistic Regression Model for Composite Outcome	Covariate RVEF	***p* = 0,025**	Exp(B) 0,952	95% CI [0,911, 0,994]	**RVEF is predictive** of Composite Outcome.
	Covariate LVEF	*p* = 0,166	Exp(B) 0,972	95% CI [0,935, 1,011]	LVEF is not predictive of Composite Outcome.

Figure PO 286

Sábado, 25 Abril de 2026 | 17:00-17:55

Área de Posters - Ecrã 3 | Sessão de Posters 49 - Insuficiência cardíaca para além da fração de ejeção do VE melhorada e recuperada: padrões de recuperação, preditores e marcadores de risco

PO 287. PROGNOSTIC VALUE OF THE LEFT ATRIOVENTRICULAR COUPLING INDEX IN PATIENTS WITH CHRONIC HEART FAILURE: A COMPARATIVE ECHOCARDIOGRAPHIC ANALYSIS

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[1]ULS Alentejo Central/Hospital do Espírito Santo de Évora. [2]ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: The left atrioventricular coupling index (LACI), defined as the ratio between minimum left atrial volume and left ventricular end-diastolic volume (LVEDV) may reflect left atrioventricular coupling dysfunction and could potentially serve as a predictor of clinical outcomes. Indeed, prior studies have shown that LACI is independently associated with cardiovascular outcomes in healthy individuals and specific scenarios as after acute myocardial infarction and hypertrophic cardiomyopathy. However, its prognostic significance in patients with chronic heart failure (HF) remains to be fully elucidated.

Objectives: To evaluate the prognostic value of LACI in patients with chronic HF and to compare its predictive accuracy with other established echocardiographic parameters.

Methods: Retrospective study. We included consecutive patients with chronic HF referred to the echocardiography laboratory between January 2023 and April 2024. All patients had a minimum follow-up of one year, with the primary prognostic endpoint being a composite of all-cause mortality and HF hospitalization.

Results: A total of 156 patients were included. Table 1 summarizes baseline characteristics. The mean follow-up duration was 631 ± 227 days. During follow-up, 30 patients (19%) met the primary endpoint. Univariate analysis showed that higher E/A ratio (1.9 vs. 0.9; p = 0.009), higher E/E' ratio (13.8 vs. 9.6; p = 0.006), higher biplane indexed left atrial volume (BpLAiVol) (66.7 vs. 41.7 mL/m^2; p < 0.001), higher LACI (0.5 vs. 0.4; p = 0.021), lower Left ventricular ejection fraction (LVEF) (32.6% vs. 42.5%; p < 0.001) and higher

Tricuspid regurgitation maximum velocity (TRvel) (2.9 vs. 1.9 m/s, p < 0.001) and male gender (23% vs. 8%; p = 0.029) were associated with the primary outcome. However, only TRvel showed to be an independent predictor for the primary outcome (p = 0.032). Regarding predictive accuracy, LACI demonstrated moderate discriminative ability, (AUC 0.690). When compared with other parameters, LACI showed inferior performance to E/E' ratio (AUC 0.730), E/A ratio (AUC 0.726), BpLAiVol (AUC 0.856) and TRvel (AUC 0.856). In comparison with LVEF (based on 1-AUC = 0.703), LACI had similar prognostic accuracy.

Table 1: Baseline chacarcteristics

Demographic data	
Age (years; mean ± SD)	64± 12
Male (n, (%))	116 (74)
Echocardiography parameters	
Left ventricular ejection fraction (%; mean ± SD)	41± 11
E/A ratio (mean ± SD)	1.1 ± 0.7
E/e' ratio (mean ± SD)	10.4 ± 5.3
Tricuspid regurgitation maximum velocity (m/s; mean ± SD)	3.8 ± 2.1
Biplane indexed left atrial volume (ml/m2, mean ± SD)	46.5 ± 21.7
Left atrioventricular coupling index (mean ± SD)	0.4 ± 0.2
Ryhtm	
Sinusal (n, (%))	122 (78)
Atrial Fibrillation/flutter (n, (%))	25 (16)
Pacing (n, (%))	9 (6)

Conclusions: In chronic HF, LACI demonstrated moderate prognostic utility in predicting adverse outcomes. Notably, TRvel was identified as an independent predictor of adverse outcomes, underscoring its importance in risk stratification These findings suggest that while LACI provides valuable insights into atrioventricular coupling, its standalone prognostic utility remains limited compared to traditional echocardiographic indices. Integrating TRvel with other parameters may enhance clinical risk assessment, but further prospective studies are needed to validate these findings and optimize prognostic models in chronic HF.

PO 288. PREDICTORS OF HEART FAILURE WITH IMPROVED EJECTION FRACTION: INSIGHTS FROM A REAL-WORLD STUDY

Mauro Moreira, José Luís Ferraro, Inês Bastos Castro, Inês Gomes Campos, Ana Rodrigo Costa, Joel Ponte Monteiro, Inês Almeida, Ana Leal Neto, Adriana Pereira, Patrícia Silva, Aurora Andrade

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Introduction: Heart failure with improved ejection fraction (HFimpEF) is increasingly recognized as a meaningful phenotype. The factors associated with this improvement warrants further investigation.
Methods: Single-center retrospective study with consecutive patients with chronic heart failure with reduced ejection fraction (HFrEF) from an HF clinic between 2014-2024. Previous diseases, medication, clinical status, biomarkers, electrocardiogram and echocardiogram findings were recorded. HFimpEF (left ventricle ejection fraction ≥ 40% with improvement of ≥ 10% from baseline) was the endpoint at 1-year post-admission. Backwards Wald logistic regression was used to estimate independent predictor factors of HFimpEF.
Results: We included 292 patients (73.3% male; mean age 59.9 ± 11.8 years-old), ischemic etiology in 35.3%, median LVEF of 25.0 ± 10.2%. HFimpEF occurred in 24.0% of patients. It was more prevalent in current smokers (25.7% vs. 11.7%; p = 0.013); AF (35.7% vs. 20.0%; p < 0.001); absence of coronary artery disease (CAD) (85.7% vs. 49.4%; p < 0.001); non-ischemic etiology (88.6% vs. 58.3%; p < 0.001); shorter QRS (117.9 ms vs. 131.0 ms; p = 0.002), absence of late gadolinium enhancement (LGE) (53.3% vs. 33.8%; p = 0.028), and in patients on sodium-glucose cotransporter 2 inhibitors (SGLT2i) at baseline (62.9% vs. 46.1%; p = 0.017). After applying these variables in logistic regression, the resulting module has a very good prediction accuracy for HFimpEF (AUC = 0.835). Previous CAD (OR = 0.06; p = 0.013), LGE with ischemic pattern (OR = 0.196; p = 0.035) and QRS duration (OR = 0.98; p = 0.026) were identified as independent predictors of the endpoint. Paradoxically, smoking was the strongest predictor of HFimpEF (OR = 39.1; p < 0.001).
Conclusions: This study highlights the role of previous CAD and LGE with ischemic pattern in predicting HFimpEF, regardless of HF etiology, as well as QRS duration. Unexpectedly, HFrEF therapy did not predict HFimpEF. The relationship between smoking and HFimpEF needs further investigation.

PO 289. HFIMPEF IN THE REAL WORLD: RECOVERY PATTERNS AND HIDDEN RISK MARKERS

Ana Rita M. Figueiredo[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], Ana Francês[2], Fátima Salazar[2], Nuno Lousada[1], Joana Rigueira[1], Rafael Santos[1], Doroteia Silva[1], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[1]

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Introduction: A subset of patients with heart failure and reduced ejection fraction (HFrEF) demonstrates significant functional and structural recovery under optimal medical therapy (GDMT), transitioning to heart failure with improved EF (HFimpEF). Per ESC criteria, HFimpEF requires baseline LVEF ≤ 40%, follow-up LVEF > 40% and an absolute rise ≥ 10 points. However, characteristics, EF trajectories, treatment patterns, and residual risk in HFimpEF remain incompletely defined.
Methods: We conducted a prospective study of 270 *de novo* HFrEF patients at a tertiary outpatient clinic. HFimpEF was defined per ESC criteria. Baseline clinical, laboratory, echocardiographic data, GDMT use and doses were collected. LVEF was measured at baseline, 3 months, 1 year, and last follow-up. The primary endpoint was a 3-year composite of all-cause mortality and HF hospitalisation (HHF). Kaplan-Meier and Cox regression were used to access EF improvement prognostic impact.
Results: Overall, 112 patients (41%) recovered EF; 158 (59%) had persistent HFrEF. HFimpEF patients were slightly younger (64 vs. 67 years, p = 0.04) and more often female (37% vs. 23%, p = 0.02), while comorbidities, AF, HF etiology, NT-proBNP, renal function, and baseline LVEF were similar. HFimpEF patients had smaller LAVI (39 vs. 46 mL/m^2, p < 0.001) and more often reached maximum ARNI (42% vs. 34%, p = 0.02) and MRA dosing (90% vs. 81%, p = 0.04). Despite identical baseline LVEF, patients with HFimpEF markedly improved EF at 3 month and kept improving slightly throughout follow-up, whereas patients with persistent HFrEF showed modest EF improvement at the 3-month mark, and only non-relevant improvement beyond 3-month (Figure 1). HFimpEF patients presented better prognosis, with almost no events when compared to persistent HFrEF patients: HFimpEF conferred a 79% lower risk of death/HHF (HR 0.21, 95%CI 0.08-0.55) (Figure 2). Within HFimpEF, only 6 adverse events occurred (2 deaths, 4 HHF). Those with events showed higher frailty (CFS 4.8 vs. 3.1), lower eGFR (44 vs. 74 mL/min), and much higher NT-proBNP (24,289 vs. 4,759 pg/mL), identifying these as potential markers of residual risk.
Conclusions: HFimpEF is common, confers a favorable prognosis and seems to be associated with higher GDMT doses. Although overall risk of events is low in this population, frailty, renal impairment and elevated NT-proBNP may identify HFimpEF patients needing closer follow-up and alternative therapies to further reduce residual risk.

PO 290. DIFFERENTIAL IMPACT OF SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITORS AND SACUBITRIL-VALSARTAN IN INCIDENCE OF HEART FAILURE WITH IMPROVED EJECTION FRACTION

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TABLE 1 Baseline clinical characteristic of patients with HF with improved EF vs patients with persistent HFrEF

	HFimpEF (n=112)	Persistent HFrEF (n=158)	p Value
Age (years)	64±14	67± 14	0.04
Sex (female)	37%	23%	0.02
Ischemic vs non-ischemic etiology (%)	43 vs 57	46 vs 54	NS
Atrial fibrillation	34%	37%	NS
Hypertension	55%	64%	NS
Type 2 diabetes	33%	31%	NS
Baseline NYHA I II III IV	 4% 52% 32% 12%	 5% 51% 29% 15%	NS
NT-proBNP (pg/ml)	2394 [4482]	2622 [4219]	NS
Baseline LVEF (%)	28±7	28±9	NS
Baseline LAVI (ml/m2)	39 ± 15	46 ± 17	<0.001
Creatinine Clearance (mL/min)	72 ± 24	69 ± 24	NS
Maximum ARNI dose	42%	34%	0.04
SGLT2i	94%	92%	NS
Maximum MRA dose	90%	81%	0.02
Maximum beta-blocker dose	67%	59%	NS
LVEF at 3 months (%)	46±9	32±8	<0.001
LVEF at 1 year (%)	50±7	33±8	<0.001
LVEF at follow-up (%)	53±8	36±11	<0.001

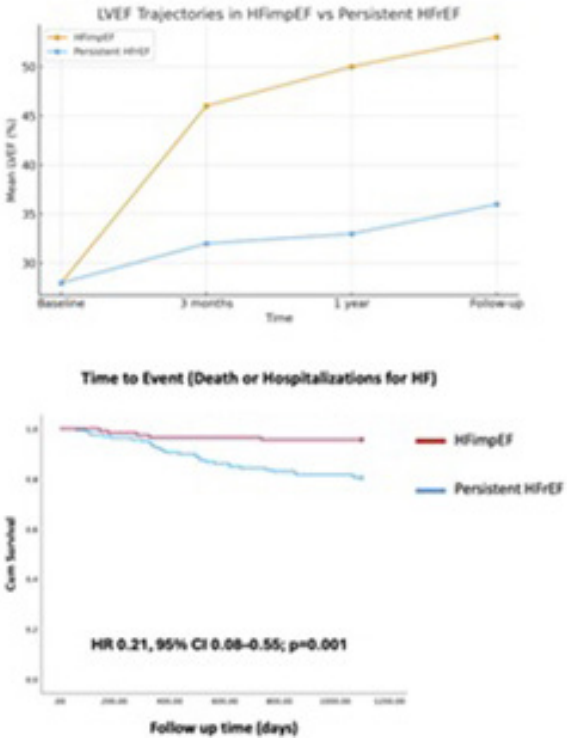

Figure PO 289

Introduction: Heart failure with improved ejection fraction (HFimpEF) is increasingly recognized as a meaningful phenotype. The impact of guideline directed medical therapy (GDMT) and its titration on HFimpEF incidence still needs to be clarified.
Methods: Single-center retrospective study with consecutive patients with chronic dilated cardiomyopathy and reduced ejection fraction from a heart failure clinic, between 2014-2024. Previous diseases, medication (including GDMT according to percentage of target dose), clinical status, biomarkers, electrocardiogram and echocardiogram findings were recorded. HFimpEF (left ventricle ejection fraction ≥ 40% with improvement of ≥ 10% from baseline) was the endpoint at 1-year post-admission.
Results: We included 189 patients (69.3% male; mean age 58.4 ± 12.2 years-old), median LVEF of 26.8 ± 10.7% at baseline. HFimpEF occurred in 37.1% of patients. Both at baseline and at 1-year, these patients were more likely to be on sodium-glucose cotransporter 2 inhibitors (SGLT2i) (66.1% vs. 41.9%; p = 0.002; 72.1% vs. 51.4%; p = 0.029, respectively) and on combined therapy with angiotensin-converting enzyme inhibitors (ACEi) or sacubitril-valsartan (ARNI), beta blocker (BB), SGLT2i and mineralocorticoid receptor antagonist (MRA), regardless of their doses (51.6% vs. 34.4%; p = 0.01; 62.3% vs. 41.0%; p = 0.008, respectively). Additionally, at 1-year, HFimpEF patients were also more often medicated with ARNI (60.7% vs. 41.0%; p = 0.014). A stronger association was evident for ARNI at target dose (37.7% vs. 15.2%; p < 0.001).
Conclusions: This study suggests that SGLT2i and ARNI, particularly when used at target dose, are the only HFrEF therapeutic pillars associated with HFimpEF in patients with dilated cardiomyopathy.

PO 291. QRS REDUCTION AND ITS ASSOCIATION WITH CRT SUPER-RESPONSE

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Introduction: Changes in QRS duration/variation (ΔQRS) are often used in the clinical setting to evaluate the effect of cardiac resynchronization therapy (CRT), although an association between ΔQRS and response/super-response is not fully established.
Objectives: We aimed to assess the link between QRS shortening and super-response in CRT patients.
Methods: A retrospective analysis between 2020 and 2023 included 95 patients who underwent CRT implantation. Data collected included demographics, cardiovascular risk factors and echo and electrocardiographic parameters. Super-response to CRT was defined as an absolute increase in left ventricular ejection fraction (LVEF) ≥ 10% and/or ≥ 30% reduction in left ventricular end-systolic volume and/or ≥ 20% reduction in left ventricular end-diastolic volume. ROC curve and AUC were obtained to determine the discriminative power of ΔQRS as predictor of CRT super-response. Optimal cut-point value was obtained, and patients were compared according to this value. Predictors of super-response were identified using multivariate logistic regression.
Results: The final cohort consisted of 61 patients, of whom 24 (39.3%) were classified as super-responders. The mean age was 69.5 ± 10.4 years, with 75.8% being male. Mean baseline QRS duration was 166 ± 23.5 ms. Post-CRT QRS was recorded a median of 20 hours after implantation, and the mean ΔQRS was −20.2 ms. Mean biventricular pacing was 95.9% and without differences between groups. Non-ischemic etiology (75%, p = 0.014), true left bundle brunch block (tLBBB) (65.2%, p = 0.003) and the degree of LVEF improvement (29.2% → 50.7%, p = 0.001) were more frequent among super-responders. ΔQRS with QRS shortening (26.7 ± 20.6 ms, p = 0.048) were also more frequent in this group. Optimal cut-point value for predicting CRT super-response was ΔQRS ≥ 26 ms (AUC 0.653, p-value 0.049, 95%CI 0.502-0.803) with a specificity of 89%. ΔQRS ≥ 26 ms was one of the predictors of super-response, increasing the probability by 9 times (OR = 9.612, p = 0.043). Other predictors were tLBBB (OR = 21.54, p = 0.015), non-ischemic etiology (OR = 20.14, p = 0.009) and the use of ACEi (OR = 15.16, p = 0.022).
Conclusions: In this cohort of patients, acute reduction of QRS duration after CRT implantation was associated with more pronounced reverse remodeling measured by super-response in a medium/long term follow-up, with an optimal QRS shortening of at least 26 ms. More studies are needed to confirm these findings and try to verify their impact on hard outcomes.

			CRT S-Response			
			N-S-RESP (n=37, 60,7%)	S-RESP (n=24, 39,3%)	Total (n=95)	p value
Gender	Male	n (%)	30,0 (81,1)	18,0 (75,0)	48,0 (78,7)	
	Female	n (%)	7,00 (18,9)	6,00 (25,0)	13,0 (21,3)	
						0,504
Age	*Mean±SD - years*		68,1±11,6	70,5±8,79	69,5±10,4	
						0,355
Hypertention		n (%)	29,0 (78,4)	17,0 (70,8)	46,0 (75,4)	
						0,525
Diabetes (type 2)		n (%)	22,0 (59,5)	11,0 (45,8)	33,0 (54,1)	
						0,297
Dyslipidemia		n (%)	29,0 (78,4)	16,0 (66,7)	45,0 (73,8)	
						0,310
Smoker		n (%)	12,0 (32,4)	12,0 (50,0)	24,0 (39,3)	
						0,170
Obesity		n (%)	11,0 (29,7)	5,00 (20,8)	16,0 (26,2)	
						0,440
Alcool		n (%)	10,0 (27,0)	7,00 (29,2)	17,0 (27,9)	
						0,856
Atrial fibrillation		n (%)	10,0 (27,0)	6,00 (25,0)	16,0 (26,2)	
						0,860
Ventricular tachycardia		n (%)	2,00 (5,40)	2,00 (8,30)	4,00 (6,60)	
						0,652
Chronic renal disease		n (%)	12,0 (32,4)	11,0 (47,8)	23,0 (38,3)	
						0,233
LBBB > 150ms		n (%)	24,0 (75,0)	17,0 (73,9)	41,0 (74,5)	
						0,927
tLBBB		n (%)	9,00 (25,7)	15,0 (65,2)	24,0 (41,4)	
						0,003
Up-grade		n (%)	0,00 (0,00)	2,00 (8,30)	7,00 (25,9)	
						0,151
Need ventricular pacing		n (%)	10,0 (35,7)	5,00 (26,3)	15,0 (31,9)	
						0,498
Non-ischemic heart disease		n (%)	13,0 (41,9)	18,0 (75,0)	31,0 (56,4)	
						0,014
Optimized medical therapy	*ARNi*	n (%)	23,0 (62,2)	10,0 (41,7)	33,0 (54,1)	0,117
	ACEi/ARB	n (%)	10,0 (27,0)	12,0 (50,0)	22,0 (36,1)	0,068
	MRA	n (%)	25,0 (69,4)	15,0 (62,5)	40,0 (66,7)	0,576
	SGLT2i	n (%)	26,0 (72,2)	14,0 (58,3)	40,0 (66,7)	0,264
	Beta-blocker	n (%)	30,0 (83,3)	23,0 (95,8)	53,0 (88,3)	0,140
	AAR	n (%)	10,0 (27,8)	4,00 (16,7)	14,0 (23,3)	0,319
LVEF - pre	*Mean±SD - %*		32,4±10,2	29,2±6,60	33,3±11,1	**0,005**
LVEF - pos	*Mean±SD - %*		37,2±13,8	50,7±9,70	40,7±14,1	**<0,001**
			p=0,044	**p=0,001**	**p=0,009**	
LVEDV-pre	*ml*		205±78,3	185±64,2	196±77,5	0,789
LVEDV-pos	*ml*		184±77,8	129±36,4	168±92,9	**0,017**
			p=0,020	**p=0,040**	**p=0,001**	
QRS duration pre-CRT	*ms*		162±23,2	170±24,1	166±23,5	
						0,179
QRS variation	*ms*		13,8±16,7	26,7±20,6	20,2±20,9	
						0,048
BiV	*%*		96,6±5,26	98,0±2,45	95,9±7,59	
						0,305

Figure PO 291

PO 292. PREDICTORS OF IMPROVEMENT IN EJECTION FRACTION IN PATIENTS WITH NEWLY DIAGNOSED HEART FAILURE WITH REDUCED EJECTION FRACTION

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Introduction: Patients with heart failure with reduced ejection fraction (HFrEF) have heterogeneous prognosis, and while some have persistently reduced left ventricular ejection fraction (LVEF), others have improvement in ejection fraction (HFimpEF). HFimpEF includes patients with a baseline LVEF≤ 40%, that have a ≥ 10 percentage points increase from baseline LVEF and a second measurement of LVEF > 40%. The aim of this study is to identify predictors of HFimprEF, in patients newly diagnosed with HFrEF.

Methods: This retrospective, single-center study included all patients referred to Cardiology consultation due to recently diagnosed HFrEF. Follow up was at least one year. Demographic variables, comorbidities, etiology, medical therapy, blood analysis, electrocardiogram and echocardiogram were analyzed. Statistical analysis used chi-square, Mann-Whitney U tests and binary logistic regressions.

Results: 89 patients were studied: 64 (71.9%) had HFimpEF; 21 (23.6%) had persistent HFrEF; 4 (4.5%) had improvement in LVEF that didn't fulfil criteria for HFimpEF. 69.4% of patients were male; mean age was 63 ± 12 years old; mean LVEF was 30.3 ± 5.4%. HFimpEF was associated with non-ischemic etiology (p = 0.09), history of excessive alcoholic ingestion (p = 0.019), lower frequency of chronic kidney disease (p = 0.05), non-dilated LV (p = 0.016), higher prescription of betablockers during follow-up (p = 0.03), absence of

transmural late gadolinium enhancement in cardiac magnetic resonance (p = 0.012), lower NTproBNP levels (p = 0.038). There were no differences between HFimpEF and persistent HFrEF regarding age, sex, QRS duration or other medical therapy, namely RAAS inhibitors and SGLT2 receptor-targeting drugs. During follow-up, HFimpEF was associated with fewer HF hospitalizations (p = 0.013). Univariate logistic regression analysis showed that history of excessive alcoholic ingestion (OR 3.627; 95%CI 1.186-11.090; p = 0.024), non-ischemic etiology (OR 4.308; 95%CI 1.363-13.616; p = 0.013), lower LV telediastolic volume (OR 0.977; 95%CI 0.955-0.999; p = 0.045) and prescription of betablockers during follow-up (OR 9.687; 95%CI 1.718-54.615; p = 0.010) were predictors of HFimpEF. In multivariate analysis, only history of excessive alcoholic ingestion (OR 26.244; p = 0.043), non-ischemic etiology (OR 21.826; p = 0.036) and lower LV telediastolic volume (OR 0.971; p = 0.05) were independent predictors of HFimpEF.
Conclusions: In patients with newly diagnosed HFrEF, 71.9% fulfilled criteria for HFimpEF during follow-up. Patients with HFimpEF had fewer HF hospitalizations. The only independent predictors of HFimpEF were history of excessive alcoholic ingestion, non-ischemic etiology and lower LV telediastolic volume. This might allow better risk stratification and prognostic evaluation in patients recently diagnosed with HFrEF.

Domingo, 26 Abril de 2026 | 08:30-09:25

Área de Posters - Ecrã 1 | Sessão de Posters 50 - Terapêuticas avançadas na insuficiência cardíaca e em populações especiais

PO 293. SERIAL CARDIAC MAGNETIC RESONANCE AFTER HEART TRANSPLANTATION: EVOLUTION OF MYOCARDIAL TISSUE CHARACTERISTICS, VENTRICULAR REMODELING, AND ASSOCIATION WITH REJECTION

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Introduction: The role of serial cardiac magnetic resonance (CMR) after heart transplantation (HT) remains uncertain. This study aimed to characterize the evolution of ventricular remodeling, tissue mapping, and late gadolinium enhancement (LGE) on serial CMR, and to explore their association with biopsy-proven cellular rejection.
Methods: We prospectively evaluated 18 HT recipients between January 2024 and June 2025 who underwent an early CMR (CMR1; median 53 days post-HT) and a follow-up CMR (CMR2; median 192 days), both performed on the same 1.5T scanner. Endomyocardial biopsy (EMB) was performed near each CMR, and cellular rejection (≥ 2R) was identified in two patients at the time of CMR2.
Results: In the overall cohort, ventricular size and function were within normal ranges at baseline. Native T1 was diffusely elevated (1096 ± 61 ms), with mild abnormalities also seen in T2 and extracellular volume (ECV) (Table 1). LGE was present in 7 patients (43.8%) and predominantly non-ischemic (5 patients, 31.3%). Hemodynamic-CMR coherence at baseline was demonstrated by a positive correlation between LV stroke volume index and cardiac index on right-heart catheterization (r = 0.63, p = 0.005) and an inverse correlation between pulmonary vascular resistance and RVEF (r = -0.47, p = 0.047). Among patients without rejection, ventricular volumes and ejection fraction remained stable between CMR1 and CMR2. Mapping parameters showed a trend toward T1 reduction that did not reach statistical significance (ΔT1 −31 ms, p = 0.154), and only small, non-significant variations in T2 and ECV. LGE remained frequent but generally mild and predominantly non-ischemic. Ischemic injury was present in a minority at CMR1 (n = 2, 12.6%), with only one additional case identified at CMR2. Patients with biopsy-proven rejection at CMR2 (n = 2) demonstrated significantly higher T2 values (66 ± 4 ms vs. 51 ± 2 ms, p < 0.001) and more extensive LGE involvement (U = 0.5, p = 0.022), but the temporal changes in volumes and mapping provided additional discriminatory value. These patients exhibited marked increases in LV and RV end-diastolic indexed volumes (ΔLVEDVi +16.5 ml/m², p = 0.075; ΔRVEDVi +19 ml/m², p = 0.045), in contrast with the stability observed in non-rejection patients. Mapping trajectories also diverged: patients with rejection showed increases in T1 and T2 (ΔT1 +13 ms, p = 0.425; ΔT2 +5.5 ms, p = 0.046), whereas non-rejection patients demonstrated reductions.
Conclusions: In this preliminary cohort, serial CMR suggested that cellular rejection was associated with increasing ventricular dilation, mapping values, and LGE. In contrast, the remaining patients showed stable ventricular remodeling and partial normalization of mapping abnormalities. These findings highlight the potential value of serial CMR as a complementary tool for early detection of graft injury and monitoring post-transplant recovery.

PO 294. EPIDEMIOLOGY AND OUTCOMES OF DRIVELINE INFECTIONS IN HEARTMATE 3 RECIPIENTS

Inês Coutinho dos Santos[1], Samuel Azevedo[2], Cátia Sampaio[2], André Garcia Moniz[2], Márcia Presume[2], Ana Rita Bello[2], Sérgio Maltês[2], Bruno Rocha[2], Catarina Brízido[2], Christopher Strong[2], Marta Marques[2], Carlos Aguiar[2]

[1]Hospital do Divino Espírito Santo, Ponta Delgada. [2]ULS Lisboa Ocidental/Hospital de Santa Cruz.

Parameter	CMR1 (Mean ± SD)	CMR2 (Mean ± SD)	p-value
LV volumes and function			
LVEDVi (ml/m²)	70.15 ± 14.47	68.85 ± 9.49	0.707
LVESVi (ml/m²)	29.31 ± 9.55	28.54 ± 7.74	0.747
LVEF (%)	60.31 ± 7.77	58.77 ± 8.21	0.263
RV volumes and function			
RVEDVi (ml/m²)	71.15 ± 14.43	69.85 ± 13.51	0.712
RVESVi (ml/m²)	29.31 ± 7.90	30.54 ± 10.17	0.556
RVEF (%)	58.77 ± 4.94	57.15 ± 6.16	0.307
Mapping parameters			
Native T1 (ms)	1088.8 ± 66.0	1058.2 ± 42.6	0.154
T2 (ms)	53.15 ± 4.76	51.08 ± 2.10	0.129
Extracellular volume			
ECV (%)	28.43 ± 2.15	29.43 ± 3.10	0.216

Table 1. Serial CMR parameters in heart-transplant recipients without biopsy-proven rejection

Figure 1. Differential Evolution of CMR Metrics in Patients With Biopsy-Proven Rejection Versus Non-Rejection

Figure PO 293

Introduction: Durable left ventricular assist device (LVAD) therapy has significantly improved survival and quality of life of advanced heart failure (AHF) patients. However, device-related complications such as driveline infections (DLI) remain a critical clinical challenge.
Objectives: To describe the epidemiology, microbiology, management strategies, and outcomes of driveline-related infections experienced by patients under LVAD with HeartMate 3™ (HM3).
Methods: Retrospective observational study including all patients implanted a HM3 between 2018 and 2025 and/or under HM3 follow-up at a single tertiary center. Patients on HM3 support for less than three months were excluded. Clinical data regarding DLI events, their management strategy and outcomes was collected. Descriptive statistics were performed.
Results: Twenty-four HM3 recipients were included (mean age 55.1 ± 11.3 years, 87.5% male), most implanted in a bridge-to-transplantation strategy (45.8%), and most with previous ischemic cardiomyopathy (58.3%). Recurrent non-compliance with driveline care instructions was observed in 25% of patients. Overall, 50% of HM3 recipients registered at least one DLI episode, with a total of 29 suspected DLI episodes during a mean follow-up of 31.1 ± 21.0 months and a median HM3 support duration of 19.0 months. Driveline exudate cultures were positive in 79.3% of cases. Gram-positive bacteria predominated, namely Staphylococcus aureus. Beta-lactams were the most frequently used antibiotics (AB), specifically oral flucloxacillin and i.v. piperacillin-tazobactam. Median AB duration was of 14 days. Associated bacteremia was only found in three cases and two patients were treated for HM3-related endocarditis. Chronic colonization was assumed in four cases. Long-term suppressive AB was needed in five cases. Hospitalization for DLI management was required in 48.3%. Invasive interventions, such as surgical debridement and driveline revision, occurred in five cases. There was one case of DLI-related death due to septic shock, and two urgent heart transplantation listings due to recurrent or refractory DLI.
Conclusions: In this HM3 cohort, DLI represented significant clinical burden, often requiring hospitalization and prolonged AB therapy. However, severe infections were relatively uncommon and invasive procedures were only needed in very select cases. These findings underline the need for optimized patient education and preventive strategies to reduce morbidity and improve long-term outcomes in HM3 recipients.

PO 295. SUSTAINED CLINICAL AND QUALITY-OF-LIFE BENEFITS AFTER LONG-TERM INTERMITTENT LEVOSIMENDAN THERAPY IN ADVANCED HEART FAILURE: EXPERIENCE FROM OVER 550 INFUSIONS

Rodrigo Neves Brandão, Luís Cotrim, Inês Madeira Santos, Inês Pereira Miranda, Filipa Gerardo, Manuel Ribeiro, Célia Henriques, Mariana Passos, Ana Oliveira Soares, Inês Fialho, David Roque

ULS Amadora/Sintra/Hospital Professor Doutor Fernando Fonseca.

Introduction: Levosimendan, a calcium-sensitizing inotrope, has demonstrated hemodynamic and symptomatic benefits in patients with advanced heart failure (AHF), potentially improving clinical stability and quality of life.
Objectives: Evaluate the impact of intermittent levosimendan infusions (ILI) on functional class, biomarkers, and six-month clinical outcomes.
Methods: This retrospective, single-center study included 59 patients with AHF receiving ILI. Clinical and laboratory parameters were assessed at baseline and after six months of therapy. Variables compared included the number of heart failure (HF) hospitalizations, NYHA functional class, Seattle Heart Failure Model (SHFM) scores (1- and 5-year survival estimates), and NT-proBNP levels.
Results: The cohort included 59 patients, 77% men (n = 46), with a mean age of 67 ± 12.9 years and a median BMI of 25 (IQR 21-27) kg/m^2. All patients had HFrEF, most commonly ischemic etiology (n = 33, 55%), followed by idiopathic dilated cardiomyopathy (n = 16, 27%). Baseline left ventricular ejection fraction was 24.6% (IQR 19.5-29.5), and NT-proBNP was 9,805 pg/mL (IQR 3,292-12,310). Before treatment, 97% of patients were in NYHA class III. By October 2025, 31.7% of patients (n = 19) had died, 15% (n = 9) due to heart failure. Among 17 patients initially considered for advanced therapies, 3 underwent cardiac transplant and 1 received a left ventricular assistance device (LVAD), while 72% of patients (n = 43) were treated with palliative intent for symptomatic improvement. Following initiation of levosimendan cycles, a significant reduction was observed in HF hospitalizations ($p < 0.001$) and an improvement in NYHA class ($p < 0.001$). Quality of life significantly improved, reflected by higher SHFM scores both at 1 year (81.7 ± 12.4 vs. 88.2 ± 9.2; $p = 0.040$) and 5 years (42.8 ± 24.9 vs. 57.5 ± 22.6; $p = 0.018$). NT-proBNP levels decreased markedly after six months (9,805 ± 10,709 pg/mL vs. 4,698 ± 5,789 pg/mL; $p < 0.001$), indicating improved decongestion and hemodynamic balance.
Conclusions: ILI were associated with a significant reduction in HF hospitalizations, improvement in functional class, and enhancement of quality-of-life scores, accompanied by a substantial decrease in NT-proBNP levels. These findings support the role of levosimendan as an effective therapeutic strategy for optimizing clinical status and prognosis in patients with advanced heart failure- either as palliative therapy for symptom control and quality-of-life improvement, or as a bridge to heart transplantation or LVAD implantation.

PO 296. CAREGIVER BURDEN IN HEARTMATE 3: A SINGLE-CENTER OBSERVATIONAL STUDY

Inês Coutinho dos Santos[1], André Moniz Garcia[2], Cátia Sampaio[2], Márcia Presume[2], Ana Rita Bello[2], Sérgio Maltês[2], Bruno Rocha[2], Catarina Brízido[2], Christopher Strong[2], Marta Marques[2], Carlos Aguiar[2]

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Introduction: Caregivers (CG) of patients with advanced heart failure (AHF) supported by durable left ventricular assist devices (LVAD) are essential for therapy eligibility and long-term success. However, the substantial physical and psychosocial distress associated with LVAD management and emergency care are often overlooked, potentially compromising CG well-being, caregiving capacity, patient quality of life and treatment adherence.
Objectives: To describe the burden experienced by the primary CG of patients under LVAD with HeartMate 3™ (HM3).
Methods: This cross-sectional observational study included all patients on HM3 support under follow-up at a single center in 2025. Patients who were on HM3 support for less then 3 months and those recently hospitalized were excluded. The primary CG was identified as the unpaid person providing most of patient's support. Caregiver burden (CGB) was assess using the Portuguese version of the 22-item Zarit Burden Interview (ZBI) scale. Descriptive and inferential statistical analyses were performed.
Results: Twelve male patients on HM3 for a mean of 31.0 months were included (mean age 61.2 years). Most had AHF of ischemic etiology (58.3%) and were supported as bridge to transplantation (41.7%) or to candidacy (25.0%), and most were in NYHA class II (83.3%). All their CG were female and corresponded to patients' spouses/partners. Most were older than 50 years (83.3%) and still professionally active (58.3%). The mean ZBI score was 19.2 ± 9.9 (range 3-35) as proposed by the original author, or 41.2 ± 9.9 (range 22-57), according to the Portuguese version by Sequeira, 2010. The most burdensome item related to the CG's perception of the patient's perceived dependence on them as CG. According to the cut-offs validated for the Portuguese version, 75.0% of CG had no burden, while 25.0% exhibited some degree of CGB (16.7% mild, 8.3% severe). Among the assessed domains, the presence of CGB was associated with significantly higher scores in the impact of caregiving subdomain ($p = 0.012$), as well as personal strain ($p = 0.012$) and role strain ($p = 0.024$). No significant associations in CGB were observed with NYHA class, INTERMACS profile, LVAD strategy, CG age group or employment status.
Conclusions: In this cohort, CGB was present in one in four CG of AHF patients supported by HM3. These findings underline the importance of structured and systematic CGB assessment as part of standard HM3 care, to enable early identification of at-risk CG and implementation of tailored supportive interventions as needed.

PO 297. IABP IMPLANTATION AS A NON-PHARMACOLOGICAL TREATMENT OF HEART FAILURE-RELATED CARDIOGENIC SHOCK: HEMODYNAMIC TRAJECTORY AND CLINICAL OUTCOMES

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Introduction: Intra-aortic balloon pump (IABP) remains a widely available and easily deployable form of temporary mechanical circulatory support (MCS) for patients in cardiogenic shock (CS). While large randomized trials in myocardial infarction-related shock failed to demonstrate a survival benefit, emerging evidence suggests that in heart failure-related cardiogenic shock (HF-CS) IABP may provide rapid hemodynamic stabilization, improve tissue perfusion, and serve as a bridge to CS recovery or advanced HF therapies. We aimed to evaluate clinical and hemodynamic response to IABP implantation in HF-CS patients.
Methods: Retrospective analysis of consecutive patients admitted to a cardiac intensive care unit (CICU) between 2022-2025, who underwent IABP insertion for HF-CS. Clinical and laboratorial variables, as well as vasoactive support immediately before IABP insertion, and at 24 and 48 hours, were compared using independent samples T-test. Patients who recovered from CS or were successfully bridged to advanced HF therapies without additional MCS devices were considered IABP responders.
Results: The cohort comprised 13 patients with a mean age of 58 ± 18 years; 92% (n = 12) were male, 46% (n = 6) had chronic HF, 23% (n = 3) had an implantable cardioverter-defibrillator (ICD), and 7.7% (n = 1) had peripheral arterial disease. At admission, SCAI class distribution was B 7.7% (n = 1), C 77% (n = 10), and D 15% (n = 2). All IABPs were inserted uneventfully, and all but one were inserted at the bedside on the CICU. After IABP implantation, mean arterial pressure (MAP) remained stable from 75 mmHg [63-83] to 70 mmHg [64-80] at 24h (p = 0.70), but increased to 83 mmHg [72-90] at 48 h (p = 0.10). Lactate decreased from 2,1 [1,65-4,8] to 1,1 [0,85-1,8] at 24h (p = 0,002) and remained stable at 48 h 0.95 mmol/L [0.8-1.23] (p = 0,003), while central venous oxygen saturation increased from 50% [33-61] to 60.5% [56-68] at 24 h (p = 0.021) and 69% [55-74.5] at 48h (p = 0.012). NT-proBNP levels also decreased from 13,947 pg/mL [3,887-27,286] to 8,909 pg/mL [3,220-20,335] at 24 hours (p = 0.075) and 4,241 pg/mL [956-7,358] at 48 hours (p = 0.004). Concomitantly, vasoactive requirements decreased: norepinephrine doses were reduced from 0.59 μg/kg/min [0.14-0.89] to 0.33 μg/kg/min [0.14-0.60] at 24h (p = 0.043) and 0.16 μg/kg/min [0.02-0.25] at 48h (p = 0.028). Eleven patients (85%) were classified as IABP responders and were successfully bridged to either CS recovery (n = 7), left ventricular assist device implantation (n = 2), or heart transplantation (n = 2). IABP support failed to stabilize two patients (15%), who required MCS escalation to VA-ECMO.
Conclusions: IABP use in HF-CS led to a rapid improvement in hemodynamic and laboratorial parameters, also reflected by reduced vasoactive support requirements. Most patients were IABP responders, highlighting the value of this adjunctive therapy for HF-CS patients.

PO 298. DETERMINANTS OF IN-HOSPITAL MORTALITY IN ACUTE HEART FAILURE: A RETROSPECTIVE ICU COHORT

Rita Ventura, Mafalda Griné, Inês Brito e Cruz, Maria João Primo, Didier Martinez, Manuel Oliveira Santos, Catarina Silva, Nuno Devesa

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Acute Heart failure (AHF) frequently complicates critical illness and remains a major contributor to ICU mortality. Despite advances in monitoring and organ support, early risk stratification is challenging. Identifying predictors of in-hospital mortality may help clinicians recognize high-risk patients sooner.
Objectives: To identify independent clinical and severity-related predictors of in-hospital mortality among critically ill patients with AHF.
Methods: Retrospective single-center cohort including ICU patients with decompensated HF at admission or during their ICU stay (2020-2023).

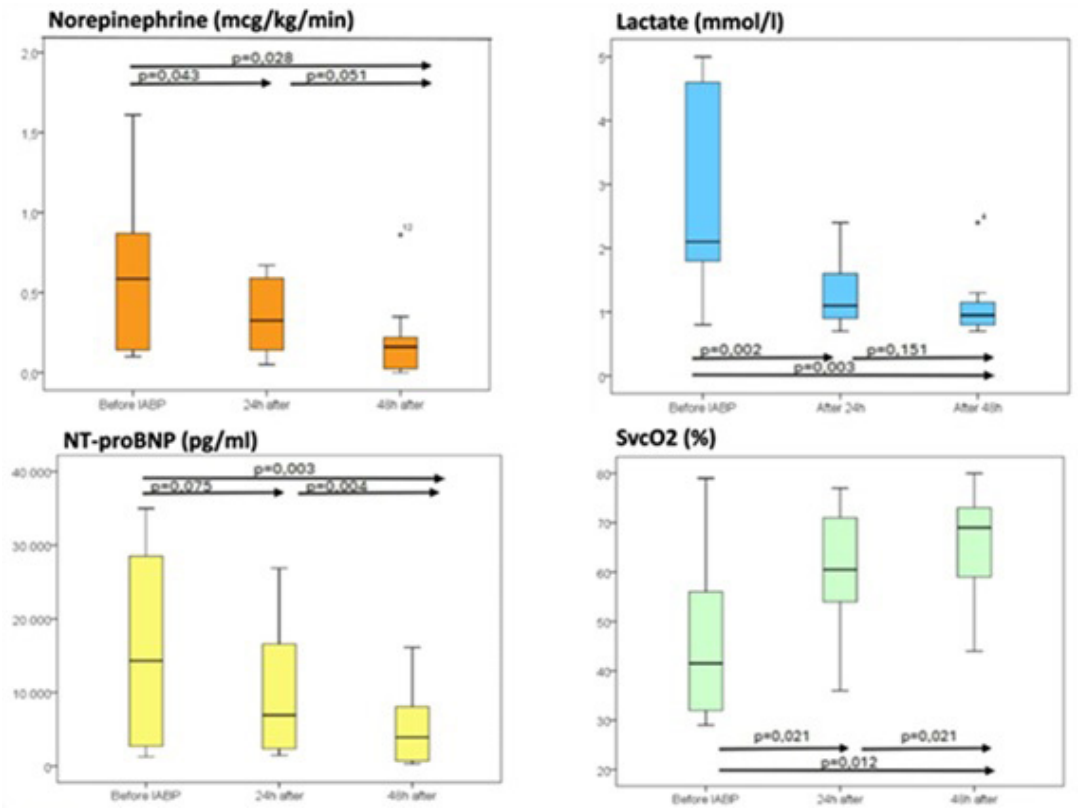
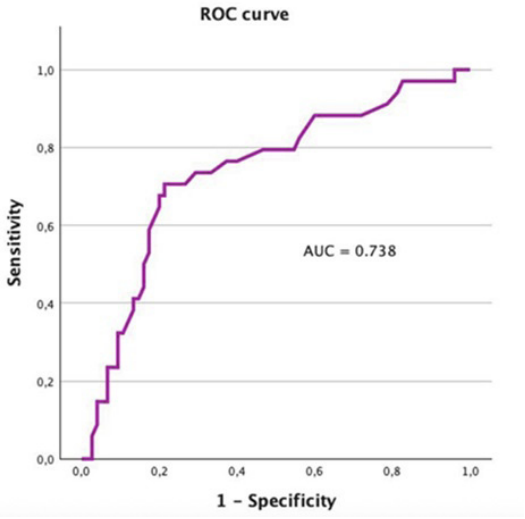


Figure PO 297

Clinical, laboratory, echocardiographic, and treatment data were collected. Disease severity was assessed with SAPS II, APACHE II, and 24-hour SOFA. Candidate predictors included: left ventricular ejection fraction (LVEF) category, creatinine, sodium, lactate, invasive mechanical ventilation, cardiogenic shock, renal replacement therapy (RRT) and extracorporeal membrane oxygenation (ECMO). Variables significant in univariate analysis were entered into a multivariable logistic regression model. Model discrimination was evaluated using ROC curve analysis.

Results: A total of 113 patients were included (median age 69 years; 60.5% male). In-hospital mortality was 33.6% (n = 38). Non-survivors showed higher severity scores: SAPS II (61.1 ± 20.5 vs. 52.5 ± 17.3, p = 0.026), APACHE II (28.1 ± 9.7 vs. 23.5 ± 9.1, p = 0.019), and SOFA 24-hour (10.4 ± 3.2 vs. 9.0 ± 3.2, p = 0.038). Renal replacement therapy (RRT) was more frequent among non-survivors (42.1% vs. 13.3%, p < 0.001). Lactate was also higher (1.97 [1.33-4.13] vs. 1.46 [1.00-2.25], p = 0.047). Other variables – including LVEF categories, creatinine, sodium, mechanical ventilation, cardiogenic shock and ECMO– were not associated with mortality. In multivariable analysis, APACHE II and RRT remained independent predictors: each APACHE II point increased mortality risk by 5.2% (OR = 1.05, 95%CI 1.00-1.10, p = 0.040), and RRT was associated with 4.8-fold higher odds of death (OR = 4.85, 95%CI 1.85-12.73, p = 0.001). Model discrimination was good, with an area under the ROC curve (AUC) of 0.738 (95%CI 0.63-0.85, p = 0.003).



Conclusions: In critically ill patients with AHF, higher disease severity (APACHE II) and need for RRT independently predicted in-hospital mortality. These findings highlight both the prognostic relevance of early physiological severity and the impact of renal dysfunction in this population.

Domingo, 26 Abril de 2026 | 08:30-09:25

Área de Posters - Ecrã 2 | Sessão de Posters 51 - Circulação pulmonar, pericárdio e cuidados agudos

PO 299. INFLUENCE OF VALVE POSITION ON OUTCOMES OF SURGERY VERSUS FIBRINOLYSIS IN PROSTHETIC VALVE THROMBOSIS: A META-ANALYSIS AND META-REGRESSION

Ana Marta C. Pinto[1], Emídio Mata[1], Bernardo Resende[2], Margarida Castro[1], João Gameiro[2], Sílvia Ribeiro[1], Filipa Cordeiro[1], Gonçalo Ferraz-Costa[2], Lino Gonçalves[2], António Lourenço[1]

[1]ULS Alto Ave/Hospital da Senhora da Oliveira. [2]ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Obstructive prosthetic valve thrombosis (PVT) is a rare but life-threatening complication. While urgent surgery has traditionally been the standard of care, fibrinolytic therapy has emerged as a less invasive alternative in selected patients. The influence of the affected valve position on treatment outcomes remains unclear.

Objectives: To compare surgery and fibrinolysis for prosthetic valve thrombosis using meta-analysis and meta-regression, examining valve position as a potential modifier of treatment effect.

Methods: A systematic search of five databases identified studies comparing fibrinolysis with surgery for prosthetic valve thrombosis. Random-effects meta-analyses were conducted to estimate pooled risk ratios (RRs) with 95% confidence intervals, and mixed-effects meta-regression was used to evaluate the influence of valve position on in-hospital mortality, complete valve restoration (without associated death), and recurrence.

Results: Thirteen studies (12 observational, 1 randomized control trial; 586 fibrinolysis, 714 surgery) were included. The distribution of affected valves varied across studies: aortic (A) 8.5-55.0%, mitral(M) 54.8-93.7%, tricuspid (T) 1.5-20.0%, and combined valve involvement (A-M or M-T) 0.7-10.6%. Meta-regression showed no significant moderating effect of valve position on any outcome. For in-hospital mortality, the baseline risk ratio (RR) for a fully non-aortic cohort was 1.01 [0.32-3.17], and each 10% increase in aortic valve involvement was associated with a non-significant 14% relative decrease in RR (0.86 [0.60-1.24] QM(1) = 0.64, p = 0.42). For complete valve restoration, the baseline RR for a fully non-aortic cohort was 2.67 [1.10-6.48], indicating a significant advantage for surgery over fibrinolysis, while each 10% increase in aortic valve prevalence corresponded to a non-significant 10% decrease in RR (0.90 [0.66-1.21] QM(1) = 0.53, p = 0.47). For recurrence, the baseline RR for a fully non-aortic cohort was 2.10 [0.57-7.68], with each10% increase in

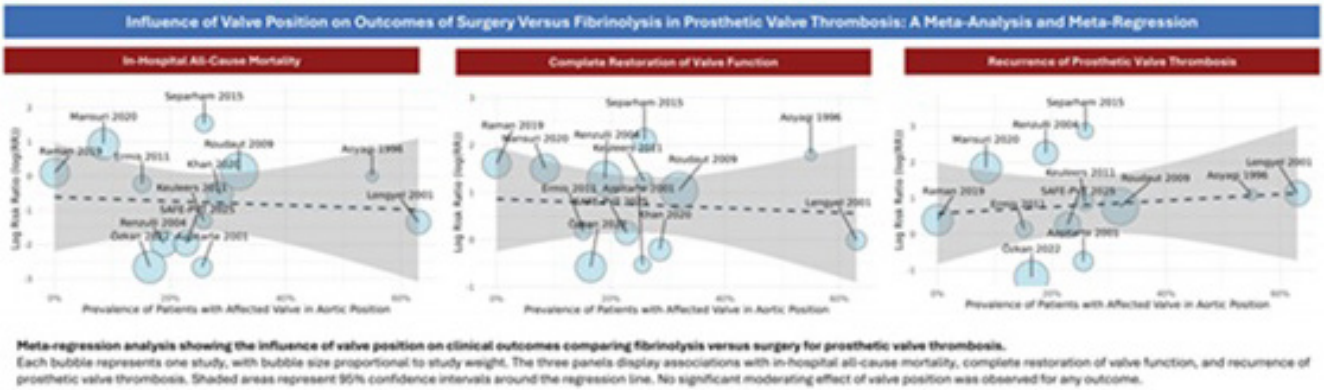


Figure PO 299

aortic valve prevalence associated with a non-significant 7% relative increase in RR (1.07 [0.66-1.74] QM(1) = 0.08, p = 0.78).
Conclusions: Surgical treatment remained associated with higher rates of complete valve restoration, while mortality and recurrence were similar between strategies, irrespective of valve location. These findings suggest that treatment choice should primarily consider patient clinical status and procedural risk rather than valve position alone.

PO 300. THE SHORTEST PATH TO THE HEART - APICAL VERSUS SUBXIPHOID PERICARDIOCENTESIS FOR TREATING PERICARDIAL EFFUSION

Raquel Montalvão, Mariana Silveira Ramos, Margarida Matias, Maria Inês Soares, Gonçalo Cunha, Ana Rita Bello, João Presume, Jorge Ferreira, Catarina Brízido

ULS Lisboa Ocidental/Hospital de Santa Cruz.

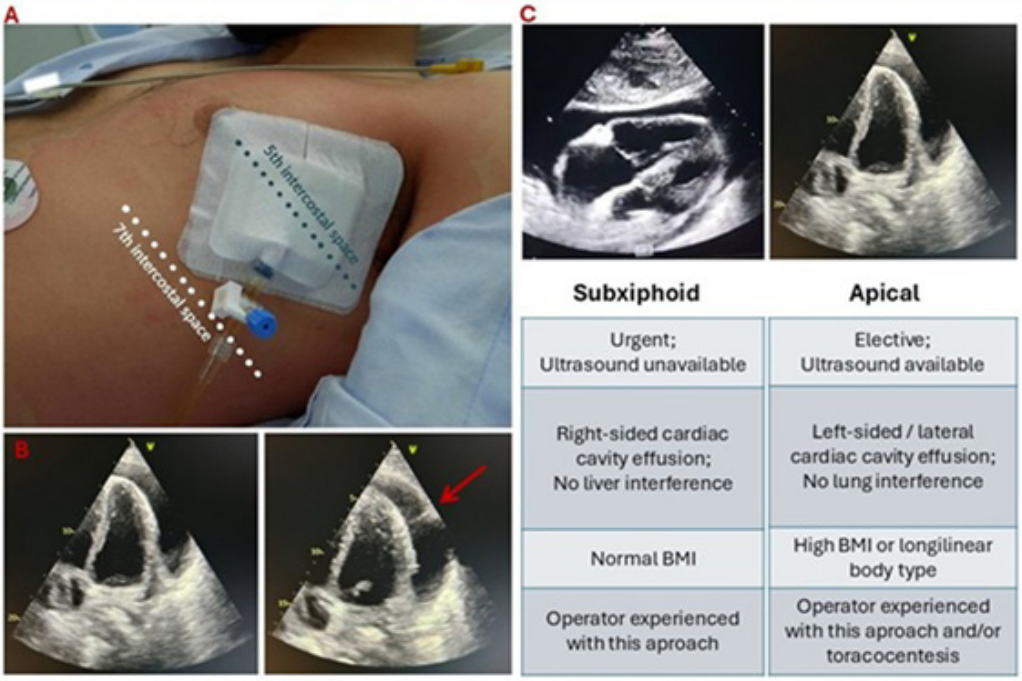
Introduction: Pericardiocentesis is the standard procedure for diagnosing and treating pericardial effusion. Although the subxiphoid is the traditional access site, the widespread use of ultrasound allows alternative windows tailored to effusion location and patient anatomy. Despite its increasing use, there is scarce data detailing the apical approach.
Objectives: We present our institutional experience with pericardiocentesis, comparing the effectiveness, safety and outcomes of the apical and the subxiphoid approaches.
Methods: Retrospective analysis of patients undergoing pericardiocentesis between 2022 and 2025 at a tertiary cardiac care center. Patients were categorized according to access site: apical or subxiphoid. Data was collected from electronic health records. Statistical comparisons were performed using two-sided Fisher's exact test. Procedural details: Bedside ultrasound was used to select the approach, favoring the largest effusion window with the lowest risk of perforating adjacent structures. For the apical approach, the entry site was located 1-2 cm lateral to the apex beat, between the 5th and 7th intercostal spaces. A needle was advanced above the corresponding rib's upper border, to avoid injury to the intercostal neurovascular bundle. Aspiration of pericardial fluid confirmed entry into the pericardial space and ultrasound assessed correct needle placement.
Results: A total of 45 patients underwent pericardiocentesis, 14 (31%) performed via the apical and 31 (69%) via the subxiphoid approach. The apical group had a higher percentage of women but body mass index was comparable. Hemodynamic instability was more common in the subxiphoid group. The overall success rate was 91% and severe complications occurred in four patients (8%), with no statistically significant difference between the two techniques. No pneumothorax occurred. In the apical group, one case was complicated with left ventricular puncture. In the subxiphoid group, there were three ventricular punctures (one right and two left), with one patient going into cardiac arrest, requiring emergent sternotomy with subsequent death. Overall (p-value 0.519) and in-hospital survival (p-value 1), showed no statistically significant differences (median follow-up: 260 [75-121] days).
Conclusions: Our institutional experience supports the apical approach as a safe and effective alternative for the traditional technique, enabling tailored treatment to patient's effusion and anatomy.

PO 301. ASSOCIATIONS BETWEEN HEMODYNAMIC RECOVERY AND FUNCTIONAL CAPACITY AFTER PERCUTANEOUS REPERFUSION FOR ACUTE PULMONARY EMBOLISM

Mariana Caetano Coelho, Julien Lopes, Daniela Pinheiro, Bárbara Lacerda Teixeira, André Grazina, João Reis, Pedro Costa, Ana Galrinho, Melanie Ferreira, Pedro Coelho, Rui Cruz Ferreira, Luís Almeida Morais

ULS São José/Hospital de Santa Marta.

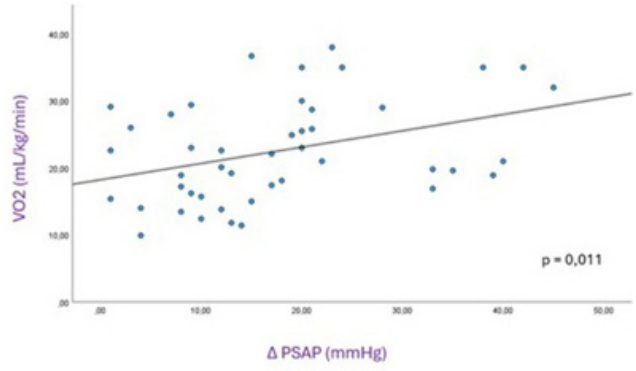
Introduction: Pulmonary embolism (PE) is increasingly prevalent, and although therapeutic strategies have advanced, many survivors continue to experience functional limitations. Nearly half of patients exhibit exercise intolerance, defined as a VO2max < 80% of the predicted value, and a subset develop chronic thromboembolic pulmonary hypertension (CTEPH). Beyond CTEPH, a broader "post-PE syndrome" encompasses patients with persistent dyspnea or reduced exercise capacity that cannot be explained by residual

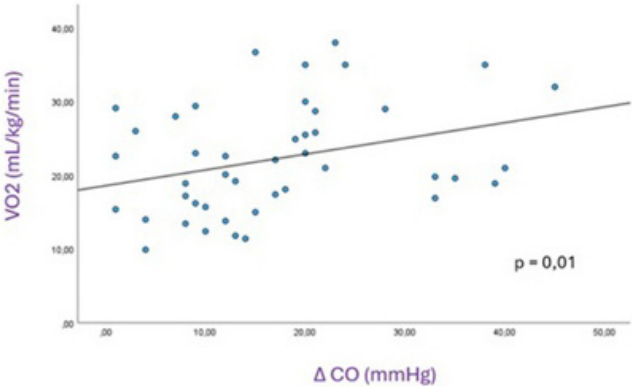


A) Apical approach puncture site; B) Ultrasound assessment of correct drain placement; C) Suggested criteria to choosing between approaches based on our institutional experience.

Figure PO 300

thrombotic obstruction. Understanding whether hemodynamic recovery following reperfusion therapy leads to meaningful improvements in functional capacity is crucial for optimizing long-term patient management.
Objectives: To assess whether improvements in pulmonary vascular and right-heart hemodynamic parameters following percutaneous treatment of acute PE are associated with enhanced functional capacity, as measured by peak oxygen consumption (VO2).
Methods: We conducted an observational study including 45 patients (46% female; median age 61 ± 17.5 years) treated with advanced percutaneous reperfusion techniques for acute PE. Therapeutic strategies included in situ fibrinolysis (71%), aspiration thrombectomy (13%), or a combined approach (16%). Pulmonary artery systolic pressure (PASP) and cardiac output (CO) were recorded at baseline and at 6-month follow-up. Functional capacity was evaluated by cardiopulmonary exercise testing with measurement of peak VO2.
Results: The mean peak VO2 in the cohort was 84.7% ± 22.4 of the predicted value. Women showed a mean VO2 of 81.4% ± 5.2 and men 90% ± 4.7, with no statistically significant sex-related difference (p = 0.229). Overall, 44% of patients had exercise intolerance (VO2max < 80%). Regarding the presence of CTEPH, patients who developed CTEPH demonstrated a mean VO2 of 85% ± 10, compared with 86% ± 3.7 in those without CTEPH (p = 0.944). Hemodynamic recovery was positively associated with functional performance at 6 months. Greater reductions in PASP correlated significantly with higher peak VO2 values (r = 0.376, p = 0.011), indicating that right-ventricular unloading was accompanied by improved exercise capacity. Similarly, increases in cardiac output were significantly associated with higher VO2 during cardiopulmonary exercise testing (r = 0.381, p = 0.010). Patients exhibiting larger hemodynamic improvements demonstrated superior functional recovery.





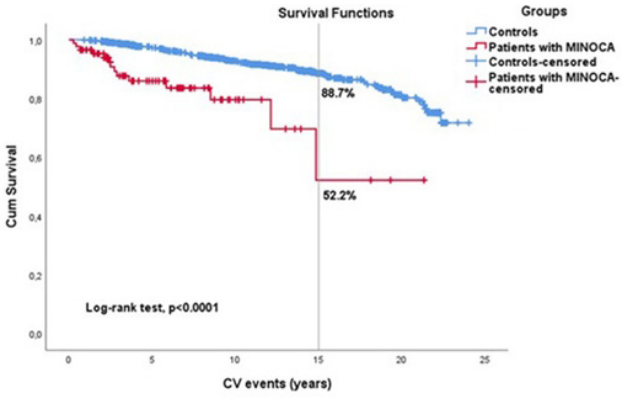
Conclusions: Improvements in PASP and CO following percutaneous reperfusion therapy for acute PE are significantly associated with enhanced functional capacity at 6-month follow-up. These findings suggest that both reduced pulmonary vascular load and improved cardiac pump function contribute meaningfully to medium-term functional recovery and may serve as useful indicators of post-PE rehabilitation and prognosis.

PO 302. THE HIDDEN RISK OF MINOCA: PROGNOSIS COMPARED WITH HEALTHY CONTROLS IN A PROSPECTIVE ANALYSIS

Matilde Ferreira[1], M. Isabel Mendonça[2], G. Abreu[1], F. Sousa[1], F. Escórcio Silva[1], M. Rodrigues[2], S. Freitas[2], E. Henriques[2], S. Borges[2], A. Drumond[1], A. C. Sousa[3], R. Palma dos Reis[4]

[1]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM; Cardiology Department, SESARAM EPERAM. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM; Madeira University. [4]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Some studies showed that the prognosis for patients with Myocardial Infarction (MI) with No Obstructive Coronary Artery Disease (MINOCA) is more favourable compared to those with Obstructive Coronary Artery Disease (CAD). However, it has been proven to be worse than the general population.
Objectives: Evaluate the prognostic value of MINOCA compared with a general population without apparent CAD from a Southern European population.
Methods: A single-centre, prospective, and observational cohort study was performed from January 2000 to December 2023 with a total of 1,524 individuals. Patients were considered MINOCA if their coronary angiogram was classified as zero by the Leaman score. All participants underwent clinical observation and a survey form including demographic and traditional risk factors was filled out, as well as biochemical analysis. The primary outcome was all-cause cardiovascular (CV) events [MI, revascularisation, heart failure, stroke, peripheral arterial disease (PAD) and death]. Cox regression analysis identified variables independently associated with CV events and assessed the risk (HR) in these populations. The Kaplan-Meier estimated event-free survival over time.
Results: Of the 1,524 participants, 87 (5.7%) had MINOCA and 1,437 (94.3%) were normal individuals without symptomatic CAD. Among the 87 MINOCA patients, 14 (16.1%) had CV events, vs. 108 (7.5%) in the normal group. The Kaplan-Meier indicated that patients with MINOCA had a worse event-free probability throughout follow-up period. Specifically, at the end of 15 years, the rate of event-free probability was 52.2% vs. 88.7% for the normal group. After the Cox regression analysis, the risk of CV events for patients with MINOCA was approximately five times higher compared with the normal group (HR = 4.7, 95%CI: 2.6-8.5; p < 0.0001). The other variables identified as independently associated with CV events were male sex (p = 0.018), age (p < 0.0001), smoking (p = 0.001) and hypertension (p = 0.001).



Variables independently associated with CV events

Variables	B	S.E.	Wald	df	HR (95% CI)	P value
Male sex	0.564	0.238	5.600	1	1.758 (1.102-2.805)	0.018
Age	0.059	0.013	19.922	1	1.061 (1.034-1.088)	<0.0001
Smoking	0.645	0.196	10.799	1	1.906 (1.297-2.800)	0.001
Hypertension	0.735	0.218	11.341	1	2.086 (1.360-3.201)	0.001
Patients with MINOCA (vs. controls)	1.554	0.300	26.825	1	4.733 (2.628-8.522)	<0.0001

Variables excluded from the equation: physical inactivity; obesity; dyslipidemia; diabetes; alcohol>300g/week. CV – Cardiovascular; MINOCA – Myocardial infarction with No Obstructive Coronary Arteries; B – Beta coefficient; S.E.: Standard error; df – degrees of freedom; HR – Hazard ratio; CI – Confidence interval; Statistically significant at p<0.05.

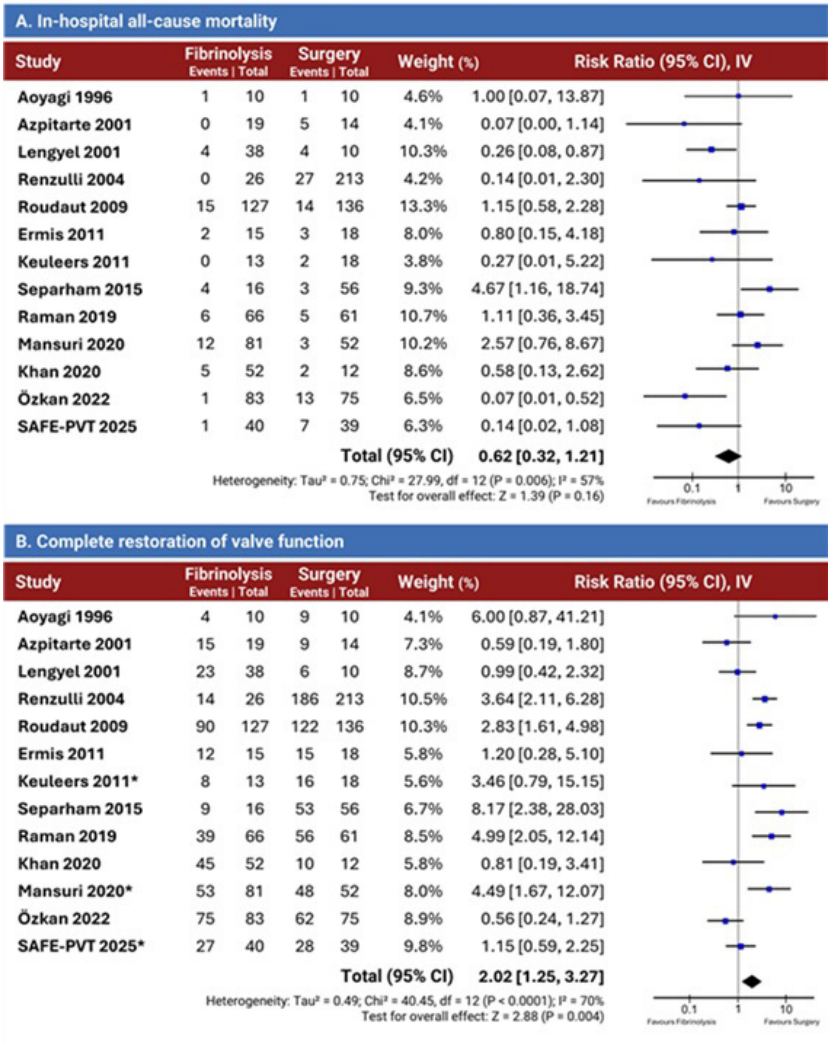
Conclusions: In this prospective cohort, patients with MINOCA had a substantially higher long-term risk of CV events than individuals without CAD. Event-free survival was markedly reduced, and MINOCA remained a strong independent predictor of adverse CV outcomes. These findings reinforce that MINOCA is not a benign condition and highlight the need for rigorous risk stratification and sustained secondary prevention in this population.

PO 303. FIBRINOLYSIS VERSUS URGENT SURGERY IN OBSTRUCTIVE PROSTHETIC VALVE THROMBOSIS: UPDATED EVIDENCE FROM A SYSTEMATIC REVIEW AND META-ANALYSIS

Bernardo Resende[1], Emídio Mata[2], Ana Marta Pinto[2], Margarida Castro[2], Tomás Carlos[1], Luísa Rocha[1], Miguel Vicente[1], Sílvia Ribeiro[2], João Gameiro[1], António Lourenço[2], Gonçalo Ferraz-Costa[1], Lino Gonçalves[1]

[1]ULS Coimbra/Hospitais da Universidade de Coimbra. [2]ULS Alto Ave/ Hospital da Senhora da Oliveira.

Introduction: Obstructive prosthetic valve thrombosis (PVT) is a rare but life-threatening complication. The optimal first-line therapy remains debated. While surgery has historically been preferred, advances in low-dose, slow-infusion alteplase protocols have improved fibrinolysis outcomes.
Methods: Following a systematic search of five databases, we conducted a systematic review and meta-analysis compared fibrinolysis with urgent surgery for obstructive PVT. The co-primary outcomes were in-hospital all-cause mortality and complete valve function restoration. Secondary outcomes included stroke, systemic embolization, major bleeding, recurrent PVT, and all-cause mortality during follow-up. Data were pooled using random-effects models, with sensitivity and meta-regression analyses.
Results: Across 12 observational studies and 1 randomized controlled trial, 1,300 patients (586 fibrinolysis, 714 surgery) were included. No significant difference was observed in in-hospital mortality (RR 0.62, CI 0.32-1.21; I^2 = 57%). However, fibrinolysis was associated with lower complete valve function restoration (RR 2.02, CI 1·25-3.27; I^2 = 70%) and higher risks of stroke (RR 3.57, CI 1.36-9.34; I^2 = 0%), systemic embolization (RR 3.88, CI 1.16-13.0; I^2 = 0%), and recurrent PVT (RR 2.46, CI 1.26-4.82; I^2 = 58%). No differences were found in major bleeding or all-cause mortality during follow-up. Sensitivity analyses restricted to alteplase-based regimens favored fibrinolysis, showing lower in-hospital mortality (RR 0.12, CI 0.04-0.40; I^2 = 0%) with efficacy comparable to surgery.
Conclusions: Surgery offers definitive clot removal with higher immediate success and fewer embolic or recurrent events. Low-dose alteplase protocols



Primary outcomes comparing fibrinolysis versus urgent surgery in patients with prosthetic valve thrombosis.
Effect estimates are presented as risk ratios (RRs) with 95% confidence intervals (CIs), using inverse variance (IV) random-effects meta-analysis. * Restoration without major adverse events.

Figure PO 303

achieve outcomes approaching surgery with improved safety. Given the low certainty of available evidence, treatment should be individualized according to patient risk profile, surgical expertise, and institutional resources.

PO 304. MICROBIOLOGICAL ISOLATES AND CLINICAL OUTCOMES IN A CARDIOLOGY DEPARTMENT: A FIVE-YEAR RETROSPECTIVE COHORT STUDY

Bernardo Resende, Didier Martinez, Tomás Carlos, Luísa Rocha, Mafalda Griné, Miguel Vicente, Ana Luísa Silva, Mariana Simões, Gonçalo Batista, Maria João Primo, João Gameiro, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Cardiology inpatients are particularly vulnerable to healthcare-associated infections (HAI) and multidrug-resistant (MDR) organisms due to advanced age, multimorbidity, frequent invasive procedures, and prolonged hospital stays. Despite increasing concern, data on the microbiological landscape and resistance patterns in cardiology units remain limited.
Objectives: To comprehensively characterize microbiological isolates and antimicrobial resistance profiles in a cardiology department over a five-year period, and to evaluate the clinical impact of MDR organism exposure on patient outcomes.
Methods: This cohort study included all adult patients admitted to a tertiary Cardiology Department between 2019 and 2023 with at least one microbiological isolation. Pathogen distribution, antimicrobial resistance profiles, and temporal trends were analyzed. Clinical outcomes included length of hospital stay, in-hospital mortality, 30-day and 1-year all-cause mortality. Cox regression and Kaplan-Meier survival analyses were performed to assess associations between MDR exposure and outcomes.
Results: A total of 896 microbiological isolates were identified in 616 patients, predominantly Gram-negative bacteria (61.4%). MDR organisms accounted for 24.4% of isolates, while extensively drug-resistant (XDR) organisms accounted for 6.7%. Exposure to MDR organisms was significantly associated with longer hospital stays (mean 37.0 ± 26.1 vs. 26.2 ± 19.9 days; $p < 0.001$) and increased in-hospital mortality ($p < 0.001$), but not with 30-day or 1-year mortality. A significant decline in HAI was observed over time (r = -0.977; $p = 0.004$), while trends in MDR and XDR prevalence were not statistically significant.
Conclusions: Although a decline in overall HAIs was observed, the relative prevalence of MDR and XDR organisms remained stable, suggesting persistent selective pressure. Exposure to MDR pathogens was associated with longer hospital stays and worse in-hospital outcomes. These findings reinforce the need for targeted infection control measures, antimicrobial stewardship, and continuous microbiological surveillance in this high-risk population.

Domingo, 26 Abril de 2026 | 08:30-09:25

Área de Posters - Ecrã 3 | Sessão de Posters 52 - Função auricular, interação ventricular e fenotipagem miocárdica

PO 305. RIGHT VENTRICULAR TO PULMONARY ARTERY COUPLING: THE DIAGNOSTIC VALUE IN DISTINGUISHING HYPERTROPHIC CARDIOMYOPATHY AND WILD-TYPE TRANSTHYRETIN CARDIAC AMYLOIDOSIS

Luísa Pinheiro, Emídio Mata, Tamara Pereira, Margarida Castro, Bárbara Lage Garcia, Daniela Ferreira, Mário Lourenço, Filipa Cordeiro, Marina Fernandes, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Right ventricular (RV) to pulmonary artery (PA) coupling reflects how effectively the RV adapts to the afterload imposed by the pulmonary circulation. Emerging evidence suggests that disruption of this relationship–RV-PA uncoupling–may occur differently across cardiomyopathies. Hypertrophic cardiomyopathy (HCM) typically features preserved RV function until advanced stages, whereas wild-type transthyretin cardiac amyloidosis (ATTR-CM) is marked by earlier impairment of RV mechanics.
Objectives: To determine whether RV-PA coupling indices - TAPSE/PASP (Tricuspid Annular Plane Systolic Excursion/Pulmonary Artery Systolic Pressure), FAC/PASP (Fractional Area Change), and RV-FWS/PASP (Right Ventricular Free Wall Strain) - have diagnostic utility in differentiating HCM from ATTR-CM.
Methods: This retrospective study included HCM (n = 30) and ATTR-CM (n = 30) patients. Two blinded observers assessed RV structure and function using echocardiography and 2D-STE. Receiver operating characteristic (ROC) analysis assessed the diagnostic performance of the coupling indices, with DeLong's test used for curve comparison.
Results: ATTR-CM patients were older than HCM patients (83.4 ± 4.8 vs. 59.8 ± 13.6 years, p < 0.001), had higher NT-proBNP levels (11,001 ± 15,080 vs. 1,117 ± 1,103 pg/ml, p < 0.001) and similar septal wall thickness (18.9 ± 2.7 vs. 18.7 ± 2.3, p = 0.769). ATTR-CM patients also presented lower TAPSE/PASP ratio (0.428 ± 0.199 vs. 0.754 ± 0.219, p < 0.001), FAC/PASP ratio (0.855 ± 0.358 vs. 1.420 ± 0.367, p < 0.001) and RV-FWS/PASP ratio (0.246 ± 0.120 vs. 0.434 ± 0.143, p < 0.001). In ROC curve analysis, TAPSE/PASP ratio had an area under the curve (AUC) of 0.865 [0.752-0.939] (p < 0.0001) with an associated cutoff of ≤ 0.537 for identifying ATTR-CM (sensitivity: 70%; specificity: 86.7%). FAC/PASP ratio showed an AUC of 0.857 [0.742-0.934] (p < 0.0001) with an associated cutoff of ≤ 1.03 for identifying ATTR-CM

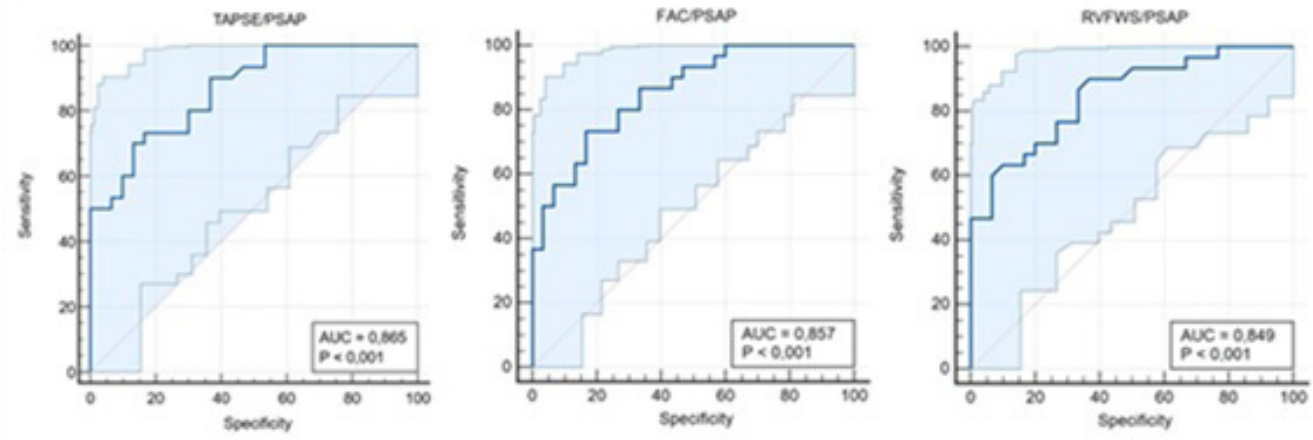


Figure PO 305

(sensitivity: 73.33%; specificity: 83.33%). The RV-FWS/PASP ratio had an AUC of 0.849 [0.739-0.929] (p < 0.0001) with an associated cutoff of ≤ 0.275 for identifying ATTR-CM (sensitivity: 60%; specificity: 93.33%). Pairwise comparisons showed no significant difference between the three ratios in distinguishing ATTR-CM from HCM. When compared to the RV function parameters not normalized to load, the AUCs for TAPSE and FAC were numerically lower than those of the load-normalized parameters (AUC of 0.740 for TAPSE, AUC of 0.709 for FAC and AUC of 0.894 for RV-FWS).

Conclusions: Overall, RV-PA coupling indices were all significantly lower in ATTR-CM compared with HCM, demonstrated good diagnostic accuracy for distinguishing the two conditions, and two of them outperformed the parameters not normalized to load. All three measures showed consistent discriminatory value, supporting RV-PA coupling assessment as a useful adjunct in differentiating ATTR-CM from HCM.

PO 306. PREDICTORS OF ATRIAL FIBRILLATION IN HYPERTROPHIC CARDIOMYOPATHY: INSIGHTS FROM A REGIONAL HOSPITAL EXPERIENCE

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Introduction: Hypertrophic cardiomyopathy (HCM) involves structural and electrophysiological remodeling of the myocardium that markedly increases susceptibility to atrial fibrillation (AF). Identifying and integrating multiple predictors of AF is crucial for refined risk stratification and optimized clinical surveillance in this population.

Table 1 (A)

	Total (n=135)	Group 1 (n=15)	Group 2 (n=120)	p-value
Male gender – n (%)	82 (61)	5 (33)	77 (64)	**0.021**[a]
Age (years) – mean (SD)	61 (14)	65 (12)	60 (13)	**0.026**[b]
HCM morphologic subtypes – n (%)				
Apical	27 (20)	6 (40)	21 (18)	**0.040**[a]
Midventricular	95 (70)	7 (47)	88 (73)	**0.033**[a]
Mixed	13 (10)	2 (13)	11 (9)	0.639[a]
Obstructive HCM – n (%)	57 (42)	7 (47)	50 (42)	0.712[a]
NYHA Class – n (%)				
NYHA I	88 (65)	5 (33)	83 (69)	**0.006**[a]
NYHA ≥ II	47 (35)	10 (67)	37 (31)	**0.006**[a]
Mean follow-up (months) – mean (SD)	48 (24)	63 (20)	46 (24)	**0.013**[b]
Past medical history – n (%)				
Overweight[1]	76 (56)	12 (80)	64 (53)	**0.049**[a]
Hypertension	84 (62)	12 (80)	72 (60)	0.132[a]
Dyslipidemia	89 (66)	11 (73)	78 (65)	0.521[a]
Diabetes mellitus	25 (19)	5 (33)	20 (17)	0.117[a]
Chronic kidney disease[2]	10 (7)	1 (7)	9 (8)	1.000[a]
Prior MI	3 (2)	0 (0)	3 (3)	1.000[a]
Echocardiographic parameters				
LV EF (%) – mean (SD)	62.5 (5.6)	64.0 (8.3)	62.5 (5.4)	0.710[b]
LV MWT (mm) – mean (SD)	19.4 (5.5)	19.9 (2.0)	19.3 (3.7)	0.427[b]
LV mass index (g/m²) – mean (SD)	158.1 (42.6)	156.9 (48.1)	157.7 (41.2)	0.202[b]
LV ESV index (ml/m²) – mean (SD)	19.8 (7.8)	16.0 (5.9)	20.0 (7.5)	0.388[b]
LV EDV index (ml/m²) – mean (SD)	52.8 (17.1)	45.2 (13.6)	54.2 (17.6)	0.205[b]
RWT – mean (SD)	0.61 (0.15)	0.58 (0.15)	0.61 (0.14)	0.332[b]
TAPSE (mm) – mean (SD)	23.0 (3.1)	23.3 (3.8)	22.7 (4.2)	0.505[b]
E/e' ratio – mean (SD)	13.8 (5.6)	15.5 (5.4)	13.3 (5.6)	0.204[b]
LV GLS (%) – mean (SD)	-15.9 (3.4)	-13.7 (3.5)	-16.2 (3.3)	**0.015**[b]
PSAP (mmHg) – mean (SD)	32.0 (8.4)	36.7 (7.5)	31.8 (8.4)	0.125[b]
LA volume index (ml/m²) – mean (SD)	50.3 (12.9)	58.8 (12.1)	48.8 (10.8)	**0.026**[b]
LA reservoir strain (%) – mean (SD)	21.2 (8.1)	12.4 (4.3)	22.3 (8.1)	**<0.001**[b]
LA contractile strain (%) – mean (SD)	-10.2 (4.7)	-4.7 (3.1)	-10.9 (4.7)	**<0.001**[b]
LA conduit strain (%) – mean (SD)	-10.9 (6.1)	-7.9 (1.8)	-11.3 (6.4)	**<0.001**[b]
RV GLS (%) – mean (SD)	-20.7 (4.1)	-20.3 (4.1)	-20.6 (4.0)	0.171[b]
Analytical parameters				
HbA1c (%) – median (IQR)	5.6 (0.7)	6.3 (2.1)	5.8 (0.8)	0.870[c]
NT-proBNP (pg/ml) – median (IQR)	604.0 (996.0)	1870.0 (2524.0)	466.0 (676.0)	**<0.001**[c]
hs-TnI (pg/ml) – mean (SD)	30.2 (17.4)	42.3 (37.7)	30.2 (64.8)	0.264[b]
Creatinine (mg/dl) – mean (SD)	0.92 (0.34)	0.81 (0.25)	0.92 (0.33)	0.192[b]

Table 1 (B)

Variables	OR	CI 95%	p-value
Age ≥ 57 years	2.317	0.781 – 131.774	0.077
LV GLS ≥ -15.2%	1.117	0.602 – 15.508	0.178
LA contractile strain ≥ -8.5%	1.867	1.383 – 30.268	**0.018**
LA conduit strain ≥ -9.5%	0.521	0.236 – 12.035	0.604
NT-proBNP ≥ 1530 pg/ml	1.990	1.652 – 32.364	**0.009**

Figure 1

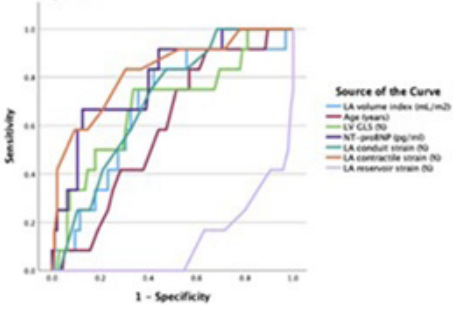

Table 1. Patient baseline characteristics (A) and multivariate logistic regression (B). Fig. 1. ROC curve analysis.
Statistical analysis: [a]Chi-square test, [b]t-student test, [c]Mann-Whitney U test. [1]BMI ≥ 25 kg/m2, [2]GFR < 60 ml/min/1.73m2 (2021 CKD-EPI). **EDV/ESV** – end systolic/diastolic volume, **E/e'** – E-wave/e'-wave, **EF** – ejection fraction, **GLS** – global longitudinal strain, **HCM** – hypertrophic cardiomyopathy, **hs-TnI** – high-sensitivity troponin I, **LA** – left atrium, **LV** – left ventricle, **MI** – myocardial infarction, **MWT** – maximal wall thickness, **NYHA** – New York Heart Association Functional Classification, **PSAP** – pulmonary artery systolic pressure, **RV** – right ventricle, **RWT** – relative wall thickness, **TAPSE** – tricuspid annular plane systolic excursion.

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Objectives: To identify predictors of AF in patients with HCM followed at a Cardiomyopathy Clinic in a regional hospital in Portugal.
Methods: Retrospective, single-center study of patients diagnosed with HCM between 2018 and 2024 who were in sinus rhythm at baseline. Patients with a history of uncontrolled hypertension and significant valvular disease were excluded. Clinical, laboratory and echocardiographic data were collected at baseline and compared between patients who developed AF (group 1) and those who did not (group 2). Independent predictors of AF development during follow-up were determined using regression analyses.
Results: Of the 166 patients followed for HCM, 135 were in sinus rhythm at baseline (61% male, mean age 61 ± 14 years). The mean follow-up was 48 ± 24 months, during which 15 patients (12.5%) developed AF. Patients who developed AF were older (65 vs. 60 years, p = 0.026), more frequently symptomatic (NYHA class ≥ II) (67 vs. 31%, p = 0.006), and more often overweight (80 vs. 53%, p = 0.049). Regarding the morphological subtype of HCM, the apical pattern was more prevalent among patients who developed AF (40 vs. 18%, p = 0.040). Concerning echocardiographic parameters, group 1 patients exhibited reduced left ventricular global longitudinal strain values (-13.7 vs. -16.2%, p = 0.015), as well as lower left atrial (LA) strain across the reservoir (12.4 vs. 22.3%, p < 0.001), contractile (-4.7 vs. -10.9%, p < 0.001), and conduit (-7.9 vs. -11.3%, p < 0.001) phases. NT-proBNP levels were significantly higher in patients who developed AF [1,870.0 (IQR 2,524.0) vs. 466.0 (IQR 676.0) pg/ml; p < 0.001]. ROC curve analysis identified optimal cut-off values for predicting AF in patients with HCM. In multivariate regression analysis, only LA contractile strain ≥ -8.5% (OR 1.867, 95%CI 1.383-30.268, p = 0.018) and NT-proBNP ≥ 1,530 pg/ml (OR 1.990, 95%CI 1.652-32.364, p = 0.009) were independent predictors of AF.
Conclusions: This study suggests that the combined evaluation of atrial deformation and NT-proBNP levels may represent a valuable tool for predicting AF risk in patients with HCM, supporting individualized follow-up strategies.

PO 307. PROGNOSTIC VALUE OF RIGHT VENTRICULAR TO PULMONARY ARTERY COUPLING IN TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

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

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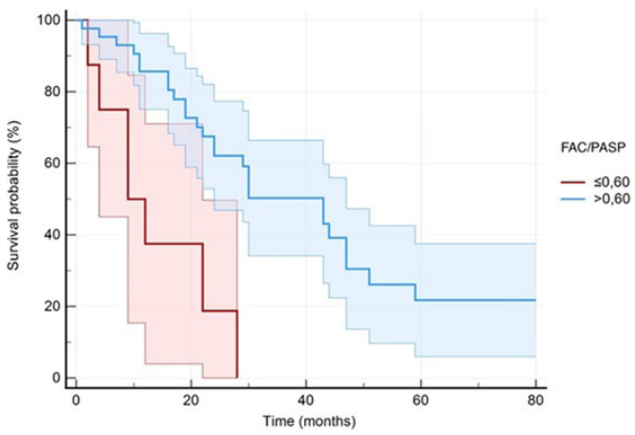
Introduction: Right ventricular-pulmonary artery (RV-PA) uncoupling has emerged as an important prognostic marker in several cardiopulmonary diseases, but its relevance in Transthyretin Amyloid Cardiomyopathy (ATTR-CM) remains underexplored.
Objectives: To determine whether RV-PA coupling indices - TAPSE/PASP (Tricuspid Annular Plane Systolic Excursion/Pulmonary Artery Systolic Pressure), FAC/PASP (Fractional Area Change), and RVGLS/PASP (Right Ventricular Global Longitudinal Strain) - predict a composite outcome of all-cause mortality and heart failure hospitalization (HFH) in patients with ATTR-CM.
Methods: We conducted a retrospective observational study including patients with confirmed ATTR-CM who underwent transthoracic echocardiography. RV-PA coupling was evaluated using TAPSE/PASP, FAC/PASP, and RVGLS/PASP. Non-coupled RV parameters were also assessed. Clinical follow-up included the composite of all-cause mortality and HFH. Cox proportional hazards models were used to identify independent predictors. Prognostic performance was estimated with ROC curve analysis. Kaplan-Meier survival curves were constructed using the optimal ROC-derived cut-off values, and differences were evaluated using the log-rank test.
Results: A total of 52 patients were included (mean age 82 years, 69% male). Among the parameters evaluated, FAC/PASP (HR 0.42 [0.17-0.998], p = 0.049) and FAC (HR 0.97 [0.93-0.997], p = 0.037) were the only independent predictors of the composite outcome. TAPSE/PASP (HR 0.19 [0.03-1.35], p = 0.096), RVGLS/PASP (HR 0.15 [0.02-1.43], p = 0.098), TAPSE (HR 0.94 [0.87-1.02], p = 0.139), and RVGLS (HR 0.94 [0.88-1.02], p = 0.139) were not statistically significant. At 1-year follow-up, ROC analysis showed: FAC/PASP area under the curve (AUC) of 0.654 [0.508-0.782], TAPSE/PASP AUC of 0.592 [0.447-0.726], and RVGLS/PASP AUC of 0.569 [0.424-0.706]. The optimal FAC/PASP cut-off was ≤ 0.6, with sensitivity of 39% and a specificity of 92%. Stratification using the ROC-derived FAC/PASP threshold of 0.6%/mmHg identified patients with RV-PA uncoupling. Kaplan-Meier analysis demonstrated significantly higher event rates in patients below this threshold, confirmed by the log-rank test (p = 0.0002).



Conclusions: In patients with cardiac amyloidosis, RV-PA uncoupling (particularly FAC/PASP) may be associated with adverse outcomes. More robust studies are needed to confirm FAC/PASP as a potential marker for risk stratification and help guide clinical decision-making in this population.

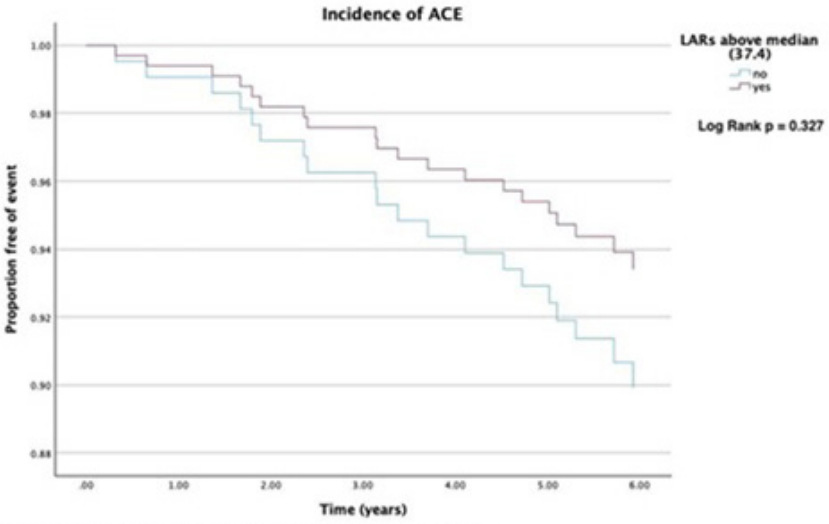
PO 308. LEFT ATRIUM STRAIN IN RHEUMATOID ARTHRITIS

David Sá Couto[1], José Rodrigues Gomes[2], André Alexandre[1], Mariana Brandão[2], Sofia Cabral[1], Tomás Fonseca[1], Rita Quelhas Costa[3], António Marinho[1], Betânia Ferreira[4], João Pedro Ferreira[5], Patrícia Rodrigues[1]

[1]ULS Santo António/Hospital de Santo António. [2]Instituto de Ciências Biomédicas Abel Salazar. [3]ULS Entre Douro e Vouga/Hospital de São Sebastião. [4]Hospital da Luz Arrábida. [5]Faculdade de Medicina da Universidade do Porto.

Introduction: Rheumatoid arthritis (RA) increases the risk of heart failure (HF) through mechanisms that extend beyond traditional cardiovascular risk factors. Left atrial (LA) strain (LAs) is emerging as a sensitive marker of subclinical myocardial dysfunction and elevated filling pressures. Understanding its role could improve early detection of cardiac involvement in this population. This study investigated the associations of LAs with clinical, laboratory, and echocardiographic parameters, as well as long-term outcomes, in RA patients without known cardiac disease.
Methods: This prospective observational study included RA patients enrolled in a tertiary-care cohort. All participants underwent comprehensive echocardiographic assessment with LAs analysis and were stratified into two groups based on the median LA reservoir strain (LARs). The primary endpoint was a composite of myocardial infarction, stroke, atrial fibrillation, HF hospitalization, or cardiovascular death. Secondary endpoints included each component individually and all-cause mortality. Median [P25-75] follow-up time was 6.2 [5.6-6.6] years. Additional exploratory analyses evaluated correlations between LAs and disease activity, biomarkers, and ventricular strain parameters.
Results: Of 364 enrolled patients, 260 had analysable LAs data and were included. Median LARs was 37.4%; 131 (50.4%) exhibited LARs ≤ median and 129 (49.6%) > median. Patients with lower LARs were older, walked shorter distances on the 6-minute walk test, and demonstrated higher hs-troponin T and NT-proBNP levels, higher E/e', and lower LV global longitudinal strain. Despite these unfavorable phenotypic differences, the incidence of the primary endpoint did not differ significantly between groups (15.5 vs. 10.3 events/1,000 patient-years; HR 0.64 [0.26-1.57]; p = 0.33). A trend toward

Figure 1. Survival plot representing the incidence of the primary endpoint (ACE) in the study groups.



ACE = adverse cardiovascular event; LARs = left atrium reservoir strain.

Figure PO 308

higher all-cause mortality in the lower LARs group (12.5 vs. 3.75 events/1,000 patient-years; HR 0.29 [0.078-1.04]; p = 0.06) was observed, although not statistically significant. Notably, only a minority fulfilled criteria for abnormal LA strain based on published reference values.
Conclusions: In RA patients without overt cardiac disease, LARs ≤ 37.4% was associated with reduced functional capacity, subtle but consistent alterations in cardiac structure and function, and higher levels of cardiovascular disease biomarkers. Although LARs was not independently associated with adverse cardiovascular outcomes, its strong relationship with indices of subclinical myocardial dysfunction suggests that it may help refine cardiovascular risk stratification in RA. Larger, adequately powered prospective studies are warranted to determine whether LAs can serve as an early screening tool for cardiac involvement in this high-risk population.

PO 309. ASSESSMENT OF LEFT ATRIOVENTRICULAR COUPLING INDEX (LACI) AS A MARKER OF DIASTOLIC DYSFUNCTION SEVERITY IN HEART FAILURE PATIENTS

António Maria Fervença Rocha Almeida[1], Rafael Viana[1], Adriana Silva[2], Marta Figueiredo[1], Rita Louro[1], Cátia Trigo[2], Joana Vasconcelos[2], Isabel João[2], Manuel Trinca[1]

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Introduction: Assessing diastolic dysfunction involves detecting subtle changes in myocardial compliance that are difficult to quantify. During diastole, the left atrium (LA) and left ventricle (LV) are directly connected, and in the absence of valvular disease, their function and filling pressures are tightly coupled. The left atrioventricular coupling index (LACI), defined as the ratio between the minimum LA volume and LV end-diastolic volume, may reflect dysfunctional atrioventricular coupling and correlate with diastolic impairment.
Objectives: To evaluate correlation between LACI and other diastolic functions parameters and asses the association between LACI and the severity of LV diastolic dysfunction
Methods: Retrospective study. Patients (pts) with chronic heart failure (HF) from January 2023 to April 2024 with any LV left ventricular ejection fraction (LVEF) and in sinus rhythm were included. Diastolic function was graded using the American Society of Echocardiography/European Association of Cardiovascular Imaging algorithm. Pearson correlation was used to assess correlation between LACI and diastolic parameters. Differences across diastolic grades were compared using one-way ANOVA with Tukey post hoc analysis.
Results: 109 pts were included. Table 1 summarize baseline characteristics. LACI showed a moderate correlation with both the E/A ratio (r = 0.569; p < 0.001), bi-plane indexed left atrial volume (r = 0.548; p < 0.001) and E/E' ratio (r = 0.168; p = 0.044) but a weak correlation with tricuspid regurgitation maximum velocity (r = 0.222; p = 0.022). 25 pts with preserved LVEF were included, with a mean LVEF of 55 ± 5% and a mean LACI of 0.34 ± 0.21. 56% had a normal diastolic function, 32% as indeterminate, and 12% as diastolic dysfunction. ANOVA showed a significant difference between groups (p = 0.011). Further analysis revealed that only the groups with normal diastolic function and diastolic dysfunction differed significantly from each other (mean difference (MD) = 0.37, p = 0.010). 84 pts with reduced LVEF were included, with a mean LVEF of 38 ± 8% and a mean LACI of 0.30 ± 0.17. 58% of pts were classified as having normal diastolic function or grade 1 diastolic dysfunction, 32% as grade 2, and 10% as grade 3. ANOVA showed a significant difference between groups (p < 0.001). Further analysis revealed that comparing the normal/grade 1 group with grades 2 and 3 showed significantly lower LACI values (MD = 0.12, p = 0.003; MD = 0.32, p < 0.001, respectively). Regarding grade 2 and 3, a mean significant MD of 0.20 (p 0.003) was found.

Demographic data	
Age (years; mean ± SD)	61± 12
Male (n, (%))	81(74)
Echocardiography parameters	
Left ventricular ejection fraction (%; mean ± SD)	42± 10
E/A ratio (mean ± SD)	1.1 ± 0.7
E/e' ratio (mean ± SD)	9.8 ± 4.3
Tricuspid regurgitation maximum velocity (m/s; mean ± SD)	1.9 ± 1.2
Biplane indexed left atrial volume (ml/m2, mean ± SD)	40.0 ± 16.2
Left atrioventricular coupling index (mean ± SD)	0.3 ± 0.2

Conclusions: Our study shows that LACI correlates with key diastolic function parameters and varies significantly across different grades of diastolic dysfunction in HF population, suggesting that LACI may serve as marker reflecting atrioventricular coupling dysfunction and the severity of diastolic impairment. Further research is needed to validate our findings.

PO 310. COMPREHENSIVE ASSESSMENT OF SEX DIFFERENCES IN LEFT-VENTRICULAR SYSTOLIC FUNCTION: INSIGHTS FROM STRAIN AND MYOCARDIAL WORK

Luís Cotrim[1], Lígia Mendes[2]

[1]ULS Estuário do Tejo/Hospital de Vila Franca de Xira. [2]Hospital da Luz Setúbal.

Introduction: Sex-related differences in myocardial structure and ventricular geometry may influence global systolic performance. While echocardiographic indices like Left-Ventricular Ejection Fraction (LVEF), Global Longitudinal Strain (GLS), and Myocardial Work (MW) provide complementary insights into systolic function, it remains unclear whether these parameters differ between men and women independently of cardiovascular risk factors.
Methods: This cross-sectional study evaluated sex differences in resting LVEF, GLS, and MW indices in a large cohort of 1,219 adults undergoing routine echocardiography (639 men, 580 women). Non-parametric analyses were performed due to non-normal data distribution. Multivariable linear regression was used to adjust for major clinical confounders, including age, BMI, diabetes, dyslipidemia, and hypertension.
Results: The median age was similar in both sexes (64 years, IQR 14-16 years). Unadjusted analyses showed women exhibited slightly higher LVEF (59.0 vs. 58.7%, p = 0.393), significantly more negative GLS (median -17.0 vs. -16.0, p = 0.0037), higher Global Work Index (GWI) (median 1,536 vs. 1,457 mmHg%, p = 0.00127), and higher Global Constructive Work (GCW) median 1,943 vs. 1,810.5 mmHg%, p = 0.00234). Global Wasted Work (GWW) was also higher in women, but Global Work Efficiency (GWE) did not differ (median 93.0% in both groups). Multivariable linear regression confirmed that female sex was independently associated with a more negative GLS (b = -0.97, p = 0.0179), higher GWI (b = +119.12 mmHg%, p = 0.000122), and higher GCW (b = +135.42 mmHg%, p = 0.00184). Crucially, the unadjusted difference in GWW disappeared after covariate adjustment (b = +14.36, p = 0.345), indicating the absence of an independent sex effect on mechanical inefficiency.
Conclusions: These findings demonstrate that women exhibit intrinsically enhanced longitudinal deformation and greater constructive myocardial work at rest compared to men, even after adjusting for major clinical confounders. This physiological difference is not accompanied by a difference in mechanical efficiency or wasted work. This profile is consistent with known sex-specific differences in myocardial fiber architecture.

Domingo, 26 Abril de 2026 | 09:30-10:25

Área de Posters - Ecrã 1 | Sessão de Posters 53 - Otimização de CRT em 2026

PO 311. OPTIMIZING CARDIAC RESYNCHRONIZATION THERAPY: AV TIMING STRATEGIES AND OUTCOMES

Sofia Esteves, João Cravo, Joana Brito, Susana Gonçalves, Ana Bernardes, Sara Couto Pereira, Pedro Silvério António, Nelson Cunha, Andreia Magalhães, Fausto Pinto, João de Sousa, Pedro Marques

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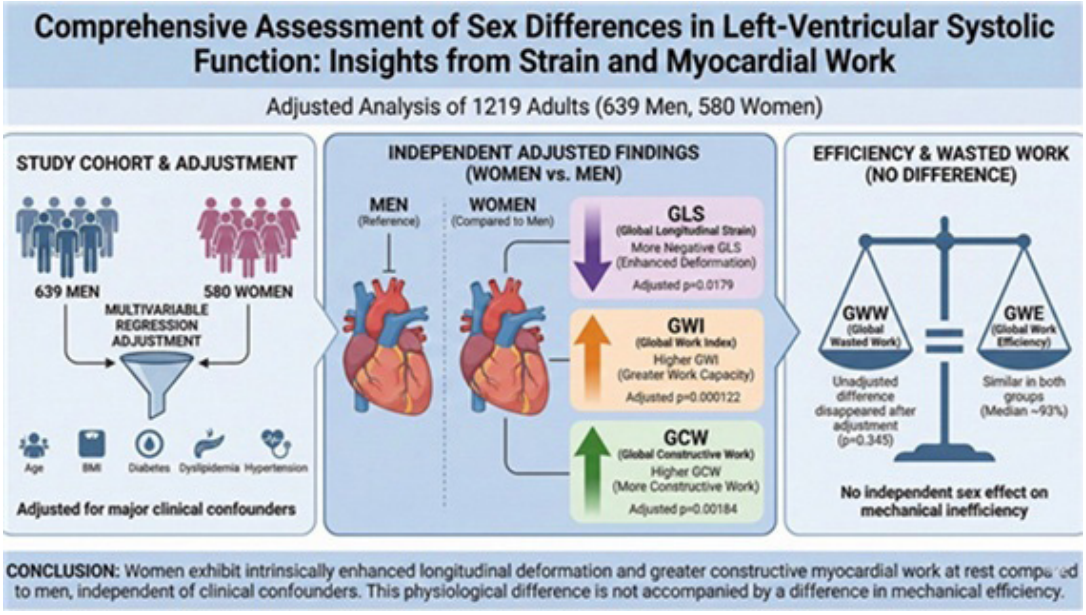
Introduction: Optimizing atrioventricular (AV) timing is key to maximizing the hemodynamic benefits of cardiac resynchronization therapy (CRT). Although fixed AV delay programming is common, fusion pacing optimization algorithms (FPO) with the intrinsic rhythm may enhance ventricular filling and cardiac output. However, randomized prospective evidence comparing these strategies remains limited.
Objectives: To compare the clinical effects of FPO algorithm versus fixed AV delay programming in CRT patients.
Methods: This prospective, randomized, parallel-group study included consecutive CRT patients from August 2020 to March 2023 in a tertiary centre. After implantation, participants were randomized 1:1 to FPO or fixed AV delay. AV settings followed predefined protocols; all other programming adhered to guideline-directed CRT recommendations. Clinical evaluation, electrocardiographic (ECG) and echocardiography were performed at baseline and at 12 months. The primary endpoint was all-cause death or hospitalization. Secondary endpoints included changes in paced QRS duration, clinical and echocardiographic response rates and echocardiographic/ECG parameters change. Clinical response was defined as ≥ 10% NT-proBNP reduction or ≥ 1 NYHA class improvement. Echocardiographic response was defined as ≥ 15% LVESV reduction and ≥ 5% LVEF increase.
Results: We included 135 patients, 70 randomized to fixed AV delay (Fixed) and 65 to FPO algorithm. The baseline characteristics of the population were similar between the 2 groups, except for a higher baseline use of diuretics in the FPO group (Table 1). The QRS duration in pacing before



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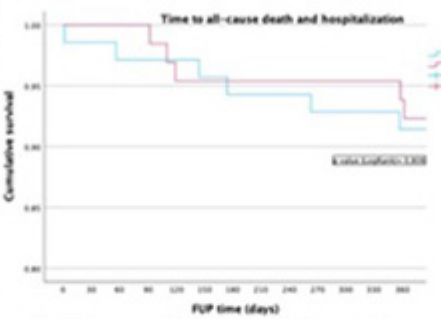

Graph 1- Kaplan-Meier curves for the primary endpoint at 1 year.

Table 1- Baseline characteristics of patients randomized to Fixed AV delay and FPO.

Table 2- Secondary endpoints.

Figure PO 311

randomization was not significantly different between 2 groups. After a follow up of 12 months, the primary endpoint occurred in 22 patients, 14 in the FPO group and 8 in the fixed group and this difference was not statistically significant- p value (log rank) 0.806- (Figure 1). Regarding the secondary endpoints, the mean QRS duration in pacing was significantly lower in the FPO group (median reduction of 15 ms in the FPO group vs. 2 ms in fixed group, p value 0.02). Also,79% of the patients were echocardiographic responders and 80% were clinical responders in both group and this was not different between the 2 groups. The reverse LV remodeling by echocardiogram and intrinsic ECG changes between 2 groups were similar at 12 months, apart from the improvement in TAPSE, which was significantly higher in the FPO group (Table 2).
Conclusions: Despite QRS narrowing with the FPO algorithm, it offered no added benefit over a fixed AV delay at 12 months. High clinical and echocardiographic response rates in both groups suggest that the primary advantage derives from proper CRT itself rather than the specific AV-timing strategy.

PO 312. PACING STRATEGIES IN THE LVEF 35-50% GREY AREA: LBBAP VS. CRT

Inês Caldeira Araújo, João Cravo, Marta Vilela, Daniel Cazeiro, Diogo Ferreira, Andreia Magalhães, Sara Pereira, Pedro António, Pedro Marques, João de Sousa, Fausto J. Pinto, Nelson Cunha

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Introduction: In patients with mildly reduced left ventricular ejection fraction (LVEF 35-50%) who require ventricular pacing, right ventricular pacing can induce ventricular dyssynchrony and increase the risk of left ventricular dysfunction. Current expert consensus recognize both CRT and conduction system pacing as viable options. Left bundle branch area pacing (LBBAP) provides a more physiological ventricular activation and may offer advantages over conventional CRT in selected patients, but real-world comparative data on electrical, structural and clinical outcomes are still scarce.
Objectives: To compare procedural, electrical, echocardiographic and clinical outcomes between LBBAP and CRT in a real-world cohort of patients with bradycardia pacing indication and LVEF 35-50%.
Methods: A retrospective, single-center study was conducted including 37 patients who underwent either LBBAP (n = 20) or CRT (n = 17) implantation. Baseline characteristics, procedure metrics and complications were recorded. Electrocardiographic, echocardiographic and clinical parameters were evaluated at baseline and follow-up.
Results: Baseline clinical parameters were similar between groups. Procedural duration, fluoroscopy time and complication rates were similar. Mean baseline QRS duration was similar (133 ± 32 ms for LBBAP and 135 ± 27 ms for CRT, p = ns) although LBBAP resulted in greater QRS shortening (-19.3 ± 24.9 ms) compared with CRT (+4.5 ± 33.3 ms, p = 0.033). Mean baseline left ventricular ejection fraction (LVEF) was also similar between groups (39 ± 4% for LBBAP and 37 ± 2% for CRT). Improvements in LVEF were nearly identical (+8.0 ± 8.4% with LBBAP vs. +7.7 ± 8.9% with CRT; p = 0.920), as were changes in GLS (-0.9 ± 3.6% vs. -1.0 ± 1.7%; p = 0.969). Left ventricular volumes showed parallel reductions without significant differences between groups. Atrial and diastolic parameters including ΔLAVI, ΔE/e' and ΔPASP demonstrated variable but comparable patterns. Clinically, no significant differences were observed between strategies and changes in NYHA class were similar and did not reach statistical significance (+0.3 ± 0.8 with LBBAP vs. -0.4 ± 0.6 with CRT, p = 0.08).
Conclusions: In patients with LVEF 35-50% requiring ventricular pacing, LBBAP demonstrated a safety profile comparable to CRT and provided markedly superior electrical resynchronization; however, this did not translate into significant differences in structural remodeling or clinical outcomes. These findings support LBBAP as a robust physiological pacing strategy and a viable and cheaper alternative to conventional CRT in everyday practice.

PO 313. MORPHOLOGIC SUBTYPES OF LBBB AND THEIR PROGNOSTIC VALUE IN CARDIAC RESYNCHRONIZATION THERAPY

Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Joana Guerreiro Pereira, Daniela Carvalho, Miguel Espírito Santo, Raquel Fernandes, João Sousa Bispo, Pedro Azevedo, Rui Candeias, Hugo Alex Costa, Jorge Mimoso

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Introduction: Differences in LBBB morphology–true complete LBBB (tcLBBB), due to conduction system degeneration, and LBBB-like pattern (lpLBBB),

Parameter	LBBAP	CRT	p value
Electrocardiographic response			
Δ QRS, mean±SD (ms)	-19.3±24.9	+4.5±33.3	**0.033**
Echocardiographic response			
Δ LVEF, mean±SD (%)	+8.0±8.4	+7.7±8.9	0.920
Δ GLS, mean±SD (%)	-0.9±3.6	-1.0±1.7	0.969
Δ LVEDV/BSA, mean±SD (mL/m²)	-10.4±23.9	-13.2±13.6	0.706
Δ LVESV/BSA, mean±SD (mL/m²)	-5.9±13.6	-8.8±12.7	0.413
Δ LAVI, mean±SD (mL/m²)	+8.0±8.4	-2.3±8.9	0.915
Δ E/e', mean±SD	-1.4±5.1	+1.3±2.6	0.274
Δ PASP, mean±SD (mmHg)	-2.2±21.5	-1.7±10.5	0.956
Δ TAPSE, mean±SD (mm)	+1.4±3.3	-1.1±3.1	0.068
Clinical response			
Δ NYHA functional class	+0.3±0.8	-0.4±0.6	0.08

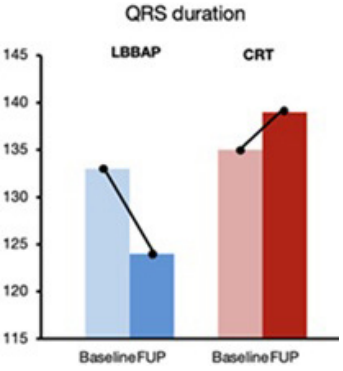

Figure PO 312

			LBBB morphology		Total	p value
			lpLBBB (n=51, 58%)	tcLBBB (n=37, 42%)	(n=95)	
Gender	Male	n (%)	38,0 (74,5)	30,0 (81,1)	68,0 (77,3)	
	Female	n (%)	13,0 (25,5)	7,00 (18,9)	20,0 (22,7)	0,468
Age	*Mean±SD - years*		67,1±11,8	70,8±9,70	69,5±10,4	0,765
Hypertention		n (%)	36,0 (72,0)	25,0 (67,6)	61,0 (70,1)	0,655
Diabetes (type 2)		n (%)	29,0 (58,0)	20,0 (54,1)	49,0 (56,3)	0,714
Dyslipidemia		n (%)	41,0 (82,0)	24,0 (64,9)	65,0 (74,7)	0,069
Smoker		n (%)	17,0 (34,0)	19,0 (51,4)	36,0 (41,4)	0,104
Obesity		n (%)	11,0 (22,0)	9,00 (24,3)	20,0 (23,0)	0,799
Alcool		n (%)	10,0 (20,0)	12,0 (32,4)	22,0 (25,3)	0,187
Atrial fibrillation		n (%)	16,0 (32,0)	10,0 (27,0)	26,0 (29,9)	0,616
Ventricular tachycardia		n (%)	7,00 (14,0)	3,00 (8,10)	10,0 (11,5)	0,394
Chronic renal disease		n (%)	18,0 (36,7)	12,0 (33,3)	30,0 (35,3)	0,746
LBBB > 150ms		n (%)	29,0 (65,9)	30,0 (96,8)	59,0 (78,7)	**0,001**
QRS reduction ≥26ms		n (%)	8,00 (15,7)	19,0 (51,4)	27,0 (30,7)	**<0,001**
Need ventricular pacing		n (%)	15,0 (33,3)	4,00 (15,4)	19,0 (26,8)	0,100
Non-ischemic heart disease		n (%)	22,0 (47,8)	20,0 (60,6)	42,0 (53,2)	0,262
Optimized medical therapy	***ARNi***	n (%)	27,0 (55,1)	22,0 (59,5)	49,0 (57,0)	0,686
	ACEi/ARB	n (%)	16,0 (32,7)	13,0 (35,1)	29,0 (33,7)	0,81
	MRA	n (%)	30,0 (61,2)	30,0 (81,1)	60,0 (69,8)	**0,047**
	SGLT2i	n (%)	33,0 (67,3)	25,0 (67,6)	58,0 (67,4)	0,983
	Beta-blocker	n (%)	42,0 (85,7)	33,0 (89,2)	75,0 (87,2)	0,633
	AAR	n (%)	13,0 (26,5)	8,00 (21,6)	21,0 (24,4)	0,6
LVEF - pre	*Mean±SD - %*		33,1±11,9	29,7±7,47	33,3±11,1	0,062
LVEF - pos	*Mean±SD - %*		33,8±11,4	44,2±14,1	40,7±14,1	**0,018**
			p=0,868	**p=0,001**	**p=0,009**	
LVEDV-pre	*ml*		187±63,1	210±96,3	196±77,5	0,247
LVEDV-pos	*ml*		158±53,7	159±85,8	168±92,9	0,071
			p=0,107	**p=0,006**	**p=0,001**	
QRS duration pre-CRT	*ms*		161±26,1	178±21,1	166±23,5	**0,006**
QRS variation	*ms*		14,3±19,5	28,2±20,5	20,2±20,9	**<0,001**
BiV	*%*		98,3±2,42	96,2±4,13	95,9±7,59	0,476
Super-response		n (%)	8,00 (23,5)	15,0 (62,5)	23,0 (39,7)	**0,003**

Mean follow-up 35 months			LBBB morphology lpLBBB (n=51, 58%)	LBBB morphology tcLBBB (n=37, 42%)	Total (n=95)	p value
Primary outcome	*Bivariate analysis*	n (%)	17,0 (33,3)	9,00 (24,3)	26,0 (29,5)	0,361
Death		n (%)	14,0 (25,5)	3,00 (16,2)	17,0 (21,6)	**0,021**
HF hospitalization		n (%)	13,0 (22,6)	6,00 (18,5)	19,0 (21,3)	0,297

Figure PO 313

reflecting myocardial pathology–are common and may influence CRT response. However, their association with CRT outcomes is not fully established.
Objectives: To assess the association between LBBB morphology/pattern and clinical outcomes in CRT patients.
Methods: A retrospective analysis (2020-2023) involved 95 patients who underwent CRT implantation. Data collected included demographics, risk factors and echocardiographic/electrocardiographic parameters. Patients were classified as lpLBBB or tcLBBB using European Society of Cardiology criteria. The primary outcome was the composite of all-cause death and/or heart failure (HF) hospitalization. Predictors were identified through multivariate logistic regression.
Results: The final cohort included 88 patients (58% lpLBBB; 42% tcLBBB) mean age 69.5 ± 10.4 years, 77.3% male. Baseline QRS duration was 166 ± 24 ms, with a wider QRS in tcLBBB (178 ± 21 ms, p = 0.006). Mean biventricular pacing was 95.9% with no differences between groups. QRS reduction ≥ 26 ms (51.4%, p < 0.001), LBBB duration > 150 ms (98.8%, p = 0.001), use of mineralocorticoids receptor antagonists drugs (81.1%, p = 0.047), QRS variation (28.2 ± 20.5, p < 0.001) and greater improvement in LVEF (29.7% → 44.2%, p = 0.001) and LVEDV (210 ml → 159 ml, p = 0.006) were more frequent among tcLBBB. CRT super-response occurred in 23 patients (39.7%), significantly more frequent in tcLBBB (62.5%, p = 0.003). The primary outcome occurred in 26 patients (29.5%) with no significant difference between groups (lpLBBB 33.3% vs. tcLBBB 24.3%, p = 0.361). However, all-cause mortality was lower in the tcLBBB group (16.2%, p = 0.021). Super-response was not associated with improved clinical outcomes (20.8%, p = 0.583). In multivariate analysis, predictors of the primary outcome included smoking (OR 11.54, p = 0.033), while non-ischemic etiology (OR 0.003, p = 0.045) and tcLBBB morphology (OR 0.002, p = 0.043) were protective.
Conclusions: In this cohort, tcLBBB morphology prior to CRT implantation was associated with greater reverse remodeling–reflected by improvements in LVEF, LVEDV, and higher rates of super-response. However, these parameters were not associated with a lower risk of the composite outcome of death or HF hospitalization, although all-cause mortality alone was lower among patients with tcLBBB. Predictors of the primary outcome were tcLBBB and non-ischemic etiology (both protective) and smoking (risk factor) in a medium/long term follow-up. These findings suggested that although the presence of a tcLBBB is likely necessary for CRT response, it is unlikely to be sufficient to be linked to a better prognosis alone, and other variables should be considered like the presence of LV scar as well as the subtype of cardiomyopathy.

PO 314. RESYNCHRONISATION STRATEGIES IN CRT UPGRADE: A REAL-WORLD COMPARISON BETWEEN LBBP AND BIVENTRICULAR PACING

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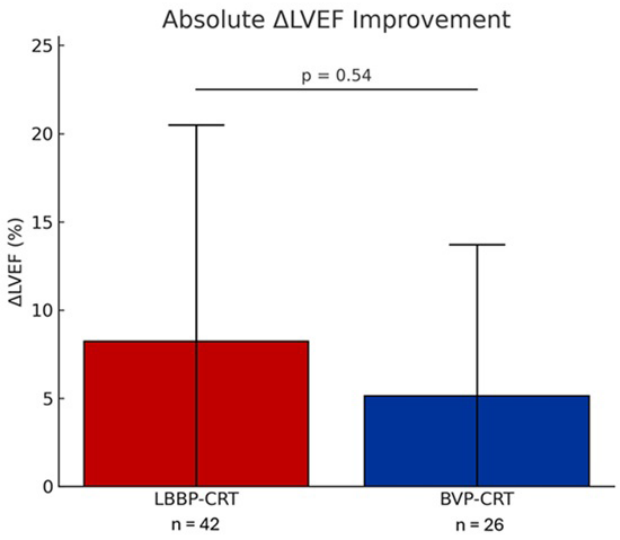
Introduction: Cardiac resynchronization therapy (CRT) is an established treatment for heart failure (HF) with electrical dyssynchrony. In patients with chronic right ventricular pacing requiring a CRT upgrade, resynchronization may be achieved with conventional biventricular pacing (BVP-CRT) or conduction system pacing, particularly left bundle branch pacing (LBBP-CRT). Although LBBP provides more physiological ventricular activation, real-world comparative data in upgrade cohorts are limited. This study compared echocardiographic and clinical outcomes following upgrade to LBBP-CRT versus BVP-CRT.
Methods: Retrospective observational analysis of consecutive CRT upgrade procedures performed in a tertiary centre between Oct/2022 and Sep/2025. Baseline demographic, rhythm, clinical and echocardiographic data were collected. The primary endpoint was improvement in left ventricular ejection fraction (ΔLVEF). Secondary endpoints included responder rate (ΔLVEF > 5%), super-responder rate (ΔLVEF > 14.5%), and HF-related emergency department (ED) visits.
Results: A total of 68 CRT upgrades were analysed (42 LBBP-CRT, 26 BVP-CRT). Baseline characteristics were broadly similar between groups. Patients upgraded with LBBP-CRT were slightly older (73.7 ± 9.5 vs. 72.2 ± 13.5 years), with comparable baseline rhythm distribution (sinus rhythm 60.0% vs. 61.5%; atrial fibrillation 40.0% vs. 38.5%), QRS duration (178.6 ± 33.5 vs. 174.9 ± 30.4 ms), and LVEF (30.8 ± 8.9% vs. 29.5 ± 6.3%). Echocardiographic follow-up was available in 21 patients, with mean total follow-up of 428 ± 248 days for LBBP-CRT and 579 ± 364 days for BVP-CRT. ΔLVEF was not significantly different between groups (8.23 ± 12.26% vs. 5.13 ± 8.58%, p = 0.54), despite a numerically greater improvement in the LBBP-CRT group. Responder rates (69.2% vs. 50.0%, p = 0.38) and super-responder rates (23.1% vs. 25.0%, p = 0.92) were likewise comparable. HF-related ED visits were significantly less frequent with LBBP-CRT (13.0% vs. 50.0%, p = 0.018), with Cox regression showing a consistent trend toward reduced risk (HR 0.29, 95%CI 0.07-1.18, p = 0.084).



Conclusions: In this real-world CRT upgrade cohort, LBBP-CRT achieved reverse remodeling comparable to BVP-CRT, with similar responder and super-responder profiles despite a shorter follow-up. Notably, LBBP-CRT was associated with substantially fewer HF-related ED visits. These findings support LBBP-CRT as a safe and physiologically favourable alternative to BVP-CRT in patients undergoing CRT upgrade.

PO 315. FROM FIXED TO SYNCAV: EVALUATING THE REAL-WORLD EFFECTS ON CRT PATIENTS

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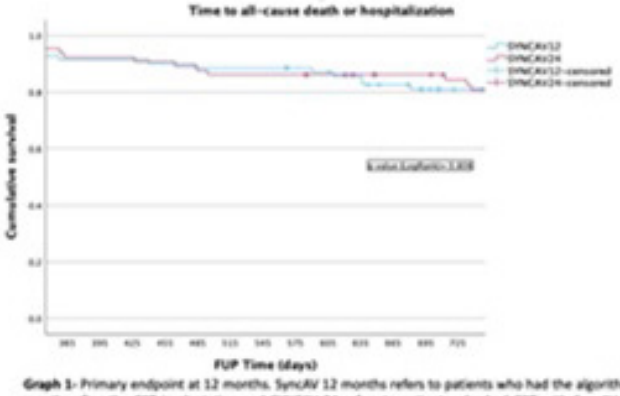
Introduction: Optimizing atrioventricular (AV) timing is a key factor in maximizing cardiac resynchronization therapy (CRT) benefits. While initial AV programming may be fixed, individualized AV-synchronous pacing with the SyncAV algorithm could provide additional hemodynamic advantages. The long-term effects of switching from fixed AV delay to SyncAV remain unclear.
Objectives: To compare clinical outcomes, echocardiographic and electrocardiographic changes of CRT patients initially programmed with fixed AV delay and subsequently switched to SyncAV.
Methods: This was a prospective follow-up trials that include patients with a CRT programmed with fixed AV delay for 12 months who underwent switch to SyncAV algorithm. Primary endpoints included the composite of all-cause

Age, mean ± SD	68.9±9.5
BSA (m²), mean ± SD	1.8 ± 0.2
Sex, n (%)	
Female	33 (47.1)
Male	37 (52.9)
Cardiomyopathy, n (%)	
Ischemic	19 (27.1)
Non-ischemic	51 (72.9)
NYHA class, n (%)	
I	15 (21.4)
II	55 (78.6)
HF medications at baseline, n (%)	
ACEi	9 (12.8)
ARB	11 (15.7)
ARNI	42 (60)
MRA	43 (61.4)
Beta blockers	63 (90)
Antiarrhythmics	6 (8.5)
Diuretics	49 (70)
Comorbidities, n (%)	
Hypertension, n (%)	59 (84.3)
Diabetes, n (%)	35 (50)
Dyslipidemia, n (%)	51 (72.9)
Chronic kidney disease, n (%)	7 (10)
Laboratory parameters	
Hb (g/dL), mean ± SD	13.9 ± 0.9
Cr (mg/dL), mean ± SD	1.1 ± 0.4
NTproBNP (pg/mL), median [IQR]	402 [287]
ECG	
Sinus rhythm, n (%)	62 (100)
Axis (°), median [IQR]	-27 [65]
PQ (ms), median [IQR]	190 [44]
QRS (ms), mean ± SD	157 [28]
Echocardiogram	
LVEF (%), mean ± SD	48.5 ± 10.9
GLS (%), mean ± SD	-13.5 ± 3.4
LVESVI (mL/m²), mean± SD	29.8 ± 14.5
LVEDVI (mL/m²), median [IQR]	52.6 [29.5]
LAVI (mL/m²) mean ± SD	34.1 ± 13.3
TAPSE (mm), mean ± SD	20.4± 4.8
S' (cm/s), mean ± SD	12.1 ± 2.6
BiV (%), median [IQR]	99 [1]
QRS duration in BiV (ms), mean ± SD	141 ±25.6

Table 1- Baseline characteristics

Δ BiV (%), median [IQR]	-1 [1]
ECG at 12 months	
Δ QRS (ms), median [IQR]	-7.1 [14]
Δ QRS duration in pace (ms), median [IQR]	-14 [29.5]
Echocardiogram after 12 months of SyncAV	
Δ LVEF (%), mean ± SD	4.1 ± 6.8
Δ LVESVI (mL/m²), median [IQR]	-1.1 [8]
Δ LVEDVI (mL/m²), mean± SD	-3.4 ± 13.8
Δ TAPSE (mm), mean ± SD	0.8 ± 3.6
Δ S' (cm/s), median [IQR]	-0.1 [4]

Table 2- Secondary endpoints at 12 months.



Graph 1- Primary endpoint at 12 months. SyncAV 12 months refers to patients who had the algorithm activated 12 months after the CRT implantation and SYNCAV 24 refers to patients who had CRT with SyncAV activated from device implantation.

Figure PO 315

mortality and hospitalizations. Secondary endpoints included changes in QRS and echocardiographic parameters.

Results: We included 62 patients (52.9% male), with a mean age of 68.9 ± 9.6 years. 72.9% of the patients had dilated cardiomyopathy and 78.6% were on functional class II of the NYHA. At baseline, the mean left ventricular ejection fraction (LVEF) was 48.5%, the mean intrinsic QRS was 157 ms and the median percentage of biventricular pacing (BIV) was 99%. The baseline heart failure medications and comorbidities are in Table 1. After 12 months follow up, the primary endpoint occurred in 13 patients. When comparing our patients with those who had CRT with SyncAV activated from device implantation, no differences in clinical events were observed, suggesting that the SyncAV algorithm is not associated with clinical benefit in CRT patients, regardless of the duration of algorithm activation (Figure 1). Considering the secondary endpoints, after 12 months of SyncAV activation, median intrinsic QRS duration was reduced by 7 ms relative to baseline values and median QRS duration in pacing was reduced by 14 ms. The SyncAV algorithm was associated with modest improvement in LVEF (+ 4.1%) and index left ventricular end systolic volume (1.1 mL/m²) (Table 2).

Conclusions: Switching to the SyncAV algorithm in CRT patients previously on fixed AV delay led to additional QRS shortening. However, this did not translate into significant left ventricular reverse remodeling nor clinical benefit at 1 year.

PO 316. REFINING CRT CANDIDATE SELECTION: THE POWER OF TRUE LBBB ON LEFT VENTRICULAR REVERSE REMODELING

Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Joana Guerreiro Pereira, Daniela Carvalho, Raquel Fernandes, João Sousa Bispo, Dina Bento, Pedro Azevedo, Rui Candeias, Hugo Alex Costa, Jorge Mimoso

ULS Algarve/Hospital de Faro.

Introduction: One of the most potent predictors of cardiac resynchronization therapy (CRT) benefit is the presence of left bundle branch block (LBBB). However, variations in LBBB morphology - true complete LBBB (tcLBBB) or LBBB like pattern (lpLBBB)) - are often seen in the clinical setting and their impact on left ventricular (LV) reverse remodeling remains incompletely understood.

Objectives: To evaluate the association between LBBB morphology and the degree of reverse LV remodeling in patients undergoing CRT.

Methods: A retrospective analysis between 2020 and 2023 included 95 patients who underwent CRT implantation. Data collected included demographics, cardiovascular risk factors, echocardiographic and electrocardiographic parameters. Patients were divided according to LBBB morphology (lpLBBB vs. tcLBBB). LBBB European Society of Cardiology criteria was used to identify tcLBBB morphology. Reverse remodeling was defined as a reduction in left ventricular end-diastolic volume (LVEDV). Predictors of reverse remodeling were identified using multivariate linear regression.

Results: The final cohort included 88 patients, of whom 51 (58%) with lpLBBB and 37 (42%) with tcLBBB. The mean age was 69.5 ± 10.4 years, with 77.3% being male. Mean baseline LVEDV post-CRT implantation was 168 ± 93 ml, without differences between groups (169 ± 58 vs. 159 ± 85, p = 0.071). Mean biventricular pacing was 95.9% with no differences between groups. QRS reduction ≥ 26 ms (51.4%, p < 0.001), LBBB > 150 ms (98.8%, p = 0.001), use of mineralocorticoid receptor antagonist drugs (81.1%, p = 0.047) and QRS variation (28.2 ± 20.5, p < 0.001) were more frequent among tcLBBB. The degree of remodeling measured by LVEDV were significantly more relevant in tcLBBB group (LVEDV 214 ml → 159 ml, p = 0.006), as well as the degree of LVEF improvement (29.7% → 44.2%, p = 0.001). CRT super-response occurred in 23 (39.7%) patients, significantly more frequent in tcLBBB (62.5%, p = 0.003). tcLBBB showed to be a strong predictor of reverse remodeling increasing the probability by ~50 times (B = 53.4, t = 2.1, p = 0.043). Other predictors of reverse remodeling were younger age (p = 0.020) and higher BiV (p = 0.018).

Conclusions: In this cohort, tcLBBB morphology prior to CRT implantation was a strong predictor of LV reverse remodeling, increasing the probability of LVEDV reduction by nearly 50 times, after implantation. These findings suggest that tcLBBB may be a necessary substrate for substantial remodeling and potential disease remission following CRT. Nonetheless, other variables should be considered in the heart failure puzzle and CRT response.

			LBBB morphology			
			IpLBBB (n=51, 58%)	tcLBBB (n=37, 42%)	Total (n=95)	p value
Gender	Male	n (%)	38,0 (74,5)	30,0 (81,1)	68,0 (77,3)	
	Female	n (%)	13,0 (25,5)	7,00 (18,9)	20,0 (22,7)	0,468
Age	*Mean±SD - years*		67,1±11,8	70,8±9,70	69,5±10,4	0,765
Hypertention		n (%)	36,0 (72,0)	25,0 (67,6)	61,0 (70,1)	0,655
Diabetes (type 2)		n (%)	29,0 (58,0)	20,0 (54,1)	49,0 (56,3)	0,714
Dyslipidemia		n (%)	41,0 (82,0)	24,0 (64,9)	65,0 (74,7)	0,069
Smoker		n (%)	17,0 (34,0)	19,0 (51,4)	36,0 (41,4)	0,104
Obesity		n (%)	11,0 (22,0)	9,00 (24,3)	20,0 (23,0)	0,799
Alcool		n (%)	10,0 (20,0)	12,0 (32,4)	22,0 (25,3)	0,187
Atrial fibrillation		n (%)	16,0 (32,0)	10,0 (27,0)	26,0 (29,9)	0,616
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Chronic renal disease		n (%)	18,0 (36,7)	12,0 (33,3)	30,0 (35,3)	0,746
LBBB > 150ms		n (%)	29,0 (65,9)	30,0 (96,8)	59,0 (78,7)	**0,001**
QRS reduction ≥26ms		n (%)	8,00 (15,7)	19,0 (51,4)	27,0 (30,7)	**<0,001**
Need ventricular pacing		n (%)	15,0 (33,3)	4,00 (15,4)	19,0 (26,8)	0,100
Non-ischemic heart disease		n (%)	22,0 (47,8)	20,0 (60,6)	42,0 (53,2)	0,262
Optimized medical therapy	*ARNI*	n (%)	27,0 (55,1)	22,0 (59,5)	49,0 (57,0)	0,686
	ACEI/ARB	n (%)	16,0 (32,7)	13,0 (35,1)	29,0 (33,7)	0,81
	MRA	n (%)	30,0 (61,2)	30,0 (81,1)	60,0 (69,8)	**0,047**
	SGLT2i	n (%)	33,0 (67,3)	25,0 (67,6)	58,0 (67,4)	0,983
	Beta-blocker	n (%)	42,0 (85,7)	33,0 (89,2)	75,0 (87,2)	0,633
	AAR	n (%)	13,0 (26,5)	8,00 (21,6)	21,0 (24,4)	0,6
LVEF - pre	*Mean±SD - %*		33,1±11,9	29,7±7,47	33,3±11,1	0,062
LVEF - pos	*Mean±SD - %*		33,8±11,4 p=0,868	44,2±14,1 p=0,001	40,7±14,1 p=0,009	**0,018**
LVEDV-pre	*ml*		189±62,3	214±94,9	196±77,5	0,247
LVEDV-pos	*ml*		169±58,1 p=0,107	159±85,8 p=0,006	168±92,9 p=0,001	0,071
QRS duration pre-CRT	*ms*		161±26,1	178±21,1	166±23,5	**0,006**
QRS variation	*ms*		14,3±19,5	28,2±20,5	20,2±20,9	**<0,001**
BiV	*%*		98,3±2,42	96,2±4,13	96,9±7,59	0,476
Super-response		n (%)	8,00 (23,5)	15,0 (62,5)	23,0 (39,7)	**0,003**

Figure PO 316

Domingo, 26 Abril de 2026 | 09:30-10:25

Área de Posters - Ecrã 2 | Sessão de Posters 54 - Da energia aos endpoints na FA

PO 317. PREDICTORS OF SHORT-TERM ATRIAL FIBRILLATION RECURRENCE AFTER PULMONARY VEIN ISOLATION: THE ROLE OF LEFT ATRIAL STRAIN AND STRUCTURAL PARAMETERS

Mariana Tinoco, Luísa Pinheiro, Emidio Mata, Bárbara Lage Garcia, Filipa Castro, Margarida Castro, Mário Lourenço, Ana Sofia Gonçalves, Lucy Calvo, Silvia Ribeiro, Olga Azevedo, António Lourenço

ULS Alto Ave/Hospital da Senhora da Oliveira.

Introduction: Atrial fibrillation (AF) is the most common arrhythmia, significantly affecting quality of life. Pulmonary vein isolation (PVI) is a key treatment, but recurrence remains a challenge. Left atrial (LA) structural and functional parameters, including LA strain (LAS) assessed via echocardiography, have emerged as potential predictors of post-ablation AF recurrence.

Objectives: To assess baseline comorbidities and echocardiographic differences between recurrent and non-recurrent patients undergoing PVI for AF.

Methods: This retrospective, single-center study included AF patients who underwent first-time PVI (2015-2024) with prior echocardiographic evaluation available. Echocardiographic images were reanalyzed, with LAS and volume measured when quality permitted. AF recurrence was assessed at 6 and 12 months using 12-lead ECGs or available rhythm Holter monitoring.

Results: Seventy-two patients met inclusion criteria. Sixty completed 6-month follow-up, and 51 completed 12-month follow-up. The median time from echocardiography to PVI was 312 days [IQR 120-610]. AF recurrence occurred

Demographics	Recurrence 6 months			Recurrence 12 months		
	No	Yes	p-value	No	Yes	p-value
	n=51	n=9		n=36	n=15	
Age (y)	60,6 [52,5-66,8]	65,8 [61,6-71,2]	0,18*	60,2 [52,6-64,3]	69,5 [64,3-73,7]	**0,01***
Male gender	34 (66,7%)	5 (55,6%)	0,71†	24 (66,7%)	8 (53,3%)	0,37
BMI (kg/m²)	27,8 ±3,3	27,5 ±4,3	0,81	28,1 ±3,3	26,3 ±4,2	0,10
Hypertension	23 (45,1%)	5 (55,6%)	0,72†	19 (52,8%)	7 (46,7%)	0,69
Diabetes	11 (21,6%)	3 (33,3%)	0,42†	9 (25,0%)	5 (33,3%)	0,73†
Smoker (or former)	19 (37,3%)	3 (33,3%)	0,61	14 (38,9%)	4 (26,7%)	0,46
CKD	5 (9,8%)	0 (0,0%)	1,00†	2 (5,6%)	3 (20,0%)	0,14†
OSA	22 (43,1%)	7 (77,8%)	0,08†	15 (41,7%)	9 (60,0%)	0,23
MV valve insufficiency	2 (3,9%)	1 (11,1%)	0,34	2 (5,6%)	1 (6,7%)	0,66
Antiarrhythmics	28 (54,9%)	5 (55,6%)	0,94	16 (44,4%)	9 (60,0%)	0,64
Amiodarone	19 (37,3%)	3 (33,3%)		10 (27,8%)	7 (46,7%)	
Flecainide	4 (7,8%)	1 (11,1%)		2 (5,6%)	1 (6,7%)	
Sotalol	3 (5,8%)	1 (11,1%)		2 (5,6%)	1 (6,7%)	
Propafenone	2 (3,9%)	0 (0,0%)		2 (5,6%)	0 (0,0%)	
Time between AF diagnosis and PVI days	955 [511-1772]	1435 [590-2013]	0,39*	960 [433-1584]	1435 [590-2548]	0,26*

Values are expressed as mean ± standard deviation and median [interquartile range].
* Mann-Whitney U test † Fishers exact test.
AF: Atrial Fibrillation; BMI: Body Mass Index; CKD: Chronic Kidney Disease; MV: Mitral Valve; OSA: Obstructive Sleep Apnea; PVI: Pulmonary Vein Isolation

Pre-PVI Echocardiogram	Recurrence 6 months			Recurrence 12 months		
	No	Yes	p-value	No	Yes	p-value
	n=51	n=9		n=36	n=15	
LA diam (mm/m²)	20,9 ±2,9	23,1 ±3,8	0,07	20,5 ±2,6	23,3 ±3,5	**0,01**
LAEDVi (mL/m²)	32,6 ±9,7	37,3 ±11,1	0,20	32,5 ±10,7	37,1 ±9,6	0,16
LVEDVi (mL/m²)	48,9 ±11,9	47,9 ±12,4	0,86	49,9 ±12,3	47,1 ±12,3	0,60
LVEF (%)	59,6 ±5,1	57,0 ±5,7	0,44	59,6 ±10,7	59,6 ±5,6	0,99
GLS LV (%)	-18,6 [-20,5- -17,4]	-19,4 [-20,6- -16,4]	0,72*	-18,1 [-20,4- -17,1]	-19,4 [-20,5- -19,0]	0,25*
E' lateral	12,0 ±2,9	9,3 ±3,5	**0,02**	12,5 ±3,0	9,5 ±3,0	**0,01**
E' septal	8,8 ±2,1	7,9 ±2,2	0,27	9,0 ±2,1	7,6 ±2,0	0,07
E/e'	7,5 ±2,4	9,9 ±5,3	0,29	7,4 ±2,4	9,4 ±5,1	0,32
E/A	1,1 ±0,4	1,2 ±0,7	0,61	1,2 ±0,5	1,1 ±0,6	0,60
LASr (%)	25,6 ±7,9	21,7 ±9,2	0,31	25,7 ±7,7	20,2 ±7,3	0,08
LAScd (%)	13,0 ±6,2	10,1 ±3,8	0,32	13,6 ±6,9	9,8 ±2,9	0,12
LASct (%)	12,7 ±5,1	11,7 ±6,8	0,69	12,0 ±4,4	10,4 ±6,1	0,39

Values are expressed as mean ± standard deviation and median [interquartile range].
* Mann-Whitney U test
E/A: early to late diastolic transmitral flow velocity; E/e': early mitral inflow velocity (E)/ average mitral annular early diastolic velocity (e'); GLS LV: Global Longitudinal Strain of Left Ventricle; LA diam: Left atrial diameter; LAEDVi: Indexed Left Atrial End-Diastolic Volume; LAScd: Left Atrial Strain of conduit; LAScT: Left Atrial Strain of contraction; LASr Left Atrial Strain of reservoir; LVEDVi: Indexed Left Ventricle End-Diastolic Volume; LVEF: Left Ventricle Ejection Fraction; PVI: Pulmonary vein isolation.

Figure PO 317

in 9 patients (15.0%) at 6 months and 15 (29.4%) at 12 months. Recurrent patients at 12 months were older (69.5 vs. 60.2 years p = 0.01), while prior comorbidities and antiarrhythmic drug use were similar between groups. Time from AF diagnosis to ablation was longer in recurrent patients but not statistically significant (6 months: 1,435 vs. 960 days p = 0.39; 12 months: 1,435 vs. 960 days p = 0.26). At 12 months, AF recurrence was associated with a larger pre-PVI indexed LA diameter (23.3 ± 3.5 vs. 20.5 ± 2.6 mm/m² p = 0.01) and lower E′ lateral (9.5 ± 3.0 vs. 12.5 ± 3.0 cm/s p = 0.01). At 6 months, recurrent patients also had significantly lower pre-PVI E′ lateral (9.3 ± 3.5 vs. 12.0 ± 2.9 cm/s p = 0.02). Although LA reservoir strain trended lower in recurrent patients at 12 months (20.2 ± 7.3% vs. 25.7 ± 7.7% p = 0.08), it did not reach statistical significance. Other parameters, including conduit and contraction strain, indexed LA volume, left ventricular global longitudinal strain, and E/e′ ratio, showed no significant differences between groups.

Conclusions: The small sample size, low inclusion rate, and long interval between echocardiography and PVI may limit generalizability and accuracy. Although LA strain did not predict AF recurrence in this study, these limitations prevent definitive conclusions. Larger prospective studies with shorter imaging-to-PVI intervals are needed to confirm its prognostic value.

PO 318. AUTONOMIC EFFECTS OF CRYOABLATION, RADIOFREQUENCY, AND PULSED FIELD ABLATION IN ATRIAL FIBRILLATION

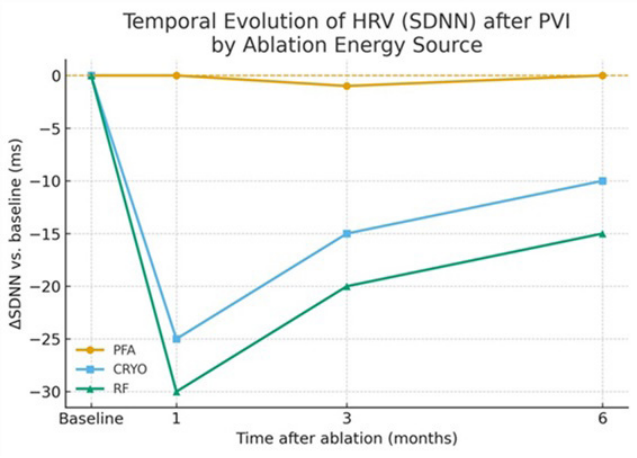
Mariana Caetano Coelho, Sérgio Laranjo, Pedro Silva Cunha, Helena Fonseca, Mário Martins Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Catheter ablation for pulmonary vein isolation (PVI) is an established treatment for atrial fibrillation (AF). Different energy sources-thermal such as cryoablation (CRYO) and radiofrequency (RF), and non-thermal such as pulsed field ablation (PFA)-may have distinct impacts on the cardiac autonomic nervous system (ANS), a factor with potential prognostic implications. This study aimed to compare the effects of PFA, CRYO, and RF on autonomic function and its temporal evolution.

Methods: We conducted a prospective observational study in 89 patients with predominantly paroxysmal AF undergoing PVI with either pulsed field ablation (PFA; n = 11), cryoablation (CRYO; n = 45), or radiofrequency (RF; n = 33). The combined cohort had a mean age of 59 ± 10 years and was predominantly male (64%). Autonomic function was assessed through heart rate variability (HRV) analysis in time and frequency domains during a tilt table test protocol. Assessments were performed at baseline (pre-ablation) and at 1, 3, and 6 months of follow-up.

Results: The PFA group demonstrated minimal changes in HRV parameters (ΔHR, ΔSDNN, ΔRMSSD ≈ 0), suggesting preservation of autonomic function. In contrast, groups undergoing thermal ablation (CRYO and RF) showed a significant increase in heart rate and a marked reduction in global HRV indices (SDNN) and parasympathetic markers (RMSSD, PHF) (p < 0.01), indicating substantial autonomic denervation. Longitudinal analysis revealed partial recovery of chronotropic response and a progressive increase in low-frequency power at 3 and 6 months in the thermal ablation groups, suggestive of adaptive autonomic remodeling and reinnervation over time.



Conclusions: Pulsed field ablation demonstrates a superior autonomic safety profile, preserving intrinsic cardiac function compared to thermal energy sources (CRYO and RF), which induce significant denervation. The distinct temporal evolution of autonomic modulation amongst technologies underscores the importance of long-term monitoring and may have implications for ablation strategy selection and arrhythmia recurrence risk stratification.

PO 319. BEYOND THE ABLATION INDEX: INVESTIGATING UNIPOLAR ELECTROGRAM GUIDANCE FOR ATRIAL FIBRILLATION ABLATION

João Barroso[1], Ana Lebreiro[2], Manuel Vaz da Silva[1], Cláudia Camila Dias[1], Luís Adão[2], Rui André Rodrigues[2]

[1]Faculdade de Medicina da Universidade do Porto. [2]ULS São João/Hospital São João.

Introduction: While pulsed field ablation (PFA) is reshaping atrial fibrillation (AF) ablation strategies, radiofrequency (RF) ablation remains widely used. Metrics such as the Ablation Index (AI), which integrates power, contact force, and catheter stability, have improved procedural standardization by providing a surrogate for lesion quality. However, lesion durability ultimately

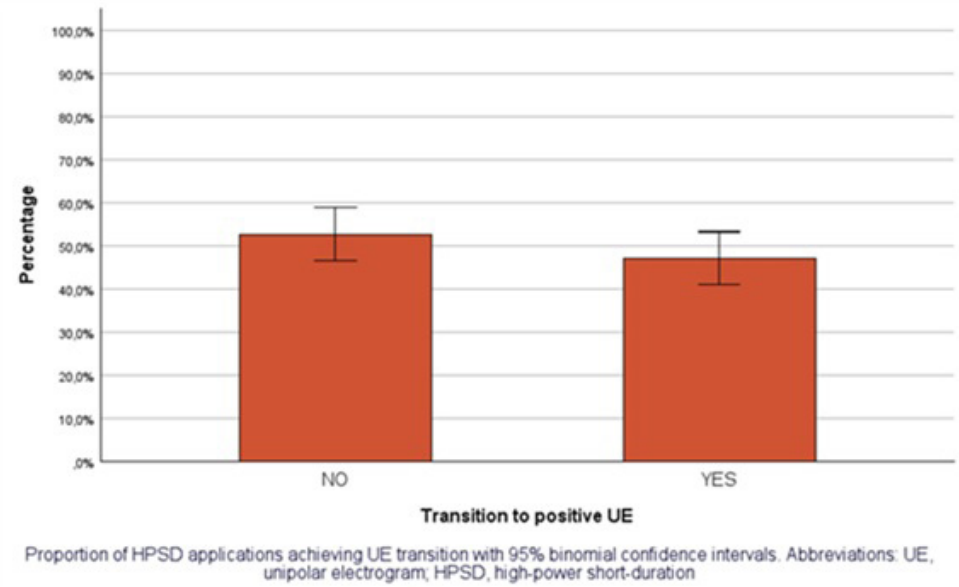


Figure PO 319

depends on achieving true transmurality, and the unipolar electrogram (UE) transition to a purely positive morphology has emerged as a physiologic marker of this endpoint. How this signal-based marker relates to conventional AI-guided ablation remains uncertain.

Objectives: This study aimed to evaluate how AI-guided ablation correlates with the physiologic endpoint of UE transition, comparing standard and high-power short-duration (HPSD) applications.

Methods: A retrospective, point-by-point analysis of 373 RF applications was performed in consecutive pulmonary vein isolation procedures for AF under three-dimensional electroanatomical mapping guidance. Ablation was performed using an irrigated 4 mm contact force-sensing catheter, supported by a long sheath. Posterior-inferior PV segments were targeted with 90 W × 4 s HPSD applications, and antero-superior segments with 50 W, aiming for an AI ≈ 500. For HPSD lesions (n = 248), the proportion achieving UE transition within 4 s was assessed. For 50 W lesions (n = 125), RF time and AI at UE transition were compared with total RF duration and final AI using the Wilcoxon signed-rank test.

Results: UE transition occurred in 117/248 (47.2%) HPSD applications and 72/125 (57.6%) 50 W applications. Among 50 W lesions with UE transition, median RF time and AI at transition were 12.6 s (IQR 8.7-17.4) and 480 (IQR 390-515), significantly lower than total RF time [18 s (IQR 14.0-20.5)] and final AI [520 (IQR 510-520); p < 0.001]. At 6-month follow-up, no AF recurrence was documented.

Conclusions: Fixed 90 W × 4 s dosing did not consistently achieve the physiologic marker of transmurality, and approximately 40% of standard applications also failed to reach UE transition. These findings suggest that UE-guided titration may complement AI-based strategies, enabling a more individualized, physiology-driven approach to RF lesion formation in the era of energy diversification.

PO 320. STANDARD VS. HIGH POWER IN AF ABLATION - ADDING EFFICIENCY TO EFFICACY: DOES IT TRANSLATES TO REAL WORLD IN A MEDIUM-VOLUME CENTER?

Marco Cristo Tomaz, David Campos, Patricia Bernardes, Catarina Pohle, Jeni Quintal, Ivo Palmeiro, José Farinha, Dinis Mesquita, Filipe Seixo, Leonor Parreira

ULS Arrábida/Hospital de São Bernardo.

Catheter ablation using radiofrequency (RF) energy is an established therapy for atrial fibrillation (AF), yet procedural efficiency and radiation exposure remain key challenges in electrophysiology practice. Advances in technology aim to improve efficiency while reducing fluoroscopy use and total procedure time. Reducing radiation exposure is essential for patient and operator safety; similarly, improving time efficiency has become a priority for centers facing a growing procedural demand. Given these factors, evaluating whether newer RF catheter technologies do in fact enhance procedural efficiency without compromising effectiveness is clinically relevant. This study compares AF ablation using standard power and duration versus high power and short duration ablation, focusing on fluoroscopy exposure and total procedure time as indicators of workflow optimization. We conducted a retrospective, single-center study, including all consecutive patients who underwent RF catheter ablation for AF between January 2022 and December 2024. During this period, 2 contact-force sensing catheters -TactiFlex® and TactiCath®- were used according to operator preference. A total of 112 patients were included, comprising 46 women (41.1%) and 66 men (58.9%), with a median age of 66 years (58-72). The mean left atrial indexed volume was 44 mL/m^2 (35-63). Of these procedures, 81 patients underwent ablation with TactiFlex® catheter, whereas 31 patients were treated with the TactiCath® catheter. All patients underwent standard RF pulmonary vein isolation under 3D electroanatomic mapping guidance. Procedural parameters, including total procedure time and fluoroscopy exposure, were prospectively recorded in the institutional database. A total of 112 AF ablation procedures were analyzed. Because the distributions were non-normal, non-parametric testing was applied. TactiFlex® was associated with significantly lower fluoroscopy/procedure time compared with TactiCath® (median 45.6 min vs. 85.0 min; U = 372.0; Z = -5.75; p < 0.001) and lower radiation exposure (median 48.6 mGy vs. 77.1mGy; U = 616.5; Z = -4.16; p < 0.001). During a follow up of 360 days, recurrence rates differed significantly between catheter types, with TactiFlex® demonstrating a lower recurrence rate (17.5% vs. 45.2%), confirmed by Pearson's chi-square test (χ^2 = 9.06, p = 0.003) and Fisher's exact test (p = 0.006). In this medium-volume center, the use of high power short duration catheters is associated with shorter procedures, reduced radiation exposure, and significantly lower recurrence rates compared to standard power ablation, suggesting improved procedural efficiency and effectiveness in AF ablation which allows to overcome the burden of demanding waiting lists for AF ablation without compromising outcomes.

PO 321. OPTIMIZING CAVOTRICUSPID ISTHMUS ABLATION: ASSESSING TIME AND LESION SIZE INDEX AT UNIPOLAR ELECTROGRAM TRANSITION

João Barroso[1], Ana Lebreiro[2], Manuel Vaz da Silva[1], Rafaela Cunha[3], Cláudia Camila Dias[1], Luís Adão[2], Rui André Rodrigues[2]

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Variables	Median at transition point (IQR)	Median at end of RF application (IQR)	HL median paired difference* (95% CI)	p-value
RF application time (s)	10 (8-15)	26 (19-33)	14 (12.5-15.5)	<0.001
LSI	4.4 (3.900-4.875)	5.6 (5.100-6.000)	1.150 (1.050-1.300)	<0.001

*Transition vs total values for RF time and LSI (Wilcoxon signed-rank test). Effect size: Hodges–Lehmann (HL) median paired difference (95% CI); two-sided p values. N = 220 pairs. *Difference = Total − Transition. Abbreviations: RF, radiofrequency; LSI, lesion size index; HL, Hodges–Lehmann; CI, confidence interval; IQR, interquartile range.*

Figure PO 321

Introduction and objectives: Radiofrequency (RF) ablation of the cavotricuspid isthmus (CTI) is a standardized and effective treatment for typical atrial flutter (AFL). Achieving durable bidirectional block may be challenged by variable atrial wall thickness and heterogeneous lesion formation. The transition of the unipolar electrogram (UE) from biphasic to a purely positive morphology has been proposed as a marker of transmural lesion creation. This study aimed to characterize the timing and lesion size index (LSI) –a composite metric integrating contact force, power, and catheter stability– at the point of UE transition and compare these parameters with conventional ablation endpoints.
Methods: A retrospective, point-by-point analysis of 220 RF applications was performed in consecutive CTI ablation procedures for typical AFL. Ablations were guided by 3D electroanatomical mapping using an irrigated 4 mm contact force-sensing catheter delivering 35 W of power. For each application, RF time and LSI at UE transition were recorded and compared with total RF duration and final LSI. Paired comparisons were assessed using the Wilcoxon signed-rank test.
Results: UE transition occurred before ablation completion in 195/220 (88.6%) applications. Median LSI and RF time at transition were 4.4 (IQR 3.9-4.9) and 10 s (IQR 8-15), respectively –significantly lower than final LSI [5.6 (IQR 5.1-6.0)] and total RF time [26 s (IQR 19-33); both p < 0.001]. A purely positive UE was observed in 208/220 (94.6%) points at ablation completion. At six-month follow-up, no AFL recurrence was observed, while atrial fibrillation occurred in 15.8% of cases.
Conclusions: UE transition occurs significantly earlier than conventional ablation endpoints, suggesting that fixed LSI targets may lead to excessive RF delivery. Integrating real-time UE transition monitoring could enhance procedural efficiency and lesion durability. Prospective validation is warranted.

PO 322. SAFETY AND FEASIBILITY OF LEFT ATRIAL FLUTTER ABLATION WITH A GRID-STYLE HIGH-DENSITY MAPPING CATHETER IN PATIENTS WITH MECHANICAL MITRAL VALVE

Daniel Jorge Nascimento Matos, Pedro Carmo, Daniel Gomes, Guilherme Flor, João Carmo, Gustavo Rodrigues, Francisco Costa, Pedro Galvão Santos, Francisco Morgado, Diogo Cavaco, Pedro Adragão

ULS Lisboa Ocidental/Hospital de Santa Cruz.

Introduction: The treatment of left atrial arrhythmias in patients with mechanical mitral valve is technically challenging, with increased risk of catheter entrapment, a potential serious procedural complication. We describe a case series of 5 patients with prosthetic mitral valves and left atrial flutter safely mapped and treated with an omnipolar grid-style multielectrode high-density mapping catheter (Advisor™ HD Grid).
Methods: Retrospective analysis from 2022 to 2025 in a tertiary center of patients with mechanical mitral valve that underwent left atrial flutter ablation with high-density mapping with Advisor™ HD Grid catheter. Procedural characteristics, complications and recurrence were assessed.
Results: Five patients with a median age of 71 years (range 28-76), four of whom were female, underwent radiofrequency (RF) ablation for symptomatic atypical left atrial flutter. One patient presented with perimitral flutter, two patients had a double-loop flutter dependent on the mitral isthmus and either the roof or the left pulmonary veins, one patient presented a posterior wall-dependent flutter and the last one a right pulmonary veins-dependent flutter. The mapping system used was the EnSite X in four patients and EnSite Precision in one; two of the five

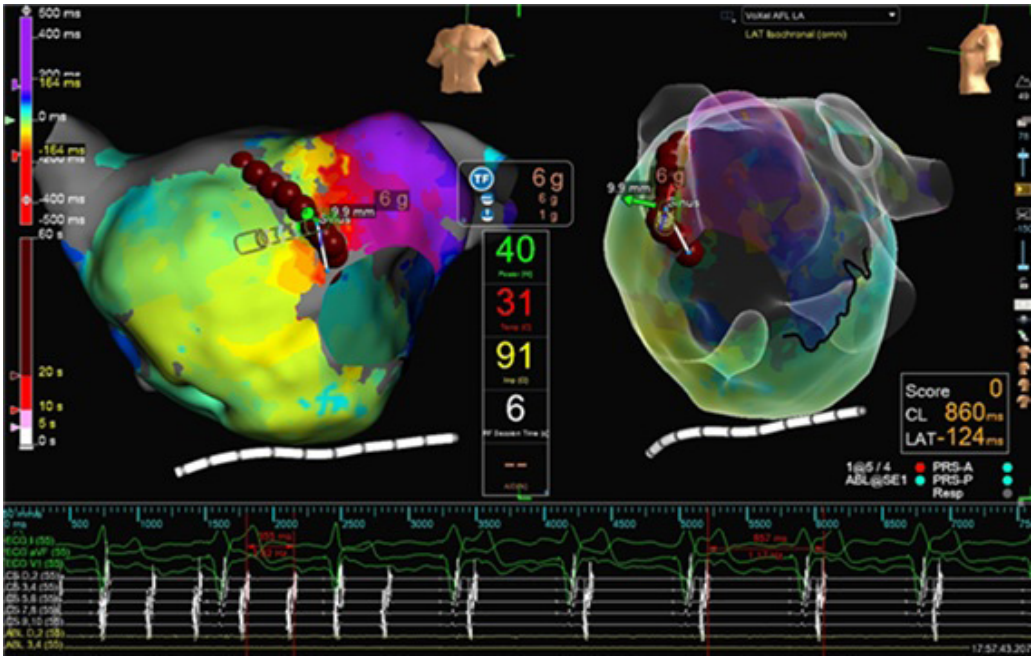


Figure PO 322

procedures employed the more recent Advisor™ HD Grid X version; the TactiFlex™ RF ablation catheter was used in four patients, while the remaining patient was treated with the TactiCath™ RF catheter. The median procedural time was 95 minutes (range 62-180), with a median fluoroscopy time of 7 minutes (range 5-18). The median flutter cycle length was 320 milliseconds (300-340 ms). The median left atrial volume was 159 mL (127-189 mL), and two patients presented moderate or severe left ventricular dysfunction. All flutters were successfully ablated, with restoration of sinus rhythm during RF applications. There was no procedural complications, and all patients were discharged in the following day. At a median follow-up of 270 days (range 70-604), only one patient relapsed and underwent another ablation procedure, this time for a typical atrial flutter. Both patients with left ventricular dysfunction showed improvement of the left ventricular ejection fraction after restoration of sinus rhythm.

Conclusions: Patients with left atrial flutter and mechanical mitral valve can be safely and effectively mapped and treated with the omnipolar multielectrode high-density mapping catheter Advisor™ HD Grid.

Domingo, 26 Abril de 2026 | 09:30-10:25

Área de Posters - Ecrã 3 | Sessão de Posters 55 - Congestão, instabilidade e marcadores prognósticos na insuficiência cardíaca avançada

PO 323. PROGNOSTIC VALUE OF CARDIOPULMONARY EXERCISE TESTING IN AMBULATORY HEART FAILURE PATIENTS

Luana Alves, José Silva-Cardoso, Rui André Rodrigues, Sandra Amorim

ULS São João/Hospital São João.

Introduction: Cardiopulmonary exercise testing (CPET) plays a central role in the functional and prognostic assessment of patients with heart failure (HF). While peak oxygen uptake (peak VO2) is the most commonly used parameter, its prognostic utility may be limited in patients unable to achieve maximal effort, and the role of complementary CPET-derived indices remains incompletely defined.

Objectives: To evaluate the prognostic value of CPET-derived parameters and their association with clinical severity and outcomes in ambulatory HF patients.

Methods: We conducted a single-centre retrospective cohort study of patients with HF, NYHA (New York Heart Association) class I-IV, INTERMACS (Interagency Registry for Mechanically Assisted Circulatory Support) profile 4-7, who underwent CPET between January 2023 and September 2025. Patients with prior heart transplantation, LVAD (left ventricular assist device), isolated pulmonary hypertension, hypertrophic or infiltrative cardiomyopathy were excluded. Clinical, laboratory and echocardiographic data, as well as Seattle Heart Failure Model (SHFM) scores were collected from the closest assessment to CPET. The primary outcome was a composite of all-cause mortality, heart transplantation or LVAD implantation.

Results: Eighty-one patients were included (mean age 51.5 ± 13.0 years; 74% male); among these, 41 (50.6%) achieved a maximal CPET. Over a mean follow-up of 577 ± 433 days, 17 patients (21.0%) experienced the primary outcome, including death in 5 patients (6.2%), heart transplantation in 10 (12.3%) and LVAD implantation in 2 (2.5%). Patients with events showed lower peak VO2 (14.1 ± 3.2 vs. 17.9 ± 5.3 mL/kg/min, p = 0.006), circulatory power (1,844 ± 553 vs. 2,569 ± 983, p = 0.005) and peak PetCO2 (29.4 ± 5.7 vs. 36.5 ± 5.6 mmHg, p < 0.001), and higher VE/VCO2 slope (40.6 ± 8.8 vs. 30.9 ± 6.8, p < 0.001). These associations were preserved in patients undergoing submaximal CPET. In multivariable Cox regression, VE/VCO2 slope emerged as the sole independent CPET-derived predictor of adverse outcomes (HR 1.09 per unit, 95%CI 1.03-1.15; p = 0.002), with no significant interaction with exercise maximality. Overall discriminative performance was good (AUC = 0.78).

Conclusions: CPET provides robust prognostic information in ambulatory HF patients regardless of exercise maximality. Multiple CPET-derived variables, including peak VO2, circulatory power and peak PetCO2, were associated with adverse outcomes; however, ventilatory inefficiency, quantified by VE/VCO2 slope, emerged as the strongest independent prognostic marker, retaining its predictive value even in submaximal exercise tests. These findings support the use of comprehensive CPET-based risk stratification in routine HF assessment, even when maximal effort is not achieved.

Table 1. Clinical, Analytical and Echocardiographic Characteristics of Patients Undergoing CPET

Variable	Total (N=81)	Maximal (N=41)	Submaximal (N=40)	p-value
Baseline characteristics				
Age, years	51.5 ± 13.0	49.7 ± 12.9	53.3 ± 13.0	0.22
Male sex, n (%)	60 (74.1)	33 (80.5)	27 (67.5)	0.18
BMI, kg/m²	26.8 ± 4.6	26.7 ± 4.6	27.0 ± 4.6	0.74
Ischaemic/mixed aetiology, n (%)	35 (43.2)	20 (48.8)	15 (37.5)	0.31
Baseline systolic BP, mmHg	109.7 ± 13.8	111.9 ± 12.5	107.5 ± 14.9	0.15
Baseline hear rate, beats/min	69.7 ± 13.1	67.3 ± 13.9	72.2 ± 12.0	0.094
Implantable device, n (%)	51 (63.0)	21 (51.2)	30 (75.0)	0.027
NYHA functional class				**0.017**
I	20 (24.7)	16 (39.0)	4 (10.0)	
II	38 (46.9)	17 (41.5)	21 (52.5)	
III	22 (27.2)	8 (19.5)	14 (35.0)	
IV	1 (1.2)	0 (0.0)	1 (2.5)	
INTERMACS profile				**0.241**
4	5	1 (20%)	4 (80%)	
5	8	1 (12.5%)	7 (87.5%)	
6	25	11 (44%)	14 (56%)	
7	16	8 (50%)	8 (50%)	
Medication				
ACEI / ARB	10 (12.3)	6 (14.6)	4 (10.0)	0.818
ARNI	60 (74.1)	30 (73.2)	30 (75.0)	0.856
Beta-blocker	74 (91.4)	41 (100)	33 (82.5)	Not testable*
MRA	73 (90.1)	38 (92.7)	35 (87.5)	0.118
Diuretic	59 (72.8)	27 (65.9)	32 (80.0)	0.104
SGLT2 inhibitors	72 (88.9)	33 (80.5)	39 (97.5)	0.048
Ivabradine	16 (19.8)	9 (22.0)	7 (17.5)	0.540
Vericiguat	16 (7.4)	2 (4.9)	4 (10.0)	0.414
Inotropes	9 (11.1)	2 (4.9)	7 (17.5)	0.071
Statin	53 (65.4)	27 (65.9)	26 (65.0)	0.936
Allopurinol	4 (4.9)	2 (4.9)	2 (5.0)	0.293
Seattle Heart Failure Model				
1-year mortality score	96.2 (IQR 19.0)	98.0 (IQR 1.5)	97.5 (IQR 4.8)	0.415
5-year mortality score	83.9 (IQR 63.0)	89.0 (IQR 9.0)	88.5 (IQR 20.8)	0.449
Laboratory parameters				
Sodium, mmol/L	140.0 ± 1.2	138.7 ± 2.2	138.4 ± 2.7	0.920
Creatinine, mg/dL	1.13 ± 0.3	1.18 ± 0.6	1.12 ± 0.5	0.536
BNP, pg/mL	128.0 (IQR 628)	95.8 (IQR 95)	182.0 (IQR 322)	0.657
NT-proBNP, pg/mL	643.0 (IQR 826)	546 (IQR 1392)	398 (IQR 1371)	0.832
Haemoglobin, g/dL	14.5 ± 0.9	14.6 ± 1.6	14.6 ± 1.6	0.832
Uric acid, mg/dL	5.8 (IQR 8.0)	6.0 (IQR 2.7)	5.4 (IQR 8.5)	0.186
Echocardiographic parameters				
LVEF, %	29.0 [28–34]	30.4 [25–35]	25.4 [20–30]	0.027
Moderate–severe MR, n (%)	38 (46.9)	18 (43.9)	20 (50.0)	0.58
Indexed LV diameter	60.7 ± 10.7	59.3 ± 11.8	62.1 ± 9.6	0.53
Indexed LV end-diastolic volume, mL/m²	89.9 ± 33.7	77.8 ± 27.8	100.7 ± 35.2	0.002
Indexed LV end-systolic volume, mL/m²	67.1 ± 31.6	54.7 ± 25.6	78.1 ± 32.7	< 0.001
VTI	17.0 ± 3.6	16.9 ± 3.1	17.2 ± 5.0	0.881
PSAP	33.9 ± 13.6	30.3 ± 12.9	34.5 ± 13.7	0.082
TAPSE	17.9 ± 5.2	17.2 ± 5.9	18.6 ± 4.6	0.522

Abbreviations: BMI, body mass index; BP, blood pressure; NYHA, New York Heart Association; INTERMACS, Interagency Registry for Mechanically Assisted Circulatory Support; ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNI, angiotensin receptor–neprilysin inhibitor; MRA, mineralocorticoid receptor antagonist; BNP, B-type natriuretic peptide; LVEF, left ventricular ejection fraction; MR, mitral regurgitation; LV, left ventricle; VTI, velocity–time integral; PASP, pulmonary artery systolic pressure; TAPSE, tricuspid annular plane systolic excursion.

**All patients not receiving beta-blockers achieved a maximal CPET, resulting in a zero cell count in the submaximal CPET group. Therefore, statistical comparison between groups was not feasible.*

Table 2. Comparison of CPET Parameters: Maximal vs Submaximal Tests

Variable	Maximal CPET	Submaximal CPET	p-value
tempo_PE (min)	13.25 [11.50–13.44]	10.13 [10.06–10.60]	0.001
carga_W_atingida (W)	176.3 ± 86.6	112.9 ± 67.0	<0.001
VO_2 AT1 (ml·kg⁻¹·min⁻¹)	12.8 [IQR 6.6]	12.0 [IQR 3.6]	0.714
percent AT1 (%)	48.2 ± 14.9	50.6 ± 14.1	0.484
tempo AT1 (min)	6.34 ± 2.79	4.89 ± 3.07	0.033
HR AT1 (bpm)	95.2 ± 19.3	94.0 ± 17.2	0.788
VO_2 AT2 (ml·kg⁻¹·min⁻¹)	18.5 [IQR 9.85]	16.3 [IQR 9.91]	0.035
percent AT2 (%)	92 [77–99]	72 [58–85]	0.139
tempo AT2 (min)	10.56 ± 2.50	7.62 ± 3.02	0.001
HR AT2 (bpm)	114.7 [90.6–138.8]	97.2 [75.9–118.6]	0.624
Peak HR (bpm)	122.1 ± 26.5	111.1 ± 20.3	0.040
Peak SBP (mmHg)	149.2 ± 24.1	127.7 ± 29.0	<0.001
Peak MAP (mmHg)	99.5 ± 13.6	92.1 ± 14.4	0.021
VE/VCO_2 slope	31.5 ± 7.3	34.1 ± 9.0	0.160
OUES	1.73 ± 0.62	1.70 ± 0.71	0.505
$PetCO_2$ rest (mmHg)	31.7 ± 4.2	30.1 ± 4.8	0.119
$PetCO_2$ peak (mmHg)	36.3 ± 6.1	33.4 ± 6.3	0.046
Δ $PetCO_2$ (peak–rest)	4.87 ± 4.34	3.29 ± 4.91	0.151
Peak VO_2 (ml·kg·min)	18.46 ± 5.71	15.79 ± 4.24	0.020
VO_2 (% predicted)	62.3 ± 20.4	58.0 ± 14.6	0.291
Peak O_2 pulse	13.5 ± 7.8	14.5 ± 13.8	0.690
Circulatory power	2789 ± 1068	2022 ± 616	<0.001
% O_2 pulse	89.7 ± 27.0	89.6 ± 18.3	0.982
Peak RER	1.17 ± 0.11	0.95 ± 0.08	<0.001

Abbreviations: CPET, cardiopulmonary exercise testing; PE, exercise test; AT1, first ventilatory (anaerobic) threshold; AT2, second ventilatory (respiratory compensation) threshold; VO_2, oxygen uptake; HR, heart rate; bpm, beats per minute; SBP, systolic blood pressure; MAP, mean arterial pressure; VE/VCO_2 slope, ventilatory efficiency slope (minute ventilation to carbon dioxide production); OUES, oxygen uptake efficiency slope; $PetCO_2$, end-tidal carbon dioxide pressure; RER, respiratory exchange ratio; Δ, change; IQR, interquartile range; W, watts.

Table 3. Univariate Cox proportional hazards analysis for the primary outcome

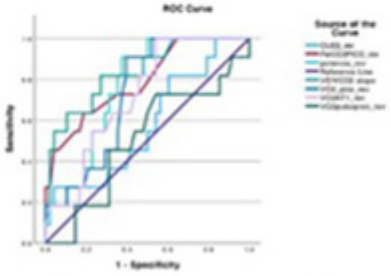
Variable	Hazard Ratio (HR)	95% CI	p-value
Age	1.00	0.96–1.04	0.98
Male sex	1.25	0.40–3.95	0.70
Serum creatinine	1.92	1.01–3.63	0.046
Uric acid	1.22	1.01–1.48	0.035
Seattle HF score (1-year mortality)	0.86	0.77–0.95	0.003
Seattle HF score (5-year mortality)	0.95	0.92–0.98	<0.001
LVEF (%)	0.94	0.89–1.00	0.051
PSAP	1.03	1.00–1.07	0.073
TAPSE	0.94	0.83–1.06	0.29
VE/VCO_2 slope	1.10	1.05–1.16	<0.001
Peak workload	0.99	0.98–1.00	0.017
VO_2 at AT1	—	—	0.71
Peak VO_2	0.75	0.64–0.88	<0.001
OUES	0.21	0.05–0.86	0.029
Peak $PetCO_2$	0.85	0.77–0.93	<0.001
O_2 pulse (peak)	1.02	0.99–1.05	0.23
RER peak	0.24	0.00–21.52	0.54
Ventilatory oscillation	1.00	0.99–1.00	0.99
Circulatory power	—	—	0.078

Abbreviations: HF, heart failure; LVEF, left ventricular ejection fraction; PSAP, pulmonary artery systolic pressure; TAPSE, tricuspid annular plane systolic excursion; VE/VCO_2 slope, ventilatory efficiency slope; VO_2, oxygen uptake; AT1, first ventilatory (anaerobic) threshold; OUES, oxygen uptake efficiency slope; $PetCO_2$, end-tidal carbon dioxide pressure; RER, respiratory exchange ratio.

Hazard ratios (HR) are presented with 95% confidence intervals (CI) per unit increase of each variable. P-values were derived from Wald statistics. Variables with non-estimable hazard ratios are indicated by "—." Hazard ratios could not be reliably estimated for VO_2 at AT1 and circulatory power due to model instability related to a limited number of events and high correlation with other CPET-derived variables.

Figure 1. Receiver Operating Characteristic (ROC) Curves of CPET-Derived Variables for Prediction of the Primary Outcome

Variable	AUC	95% CI	p-value
VE/VCO_2 slope	0.84	0.71–0.97	<0.001
$PetCO_2$ at peak	0.79	0.64–0.94	<0.001
Circulatory power	0.76	0.64–0.89	<0.001
VO_2 at AT1	0.72	0.58–0.86	0.002
Peak VO_2	0.73	0.59–0.87	0.001
OUES	0.58	0.39–0.77	0.395
O_2 pulse (peak)	0.51	0.32–0.70	0.946



Receiver operating characteristic (ROC) curves showing the discriminative performance of selected cardiopulmonary exercise testing (CPET)–derived variables for prediction of the primary outcome. The area under the curve (AUC), 95% confidence intervals (CI), and p-values are presented for each parameter. Ventilatory efficiency (VE/VCO_2 slope), peak end-tidal CO_2 ($PetCO_2$ at peak), circulatory power, VO_2 at the first ventilatory threshold (AT1), and peak VO_2 demonstrated significant predictive value, whereas oxygen uptake efficiency slope (OUES) and peak O_2 pulse showed limited discrimination. The diagonal line represents the reference line of no discrimination.

Figure PO 323

PO 324. MICROALBUMINURIA AS A MARKER OF CLINICAL INSTABILITY IN CHRONIC HEART FAILURE

Patrícia Bernardes, Sara Gonçalves, Jéni Quintal, Tatiana Duarte, Margarida Madeira, Ana Sousa, Crisálida Ferreira, Sofia Senhorinho, Andreia Soares, Dina Ferreira, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Microalbuminuria (MA) reflects endothelial dysfunction and renal congestion –mechanisms closely linked to heart failure (HF) progression. Its role as a marker of recurrent decompensations in contemporary outpatient management remains uncertain.

Objectives: This study aimed to evaluate whether MA predicts HF events and mortality in a real-world same-day HF clinic cohort.

Methods: We retrospectively analysed 114 patients with chronic HF followed in a same-day HF clinic between January 2020 and December 2024. MA was defined as a urine albumin-to-creatinine ratio (UACR) ≥ 30 mg/g assessed in spot urine samples. MA was assessed opportunistically during clinically stable outpatient visits, a median of 5 months after inclusion (IQR 2-9). Median follow-up was 21 months (IQR 12-31). The primary endpoint was the total number of HF events, defined as unplanned visits or HF-related hospitalisations, during follow-up. Secondary endpoints included all-cause mortality. Associations were analysed using non-parametric tests and multivariable Poisson regression adjusted for age, sex, left ventricular ejection fraction (LVEF), diabetes, hypertension, and estimated glomerular filtration rate (eGFR).

Results: The cohort had a mean age of 71 ± 9.8 years, and 61% were male. MA was present in 39% of patients. Patients with MA had lower eGFR (49 ± 13 vs. 56 ± 14 mL/min/1.73 m²; p = 0.012) and higher NT-proBNP levels (median 3,288 [1,100-5,483] vs. 2881 [1,048-4,700] pg/mL; p = 0.002) compared with those without MA. Patients with MA more frequently experienced at least one HF decompensation (78% vs. 58%, p = 0.029) and accumulated a higher total number of unplanned visits or hospitalisations (p = 0.016). In multivariable Poisson regression, MA remained an independent predictor of the composite endpoint (IRR = 1.39, 95%CI 1.01-1.92; p = 0.042), whereas age, sex, LVEF, diabetes, hypertension, and eGFR were not significant predictors. All-cause mortality was low (9.6%) and did not differ between groups (11.1% vs. 8.7%, p = 0.669).

Variable	No microalbuminuria (n = 69)	With microalbuminuria (n = 45)	*p-value*
Age (years)	69.7 ± 9.1	72.6 ± 10.8	0.125
Male sex (%)	38 (55%)	27 (61%)	0.628
LVEF (%)	44.6 ± 11.8	42.4 ± 11.4	0.340
eGFR (mL/min/1.73 m²)	55.8 ± 14.4	49.1 ± 13.0	**0.012**
CKD (eGFR < 60) (%)	42.0	62.2	**0.035**
NT-proBNP (pg/mL, median [IQR])	2881 [1048–4700]	3288 [1100–5483]	**0.002**
Diabetes mellitus (%)	38	54	0.10
Hypertension (%)	77	82	0.59
Reduced LVEF (< 40%) (%)	41	47	0.57

Table 1. Baseline characteristics according to the presence of microalbuminuria

Continuous variables are expressed as mean ± standard deviation (SD) or median [interquartile range, IQR]; categorical variables as percentages. Microalbuminuria was defined as a urine albumin-to-creatinine ratio (UACR) ≥30 mg/g in spot urine samples. eGFR: estimated glomerular filtration rate (calculated using the CKD-EPI equation); CKD: chronic kidney disease (eGFR < 60 mL/min/1.73 m²); LVEF: left ventricular ejection fraction.

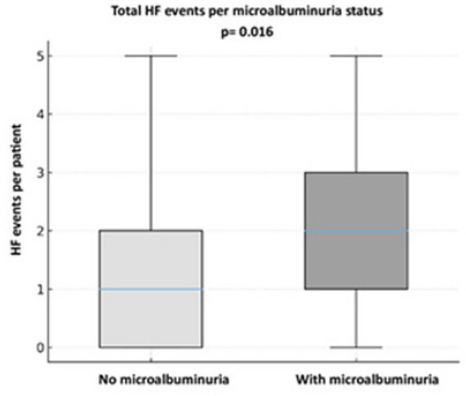


Figure 1. Distribution of total heart-failure events (unplanned clinic visits + hospitalizations) according to microalbuminuria status. Boxes represent the interquartile range (25th–75th percentile), the line indicates the median, and whiskers show the minimum and maximum values. Patients with microalbuminuria had a significantly higher event burden (**p = 0.016**, Mann–Whitney test).

Conclusions: In this real-world HF clinic cohort, microalbuminuria was independently associated with a higher incidence of unplanned visits and hospitalisations, identifying patients at increased risk of recurrent decompensations. MA may represent a simple, low-cost biomarker of clinical instability in ambulatory heart failure management.

PO 325. RIGHT VENTRICLE-PULMONARY ARTERY UNCOUPLING ASSOCIATION WITH WORSE PROGNOSIS IN HEART FAILURE WITH EDUCED EJECTION FRACTION - A REAL-WORLD STUDY

Mauro Moreira, José Luís Ferraro, Inês Bastos Castro, Inês Gomes Campos, Ana Rodrigo Costa, Joel Ponte Monteiro, Inês Almeida, Ana Leal Neto, Adriana Pereira, Patrícia Silva, Aurora Andrade

ULS Tâmega e Sousa/Hospital Padre Américo.

Introduction: Right ventricle (RV)-pulmonary artery uncoupling has emerged as a powerful marker of risk in heart failure (HF), and the TAPSE/sPAP ratio offers a simple way to quantify it. However, due to heterogeneous inclusion criteria in previous studies, current real-world data on its prognostic value remain limited in HF with reduced ejection fraction (HFrEF).
Methods: Single-center retrospective study with consecutive patients with chronic HFrEF from an HF clinic between 2014-2024. Previous diseases, medication, clinical status, biomarkers, electrocardiogram, echocardiogram and cardiac magnetic resonance (CMR) findings were recorded. Patients with pulmonary hypertension (PH) other than group 2 or inaccurate measurement of tricuspid regurgitation jet were excluded. TAPSE/sPAP cut-off was set at 0.36 mm/mmHg. A composite endpoint including unplanned visits for intravenous diuretic; admission for HF; atrial fibrillation; sustained ventricular tachycardia or ventricular fibrillation; appropriate ICD shocks, and death by any cause was assessed over follow-up.
Results: We included 174 patients (73.0% male; mean age 61.4 ± 11.3 years-old), ischemic etiology in 36.2%. Median left ventricle ejection fraction (LVEF) of 25.0 ± 10.2%; RV dilatation in 24.7%; fractional area change ≤ 35% in 35.8%; TAPSE 17.11 ± 3.9 mm, and sPAP 40.0 ± 13.6 mmHg. The median follow-up was 3.6 ± 1.1 years. Lower TAPSE/sPAP ratio was associated with worse kidney function (p = 0.004) and higher levels of natriuretic peptides (p = 0.003). Lower LVEF (p < 0.001), worse RV longitudinal and global systolic function (p < 0.001 for both), including in CMR (p = 0.03), higher E/e' (p = 0.008), and at least moderate aortic stenosis or mitral/tricuspid regurgitation (p = 0.018; p < 0.001, respectively) was associated with reduction in TAPSE/sPAP ratio. The composite endpoint and admission for HF alone were more prevalent in patients with low TAPSE/sPAP ratio (p = 0.014; p = 0.029, respectively). After application of logistic regression, TAPSE/sPAP ratio was not an independent predictor of the endpoint, as it was influenced by other RV and PH parameters.
Conclusions: This study provides evidence for a simple and reliable parameter –TAPSE/sPAP ratio– that is strongly associated with outcomes, as a surrogate marker of RV systolic function and PH.

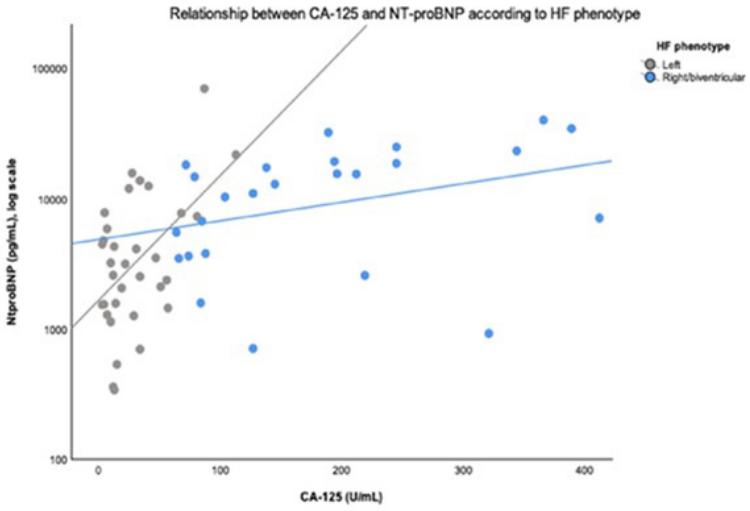
PO 326. BEYOND NT-PROBNP: THE ROLE OF CA-125 IN ASSESSING CONGESTION IN ADVANCED HEART FAILURE

Patrícia Bernardes, Sara Gonçalves, Jéni Quintal, Tatiana Duarte, Margarida Madeira, Ana Sousa, Crisálida Ferreira, Sofia Senhorinho, Andreia Soares, Dina Ferreira, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Carbohydrate antigen 125 (CA-125), a glycoprotein traditionally used as a tumor marker, has recently emerged as a promising biomarker of systemic congestion in heart failure (HF). However, its prognostic and predictive value in advanced HF remains insufficiently characterized.
Objectives: To assess the relationship between CA-125, congestion burden, and clinical outcomes in advanced HF, and to determine whether CA-125 adds information beyond NT-proBNP.
Methods: We conducted a retrospective observational study including 94 outpatients with advanced HF followed at our multidisciplinary HF unit between September 2020 and October 2025. Routine CA-125 measurement was introduced in April 2025 and was available for 60 patients who were alive and under follow-up at that time. Clinical data, biomarker levels, HF hospitalizations, urgent HF visits, and mortality were analysed. Advanced HF was defined according to the 2018 Heart Failure Association of the European Society of Cardiology position statement.
Results: The subgroup with CA-125 measurements comprised 60 patients (mean age 71 ± 13.6 years; 65% male). Mean follow-up was 19.0 ± 9.5 months, and 90% were in NYHA class III-IV. Comorbidities were common: hypertension (70%), diabetes mellitus (47%), chronic kidney disease (42%), and obesity (37%). Ischaemic cardiomyopathy accounted for 48% of cases. Median CA-125 was 65 U/mL (IQR 16-143) and median NT-proBNP 5,174 pg/mL (IQR 2,085-15,565). CA-125 correlated with HF hospitalizations (p = 0.045), urgent HF visits (p = 0.032), and NT-proBNP (Spearman ρ = 0.419, p < 0.001). The correlation with NT-proBNP was stronger in patients with right or

Figure 1. Relationship between CA-125 and NT-proBNP according to HF phenotype



Graph 1: Scatter plot showing the relationship between serum CA-125 and NT-proBNP levels in patients with advanced heart failure, stratified by predominant phenotype. A stronger correlation was observed in right/biventricular HF (ρ = 0.554, *p* = 0.003) compared with left-sided HF (ρ = 0.305, *p* = 0.084). *Only NT-proBNP values were expressed on a logarithmic scale.*

Figure PO 326

biventricular HF (ρ = 0.554, p = 0.003) than in those with left-sided HF (ρ = 0.305, p = 0.084). No significant association with mortality was observed (p = 0.466). In multivariable Poisson regression, CA-125 independently predicted the number of HF decompensations (IRR 1.003, 95%CI 1.002-1.004, p < 0.001), meaning that each 100 U/mL increase in CA-125 corresponded to an approximately 35% higher rate of HF decompensations.
Conclusions: In this cohort of advanced HF, elevated CA-125 was strongly associated with congestion burden and decompensation frequency. Its correlation with NT-proBNP –particularly in right/biventricular HF– supports a complementary role in congestion assessment. CA-125 is a simple, inexpensive biomarker providing additive prognostic information when interpreted alongside NT-proBNP.

PO 327. RIGHT VENTRICLE-PULMONARY ARTERY UNCOUPLING ASSOCIATION WITH WORSE CLINICAL STATUS AND HIGHER DIURETIC REQUIREMENTS IN HEART FAILURE WITH REDUCED EJECTION FRACTION

Mauro Moreira, Inês Bastos Castro, José Luís Ferraro, Ana Rodrigo Costa, Inês Gomes Campos, Joel Ponte Monteiro, Inês Almeida, Ana Leal Neto, Adriana Pereira, Patrícia Silva, Aurora Andrade

ULS Tâmega e Sousa/Hospital Padre Américo.

Introduction: Right ventricle (RV)-pulmonary artery uncoupling has emerged as a powerful marker of risk in heart failure (HF), and the TAPSE/sPAP ratio offers a simple way to quantify it. However, due to heterogeneous inclusion criteria in previous studies, current real-world data on its prognostic value remain limited in HF with reduced ejection fraction (HFrEF).
Methods: Single-center retrospective study with consecutive patients with chronic HFrEF from an HF clinic between 2014-2024. Previous diseases, medication, clinical status, biomarkers, electrocardiogram, echocardiogram and cardiac magnetic resonance (CMR) findings were recorded. Patients with pulmonary hypertension other than group 2 or inaccurate measurement of tricuspid regurgitation jet were excluded. TAPSE/sPAP cut-off was set at 0.36 mm/mmHg. Clinical status assessed by New York Heart Association (NYHA) class and diuretic requirements was compared between groups with high and low TAPSE/sPAP ratio.
Results: We included 174 patients (73.0% male; mean age 61.4 ± 11.3 years-old), ischemic etiology in 36.2%. Median left ventricle ejection fraction (LVEF) of 25.0 ± 10.2%; RV dilatation in 24.7%; fractional area change ≤ 35% in 35.8%; TAPSE 17.11 ± 3.9 mm; sPAP 40.0 ± 13.6 mmHg. The median follow-up was 3.6 ± 1.1 years. Lower TAPSE/sPAP ratio was associated with previous admissions for HF (p = 0.007); worse NYHA class (p = 0.005), worse kidney function (p = 0.004); prevalence of cholestasis as indicated by analytical liver tests (p = 0.021); higher diuretic requirements (p < 0.001), including combined diuretic therapy (p = 0.02), higher levels of natriuretic peptides (p = 0.003), and levosimendan therapy at 1-year (p = 0.02).
Conclusions: This study suggests that TAPSE/sPAP ratio is associated with worse clinical status and higher requirements of isolated or combined diuretic therapy, as well as therapy with levosimendan.

PO 328. GWTG-HF: A STRONGER PREDICTOR OF CARDIOVASCULAR MORTALITY AFTER HOSPITALIZATION

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Introduction: Heart failure (HF) is a common disease with high morbidity and mortality. Several risk scores predict all-cause mortality, sudden cardiac death, and cardiovascular events in HF patients. The Get With the Guidelines - Heart Failure (GWTG-HF) risk score predicts in-hospital mortality in acute HF, using simple variables.
Objectives: To evaluate the prognostic impacts of the GWTG-HF risk score in patients with HF after discharge.
Methods: Retrospective single-center cohort study of adult patients hospitalized in 2022 with a diagnosis of acute HF. The GWTG-HF score was calculated using 7 predetermined variables, with all variable values obtained at admission.
Results: A total of 255 patients (68.2% male; median age of 73 years) were followed for a median of 463 days. The median GWTG-HF score was 44 (IQR, 44.7-47.2), with 20.8% scoring ≥ 55 points. Higher scores were significantly

associated with older age (p < 0.001), chronic kidney disease (p = 0.017), chronic decompensated HF (p = 0.034), right ventricular dysfunction (p = 0.009) and higher NT-proBNP levels (p < 0.001). In-hospital mortality was 3.9%, higher among patients with higher scores (50.0% vs. 19.6%; p = 0.020), as did cardiovascular (CV) mortality (70.0% vs. 16.6%; p < 0.001) and all-cause mortality (40.9% vs. 18.9%; p = 0.015). Logistic regression confirmed independent associations of higher scores with in-hospital mortality (OR 1.063; 95%CI 1.005-1.125; p = 0.032) and CV mortality (OR 1.106; 95%CI 1.056-1.158; p < 0.001). ROC curve analysis showed moderate discrimination for in-hospital mortality (AUC 0.700; p = 0.009) and good predictive accuracy for in-hospital CV mortality (AUC 0.811; p < 0.001). Post-discharge CV mortality was 5.5%, overall CV mortality was 7.8%. Patients who died post-discharge had higher GWTG-HF scores and NT-proBNP levels during hospitalization (p < 0.001), whereas admission LVEF was not predictive (p = 0.119). The optimal GWTG-HF cutoff of 54.5 predicted post-discharge cardiovascular mortality with 78.6% sensitivity and 82.6% specificity (AUC 0.845; 95%CI 0.755-0.936). Notably, the post-discharge CV mortality curve showed the best ROC performance (AUC 0.845; 95%CI 0.755-0.936), compared with in-hospital and overall CV mortality.
Conclusions: Originally developed to predict in-hospital mortality, the GWTG-HF score also provides prognostic value after discharge, extending into the chronic phase, as demonstrated in our cohort.

Domingo, 26 Abril de 2026 | 11:30-12:25

Área de Posters - Ecrã 1 | Sessão de Posters 56 - Risco metabólico e lipoproteínas na doença coronária

PO 329. COMPARATIVE ASSOCIATION STUDY OF DIFFERENT INSULIN RESISTANCE ASSESSORS WITH ALL-CAUSE MORTALITY AMONG A PORTUGUESE POPULATION

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[1]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM; Cardiology Department, SESARAM EPERAM. [2]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [3]Cardiology Department, SESARAM, EPERAM; Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [4]Cardiology Department, SESARAM, EPERAM; Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM. [5]Research Centre Dr.ª Maria Isabel Mendonça, SESARAM EPERAM; Madeira University. [6]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Atherosclerotic cardiovascular diseases with cardiometabolic conditions have a high prevalence of comorbidities and an elevated mortality risk. Insulin resistance (IR) is a significant contributor to their pathogenesis. METS-IR (Metabolic Score) assessors for IR are employed in clinical evaluations; however, their relationship with all-cause mortality is poorly understood.
Objectives: To investigate the association between the METS-IR, a marker of Insulin resistance, and all-cause mortality in patients with established atherosclerotic cardiovascular disease.
Methods: A cohort study was performed with 1,720 cardiovascular patients with (78.8% were male; mean age of 53.3 ± 7.9 years) with cardiometabolic conditions with an extended follow-up (average 7.6 ± 6.7 years). The IR levels were assessed using a surrogate marker METS-IR = [ln[2 × fasting plasma glucose (FPG)+ triglycerides (TG)] × body mass index (BMI)]/ln[HDL-cholesterol (HDL-C)]. To investigate the associations between this marker and all-cause mortality, multivariable Cox proportional hazards models were applied. We employed restricted cubic splines (RCS) to examine nonlinear associations.
Results: Of the 1,720 patients with cardiovascular disease, 550 deaths from all causes were registered. The METS-IR threshold value for all-cause mortality was 49.4. When values exceeded this threshold, it demonstrated a positive correlation with all-cause mortality (HR 1.222; 95%CI: 1.020-1.465; p = 0.030), along with age (HR = 1.040; p < 0.0001), smoking (HR = 1.416; p < 0.0001) and diabetes (HR = 1.256; p = 0.012). The RCS graph showed a non-linear association between METS-IR and all-cause mortality, with lower risk at low METS-IR levels but a gradual increase that becomes pronounced at higher METS-IR levels.
Conclusions: METS-IR was significantly associated with all-cause mortality, highlighting its value as a prognostic marker for identifying high-risk individuals within cardiometabolic populations. Identifying a threshold METS-IR may serve as a target for preventive interventions and reduce the risk of premature death.

PO 330. ASSOCIATIONS OF THE REMNANT CHOLESTEROL AND TRIGLYCERIDE-GLUCOSE INDEX WITH CORONARY ARTERY DISEASE

Francisco Sousa[1], M.I. Mendonça[2], G. Abreu[1], M. Ferreira[1], F. Escórcio Silva[1], M. Rodrigues[2], E. Henriques[2], S. Freitas[2], S. Borges[2], A. Drumond[1], A.C. Sousa[2], R. Palma dos Reis[3]

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Introduction: Remnant cholesterol (RC), a lipid index representing the cholesterol amount in triglyceride-rich lipoproteins (such as VLDL and chylomicron remnants), is associated with coronary artery disease (CAD). The triglyceride/glucose index (TyG) is a marker of cardiometabolic disease.

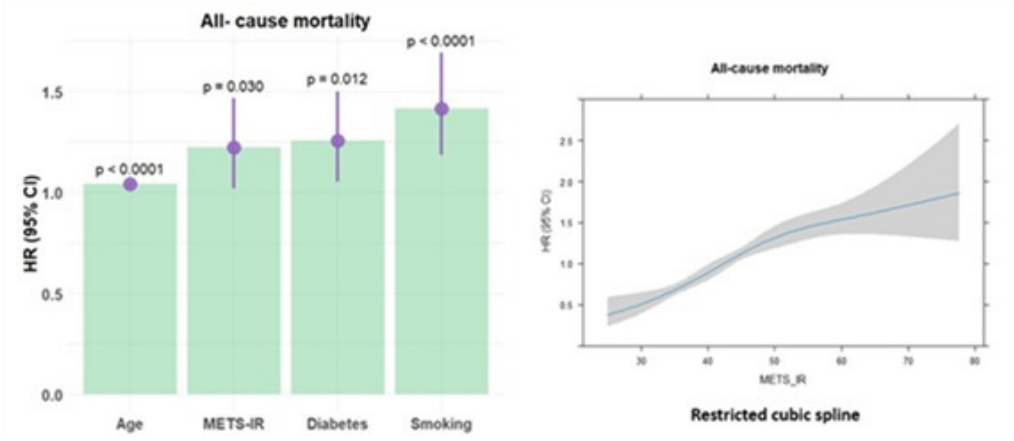

Figure PO 329

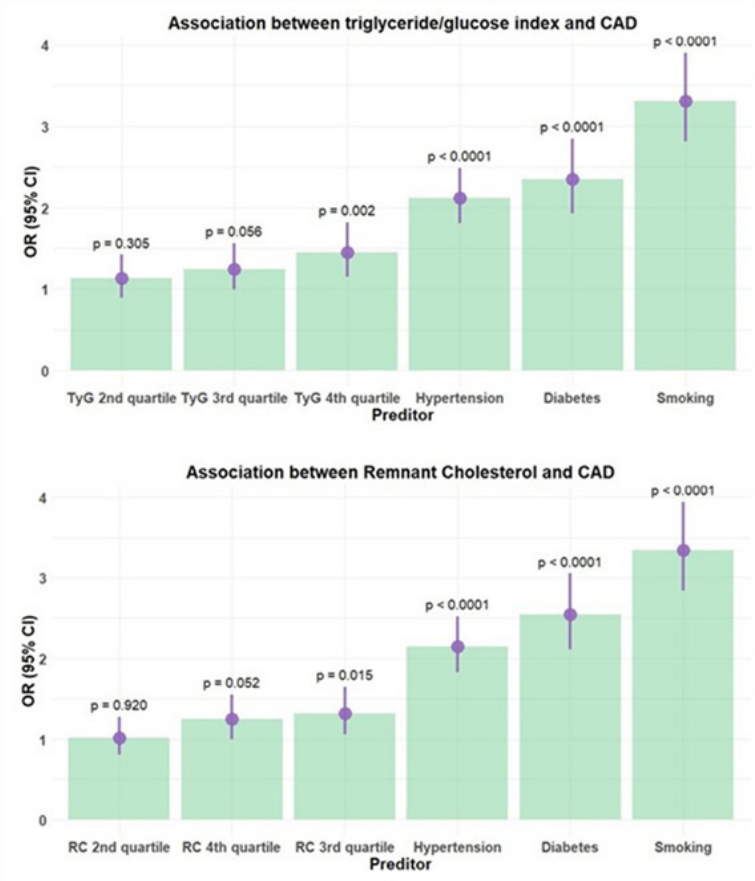

Figure PO 330

However, the usefulness of RC and the TyG index in predicting CAD remains unclear.

Objectives: Evaluate the correlations of two biomarkers (RC and TyG index) with CAD and compare their predictive performance for established CAD.

Methods: We conducted a case-control study including 1,722 patients with angiographically confirmed CAD and 1,435 individuals without CAD. RC was calculated as: total cholesterol - (LDL-C + HDL-C), all in mmol/L. The TyG index was determined as ln [fasting triglyceride level (mg/dL) × fasting plasma glucose level (mg/dL)]/2. Spearman correlation assessed associations with CAD. Receiver operating characteristic (ROC) curves evaluated discriminatory ability. RC and TyG were stratified into quartiles, and multivariate logistic regression estimated the probability of CAD in each quartile, adjusting for conventional risk factors.

Results: Both RC and TyG correlated weakly but significantly with CAD, with a stronger monotonic relationship for TyG (r = 0.194 vs. r = 0.126; p < 0.0001). In ROC analysis, TyG showed better discriminatory performance than RC (AUC = 0.612; 95%CI: 0.595-0.629). For RC, a significant association with CAD emerged from the 3rd quartile (OR = 1.318; 95%CI: 1.055-1.647; p = 0.015), while the 4th quartile showed a non-significant trend (OR = 1.244; 95%CI: 0.998-1.552; p = 0.052). Diabetes (p < 0.0001) and smoking (p < 0.0001) were also significantly associated with CAD. In the logistic regression for the TyG index, the association with CAD increased progressively across quartiles, reaching statistical significance in the 4th quartile (OR = 1.447; 95%CI: 1.152-1.819; p = 0.002). Hypertension (p < 0.0001), type 2 diabetes (p < 0.0001), and smoking (p < 0.0001) were independently associated with CAD.

Conclusions: RC and TyG index are independently associated with CAD. TyG index demonstrates a stronger correlation and better predictive capacity compared with RC, highlighting the role of insulin resistance-related and dyslipidemia in CAD development. Incorporating these markers into clinical assessment protocols may enhance early risk stratification and contribute to the prevention of premature atherosclerosis.

PO 331. LIPOPROTEIN(A) IN CORONARY DISEASE: THE CLINICAL AND ANGIOGRAPHIC IMPACT

Joana Catarina Silva[1], Daniela Pinheiro[2], Francisco Rocha Cardoso[2], Ana Raquel Santos[2], Pedro Rio[2], Felipe Leao[2], Joana Pinto[2], Miguel Trindade[2], Vania Martins[2], Carlos Franco[2], Rui Costa[2], Rui Cruz Ferreira[2]

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Introduction: Elevated lipoprotein(a) (Lp(a)) is recognized as an independent risk factor for atherosclerotic cardiovascular disease (ASCVD), yet its relationship with angiographic disease severity and functional capacity in patients with established coronary artery disease (CAD) remains uncertain. A 2020 study of 16,853 patients with coronary artery disease demonstrated a linear association between Lp(a) concentration and ASCVD risk.

Objectives: To evaluate whether higher Lp(a) concentrations are associated with greater CAD burden –including number of diseased vessels, lesion distribution, chronic total occlusion (CTO), and troponin levels– and to determine whether this association differs by age. A secondary objective was to assess whether Lp(a) levels correlate with functional capacity, quantified by changes in six-minute walk distance (Δ6MWT) and oxygen consumption (ΔVO2).

Methods: Clinical data from 204 patients undergoing evaluation were analyzed. Variables included Lp(a), age, angiographic findings (number of diseased vessels, CTO, left main and left anterior descending artery involvement), troponin, Δ6MWT, and ΔVO2. Lp(a) was classified as Minimal (< 62 nmol/L), Low (62-105 nmol/L), High (> 105 nmol/L), or Not Obtained. Statistical analyses included Pearson and Spearman correlations, Kruskal-Wallis tests, and multivariable logistic regression adjusting for age and ΔVO2.

Results: Lp(a) demonstrated no significant association with angiographic severity based on number of diseased vessels, lesion distribution (left main/LAD involvement). Although the High Lp(a) group had a greater proportion of CTO cases (26.5%), the association was not statistically significant, and Lp(a) did not independently predict CTO in multivariable modeling (p = 0.051). Lp(a) and age were independent. No relationship was observed between Lp(a) and Δ6MWT, while Lp(a) exhibited a modest linear association with ΔVO2 (p = 0.035).
Conclusions: In this cohort of 204 patients with established CAD, higher Lp(a) levels were not associated with angiographic disease severity, CTO, or impaired functional improvement, and no age-dependent effect was observed. These findings underscore the need for larger, prospectively designed cohorts with complete Lp(a) profiling to more precisely characterize the clinical significance of Lp(a) in secondary prevention populations

PO 332. LIPOPROTEIN(A) IN ACUTE MYOCARDIAL INFARCTION: WHY TIMING OF MEASUREMENT MATTERS

David Matos Monteiro, Sofia Martinho, Ana Rita Ramalho, Mariana Salvador, Pedro Miguel Ventura, Tiago Garcia, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Lipoprotein(a) [Lp(a)] is a genetically determined lipid particle associated with residual cardiovascular risk and its measurement is recommended at least once in adulthood. Although recent evidence suggests that Lp(a) should ideally be measured outside acute inflammatory states, it is still frequently assessed during hospitalisation for acute coronary syndromes. However, evidence remains limited regarding whether acute-phase measurement during acute myocardial infarction (AMI) differs meaningfully from delayed testing.
Objectives: To compare Lp(a) concentrations measured during the acute phase of MI with values obtained after clinical stabilisation, and to characterise the clinical profile of the studied cohort.
Methods: A retrospective analysis was performed at a tertiary centre, comparing Lp(a) levels obtained during hospitalisation with results from the first outpatient visit ≥ 6 weeks post-infarction. Paired samples were analysed using a paired t-test. Clinical, angiographic, and laboratory data were collected, including lipid profile, inflammatory markers, cardiac biomarkers and left ventricular ejection fraction (LVEF).
Results: A total of 89 patients were included (mean age 59 ± 13 years; 81% male). Most of them presented with STEMI (71%), Killip class I (67%), and single-vessel disease (49%); 97% underwent PCI and 82% achieved complete revascularisation. LVEF remained stable from hospitalisation to follow-up (46.4 ± 9.1% vs. 46.1 ± 7.5%). LDL-C fell markedly (122 ± 47 to 53 ± 22 mg/dL), as did total cholesterol, triglycerides, hs-TnI, NT-proBNP and C-reactive protein, all with p < 0.001 (Table 1). In contrast, Lp(a) rose significantly from the acute to stable phase (53.0 ± 44.7 to 66.2 ± 61.3 mg/dL; p = 0.002), without notable changes in haematological or renal parameters, suggesting biological stability despite the acute stress.

Table 1 – Differences between admission and ≥ 6 weeks after acute myocardial infarction

	Admission	≥6-weeks after AMI	p-value
Lp(a) – mg/dL	53.0±44.7	66.2±61.3	**0.002**
Total Cholesterol – mg/dL	182±49	111±26	**<0.001**
LDL – mg/dL	122±47	53±22	**<0.001**
Triglycerides – mg/dL	150±85	105±66	**<0.001**
NT-proBNP – pg/mL	4887±22374	1316±4548	**<0.001**
hsTNI – ng/L	66374±107953	21±27	**<0.001**
CRP – mg/dL	2.48±3.24	0.72±2.22	**<0.001**

Values are mean ± SD

AMI – acute myocardial infarction; CRP – C-reactive protein; hsTnI – high sensitivity troponin I

Conclusions: In AMI patients, Lp(a) levels measured during the acute phase are significantly lower than those obtained after clinical stabilisation. These findings support measuring Lp(a) outside the acute phase to ensure accurate cardiovascular risk stratification. Nonetheless, because Lp(a) is genetically determined, and the variation is modest, post-acute measurements remain valid for long-term prognostic assessment.

PO 333. PREDIABETES: AN OVERLOOKED BUT IMPORTANT PREDICTOR OF PROGNOSIS AFTER ACUTE MYOCARDIAL INFARCTION

Catarina Lagoas Pohle, Jéni Quintal, Patrícia Bernardes, Marco Cristo Tomaz, David Campos, Ivo Palmeiro, Catarina Sá, Filipe Seixo

ULS Arrábida/Hospital de São Bernardo.

Introduction: Prediabetes is associated with heightened cardiovascular risk, yet its impact on outcomes after acute myocardial infarction (AMI) remains

	Prediabetic (n = 100)	Non-prediabetic (n=110)	p value
Age in years, mean ± SD	67 ± 12	62 ± 14	0.056
Male , n (%)	75 (75)	80 (72.7)	0.708
Hypertension, n (%)	64 (64)	65 (59.1)	0.465
Dyslipidemia, n (%)	43 (43)	44 (40)	0.659
Obesity, n (%)	18 (18)	16 (14.5)	0.497
CKD, n (%)	4 (4)	3 (2.7)	0.711
Previous CAD, n (%)	23 (23)	22 (20.2)	0.621
Smokers, n (%)	40 (40)	42 (38.2)	0.787
STEMI, n (%)	49 (49)	61 (55.5)	0.875
Glycosylated hemoglobin, mean ± SD	5.9 ± 0.1	5.2 ±0.2	< 0.001
LDL-cholesterol, median (IQR)	144.1 (113.2- 175.5)	129.6 (97.5-164.8)	0.851
Total cholesterol, mean ± SD	222.1 ± 31.1	197.7 ± 45.3	0.908
Lipoprotein (a), median (IQR)	22.9 (10.4-59.7)	17.2 (10.4-69.7)	0.831
NTproBNP, median (IQR)	647.0 (504.0-1615.0)	1498.5 (741.5-3172.0)	0.357
Troponin I (admission), median (IQR)	423.0 (69.4-2562.5)	220.0 (71.7-2769.8)	0.356
Troponin I (maximal), median (IQR)	6603 (1572-11263)	18161 (485.3-26557.0)	0.899

Footnote: CAD - Coronary Artery Disease. CKD - Chronic Kidney Disease. LDL - low density lipoprotein. STEMI - ST elevation Myocardial Infarction IQR - Interquartile Range. SD - Standard deviation.

Table 1 Comparison of baseline characteristics between prediabetic patients and patients with normal HbA1c following acute myocardial infarction

Figure PO 333

incompletely characterised. This study aimed to evaluate whether prediabetes is associated with an increased risk of a composite endpoint including all-cause mortality, heart failure (HF) hospitalization and recurrent myocardial infarction (MI).
Methods: We conducted a retrospective cohort study including 210 non-diabetic patients admitted with AMI from November 2021 to October 2022. HbA_{1c} was measured at hospital admission, and prediabetes was defined according to HbA_{1c} criteria (5.7-6.4%). Clinical characteristics, in-hospital outcomes and follow-up events were compared between patients with prediabetes and those with normal HbA_{1c}. Kaplan-Meier survival curves were used to assess differences in event-free survival, and Cox proportional hazards models were performed to identify independent predictors of the composite outcome.
Results: A total of 210 patients were included (73.8% male; mean age 65 ± 13 years), of whom 100 (47.6%) had prediabetes and 110 (42.4%) had normal HbA1c. Mean HbA1c was 5.2 ± 0.2% in the normal HbA1c group and 5.9 ± 0.1% in the prediabetes group. Baseline characteristics are shown in Table 1. Prediabetes was significantly associated with new-onset left ventricular dysfunction (OR = 2.178; 95%CI: 1.167-4.064; p = 0.014). No significant association was observed with in-hospital mortality (OR = 4.54; 95%CI: 0.50-41.34; p = 0.194). However, Kaplan-Meier analysis showed significantly reduced composite event-free survival in prediabetic patients (log-rank = 7.229; p = 0.007). In the multivariable Cox regression model, prediabetes remained independently associated with the composite endpoint (HR = 2.389; 95%CI: 1.189-4.797; p = 0.014), even after adjustment for clinical variables.
Conclusions: Among non-diabetic patients admitted with AMI, prediabetes identified at admission was independently associated with a higher risk of adverse cardiovascular outcomes, driven by increased rates of new-onset left ventricular dysfunction and a significantly higher incidence of the composite endpoint. These findings support the importance of recognising prediabetes as a prognostic marker in the post-AMI setting.

PO 334. LIPOPROTEIN(A) AND TYPE 2 DIABETES: FINDINGS IN ACUTE MYOCARDIAL INFARCTION

David Matos Monteiro, Sofia Martinho, Ana Rita Ramalho, Mariana Salvador, Pedro Miguel Ventura, Tiago Garcia, Lino Gonçalves

ULS Coimbra/Hospitais da Universidade de Coimbra.

Introduction: Lipoprotein(a) [Lp(a)] is a genetically determined, predominantly stable biomarker and a causal driver of atherosclerotic cardiovascular disease (ASCVD). Unlike traditional lipids, its plasma concentrations are minimally affected by metabolic disorders. Paradoxically, recent genetic and epidemiological studies have suggested an inverse relationship between Lp(a) and type 2 diabetes mellitus (T2D), hinting that lower Lp(a) levels may confer higher diabetes risk. Despite this, current cardiovascular guidelines treat Lp(a) and T2D as independent ASCVD risk factors, leaving uncertainty about whether clinically measured Lp(a) differs in diabetic patients.
Objectives: We aimed to investigate whether patients with T2D display distinct Lp(a) concentrations compared with non-diabetic individuals in a cohort of acute myocardial infarction (AMI) survivors.
Methods: In this retrospective study, all consecutive patients admitted to a coronary care unit with AMI between March and October 2025 were evaluated. T2D status, Lp(a), and HbA_{1c} levels were recorded during admission and at six-week follow-up. Continuous variables were compared using independent-samples t-tests, and correlations between Lp(a) and glycaemic markers were assessed.
Results: Of 89 patients, 24 (27%) had T2D. Non-diabetic patients exhibited numerically higher mean Lp(a) (58.5 ± 46.7 mg/dL) than those with T2D (32.8 ± 33.8 mg/dL), though this difference was not statistically significant (p = 0.073). The HbA_{1c} was elevated in T2D patients, yet no statistically-significant correlation was observed between HbA_{1c} and Lp(a) at either time point (r = -0.246, p = 0.073 at acute phase and r = -0.212, p = 0.121 at ≥ 6 weeks post-infarction).
Conclusions: In this AMI cohort, Lp(a) levels did not differ significantly between patients with and without T2D, reinforcing the concept that Lp(a) is predominantly genetically determined and largely independent of established diabetes. These findings suggest that the inverse Lp(a)-T2D association reported in genetic studies may not translate into clinically meaningful differences. Our results support universal, once-in-a-lifetime Lp(a) testing, regardless of diabetic status, to optimise personalised ASCVD risk stratification and guide targeted prevention strategies.

Domingo, 26 Abril de 2026 | 11:30-12:25

Área de Posters - Ecrã 2 | Sessão de Posters 57 - Hipertensão arterial pulmonar: estratificação de risco, hemodinâmica e prognóstico

PO 335. LEFT HEART DISEASE STAGING AS A FRAMEWORK TO CHARACTERIZE CARDIOVASCULAR COMORBIDITIES IN PULMONARY ARTERIAL HYPERTENSION

Francisca Campos Almeida[1], Inês de Almeida Rodrigues[1], Marta Fontes[2], João Pires[2], Alzira Melo[1], Joana Alves[1], Fabienne Gonçalves[1], Luísa Carvalho[1], Inês Furtado[1], Bruno Bragança[1], José Meireles[1], Mário Santos[1]

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

Introduction: Pulmonary arterial hypertension (PAH) is a vascular condition increasingly diagnosed in older patients with multiple cardiovascular (CV) risk factors, complicating its diagnosis and management. A phenotype-based approach that captures the severity and cumulative impact of CV comorbidities is needed to clarify their true burden. This study aims to characterize CV comorbidity profiles in a contemporary PAH cohort and assess their influence on clinical outcomes and prognosis.
Methods: We retrospectively assessed the presence of CV comorbidities of PAH patients followed between May 2011 and April 2025 and classified them by the CV comorbidities burden into three stages of left heart disease (LHD) according to the 7th Pulmonary Hypertension World Symposium proposal, considering their number and severity. We compared baseline demographic, clinical, hemodynamic and treatment options and performed a survival analysis to assess the association of LHD staging with a composite endpoint of all-cause mortality and lung transplant.
Results: Among 152 PAH patients, 48% presented with CV comorbidities and 21% were classified as mild LHD, 12% moderate and 15% severe. Overall, the most common comorbidities were systemic hypertension (30.3%), smoking (21.1%) and diabetes (15.1%). PAH patients with CV comorbidities were more likely to be older (p < 0.001), have worse New York Heart Association (NYHA) functional capacity (FC) (p = 0.005), reduced 6-minute walk distance (p = 0.02) and increased NT-proBNP plasma levels (p = 0.04), but lower pulmonary pressures and resistance. No significant changes were observed regarding PAH specific treatment (p = 0.33). At follow-up, those with CV comorbidities still presented worse NYHA FC (p = 0.03). Over a median follow-up of 6.1 ± 6.2 years, we observed 56 composite events (53 deaths and 3 lung transplantation). Only those with severe CV comorbidities were associated with the composite endpoint (HR 1.8; 95%CI: 1.4-5.3), but not after adjusting for age (p = 0.13).
Conclusions: About half of PAH patients had CV comorbidities, but only 25% had a moderate-to-severe burden, which did not independently affect prognosis. These patients were older and had greater functional impairment despite having milder hemodynamic profiles. Although PAH treatment was similar, they were less likely to improve in functional class.

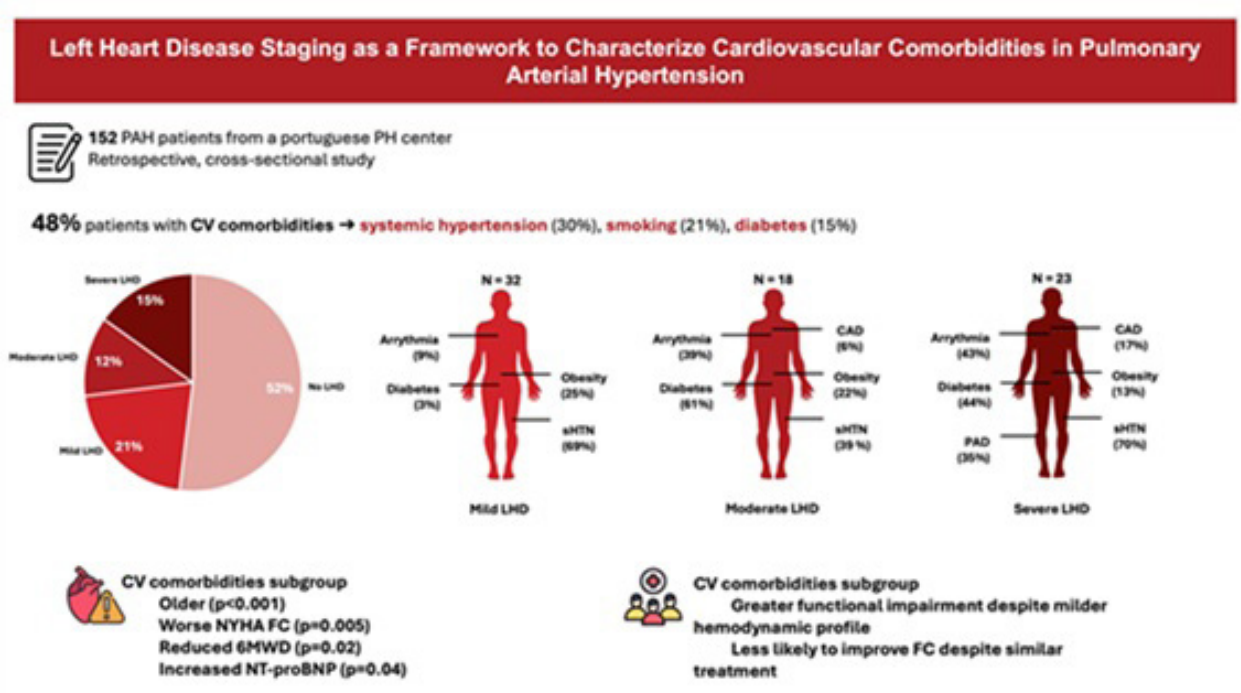


Figure PO 335

PO 336. THE GENETIC BLUEPRINT BEHIND PAH - CLINICAL CORRELATES AND PROGNOSTIC IMPLICATIONS

Nuno Madruga[1], Daniel Inácio Cazeiro[1], Diogo Ferreira[1], João Cravo[1], Marta Vilela[1], Maria João Oliveira[2], Ana Rocha Dias[3], Oana Moldovan[4], Tatiana Guimarães[1], Nuno Lousada[1], Fausto J. Pinto[1], Rui Plácido[1]

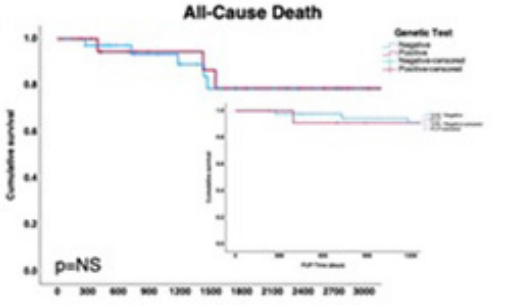
[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Department of Pulmonology, Unidade Local de Saúde Gaia-Espinho. [3]Department of Pulmonology, Unidade Local de Saúde de Santa Maria. [4]Department of Medical Genetics, Unidade Local de Saúde de Santa Maria, CAML, CCUL@RISE, Faculty of Medicine, University of Lisbon.

Introduction: Genetic predisposition plays a key role in the pathobiology of pulmonary arterial hypertension (PAH). With the expanding availability of next-generation sequencing (NGS), clinicians can now detect a broad spectrum of pathogenic and emerging variants across PAH-associated genes. However, the true clinical consequences of these findings - particularly their impact on phenotype and prognosis - remain undefined.
Objectives: To characterize the genetic landscape of a contemporary PAH cohort and compare clinical features and outcomes between patients (pts) with and without identified genetic variants.
Methods: Retrospective, single-center study of pts with PAH who underwent genetic testing (GT) from 2012 to 2025. Testing consisted of BMPR2 sequencing or multigene NGS panels. Baseline patient characteristics were collected at diagnosis. Pts with a positive GT (GT+) were compared to those

Genetic tests	
Total performed	78
Known results	63
Total yield	24/63 (38)
P/LP variant yield	14/63 (22)

Gene	VUS	Likely Pathogenic	Pathogenic	Total
BMPR2	2	3	7	12
ACVRL1	2	0	1	3
EIF2AK4	1	1	1	3
ABCC8	0	0	1	1
FOXF1	1	0	0	1
SMAD9	1	0	0	1
KDR7	1	0	0	1
ENG	1	0	0	1
GDF2	1	0	0	1
Total	10	4	10	24

	Genetic test +	Genetic test -	p-value
Female sex (%)	15 (71)	26 (72)	NS
Age at diagnosis	**42±13**	**51±15**	**0.027**
WHO class (%)			NS
I	0 (0.0)	1 (2.8)	
II	14 (66.7)	17 (47.2)	
III	7 (33.3)	16 (44.4)	
IV	0	2 (5.6)	
Dual therapy (%)	17 (81)	31 (86)	NS
Triple therapy (%)	12 (57)	16 (44)	NS
Parenteral PCA (%)	8 (38)	14 (39)	NS
NTproBNP (pg/mL)	777 [383-2068]	715 [116-842]	NS
6MWT distance (m)	353±106	364±130	NS
TAPSE (mm)	17.6±4.4	18.6±5.0	NS
Estimated sPAP (mmHg)	79±20	72±23	NS
TAPSE/sPAP (mm/mmHg)	**0.24±0.14**	**0.40±0.15**	**0.018**
mPAP (mmHg)	57±17	55±22	NS
PVR (WU)	14.1 [7.8-16.1]	10.6 [4.1-17.0]	NS
CI (L/min/m²)	**1.86±0.46**	**2.56±0.74**	**0.004**



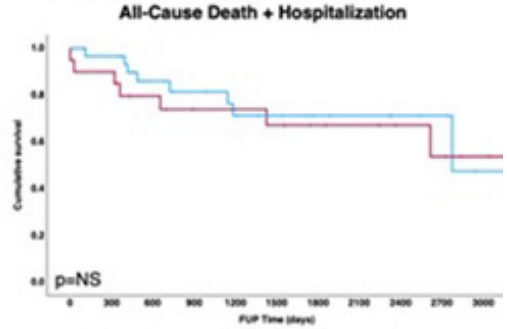


Figure PO 336

without identified variants (GT-). Group comparisons were performed with t-tests or Mann-Whitney tests, as appropriate. Time to all-cause death/hospitalization was assessed with Kaplan-Meier and log-rank analysis.
Results: Of 78 GT performed, 63 generated reportable results. A total of 24 variants were identified across multiple PAH-associated genes - BMPR2 (50%), ACVRL1 (13%), EIF2AK4 (13%), ABCC8 (4%), FOXF1 (4%), SMAD9 (4%), KDR (4%), ENG (4%), and GDF2 (4%). The overall diagnostic yield was 38%; pathogenic (P)/likely pathogenic (LP) variants were detected in 14 pts (22% yield). Compared with GT- pts (n = 36), GT+ pts (n = 21) were younger at diagnosis (42 vs. 51 years, p = 0.027). Baseline WHO functional class, NT-proBNP and 6-minute walk distance were similar between groups. Echocardiographic parameters were comparable except for a significantly lower TAPSE/sPAP ratio in GT+ pts (0.24 ± 0.14 vs. 0.40 ± 0.15 mm/mmHg, p = 0.018). Hemodynamically, GT+ pts had numerically higher pulmonary vascular resistance (14.1 vs. 10.6 WU, p = NS) and significantly lower cardiac index (1.86 vs. 2.56 L/min/m^2, p = 0.004). During a mean follow-up of 4.2 years, no differences were observed between GT+ and GT- pts in all-cause mortality (p = 0.777) or in the composite outcome of death or hospitalization (p = 0.654). Stratification by type of variant (P/LP vs. VUS/negative) likewise revealed no differences in event-free survival.
Conclusions: GT demonstrated a robust diagnostic yield and identified variants across a wide range of PAH-associated genes. GT+ pts were younger and exhibited a more adverse hemodynamic profile - particularly regarding right ventricular-pulmonary arterial coupling. Despite these differences, genetic status did not translate into measurable differences in long-term clinical outcomes. These findings underscore the complexity of genetic influences in PAH and emphasize the need for larger cohorts to clarify how specific variants interact with phenotype, treatment response and prognosis.

PO 337. BEYOND CLINICAL RISK SCORES IN PULMONARY ARTERIAL HYPERTENSION: DOES INVASIVE HEMODYNAMIC ASSESSMENT PROVIDE ADDITIONAL VALUE?

Adriana Silva, Sofia Alegria, Paula Fazendas, Filipa Ferreira, Bárbara Ferreira, Ana Cláudia Vieira, Débora Repolho, João Luz, Ana Rita Pereira, Otília Simões, Hélder Pereira

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Accurate risk stratification in pulmonary arterial hypertension (PAH) is essential for prognosis and treatment selection. Current multiparametric scores, such as REVEAL Lite and COMPERA, rely predominantly on clinical and biochemical variables, without incorporating invasive hemodynamic markers that are known strong predictors of outcome.

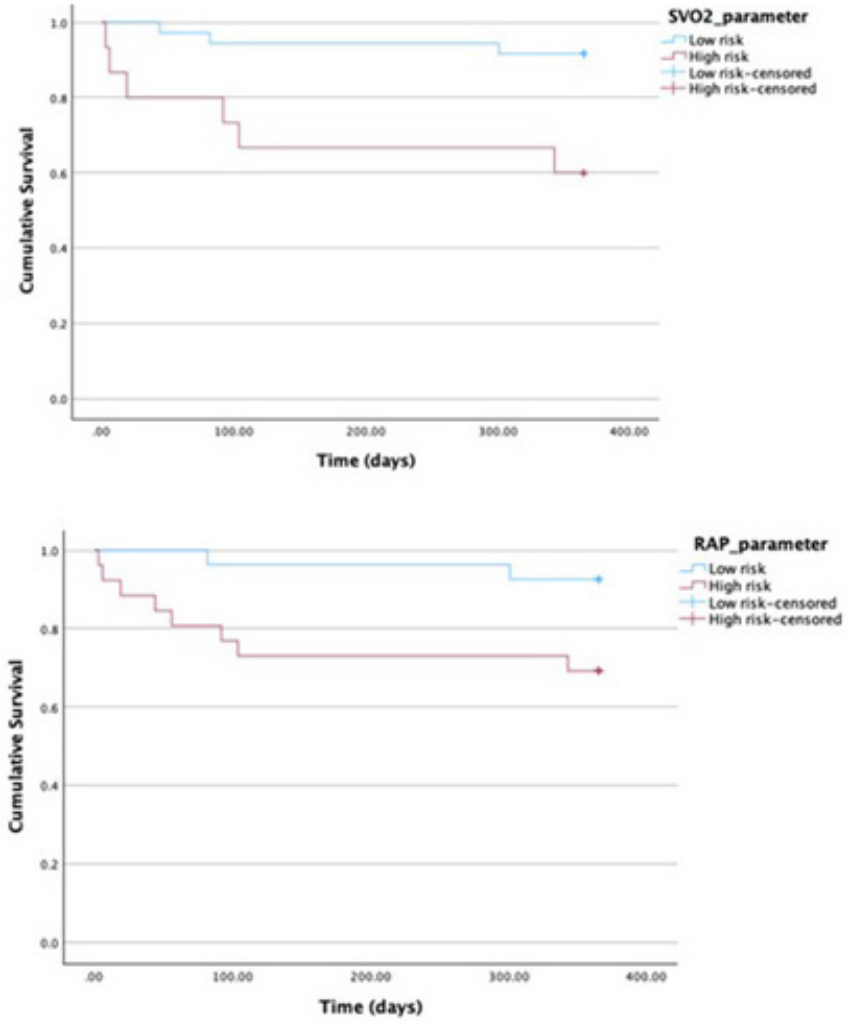


Figure 1. Survival curves for the REVEAL intermediate-risk subgroup stratified by SVO_2 (top) and RAP (bottom).

Figure PO 337

Objectives: To determine whether invasive hemodynamic variables provide incremental prognostic value beyond established clinical risk scores in PAH.
Methods: We prospectively followed 78 PAH patients (pts) for 12 months in a referral center. The composite endpoint included death, lung transplantation, initiation of intravenous prostanoids, or unscheduled hospitalization. Baseline right-heart catheterization was performed according to current guidelines. Prognostic associations were assessed using Cox models, and survival distributions were compared with Kaplan-Meier analysis.
Results: Mean age at diagnosis was 52.3 ± 17.2 years, and 69.2% were female (n = 54). WHO functional class III-IV was present in 79.5% of pts. Fourteen pts (18%) reached the composite endpoint. In univariate analysis, REVEAL Lite (HR 1.56, p = 0.004) and COMPERA (HR 4.97, p = 0.003) were significantly associated with adverse outcomes. Among hemodynamic variables, right-atrial pressure (RAP; p = 0.010) and SvO2 (p = 0.003) were significant predictors, and pulmonary arterial compliance (PAC) showed a borderline association (p = 0.066). In multivariable models including REVEAL, Cox regression identified three independent predictors: higher RAP (HR 1.17; 95%CI 1.05-1.29; p = 0.003), lower PAC (HR 19.43; 95%CI 1.86-202.63; p = 0.013), and higher REVEAL score (HR 1.54; 95%CI 1.12-2.12; p = 0.003). In the model including COMPERA, independent predictors were RAP (HR 1.19; 95%CI 1.07-1.33; p = 0.002), PAC (HR 15.79; 95%CI 1.44-172.64; p = 0.024), and COMPERA score (HR 3.86; 95%CI 1.16-12.84; p = 0.027). Clinically meaningful increments showed that each 1-mmHg increase in RAP conferred a 17-19% increase in hazard, and that PAC remained a very strong predictor in both models. In the REVEAL intermediate-risk subgroup, SvO2 and RAP provided significant prognostic discrimination (log-rank p = 0.005 and p = 0.027, respectively) (Figure 1).
Conclusions: RAP, SvO2, and PAC significantly enhance risk discrimination beyond REVEAL and COMPERA, supporting the integration of invasive hemodynamics into routine multiparametric risk assessment.

PO 338. EARLY REAL-WORLD USE OF SOTATERCEPT IN PULMONARY ARTERIAL HYPERTENSION

Tiago Miguel Oliveira Peixoto, Bruno Bragança, Fabienne Gonçalves, Luísa Carvalho, Inês Furtado, José Moura Meireles, Alzira Melo, Joana Alves, Mário Santos

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Introduction: Pulmonary arterial hypertension (PAH) is a progressive disease marked by pulmonary vascular remodeling and right heart failure. Although combination therapy targeting the endothelin, nitric oxide, and prostacyclin pathways has improved care, outcomes remain suboptimal. Sotatercept, a first-in-class activin-signaling inhibitor that modulates TGF-β pathways, has shown marked benefits in trials - improving hemodynamics, exercise capacity, and clinical outcomes. We report real-world data from the first eight patients treated with sotatercept at a PAH expert center.
Methods: We conducted a retrospective, longitudinal, single-centre analysis of all patients with PAH that started sotatercept treatment between January and December 2025. All patients fulfilled diagnostic and hemodynamic criteria as per 2022 ESC/ERS Guidelines for group 1 pulmonary hypertension. Baseline assessment included demographical and clinical data, NT-proBNP, echocardiography, and right heart catheterization. Sotatercept was administered subcutaneously every 3 weeks (starting dose 0.3 mg/kg, titrated to 0.7 mg/kg) in addition to previous background PAH therapy. Follow-up evaluations at 6 months included clinical, laboratory, and hemodynamic reassessment, as well as systematic safety monitoring for adverse events.
Results: Eight patients were included (75% female, mean age 46.5 ± 13.7 years). Etiologies consisted of connective tissue disease-associated PAH, idiopathic PAH, pulmonary veno-oclusive disease, and congenital heart

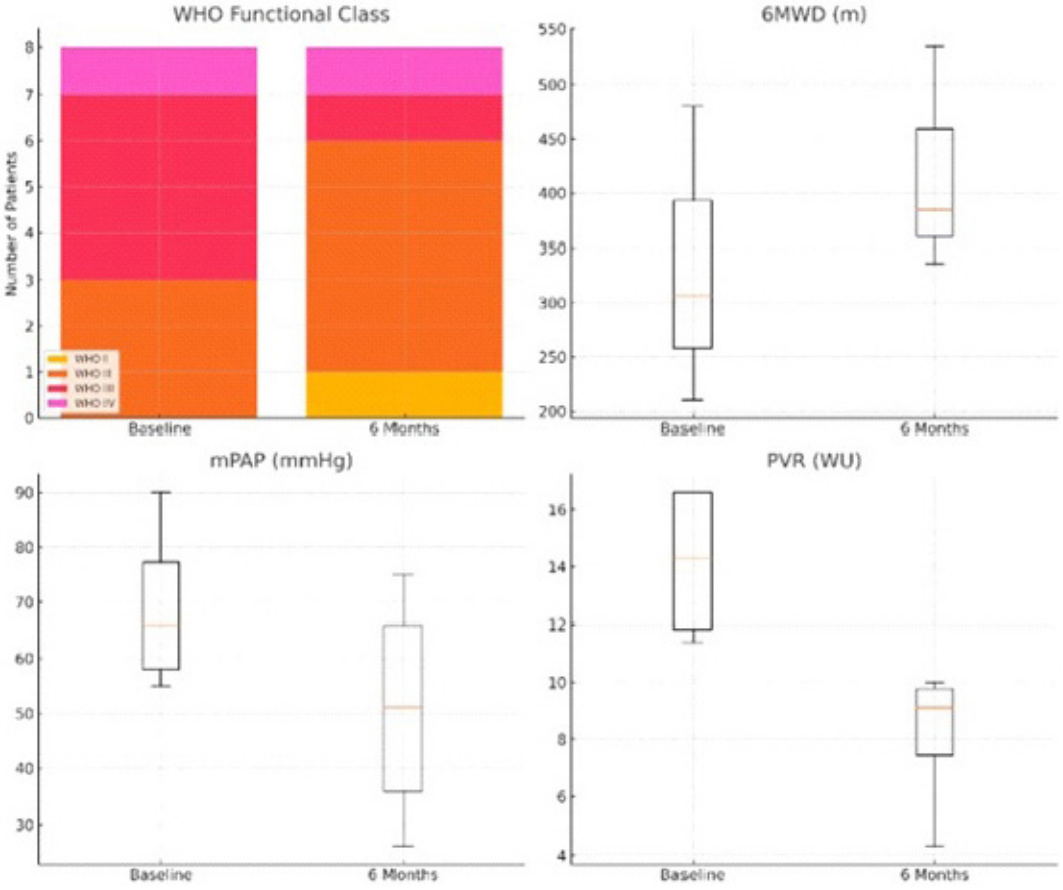

Figure PO 338

disease-associated PH. Disease duration averaged 7 years. At baseline, all patients were receiving an endothelin receptor antagonist (ERA), 7 were on PDE5 inhibitors, 5 on selexipag and 3 on prostacyclin analogues as background PAH therapy. Paired invasive hemodynamics were available in 4 patients. PVR decreased significantly from 14.2 to 8.1 Wood units (mean change -6.03 WU; 95%CI -10.38 to -1.67; p = 0.02). Mean pulmonary artery pressure declined from 69.3 ± 18.0 to 50.8 ± 22.3 mmHg (-18.5 mmHg; p = 0.12). Cardiac index increased from 2.64 to 3.03 L/min/m^2 (+0.39; p = 0.11). Functional outcomes also trended positively: 6MWD improved by 86 m (p = 0.18). WHO functional class improved in all patients that completed the 6-month follow-up evaluation (Figure). Echocardiographic follow-up data trended toward higher TAPSE and higher FAC. Sotatercept was well tolerated: Hemoglobin rose by 1.6 g/dL (p = 0.08). One patient reported minor epistaxis and another one developed mild pericardial effusion, with no severe adverse effects.

Conclusions: In this early real-world cohort, sotatercept effects on functional class, 6MWD, cardiac function, and hemodynamics mirrored those reported in trials. Hemoglobin increased as anticipated, and bleeding events were minor. These results align with trial evidence and support sotatercept use in clinical practice.

PO 339. DIAGNOSTIC ACCURACY OF THE TAPSE/PASP RATIO FOR RIGHT VENTRICULAR DYSFUNCTION IN PULMONARY HYPERTENSION

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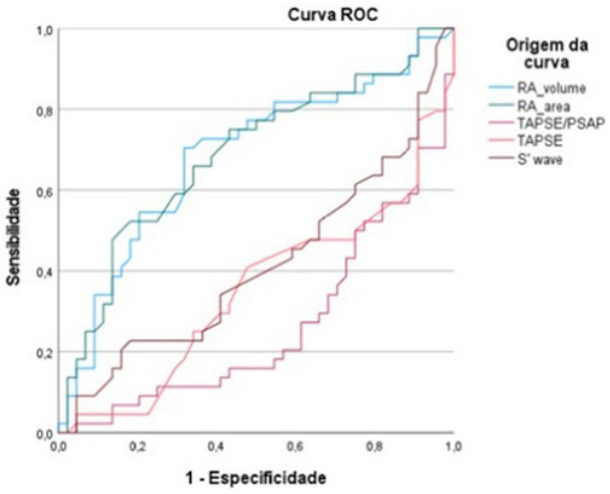
Introduction: Pulmonary hypertension (PH) is a complex and progressive condition characterized by elevated pulmonary arterial pressure, which often leads to right ventricular (RV) dysfunction and poor clinical outcomes. Early and accurate assessment of RV function is essential for the management and prognostication of patients with PH. Among various echocardiographic markers, the ratio of tricuspid annular plane systolic excursion to pulmonary artery systolic pressure (TAPSE/PASP) has emerged as a promising non-invasive measure of RV-pulmonary arterial coupling.

Objectives: This study aimed to evaluate the diagnostic accuracy of the TAPSE/PASP ratio in identifying RV dysfunction and to compare its performance with other conventional echocardiographic parameters.



Methods: This was a retrospective study including patients diagnosed with PH, defined as a mean pulmonary artery pressure (mPAP) > 20 mmHg on right heart catheterization (RHC), between August 2021 and May 2025. Demographic and echocardiographic data were collected. RV dysfunction was defined as a fractional area change (FAC) < 35%.

Results: A total of 141 patients were included, of whom 67% were female, with a mean age of 60 ± 16 years. Table 1 summarizes echocardiographic and hemodynamic data. RV dysfunction was present in 52% of patients and was associated with significantly lower TAPSE (18 vs. 21 mm, p < 0.001), lower lateral tricuspid annular systolic velocity (S' wave) (10.9 vs. 11.8 cm/s, p = 0.038), higher right atrial (RA) end-systolic volume (74 vs. 51 mL, p < 0.001), larger RA end-systolic area (22 vs. 19 cm^2, p = 0.009), elevated PASP (70 vs. 50 mmHg, p < 0.001), and a lower TAPSE/PASP ratio (0.3 vs. 0.5, p < 0.001).Regarding diagnostic accuracy, TAPSE/PASP showed a good diagnosis accuracy (1-AUC 0.736). Comparing to other parameters, this ratio showed higher accuracy than TPASE (1-AUC 0.648) or S' wave (1-AUC 0.587). Regarding RA parameters, TPASE/PASP showed superior accuracy than RA volume (AUC 0.683) or RA area (AUC 0.687).

Conclusions: Our study suggest that TAPSE/PASP ratio demonstrated superior diagnostic accuracy for detecting RV dysfunction compared to individual echocardiographic measures such as TAPSE, S' wave, RA volume, and RA area. These findings support the clinical utility of TAPSE/PASP as a reliable, non-invasive marker for assessing RV function in PH patients and underscore its potential role in routine echocardiographic evaluation.

PO 340. UNVEILING THE TRUE BURDEN OF HOSPITALIZATIONS IN PULMONARY ARTERIAL HYPERTENSION: A COMPREHENSIVE FOLLOW-UP ANALYSIS

Liliana Brochado, João Mirinha Luz, Filipa Ferreira, Paula Fazendas, Sofia Alegria, Ana Cláudia Vieira, Bárbara Ferreira, Débora Repolho, Hélder Pereira

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Introduction: Hospitalizations are frequent in pulmonary arterial hypertension (PAH) and carry major prognostic implications. Yet, most studies focus only on the first admission, potentially underestimating the cumulative clinical burden and its long-term impact.

Objectives: To comprehensively characterize all hospitalizations during long-term follow-up in a real-world PAH cohort, differentiating PAH-related from unrelated causes and assessing their prognostic significance.

Methods: We retrospectively analysed all consecutive patients with confirmed PAH followed at a tertiary Pulmonary Hypertension Unit. All hospital admissions during follow-up were systematically reviewed and classified as PAH-related or unrelated. Hospitalizations for maternal delivery were excluded. Baseline characteristics, aetiology, and survival data were collected. Mean follow-up was 8.2 ± 5.9 years.

Results: Eighty-two patients were included, most were female (69.5%). The predominant aetiologies were congenital heart disease (32.9%), idiopathic PAH (20.7%), connective tissue disease (17,1%), and HIV-associated PAH (14.6%). During follow-up, 85.4% of patients were hospitalized at least once and 80% had ≥ 2 admissions. PAH-related hospitalizations occurred in 70.7% of patients, mainly for acute right heart failure (63.8%), therapy escalation (11.8%), right heart catheterization (9.9%), initiation of intravenous therapy (8.7%), or central line procedures (5.8%). PAH-unrelated hospitalizations affected 45.1% of patients, driven by respiratory failure (30.4%), non-line-related infections (19.1%), pneumonia (17.1%), surgical procedures (12.3%), and gastrointestinal disorders (12.3%). Overall mortality reached 40.2%. The coexistence of an acute heart failure admission and any PAH-unrelated hospitalization independently predicted reduced 5-year survival (HR 1.6; 95%CI 1.2-2.9; p = 0.01).

Conclusions: Recurrent hospitalizations are almost universal in PAH, encompassing both cardiac and non-cardiac causes. PAH-unrelated admissions represent a major and often overlooked component of disease burden. Their occurrence, particularly when combined with cardiac decompensation, is associated with worse long-term survival. These findings highlight the need for an integrated, multidisciplinary strategy aimed at preventing both PAH-related and unrelated hospitalizations to improve prognosis and quality of life in this vulnerable population.

Domingo, 26 Abril de 2026 | 11:30-12:25

Área de Posters - Ecrã 3 | Sessão de Posters 58 - Otimizar os cuidados cardiovasculares: perspetivas de enfermagem e de técnicos de cardiopneumologia

PO 341. REAL-WORLD EARLY RISK RESPONSE TO UPFRONT PARENTERAL PROSTACYCLINS PULMONARY HYPERTENSION

Débora Repolho, Filipa Ferreira, Sofia Alegria, Otília Simões, Barbara Ferreira, Catarina Abreu, Silvia Vitorino, Paloma Ferreira, Hélder Pereira

ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Pulmonary hypertension (PH) is a progressive and life-threatening disease in which risk stratification is essential to guide therapy and assess prognosis. Validated multiparametric models such as REVEAL and ESC/ERS 2022 are now central to evaluating clinical evolution and treatment response. Guidelines recommend reassessment 3-4 months after treatment escalation or every 3-6 months in stable patients
Objectives: To evaluate changes in global risk profile from baseline to 6 months in patients starting upfront combination therapy including parenteral prostacyclin analogues, and to determine the proportion achieving low-risk status. A secondary aim was to assess agreement between validated risk scores.
Methods: Retrospective observational study including consecutive patients with confirmed pre-capillary PH who initiated upfront combination therapy incorporating parenteral prostacyclin (intravenous or subcutaneous). Clinical, laboratory, functional, echocardiographic and hemodynamic data were collected at baseline and 6 months. Baseline risk was assessed using REVEAL 2.0 (R2) and ESC/ERS 2022 (E/E); 6-month reassessment used REVEAL Lite 2 (RL) and COMPERA (C). Wilcoxon signed-rank and Spearman correlation were applied.
Results: Twelve patients were included (mean age 46 ± 14 years, 75% female). 66.7% had chronic thromboembolic PH and 33.3% had pulmonary arterial

Table 1. Clinical, laboratory, functional, echocardiographic and hemodynamic variables

Variables	Baseline n=12	At 6-month n=9	p value
WHO FC			
Class I	0 (0%)	5 (56.5%)	
Class II	0 (0%)	3 (33.3%)	
Class III	3 (25%)	1 (11.1%)	0.001
Class IV	9 (75%)	0 (0%)	
Systolic BP (mmHg)	100.0±34.1	115.3±6.1	0.343
Heart Rate (BPM)	90.2 ±7.3	88.7±7.3	0.477
6MWD (m)	110.0±135.7	442.7±95.2	0.004
NT-proBNP (ng/L)	3798.1±3850.9	358.2±288.6	0.008
RA area (cm^2)	25.2±3.4	19.8±3.9	0.125
TAPSE/sPAP (mm/mmHg)	0.13±0.03	0.35±0.15	0.022
Pericardial effusion (%)			
No	3 (25%)	8 (88.9%)	
Minimal	5 (41.7%)	1 (11.1%)	0.048
Moderate or large	4 (33.3%)	0 (0%)	
RAP (mmHg)	16.4±5.6	6.5±2.3	0.004
CI ($L/min/m^2$)	1.7±0.5	2.9±0.4	0.004
SVI (ml/m^2)	19.5±6.4	34.4±5.1	0.004
SvO_2 (%)	54.1±12.4	74.3±8.4	0.016
PVR (WU)	16.0±5.8	5.9±1,7	0.004

Continuous variables are presented as mean ± standard deviation. Categorical variables are presented as absolute frequencies, with percentages in parentheses. Abbreviations: 6MWD, 6-minute walking distance; BP, blood pressure; CI, cardiac index; NT-proBNP, N-terminal pro-brain natriuretic peptide;; RA, right atrium; RAP, right atrial pressure; sPAP, systolic pulmonary arterial pressure; SvO2, mixed venous oxygen saturation; SVI, stroke volume index; TAPSE, tricuspid annular plane systolic excursion; WHO-FC, World Health Organization functional class.

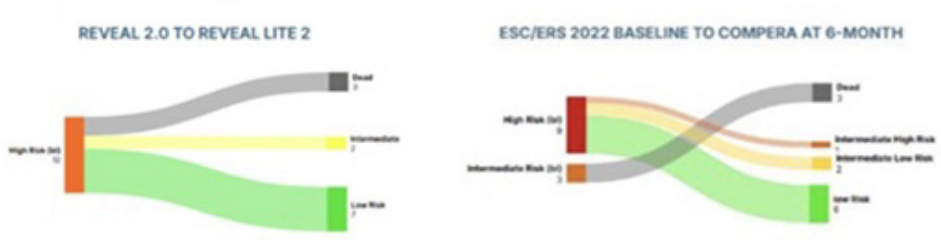

Figure 1. Flow of patients across risk categories from baseline to 6 months using REVEAL and ESC/ERS-derived scores.

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hypertension. Only one patient received upfront triple therapy. The remaining patients started dual therapy targeting the nitric oxide pathway. Parenteral prostanoid therapy consisted mainly of epoprostenol (91.6%), with one patient treated with treprostinil (8,4%). At baseline, 75% were in WHO Functional Class IV. Detailed clinical, laboratory, functional, echocardiographic and hemodynamic evolution is presented in supplementary table. Baseline risk assessment showed a mean R2 score of 12.0 ± 1.7 and a mean E/E score of 2.5 ± 0.1. Three patients died in the first 6 months (mortality of 25%): one from right ventricular failure. Among the remaining nine survivors, 6-month risk reassessment showed substantial improvement, with a mean RL score of 3.3 ± 2.0, and a mean C score of 1.2 ± 0.1. All survivors showed a reduction in risk category with 77.7% achieving a low-risk status (RL score). Correlation between R2 and E/E scores was strong at baseline ($\rho = 0.746$, $p = 0.005$) and remained strong at 6months when comparing RL with C ($\rho = 0.797$, $p = 0.010$). Changes in individual patient risk status are illustrated in the Sankey diagram (Figure 1).
Conclusions: Our study demonstrates that upfront combination therapy including parenteral prostanoids resulted in marked early clinical improvement, with 77.7% of survivors achieving low-risk status at 6 months. Strong agreement between validated risk scores was observed at baseline and maintained during follow-up, supporting their complementary use in risk-guided management.

PO 342. PRE-TAVI NURSING CONSULTATION AS A STRATEGY TO IMPROVE POST-PROCEDURAL OUTCOMES

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ULS Almada-Seixal/Hospital Garcia de Orta.

Introduction: Transcatheter aortic valve implantation (TAVI) is an established therapeutic option for patients with severe aortic stenosis, particularly older adults and those with high surgical risk. Pre-procedural preparation is crucial to reducing complications and optimizing clinical outcomes, with the nursing consultation representing a key component of this process. Evidence indicates that structured nursing interventions enhance patient safety, improve therapeutic adherence, and promote functional recovery following cardiovascular procedures.
Objectives: To relate the importance of the pre-TAVI nursing consultation to the clinical evolution data recorded during follow-up (1 week and 1 month), emphasizing the potential health gains for the patient.
Methods: A descriptive analysis was performed using follow-up data from the post-TAVI monitoring table, including symptoms, vital signs, reported complications, functional changes, and subjective perceptions of well-being. These data were interpreted in accordance with international guidelines for cardiovascular nursing best practices.
Results: The records show relevant post-procedural changes, including falls, gait difficulties, lower-limb edema, residual dyspnea, and uncertainties related to self-care. In parallel, many patients reported improved dyspnea, reduced fatigue, and progressive functional recovery. The absence of a structured pre-TAVI clinical baseline limits objective comparison of the observed changes, underscoring the need for pre-procedural assessment. Evidence supports that the nursing consultation can identify vulnerabilities in advance, guide preventive strategies, strengthen health literacy, and improve symptom management, thereby reducing the risk of early complications.
Conclusions: The pre-TAVI nursing consultation is an essential intervention for maximizing health gains. By providing holistic assessment, therapeutic education, and individualized planning, the consultation enhances patient safety, reduces complications, improves autonomy, supports functional recovery, and contributes to better clinical and patient-reported outcomes. Systematic integration of this practice is strongly recommended to improve the overall quality of the patient's care pathway.

PO 343. ACOMPANHAMENTO REMOTO DA PESSOA COM ENFARTE AGUDO DO MIOCÁRDIO COM ALTA HOSPITALAR: UMA SCOPING REVIEW

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ULS Coimbra/Hospitais da Universidade de Coimbra.

Introdução: As doenças cardiovasculares são a principal causa de morte a nível mundial e em Portugal responsáveis por 25,6% das perdas humanas. O enfarte agudo do miocárdio está nos lugares cimeiros de mortalidade atribuída a estas doenças. Ainda que o evento clínico represente um processo abrupto na vida da pessoa, esta experiencia um processo de cronicidade. Importa, pois, que ao longo da estadia hospitalar, se desenvolva um processo educacional estruturado dirigido à pessoa e familiares de referência. Adicionalmente, têm sido desenvolvidos programas de intervenção de acompanhamento após a alta hospitalar, mediados por via telefónica ou videoconferência.
Objetivos: Mapear programas de intervenção de acompanhamento contínuo mediados por teleconsulta à pessoa com enfarte agudo do miocárdio com alta hospitalar.
Métodos: Elaborou-se uma *scoping review*, de acordo com a metodologia proposta pelo JBI. Foram incluídos estudos que: integram indivíduos adultos, com diagnóstico de enfarte agudo do miocárdio com ou sem supradesnivelamento do segmento ST, com indicação de alta hospitalar; e abordam programas de intervenção de acompanhamento contínuo, mediados por via telefónica ou videoconferência.
Resultados: Foram identificados 276 estudos nas bases de dados Scielo, LILACS, MEDLINE, CINAHL Complete, Cochrane Database of Systematic Reviews e MedicLatina. Após a exclusão de estudos repetidos, leitura dos títulos e resumos e leitura integral dos estudos, foram incluídos na revisão um total de 29 estudos.
Conclusões: Com exceção de 1 estudo, todos se realizaram a partir do contexto hospitalar. Existiu parceria com os cuidados de saúde primários e/ou comunitários em 3. Os domínios presentes na intervenção dirigida à pessoa com enfarte agudo do miocárdio são o controlo dos fatores de risco cardiovascular, a promoção do estilo de vida saudável e a qualidade de vida. Na maioria dos estudos (24), o enfermeiro é referido de modo isolado ou em articulação com outros profissionais na realização de intervenções após a alta hospitalar. No acompanhamento remoto, o recurso ao telefone é utilizado preferencialmente (28 estudos), ainda que, por vezes, complementado com consultas presenciais ou visitas domiciliárias. O acompanhamento da pessoa com enfarte agudo do miocárdio após a alta hospitalar melhora significativamente os níveis de adesão medicamentosa, dietética e exercício físico. Acresce a sua influência na cessação tabágica, na melhoria da qualidade de vida e na redução de readmissões hospitalares.

PO 344. EXERCISE TRAINING IN ACUTE HEART FAILURE: DEVELOPMENT OF COMPETENCIES OF THE SPECIALIST NURSE IN REHABILITATION NURSING

Pedro Guerra[1], Inês Rocha[2], José Miguel Padilha[2]

[1]ULS São João/Hospital São João. [2]Escola Superior de Enfermagem do Porto.

Acute heart failure (AHF) is a major cause of hospitalisation in adults over 65 years of age, being associated with high morbidity, functional dependence, and risk of relapse. Evidence supports the early integration of cardiac rehabilitation, highlighting exercise training as a safe and effective intervention. In this context, the Specialist Nurse in Rehabilitation Nursing (SERN) plays a central role, although difficulties in standardisation and some resistance to its implementation persist. This project aimed to develop competencies among SERN for the planning and delivery of exercise training in individuals with AHF. Conducted in the Cardiology Department of a local health unit in northern Portugal, it followed a Quality Improvement Project methodology, supported by an integrative literature review. For the baseline assessment, a knowledge questionnaire was administered to all SERN in the unit, covering five domains: AHF pathophysiology and symptomatology; cardiac rehabilitation; exercise planning (FITT-VP); safety criteria; and discharge planning. Based on the identified needs, a training session was implemented, after which the questionnaire was reapplied to assess changes in knowledge. An overall improvement in knowledge was observed, most notably in exercise planning (mean increase of 18.57%), followed by AHF pathophysiology/symptomatology and the fundamentals of cardiac rehabilitation (both +10%). Safety criteria showed a gain of 3.3%, while discharge planning demonstrated a slight decrease. These results reflect

effective gains in the technical-scientific knowledge required for the safe and individualised delivery of exercise training during the acute phase. The intervention achieved the proposed objectives, strengthening clinical decision-making and the safety of rehabilitation practices. Despite limitations such as the small sample size and the density of the content addressed, the methodology used shows potential for adaptation and replication in other specialised care contexts, emphasising the importance of continuous training and scientific updating in Rehabilitation Nursing, particularly when caring for individuals with AHF.

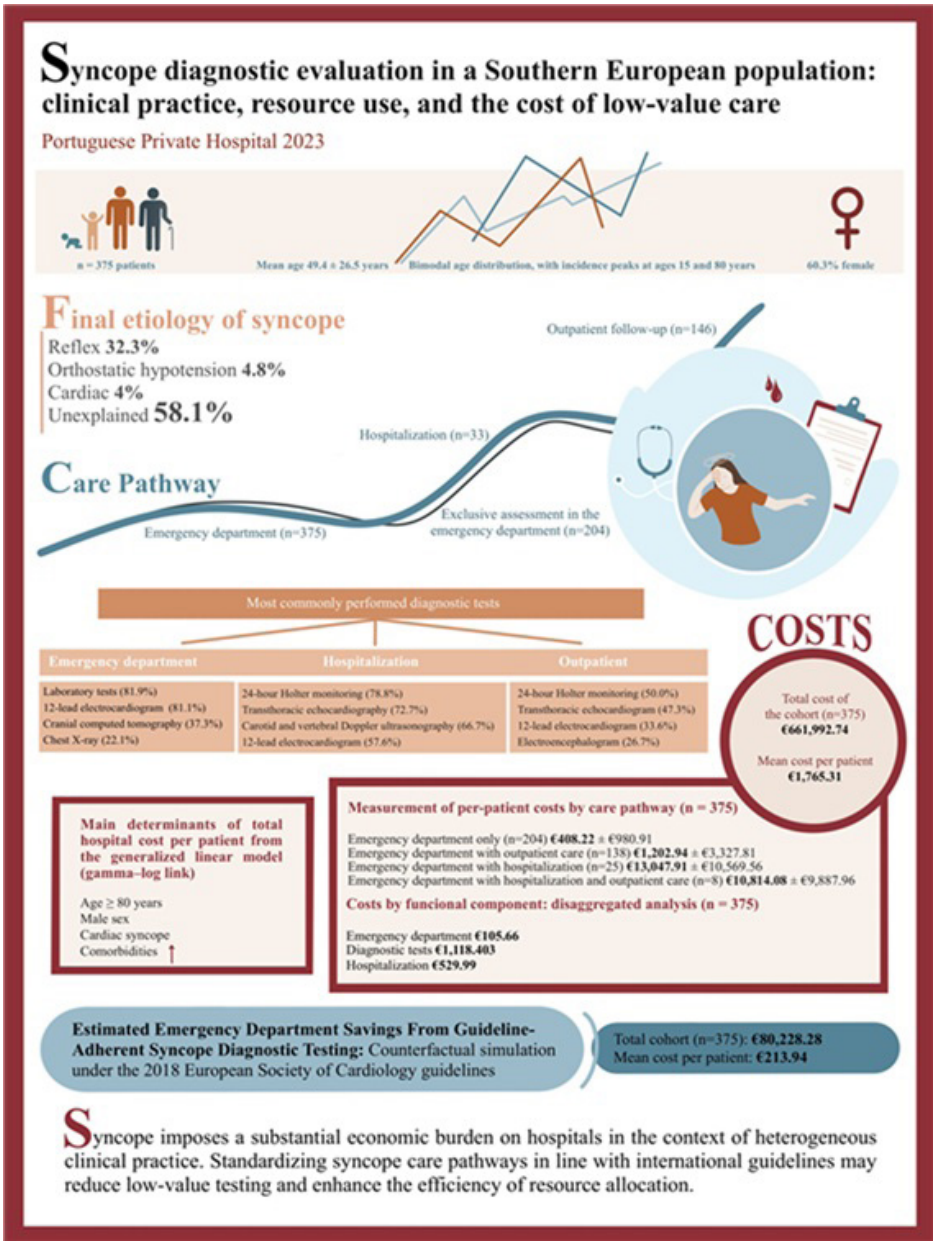
PO 345. SYNCOPE DIAGNOSTIC EVALUATION IN A SOUTHERN EUROPEAN POPULATION: CLINICAL PRACTICE, RESOURCE USE, AND THE COST OF LOW-VALUE CARE

Cristiana Almeida[1], Mário M. Oliveira[1], Sérgio Laranjo[1], Julian Perelman[2]

[1]Hospital CUF Tejo. [2]Escola Nacional de Saúde Pública, Universidade NOVA de Lisboa.

Introduction and objectives: Syncope is a common reason for emergency department (ED) visits, characterized by heterogeneous clinical practice and a substantial economic impact. In Portugal, research on costs using real-world data remains limited. To the best of our knowledge, no studies have been published to date in the private sector. The primary objective of this study was to quantify direct hospital costs per patient associated with the evaluation of syncope. Secondary aims were to characterize the patterns of resource utilization, determine the cost structure by care pathway and functional component, and identify determinants of total per-patient cost. Additionally, we estimated potential emergency department cost savings resulting from adherence to the 2018 European Society of Cardiology syncope guidelines.

Methods and results: We conducted an observational, retrospective cohort study at a private hospital in Lisbon, Portugal, from 1 January to 31 December 2023, including pediatric (< 18 years) and adult (≥ 18 years) patients with a principal ED diagnosis of syncope (ICD-9-CM 780.2/992.1). Direct costs were assessed by micro-costing (bottom-up approach) from the hospital perspective (base year 2023), with patient-level analysis. Total per-patient cost was modeled using a generalized linear model as a function of



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age, sex, etiology, and total number of comorbidities. ED savings were estimated via counterfactual simulation independently by two specialist physicians. We analyzed 375 patients (mean age 49.4 ± 26.5 years; bimodal age distribution peaking at 15 and 80 years; 60.3% female). Etiology was defined in 41.1% of the cohort, with reflex syncope predominating (32.3%), whereas 58.1% remained unexplained. Aggregate total cost was €661,992.74, and mean cost was €1,765.31 ± €4,995.96 per patient. Costs ranged from €408 per patient for emergency department-only management to €13,048 for episodes requiring hospitalization. In the cost breakdown, diagnostic testing accounted for 63.3% of total cost. In multivariable analysis, age ≥ 80 years, male sex, higher comorbidity burden and cardiac etiology were associated with significantly higher hospital costs. Potential ED savings were €80,228.28, corresponding to a mean of €213.94 ± €411.09 per patient.
Conclusions: Syncope represents a significant hospital economic burden in a context of heterogeneous management. Standardization of clinical processes, aligned with international guidelines, may support a more parsimonious use of diagnostic tests and improve the efficiency of resource allocation.

PO 346. FAST ITALIAN VERSUS FRONT-LOADED TILT PROTOCOLS IN UNEXPLAINED SYNCOPE: A SINGLE-CENTRE RETROSPECTIVE COMPARISON

Helena Fonseca, Raquel Moreira, Sara Laginha, Rita Contins, Cátia Guerra, Hélder Santos, Ana Lousinha, Sérgio Laranjo, Mário Oliveira

ULS São José/Hospital de Santa Marta.

Introduction: Head-up tilt testing (HUTT) remains the cornerstone of vasovagal syncope diagnosis, yet the optimal protocol balancing diagnostic yield, patient comfort, and laboratory efficiency is still debated. Accelerated protocols–namely the Fast Italian (FI) and Front-Loaded (FL)–have emerged as practical alternatives to the traditional Westminster protocol. However, direct comparative data are scarce, limiting evidence-based protocol selection.
Objectives: To compare the diagnostic yield and haemodynamic phenotype distribution of the FI and FL tilt protocols in patients referred for unexplained syncope, and to characterise the demographic profile and additional autonomic findings associated with each approach.
Methods: We performed a retrospective analysis of 234 consecutive patients undergoing HUTT for unexplained syncope over a 12-month period (FI n = 116; FL n = 118). Protocol assignment was determined by temporal period. Demographic data, tilt outcomes (classified according to the modified VASIS classification), and additional autonomic findings–including orthostatic hypotension (OH) and dysautonomia–were extracted from standardised medical records. Group comparisons employed chi-square tests for categorical variables and independent-samples t-tests for continuous variables, with statistical significance set at $p < 0.05$.
Results: The FI cohort was significantly older (64.9 ± 20.3 vs. 48.9 ± 21.2 years; $p < 0.001$) and comprised a higher proportion of males (69.8% vs. 54.2%; $p = 0.020$) compared with the FL group. Despite these demographic differences, overall positivity rates did not differ significantly between protocols (FI 74.1% vs. FL 67.8%; $p = 0.36$). The distribution of vasovagal subtypes among positive tests did not differ significantly between protocols ($p = 0.052$), although a numerical trend towards more Type 3 (vasodepressor) responses was observed in the FI group (35.3% vs. 21.2%; $p = 0.058$, Fisher's exact test). Notably, orthostatic hypotension (15 cases: 10 classical OH, 5 initial OH) and dysautonomia (1 case) were identified exclusively in the FI cohort, reflecting the structural absence of a passive standing phase in the FL protocol.
Conclusions: Both accelerated tilt protocols achieved comparable overall diagnostic yields for vasovagal syncope, though direct comparison is limited by significant baseline demographic differences between cohorts. The FL protocol offers shorter procedure duration but inherently cannot detect orthostatic hypotension or other passive-phase abnormalities due to the omission of the initial supine-to-standing transition. Protocol selection should therefore be guided not only by logistical considerations but also by the pre-test clinical suspicion for orthostatic intolerance. Prospective studies with matched populations are warranted to validate these findings and refine protocol selection criteria.

Revista Portuguesa de Cardiologia 45 (2026) S280-S293

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Revista Portuguesa de Cardiologia 45 (2026) S294-S296

SPC
SOCIEDADE PORTUGUESA DE CARDIOLOGIA

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

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SPC SOCIEDADE PORTUGUESA DE CARDIOLOGIA

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

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Revista Portuguesa de Cardiologia 45 (2026) S320-S330

SPC SOCIEDADE PORTUGUESA DE CARDIOLOGIA

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

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