higher EDV (167 ± 46 vs. 131 [117-160] mL, p = 0.002). Overall, 101 (87%) met at least one LVRR criterion (Figure 1A). The most common criterion was a reduction in LVMi (65%, n = 75). The number of LVRR criterion did not differ according to RVL cut-off (p = 0.957). LV remodeling criteria did not differ according to preoperative RVL except for higher prevalence of EDV regression in patients with lower RVL (45 vs. 43%, p = 0.030). At a mean follow-up of 41 ± 17months, the primary endpoint occurred in 28 patients (24%, which included 4 deaths), with RVL cut-off showing no predictive value for survival or HF hospitalization (log-rank p = 0.840) (Figure 1B).
Conclusions: In a cohort of patients with classical severe symptomatic AS referred for surgery, distinct pre-operative RVL was unrelated to LVRR and did not predict the outcome after intervention. This index may be expected to be of value in patients with low-gradient/paradoxical severe AS.

PO 263. ACCURACY OF COMPUTED TOMOGRAPHY ANGIOGRAPHY FOR THE EXCLUSION OF CORONARY ARTERY DISEASE BEFORE TRANSCATHETER AORTIC VALVE IMPLANTATION

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Introduction: Evaluation for coronary artery disease (CAD) is recommended before transcatheter aortic valve replacement (TAVR). In most cases, this is done with invasive coronary angiography (ICA). Current practice guidelines recommend screening to rule out significant proximal lesions. Computed tomography angiography (CTA) is currently used in the preprocedure planning of TAVR.
Objectives: This study sought to investigate the efficacy of CTA imaging in assessing the proximal coronary arteries, and the feasibility of its use as a screening tool for significant CAD before TAVR.
Methods: We retrospectively analyzed patients referred for TAVR in a single center. Patients with a preprocedure CTA, preprocedure ICA, and without prior proximal percutaneous intervention (PCI) were included in the study. Patients with poor CTA image quality precluding interpretation were excluded. The proximal segment of the coronary arteries was analyzed by CTA to assess for nonsignificant stenosis (0% to 49%), moderate stenosis (50% to 69%), and severe stenosis (≥ 70%). Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), positive likelihood ratio (LR), negative LR, and Cohen Kappa statistic were analyzed.
Results: A total of 126 patients were included in the analysis: median age was 82 years (IQR 7), and 48% (n = 60) of patients were male. The overall prevalence of significant proximal CAD was 9.5%. CTA evaluation revealed a sensitivity of 75%, specificity of 96%, PPV of 24%, NPV of 100%, positive LR of 19.0 (95%CI 10.5-24.4), and negative LR of 0.26 (95%CI 0.08-0.86) for detecting ≥ 50% stenosis (Table 1). Using a ≥ 70% stenosis cutoff, the evaluation revealed a sensitivity of 80%, specificity of 99%, PPV of 51%, NPV of 100%, positive LR of 128.8 (95%CI 38.4-432.0), and negative LR of 0.20 (95%CI 0.03-1.16) (Table 2). Cohen Kappa analysis indicated a fair agreement between pre-TAVR CTA and ICA (Cohen k-test 0.35, p < 0.001).
Conclusions: Pre-TAVR CTA is a useful tool in the screening for significant proximal CAD before TAVR and, due to its high negative predictive value, could spare patients the need for additional invasive testing before the procedure.

PO 264. TOTAL FIBROCALCIFIC BURDEN OF THE AORTIC VALVE IN PATIENTS WITH AORTIC STENOSIS – ASSESSMENT BY A NEW CT METHOD AND COMPARATIVE PERFORMANCE WITH CALCIUM SCORING

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Introduction: Calcium scoring of the aortic valve (VCaS) is a useful tool for assessing severity of aortic stenosis (AS), but focuses solely on the calcific component, overlooking the contribution of fibrosis. Recently, a novel method for quantifying both fibrosis and calcification of the aortic valve in contrast-enhanced CT has been developed and validated histologically. This study aimed to characterize the fibrocalcific burden of the aortic valves of patients with AS undergoing cardiac CT and compare its discriminative value with VCaS.
Methods: This single center retrospective study included patients with isolated degenerative AS with normal flow conditions on transthoracic echocardiogram (performed within 6 months) who underwent cardiac CT for the workup of known or suspected severe AS. Fibrotic volume, calcific volume and fibrocalcific volume (FCV) were calculated on CT images according to the new methodology, using Gaussian-mixture-modeling to derive scan-specific thresholds for calcific and fibrotic tissue.
Results: A total of 246 patients were included (mean age 81 ± 7 years; 64% female). Overall, 198 patients had severe aortic AS and 48 had moderate AS. Population characteristics are described in Table 1. FCV and fibrotic volume showed poor correlation with mean gradient (rho = 0.280, p < 0.001; rho = 0.125, p = 0.051, respectively). Median FCV was higher in patients with severe AS than in those with moderate AS (2,616 vs. 2,037 mm^3; p = 0.025). This difference was mainly due to increased calcium content (714 vs.

Table 1 Diagnostic Performance of CTA in Detecting ≥50% Occlusion

	n	TP	TN	FP	FN	Sensivity	Specificity	PPV	NPV
Left main	126		119	3			98	0	100
Left anterior descending	126	2	110	10		100	92	16	100
Left circumflex	126	1	117	3	1	50	98	25	99
Right coronary	126	3	115	3	1	75	98	50	**99**
All vessels	488	6	461	19	2	75	96	24	100

Table 2 Diagnostic Performance of CTA in Detecting ≥70% Occlusion

	n	TP	TN	FP	FN	Sensivity	Specificity	PPV	NPV
Left main	126		122				100		100
Left anterior descending	126	1	119	2		100	98	50	100
Left circumflex	126	1	121			100	100	100	100
Right coronary	126	2	118	1	1	67	99	67	**99**
All vessels	488	3	480	3	1	80	99	51	100

Footnote: CTA - computed tomography angiography, FP - false positive, FN - false negative, NPV - negative predictive value, TP - true positive, TN - true negative, PPV - positive predictive value.

Figure PO 263

Figure 1. Aortic valve contouring and and colour pattern according UH (fibrosis in yellow; calcium in blue). A (1,2) corresponds to a valve with increased fibrotic content, as opposed to B (1,2), that corresponds to an increased calcific volume.

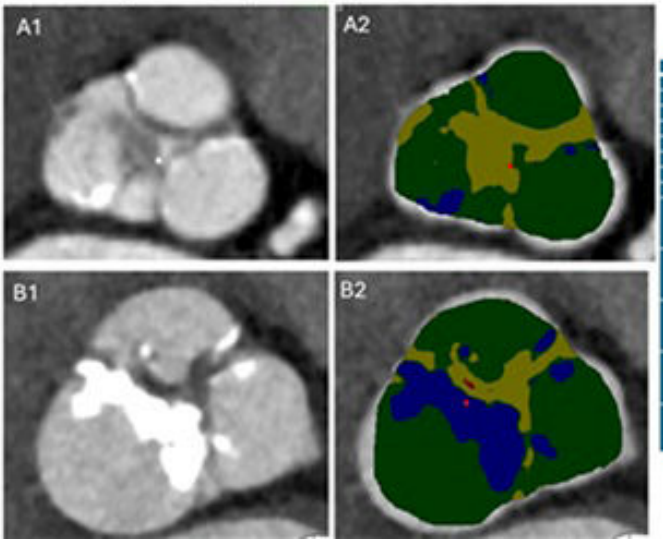

Table 1. Demographic, echocardiographic and CT characteristics

Age	82 ± 7	80 ± 8	0.073
Male	84 (42%)	17 (35%)	0.293
Hypertension	179 (90%)	44 (92%)	0.489
Chronic Kidney disease	48 (24%)	3 (6%)	0.007
Coronary artery disease	72 (36%)	15 (31%)	0.567
Maximum velocity (m/s)	4.55 (IQR 4.25 – 4.90)	3.55 (IQR 3.23 – 3.76)	< 0.001
Mean gradient (mmHg)	52 (IQR 46 – 61)	31 (IQR 25 – 35)	< 0.001
Aortic valve area (cm²)	0.72 (IQR 0.60- 0.85)	1.10 (IQR 1.04 – 1.23)	< 0.001
Valvular Calcium Score (UH)	2672 (IQR 1717 – 3691)	1385 (IQR 1060 – 1648)	< 0.001
Male	3545 (IQR 2225 – 4525)	1718 (1372 -3361)	< 0.001
Female	2104 (IQR 1604 – 2756)	1250 (1030 – 1625)	< 0.001
Calcific volume (mm3)	714 (IQR 450 – 1210)	420 (IQR 241 – 676)	0.021
Male	1100 (IQR 800 – 1633)	534 (IQR 348 – 1392)	0.047
Female	520 (IQR 378 – 882)	385 (IQR 153 – 595)	0.173
Fibrotic volume (mm3)	1830 (IQR 1350 – 2340)	1310 (IQR 800 – 2340)	0.126
Male	1955 (IQR 1610 – 2640)	1955 (IQR 1610 – 2640)	0.795
Female	1705 (IQRs 1267 - 2125)	1270 (IQR 670 – 2070)	0.278
Fibrocalcific Volume (mm3)	2614 (IQR 2007 – 3048)	2537 (IQR 1340 – 2870)	0.025
Male	3250 (IQR 2460 – 4128)	2667 (IQR 1788 – 3257)	0.173
Female	2393 (IQR 1780 -2806)	1823 (IQR 1057 – 2505)	0.241
Fibrocalcific Ratio	2.22 (IQR .47 – 3.98)	3.77 (IQR 1.67 -7.17)	0.021
Male	1.69 (IQR 1.14 -2.85)	3.53 (IQR 0.96 – 6.90)	0.173
Female	3.00 (IQR 1.86 – 4.85)	3.77 (IQR 2.02 – 7.31)	0.393

Figure PO 264

420 mm³; p = 0.021), as there were no differences in fibrotic content between groups (1,830 vs. 1,310; p = 0.126). Total fibrotic volume was not different between genders, but the fibrocalcific ratio (fibrous/calcific volume) was higher in females with severe AS (p < 0.001). FCV showed a C-statistic of 0.65 (95%CI 0.56-0.75; p = 0.001) for prediction of severe AS. However, VCaS remained superior to FCV in predicting severe AS (C-statistic 0.79 (95%CI 0.71-0.86, p < 0.001), p < 0.001 for comparison between the two. The discriminative power of VCaS remained superior to FCV in both men and women. Results remained similar when FCV or its individual components were indexed to the patient's aortic annulus dimensions. A small group of patients (n = 17) underwent a second CT during follow-up (median interscan time 917 days, IQR 475-1,595). An increase in both fibrosis and calcium was noted, with a significant rise in total fibrocalcific content over time (p = 0.045).

Conclusions: The fibrous and calcific components of the aortic valve differ significantly between patients, vary by sex, and evolve over time. However, the quantification of total fibrocalcific volume did not outperform calcium score in identifying severe AS. Further studies in larger cohorts are warranted to explore the clinical relevance of fibrosis quantification, particularly in female patients.

PO 265. PROGNOSTIC VALUE OF CARDIAC COMPUTED TOMOGRAPHY PARAMETERS TO PREDICT PRE-INTERVENTION OUTCOMES IN PATIENTS WITH SEVERE AORTIC STENOSIS

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ULSR Leiria.

Introduction: Severe aortic stenosis (SAS) prevalence is progressively increasing and transcatheter aortic valve implantation (TAVI) is the preferred treatment option for older patients (pts). However, it is not always readily available, and pts face prolonged waiting periods. Identifying predictors of clinical decompensation during this period may help optimize patient management.

Objectives: To assess the predictive value of cardiac computed tomography (CCT) parameters for pre-intervention outcomes in pts awaiting TAVI.

Methods: Retrospective cohort study of SAS pts who consecutively underwent pre-TAVI CCT (June 2022-September 2024). Demographic data,

	Total (n=189)	Group 1 (n= 47)	Group 2 (n=142)	p-value
Male sex (n, %)	98 (52%)	25 (53)	73 (51)	0,832 (a)
Age at time of exam (years) – mean ± SD	81 ± 5 years	82 ± 5 years	81 ± 5 years	0,300 (c)
Past medical history				
Overweight/Obesity (%)	138 (73%)	37 (79)	101 (71)	0,309 (a)
Body mass index (kg/m2) – mean ± SD	28 ± 5	29 ± 5	28 ± 5	0,647 (c)
Diabetes Mellitus (%)	**73 (39%)**	**24 (51)**	**49 (35)**	**0,043 (a)**
Dyslipidemia (%)	136 (72%)	31 (66)	105 (74)	0,291 (a)
Hypertension (%)	155 (82%)	41 (87)	114 (80)	0,282 (a)
History of smoking (%)	22 (12%)	1 (2)	21 (15)	0,019 (a)
Atrial Fibrillation/Atrial Flutter (%)	***57 (30)***	***23 (49)***	***34 (24)***	***0,001 (a)***
History of cancer (%)	*20 (11)*	*3 (6)*	*17 (12)*	*0,413 (b)*
Chronic kidney disease (CKD) (%)	*19 (10)*	*6 (13)*	*13 (9)*	*0,575 (b)*
Symptoms				
Heart failure (%)	***140 (74)***	**41 (87)**	**99 (71)**	**0,028 (a)**
New York Heart Association class III-IV (%)	***50 (27)***	**19 (40)**	**31 (23)**	**0,017 (a)**
Fatigue (%)	***157 (83)***	**45 (96)**	**112 (81)**	**0,016 (a)**
Exertional angina (%)	***27 (14)***	**11 (23)**	**16 (12)**	**0,048 (a)**
Cardiac Computed Tomography parameters				
Left ventricular Ejection Fraction (%) – mean ± SD	**63±11**	**58±11**	**64±10**	**0,028 (c)**

Variables	OR	CI 95%	p-value
Atrial Fibrillation/Atrial Flutter (%)	**4.64**	1.7-12.9	0,003
CCT-estimated LVEF	**0.949**	0.906-0.994	0,028

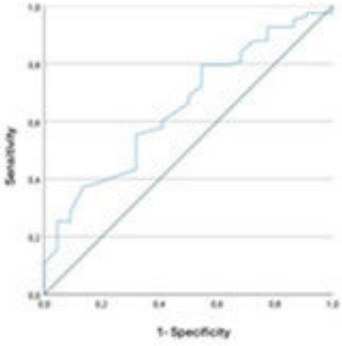

Fig. 1 – Baseline characteristics, multivariate logistic regression and receiver operating characteristics curve analysis (a – chi-square test; b- Fisher's exact test; c- T-student test)

Figure PO 265

clinical characteristics, transthoracic echocardiography (TTE), and CCT parameters were collected. Pts were followed from the date of the CCT until aortic valve replacement, death, or December 1, 2024, whichever occurred first (median follow-up: 8 months). Our pre-intervention endpoint was a composite of cardiovascular (CV) hospitalization - including heart failure (HF) admissions - all-cause mortality, and major adverse cardiovascular events (MACE), defined as CV mortality, non-fatal acute myocardial infarction (AMI), or non-fatal stroke. Patients with pre-intervention outcomes (group 1) were compared to those without (group 2).

Results: Overall, 189 pts underwent pre-TAVI CCT (98 males (52%); mean age 81 ± 5 years). During the study, 79 pts (42%) underwent intervention (median time CCT-TAVI: 9 [4-14] months), while 7 were deemed unfit or declined intervention. Our pre-intervention endpoint occurred in 47 pts (25%) (group 1) with the following distribution: CV hospitalization (n = 35), HF hospitalization (n = 21), MACE (n = 9 - non-fatal strokes [n = 4], non-fatal AMIs [n = 1], CV death [n = 8]) and all-cause mortality (n = 20). Group 1 pts were more likely to have diabetes (51 vs. 35%, p = 0.043), atrial fibrillation (AF) (49 vs. 24%, p = 0.001) and pacemaker implantation (26 vs. 6%, p < 0.001). While most CCT parameters were similar, Group 1 had a lower estimated left ventricular ejection fraction (LVEF) (58 ± 11 vs. 64 ± 10%, p = 0.028). Clinically, Group 1 had higher HF incidence (87 vs. 71%, p = 0.028) and NYHA Class III-IV (40 vs. 23%, p = 0.017). Multivariate logistic regression identified AF (OR 4.64, CI 1.7-12.9, p = 0.003) and CCT-estimated LVEF (OR 0.949, CI 0.906-0.994, p = 0.028) as independent predictors of our outcome. Receiver operating characteristic (ROC) analysis determined an optimal LVEF cutoff of 56.5%, which predicted the outcome with 80% sensitivity and 46% specificity (AUC 0.65, 95%CI 0.528-0.775) (Figure 1).

Conclusions: In our study, the incidence of adverse outcomes, namely CV hospitalization, was high in SAS pt awaiting TAVI, with median time from CCT to intervention of almost a year. Lower CCT-estimated LVEF (cutoff value of 56.5%) was a predictor of pre-intervention outcomes, with modest discriminative performance.

PO 266. AORTIC CALCIUM SCORE AND TAVR: INSIGHTS INTO PROCEDURAL COMPLICATIONS AND DEVICE SELECTION

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Introduction: The aortic calcium score (aCS) is a non-invasive diagnostic tool that offers crucial insights into the severity of aortic stenosis (AS). However, it is still underused in the transcatheter aortic valve replacement (TAVR) risk stratification and procedural planning.

Objectives: To evaluate the association of aCS to TAVR procedural complications and post-procedural outcomes.

Methods: Single-center prospective study of consecutive patients (pts) submitted to TAVR that had aCS measured on a pre-procedure computed tomography (CT). Demographic, echocardiography and procedural data were collected at baseline. Echocardiographic evaluation was performed the day after the procedure and at one year follow-up. Descriptive and comparative statistical analyses were employed.

Results: We included 187 pts, 54.5% female, with a median age of 83 years old. Hypertension (89.9%), dyslipidemia (75.4%), diabetes (35.8%) and chronic kidney disease (28.9%) were the main co-morbidities. The median aCS was 1235 Agatston Units (AU). Mild to moderate aortic leak was present in final procedure aortography in 48.5% of pts, while it was classified as trace to mild in 70% and moderate in 3.7% by echocardiography. There was an association between higher aCS and the need for TAVR post-dilatation (p = 0.001) and higher degrees of aortic leak assessed in final aortography (p = 0.004). An aCS cutoff of 5213AU demonstrated substantial sensitivity and specificity in predicting immediate post-deployment aortic leaks (sensitivity 71%; specificity 86%; AUC 0.811 (Figure 1). There was also an association between aCS and more than mild prosthetic leak (p = 0.005) at echocardiographic assessment at day 1 after TAVR, as well as higher maximum and mean transaortic gradients (p = 0.005 and p < 0.001, respectively). Regarding the aortic prosthetic implanted, supra-annular aortic valves were associated with more significant leaks both by aortography (p < 0.001) and echocardiographic (p = 0.083) assessment. At echocardiogram, the decrease in maximum and mean transaortic gradients was higher when supra-annular TAVR devices were used (p = 0.010 and p = 0.017, respectively). The use of supra-annular devices was an independently predictor of leak (p = 0.002).

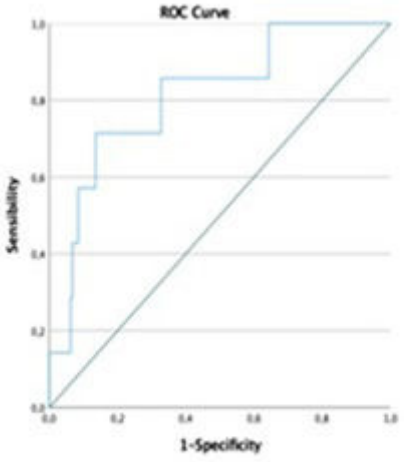

Figure 1: Sensibility and specificity of aortic calcium score in predicting aortic valvular leak

Conclusions: Our study showed that higher aCS correlated with the need for TAVR device post-dilation and the occurrence of peri-device leaks. Our findings suggest that, in patients with high aCS, supra-annular devices result in higher prevalence of leak that is not prevented by higher use of post-dilatation.

PO 267. ROLE OF PREOPERATIVE CAROTID DUPLEX ULTRASOUND IN PATIENTS WITH SEVERE AORTIC STENOSIS REFERRED FOR INTERVENTION

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Introduction: Routine screening for carotid artery stenosis is not recommended in the general population but is advised in certain scenarios, such as preparing for coronary artery bypass grafting (CABG) and for high-risk populations were a prevalence of > 20% os carotid stenosis is estimated. However, no formal recommendations exist for patients undergoing evaluation for valvular heart disease. While carotid artery screening may provide important insights, routine screening might not always be necessary, as it can increase costs and delay intervention. Carotid duplex ultrasound (DUS) is the first-line modality for screening.

Objectives: This study assessed the diagnostic and therapeutic implications of carotid DUS as a preoperative screening tool in patients with severe aortic stenosis (AS) referred for valve replacement.

Methods: Patients who underwent transthoracic echocardiography from January to September 2022 with severe high-gradient AS and referred for valve intervention were included. Demographic, imaging, and clinical data were collected. Group comparisons were performed using the Chi-square test.

Results: Of the 65 included patients, 33 (50.8%) were females with a mean age of 74.4 ± 8.3 years old. Risk factors for carotid stenosis included

hypertension (80%), dyslipidemia (84.6%), diabetes (53.8%), coronary artery disease (29.2%), cerebrovascular disease (9.2%), smoking (6.2%), and peripheral arterial disease (4.6%). Regarding carotid assessment, 58 patients (89.2%) underwent supra-aortic angiography during coronary angiography, 33 (50.8%) underwent carotid DUS, and 28 (43.1%) underwent both. Carotid DUS did not reveal additional findings beyond angiography. Significant carotid pathology was identified in 14 patients (23%): high-risk plaques (16.1%) and stenosis (16.1%)—50% stenosis in 55.6%, 70% in 33.3%, and 90% in 11.1%. Only one patient was referred for vascular surgery, and no vascular interventions were performed. Among the included patients, 40 (61.5%) were classified as high-risk for carotid stenosis, and notably, 64.3% of the significant findings were identified within this group. There was no significant association between carotid screening indication and significant findings (p = 0.861). Significant carotid pathology was not associated with perioperative complications (p = 0.928), but no perioperative strokes occurred.

Conclusions: Carotid artery disease screening in patients referred for aortic valve intervention identified significant pathology in approximately one-quarter of cases, but this did not result in vascular interventions. While carotid screening may aid cardiovascular risk modification through medical management, its routine use in AS patients offers no clear added value compared to targeted screening in high-risk individuals. More studies are needed to assess its impact, particularly on perioperative outcomes.

PO 268. IMPACT OF DIASTOLIC DYSFUNCTION IN PATIENTS WITH MODERATE AORTIC STENOSIS

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Introduction: Aortic stenosis (AS) induces an adaptative ventricular remodeling with left ventricular (LV) hypertrophy and fibrosis, eventually leading to ventricular diastolic and systolic dysfunction. This can lead to poorer outcomes and reduced survival.

Objectives: This study aims to investigate the prevalence, incidence and prognostic implication of LV diastolic dysfunction (DD) in patients with moderate AS and preserved LV ejection fraction.

Methods: A total of 595 patients with a first diagnosis of moderate AS, preserved LV systolic function and consecutive echocardiograms were retrospectively identified. DD was defined based on the presence of at least 3 of 4 parameters: 1) average E/e'; 2) septal e' velocity < 7 cm/s or lateral e' velocity < 10 cm/s; 3) tricuspid regurgitation velocity > 2.8 m/s; and 4) left atrium volume index > 34 mL/m^2. This study assessed the prevalence and incidence of DD and the predictors of new-onset DD. Furthermore, univariable and multivariable Cox models evaluated the association of new-onset DD as a time-dependent covariate and the composite endpoint of all-cause mortality or aortic valve replacement (AVR).

Results: The baseline prevalence of DD was 43%. These patients were older, more likely female, and had higher prevalence of atrial fibrillation (AF), despite similar aortic valve areas and comorbidities, compared with patients without DD. Over a median follow-up of 1.98 years, 32% patients developed new-onset DD, with 50% of these cases occurring when AS was still moderate. Decreasing AVA (HR 1.07; 95%CI 1.02-1.12), increasing LV mass index (HR 2.60; 95%CI 1.19-4.00) and increasing LV sphericity index (1.22; 95%CI 1.01-1.46) predicted higher risk of new-onset DD, after multivariate adjustment. Incident DD was independently associated with the composite endpoint of all-cause mortality or AVR (HR 1.77; 95%CI 1.37-2.77).

Conclusions: This study reveals a high prevalence of DD at the diagnosis of moderate AS and preserved LV ejection fraction, with its incidence increasing alongside AS progression and adverse LV remodeling. LV DD independently correlates with an increased risk of all-cause mortality and AVR in this patient group. These findings highlight the importance of diastolic LV function assessment in the risk stratification of patients with moderate AS.

PO 269. IS MYOCARDIAL ADAPTATION DISTINCT IN PATIENTS WITH BICUSPID VERSUS TRICUSPID SEVERE AORTIC STENOSIS UNDERGOING SURGICAL VALVE REPLACEMENT?

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Introduction: Current guidelines for aortic stenosis (AS) do not distinguish between patients with bicuspid (BAV) and tricuspid aortic valve (TAV) disease, despite notable differences in their clinical profiles and possible physiopathology. Whether these differences extend to myocardial adaptation to severe aortic stenosis remains unclear.

Objectives: Assess left ventricular adaptation in patients with severe symptomatic AS undergoing surgical aortic valve replacement (SAVR) according to the presence of BAV and TAV disease.

Table 1- Comparison of Clinical, Echocardiographic, Cardiac Magnetic Resonance, and Histopathology Between Tricuspid and Bicuspid Aortic Valve Groups.

	Tricuspid (n=107)	Bicuspid (n=16)	*p*-Value
Demographic			
Age, years	73 [7]	59 [16]	**<0.001**
Male, n (%)	49 (46)	12 (75)	**0.029**
Hypertension, n (%)	91 (85)	10 (63)	**0.028**
Ascending Aorta Dilation, n (%)	10 (9)	7 (44)	**<0.001**
Clinical			
Syncope, n (%)	23 (22)	5 (31)	0.421
Angina, n (%)	27 (26)	5 (31)	0.673
hsTnT, ng/L	12 [11]	13 [17]	0.333
NTproBNP, pg/mL	568 [1292]	396 [1457]	0.341
Transthoracic Echocardiography			
LVEF, %	58 ± 8	60 ± 8	0.559
GLS, %	- 14.7 ± 3.7	-14.1 ± 3.6	0.222
Maximum Aortic Gradient, mmHg	91 [37]	118 [52]	0.053
Mean Aortic Gradient, mmHg	57 [21]	74 [31]	**0.022**
AVA, mm^2	0.7 ± 0.2	0.7 ± 0.2	0.906
Doppler velocity index	0.2 ± 0.05	0.2 ± 0.04	**0.046**
SVi, mL/m^2	49 ± 10	48 ± 8	0.983
Cardiac Magnetic Resonance			
LVEF, %	61 [14]	63 [17]	0.943
LV indexed mass, g/m^2	71 [31]	92 [74]	**0.008**
Geometric Remodeling Index	0.92 [0.2]	1.04 [0.3]	**0.037**
Native T1, ms	1052 [41]	1047 [48]	0.619
T2, ms	39 [5]	39 [3]	0.173
ECV, %	23 [6]	24 [8]	0.365
LGE present, n (%)	75 (70)	11 (69)	0.915
LGE, %	4 [5]	5 [5]	0.236
Hystopathology (n = 110, 15 bicuspid, 95 tricuspid)			
Fibrosis Area, um2	1425855 [2703139]	1916583 [3259701]	0.473
% Fibrosis of total sample, %	12 [14]	15 [12]	0.446
Replacement Fibrosis, n (%)	34 (36)	3 (21)	0.219

Mean± SD; Median [IQR]
Abbrev: LVEF: Left Ventricular Ejection Fraction; **GLS**: Global Longitudinal Strain; **AVA**: Aortic Valve Area; **AVAi**: Indexed Aortic Valve Area; **SVi**: Stroke volume index; **ECV**: Extracellular volume; **LGE**: Late Gadolinium Enhancement

Methods: Single-center, prospective cohort study of 158 patients with severe symptomatic AS (mean age 71 ± 8 years, 50% male; mean transaortic gradient 61 ± 17 mmHg, indexed aortic valve area 0.4 ± 0.1 cm^2/m^2, LVEF 58 ± 9%) referred for SAVR between 2019 and 2022. Patients with prior cardiomyopathy, moderate/severe aortic regurgitation, or severe non-AS valve dysfunction were excluded. Serial transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR) were performed within 3 months before SAVR to assess LV remodeling and myocardial tissue characterization (T1 mapping, late gadolinium enhancement [LGE], and extracellular volume-[ECV]). Myocardial tissue obtained during SAVR (myocardial biopsy at LV basal septum or harvested from surgical myectomy specimens) underwent fibrosis quantification with Masson's trichrome satin at an automatic algorithm platform-QuPath™. Valve morphology was

assessed via TTE or surgical reports. Clinical, imaging, and histopathological data on LV adaptation were compared between patient groups.
Results: (Table 1) A total of 123 patients were included (mean age of 71 ± 9 years; 50% male), 13% with BAV and 87% with TAV (25 patients with undetermined valve morphology). All BAV cases exhibited the ascending phenotype without root involvement. BAV patients were younger, predominantly male, with lower prevalence of hypertension. Aortopathy was more prevalent in BAV patients ($p < 0.001$). Clinical presentation and AS severity indexes were similar between groups except for higher mean transvalvular gradients in BAV ($p = 0.022$). Patients with BAV had higher LV mass (92 [IQR 74] vs. 71 [IQR 31] g/m^2, $p = 0.008$) and positive remodeling at pre-operative CMR (1.04 [IQR 0.3] vs. 0.92 [IQR 0.2], $p = 0.037$). Neither non-invasive myocardial tissue characterization at CMR nor myocardial fibrosis content at biopsy differed among the groups. Surgical bioprosthesis were more commonly implanted in patients with TAV ($p < 0.001$). Accordingly, BAV patients had higher rates of concomitant ascending aorta grafts at SAVR.
Conclusions: In severe symptomatic aortic stenosis, clinical presentation is indistinct regardless of valve morphology, except for higher prevalence of aortopathy in BAV patients. Pressure overload is probably the main driver of LV adaptation, as myocardial tissue characterization is similar in both groups of patients.

Sábado, 12 Abril de 2025 | 12:30-13:30

Área de Posters-écran 3 | Sessão de Posters 40 – Intervenção coronária

PO 270. NAVIGATING THE CORONARY CROSSROADS: LEFT MAIN ARTERY BIFURCATING LESIONS, A SINGLE CENTRE PCI RESULTS

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

Hospital Évora.

Introduction: The management of patients with left main coronary artery (LM) disease presents a dilemma in medicine, with the ongoing debate between the efficacy of the percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG), current literature favours CABG in SYNTAX ≥ 22, due to more complex coronary anatomies.
Methods: Retrospective analysis, in a single centre between 2010 and 2024, of 114 patients with bifurcating LM disease treated percutaneously to evaluate cardiovascular outcomes compared to those of the literature. The primary outcome was composed of death from cardiovascular causes, myocardial infarction, stroke, or target lesion revascularization. Results at this centre were compared with expected cumulative long-term major adverse cardiac and cerebrovascular events (MACCE) for PCI and CABG in SYNTAX. Expected results were retrieved from the SYNTAX Score logistic regression.
Results: A total of 113 patients were included, with a median follow-up (FUP) of 38 months (10 lost to FUP). Regarding baseline characteristics, the population had a mean age of 70.8 ± 11.1 years, 77.2% were men. The presentation was chronic coronary syndrome (CCS) in 42.1% and STEMI in 30.7%. The mean SYNTAX score was 27.0 ± 11.8. Patients with more complex coronary anatomy, as described in the literature, exhibit higher rates of MACCE: 18.9% for SYNTAX < 22, 19.5% for SYNTAX 22-33, and a significantly higher 42.9% for SYNTAX ≥ 33, detailed outcomes are presented in the table. These MACCE results, according to SYNTAX Score, are lower than expected for percutaneous approach and comparable to CABG in SYNTAX < 22 and 22-33. In SYNTAX ≥ 33, the MACCE rate was higher than expected for PCI and CABG. A subgroup analysis of patients with SYNTAX ≥ 33 revealed a MACCE rate of 25% in those presenting with chronic coronary syndrome (CCS).
Conclusions: Although the Syntax Score is an older tool, it remains valuable for patient stratification and should not be abandoned, as it provides an assessment of disease burden. In patients with a Syntax < 33, PCI outcomes in our experience are comparable to CABG, even with the inclusion of acute coronary syndromes (ACS). In patients with Syntax > 33 CABG remains slightly superior in CCS (25 vs. 21.9%) due to the higher disease burden. However, in ACS PCI is often performed due to the impossibility of CABG. These results suggest that the percutaneous approach is a valid solution, particularly in the context of long surgical waiting lists.

PO 271. SAFETY AND OUTCOMES OF IFR VS. FFR IN CORONARY REVASCULARIZATION: A REAL-WORLD COHORT STUDY

Diogo Rosa Ferreira[1], Miguel Menezes[2], Marta Vilela[2], Cláudia Jorge[2], João Marques[2], Pedro Carrilho[2], Tiago Rodrigues[2], Ana Rita Francisco[2], José Duarte[2], José Marques da Costa[2], Pedro Cardoso[2], Fausto Pinto[2]

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Introduction: Coronary revascularization guided by functional assessment has been shown to improve patient outcomes compared to revascularization guided by angiography alone. Randomized clinical trials have demonstrated that coronary revascularization guided by instantaneous wave-free ratio (iFR) is noninferior to fractional flow reserve (FFR) in terms of major adverse cardiac events at 1 year. However, the 5-year results of the DEFINE-FLAIR trial raised concerns due to an observed increase in all-cause mortality in the iFR arm, contrary to the iFR SWEDEHEART trial. The aim of this study is to validate the safety of performing iFR versus FFR in a large real-world long-term dataset, focusing on major adverse cardiac events.
Methods: Retrospective, single-center, observational study with patients undergoing coronary angiography guided by functional assessment from 2012 to 2022 in a tertiary center. Two groups were analyzed: patients assessed with FFR and those with iFR. Differences between the groups were evaluated using the chi-square, independent *t*-test or Mann-Whitney U test. Kaplan-Meier survival curves and Cox regression analysis were used to evaluate the primary composite outcome of death or myocardial infarction at two-year follow-up.

	SYNTAX < 22 (n=37)	SYNTAX 22-33 (n=41)	SYNTAX ≥ 33 (n=35)	ALL (n=113)
@ FUP - mean, CI (95%)	46, (30;61)	39, (22;55)	29, (14;45)	38, (29;47)
Primary outcome, n (%)				
Cardiovascular death, myocardial infarction, stroke, target lesion revascularization (TLR)	7 (18.9)	8 (19.5)	16 (45.7)	31 (27.2)
Secondary outcome, n (%)				
Death from all causes	10 (27.0)	10 (24.4)	15 (42.9)	35 (30.7%)
Cardiovascular death	3 (8.8)	5 (13.2)	10 (29.4)	18 (15.8)
Myocardial infarction	4 (11.1)	3 (8.3)	7 (25.9)	14 (2.3)
Stroke	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Target lesion revascularization (TLR)	3 (8.3)	1 (0.0)	4 (14.8)	7 (5.7)

* Expected MACCE rates by SYNTAX score - <22 (21.3% CABG vs. 31.25% PCI), 22-33 (18.8% CABG vs. 28.1% PCI), and ≥33 (21.9% CABG vs. 36.3% PCI).

Figure PO 270

	iFR	FFR	p-value
n (%)	382 (70)	161 (30)	NA
Age (mean)	65.9 (±10.8)	67.8 (±10.3)	NS
Male n (%)	310 (81)	112 (61)	NS
IBM (mean ±SD)	28.4 (±6)	27.4 (±5)	
Hypertension n (%)	306 (80)	132 (20)	NS
Diabetes n (%)	164 (43)	64 (40)	NS
Dyslipidemia n(%)	254 (66)	114 (71)	NS
Smoker n (%)	166 (43)	56(34)	p=0.007
Previous MI (%)	94 (26)	30 (19)	NS
Previous PCI n (%)	127 (33)	54 (34)	NS
Previous CABG n (%)	11 (3)	6 (4)	NS
Chronic Kidney Disease n (%)	118 (31)	31 (19)	P=0.03
LVEF			
>50%	67%	73%	NS
41-50%	7%	8%	NS
31-40%	16%	9%	NS
21-30%	7%	10%	NS
<21%	3%	0%	NS
Clinical Context			
STEMI n (%)	34 (9)	25 (15)	NS
NSTEMI n (%)	58 (15)	3 (2)	NS
Unstable Angina n (%)	24 (7)	21 (13)	NS
Chronic coronary sydrome n (%)	266 (71)	112 (70)	NS
Procedure			
Radiation dose (Gy)	11.6 ± 4.6	6.4 ± 2.8	p<0.001
Time in minutes (median, IQR)	56 (IQR 40-71)	62 (IQR 43-80)	p=0.005
Mean IFR	0.87 (±0.12)	NA	
Mean FFR valor	NA	0.8 (±0.12)	
Vessel			
Left main coronay	9 (2)	7 (4)	NS
Left anterior descending	241 (67)	91 (57)	NS
Circumflex	42 (12)	27 (17)	NS
Right coronary	64 (17)	35 (22)	NS
Intermediate	3 (1)	1 (1)	NS
First diagonal branch	6(2)	0	NS
Left Marginal	17 (5)	0	NS
Treatment			
Conservative	227 (59)	83 (52)	p=0.02
PCI n (%)	121 (32)	69 (42)	p=0.03
CABG n (%)	33 (9)	11 (7)	NS
Events			
Myocardial infartion n (%)	10 (2.7)	4 (2.5)	NS
Death n (%)	28 (7.1)	12 (7.3)	NS

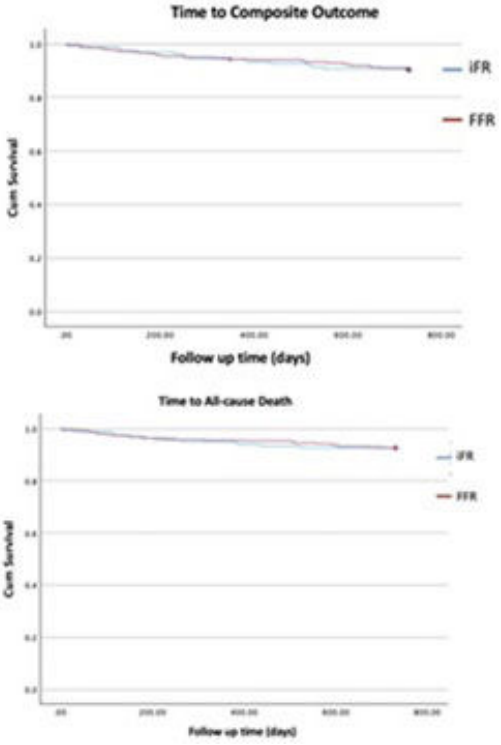

Figure PO 271

Results: A total of 543 patients were included, with a mean age of 67 ± 10 years; 77% were male. Of these, 161 underwent FFR and 382 underwent iFR. There were no significant differences between the groups in sex distribution, relevant comorbidities, or baseline left ventricular ejection fraction, except for a higher prevalence of previous smoking and chronic kidney disease in the iFR group. The most commonly evaluated vessel in both groups was the left anterior descending artery, followed by the right coronary artery and the circumflex artery. Medical therapy was more common in the iFR group (59 vs. 52%, p = 0.02), and PCI was performed less frequently (32 vs. 42%, p = 0.03). The mean procedure time was shorter in the iFR group (56 vs. 62 minutes, p = 0.005), with lower radiation doses (6.4 ± 2.8 vs. 11.6 ± 4.6 Gy). The primary composite outcome of death or myocardial infarction occurred in 37 patients in the iFR group and 16 patients in the FFR group, without significant difference between the groups. Similarly, no difference was observed in all-cause mortality (7.1 vs. 7.3%).

Conclusions: In this real-world cohort, no significant differences were observed in the composite outcome of death or myocardial infarction at two-year follow-up between patients undergoing coronary revascularization guided by iFR versus FFR. Although iFR was associated with shorter procedure times, lower radiation doses, and less frequent PCI, the safety profile of iFR appeared comparable to FFR, with no significant differences in all-cause mortality. This result is in agreement with the iFR Swedeheart trial, further strengthening the safety of using iFR for revascularization decisions.

PO 272. CORONARY PHYSIOLOGY IN IN PATIENTS WITH ANGINA AND NON-OBSTRUCTIVE CORONARY ARTERY DISEASE - PRELIMINARY DATA FROM MULTICENTER REGISTRY

Mariana Ferreira Carvalho[1], Margarida Cabral[1], Carolina Gonçalves[1], Adriana Vazão[1], André Martins[1], Mónica Amado[1], Joana Pereira[1], Francisco Soares[1], Pedro Jerónimo Sousa[1], Fátima Saraiva[1], Jorge Guardado[1], Manuel de Oliveira Santos[2]

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Introduction: Coronary vasomotion disorders (CVDs) are a common cause of angina and ischemia in patients with non-obstructive coronary artery disease (ANOCA/INOCA). However, invasive coronary angiography (ICA) often falls short in identifying vasospastic angina and microvascular dysfunction. The role of CVD as the cause of angina or ischemia is becoming increasingly recognized.

Objectives: We aimed to characterize coronary physiology and microvascular function in patients with angina or ischemia and non-obstructive coronary artery disease (ANOCA/INOCA).

Methods: We included in this retrospective study individuals diagnosed with ANOCA/INOCA who underwent in our coronary function testing (CFT) protocol from July 2022 to January 2023 across multiple centers. The assessment involved invasive examinations of coronary circulation vasorelaxation both at rest and during hyperemia induced by adenosine. Additionally, we evaluated the propensity for coronary vasospasm by administering increasing doses of intra-coronary acetylcholine. Recorded data included fractional flow reserve, coronary flow reserve (CFR), and the index of microvascular resistance (IMR). The diagnosis of cardiovascular disorders (CVDs) followed the criteria outlined by the Coronary Vasomotor Disorders International Study Group.

Results: In this study, a total of 32 patients were enrolled, with an average age of 63.1 ± 8.4 years, and 56.3% were female. The most prevalent cardiovascular risk factors were dyslipidemia (68.8%), arterial hypertension (55.1%), and diabetes mellitus (39%). At the outset, all patients exhibited either typical angina (59.4%, n = 19) or a positive ischemia test (68.7%, n = 22). Of the participants, 21 individuals (65.6%) had previously undergone invasive coronary angiography or computed tomography due to anginal symptoms. The implementation of our coronary function testing (CFT) protocol was successfully completed in all patients without encountering any serious complications. The results revealed isolated macrovascular vasospasm in 15 patients (46.9%), isolated coronary microvascular dysfunction (CMD) in 6 patients (18.8%), and a combination of CMD and coronary vasospasm in 2 patients (6.3. A normal result was observed in 9 patients (28.1%).

Conclusions: Coronary vasomotion disorders emerge as a prevalent diagnosis, being present in 71.9% of patients referred for coronary angiography with coronary physiology with diagnosis of INOCA/ANOCA.

PO 273. IMPLICATIONS OF USING A RADIATION PROTECTION CABIN IN THE CARDIAC CATHETERIZATION LABORATORY

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Introduction: Radiation exposure increases alongside technological advances and the complexity of cardiovascular interventions, raising concerns for healthcare professionals in Interventional Cardiology. The *Cathpax*® radiation protection cabin (RPC) was developed to minimize work-related exposure, offering superior protection and potentially eliminating the need for heavy lead aprons, thereby reducing orthopedic injuries. However, its large size significantly alters cath lab dynamics, requiring an adaptation period for the entire team and impacting patient preparation and cleaning processes.
Objectives: We aim to assess the implications of using the *CATHPAX*® *AIR* radiation protection cabin in the Cath Lab's workflow.
Methods: A single-center retrospective study was conducted from January to November 2024, analyzing diagnostic and interventional cardiology procedures. We compared procedures before and after the cabin's implementation, excluding the first month due to team adaptation and incomplete cabin use. After this period, prepping and cleaning procedures were optimized, and the *CATHPAX* was used in nearly all cases. Study endpoints included fluoroscopy time, patient exposure dosage, and contrast usage, along with intraprocedural complications and procedure success. Statistical analyses were performed using Independent-Samples T-Test, Chi-square, and Mann-Whitney U tests with SPSS software.
Results: A total of 528 procedures were analyzed, 311 (199 diagnostic angiograms and 122 interventions) before and 217 (149 angiograms and 68 interventions) after the cabin implementation. Patients had a mean age of 67.8 ± 10.2 years, 72.4% were male, 37.1% presented with Acute Coronary Syndromes, and radial access was used in 97.6%. Baseline characteristics were comparable between groups. There were no statistically significant differences in patient radiation exposure (305 mGy vs. 338 mGy, p = 0.06), fluoroscopy time (4.2 vs. 3.8 minutes, p = 0.61), or contrast usage (70 mL vs. 60 mL, p = 0.11). There was a slight trend toward higher exposure dosage (p = 0.06), that we believe is related to a change in the fluoroscopy protocol that was implemented shortly before the *CATHPAX*, since it is not accompanied by an increase in fluoroscopy time. The average number of procedures performed per 6-hour period was comparable between groups (5.0 vs. 5.0, p = 0.99), including (3.6 vs. 3.8, p = 0.08) diagnostic angiograms and (1.4 vs. 1.2, p = 0.17) angioplasties, respectively. Complications were comparable (p = 0.65), with three in the pre-cabin group (two distal perforations, one cardiorespiratory arrest) and one distal perforation post-cabin.

Table 1. Comparative analysis of procedures before and after the cabin's implementation

	Pre-Cabin (n=311)	Post-Cabin (n=217)	p value
Age - yr	67.3 ± 10.6	68.6 ± 10.0	0.14
Male sex – no. (%)	73.6	71.9	0.66
BMI (Kg/m²)	27.6	27.8	0.73
Weight (Kg)	76.9	78.0	0.41
Radiation to the patient [Air Kerma (mGy)]	305 IQR[153 - 551]	338 IQR[193 - 686]	0.06
Fluoroscopy time (min)	4.2 IQR[2.2 – 9.6]	3.8 IQR[2.1 – 9.9]	0.61
Contrast quantity (mL)	70 IQR[40 – 120]	60 IQR[40 – 120]	0.11
Number of procedures per 6-hour period	5.0 ± 0.9	5.0 ± 1.0	0.99
• Diagnostic Angiograms	3.6 ± 1.3	3.8 ± 1.3	0.08
• Angioplasties	1.4 ± 0.7	1.2 ± 0.8	0.17
Total complications (n)	3	1	0.65
• Minor (n)	2	1	1.00
• Major (n)	1	0	1.00

Conclusions: Our study demonstrated that the use of the radiation protection cabin is safe and does not significantly impact the cath lab workflow.

PO 274. ONE-YEAR OUTCOMES OF ALCOHOLIC SEPTAL ABLATION IN A TERTIARY REFERENCE CENTER

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Table 1 – General patient characteristics and procedural specifications

Baseline characteristics	n = 170
Age - yr	68 ± 11
Age >75 years - n (%)	43 (25%)
Male sex - n (%)	66 (39%)
Hypertension - n (%)	117 (69%)
Dyslipidemia - n (%)	85 (50%)
Diabetes - n (%)	25 (15%)
NYHA class [IQR]	3 [3-3]
NYHA class ≥3 - n (%)	133 (78%)
Angina – n (%)	78 (47%)
Pharmacotherapy	
Beta-Blocker - n (%)	153 (90%)
Calcium channel blockers – n (%)	66 (39%)
Procedural specifications	
Maximal wall thickness – mm [IQR]	20 mm [18-23]
Alcohol administration – cc [IQR]	2 cc [1.8-2.2]
Creatinine Kinase peak – u/L [IQR]	1205u/L [860-1557]
New onset RBBB - n (%)	78 (46%)
New onset LBBB – n (%)	9 (19%)
Pacemaker implantation – n (%)	31 (18%)
Average hospitalization duration – days [IQR]	8 [6-9]

Figure 1 – Graphical depiction of gradient evolution with follow up

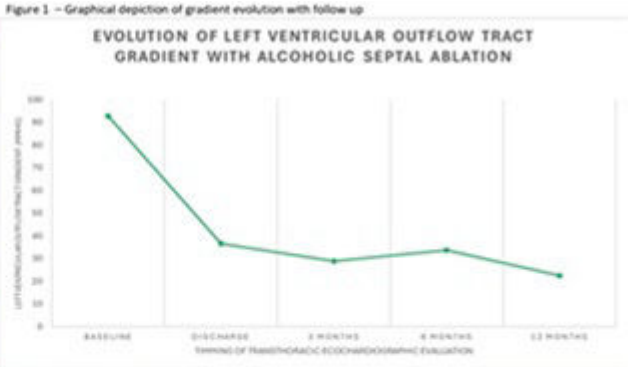

Table 2 – Long term outcomes after alcoholic septal ablation

Procedural outcomes	n = 170
Average gradient reduction at discharge – % [IQR]	55% [17-81]
Average gradient reduction at 3 months – % [IQR]	72% [16-86]
Average gradient reduction at 6 months – % [IQR]	63% [34-86]
Average gradient reduction at 12 months – % [IQR]	84% [60-94]
>50% reduction at 3-12 months post ASA - %	87%
>50% reduction at 6-12 months post ASA - %	79%
Procedural mortality - n (%)	1 (0.6%)
Cardiovascular mortality at 12 months - n (%)	3 (1.8%)
All-Cause mortality at 12 months – n (%)	6 (3.5%)

Figure PO 274

Introduction: Alcoholic septal ablation (ASA) is a minimally invasive procedure employed to alleviate left ventricular outflow tract (LVOT) obstruction in patients with hypertrophic obstructive cardiomyopathy (HOCM). We present the 1-year follow up of consecutive patients undergoing this procedure at our hospital.
Methods: We enrolled consecutive patients with a diagnosis of HOCM that underwent ASA at our hospital. Patient baseline characteristics, intraprocedural data (e.g., maximal wall thickness, alcohol dosage, new-onset bundle branch blocks) and transthoracic echocardiogram (TTE) data were recorded. The primary outcome of procedural success was based on an echocardiographic improvement of left ventricular outflow tract (LVOT) gradient reduction of over 50% at 3, 6, or 12 months). Safety endpoints of intraprocedural mortality and 12-month cardiovascular and all-cause mortality were also assessed. A paired t-test was used to ascertain the significance of the primary outcome.
Results: A total of 170 consecutive patients with an average age of 68 ± 11 years, 104 (61%) of which female were enrolled in this analysis. Patients had significant symptoms (Median NYHA Class 3 [3-3]; Angina – 47% of patients), despite high rates of beta-blocker and calcium channel blocker use (90% and 39% of patients, respectively) (Table 1). Procedurally, an average of 2 cc [IQR 1.8-2.2] of alcohol was administered, with a new right bundle branch block (RBBB) in 46% and pacemaker implantation in 18% of patients. Significant LVOT gradient reduction was achieved - 84% [IQR 60-94] at 12 months)- with > 50% reduction seen in 87% and 79% of patients at 3-12 and 6-12 months post-ASA, respectively (Figure 1). A paired t-test comparing LVOT gradient at baseline and 12-months demonstrated a mean gradient decrease from 94.1 mmHg (baseline) to 22.1 mmHg (12 months), with a mean difference of 72.0 mmHg (95%CI: 59.3-84.6, $p < 0.0001$), confirming the effectiveness of ASA in reducing LVOT obstruction. Intraprocedural mortality occurred in one patient (mortality rate 0.01%), due to acute mitral regurgitation. Six patients died at a 12-month follow-up, half of which from cardiovascular causes – one previously mentioned, one from massive pulmonary thromboembolism, and one from cardiogenic shock.
Conclusions: ASA is safe and effectively reduces LVOT gradient, alleviating symptoms in HOCM patients, with sustained improvements up to 12 months post-procedure.

PO 275. EXPLORING FUNCTIONAL CORONARY DISEASE BEYOND OBSTRUCTIVE LESIONS

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Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Patients exhibiting symptoms of angina and/or signs of ischemia in the absence of obstructive coronary disease (INOCA - Ischemia and No Obstructive Coronary Arteries) present a considerable diagnostic and therapeutic challenge. Consequently, it is essential to distinguish between patients with functional coronary disease, such as vasospastic and microvascular diseases, and those whose pain is attributed to non-coronary causes. This study descriptively analyzes patients who underwent assessment of coronary flow reserve (CFR), index of microcirculatory resistance (IMR), followed by vasoreactivity testing with acetylcholine in a tertiary care center.
Objectives: To understand the relevance of microvascular and vasoreactivity testing by characterizing a sample subjected to these tests. The goal is to categorize patients according to their respective diagnoses of non-coronary thoracic pain, vasospastic angina, and microvascular disease, and to provide appropriate treatment accordingly.
Methods: We analyzed 17 patients who underwent cardiac catheterization, which confirmed the absence of significant obstructive coronary disease. Our center's protocol was applied to these patients, including the administration of adenosine and acetylcholine to calculate the coronary flow reserve (CFR), index of microcirculatory resistance (IMR), and to detect vasospasm. The CFR (normal ≥ 2.0) and IMR (normal ≤ 25) were accessed as well as vasorreactivity following administration of acetylcoline. Following the testing, patients were categorized into four groups: 1. Microvascular Angina: Classified if CFR < 2 and/or IMR > 25 and/or evidence of microvascular spasm. 2. Vasospastic Angina: Classified if both CFR and IMR are normal, but epicardial spasm is present. 3. Microvascular and Vasospastic Angina: Identified if there is evidence of both microvascular dysfunction and epicardial spasm. 4. Non-cardiac Thoracic Pain: Identified if no abnormalities are detected.
Results: Of the 6 patients who underwent therapeutic changes, 5 were contacted, and of those, 4 patients (80%) reported a marked subjective improvement in symptoms and quality of life.

Patients Characteristics	N (%)
N	17 (100)
Age, mean	63.4
Female	10 (58.8)
Male	7 (41.2)
Cardiovascular Risk Factors:	
- Type 2 Diabetes	6 (35.3)
- Hypertension	9 (52.9)
- Hypercholesterolemia	14 (82.4)
- Smoker	1 (5.9)
Negative / Non-performed Ischemia Tests	6 (35.3)
Sugestive Ischemia Tests:	11 (64.7)
- Scintigraphy	3 (17.6)
- Multislice CT	2 (11.8)
- Cardiac MRI	2 (11.8)
- Stress Ecocardiogram	1 (5.9)
- Stress test	3 (17.6)
Diagnosis:	
- Microvascular disease	5 (29.4)
- Vasospastic angina	6 (35.3)
- Microvascular and Vasospastic angina	1 (5.9)
- No coronary disease	5 (29.4)
Therapeutic changes	6 (35.3)

Conclusions: Patients with angina and no obstructive coronary disease present a diagnostic and therapeutic challenge. Catheterization combined with these special tests identifies functional coronary disease, facilitating pertinent treatment changes to improve patient outcomes, symptoms, and quality of life. Patients without coronary disease who can be safely discharged are identified. Further studies and additional tests of this nature are required.

PO 276. TRENDS IN PHYSIOLOGY AND CORRELATION BETWEEN IFR AND FFR IN CORONARY PHYSIOLOGICAL ASSESSMENT: A DECADE OF REAL-WORLD DATA

Marta Miguez Vilela, Miguel Nobre Menezes, Diogo Ferreira, Claúdia Jorge, João Marques, Pedro Carrilho, Tiago Rodrigues, Ana Rita Francisco, Pedro Cardoso, Fausto Pinto

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Introduction: Coronary artery disease (CAD) treatment often relies on coronary angiography, but coronary physiological assessment, including Fractional Flow Reserve (FFR) and Instantaneous Wave-Free Ratio (iFR), provides a more accurate evaluation of coronary stenosis severity. While FFR has long been the gold standard for guiding revascularization, iFR has gained attention for its ability to deliver similar clinical outcomes with a simpler resting approach. This study evaluates trends in the use of iFR versus FFR, as well as changes in procedure times, radiation exposure, and the correlation between iFR and FFR over the past decade.
Methods: This retrospective, single-center study included patients who underwent coronary physiological assessment between 2012 and 2022. The population was divided into two groups based on the timing of catheterization: the "past group" (2012-2015) and the "present group" (2020-2022). Differences between the groups were evaluated using chi-

Patient Characteristics	2012 -2015 Group N= 263	2020-2022 Group N=397	p-value
Age (years) – mean ± SD	66.9 ± 10.8	65.9 ±10.8	NS
Female sex (%)	81	72	NS
Diabetes (%)	96 (37)	167 (42)	NS
Hypertension (%)	211 (80)	319 (80)	NS
Creatinine clearance mean ± SD	70.2 ± 16	72.5 ± 18	NS
Previous myocardial infarction (%)	59 (22)	93 (23)	NS
Preserved EF (%)	210 (80)	296 (75)	p=0.004
Reduced or mildly reduced EF (%)	53(20)	101 (25)	p=0.004
Urgent procedure (%)	125 (48)	206 (52)	p=0.002
Planned procedure (%)	138 (52)	191(48)	p=0.002
FFR only (%)	157 (60)	4 (1)	p<0.001
iFR only (%)	19 (7)	363 (91)	p<0.001
iFR and FFR combined (%)	83 (34)	29 (7)	p<0.001
Time minutes mean ± SD	73.9 ± 21	63.8 ± 28	p=0.004
Radiation dose (GY) mean ± SD	10.5 ± 4	6.4 ± 3	p<0.001
iFR value mean ± SD	0.90 ± 0.88	0.87 ± 0.12	p<0.001
FFR value mean ± SD	0.81 ± 0.21	0.74 ± 0.19	p<0.001
Vessel			
Left coronary artery (%)	9 (3)	11 (3)	NS
Left anterior descending artery (%)	152 (58)	261 (66)	p<0.001
Right coronary artery (%)	50 (19)	60 (15)	p<0.001
Others (%)	49 (19)	64 (16)	p<0.001
Approach			
Medical therapy (%)	145 (56)	227 (57%)	NS
PCI (%)	100 (38)	134 (34)	NS
Surgery (%)	15 (6)	35 (9)	NS

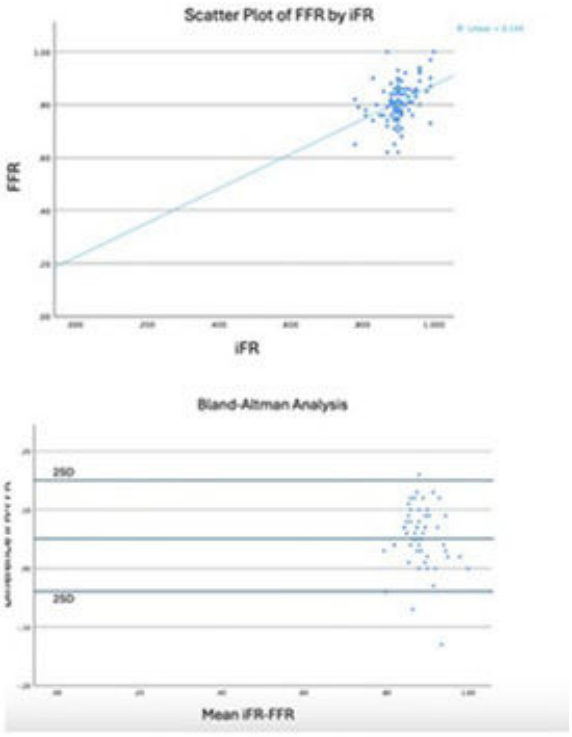

Figure 1: Comparison of Groups 2012-2015 and 2020-2022 and Trends in the Choice of iFR vs FFR vs Combined

Figure PO 276

square, independent t-test, or Mann-Whitney U test. Bland-Altman analysis and Pearson correlation were used to compare iFR and FFR values.

Results: A total of 660 patients were included, with 263 in the past group and 397 in the present group. Both groups were similar in age, gender, and comorbidities. Procedure time (73.9 ± 21 vs. 63.8 ± 28 minutes, $p = 0.004$) and radiation exposure (10.5 ± 4 vs. 6.4 ± 3 Gy, $p < 0.001$) were significantly higher in the past group. The left anterior descending artery was the most commonly assessed vessel, followed by the right coronary artery. In the past group, the majority of patients (60%) underwent FFR-only procedures, with 33% receiving a combination of FFR and iFR assessments. In contrast, in the present group, 91% of procedures were iFR-only. FFR was utilized in 8% of cases, and in 77% of those instances, it involved the left anterior descending artery. For iFR-only assessments, the mean iFR value was 0.87 ± 0.12, while for FFR-only assessments, the mean FFR value was 0.80 ± 0.12. A total of 41 patients underwent combined procedures, with iFR and FFR values close to their cutoff points (iFR: 0.90 ± 0.04, FFR: 0.81 ± 0.07). A significant correlation was observed between iFR and FFR values ($R = 0.38$; $p < 0.001$), with good agreement by Bland-Altman analysis (mean difference between iFR and FFR: 0.056 ± 0.05).

Conclusions: This study shows a growing preference for iFR, associated with shorter procedure times and lower radiation exposure. A significant correlation between iFR and FFR was observed, with both methods showing good agreement.

PO 277. CHARACTERIZATION OF PATIENTS WITH LEFT MAIN CORONARY ARTERY DISEASE IN NON-ACUTE SETTINGS

Simão de Almeida Carvalho, Tiago Aguiar, Carlos Costa, Adriana Pacheco, Inês Cruz, Gil Pires, Anabela Capela, Sónia Almeida, Andreia Fernandes, Tiago Adrega, Joana Ribeiro, Ana Briosa

Centro Hospitalar do Baixo Vouga, EPE/Hospital Infante D. Pedro.

Introduction: Left main coronary artery disease (LM-CAD) is linked to poor outcomes even in chronic settings, with revascularization improving prognosis regardless of symptoms or documented ischemia. Updated European CCS guidelines redefined pre-test probability (PTP), increasing the 'very low probability' range.

Objectives: To characterize the clinical profiles, diagnostic pathways, and management of patients with LM-CAD in chronic the setting.

Methods: Retrospective cohort study of patients undergoing cardiac catheterization between May 2023 and November 2024. Patients were included if they had LM stenosis ≥ 50% by angiography. Exclusion criteria were: acute presentations (positive troponin), Prior CABG or severe valvular disease. Analyses were performed using SPSS.

Results: The study included 27 patients, 81.5% male, mean age of 68.9 ± 9.3 years. Patients had 2.4 ± 0.8 cardiovascular risk factors; dyslipidemia (85.2%) and hypertension (74.1%) were most common. Regarding clinical presentation, Chest pain (66.7%) was most common clinical presentation, followed by dyspnea (14.8%), ventricular arrhythmias, and asymptomatic left ventricular dysfunction (18.5% each). Among those with chest pain, the median ESC symptom score was 3 (IQR: 2.5-3). Using the Risk Factor-Weighted Clinical Likelihood model, the mean PTP was 26.3 ± 12.8%, corresponding to a moderate likelihood of obstructive CAD with 3 patients in the low and 1 in the very low-likelihood range. Notably, 70.4% of patients had at least one significant risk modifier. The most common were left ventricular dysfunction in 44.4% of cases, and baseline electrocardiographic abnormalities such as Q-waves or ST-segment changes in 37.0%. Regarding diagnostic modalities, 29.6% of patients were referred directly to invasive evaluation and 14.8% after treadmill test. This reflects the presence of high-risk criteria in exercise stress tests, such as a Duke Treadmill Score < -10, the occurrence of new-onset or low-threshold angina, or a high pre-test probability (> 85%) of coronary artery disease. Regarding non-invasive diagnostic methods, stress single-photon emission computed tomography (SPECT) was performed in 18.5% of patients, while coronary computed tomography angiography and stress echocardiography were each used in 14.8%. Among patients undergoing non-invasive tests, 78.9% had high-risk criteria. Regarding revascularization, CABG was the predominant modality (59.2%) and percutaneous coronary intervention (PCI) was undertaken in 25.9% of cases. Two patients were managed conservatively due to significant comorbidities. During the short follow-up period, one death was recorded, involving a patient awaiting CABG.

Table 1. Results (n=27)	
Age - yr	68.9 ± 9.3
Male sex (%)	81.5
Number of risk factors	2.4 ± 0.8
- Family History (%)	18.5
- Diabetes (%)	37.0
- Dyslipidemia (%)	85.2
- Hypertension (%)	74.1
- Smoking (%)	25.9
Clinical Presentation	
Main Clinical Symptom	
- Chest Pain (%)	66.7
- Dyspnea (%)	14.8
- Other (%)	18.5
Chest Pain Score	3 IQR[2.5 - 3]
Pre-test probability RF-CL without risk modifiers	26.3 ± 12.8
Patients with risk modifiers (%)	70.4
- De novo presentation or low threshold angina (%)	18.5
- Resting ECG changes (Q-wave or ST-segment/T-wave changes) (%)	37.0
- Exercise ECG with abnormal findings (%)	25.9
- LV dysfunction (severe or segmental) (%)	44.4
- Ventricular arrhythmia (%)	25.9
- Peripheral Artery Disease (%)	7.4
Diagnosis	
Initial Diagnosis Method	
- Exercise ECG (%)	14.8
- Coronary Computed Tomography angiography (%)	14.8
- Stress Echocardiography (%)	14.8
- Stress SPECT (%)	18.5
- CMR perfusion test	7.4
- Invasive Coronary Angiography (%)	29.6
Diagnosis Method with high-risk criteria (%)	78.9
Follow-up	
Revascularization mode	
- CABG (%)	59.2
- PCI (%)	25.9
- Hybrid (%)	3.7
- Medical Treatment (%)	7.4
Complications	
- Death waiting surgery – no (%)	1 (3.7%)

Conclusions: This study characterizes non-acute LM-CAD patients under revised ESC CCS guidelines. Most had moderate PTP, but high-risk modifiers highlight the need for personalized risk assessment.

PO 278. PERCUTANEOUS CORONARY INTERVENTION FOR LEFT MAIN CORONARY ARTERY: ACUTE AND CHRONIC DISEASE

Sofia Nogueira Fernandes, Mónica Dias, Carla Ferreira, Filipe Vilela, Inês Conde, Jorge Maques, Sérgia Rocha, Cátia Oliveira, Carlos Braga

ULS Braga.

Introduction: For several years, coronary artery bypass grafting has been the standard choice of revascularization for significant left main (LM) coronary artery disease (CAD). However, with advancements in percutaneous coronary intervention (PCI) procedures, it has become a reasonable alternative in a significant portion of patients. The aim of this study was to characterize procedures and evaluate patients' outcomes, after PCI for LM CAD.

Methods: A retrospective study performed from January 2019 to December 2022, in patients submitted to PCI in LM CAD for chronic coronary syndromes (CCS) or acute coronary syndromes (ACS), with drug eluting stents. Demographic, clinical, angiographic, and procedural data were collected. Clinical outcomes, including major adverse cardiac and cerebrovascular events (MACCE), were assessed during follow-up.

Table 1. Characterization of patients and procedures according to the clinical presentation

	CCS (n= 19)	ACS (n=88)	TOTAL (n=107)	*p* value
Age, years, Mean ± Standard deviation	67,1 ±9,2	68,9±11,7	68,6±11,3	0,526
Male, n (%)	15 (78,9%)	71 (80,7%)	86 (80,4%)	0,863
BMI, kg/m2, Mean ± Standard deviation	27,7±5,7	27,0±4,3	27,2±4,5	0,543
Comorbidities				
Diabetes mellitus, n (%)	4 (%)	26 (%)	30 (%)	0,534
Treated with oral glucose-lowering drugs	2 (10,5%)	19 (21,6%)	21 (19,6%)	
Insulin-treated	2 (10,5%)	7 (8,0%)	9(8,4%)	
Hypertension, n (%)	14 (73,7%)	61 (69,3%)	75 (70,1%)	0,706
Dyslipidaemia, n (%)	14 (73,7%)	54 (61,4%)	68 (63,6%)	0,312
Smoker, n (%)				0,591
Former smoker (>30 days)	5 (26,3%)	19 (21,6%)	24 (22,4%)	
Current smoker	2 (10,5%)	18 (20,5%)	20 (18,7%)	
Previous coronary angioplasty, n (%)	2 (10,5%)	7 (8,0%)	9 (8,4%)	0,360
Previous coronary artery bypass grafting, n (%)	4(21,5%)	7 (8,0%)	11 (10,3%)	
Both coronary angioplasty and CABG, n (%)	1 (5,3%)	5 (5,7%)	6 (5,6%)	
Previous myocardial infarction, n (%)	4 (21,1%)	18 (20,5%)	22 (20,6%)	0,953
History of coronary artery disease, n (%)	8(42,1%)	27 (30,7%)	35 (32,7%)	0,336
History of heart failure, n (%)	3 (15,8%)	16 (18,2%)	19 (17,8)	0,805
History of cerebrovascular disease, n (%)	3 (15,8%)	10 (11,4%)	13 (12,1%)	0,592
Peripheral vascular disease, n (%)	0 (0,0%)	4 (4,5%)	4 (3,7%)	0,344
Chronic kidney disease, n (%)	3 (15,8%)	14 (15,9%)	17 (15,9%)	0,990
Chronic obstructive pulmonary disease, n (%)	1 (5,3%)	8 (9,1%)	9 (8,4%)	0,586
Documented ischaemia	15 (78,9%)	9 (10,2%)	24 (22,4%)	**<0.01**
Exercise stress test	7 (36,8%)	6 (6,8%)	13 (12,1%)	**<0.01**
Stress Echocardiography	5 (26,3%)	1 (1,1%)	6 (5,6%)	**<0.01**
Cardiac Magnetic Resonance Imaging	3 (15,8%)	1 (1,1%)	4 (3,7%)	**0,002**
Myocardial Perfusion Scintigraphy	0 (0,0%)	1 (1,1%)	1 (0,9%)	0,641
Ejection fraction, n (%)				**0,003**
Normal (>50%)	17 (89,5%)	38 (43,2%)	54 (51,4%)	
Mild decrease (41%-50%)	1 (5,3%)	12 (13,6%)	13 (12,1%)	
Moderate decrease (31%-40%)	0 (0,0%)	19 (21,6%)	19 (17,8%)	
Severe decrease (<30%)	1 (5,3%)	19 (21,6%)	20 (18,7%)	
Left ventricle hypertrophy, n (%)	2 (10,5%)	12 (13,6%)	14 (13,1%)	0,715
Significant valvular heart disease, n (%)	2 (10,5%)	4 (4,5%)	6 (5,6%)	0,304
Angiographic characteristics				
Lesion location, n (%)				0,199
Ostium, proximal, midshaft, and/or diffuse	7 (36,8%)	20 (22,7%)	27 (25,2%)	
Distal and/or bifurcation	12 (63,2%)	68 (77,3%)	80 (74,8%)	
Anatomical complexity, n (%)				
Low SYNTAX	10 (52,6%)	30 (34,1%)	40 (37,4%)	0,130
Intermediate SYNTAX	6 (31,6%)	29 (33,0%)	35 (32,7%)	0,908
High SYNTAX	3 (15,8%)	29 (33,0%)	32 (29,9%)	0,138
Number of coronary arteries affected				0,349
Left Main Artery only	2 (10,5%)	14 (15,9%)	16 (15,0%)	
Left main + 1 coronary artery	8 (42,1%)	20 (22,7%)	28 (26,2%)	
Left main + 2 coronary arteries	4 (%)	29 (33,0%)	33 (30,8%)	
Left main + 3 coronary arteries	5 (%)	25 (28,4%)	30 (28,0%)	
Complementary diagnostic devices	14 (73,7%)	29 (33,0%)	43 (40,2%)	**0,001**
IVUS	9 (47,4%)	19 (21,6%)	28 (26,2%)	**0,020**
OCT	5 (26,3%)	10 (11,4%)	15 (14,0%)	0,089
RFR	2 (10,5%)	0 (0,0%)	2 (1,9%)	**0,002**
Strategy for bifurcation treatment				0,587
One stent technique	17 (89,5%)	82 (93,2%)	99 (92,5%)	
Two stent technique	2 (10,5%)	6 (6,8%)	8 (7,5%)	0,317
TAP	1 (5,3%)	4 (4,5%)	5 (4,7%)	
Culotte	0 (0,0%)	2 (2,3%)	2 (1,9%)	
DK Crush	1 (5,3%)	0 (0,0%)	1 (0,9%)	
Pre-dilation	19 (100%)	88 (100%)	107 (100%)	0,648
Post-dilation	19 (100%)	83 (94,3%)	102 (95,3%)	0,287
Proximal optimization	13 (68,4%)	64 (72,7%)	77 (72,0%)	0,705
Kissing balloon inflation	4 (21,1%)	11(12,5%)	15 (14,0%)	0,330
Drug Eluting Stents				0,442
Everolimus	12 (63,2%)	62 (70,5%)	74 (69,2%)	
Zotarolimus	4 (21,1%)	20 (22,7%)	24 (22,4%)	
Sirolimus	3 (15,8%)	6 (6,8%)	9 (8,4%)	
Follow-up, days, Mean + Standard deviation	1323,9±405,7	1076,8±596,6	1120,7±573,7	**0,035**
Cardiogenic shock, n (%)	0 (0,0%)	12 (13,6%)	12 (11,2%)	0,088

ACS: acute coronary syndromes; CCS: chronic coronary syndromes; FFR: fractional flow reserve; IVUS: intravascular ultrasound; OCT: optical coherence tomography; RFR: resting full-cycle flow ratio; SYNTAX: Synergy Between Percutaneous Coronary Intervention with Taxus and Cardiac.

Results: A total of 107 patients were submitted to PCI in LM CA, including 19 with CCS and 88 with ACS. Most patients were male (80.4%), with an average age of 68.6 ± 11.3 years, with cardiovascular risk factors. The follow-up was 1120.7 ± 573.7 days. Among patients with CCS, most patients had low to intermediate SYNTAX score. Use of complementary diagnostic devices was more frequent in the CCS group ($p < 0.05$). During hospitalization, patients did not develop any complications. Over the follow-up period, 5.3% (n = 1) patients died of unknown cause and no cardiovascular deaths were registered. In the ACS group, 67% (n = 59) had non-ST segment elevation myocardial infarction (MI), 23.9% (n = 21) had ST segment elevation MI and 9.1% (n = 8) had unstable angina. Cardiogenic shock (CS) was present in 13.6% (n = 12) of them (Table 1). Regarding the patients admitted in CS, in-hospital mortality was significantly higher compared with patients with no CS (33.3 vs. 4.2%, p < 0.001). During follow-up, 6.8% (n = 6) of patients had cardiovascular-related hospitalizations,

and one patient died during the re-hospitalization from severe heart failure. Over the follow-up period, the ACS group showed a higher incidence of MACCE compared to the CCS group (40.9 vs. 15.8%, $p = 0.039$). All-cause mortality was significantly higher in the ACS group (29.5 vs. 5.3%, $p = 0.027$). The rate of hospital readmissions due to cardiac symptoms was similar between groups (6.8% in ACS vs. 5.3% in CCS, $p = 0.804$). There were no significant differences in cardiovascular mortality ($p = 0.344$), stroke ($p = 0.474$), or myocardial infarction ($p = 0.893$). In-hospital mortality occurred exclusively in the ACS group (9.1 vs. 0%, $p = 0.172$).
Conclusions: PCI for LM CAD is generally considered a safe treatment option, demonstrating relatively favourable outcomes. Patients presenting with ACS had significantly worse outcomes compared to CCS patients, including higher MACCE rates and all-cause mortality. Additional studies with longer follow-up periods are required to confirm these findings.

Sábado, 12 Abril de 2025 | 14:30-15:30

Área de Posters-écran 1| Sessão de Posters 41 - Ablação de fibrilhação auricular

PO 279. EFFICACY, EFFICIENCY AND SAFETY OF PULSED FIELD ABLATION IN PATIENTS WITH ATRIAL FIBRILLATION

Inês Arrobas Rodrigues, António Gonçalves, Marta Leite, Inês Neves, Rafael Teixeira, Mafalda Carrington, Marco Oliveira, Helena Gonçalves, João Primo, João Almeida, Paulo Fonseca, Ricardo Fontes-Carvalho

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

Introduction: Pulsed field ablation (PFA) is a new ablation modality that uses electrical pulses to induce cell death via irreversible electroporation. Cardiac cells are more susceptible to the generated electrical fields compared to surrounding tissues. Therefore, PFA can be effective, while minimizing collateral damage.
Objectives: To evaluate the clinical outcomes, procedural efficiency and safety of atrial fibrillation (AF) ablation using PFA at our centre.
Methods: Patients submitted to pulmonary vein isolation (PVI) using PFA between Jan and Sep 2024 were included. Two composite endpoints were defined: 1) new antiarrhythmic intervention (antiarrhythmic drug (AAD) reintroduction, electric cardioversion (ECV) or redo procedure), and 2) healthcare contacts (emergency department visits or hospitalization due to AF or congestive heart failure, ECV or redo procedure). AF recurrence during follow-up (FU) was assessed using a survival analysis, and the proportion of patients meeting the composite endpoints was determined. Quality of life (QoL) improvement was evaluated using the AFEQT score. Procedural efficiency and safety were analysed.
Results: 53 patients were included (71.7% male; median age 63, IQR 18.8). Most had persistent AF (78.4%), enlarged left atria (median iVolLA 44 ml/m^2, IQR 15.3), and prior antiarrhythmic interventions (83.3% had previously used AAD, 58% had ≥ 1 prior ECV and 44% had a previous PVI procedure). All pulmonary veins were successfully isolated in all procedures. Additional lesions were performed in 51% of patients, mostly at the posterior wall. The median procedural time was 80 min (IQR 30). Only one procedural complication was documented (femoral pseudoaneurysm). The median FU time was 209 days (IQR 84). In the survival analysis, 92% and 72% of the patients were free from AF recurrence at 6 and 12 months, respectively (Figure 1). During FU, the composite endpoint of new antiarrhythmic intervention occurred in 7.5% of patients and healthcare contacts were documented in 9.4%. Compared to baseline (median AFEQT 56.8, IQR 38.9), QoL significantly improved at 12 months, with an adjusted mean difference in the AFEQT score of +13.1 points (95%CI 2.1-42.1, p = 0.02).
Conclusions: PFA was performed in patients with high AF burden. Despite this, it proved to be a safe and effective procedure, demonstrating low rates of AF recurrence, clinically significant improvements in QoL, and a reduced need for new antiarrhythmic interventions or healthcare utilization.

PO 280. RENAL DENERVATION AS AN ADJUNCT TO PULMONARY VEIN ISOLATION IN ATRIAL FIBRILLATION ABLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Gonçalo Terleira Batista, Tatiana Pereira dos Santos, Ana L. Silva, Mariana Rodrigues Simões, Bernardo Resende, Tomás M. Carlos, Luisa Gomes Rocha, Mafalda Griné, Joana Delgado Silva, Lino Gonçalves

Centro Hospitalar e Universitário de Coimbra.

Introduction: The autonomic nervous system (ANS) plays a critical role in the pathophysiology of atrial fibrillation (AF). Neuromodulation of the ANS

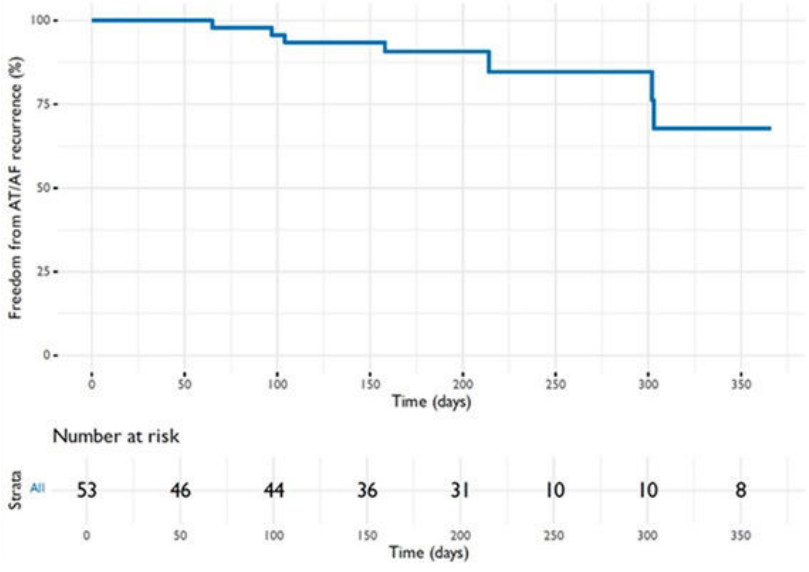

Figure PO 279

through renal denervation (RDN) has emerged as a promising adjunctive therapy to pulmonary vein isolation (PVI) for AF ablation.
Objectives: To evaluate the potential benefits of combining RDN with PVI for AF ablation.
Methods: A systematic review of randomized controlled trials (RCTs) was conducted using PubMed, Embase, the Cochrane Central Register of Controlled Trials, and grey literature, covering studies published up to October 2024. Included studies compared PVI alone to PVI combined with RDN. The primary efficacy endpoint was defined as AF recurrence, while procedure-related complications were assessed as the primary safety outcome. Study quality was evaluated using the Cochrane Risk of Bias tool, and data analysis was performed with RevMan 2.0.
Results: Following the initial screening, ten RCTs with a total of 903 participants were included in the analysis (433 in the PVI + RDN arm and 470 in the PVI alone arm). The PVI + RDN group demonstrated significantly lower rates of AF recurrence compared to the PVI alone group (36.5 vs. 53.8%; Odds Ratio [OR]: 0.49; 95% Confidence Interval [CI]: 0.35-0.69; $p < 0.001$; $I^2 = 23\%$). The addition of RDN did not lead to an increased rate of procedure-related complications ($p = 0.86$), and no differences were observed in major adverse cardiovascular events (MACE, defined as death, myocardial infarction, or stroke) ($p = 0.29$). Similarly, there were no significant differences between the groups in the change in glomerular filtration rate (GFR) from pre- to post-procedure ($p = 0.14$). Furthermore, the addition of RDN led to a reduction in systolic blood pressure (BP), albeit with substantial heterogeneity among studies (Mean Difference: -6.04 mmHg; 95%CI: -10.92 to -1.17; $p = 0.02$; $I^2 = 74\%$). However, no significant differences were found in diastolic BP ($p = 0.25$).
Conclusions: Combining RDN with PVI significantly reduces atrial fibrillation recurrence without increasing procedure-related complications, supporting its potential as an adjunctive therapy in AF ablation.

PO 281. COMPARISON OF STANDARD-POWER AND VERY HIGH-POWER SHORT-DURATION PULMONARY VEIN ABLATION

Inês Arrobas Rodrigues, António Gonçalves, Marta Almeida, André Lobo, Rafael Teixeira, Mafalda Carrington, Marco Oliveira, Helena Gonçalves, João Primo, João Almeida, Paulo Fonseca, Ricardo Fontes-Carvalho

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

Introduction: Pulmonary vein isolation (PVI) is the cornerstone of atrial fibrillation (AF) catheter ablation and is commonly performed using radiofrequency (RF) energy. Novel catheters using shorter but higher-power RF applications can improve lesion quality and reduce procedural time compared to the standard approach, while ensuring similar clinical and safety outcomes.
Objectives: This study aims to compare very high-power short-duration (vHPSD) AF ablation with a matched control cohort undergoing standard power and duration (SPD) AF ablation at our centre regarding clinical outcomes, procedural efficiency and safety.
Methods: All patients who underwent first PVI using catheter ablation at our centre between January 2021 and May 2024 were included. SDP AF ablation (35W RF applications guided by Ablation Index) was performed until April 2022, after which vHPSD AF ablation (90W/4s) became the standard approach through the study's conclusion. The two groups were matched using a propensity score analysis and then compared regarding freedom from AF recurrence, procedural efficiency, and safety.
Results: 308 patients were submitted to IVP, and after the propensity score analysis, 210 patients were analysed (64.8% male, median age 62 years (IQR 54.7-67.5)). There were 105 patients in each group with comparable baseline characteristics. The median follow-up time was 364 days (IQR 207-548) for the vHPSD group and 729 days (IQR 559-730) for the STD group. Freedom from AF recurrence at 12 months was similar between groups in the survival analysis (86.6 vs. 88.4%, $p = 0.510$) (Figure 1). Total procedural time, ablation time, and RF application time were significantly shorter in the vHSPD arm (86.5 vs. 100.0 min, $p < 0.001$; 32.0 vs. 45 min, $p < 0.001$, and 7 vs. 24.5 min, $p < 0.001$, respectively). PV first-pass isolation (FPI) was obtained in 54.5% of patients in the vHPSD group and 72.0% in the SPD group ($p = 0.004$). Overall, AF catheter ablation had a favourable safety profile, with a low prevalence of adverse effects, irrespective of the type of RF energy used (one pericardial effusion in the vHPSD group and one pericarditis in the SDP group).
Conclusions: VHPSD AF ablation proved to be a more efficient technique with a shorter procedural time, achieving similar clinical outcomes despite having a lower FPI rate. Both procedures appeared to be safe with low prevalence of adverse effects.

PO 282. NON-PULMONARY VEIN TRIGGERS – MAXIMIZING SUCCESS IN ATRIAL FIBRILLATION REDO PROCEDURES

Francisco Salvaterra, Ana Abrantes, Joana Brito, Daniel Inácio Cazeiro, Miguel Azaredo Raposo, Afonso Nunes Ferreira, Gustavo Lima da Silva, João Ribeiro, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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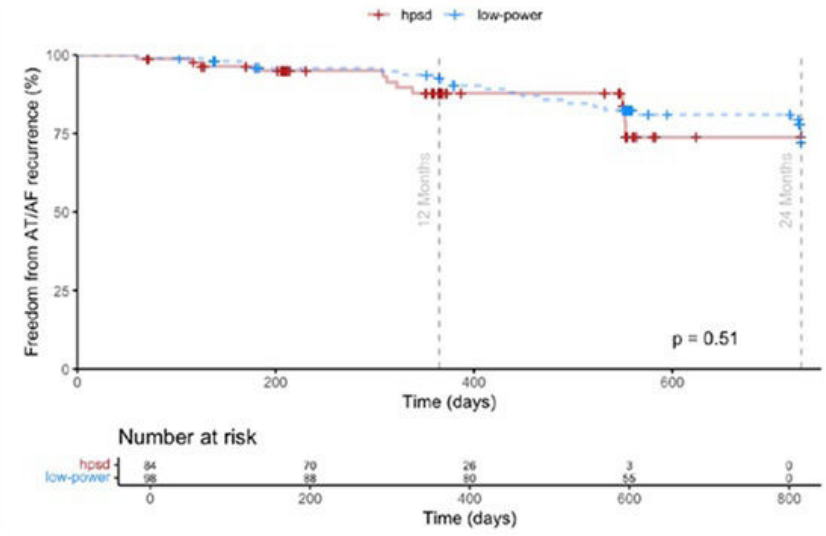
Introduction: In atrial fibrillation (AF), non-pulmonary vein (non-PV) triggers are a potential cause of arrhythmic relapse after pulmonary vein isolation (PVI). Their relevance in clinical practice remains controversial,



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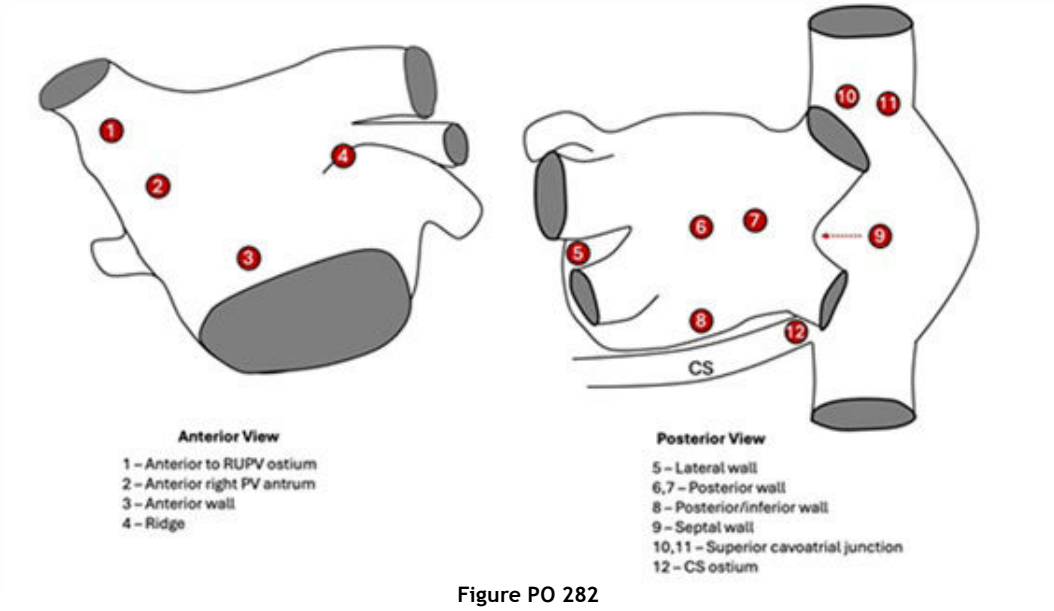

Figure PO 282

with some studies suggesting their presence in most patients (pts), while others report them in a small minority.

Objectives: To characterize non-PV triggers and evaluate the efficacy of their targeted ablation in patients undergoing AF redo ablation.

Methods: This retrospective single-center study included patients who underwent AF redo ablation between 2015 and 2024. Mapping was performed using high-density electroanatomic catheters. Non-PV triggers were systematically mapped whenever repetitive spontaneous ectopic beats were identified during map collection. Additionally, in redo procedures where PVs were completely isolated, non-PV trigger inducibility was tested with isoprenaline infusion and programmed atrial stimulation. Non-PV trigger ablation targeted the earliest atrial activation signal. At the end of the procedure, non-PV trigger induction was re-evaluated with isoprenaline infusion and programmed atrial stimulation.

Results: A total of 264 pts underwent redo AF ablation. Non-PV triggers were identified in 12 pts (mean age 62.5 years; 83% male). Most non-PV triggers (75%) were in the left atrium, primarily on the anterior and posterior walls. In the right atrium, non-PV triggers were identified in the superior cavoatrial junction (2 cases) and the coronary sinus ostium (1 case). Low-voltage areas consistent with previous PVI were identified in all pts, with reconduction or residual electrograms in ≥ 1 vein in 83% of them. Additional low-voltage areas outside PVs were documented in one patient. After ablation of the triggers, no atrial arrhythmias were inducible. During a median follow-up of 3.9 years, AF recurrence occurred in 44% of pts, comparable to the pts who underwent redo AF ablation without non-PV triggers (~50%).

Conclusions: Non-PV triggers were relatively uncommon in pts with recurrent AF after ablation. Nevertheless, prompt identification and ablation of these triggers were crucial for restoring sinus rhythm.

PO 283. REDUCING RECURRENCE, ENHANCING SUCCESS: THE ROLE OF SUBSTRATE MODIFICATION IN ATRIAL FIBRILLATION REDO PROCEDURES

Nuno Madruga, Miguel Azaredo Raposo, João Fonseca, Ana Abrantes, Rita Leal, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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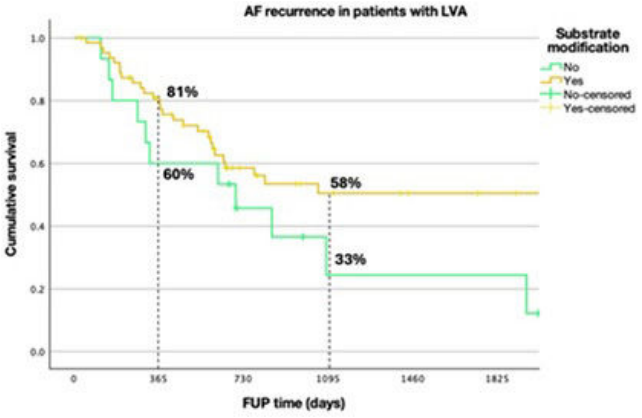
Introduction: Strategies for increasing atrial fibrillation (AF) redo procedures success are a matter of ongoing debate. Although pulmonary vein isolation (PVI) remains the cornerstone of AF ablation its long-term efficacy is unsatisfactory. In patients with extensive left atrium low-voltage areas (LVA) performing ablation targeting substrate areas may be of added value.

Objectives: To characterize a population with left atrium LVA and investigate the effectiveness of additional substrate modification in AF redo procedures.

Methods: Retrospective, single-center, study with patients were submitted to AF redo ablation from 2015 to 2024, with evidence of left atrium LVA beyond PVs. High-density electroanatomic systems were used to collect substrate and activation mapping (Ensite, Rhythmia, Carto). Substrate modification through linear lesions or scar homogenization were performed based on operator discretion. Survival analysis with Kaplan-Meier curves and log-rank test were performed to evaluate the time to AF recurrence.



Results: From a total of 231 patients submitted to AF redo, 79 had evidence of LVA. Patients had median age of 70 years (y), 54% male and 57% had paroxysmal AF. The majority of patients did not have structural heart disease and the median left atrial (LA) indexed volume and left ventricular ejection fraction were 39 mL/m^2 and 57%, respectively. Considering the entire study population, LVA was more frequent in females (47 vs. 25%, odds ratio 2.662, 95% confidence interval [CI]: 1.530-4.630, p < 0.001) and older patients (67 vs. 59y, p < 0.001). In the redo procedure, 32% of patients had persistence of PVI. LVA were most commonly identified in the anterior wall (63%), followed by posterior wall (38%) and roof (35%) of LA. Substrate modification beyond PVI was performed in 64/79 patients (81%). During a mean follow-up time of 3.4y, the recurrence rate of AF was 49%. Patients who were submitted to additional substrate modification had a longer time to AF recurrence, although it did not reach statistical significance (hazard ratio 0.547, 95%CI: 0.271-1.103, p = 0.09).

Conclusions: In this population submitted to AF redo ablation, the presence of LVA was common, particularly in older and female patients. Performing additional substrate modification showed a trend towards higher procedural success, with longer time to AF recurrence. Further research is needed to determine the role of LVA-targeted interventions in improving long-term outcomes in AF patients.

PO 284. HIGH-POWER ABLATION GUIDED BY ABLATION INDEX IN ATRIAL FIBRILLATION: A RETROSPECTIVE STUDY

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Hospital Garcia de Orta.

Introduction and objectives: Atrial fibrillation (AF) is the most common sustained arrhythmia in clinical practice and is associated with an increased risk of mortality, ischemic stroke, and decreased quality of life. Pulmonary vein isolation (PVI) via catheter ablation is a cornerstone treatment for patients with AF, aiming to create durable lesions using techniques such as contact force, ablation energy, and ablation index (AI). The AI is calculated by integrating contact force (CF), ablation energy, ablation time, and catheter stability, defining the parameter of a single ablation point. High-power ablation guided by AI for PVI appears to be a novel strategy in the treatment of AF, as demonstrated in some studies. This study aimed to evaluate the short-term efficacy and safety of high-power AI-guided ablation and to identify predictors of recurrence.
Methods: We conducted a retrospective cohort study that included 74 adult patients who underwent high-power AI-guided AF ablation (35 Watts/380 for the posterior wall; 45 Watts/500 for the anterior wall) at the Electrophysiology and Pacing Service of a tertiary hospital from January 2021 to November 2023. The procedure was performed under sedation using the CARTO® mapping system and SMARTTOUCH® NAV C ablation catheter. We analyzed the recurrence rate at 12 months and performed logistic regression to identify predictors.
Results: The mean age of the 74 patients was 61.5 ± 8.1 years, with 55.5% (44) being male. Paroxysmal AF was the most prevalent type of arrhythmia (64.9%). After an average follow-up of 11.1 ± 5.4 months, the cumulative recurrence rate was 27% (20 patients), with a mean time to recurrence of 7.0 ± 6.3 months. Long-standing persistent AF was an independent predictor of recurrence (OR 10.5, 95%CI 1.52-72.01, p = 0.01). ROC analysis revealed an area under the curve (AUC) of 0.72 (p < 0.01) and identified a cut-off indexed left atrial (LA) volume of 42.5 mL/m² for AF recurrence, with a sensitivity of 67% and a specificity of 75%. No complications or deaths were recorded during the study period.
Conclusions: High-power AI-guided ablation demonstrated to be a safe and effective strategy in the treatment of atrial fibrillation, with satisfactory short-term results. These findings highlight the importance of considering recurrence predictors, such as long-standing persistent AF and left atrial volume, to improve clinical outcomes

Sábado, 12 Abril de 2025 | 14:30-15:30

Área de Posters-écran 2 | Sessão de Posters 42 – Dispositivos cardíacos implantáveis: CDI e CRT

PO 285. OUTCOMES AFTER IMPLANTATION OF SUBCUTANEOUS-IMPLANTABLE CARDIOVERTER DEFIBRILLATORS (S-ICDS) FOR SECONDARY PREVENTION

Rita Amador, Joana Certo Pereira, Daniel Matos, Gustavo Rodrigues, João Carmo, Isabel Santos, Francisco Moscoso Costa, Pedro Galvão Santos, Pedro Carmo, Francisco Morgado, Diogo Cavaco, Pedro Adragão

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Introduction: Implantable cardioverter defibrillators (ICDs) are the gold standard therapy for sudden cardiac death (SCD) prevention. However,

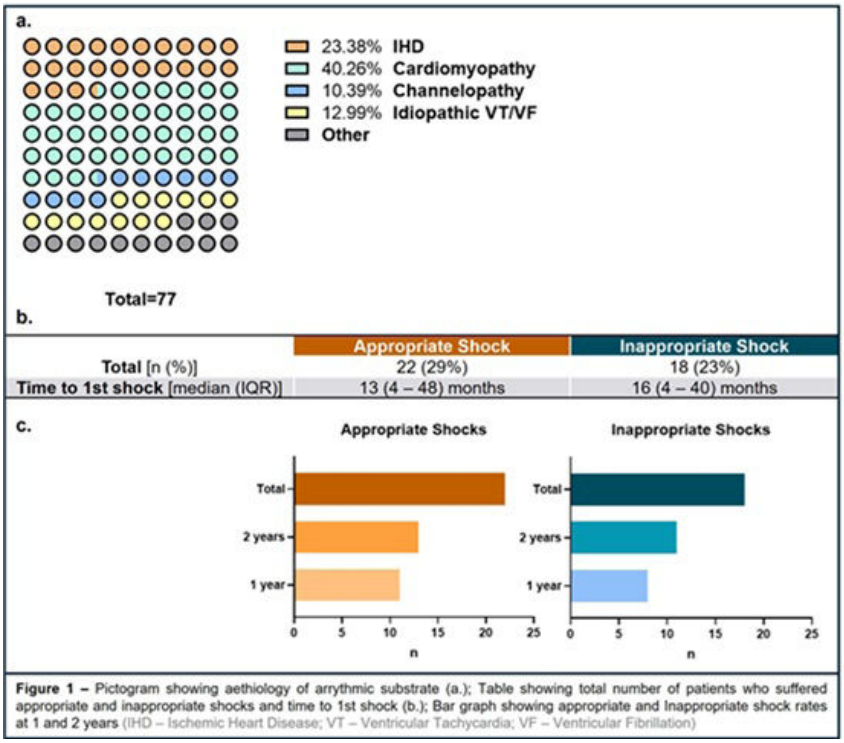

Figure 1 – Pictogram showing aethiology of arrythmic substrate (a.); Table showing total number of patients who suffered appropriate and inappropriate shocks and time to 1st shock (b.); Bar graph showing appropriate and Inappropriate shock rates at 1 and 2 years (IHD – Ischemic Heart Disease; VT – Ventricular Tachycardia; VF – Ventricular Fibrillation)

Figure PO 285

transvenous ICDs carry long-term risks, one of them being lead-related complications. Subcutaneous ICDs (S-ICDs) have emerged as a promising alternative, but data on their use in secondary prevention of SCD is limited. This study aims to evaluate the outcomes of patients receiving S-ICDs for secondary prevention at a single tertiary center.

Methods: A retrospective, observational study was conducted on patients implanted with S-ICDs for secondary prevention of SCD. Patients were followed at a specialized ICD center. Data on appropriate and inappropriate therapies and efficacy and safety outcomes were collected through the latest device follow-up.

Results: A total of 77 patients (mean age 41 ± 17 years, 74% male) received S-ICDs for secondary prevention from 2010 to 2024. Mean left ventricular ejection fraction (LVEF) was 54 ± 11%. Three patients (4.4%) who survived SCD had an LVEF below 35%, and 14% had a prior transvenous ICD. Arrhythmic substrate aetiologies are shown in Figure 1a. Over a median follow-up of 47 months (IQR 17-72), 31 patients (40%) experienced shocks. The incidence of appropriate shocks was 14% at 1 year and 17% at 2 years (Figure 1b), substantially lower than reported in previous series. This difference may reflect advancements in medical therapy, rigorous patient selection for S-ICDs and more permissive programming. Inappropriate shocks occurred in 10% at 1 year and 14% at 2 years, often due to T-wave oversensing (22%) or noise (39%). These cases were reviewed, and device vector optimization reduced recurrence, with only two patients receiving additional inappropriate shocks post-adjustment. Four patients transitioned to conventional ICDs due to electrode dysfunction (n = 3) or pocket infection (n = 1). One patient had the S-ICD system explanted and later reimplanted following successful infection management. A total of 3 cardiovascular deaths occurred, one due to SCD.

Conclusions: S-ICDs appear to be a viable alternative to transvenous ICDs for secondary prevention, with good efficacy and safety, potentially reducing long-term complications traditionally associated with transvenous ICD. Future studies should refine candidate selection criteria and strategies to minimize inappropriate therapies.

PO 286. IMPLANTATION OF EXTRAVASCULAR ICD: A SINGLE-CENTRE EXPERIENCE

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

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Introduction: The extravascular implantable cardioverter-defibrillator (EV-ICD) is an innovative technology for preventing sudden cardiac death. The EV-ICD lead is implanted in the retrosternal space and offers advantages over the subcutaneous, including anti-tachycardia pacing (ATP), pause-preventing pacing and an increased generator projected longevity (11.7 years vs. 7.3 years). While it has recently received approval for clinical use, clinical experience with its implantation remains limited, and data concerning its efficacy and safety are still sparse.

Objectives: We aim to describe our single-centre experience with EV-ICD implantation and to evaluate immediate and short-term safety and efficacy outcomes.

Methods: We retrospectively collected data from consecutive patients submitted to EV-ICD implantation since January 2023 to September 2024. We evaluated the procedural success, peri-procedural complications and the stability of ICD functional parameters at a 6-month follow-up.

Results: Six patients (mean age 33 years; 4 male) underwent EV-ICD implantation – 5 patients in 1ary prevention and 1 patient in 2ary prevention. Indications included genetic dilated cardiomyopathy (n = 2), status post myocardial infarction with reduced LV function (n = 1), hypertrophic cardiomyopathy (n = 1), and primary/idiopathic electrical disease (n = 2). All patients underwent a thoracic CT scan for procedural planning. The mean procedure duration was 69 ± 22 minutes. Electrodes were placed retrosternally in a left parasternal position, with generators positioned at the 5th intercostal space along the mid-axillary line. Defibrillation testing

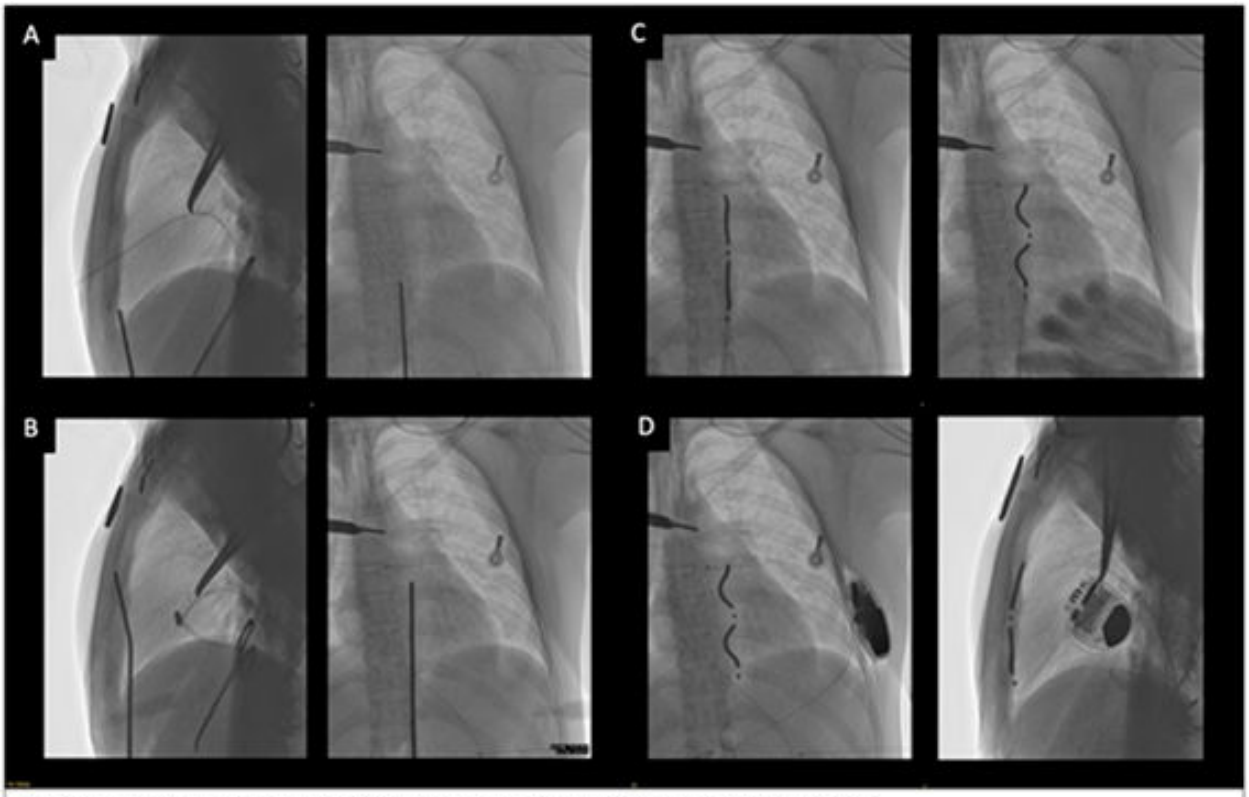

Figure 1: Sequential steps during EV-ICD implantation – example from a patient of our cohort

Figure PO 286

was successful in all cases, achieving termination of induced VF with a single 30J shock. No peri-procedural complications were observed, including bleeding, infection and lead dislodgement or dysfunction. During a median follow-up of 143 days (IQR 63-224) no therapies (appropriate or inappropriate) were delivered. Sensing amplitude, pacing lead impedance, and shock lead impedance remained stable and did not significantly change during follow-up compared to implantation values (8.7 [1.5-20] mV vs. 7.5 [2.8-16] mV; 494 [399-608] vs. 445 [342-562] ?; 88 ± 16 vs. 70 ± 24 ?, all p > 0.05). One patient died of a non-cardiac cause.
Conclusions: In our initial experience, EV-ICD implantation was feasible, safe and effective. There were no complications during the peri-procedural phase and the device performance remained stable throughout the follow-up period. These findings highlight the potential of EV-ICDs for arrhythmia management and support their use in clinical practice.

PO 287. SUBCUTANEOUS VERSUS TRANSVENOUS IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR THERAPY: INSIGHTS FROM REAL-WORD EVIDENCE

Helena Sofia Santos Moreira, Pedro Mangas Palma, Miguel Rocha, Ana Isabel Pinho, Cátia Oliveira, Luís Santos, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Luís Adão, Rui André Rodrigues, Ana Lebreiro

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Several studies have explored the safety and efficacy of the subcutaneous implantable cardioverter-defibrillator (S-ICD) as a potentially non-inferior alternative to transvenous ICD (TV-ICD) for preventing sudden cardiac death (SCD), suggesting it as a considerable alternative in selected cases.
Objectives: To compare baseline characteristics and clinical outcomes between S-ICD and TV-ICD patients (pts) at a Portuguese tertiary hospital. The primary individual endpoints included cardiovascular mortality or hospitalization, ineffective or inappropriate shocks, battery depletion and system-related infections.
Methods: We conducted a retrospective analysis on pts who received ICDs between September 2014 and September 2023 at our centre. Medical records of 1646 pts were initially reviewed. Pts with presumable need for antitachycardia pacing or resynchronization therapies, including known ischemic cardiomyopathy or left ventricular systolic disfunction, were excluded.
Results: A total of 93 pts were included: 28 (31.1%) with S-ICD and 65 (69.9%) with TV-ICD. Most devices (60.2%) were implanted for primary prevention. Primary diagnosis differed significantly (p = 0.009): hypertrophic cardiomyopathy was the most common in TV-ICD pts (n = 27, 41.5%), while Brugada syndrome and other primary electrical diseases were the most frequent entity in S-ICD pts (n = 14, 50%). S-ICD pts were younger (28 ± 10 vs. 48 ± 17 years, p < 0.001), while TV-ICD pts had more comorbidities, including arterial hypertension (p = 0.003), dyslipidemia (p = 0.001), and obesity (p = 0.037). No other baseline features were statistically different. The follow-up time was similar, 44 ± 31 months (p = 0.074), and no cardiovascular deaths were reported in both groups. Also, cardiovascular hospitalizations did not differ significantly (overall n = 15, 16.1%; p = 0.061). Device complications rate was low, with no statistically significant differences in inappropriate shocks (p = 0.514), ineffective shocks (p = 0.301), or battery depletion (p = 0.159) (Table 1). No system-related infections were observed in either group.
Conclusions: Consistent with prior studies, our S-ICD population tended to be younger and with fewer comorbidities. Our real-world data suggests potentially comparable performance between subcutaneous and transvenous devices on a short-term period. Further randomized controlled trials with long-term follow-up are needed to validate our confidence in S-ICD and possibly establish it as an equivalent therapy to TV-ICD in SCD prevention.

PO 288. PRO-BNP VARIATION AS A RISK MARKER OF VENTRICULAR ARRYTHMIAS IN CRT PATIENTS

Luís Sousa Azevedo, Marta Bernardo, Isabel Martins Moreira, Isabel Nóbrega Fernandes, José Pedro Guimarães, Renato Margato, Paulo Fontes, Sílvia Leão, Ilídio Moreira

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Introduction: Pro-brain natriuretic peptide (pro-BNP) is a biomarker associated with cardiovascular disease and is commonly elevated in patients with heart failure, particularly during acute events.
Objectives: This study aimed to evaluate whether changes in pro-BNP levels after Cardiac Resynchronization Therapy (CRT) are related to the risk of developing ventricular arrhythmias.
Methods: This observational retrospective study included patients who underwent CRT device implantation between January 2017 and March 2024. From a total population of 201 patients, we included all those who met the evaluation criteria for this study, specifically having pro-BNP measurements taken before CRT device implantation and at the one-year follow-up. Patients were categorized into two groups based on their pro-BNP variation during follow-up, calculated as the difference between pro-BNP levels measured before implantation and at the 1-year follow-up. Group differences were assessed using the Chi-square test or the median comparison test, as appropriate. Survival analysis was conducted using Cox regression, adjusted for potential confounding factors, with the occurrence of sustained

Table 1. Comparison of clinical outcomes between subcutaneous and transvenous implantable cardioverter-defibrillator groups.

		All (n=93)	S-ICD (n=28)	TV-ICD (n=65)	p value
Follow-up duration time (months) - mean ± SD		44 ± 31	35 ± 27	48 ± 32	0.074**
Cardiovascular hospitalizations - n (%)					**0.061*** **
	Yes	15 (16.1)	8 (28.6)	7 (10.8)	
Inappropriate shocks - n (%)					**0.514*** **
	Yes	2 (2.2)	1 (3.6)	1 (1.5)	
Ineffective shocks - n (%)					**0.301*** **
	Yes	1 (1.1)	1 (3.6)	0 (0)	
Battery depletion - n (%)					**0.159*** **
	Yes	5 (5.4)	3 (10.7)	2 (3.1)	

Footnote: S-ICD - Subcutaneous implantable cardioverter-defibrillator. SD - Standard deviation. TV-ICD -Transvenous implantable cardioverter-defibrillator.
** Bivariate analysis with Independent samples T test.
*** Bivariate analysis with Fisher test.

Figure PO 287

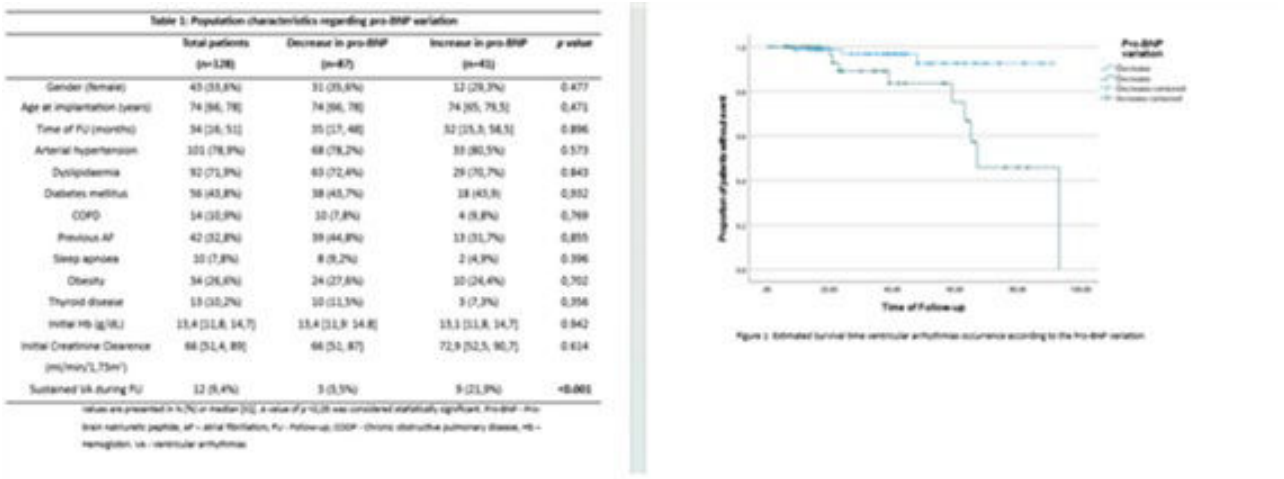

Figure PO 288

ventricular arrhythmias (defined as ventricular fibrillation or ventricular tachycardia lasting more than 30 seconds) as the outcome.
Results: A total of 128 patients were included in this study, of whom 43 (33.6%) were female, with a median age of 74 years [66; 78]. The median follow-up duration was 34 months [16; 51]. Baseline characteristics were not significantly different between groups (Table 1). The median pro-BNP variation in the study population was -413 pg/mL [-1,991; 277]. The occurrence of ventricular arrhythmias was significantly higher in patients with a positive variation in pro-BNP levels compared to those with a negative variation (21.9 vs. 3.5%, p < 0.001). Among patients who experienced ventricular arrhythmias, the median pro-BNP variation was 440 pg/mL [-118.3; 1,054]. Survival analysis using Cox regression revealed that an increase in pro-BNP levels 1 year after CRT implantation was associated with a significantly higher risk of ventricular arrhythmias later in follow-up (HR: 5.409 [95%CI: 1.335-9.687], p = 0.017, Figure 1).
Conclusions: In this population, an increase in pro-BNP levels in the first year after CRT implantation was associated with a higher occurrence of ventricular arrhythmias later in the follow-up. This suggests that pro-BNP could serve as a potential risk marker for ventricular arrhythmias, enabling earlier identification of patients at increased risk. However, further studies are necessary to validate these findings.

PO 289. IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR - DO WE HAVE ALTERNATIVE PREDICTORS TO ADMINISTERED SHOCKS?

Lucas Hamann, Joana Massa Pereira, Sofia Andraz, Joana Guerreiro Pereira, Miguel Espírito Santo, Hugo Costa, Pedro de Azevedo, Daniela Silva, Raquel Fernandes, Dina Bento, João Moura Guedes, Jorge Mimoso

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

Introduction: Predictors of administered shocks in patients with implantable cardioverter-defibrillators (ICDs) have been studied extensively, with heart failure (HF), a history of chronic obstructive pulmonary disease (COPD), and ventricular tachycardia (VT) at the time of ICD implantation being primary factors. Understanding these predictors remains crucial for improving patient outcomes and quality of life.
Objectives: To identify alternative predictors of administered shocks in ICD patients and evaluate whether these shocks influenced a composite outcome of death, myocardial infarction, stroke, or hospitalization for HF.
Methods: This retrospective study (2020-2023) analyzed 264 patients with ICDs, stratified into "shocks administered" and "no shocks administered" groups. Categorical variables were reported as frequencies and percentages. Logistic regression was employed for multivariate analysis, with p < 0.05 considered statistically significant.

Results: The cohort had a mean age of 66 ± 8 years and a mean follow-up period of 29 ± 13 months. Of the participants, 28 (12.5%) experienced administered shocks, while 196 (87.5%) did not. Binary analysis revealed a significantly higher use of antiarrhythmic drugs in the shocks-administered group, but no significant differences were observed for other predictors, including age, gender, hypertension, diabetes mellitus, dyslipidemia, obesity, alcohol use, smoking, left ventricular ejection fraction (LVEF), chronic kidney disease, atrial fibrillation, non-ischemic heart disease, optimized medical therapy, or the etiology of ICD implantation. There was no difference between the two groups regarding the composite outcome (p = 0.550). Multivariate analysis identified obesity as the sole independent predictor of administered shocks (OR: 3.144, p = 0.042).

	Shocks administered	No shocks administered		
	(n=28, 12.5%)	(n=196, 87.5%)	Total n=264	*P* Value
Gender				
Female	3 (15.8%)	43 (21.9%)	56 (21.2%)	
Male	16 (84.2%)	153 (78.1%)	208 (78.8%)	0.770
Age	68 (63-73)	67 (58-74)	66 (58-73)	0.709
Diabetes Mellitus	9 (47.4%)	87 (45.1%)	116 (45.1%)	0.848
Dyslipidemia	17 (89.5%)	131 (67.9%)	179 (69.6%)	0.050
Arterial Hypertension	14 (73.7%)	123 (63.7%)	164 (63.8%)	0.387
Smoking *Status*	11 (57.9%)	108 (56.0%)	146 (56.8%)	0.871
Obesity	9 (47.4%)	52 (26.9%)	75 (29.2%)	0.061
Chronic Kidney Disease	6 (31.6%)	41 (21.7%)	52 (20.5%)	0.387
Alcohol	3 (15.8%)	42 (21.8%)	54 (21.0%)	0.770
Heart Failure	15 (83.3%)	169 (87.6%)	220 (85,6%)	0.709
LVEF	40 (26-46)	35 (30-50)	33 (27-41)	0.716
Atrial Fibrillation	4 (21.1%)	50 (25.9%)	69 (26.7%)	0.787
Medical Therapy				
ACEI/RAS	10 (52.6%)	68 (36.6%)	102 (40.5%)	0.169
ARNI	7 (38.9%)	104 (55.6%)	131 (52.0%)	0.174
MRA	14 (73.7%)	127 (67.9%)	176 (69.6%)	0.606
SGLT2i	11 (57.9%)	111 (59.4%)	155 (61.5%)	0.902
B-blockers	17 (89.5%)	164 (87.2%)	225 (88.6%)	1.000
Antiarrhythmics	10 (52.6%)	45 (24.1%)	65 (25.7%)	**0.007**
Primary prevention	11 (57.9%)	132 (69.8%)	165 (70.2%)	0,284
Secundary prevention	8 (42.1%)	55 (28.9%)	69 (29.9%)	0.233
Ischemic etiology	12 (66.7%)	101 (64.3%)	139 (63.2%)	0.844
Follow-up (months)	34 (26-46)	33 (18-43)	29 (14-42)	0.395

Conclusions: This study highlights obesity as a strong independent predictor of administered shocks. These findings underscore the importance of managing established ICD predictors while addressing body weight to improve quality of life and reduce distressing, painful shocks. Given the potential protective properties of obesity against overall mortality, these results prompt further discussion regarding the risk-benefit balance of obesity management in ICD patients.

PO 290. CRT IN PATIENTS REQUIRING ANTIBRADYCARDIA PACING - ARE THEY GOOD RESPONDERS?

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Introduction: Cardiac resynchronization therapy (CRT) is recommended for patients with LVEV < 40% regardless of NYHA class who have an indication for ventricular pacing and high-degree AV block. The response of these patients when compared to patients with a formal indication for CRT remains uncertain.
Objectives: To characterize patients undergoing CRT based on requirement of antibradycardia pacing (Required vs. Not Required) and evaluate differences in LV remodeling, outcomes and survival between these groups.
Methods: A retrospective analysis between 2020-2023 included 95 patients who underwent CRT-P/CRT-D implantation. Data included demographics, cardiovascular risk factors, etiology, medical therapy, echocardiographic and electrocardiographic parameters, and documented arrhythmias. Outcomes analyzed comprised hospitalization for heart failure, myocardial infarction, stroke or death.
Results: The study included 74 patients, of whom 21 (28.4%) had indication for antibradycardia pacing. The mean age was 69.5 ± 10.4 years, and 75.8% were male. Patients requiring antibradycardia pacing had higher prevalence of hypertension (85.7 vs. 60.4%, p = 0.036) and atrial fibrillation (52.4 vs. 24.5%, p = 0.021), and patients without indication for pacing were more smokers (14.3 vs. 45.3%, p = 0.013) and had higher prevalence of use of beta-blockers and mineralocorticoids receptors antagonists. Patients requiring antybradycardia pacing had higher LVEF at baseline (39.1 vs. 32.8%, p = 0.013) but less LVEF improvement after CRT implantation (LVEF pre 39.1% and LVEF pos 39.4%, p = 0.954) and less LV remodeling (TDV pre 201 ml and TDV pos 167 m, p = 0.132), when compared to patients without need for pacing (LVEF pre 32.8% and LVEF pos 39.4%, p = 0.031) and (TDV pre 193ml and TDV pos 151ml, p = 0.106). No significant differences in composite outcomes or survival were observed between the groups over 35-months follow-up.
Conclusions: Patients with non-preserved LVEF with indication for antibradycardia pacing exhibited less pronounced reverse remodeling (lower LVEF end TDV improvement) following CRT implantation, compared to patients with formal indication for resynchronization, although without differences in hard outcomes. The results of the study highlight the possibility of new pacing strategies in these patients, like conduction system pacing.

			Antibradycardia pacing			
			Required (n=21, 28,4%)	Not-Required (n=53, 71,6%)	Total (n=95)	p value
Age	Mean±SD - years		67,9±13,5	67,1±9,71	69,5±10,4	0,065
Gender	Male	n (%)	17 (81,0)	40 (75,5)	72,0 (75,8)	0,613
Hypertention		n (%)	17,0 (85,7)	32,0 (60,4)	64,0 (68,8)	**0,036**
Diabetes (type 2)		n (%)	13,0 (61,9)	29,0 (54,7)	52,0 (55,9)	0,574
Dyslipidemia		n (%)	18,0 (85,7)	37,0 (69,8)	69,0 (74,2)	0,158
Smoker		n (%)	3,00 (14,3)	24,0 (45,3)	37,0 (39,8)	**0,013**
Obesity		n (%)	3,00 (14,3)	11,0 (20,8)	22,0 (23,7)	0,522
Alcool		n (%)	4,00 (19,0)	13,0 (24,5)	23,0 (24,7)	0,613
Atrial fibrillation		n (%)	11,0 (52,4)	13,0 (24,5)	27,0 (29,0)	**0,021**
Chronic renal disease		n (%)	9,00 (42,9)	14,0 (26,9)	31,0 (34,1)	0,185
Responders		n (%)	7,00 (46,7)	18,0 (56,3)	34,0 (55,7)	0,539
Super-responders		n (%)	5,00 (33,3)	14,0 (43,8)	24,0 (39,3)	0,498
Optimized medical therapy	ARNi	n (%)	9,00 (45,0)	31,0 (58,5)	51,0 (55,4)	0,302
	ACEi/ARB	n (%)	10,0 (50,0)	15,0 (28,3)	32,0 (34,8)	0,081
	MRA	n (%)	9,00 (47,4)	40,0 (75,5)	62,0 (68,1)	**0,024**
	SGLT2i	n (%)	15,0 (78,9)	33,0 (62,3)	60,0 (65,9)	0,186
	Beta-blocker	n (%)	13,0 (68,4)	48,0 (90,6)	79,0 (86,8)	**0,021**
	AAR	n (%)	5,00 (26,3)	14,0 (24,4)	21,0 (23,1)	0,993
Ischemic hear disease		n (%)	6,00 (33,3)	23,0 (46,9)	38,0 (45,8)	
Non-ischemic heart disease		n (%)	12,0 (66,7)	26,0 (53,1)	45,0 (54,2)	0,319
LVEF - pre	Mean±SD - %		39,1±12,8	32,8±11,9	33,3±11,1	**0,013**
LVEF - pos	Mean±SD - %		39,4±15,2	39,4±12,1	40,7±14,1	0,413
			p=0,954	**p=0,031**	**p=0,009**	
TDV - pre	Mean±SD - ml		201±41,6	193±84,4	200±77,1	0,359
TDV - pos	Mean±SD - ml		167±52,3	151±51,8	164±69,4	0,989
			p=,0132	**p=0,006**	**p=0,001**	

			Antibradycardia pacing			
Mean follow-up 35 months			Required (n=21, 71,6%)	Not-Required (n=53, 28,4%)	Total (n=95)	p value
Primary outcome	Total	n (%)	4,00 (19,0)	17,0 (32,1)	24,0 (25,3)	0,262
Individual components	Death	n (%)	4,00 (20,0)	10,0 (18,9)	17,0 (18,1)	0,913
	Heart failure admissions	n (%)	3,00 (14,3)	14,0 (26,4)	20,0 (21,1)	0,263
	Myocardial infarction	n (%)	1,00 (4,80)	4,00 (7,50)	5,00 (5,30)	0,667
	Stroke	n (%)	0,00 (0,00)	3,00 (5,70)	3,00 (3,20)	0,266

Sábado, 12 Abril de 2025 | 14:30-15:30

Área de Posters-écran 3 | Sessão de Posters 43 – IC e comorbilidades

PO 291. BREAKING BOUNDARIES: HEMOGLOBIN, HEMATOCRIT AND HEART FAILURE – THE SGLT2 INHIBITOR CONNECTION

Diogo Rosa Ferreira[1], Ana Abrantes[1], Fátima Salazar[2], Ana Francês[2], Rafael Santos[1], Joana Rigueira[1], Doroteia Silva[1], Nuno Lousada[1], Fausto 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]Unidade Local de Saúde de Santa Maria.

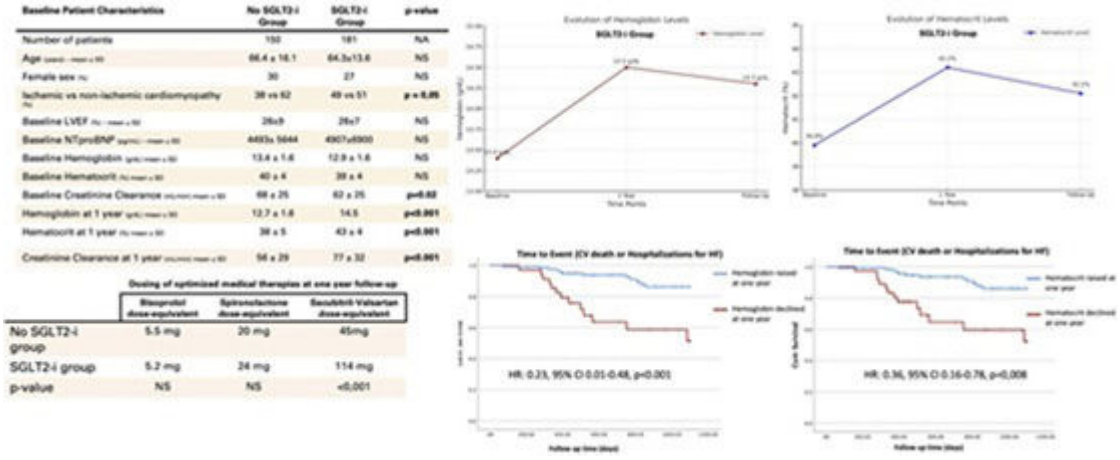
Introduction: Evidence suggests SGLT2 inhibitors (SGLT2i) are associated with increased hemoglobin and hematocrit levels. This effect is particularly evident in patients with heart failure (HF), but it remains unclear whether these changes are independent of creatinine improvement and whether they correlate with prognosis.
Objectives: To evaluate hemoglobin and hematocrit changes after SGLT2i introduction and their relation to prognosis in HF patients.
Methods: Consecutive HF patients with reduced ejection fraction were followed in an outpatient clinic with protocol-based follow-up. The intervention group included 181 patients who began follow-up between 2020-23 and were prescribed SGLT2i. The control group included 150 patients who began follow-up between 2016-19 and did not receive SGLT2i in the first year. Group comparisons were made using Chi-square and Mann-Whitney tests. The prognostic impact of hemoglobin and hematocrit changes was assessed using Kaplan-Meier survival analysis and multivariable Cox regression.
Results: The SGLT2i group had a mean age of 66 years, 27% female, and a baseline left ventricular ejection fraction (LVEF) of 28%. The control group was similar in age, sex, baseline LVEF, NT-proBNP, hemoglobin, hematocrit, and estimated glomerular filtration rate (eGFR). The mean follow-up time for the intervention group was 2.4 years. After one year of optimized medical therapy, both groups showed significant LVEF improvements (SGLT2i: 28% to 41%; control: 28% to 38%). The SGLT2i group also showed significant increases in hemoglobin (12.9 to 14.5 g/dL), hematocrit (39% to 43%), and eGFR (62 to 77 mL/min/1.73) (Figure 1). In contrast, these parameters remained unchanged in the control group (Table 1). The differences between groups were statistically significant ($p < 0.001$). Furthermore, in the SGLT2i group, hemoglobin and hematocrit increases were independent of eGFR improvements ($p < 0.001$). Patients in the SGLT2i group who experienced hemoglobin increases had a 77% lower risk of cardiovascular mortality or HF hospitalization (HR: 0.23; 95%CI 0.01-0.48, $p < 0.001$). Similarly, patients with hematocrit increases had a 64% lower risk for the same outcome (HR: 0.36; 95%CI 0.16-0.78, $p = 0.008$).
Conclusions: These findings support a positive effect of SGLT2i on hemoglobin and hematocrit levels, independent of eGFR changes. These changes were associated with significant reductions in cardiovascular mortality and HF hospitalizations. Hematologic improvements may aid in prognostic stratification and predicting individual responses to SGLT2i therapy in HF. Further research is needed to explore underlying mechanisms.

PO 292. ELEVATED FERRITIN AS A POTENTIAL RISK MARKER FOR DISEASE SEVERITY AND PROGNOSIS IN HEART FAILURE

José Luís Ferraro, Ana Rodrigo Costa, Mauro Moreira, Inês G. Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Inês Almeida, Carla Almeida, Aurora Andrade

Centro Hospitalar Tâmega e Sousa.

Introduction: Elevated ferritin levels are associated with systemic inflammation and have been linked to poorer outcomes in heart failure (HF). The aim of this study was to evaluate the association between ferritin levels and disease severity in HF patients.
Methods: A retrospective single-center analysis was conducted including 265 hospitalized HF patients throughout 2022. This cohort was stratified into two groups based on admission ferritin levels: ferritin > 300 ng/mL (n = 57) and ferritin ≤ 300 ng/mL (n = 98), excluding those receiving intravenous iron therapy. A statistical analysis was performed to compare baseline characteristics, biomarkers and outcomes between groups. A combined endpoint, which included HF hospitalization, cardiovascular death, all-cause mortality, and unplanned hospital visits, was analyzed. A p-value of < 0.05 was considered statistically significant.
Results: 67.9% were male and the mean age was 70.7 ± 12.4 years. The median follow-up period was 1.5 years. Hypertension, diabetes mellitus, dyslipidemia, and chronic renal disease were prevalent, with no significant differences between the groups. Patients with ferritin levels > 300 ng/mL had a higher proportion of chronic decompensated HF (71.2 vs. 56.4%, $p = 0.045$), versus new-onset HF. There were no differences between the groups regarding HF etiology. Patients with ferritin levels > 300 ng/mL had significantly lower LVEF (30.30% ± 13.45 vs. 36.03% ± 15.82%, $p = 0.010$), higher NT-proBNP levels (13,863 ± 1,639 pg/mL vs. 8,684 ± 714 pg/mL, p 0.004) and lower albumin levels (3.45 ± 0.56 g/dL vs. 3.69 ± 0.44 g/dL, $p = 0.008$). A weak positive correlation was found between ferritin levels and NT-proBNP levels ($r = 0.114$, $p < 0.086$). Ferritin levels > 300 ng/mL was associated with combined endpoint (55.9 vs. 40.7%, $p = 0.042$). Individually, there was an association with cardiovascular death (14 vs. 5.1%, $p = 0.043$). No significant associations were found for the other variables.



Baseline Patient Characteristics	No SGLT2-i Group	SGLT2-i Group	p-value
Number of patients	150	181	NA
Age	66.4 ± 10.1	64.3±13.6	NS
Female sex	30	27	NS
Ischemic vs non-ischemic cardiomyopathy	38 vs 62	49 vs 51	p = 0.05
Baseline LVEF	28±9	28±7	NS
Baseline NTproBNP	4493± 5644	4907±6900	NS
Baseline Hemoglobin	13.4 ± 1.4	12.9 ± 1.6	NS
Baseline Hematocrit	40 ± 4	39 ± 4	NS
Baseline Creatinine Clearance	68 ± 25	62 ± 25	p=0.02
Hemoglobin at 1 year	12.7 ± 1.4	14.5	p<0.001
Hematocrit at 1 year	38 ± 5	43 ± 4	p<0.001
Creatinine Clearance at 1 year	56 ± 29	77 ± 32	p<0.001

Dosing of optimized medical therapies at one year follow-up	Bisoprolol dose-equivalent	Spironolactone dose-equivalent	Sacubitril-Valsartan dose-equivalent
No SGLT2-i group	5.5 mg	20 mg	45mg
SGLT2-i group	5.2 mg	24 mg	114 mg
p-value	NS	NS	<0.001

Figure PO 291

Conclusions: Elevated ferritin in HF patients is linked to a more severe disease phenotype, characterized by reduced LVEF, elevated NT-proBNP levels, and decreased albumin levels, suggesting a more congestive profile and compromised nutritional status. Higher ferritin levels were more strongly linked to chronic HF and to worse outcomes, particularly increased cardiovascular mortality. These findings highlight the potential of ferritin as an important risk marker in heart failure, warranting further investigation in future studies.

PO 293. ROLE OF ORAL IRON IN HFREF AND DECREASED TRANSFERRIN SATURATION: A SECONDARY ANALYSIS OF IRONOUT-HF

António Afonso Angélico Gonçalves[1], Ana Rita Ferreira Leite[2], Pedro Marques[2], Adelino Leite Moreira[2], João Pedro Ferreira[2]

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

Introduction: Iron deficiency (ID) associates with high morbimortality in patients with heart failure with reduced ejection fraction (HFrEF). Ferritin may not be an accurate discriminator of ID and a new definition of ID including only decreased (< 20%) transferrin saturation (TSat) has been proposed. Patients decreased TSat may experience clinical improvement from oral iron.
Objectives: Assess the effects of oral iron compared to placebo in HFrEF patients with decreased TSat (< 20%) on iron biomarkers, functional capacity and quality of life.
Methods: We used patient-level data from IRONOUT-HF randomized placebo-controlled trial (RCT), which assessed the efficacy of treatment with oral iron or placebo for 16 weeks on functional capacity in 225 patients with HFrEF and ID. We performed a secondary analysis, including only patients with decreased (< 20%) TSat at baseline. We assessed differences between patients treated with oral iron and placebo in (1) baseline characteristics using T-test for independent samples or Mann-Whitney U tests, (2) baseline to end-of-follow-up differences in hemoglobin, iron biomarkers and functional capacity using multivariate linear regressions. For each independent variable, the predictor variables used were treatment allocation and respective baseline variable.
Results: Out of 225 patients included in the original trial, 108 had decreased TSat at baseline of which 54 received placebo and 54 received oral iron. Patients treated with oral iron, when compared to placebo, had similar age (62.2 vs. 61.5 years), sex (61 vs. 69% male), left ventricle ejection fraction (24.8 vs. 26.3%), peak VO2 uptake (12.7 vs. 12.3 ml/kg/min), baseline hemoglobin (12.1 vs. 12.3 g/dL), baseline ferritin (79.5 vs. 52.5 ng/mL), baseline TSat (16.0 vs. 14.0%) and baseline hepcidin (4.92 vs. 5.11 ng/mL) – all p values > 0.1. Compared to placebo, treatment with oral was not associated with baseline to end-of-follow-up changes in ferritin (mean absolute difference [MAD] 5.0 ng/mL, p = 0.552, 95%CI -13.8 to 20.4), TSat (MAD 2.24%, p = 0.135, 95%CI - 0.71 to 5.19) or peak VO2 (MAD 0.69 ml/kg/min, p = 0.079, 95%CI -0.08 to +1.46).
Conclusions: In HFrEF patients with decreased TSat, treatment with oral iron for 16 weeks was not associated with a significant improvement in TSat or ferritin and only showed a trend for improvement on functional capacity. Benefit from Ooal iron in HFrEF and ID remains uncertain and intravenous iron should be preferred.

PO 294. PREDICTING EVENTS IN FERROPENIC ACUTE HEART FAILURE PATIENTS: THE B12 PARADOX

Mauro Moreira, José Luís Ferraro, Ana Rodrigo Costa, Inês Gomes Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Adriana Pereira, Aurora Andrade

ULS Tâmega e Sousa.

Introduction: Heart failure (HF) is a prevalent condition associated with poor short- and long-term prognosis. Iron deficiency is linked to a particularly vulnerable and less understood subset of patients, who often benefit from specific, cyclic ferric supplementation.
Methods: This was a single-centre, retrospective study of patients with acute heart failure (AHF) admitted consecutively to a tertiary centre. Patients with normal iron parameters—defined as TSAT > 20% and Ferritin > 100—were excluded. Clinical history, symptoms, biomarkers, electrocardiogram (ECG), and echocardiogram findings were analyzed. A composite endpoint (CE) was defined to include unplanned hospital visits, diuretic up-titration, hospital admission, and all-cause mortality. Backward Wald logistic regression (BWLR) was used to identify independent predictors of the composite endpoint. Follow-up was conducted for up to 22 months.
Results: A total of 199 patients were included (mean age: 70.45 ± 11.8 years). Of these, 93 patients (46.7%) reached the composite endpoint, including 15 deaths (7.5%). BWLR identified the following as independent predictors of the composite endpoint: Previous coronary artery disease, Acute decompensation of chronic HF, Discharge with all four pillars of HF therapy, Transferrin and Vitamin B12. The regression model demonstrated excellent predictive ability for the composite endpoint (AUC = 0.815; 95%CI: 0.747-0.882; p < 0.001). Vitamin B12 showed a direct association with the composite endpoint (mean B12 levels: 344.8 ± 239.6 vs. 475.2 ± 397.8; p = 0.007; BWLR 11th iteration: p = 0.028, OR = 1.001). In contrast, ferritin and TSAT were not significantly associated with the composite endpoint or any of its individual components.
Conclusions: Patients with ferropenic HF exhibited a notably high rate of adverse events during long-term follow-up. In this subgroup, additional iron-related variables did not predict long-term outcomes, underscoring the need for improved prognostication methods. Interestingly, Vitamin B12 was an independent direct prediction of poor outcomes, a finding that contrasts with its behaviour in non-ferropenic patients. The paradox we observed—high B12 associating with poor outcomes—could reflect inflammatory states by which chronic inflammation alters B12 metabolism and iron utilization (functional iron deficiency); liver dysfunction, leading to elevated B12 levels in patients with hepatic congestion or dysfunction, often seen in HF. Ultimately, it may be a compensatory mechanism - elevated B12 may signify a maladaptive response to increased cellular turnover or stress.

PO 295. UNRAVELLING THE UGLY TRUTH ABOUT SLEEP APNEA AND ADVANCED HEART FAILURE: A PORTUGUESE REAL-WORLD SETTING

Patrícia Bernardes, Mariana Marçal, Jéni Quintal, Tatiana Duarte, Hugo Viegas, Ana Sousa, Crisálida Ferreira, Dina Ferreira, Andreia Soares, Vânia Caldeira, Sara Gonçalves, Filipe Seixo

Hospital São Bernardo (Setúbal), ULS Arrábida.

Introduction: Sleep apnea (SA) is a prevalent sleep-related breathing disorder associated with intermittent hypoxia. Heart failure (HF) has emerged as a significant concern due to shared risk factors.
Objectives: To estimate the prevalence and impact of sleep apnea on clinical outcomes in patients with advanced heart failure (AHF).
Methods: This retrospective observational study included 74 outpatients with advanced heart failure followed at our HF unit, between September 2020 and September 2024. SA screening was performed in all pts by local protocol. Population was divided in 2 groups according to the presence of SA. Groups were compared according to basal characteristics and events. AHF was defined according to the 2018 *Position statement from Heart Failure Association of the European Society of Cardiology for AHF.*
Results: This cohort included 74 pts with a mean age of 72 years (SD = 12.4). Mean follow up was 18.5 months ± 9.2. 93% had a current NYHA status of III or IV. Median NtproBNP was 5,174 pg/mL. 45% of pts (n = 33) were diagnosed with sleep apnea; 78% were male. Most pts had ischaemic HF (n = 15; 45.5%). Regarding HF subtypes, HFrEF accounted for 70% (n = 23), 21% (n = 7) had HFmEF and 9% (n = 3) had HFpEF. Mean ejection fraction at screening was lower in the SA group (33.7 ± 12.2, p = 0.003). The majority of AHF pts was classified with severe SA (n = 14; 42.4%; mean AHI 29.5 ± 13.2 events/h) and obstructive events (n = 28; 84.8%). SA pts came to more urgent visits (7 ± 6.5 vs. 4.9 ± 4.1, *p* = 0.045) and had higher rates of hypertension (88 vs. 61%, *p* = 0.005). The nº of urgent visits showed a moderate positive correlation with the apnea-hypopnea index (AHI) (r = 0.453; p = 0.027). HF hospitalizations were low in both groups. In HFrEF pts, SA was associated with higher mean NT-proBNP (10,432 vs. 5,902 pg/mL, *p* = 0.046). All pts diagnosed with obstructive SA started positive airway pressure therapy; only 1 of them quitted treatment. Death from any cause occurred in 36 pts (48.6%) traducing pt severity. SA was associated with a significantly higher incidence of death

in pts with AHF (p = 0.011). Furthermore, SA emerged as an independent predictor of mortality from any cause (OR = 3.3, 95%CI: 1.15-9.91, p = 0.026).
Conclusions: Sleep apnea is a high prevalent comorbidity in pts with AHF and is associated with higher rates of decompensation. Early diagnose and tailored therapeutic strategies may contribute to reduce the burden of these interrelated conditions.

PO 296. HYPERURICEMIA: A MARKER OF SEVERE CONGESTION AND DISEASE BURDEN IN HEART FAILURE

José Luís Ferraro, Mauro Moreira, Ana Rodrigo Costa, Inês G. Campos, Rafaela G. Lopes, Joel Ponte Monteiro, Inês Almeida, Carla Almeida, Aurora Andrade

Centro Hospitalar Tâmega e Sousa.

Introduction: Hyperuricemia has been linked to worse outcomes in heart failure (HF). The aim of this study was to evaluate the relationship between hyperuricemia and clinical characteristics and outcomes in hospitalized HF patients.
Methods: A retrospective single-center analysis was conducted with 265 patients hospitalized for HF throughout 2022, divided into two groups: hyperuricemia (serum level at admission > 7.5 mg/ml, n = 137) and non-hyperuricemia (< 7.5 mg/dl, n = 105). A statistical analysis was performed to compare baseline characteristics and outcomes between groups. The combined endpoint included HF hospitalization, cardiovascular death, all-cause mortality, and unplanned hospital visits. A p-value of < 0.05 was considered statistically significant.
Results: 67.9% were male and mean age was 70.7 ± 12.4 years. The median follow-up period was 1.5 years. Cardiovascular risk factors were prevalent. In the hyperuricemia group, 51 patients (37.2%) had ischemic etiology, compared to 48 patients (45.7%) (p = 0.183). In the hyperuricemia group, 39 patients (28.5%) had valvular etiology, compared to 26 patients (24.8%) (p = 0.519). Hyperuricemia group were predominantly classified in HF Profile B (89.8%) and Profile C (9.5%), with a very small proportion presenting cardiogenic shock. Non-hyperuricemia group were mostly classified in Profile B (93.3%) and 6.7% in Profile C. In patients with HFrEF, hyperuricemia group had a significantly lower LVEF (34.1% ± 14.37 vs. 38.1%, p = 0.045). and were more likely to exhibit right ventricular dysfunction (39.7 vs. 26.7%, p = 0.034). A weak positive correlation was found between serum uric acid levels and admission NT-proBNP levels (r = 0.273, p < 0.001). Hyperuricemic patients required higher diuretic doses (67.9 vs. 50.5%, p = 0.006) and had longer hospital stays (65 vs. 50.5%, p = 0.023). They had more unplanned hospital visits (7.3 vs. 15.2%, p = 0.048). However, no significant differences were observed on combined endpoint and on the other individual analysis of each outcome.
Conclusions: Hyperuricemia in HF patients is associated with more systemic congestion, worse right ventricular function and lower LVEF reflecting a more severe disease phenotype. Hyperuricemia seems to be associated with worse outcomes, as reflected by a higher number of unplanned hospital visits. It remains to be determined whether hyperuricemia is merely a marker of disease severity or if it has a direct correlation with worse prognosis.

Sábado, 12 Abril de 2025 | 15:30-16:30

Área de Posters-écran 1| Sessão de Posters 44 – Arritmias ventriculares

PO 297. INSIGHTS ON CARBON DIOXIDE INSUFFLATION TECHNIQUE FOR EPICARDIAL ACCESS ABLATION OF REFRACTORY ARRHYTHMIAS: SAFETY AND CLINICAL OUTCOMES

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

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

Introduction: Epicardial access ablation is a key intervention for treating recurrent arrhythmias with epicardial substrates. However, the standard approach carries risks of major complications. A novel technique using pericardial CO2 insufflation, facilitated by the intentional coronary venous exit for subxiphoid puncture, enhances the access to epicardial space.
Methods: Analysis of consecutive patients (P) who underwent epicardial ablation for recurrent symptomatic arrhythmias between September 2019 and October 2024. The primary objective was to assess the safety and feasibility of CO2-assisted pericardial access. Data collected included demographics, procedural details, and follow-up outcomes.
Results: 17P underwent epicardial access using CO2 insufflation: 13P for ventricular tachycardia (VT) and 4P for non-VT arrhythmias (left atypical atrial flutter, lateral posterior accessory pathway, and ventricular ectopias). There were 14 men (82.4%) and the median age was 64 years [IQR 39-73]). Underlying diagnoses included dilated cardiomyopathy (52%), arrhythmogenic right cardiomyopathy (23.5%) and hypertrophic cardiomyopathy (11.8%). Implanted devices (ICD or CRT-D) were present in 88%. Nine procedures were urgent due to electrical storms or recurrent VT episodes. In 7P, epicardial ablation was complemented with endocardial applications. Only 3 were first-intention ablations; 76.5% had prior failed ablations. Median radiofrequency time (RF) was 29 minutes (IQR 10-40) and fluoroscopy time was 20 minutes (IQR 16-32). Acute access-related complications (1 minor haemorrhage) occurred in 1P (5.8%). The later intraprocedural complications (11.7%) were related to the ablation process itself: 1 reversed cardiac arrest due to VT induction and 1 left ventricular myocardial perforation due to endocardial

Sex N (%)	
Female	3 (17.6%)
Male	14 (82.4%)
Age - median (IQR)	64 years (39-73)
Diagnostic N (%)	
Dilated cardiomyopathy (DCM)	9 (52.9%)
Ischemic	4 (23.5%)
Post-myocarditis	1 (5.9%)
Chagas disease	1 (5.9%)
Unknown aetiology	3 (17.7%)
Arrhythmogenic right ventricular cardiomyopathy	4 (23.5%)
Hypertrophic cardiomyopathy	2 (11.8%)
Non-compacted cardiomyopathy	1 (5.9%)
LVEF % - median (IQR)	45% (31-59)
Device N (%)	
ICD	10 (58.8%)
CRT-D	5 (29.4%)
Primary prevention	1 (5.7%)
Secondary prevention	7 (46%)

Table 1 – Baseline Characteristics

Indication	N (%)
Ventricular Tachycardia ablation	13 (76.4%)
Non-Ventricular Tachycardia ablation	4 (23.5%)
Atypic FLA	1
Accessory Pathway	1
Frequent ventricular extrasystole	2
Number of previous ablations	N (%)
0	4 (23.5%)
1	7 (41.1%)
2	6 (35.3%)
Timing of the procedure	N (%)
Elective	8 (47%)
Emergency	9 (52.9%)
Electric storm	6 (35.3%)
Syncopal refractory VT	3 (17.6%)
Ablation access	N (%)
Epicardial only	10 (58.8%)
Combined epicardial + endocardial	7 (41.2%)
Radiofrequency time (minutes) – median (IQR)	**29 (10.33-40.42)**
Fluoroscopy time (minutes) – median (IQR)	20.77 (16.05-32.6)

Table 2 – Arrhythmia ablation details

Figure PO 297

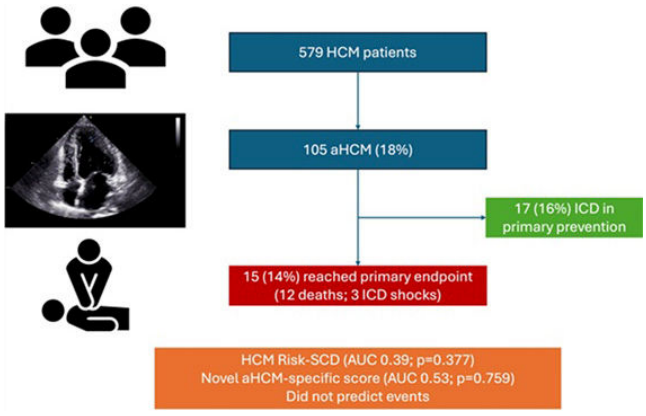
RF application, which proved fatal. Another death occurred due to electric storm recurrence with cardiogenic shock. All 15 patients who completed ablation achieved acute success. Over a median follow-up of 265 days (IQR 56-977), 3P (20%) had arrhythmia recurrence.
Conclusions: CO2-assisted pericardial access for ablation of both VT and non-VT arrhythmias is a safe and reproducible technique associated with a low complication rate. This initial data supports the ability to undergo endo-epicardial strategies as a first-line option.

PO 298. SUDDEN CARDIAC DEATH HCM RISK SCORES IN APICAL HYPERTROPHIC CARDIOMYOPATHY: AN UNMET NEED IN CLINICAL PRACTICE

Ana Rita Bello, Maria Rita Lima, Rita Almeida Carvalho, Débora Correia, Joana Certo Pereira, Rita Amador, Gonçalo Cunha, Catarina Brízido, Sérgio Maltês, Bruno Rocha, Carlos Aguiar

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

Introduction: The concept that apical hypertrophic cardiomyopathy (aHCM) is associated with a lower risk of sudden cardiac death (SCD) has often been challenged. Prediction tools have yet to be validated in aHCM. Accordingly, we aimed to evaluate the predictive value of HCM Risk-SCD score (ESC) and a new aHCM-specific risk score in our cohort of aHCM.
Methods: Retrospective study of consecutive patients diagnosed with aHCM, with at least a yearly follow-up in our center. Data of interest to calculate risk scores was collected at baseline, considered as the date of aHCM imaging diagnosis. The ESC HCM Risk-SCD score was calculated using the 7-variable online tool. The aHCM-specific score (JACC Advances, 2024), ranging from 0-8 points, comprises 5 variables: age, creatinine, left atrial volume index (LAVI), right ventricular systolic pressure and apical aneurysm (any volume). The primary endpoint was a composite of all-cause death, appropriate defibrillator shock [implantable cardioverter-defibrillator (ICD) shocks or resuscitated SCD), or heart transplantation.
Results: Among 579 patients with hypertrophic cardiomyopathy, 105 (18%) had aHCM and were enrolled [mean age 69 ± 14 years, 64% female, maximal left ventricular thickness 16 (14-19) mm, mean LAVI 44 (35-46) mL/m^2; 8, 5, 25 and 6 patients with a SCD family history, non-sustained VT, unexplained syncope and apical aneurysm, respectively). An ICD was implanted as primary prevention of SCD in 17 (16%) patients. During a median follow-up of 58 (26-96) months), 15 patients met an event of the primary endpoint (12 deaths, 3 ICD shocks). In univariate analysis, older age (HR 1.10 per year, CI 1.02-1.14; p = 0.002) and LAVI (HR 1.04 per mL/m^2; CI 1.04-1.07; p = 0.004) were the only variables imputed into one of the scores predicting the primary endpoint. The HCM Risk-SCD (AUC 0.39, p = 0.377) and the novel aHCM-specific score (AUC 0.53; p = 0.759) performed poorly to predict the primary endpoint. The categorization of patients, as per the HCM Risk-SCD score as low (< 4%), intermediate (4-6%) and high-risk (> 6%), or as per the aHCM-specific score (0, 0-2 and ≥ 3, respectively), did not improve discrimination.



Conclusions: In our cohort of patients with aHCM, more than 1 in every 10 patients died or had an ICD shock. The HCM Risk-SCD and the novel aHCM-specific score were poor discriminators for the likelihood of the primary endpoint. This study underscores the importance of further research to improve risk stratification in aHCM.

PO 299. NONINVASIVE ELECTROCARDIOGRAPHIC MAPPING VS. CONVENTIONAL ECG ANALYSIS IN PREDICTING VENTRICULAR TACHYCARDIA ORIGIN

Catarina Gregório, Afonso Nunes-Ferreira, Ana Abrantes, Tiago Rodrigues, Ana Rita Francisco, Pedro Silva, Irina Neves, Joana Brito, Gustavo Lima da Silva, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: Pre-procedural planning is crucial for the success of ventricular tachycardia (VT) ablation. VT origin can be predicted through

	Overall	General Cardiologist	Electrophysiologist	pValue
Accuracy of prediction of VT exit site/isthmus, (%)	48%	47%	49%	<0.001
Sensibility of prediction of VT exit site/isthmus, (%)	48%	47%	49%	NS
Specificity of prediction of VT exit site/isthmus, (%)	96.5%	96.4%	96.5%	<0.001
Interoperation Concordance, (%)	71.6%	66.7%	76.5%	NS

Table 1: Comparison of VT prediction accuracy and concordance between general cardiologist and Electrophysiologist ECG analysis

	Electrophysiologist	ECGi	pValue
Accuracy of prediction of VT exit site/isthmus, (%)	49%	88%	0.003
Sensibility of prediction of VT exit site/isthmus, (%)	49%	91.2%	0.002
Specificity of prediction of VT exit site/isthmus, (%)	96.5%	98.5%	0.035

Table 2: Comparison of VT prediction accuracy between Electrophysiologist and ECGi

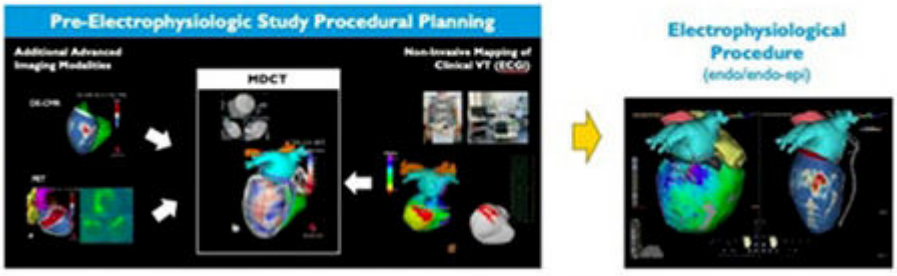

Figure1: Pre-electrophysiologic study procedural planning using ECGi.

Figure PO 299

systematic analysis of VT electrocardiograms (ECG). Non-invasive ECG mapping (ECGi) offers potentially more precise predictions of VT location, but its value in structural heart disease (SHD) remains uncertain.
Objectives: To evaluate the usefulness of ECGi in guiding SHD VT ablation planning by comparing its accuracy in predicting VT mapping areas with that of ECG analysis by electrophysiologists (EPs) and general cardiologists (GCs).
Methods: This single-center prospective study included patients with SHD referred for left ventricular VT ablation from 2022 to October 2024, who underwent ECGi, and their clinical VT was fully mapped during the electrophysiological procedure. Pre-procedural planning included ECGi using a 252-electrode noninvasive 3D mapping system (CardioInsight™), mapping VTs induced by noninvasive programmed stimulation. The ECGi area of interest was defined as the earliest activation region (initial 20 ± 5 ms from the first dV/dT). Three EPs and three GCs analyzed the VT ECG in a blinded manner, applying the 16-segment Burruezo's prediction algorithm. VT origin predictions were considered appropriate if they matched the VT exit site or isthmus, allowing a 1-segment margin of error. Paired T-tests were used for statistical analysis.
Results: We included 17 patients (88% male, 71 ± 13 years; 53% with ischemic SHD). Physicians correctly predicted the VT origin though the ECG analysis in 48% of cases, with EPs performing slightly better than GCs ($p < 0.001$). Inter-operator concordance was higher among EPs (76.5%) compared to GCs (66.7%), with an overall concordance of 71.6%. In cases where ECG analysis was inaccurate but adjacent to the true site, predictions were more apical in 15.6% of cases, more basal in 2%, and in unrelated segments in the remaining cases. ECGi predicted the VT origin in 88% of cases, significantly outperforming both EPs and GCs ($p = 0.003$). Furthermore, ECGi exactly predicted the VT exit site or isthmus segment in 82.4% of patients, compared to 5.8% for physicians ($p < 0.001$).
Conclusions: Analysis of the VT ECG, even by skilled EPs using systematic algorithms, has significant limitations in predicting the area of interest for VT mapping. ECGi demonstrated superior accuracy in predicting VT origin, enhancing pre-procedural planning in patients with SHD.

PO 300. BASELINE INTERVALS ON ELECTROCARDIOGRAM AS A SCREENING TOOL FOR DIAGNOSING BRUGADA SYNDROME IN FAMILY MEMBERS

Francisco Rodrigues dos Santos, Vanda Devesa Neto, Gonçalo Ferreira, João Gouveia Fiúza, Mariana Duarte Almeida, Oliver Kungel, António Costa, Inês Fiúza Pires

USL Viseu Dão-Lafões.

Introduction: Diagnosis of Brugada Syndrome (BrS) requires documentation of a spontaneous or pharmacologically induced type 1 Brugada pattern. In individuals with normal basal electrocardiography, screening methods could be challenging. The study aimed to detect if other parameters in basal ECG could be a tool to predict the diagnosis of BrS in family members.
Methods: Retrospective analysis of 78 patients with family history of BrS and referenced for screening. Basal electrocardiogram was performed in all patients. Patients with spontaneous type 1 Brugada pattern in basal ECG were initially excluded. Definitive diagnosis required a presence of a type 1 ECG pattern or conversion of a type 2 to type 1 following provocative test. The Mann-Whitney U test was used for median comparison between groups as univariate analysis. Analysis of the receiver operating characteristic (ROC) curves were performed to evaluate the predictive values of ECG parameters.
Results: 6% (n = 5) had spontaneous type 1 Brugada syndrome. 53% were male (n = 41); mean age of 28.9 ± 15.3 years. 31% (n = 24) had confirmative diagnosis of BrS. 27% (n = 21) were carriers of SCN5A mutation. Mean duration of intervals on basal ECG were RR 871.2 ± 156.0 ms; PR 159.3 ± 34.1ms; QRS 91.4 ± 13.4 ms; QTc 404.2 ± 32.0. Syncope occurred in 5% of patients (n = 5), 94% were asymptomatic. By univariate analysis, the distribution of PR and QRS intervals was significantly different. Wider PR interval was found in patients with BrS ($p < 0.01$) with a median of 200 ms (variance of 1,269) versus healthy individuals (median of 150ms and variance of 601). Wider QRS intervals were also found in BrS patients compared with healthy individuals ($p < 0.01$) (100 ms (288) versus 80 ms (204)). The cut-off point, with the most sensitivity (S) and specificity (E) obtained using the Youden index (YI) for PR interval was 170ms (YI 0.5389; Sensitivity (S) ≈ 65% and Specificity(E) ≈ 89%) and for QRS interval was 97ms (YI 0.5148; Sensitivity (S) ≈ 70% and Specificity(E) ≈ 82%).
Conclusions: Higher PR and QRS intervals were associated with BrS diagnosis compared to healthy family members, which may pose a cost-effective screening tool.

PO 301. SINUS RHYTHM LATE ACTIVATION ZONES AS A TARGET FOR IMPROVING VENTRICULAR TACHYCARDIA ABLATION OUTCOMES

Miguel Sobral Domingues, Débora Sá, Daniel Gomes, Daniel Matos, Gustavo Rodrigues, João Carmo, Francisco Costa, Pedro Galvão Santos, Pedro Carmo, Diogo Cavaco, Francisco Morgado, Pedro Adragão

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Introduction: Ventricular tachycardia (VT) ablation is a critical intervention for patients with ischemic heart disease and has demonstrated to improve patient's prognosis. Although there is some evidence regarding the best way to identify the substrate for ablation, there is limited data on the clinical impact of having the latest activation regions in sinus rhythm (SR) as the main target for the VT ablation procedure.
Objectives: This study aimed to evaluate whether applying radiofrequency to areas corresponding to the latest activation in SR (as per LAT histogram analysis) and associated with low voltage mapping is linked to a lower recurrence rate of VT/VF/ICD therapies in the medium term compared to cases treated solely based on voltage and VT activation maps.
Methods: We conducted a retrospective single-centre study on prospectively collected data from patients who underwent ischemic VT ablation between January 2022 and September 2024. Patients were classified into two groups based on the correlation of late activation areas in SR with low-voltage regions: Group 1 (correlation between both areas and with RF application) and Group 2 (correlation but without RF application).

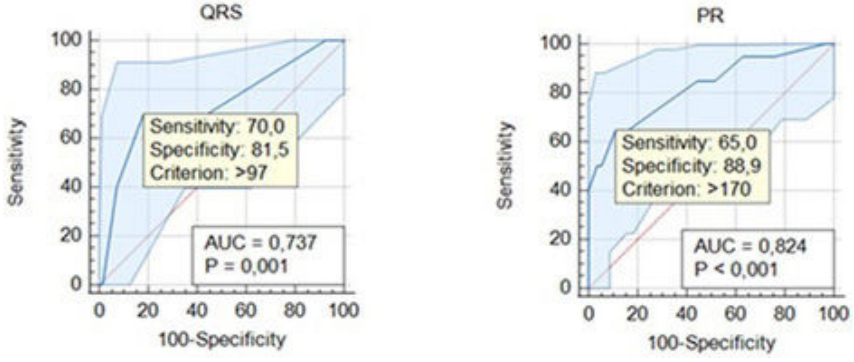
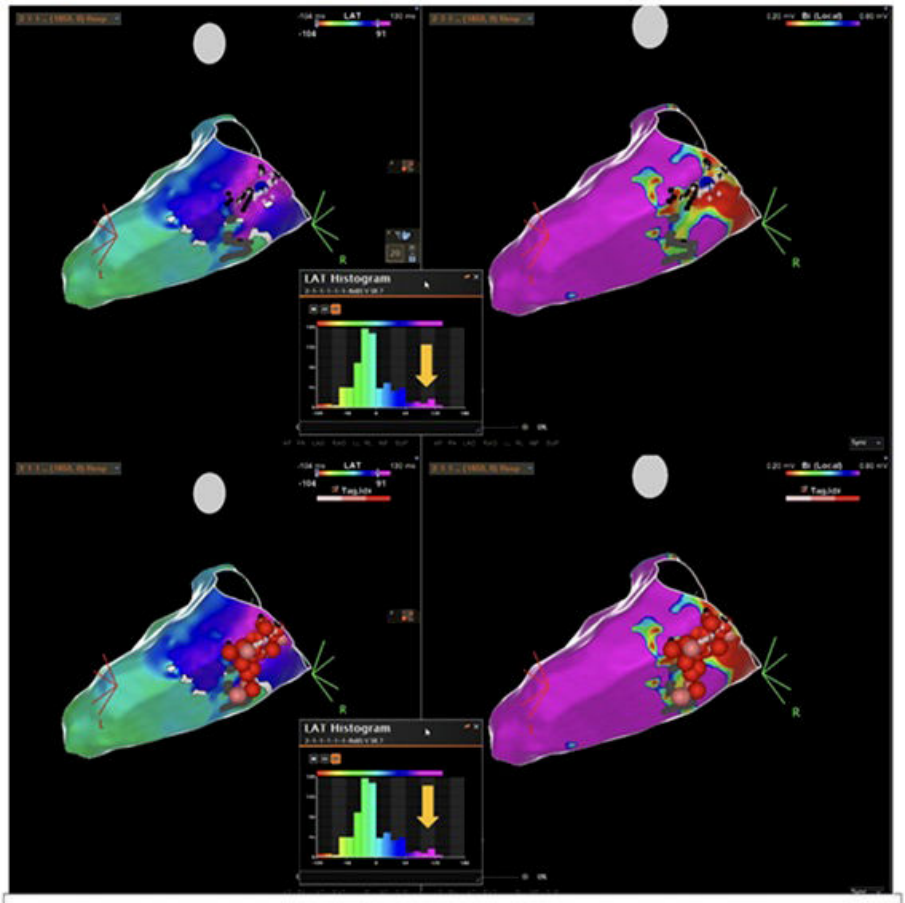


Figure PO 300



Picture: Example of a patient in "group 1" with the region of latest activation in sinus rhythm (LAT histogram) correlated to low voltage mapping and matching precisely with the ablation area. This patient had no VT recurrence.

Figure PO 301

Results: A total of 32 patients, 96% male, 100% with ischemic heart disease and 9% with an associated primary cardiomyopathy were included, with a mean age of 65 ± 11 years and mean LVEF 35 ± 11%. Successful ablation, as per non-inducible VT at the end of the procedure was achieved in 93% of all the cases. During a mean follow-up of 1.42 ± 0.85 years, a total of 8 patients had VT/FV recurrence, namely 4 patients in group 1 (4/25; 16%) and 4 patients in group 2 (4/7; 57%), indicating a higher recurrence in the latter group, reaching statistical significance χ^2 (1, N = 32) = 4.94, p = 0.026.
Conclusions: Targeting late activation areas in sinus rhythm corresponding to low voltage regions results in a significantly lower recurrence rate of VT events and ICD therapies when compared to targeting based solely on voltage and VT activation maps. Further studies are warranted to validate these findings and explore their implications for clinical practice.

PO 302. IS NON-SUSTAINED VENTRICULAR TACHYCARDIA A KEY PLAYER IN NON-ISCHEMIC CARDIOMYOPATHY?

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Introduction: Patients with non-ischemic cardiomyopathy (NICM) frequently exhibit non-sustained ventricular tachycardia (NSVT) during cardiac implantable electronic device (CIED) follow-up, but studies on its role remain limited and inconclusive.
Methods: We performed a single-centre retrospective, observational study reviewing patients with NICM who received CIED between May 2014 - October 2018, to evaluate NSVT occurrence and associated factors, using clinical records and SPSS software for analysis.
Results: A total of 150 patients were included. Sixty-seven percent of patients were men. Seventy-five patients had a CRT (cardiac resynchronization therapy)-defibrillator, 20 patients had a CRT-pacemaker, and 55 patients had an ICD (implantable cardioverter-defibrillator). Eighty-seven percent of patients implanted the device as primary prevention and 13% as secondary prevention. One-hundred patients had dilated cardiomyopathy, 31 hypertrophic cardiomyopathy and 19 other phenotypes. During a follow-up time of 6.64 ± 3.55 years, 103 patients presented at least 1 non-sustained ventricular tachycardia (NSVT) detected by the device. Patients were divided in NSVT and non-NSVT groups. NSVT events were more common in men (n = 75 versus (*vs*) 28, p = 0.034), and no differences in age were found between groups (65.58 ± 12.15 vs. 61.94 ± 16.59 years, p = 0.132). Creatinine levels were higher in the NSVT group: 1.12 (IQR 0.52) vs. 0.94 (IQR 0.39) mg/dl, p = 0.039. NSVT patients had lower values of left ventricular ejection fraction (LVEF): 30 (IQR 10) vs. 34 (IQR 28)%, p = 0.019. They also presented higher left ventricular end-diastolic diameter (LVEDD) (66.07 ± 9.89 vs. 59.27 ± 12.53 mm, p = 0.001) and left ventricular end-systolic diameter (LVESD) (53.97 ± 11.18 vs. 43.85 ± 14.57 mm, p < 0.001). No significant association was found between atrial fibrillation and the occurrence of NSVT (p = 0.196). There was no association between appropriated shocks (p = 0.243), ventricular tachycardia episodes (p = 0.092), ventricular fibrillation episodes (p = 0.191) or all-cause mortality (p = 0.208) and NSVT events. However, 85% of the patients who underwent anti-tachycardia pacing were in the NSVT group (OR = 3.76 (CI 1.34-19.57), p = 0.008) and all 8 patients who experienced an electric storm belonged to this group.
Conclusions: Male gender, higher creatinine levels, lower values of LVEF, and higher values of LVEDD and LVESD seem to be associated with the

presence of NSVT events. However, in our cohort, NSVT presence was not able to predict ventricular arrhythmias in patients with CIED and NICM.

Sábado, 12 Abril de 2025 | 15:30-16:30

Área de Posters-écran 2 | Sessão de Posters 45 – Dispositivos cardíacos implantáveis: complicações e sua prevenção

PO 303. FEASIBILITY, SAFETY AND MID-TERM PARAMETERS STABILIZATION OF LEFT BUNDLE BRANCH PACING: A SINGLE CENTER EXPERIENCE

António Baptista Carvalho[1], Sofia Jacinto[2], Inês Neves[2], Hélder Santos[2], Guilherme Portugal[2], Ana Lousinha[2], Pedro Silva Cunha[2], Bruno Valente[2], Paulo Osório[2], Mário Oliveira[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital de Santa Marta.

Introduction: Left bundle branch pacing (LBBP) has emerged as a novel physiological pacing technique to achieve synchronous ventricular activation via capture of the His-Purkinje system, with advantages over His bundle pacing regarding superior implant parameters and stability.
Objectives: This study aims to evaluate the feasibility and mid-term follow-up data with LBBP, focusing on feasibility, safety, and the stabilization of pacing parameters over time.
Methods: This retrospective study analyzed procedural and pacing data from patients undergoing left bundle branch pacing (2020-2023). Safety and stability of pacing parameters were assessed, with statistical analysis performed using SPSS v.27. From 2020 to 2023, 62 LBBP procedures were performed, predominantly in male patients (77%) with a median age of 79 (74-83) years. The main pacing indications were atrioventricular node disease (37%) and sinus node disease (63%). The median procedural duration was 100 (60-210) minutes, with a median fluoroscopy time of 10 (5-15) minutes. There were no complications during the LBBP procedures. Post-procedure, the median left ventricle activation time (LVAT) was 73 (62-84) ms, with a statistically significant reduction in QRS width (from 139 ± 32 ms to 129 ± 21 ms, p < 0.01, 95%CI 5.7-23.5). After a mean follow-up of 14.3 ± 17.6 months, no statistically significant changes were seen in R-wave amplitude (from 8 [6-12] mV to 11.1 [5.6-14.6] mV, p = 0.09, 95%CI 0.26-3.63). Additionally, pacing impedance decreased (from 775 ± 268 Ohms to 448 ± 190 Ohms, p < 0.01, 95%CI 243-373), along with a reduction in pacing threshold (from 1.0 V [0.8-1.5] to 0.7 V [0.5-1], p < 0.01, 95%CI 0.01-0.42). During follow-up, 5 patients (8%) experienced loss of capture due to LBBP lead dislodgement within 4 weeks post-implantation, requiring reintervention. No other adverse events were reported.
Conclusions: LBBP has demonstrated to be a safe and feasible pacing modality. The technique offers manageable procedural duration and stable pacing parameters during mid-term follow-up, making it a viable option for patients requiring cardiac pacing. The occurrence of 8% postoperative lead dislodgement demonstrates the importance of the learning curve.

PO 304. IS THERE AN OPTIMAL TIMING FOR DEVICE REIMPLANTATION AFTER LEAD EXTRACTION DUE TO CIED INFECTION?

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

Introduction: Complete cardiovascular implantable electronic devices (CIED) removal is recommended for all patients (P) with confirmed CIED infection, regardless of whether there is definite evidence of device involvement. However, optimal timing following transvenous lead removal remains unclear when considering device reimplantation.
Objectives: Our study aimed to evaluate the short and long-term effects of different device reimplantation times in P that underwent CIED removal due to infection.
Methods: Prospective single-centre study in P that underwent lead extraction due to CIED infection and in whom device reimplantation was performed. P were divided into three groups, according to the timing of device reimplantation: Group A (reimplantation in < 72 h), Group B

Table 1 - Characteristics of Patients with Left Bundle Branch Pacing (LBBP).

Characteristic	Baseline (n=62)	After LBBP	*p* value	95% CI
Male gender – no. (%)	48 (77)	-	-	-
Age (years) – median [IQR]	79 [74-83]	-	-	-
Indication for pacing – no. (%)				
Sinus node disease	23 (37)	-	-	-
AV node disease	39 (63)	-	-	-
Procedural characteristics – median [IQR]				
Procedure time (min)	-	100 (60-210)	-	-
Fluoroscopy time (min)	-	10 (5-15)	-	-
Electrocardiographic variables				
QRS width (ms) – mean ± SD	139±32	129±21	<0.01	5.7-23.5
LVAT (ms) – median [IQR]	-	73 (62-84)	-	-
R wave (mV) – median [IQR]	8 (6-12)	11.1 (5.6-14.6)	0.09	0.26-3.63
RV impedance (Ohm) – mean ± SD / median [IQR]	775±268	448 (390-526)	<0.01	243-373
RV threshold (V) – median [IQR]	1.0 (0.8-1.5)	0.7 (0.5-1)	<0.01	0.01-0.42
Follow-up time (months) – mean ± SD	-	14.3 ± 17.6	-	-

Values are given as the mean ± SD, median (IQR) or as n (%).
p values <0.05 were considered statistically significant.
AV – atrioventricular; LVAT - Left Ventricle Activation Time; LVEF - Left Ventricle Ejection Fraction; RV – right ventricle

Figure PO 303

Table 1. Group characterisation regarding infection and antibiotic therapy

	Group A N = 38	Group B N = 60	Group C N = 18	p value
Positive blood cultures (%)	11 (29)	20 (33)	6 (33)	0.852
Targeted antibiotic therapy (%)	13 (34)	25 (42)	8 (44)	0.488
Antibiotic therapy previous to CIED removal (%)	29 (76)	54 (90)	13 (72)	0.170
duration < 4 weeks (%)	17 (45)	36 (60)	5 (28)	
duration ≥ 4 weeks (%)	12 (32)	18 (30)	8 (44)	
Antibiotic therapy after CIED removal (%)	31 (82)	53 (88)	14 (78)	0.298
duration < 4 weeks (%)	25 (66)	44 (73)	9 (50)	
duration ≥ 4 weeks (%)	6 (16)	9 (15)	5 (28)	

Table 2. Short and long-term follow-up according to groups

	Group A N = 38	Group B N = 60	Group C N = 18	p value
Complications/Death/Reintervention during hospitalisation (%)	4 (11)	9 (15)	0	0.206
Need for urgent surgical procedure (%)	2 (5)	2 (3)	0	0.600
Rehospitalisation during follow-up (%)	10 (26)	16 (27)	6 (33)	0.828
One-year mortality (%)	1 (3)	4 (7)	1 (6)	0.726

Figure PO 304

(reimplantation in 72h-2 weeks), and Group C (reimplantation in > 2 weeks). Relevant outcomes during follow-up of the three groups were noted in the short-term - need for urgent surgical intervention or death/complications/ reintervention during hospitalisation - and in the long-term – one-year mortality or rehospitalisation.

Results: From a total of 257 P, CIED infection was present in 205 P (80%). 116 P (57%) underwent device reimplantation, which was performed in the same hospitalization in 110 P. At baseline 78% were male, median age was 75 (IQR 62-82) years, median dwell time of the leads was 84 (IQR 36-132) months. In 55% of the cases there was pocket infection only, 66 P (32%) had positive blood cultures, 39 P (19%) were under targeted antibiotic therapy and 80 P (39%) had positive cultures after the procedure. Regarding the extracted CIED, 47% were pacemakers (8% VVI, 8% VDD and 31% DDD), 6% were ICD and 11% were CRT – median number of extracted electrodes was 2 (IQR 1-2). Median time to reimplantation after device removal in patients with positive blood cultures was 5 (IQR 2-7) days. Regarding device reimplantation, there were 38 P in group A, 60 P in group B and 18 P in Group C. Differences between the three groups in terms of blood cultures, targeted antibiotic therapy and pre and post-device removal duration of antibiotic therapy are shown in Table 1. Median follow-up time was 26 (IQR 13-54) months. The differences between the three groups regarding short and long-term follow-up outcomes are shown in Table 2.

Conclusions: In our study, distinct timings of device reimplantation after CIED extraction due to infection did not show differences regarding short or long-term follow-up.

PO 305. NON-INFECTED LEAD EXTRACTIONS: A BETTER LONG-TERM SOLUTION?

Margarida G. Figueiredo, André Ferreira, Hélder Santos, Guilherme Portugal, Paulo Osório, Ana Lousinha, Pedro Silva Cunha, Bruno Valente, Rui Ferreira, Mário Oliveira

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

Introduction: In recent years, as a result of an increasing number of cardiac implanted electronic devices (CIED), the number of CIED related complications has increased and solutions to complex CIED procedures in high-risk patients (P) are required. Transvenous lead extractions (LE) can be the best solution for some of these patients. The "Pisa Technique" (PT) is an increasingly used method of LE, being associated with the lowest rate of complications.

Objectives: We aim to understand the safety of LE and long-term follow-up in P without CIED infection.

Methods: Single-centre prospective analysis engaging P that underwent LE. P were divided into two groups: Group A – P without CIED associated infections – and Group B – P with CIED infection. Efficacy and safety of LE were analysed. Kaplan-Meier test was performed to establish survival rates in terms of one-year major adverse cardiac event (MACE), mortality and hospital readmissions for all causes.

Results: A total of 257 P underwent LE, 52 (20%) in group A and 205 (80%) in group B, with a total of 455 leads removed, 17% in group A and 83% in group B. In group A, LE was due to non-functional leads in 56% of P, system upgrading in 12% (absence of venous access), lead dislodgement in 8%, cardiac perforation in 8%, malignancy treatment in 4%, lead fracture in 2% and chronic pain in 2%. In 1 P LE was needed due to superior vena cava syndrome, in another one LE was performed due to twiddler syndrome and there was 1 P in which the PT was performed to remove a dialysis catheter. All the extractions in group A were performed using the PT. Median follow-up time was 35 (IQR 17-82) months. Median age in group A was 61 (IQR 41-74) vs. 75 (IQR 62-82) years in group B ($p < 0.001$), 25% of P had left ventricular (LV) dysfunction (LV ejection fraction < 50%) vs. 20% ($p = 0.125$) and median lead dwell time was 60 (IQR 28-96) vs. 84 (IQR 36-132) months ($p = 0.102$). In group A there were 23% of passive fixation leads vs. 48% ($p = 0.001$) and there was the need of using more than one sheet in 27% of P vs. 33% ($p = 0.388$). Results regarding efficacy, clinical and radiological success of LE were present in 92% of P in group A and in 94% of P in group B ($p = 0.726$). In which concerns safety, there were no procedure complications in group A vs. 8% in group B ($p = 0.037$), while complications or death during hospitalisation were present in 2% of P in group A and 11% in group B ($p = 0.046$). Kaplan Meier test showed no statistically significant differences in terms of one-year MACE (Figure 1A), long-term rehospitalization (Figure 1B), or mortality (Figure 1C).

Conclusions: In our study, non-infected LE using the PT showed to be as effective and safe as LE in CIED infections, not only in the short-term with less complications or death during hospitalisation, but also during long-term follow-up after LE. Besides, this is the first national study that suggests that non-infected LE may be a solution to a variety situations and can be a fair option in the long-term follow up.

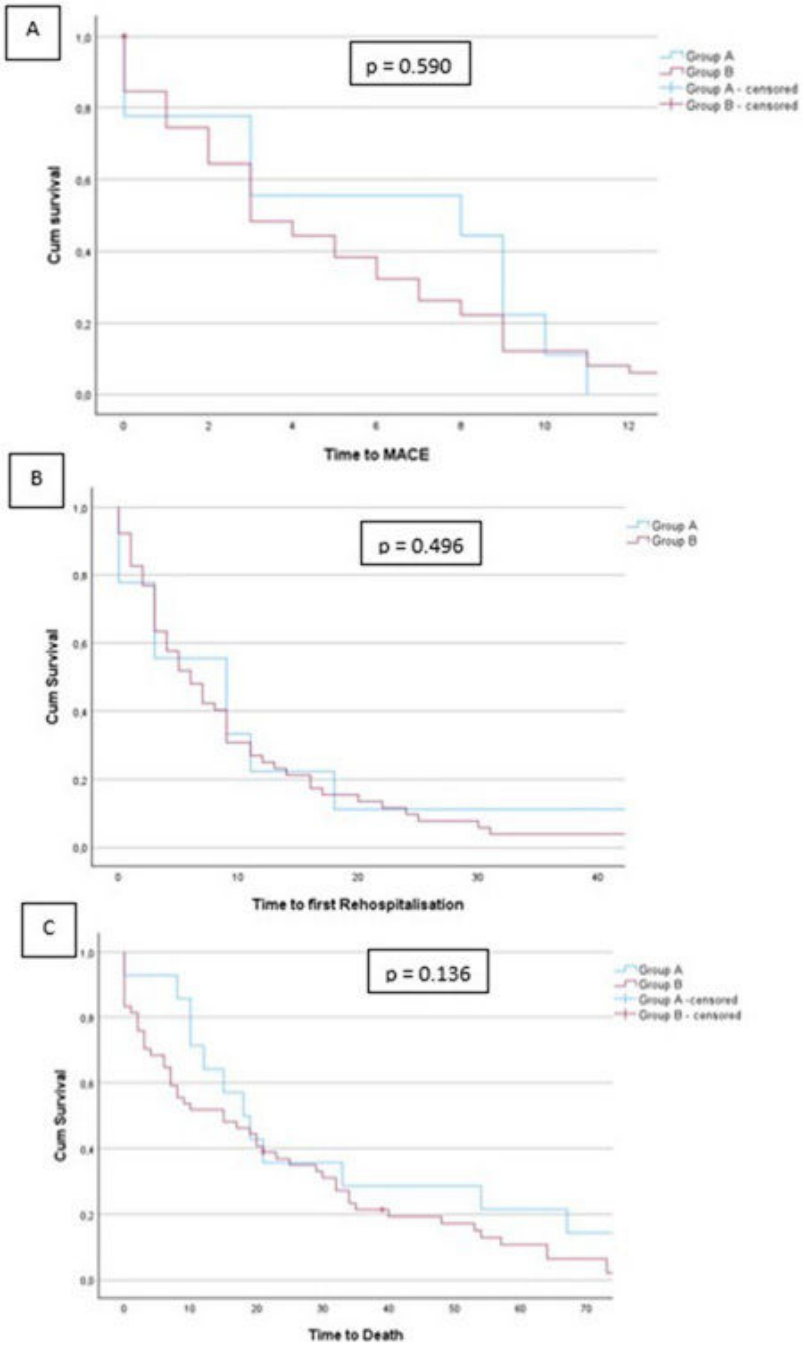

Figure PO 305

PO 306. QRS INTERVAL AND VENTRICULAR DYSSYNCHRONY – ROLE IN LEAD-RELATED TRICUSPID REGURGITATION

Catarina Sena Silva, Miguel Azeredo Raposo, Joana Rigueira, Ana Abrantes, Catarina Gregório, João Cravo, Marta Vilela, Pedro Alves Silva, Daniel Caldeira, Rui Plácido, Fausto J. Pinto, Catarina Sousa

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Introduction: The pathophysiological mechanisms associated with the development of lead-related tricuspid regurgitation (TR) aren't limited to mechanical interference with the tricuspid valve and subvalvular apparatus. The adverse ventricular remodeling induced by electromechanical intraventricular dyssynchrony plays an important role. Our study aimed to assess if the QRS interval post cardiac implantable electronic device (CIED) was an independent predictor for the development of lead-related TR.
Methods: Retrospective cohort study of patients with a *de novo* device implantation in the past 10 years. Baseline and post implantation electrocardiographic/echocardiographic parameters were obtained. Patients with TR worsening by at least 1 grade after CIED implantation were considered as lead-related TR (Group 1) and compared with a control group. We constructed a receiver operating characteristic (ROC) curve to identify the optimal QRS interval cutoff value to predict the development of lead-related TR. The area under the curve (AUC) was calculated to assess the diagnostic performance. Cardiovascular outcomes were assessed using Kaplan–Meier estimates and Cox proportional-hazards models.

Results: Our study included 108 pts, 47% female with a mean age 73 ± 12 years. Single and dual-lead conventional pacemakers were the main implantable devices (45%). Regarding ECG data: Median baseline QRS was 123 vs. 140 ms in Group 1 and 2 respectively. Median QRS after CIED implantation was 158 vs. 133 ms Group 1 and 2 respectively. In the group of patients who developed lead related TR at follow-up we observed a statistically significant increase of QRS interval in the first ECG post CIED implantation (28.861 ms, p < 0.001). We found an optimal QRS cut-off value of 150ms with a sensitivity of 61% and specificity of 75% to predict the development of lead related TR. This value was an independent predictor with the development of severe TR after adjusting for multiple variables: age, TAPSE, ejection fraction, right atrium area, right ventricle dilation, atrial fibrillation, device (HR 3.935 CI 1.239-12.497, p = 0.020). There was no statistically significant difference when analyzing the impact of QRS widening in cardiovascular outcomes.

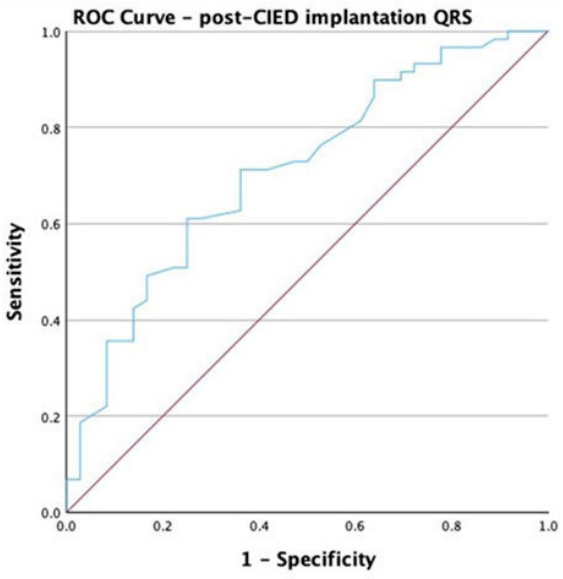

Figure 1: ROC curve – QRS width post CIED implantation

Conclusions: In our study, we identified that the QRS interval with an optimal cut-off > 150ms post-CIED implantation and the subsequent intraventricular dyssynchrony, was an independent risk factor for the development of severe TR.

PO 307. ABSORBABLE ANTIBACTERIAL ENVELOPE ELIMINATES ADDITIONAL EXPECTED CARDIAC IMPLANTABLE ELECTRONIC DEVICE INFECTIONS IN HIGH-RISK PATIENTS

António Baptista Carvalho[1], Marina Santos[2], Sofia Jacinto[2], Hélder Santos[2], Guilherme Portugal[2], Ana Lousinha[2], Pedro Silva Cunha[2], Bruno Valente[2], Paulo Osório[2], Mário Oliveira[2]

[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital de Santa Marta.

Introduction: Cardiac implantable electronic device (CIED) infections are associated with significant morbidity and mortality, necessitating prolonged hospitalization and often requiring device extraction. While the overall CIED infection rate is approximately 2%, this figure escalates to 4% in high-risk populations. Absorbable antibacterial envelopes (AAEs) have emerged as a promising prophylactic strategy to mitigate infection risk.
Objectives: This study sought to evaluate the impact of AAE utilization on CIED infection rates within a high-risk patient cohort.
Methods: This observational, longitudinal study, conducted over a 5-year, enrolled 106 patients undergoing CIED implantation with concomitant AAE placement. Patient evaluation occurred at 12 months and at study conclusion. AAE utilization was guided by established risk stratification tools (Mittal, Shariff, and PADIT scores) in conjunction with physician clinical judgment. Patients were dichotomized into low-risk and intermediate-high-risk groups, with the latter defined as PADIT > 6, Shariff > 2, or Mittal > 7.
Results: The study cohort comprised 106 patients (69.8% male; mean age 70 ± 15 years) receiving pacemakers (39.6%), cardiac resynchronization therapy deviceww s (CRT, 38.7%), or implantable cardioverter-defibrillators (ICD, 21.7%). Prevalent comorbidities included diabetes (26.2%), systemic hypertension (74.2%), chronic kidney dysfunction (68.6%), and heart failure (75%). Notably, 65.1% of participants underwent CIED implantation in the setting of device revision, upgrade, or reimplantation following infection-related extraction. Median risk scores were as follows: PADIT 7 (IQR 2), Shariff 3 (IQR 2), and Mittal 11 (IQR 10). The majority of patients (73%) were classified as intermediate-high risk. During the follow-up period, 3 CIED infections (2.9%) were observed, with 2 cases occurring within the intermediate-high-risk group. No statistically significant association was identified between risk group and infection incidence at 12 months (p = 0.633).

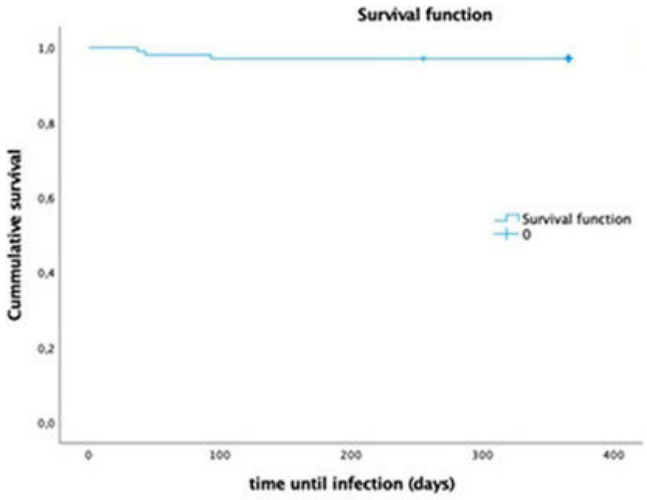

Figure 1: Survival analysis of our population at 12 months follow-up regarding CIED related infection

Conclusions: In this cohort characterized by a high prevalence of intermediate-to-high-risk individuals, AAE utilization was associated with a low incidence of CIED infection. Furthermore, AAE implementation appears to diminish the predictive validity of established risk stratification tools, yielding comparable infection rates across low- and high-risk strata.

PO 308. PACING-INDUCED CARDIOMYOPATHY IN PATIENTS WITH A HIGH PERCENTAGE OF VENTRICULAR PACING: A RETROSPECTIVE STUDY

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Hospital de Braga.

Introduction: Pacemaker implantation is recommended as a treatment for several diseases, mainly atrioventricular block and sinus node disease. Despite all the proven benefits, these devices can result in electromechanical dyssynchrony and, consequently, in pacing-induced cardiomyopathy (PICM), with the predictor most strongly associated with this condition being the percentage of right ventricular pacing (%RVP). The aim of this study is to evaluate the occurrence of Major Adverse Cardiac Events (MACE) in patients with high%RVP (> 90%) compared with low %RVP (< 10%).
Methods: Observational, analytical and retrospective study, which included 889 patients who underwent pacemaker implantation between January 2015 and December 2017 in a tertiary hospital. A 5-year follow-up period was performed. Other causes of left ventricle dysfunction were excluded.

Results: The group of patients with RVP > 90% (n = 394) was characterized by a higher median age (86 years (10), p < 0.001) and a higher proportion of men (62.9%, p = 0.001). It presented a lower minimum heart rate (35 bpm (10), p < 0.001) and higher NT-proBNP (1,789 ng/mL (5,227), p < 0.001) prior to implantation. The pacemaker indications AVB (77.9 vs. 49.4%) and atrial fibrillation/flutter (17.8 vs. 2.4%) were more prevalent in this group, whereas sinus node dysfunction was more prevalent in RVp < 10% (45.4 vs. 4.3%). After 5 years, the RVP > 90% group had a higher mortality (36.8 vs. 27.3%) and hospitalization rate due to heart failure (9.1 vs. 3.2%), compared to the RVp < 10% group (n = 249).
Conclusions: Patients with %RVP > 90% have a higher incidence of mortality and re-hospitalization due to heart failure in five years follow-up. Identifying high risk patients and maintaining close follow-up with echocardiographic evaluation after pacemaker implantation is essential for timely detection of PICM.

Sábado, 12 Abril de 2025 | 15:30-16:30

Área de Posters-écran 3 | Sessão de Posters 46 – Epidemiologia portuguesa no foco

PO 309. PORTUGUESE HEART FAILURE OBSERVATIONAL STUDY – MADEIRA (PORTHOS-MADEIRA): CHARACTERISTICS INDIVIDUALS WITH NT-PROBNP ELEVATION

Gonçalo Bettencourt Abreu[1], Francisco Sousa[1], Débora Sá[1], Ricardo Rodrigues[1], João Adriano Sousa[1], M. Raquel Santos[1], Margarida Temtem[1], Maria João Oliveira[2], Eva Henriques[2], Marisa Sousa[1], Paula Gouveia[1], Graça Caires[1]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM.

Introduction: The Portuguese Heart Failure Observational Study - MADEIRA (PORTHOS - MADEIRA) is currently being carried out to assess the prevalence of heart failure (HF) in the Autonomous Region of Madeira (RAM). N-terminal pro-B-type natriuretic peptide (Nt-proBNP) is released mainly by stretch of the cardiomyocytes, and is an important marker in the diagnosis of HF. It also has prognostic value in patients with ventricular dysfunction.
Objectives: To assess the profile of patients with elevated NT-proBNP.
Methods: We carried out an observational, cross-sectional, population-based study in the RAM. It was randomly selected a sample of the population aged at least 50 and living in the RAM. Individuals with NT-proBNP ≥ 125 pg/mL and/or a reported history of HF progressed to stage 2, as did 5% of individuals who did not fulfil these criteria to serve as controls. We carried out a bivariate analysis using the chi-square test for categorical variables and the Student's t-test for continuous variables in order to assess the differences in the characteristics of phase 1 and phase 2 individuals, excluding those who were selected for the control group in the latter phase.
Results: We obtained a sample of 1,394 individuals, of whom 413 progressed to phase 2 (411 due to NT-proBNP > 125 pg/mL and 2 known HF). Comparing the two groups, we found statistically significant differences in age (p < 0.0001), smoking (p = 0.004), hypertension (p < 0.0001), dyslipidaemia (p < 0.0001), diabetes (p < 0.0001), atrial fibrillation (p < 0.0001), coronary artery disease (p < 0.0001), peripheral artery disease (p = 0.001), cerebrovascular disease (p < 0.0001), New York Heart Association functional classification (p < 0.0001) and level of education (p < 0.0001).
Conclusions: Individuals with NT-proBNP ≥ 125, pg/mL or with a reported history of HF have more cardiovascular (CV) risk factors, CV history and a lower educational level.

Variáveis	Total (n=1394)	FASE 1 (n=981)	FASE 2 (n=413)	Valor p
Idade, anos	65.1 ± 9.6	62.2 ± 8.3	71.8 ± 9.3	<0.0001
50-59 anos, n (%)	487 (34.9)	434 (44.2)	53 (12.8)	< 0.0001
60-69 anos, n (%)	430 (30.8)	328 (33.4)	102 (24.7)	
70-79 anos, n (%)	360 (25.8)	190 (19.4)	170 (41.	
≥80 anos, n (%)	117 (8.4)	29 (3.0)	88 (21.3)	
Tabagismo, n (%)				
Nunca fumou	879 (63.1)	595 (60.7)	284 (68.8)	0.004
Fumador/ex-fumador	515 (36.9)	386 (39.3)	129 (31.2)	
Consumo álcool, n (%)	523 (37.5)	379 (38.6)	144 (34.9)	0.185
Abuso álcool*, n (%)	85 (6.1)	56 (5.7)	29 (7.0)	0.349
Hipertensão, n (%)	799 (57.3)	501 (51.1)	298 (72.2)	< 0.0001
Dislipidémia, n (%)	798 (57.2)	523 (53.3)	275 (66.6)	< 0.0001
Diabetes, n (%)	283 (20.3)	172 (17.5)	111 (26.9)	< 0.0001
Obesidade, n (%)	458 (32.9)	333 (33.9)	125 (30.3)	0.182
Doença coronária, n (%)	68 (4.9)	24 (2.4)	44 (10.7)	< 0.0001
Doença cerebrovascular, n (%)	57 (4.1)	24 (2.4)	33 (8.0)	< 0.0001
DAP, n (%)	40 (2.9)	19 (1.9)	21 (5.1)	0.001
IC congestiva, n (%)	24 (1.7)	1 (0.1)	23 (5.6)	< 0.0001
DPOC, n (%)	35 (2.5)	21 (2.1)	14 (3.4)	0.173
DRC, n (%)	12 (0.9)	1 (0.1)	11 (2.7)	< 0.0001
SAOS, n (%)	41 (2.9)	30 (3.1)	11 (2.7)	0.690
Neoplasia, n (%)	130 (9.3)	84 (8.6)	46 (11.1)	0.131
Habilitações literárias				
Analfabeto, n (%)	57 (4.1)	24 (2.4)	33 (8.0)	< 0.0001
1º ciclo, n (%)	697 (50.0)	443 (45.2)	254 (61.5)	
Ensino secundário, n (%)	514 (36.9)	422 (43.0)	92 (22.3)	
Ensino universitário, n (%)	126 (9.0)	92 (9.4)	34 (8.2)	
Classe NYHA				
I ou II, n (%)	1315 (94.3)	953 (97.1)	362 (87.7)	< 0.0001
III ou IV, n (%)	79 (5.7)	28 (2.9)	51 (12.3)	
FA Flutter, n (%)	43 (3.1)	7 (0.7)	36 (8.7)	<0.0001

PO 310. PORTUGUESE HEART FAILURE OBSERVATIONAL STUDY – MADEIRA (PORTHOS-MADEIRA) PHASE 1: BASELINE CHARACTERISTICS

Gonçalo Bettencourt Abreu[1], Francisco Sousa[1], Débora Sá[1], Ricardo Rodrigues[1], João Adriano Sousa[1], M. Raquel Santos[1], Margarida Temtem[1], Maria João Oliveira[2], Eva Henriques[2], Marisa Sousa[1], Paula Gouveia[1], Graça Caires[1]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra. Maria Isabel Mendonça, SESARAM EPERAM.

Introduction: The Portuguese Heart Failure Observational Study (PORTHOS) showed that the prevalence of heart failure (HF) in mainland Portugal is 16.5%, very different from the EPICA study. However, the populations of the autonomous regions, whose characteristics are very different due to their insularity, were not included. The PORTHOS – MADEIRA study is currently being carried out to assess the prevalence of heart failure (HF) in the Autonomous Region of Madeira (RAM) and the characteristics of its population.
Objectives: To characterize the cardiovascular profile of the population of the RAM.
Methods: An observational, cross-sectional, population-based study was carried out in the Autonomous Region of Madeira in three phases, as in PORTHOS study. During phase 1 a random sample of the population aged 50 years old or more living in the RAM was selected. Participants were invited by telephone to take part in a screening visit that took place in a hospital consultation. At this visit, the presence of HF symptoms, anthropomorphic assessment, N-terminal pro-B-type natriuretic peptide (NT-proBNP) test, 1-lead electrocardiogram and sociodemographic and quality of life questionnaires were assessed.

Results: We obtained a sample with 1,394 subjects aged 65.1 ± 9.6, 55.4% female. Regarding cardiovascular risk factors: 57.3% had hypertension, 57.2% had dyslipidaemia, 37.5% drank ≥ 1 alcoholic drink a day, 36.9% were smokers/ex-smokers, 32.9% were obese and 20.3% had diabetes. Previous history 4.9% with coronary artery disease, 4.1% with previous cerebrovascular disease, 3.1% atrial fibrillation/flutter and 1.7% Heart Failure. Functionally 94.3% were in NYHA ≤ 2. For educational qualifications 4.1% of the individuals were illiterate and 50.0% had completed only up to elementary school.

Variáveis	Total (n=1394)
Idade, anos	65.1 ± 9.6
50-59 anos, n (%)	487 (34.9)
60-69 anos, n (%)	430 (30.8)
70-79 anos, n (%)	360 (25.8)
≥80 anos, n (%)	117 (8.4)
Tabagismo, n (%)	
Nunca fumou	879 (63.1)
Fumador/ex-fumador	515 (36.9)
Consumo álcool, n (%)	523 (37.5)
Abuso álcool*, n (%)	85 (6.1)
Hipertensão, n (%)	799 (57.3)
Dislipidémia, n (%)	798 (57.2)
Diabetes, n (%)	283 (20.3)
Obesidade, n (%)	458 (32.9)
Doença coronária, n (%)	68 (4.9)
Doença cerebrovascular, n (%)	57 (4.1)
DAP, n (%)	40 (2.9)
IC congestiva, n (%)	24 (1.7)
DPOC, n (%)	35 (2.5)
DRC, n (%)	12 (0.9)
SAOS, n (%)	41 (2.9)
Neoplasia, n (%)	130 (9.3)
Habilitações literárias	
Analfabeto, n (%)	57 (4.1)
1º ciclo, n (%)	697 (50.0)
Ensino secundário, n (%)	514 (36.9)
Ensino universitário, n (%)	126 (9.0)
Classe NYHA	
I ou II, n (%)	1315 (94.3)
III ou IV, n (%)	79 (5.7)
FA Flutter, n (%)	43 (3.1)

Conclusions: The population of the RAM has particular and unique characteristics due to its insularity. The PORTHOS-MADEIRA study will make it possible to assess the prevalence of HF in this population.

PO 311. LONG-TERM CARDIOVASCULAR RISK ASSESSMENT IN PORTUGUESE CHRONIC KIDNEY DISEASE POPULATION: INSIGHTS FROM THE PREVENT™ SCORE

Andreia Rita Henriques, Tatiana Pereira Santos, João Venda, Emanuel Ferreira, Elisabete Jorge, Pedro Maia, Lino Gonçalves, Rui Alves

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

Introduction: Traditional cardiovascular disease (CVC) risk scores overlook chronic kidney disease (CKD), limiting their applicability in these population The PREVENT™ score, which incorporates CKD, was recently approved in the United States. This study aims to evaluate the effectiveness of the newly approved PREVENT™ in predicting 10-year cardiovascular outcomes in a Portuguese CKD population.

Methods: A retrospective analysis included nephrology patients aged 30-79 years with eGFR < 60 mL/min/1.73 m², with no prior CVD, who attended nephrology appointments since 2013 at a tertiary hospital. Patients who died in the first year were excluded. The accuracy of PREVENT™, SCORE2, and Kidney Failure Risk Equation (KFRE) in predicting CVD, heart failure (HF), and atherosclerotic cardiovascular disease (ASCVD) in CKD patients over a ten-year period were assessed. Secondary outcomes included all-cause mortality and dialysis initiation.

Results: A cohort of 125 patients (62.4% men, median age 65 [54-73] years, mean eGFR 35.8 ± 12.4 mL/min/1.73 m²) was analysed. Higher PREVENT™ scores for CVD, HF, and ASCVD significantly correlated with the respective development of CVD (p = 0.003; cut-off: 22.6%, sensitivity (SS) 77.4%, specificity (SE) 54.2%), HF (p = 0.001; cut-off: 18.2%, SS 79.1%, SE 56.1%), and ASCVD (p = 0.049; cut-off: 15.6%, SS 60.0%, SE 66.7%). While, SCORE2 also predicted CVD (p = 0.017), PREVENT™ demonstrated superior sensitivity, and assign patients to higher risk classes, assigning 92.3% of patients to high or very high risk, compared to 53.0% of SCORE2. These findings highlight the CV risk in CKD patients and the need for introducing prognosis-modifying therapies in these patients. KFRE effectively predicted dialysis initiation, but neither PREVENT™ nor SCORE2 reached statistical significance for this outcome. Conversely, PREVENT™ correlated with higher all-cause mortality risk, a result not observed with KFRE.

Conclusions: CKD patients have an elevated risk of HF and CVD, emphasizing the need for accurate risk stratification. In this Portuguese cohort, PREVENT™ effectively estimated the risk of CV events, HF, and mortality, outperforming SCORE2 in sensitivity and risk classification. CKD-specific tools like PREVENT™ and KFRE complement one another, providing a more comprehensive risk assessment for this high-risk population.

PO 312. THE BURDEN OF MYOCARDIAL INJURY: UNVEILING PREDICTORS OF MORTALITY FROM HOSPITAL TO LONG-TERM OUTCOMES

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

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Introduction: Myocardial injury (MI), defined as troponin elevation above the 99th percentile without acute myocardial ischemia, is common in emergency departments (EDs). Despite its prevalence, the risk profile, prognosis, and predictors of mortality in this population remain poorly explored in the literature.

Objectives: To assess MI-related mortality and its drivers up to a 6-year follow-up.

Methods: We conducted a prospective registry of 250 patients admitted consecutively through the ED from January 1, 2018, onward, with high-sensitivity troponin T (hsTnT) levels above the 99th percentile. The assay used was Roche's Elecsys Troponin T hsSTAT, with a 99th percentile cutoff of 14 ng/L. Patients with chronic kidney disease (ClCr < 15 mL/min) were excluded, leaving 236 patients diagnosed with myocardial injury. Mortality was evaluated at 1 year and 6 years. Univariate analysis identified significant variables, followed by logistic regression to determine their independent predictive value for mortality.

Results: Myocardial injury was far more prevalent than myocardial infarction (ratio 100:6.4), with 94% of patients classified as having MI (n = 236). In-hospital mortality did not differ significantly between patients with hypertension, diabetes, dyslipidemia, or a higher number of traditional risk factors (p = n.s). Follow-up mortality was 5.6% (30 days), 31.3% (1year), and 75.4% (6 years). In-hospital mortality was significantly higher among patients diagnosed with respiratory infection (33 vs. 61%, p = 0.017, OR 3.2) or acute/acute-on-chronic heart failure (31 vs. 56%, p = 0.03, OR 2.8). Elevated C-reactive protein (CRP; p

< 0.001) and NT-proBNP levels (p = 0.02) were also linked to higher in-hospital mortality. Logistic regression identified independent predictors of in-hospital mortality, including diminished oxygen supply (OR 3.6), length of hospital stay (OR 1.042), and CRP levels (OR 1.005). Cox regression identified troponin levels, age, diabetes, and obesity as independent predictors of 6-year mortality (HR 1.4, 1.1, 1.4, and 1.5, respectively; p < 0.05).
Conclusions: Myocardial injury appears to carry a worse prognosis than traditionally associated with myocardial infarction. Troponin levels are also significantly relevant to mortality in this population. Importantly, the drivers of in-hospital mortality differ from those affecting long-term outcomes. This study, one of the few of its kind, provides valuable insights into the characterization and risk stratification of patients with myocardial injury.

PO 313. BASELINE CARDIOVASCULAR RISK AND PRIMARY PREVENTION IN STEMI PATIENTS: INSIGHTS FROM A TERTIARY CENTER

Carla Oliveira Ferreira, Filipe Silva Vilela, Ana Sofia Fernandes, Mónica Dias, Inês Conde, Rodrigo Silva, Carlos Galvão Braga, Cátia Costa Oliveira

Hospital de Braga.

Introduction: Systematic or opportunistic cardiovascular disease (CVD) risk assessment is of paramount importance in identifying individuals at high and very high risk for CVD, especially those who could benefit from pharmacological intervention in primary prevention. The aim of this study is to evaluate baseline CVD risk of patients admitted with ST-elevation myocardial infarction (STEMI) at a tertiary hospital, assess STEP 1 and STEP 2 accomplishment and determine predictors of appropriate CVD control.
Methods: We conducted a retrospective, observational study of 202 patients diagnosed with STEMI between January 1st, 2022 and March 31st, 2023, with a median follow up of 27.3 (7) months. Risk stratification was performed using the ESC 2021 Guidelines on cardiovascular disease prevention in clinical practice, and compliance with STEP 1 and STEP 2 (target LDL-C and systolic blood pressure control) was analysed. Lifestyle changes were not addressed in this study.
Results: The study cohort comprised 202 patients, with a mean age of 61.8 years (± 11.4) and 85.1% male patients. CV risk stratification identified 3.5% (n = 7) of patients with low to moderate risk, 56.4% (n = 114) with high risk, and 40.1% (n = 81) with very high risk. Concerning CV risk control at the time of the event, only 10.9% of patients (n = 22) met STEP 1 criteria, and just 2 (9.5%) achieved STEP 2 targets. Statin use was higher in patients meeting STEP 1 criteria (45.5%) compared to those who did not (31.7%). Age was significantly associated with the accomplishment of STEP 1 in both univariate (OR: 1.06; p = 0.009) and multivariate (OR: 1.069; p = 0.001) analysis. Statin use, prior to CV risk classification and recent analytical study at the general practitioner showed no significant association with STEP 1 compliance.
Conclusions: This study highlights an alarming gap in the primary prevention of patients who develop STEMI, with the majority failing to meet STEP 1 and STEP 2 recommendations despite their high baseline CVD risk. Age emerged as a positive predictor of compliance with CV prevention strategies, emphasizing the need for targeted interventions to improve adherence to guideline recommendations, particularly among the younger population.

PO 314. IMPACT OF MATERNAL-FETAL OUTCOMES AND BREASTFEEDING ON CARDIAC REVERSE REMODELING

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

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

Introduction: Pregnancy induces cardiac remodeling characterized by left ventricular (LV) hypertrophy and dilation, which is expected to return to its pre-pregnancy structure after delivery, cardiac reverse remodeling (RR). However, the impact of maternal-fetal outcomes and breastfeeding on cardiac RR is not yet well established.
Objectives: To investigate the impact of maternal-fetal outcomes [cardiovascular risk (CVR) factors (chronic arterial hypertension, obesity, and type 2 diabetes mellitus), pregnancy complications (preeclampsia, gestational diabetes and gestational hypertension), duration, parity, newborn sex, delivery type], and exclusive breastfeeding on LV mass (LVM) regression induced by pregnancy.
Methods: This prospective cohort study included volunteer pregnant women from two tertiary centers between 2019 and 2024. Participants underwent transthoracic echocardiography during the 3rd trimester [30-35 weeks, peak of cardiac remodeling], as well as at 1/6/12 months postpartum [cardiac RR]. Generalized linear mixed-effects models were used to evaluate the extent of the RR and its predictors.
Results: A total of 169 participants were included, with a median age of 34 [31;37] years, 36% of whom had at least one CVR factor. Pregnancy complications occurred in 30% of the women. The median time of gestation was 39 [38; 40] weeks. C-section delivery was performed in 37% of the participants, and 53% of the newborns were male. Most of the participants were primiparous (53%). Exclusive breastfeeding for up to 4.5 months was documented in 39% of women. Significant regression of LVM (34 [29;39] g/$m^{2.7}$ to 31 [26; 36] g/$m^{2.7}$, p < 0.001), volume (25 [22;28] mL/$m^{2.7}$ to 23 [20;26] mL/$m^{2.7}$, p < 0.001), and relative wall thickness (0.36 [0.32;0.40] to 0.33 [0.30;0.37], p < 0.001) were found as soon as 1 month postpartum. In the multivariable analysis, the presence of maternal CVR factors (7.39 [5.47;9.31], p < 0.001) and the number of live births before this pregnancy (1.41 [0.02;2.80], p = 0.048) were independent predictors of postpartum LVM regression. Pregnancy complications, newborn sex, c-section, pregnancy duration, maternal age, and exclusive breastfeeding for up to 4.5 months showed a non-significant impact on postpartum LVM regression.
Conclusions: Substantial LVM regression was observed as early as 1 month postpartum. The presence of maternal CVR factors and an increased number of previous live births significantly influenced cardiac RR, diminishing the regression of postpartum LVM.

Sábado, 12 Abril de 2025 | 16:30-17:30

Área de Posters-écran 1| Sessão de Posters 47 – Avaliação cardíaca por TC e/ou RM

PO 315. IS LIPOPROTEIN(A) A PREDICTOR OF COMPUTED TOMOGRAPHY ANGIOGRAPHY FINDINGS? A RETROSPECTIVE STUDY IN A TERTIARY CENTER

Rui Miguel Gomes, C. Santos-Jorge, Ana Catarina Ribeiro, Cláudia Silva, Francisco Gama, Pedro Lopes, Pedro Freitas, Sara Guerreiro, Pedro Araújo Gonçalves, João Abecasis, António Ferreira, Jorge Ferreira

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

Introduction: Lipoprotein(a) (Lp[a]) has emerged as a potential risk marker of atherosclerotic coronary artery disease (CAD). Previous studies have found mixed results with regards to the association of Lp(a) serum levels and coronary computed tomography angiography (CCTA) findings. The aim of this study is to evaluate the correlation between this genetically determined serum biomarker and CCTA findings.
Methods: Data was collected from electronic medical records of patients who underwent CCTA in a single tertiary center. From these, patients who had a measurement of serum Lp(a) were selected. Clinical, laboratory and frequently evaluated CCTA finding as coronary artery calcium (CAC), CAD-

reporting and data system 2 (CAD-RADS) and segment involvement score (SIS) were analyzed using Statistical Package for the Social Sciences, where a P value < 0.05 was considered statistically significant.
Results: 61 patients were selected, 74% male, with a mean age of 59 ± 12 year. In this cohort no linear correlation was found between Lp(a) and SIS, CAD-RADs and CAC score. Furthermore, when categorized by terciles, Lp(a) had no statistically significant associations with these variables. When looking at high risk Lp(a) levels according to the 2022 European Society of Cardiology consensus statement (> 250 nmol/L), there was an association with a higher SIS (5 [1-8] vs. 16 [3-16], p = 0.01). However, there was no significant correlation with CAD-RADS (p = 0.47) or CAC score (p = 0.717).
Conclusions: Lp(a) serum levels showed no significant linear correlation with commonly evaluated CCTA findings including SIS, CAD-RADS and CAC scores. When stratified according to high-risk Lp(a) levels (> 250 nmol/L), there was a correlation with a higher SIS, suggesting a more diffuse coronary artery involvement, even without significant calcification or stenosis as assessed by CAD-RADS and CAC scores. Further studies with larger cohorts are needed to validate these observations.

PO 316. IMPACT OF CORONARY CALCIFICATION ON LIPID-LOWERING THERAPY DECISIONS FOLLOWING CORONARY COMPUTED TOMOGRAPHY WITH NON-OBSTRUCTIVE CORONARY DISEASE OR NON-DIAGNOSTIC RESULT

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

ULS Leiria.

Introduction: Coronary computed tomography angiography (CCTA), as non-invasive method of choice for investigation of suspected symptomatic coronary artery disease (CAD), has been shown to be associated with lower cardiovascular (CV) outcomes. Such benefits seem mainly attributed to better management strategies, such as earlier statin prescription. Moreover, even a non-diagnostic test can show coronary calcification (marker of advanced atherosclerosis) which may have important implications for lipid-lowering therapy (LLT) decisions.
Objectives: To identify and characterize patients (pts) with positive calcium score (CaS) and non-obstructive CAD or non-diagnostic CCTA, and to evaluate subsequent LLT management according to the calcification degree.
Methods: Single-center retrospective study of 354 pts with suspected obstructive CAD who underwent CCTA between June 2022 and September 2024. We selected pts with non-obstructive-CAD (absence of ≥ 50% stenosis) or a non-diagnostic test (impossibility of excluding obstructive CAD in ≥ 1 segment and absence of ≥ 50% stenosis in interpretable segments) plus positive CaS. Group A included pts with a CaS = 1-99 and Group B pts with values > 99. Demographic characteristics, LLT before and after CCTA and specific CCTA parameters were analyzed. Intensification of LLT was defined as: higher-potency statin switch; statin dose escalation; ezetimibe association; or ≥ 2 of the above. SPSS v29 was used for statistical analyses.
Results: Overall, our sample included 116 pts (75.0% were male) with a mean age of 42.0 years. Group A included 65 pts (56.0%) and group B 51 pts (44.0%). Group B presented higher proportion of males (p = 0.013) and an older mean age (p = 0.022) [Table 1]. Overall, after CCTA, LLT was initiated in 15.5% of pts, without differences between groups (16.9 vs. 13.7%, p = 0.929), and was withheld in 18.1% of this cohort with positive CaS. About one quarter of pts had their LLT intensified but with no differences between groups (23.1 vs. 31.4%, p = 0.467).
Conclusions: In our study, pts with higher CaS were older and predominantly male, highlighting the role of demographic factors in coronary calcification. Despite some degree of LLT initiation and intensification following CCTA, no differences were observed according to the degree of coronary calcification and almost one fifth remained untreated. This raises some concern about some lack of awareness regarding the importance of coronary calcification for LLT tailoring.

PO 317. ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE – THE NEXT STEP IN PREDICT ATRIAL FIBRILLATION?

Marta Paralta de Figueiredo, Rafael Viana, António Almeida, Miguel Carias, Rita Louro, Orlando Luquengo, Diogo Brás, Bruno Piçarra, Manuel Trinca

Hospital do Espírito Santo, EPE, Évora.

Introduction: Atrial fibrillation (AF) is an increasingly frequent comorbidity that increases the risk of stroke and mortality. Artificial intelligence (AI)

Table 1.

	Total (n=116)	Group A (n=65)	Group B (n=51)	p-value
Male gender – no. (%)	87 (75.0)	43 (66.2)	44 (86.3)	**p=0.013**[c]
Age (yrs) – mean (SD)	42.0 (8.99)	61.6 (9.81)	65.4 (7.4)	**P=0.022**[a]
Lipid lowering therapy before CCTA no. (%)				
None	39 (33.6)	26 (40.0)	13 (25.5)	p=0.441[d]
High-intensity statin only	17 (14.7)	9 (13.8)	8 (15.7)	
Moderate-intensity statin only	46 (39.7)	22 (33.8)	24 (47.1)	
High-intensity statin and ezetimibe	8 (6.9)	4 (6.2)	4 (7.8)	
Moderate-intensity statin and ezetimibe	4 (3.4)	3 (4.6)	1 (2.0)	
Lipid lowering therapy after CCTA no. (%)				
None	21 (18.1)	15 (23.1)	6 (11.8)	p=0.404[d]
High-intensity statin only	21 (18.1)	13 (18.5)	9 (17.6)	
Moderate-intensity statin only	40 (34.5)	19 (29.2)	21 (41.2)	
High-intensity statin and ezetimibe	13 (11.2)	6 (9.2)	7 (13.7)	
Moderate-intensity statin and ezetimibe	9 (7.8)	4 (6.2)	5 (10.4)	
Intensified LDL cholesterol-lowering therapy no. (%)	**31 (26.7)**	**15 (23.1)**	**16 (31.4)**	p=0.467[c]
CCTA parameters				
Calcium score – mean (SD)	473.4 (791.8)	25.6 (29.7)	1035.4 (921.8)	**p<0.001**[a]
Problems in acquiring images – no (%)	25 (21.6)	19 (29.2)	6 (11.8)	p=0.064[d]
Poor apnea	6 (5.2)	5 (7.7)	1 (2.0)	
ECG artifacts/ Irregular rhythm	15 (12.9)	12 (18.5)	3 (5.9)	
Other problems	4 (3.5)	2 (3.1)	2 (4.0)	
Non-diagnostic exam – no (%)	23 (19.8)	18 (27.7)	5 (9.8)	**p=0.016**[c]
Prospective gating – no (%)	73 (62.9)	50 (76.9)	23 (45.1)	**p<0.001**[c]

Table 1. Baseline characteristics, LDL- cholesterol lowering therapy and CCTA findings in patients stratified by calcium score
Statistical analysis: [a]Mann-Whitney U test, [c]Chi-square test, [d]Fisher´s exact test.
Abbreviations: CCTA – coronary computed tomography angiography; ECG: electrocardiogram; SD - Standard Deviation.

Figure PO 316

plays a vital role in cardiac magnetic resonance (CMR) due to its ability to streamline and enhance the analysis of complex imaging data. These automatically generated parameters can potentially unlock earlier diagnosis and personalized treatment strategies.
Objectives: Our study aimed to investigate if there were AI-derived CMR parameters associated with AF.
Methods: We retrospectively analyzed a population of patients submitted to CMR and divided them in two groups – those with and without AF. We documented demographic factors, left atrial (LAEF) and ventricular ejection fraction (LVEF), ventricular and atrial volumes and the longitudinal LA and LV shortening obtained through AI in CMR. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 103 patients, 22.3% (n = 23) had no structural disease, 37.9% (n = 39) had HCM and 39.8% (n = 41) had DCM. 59.2% were male, with mean age of 55 ± 16 years, with no differences between groups. When comparing groups regarding history of AF, these patients had similar left ventricular ejection fraction (LVEF), with a median of 47 ± 17%, ventricular systolic and diastolic volumes and longitudinal ventricular shortening, as well as left and right atrial longitudinal shortening. However, patients with AF had significantly lower biplane LAEF (37.7 vs. 51.6%, p = 0.003) and higher indexed diastolic biplane LA volume (64.8 vs. 40.4mL, p = 0.007). A ROC curve was evaluated revealing a strong sensitivity for indexed diastolic biplane LA volume as an early diagnostic marker of AF (AUC = 0.714), with a cutoff value of 29.4 mL presenting 93% sensitivity and 21.3% specificity, while volumes above 60.4 mL have 62.5% sensitivity and 84% specificity for diagnosing AF.
Conclusions: In patients submitted to CMR there is a positive association between higher indexed diastolic biplane LA volume and history of AF, regardless of having structural disease. This AI generated parameter has a strong discriminatory ability for diagnosing AF, possibly contributing to earlier diagnosis and stroke prevention.

PO 318. INCREMENTAL VALUE OF CARDIAC MRI OVER ECHOCARDIOGRAPHY IN THE ASSESSMENT OF AORTIC REGURGITATION

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Introduction: Transthoracic echocardiography (TTE) is the primary imaging modality for evaluating aortic regurgitation (AR) and plays a central role in surgical decision-making. However, TTE has limitations in assessing AR severity, particularly in cases with eccentric regurgitant jets or borderline findings. Cardiac MRI (cMRI) has emerged as a complementary tool, providing precise volumetric and functional data. This study aims to validate the role of cMRI in refining AR severity.
Methods: This retrospective, single-center study included patients with AR who underwent cMRI between 2019-2024. Patients with a time gap > 6 months between TTE and cMRI were excluded. AR severity on TTE was graded using the PISA method, along with vena contracta, jet width, and holodiastolic flow reversal when applicable. On cMRI (1.5T), phase-contrast velocity-encoded sequences quantified aortic regurgitant volume and regurgitant fraction (RF), with significant AR defined as RF ≥ 35% as suggested by several papers.
Results: A total of 177 patients (mean age 65 years, 67% male) were analyzed. Mean left ventricular ejection fraction (LVEF) by cMRI was 49 ± 15%. Left ventricular (LV) volumes were consistently underestimated by TTE compared to cMRI (dilated LV in 45.2 vs. 59.3%, median LVEDVi: 81 mL/m^2 [IQR 63-98] vs. 110 mL/m^2 [IQR 87-139]). Median regurgitant volume and RF on cMRI were 18 mL (IQR 7-37) and 22% (IQR 10-36). Figure 1a shows AR severity reclassification achieved with cMRI. Among 63 patients with moderate AR on TTE, cMRI reclassified 24 (38.1%) as significant AR. Of 12 moderate-to-severe AR cases, 6 (50%) were reclassified as significant AR. All 13 severe AR cases identified by TTE were confirmed by cMRI. The agreement between TTE and cMRI in identifying severe aortic regurgitation was poor (Cohen's Kappa = 0.11; p < 0.001). In patients with LV dilation or dysfunction but no significant AR (n = 78), cMRI provided alternative diagnoses in 47 cases (60%): ischemic late-gadolinium enhancement (LGE) in 19, non-ischemic LGE in 22, and both in 6 patients. During follow-up, 22 patients underwent surgery for isolated AR (Figure 1b). Only 12 met guideline-recommended criteria for intervention (8 Class I, 2 Class Ib, 2 Class IIa/IIb). Cardiac MRI findings guided the surgical decision-making in the remaining 10 patients.

Figure 1a

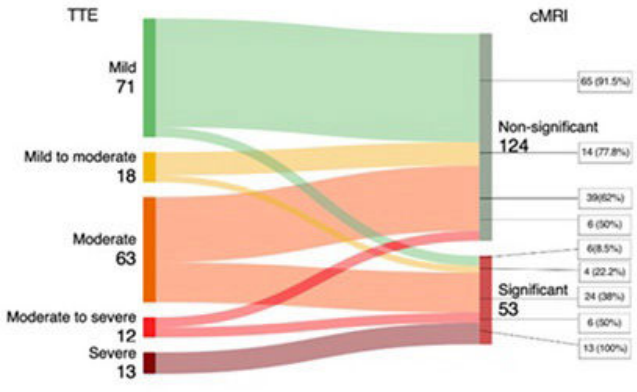
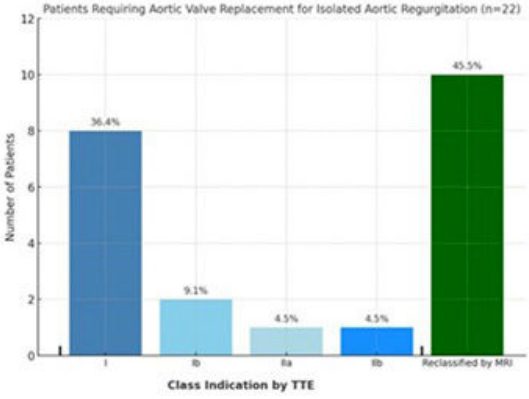


Figure 1b Patient who underwent surgery for isolated aortic regurgitation (n=22)



Conclusions: Cardiac MRI provides significant incremental value in evaluating aortic regurgitation, particularly in borderline and complex cases. While TTE remains the cornerstone imaging modality, cMRI can refine AR severity assessment and guide clinical decision-making, optimizing patient management.

PO 319. FIBROSIS ASSESSMENT IN PATIENTS WITH FREQUENT VENTRICULAR EXTRASYSTOLES AND NORMAL ECHOCARDIOGRAMS: INSIGHTS FROM CARDIAC MRI

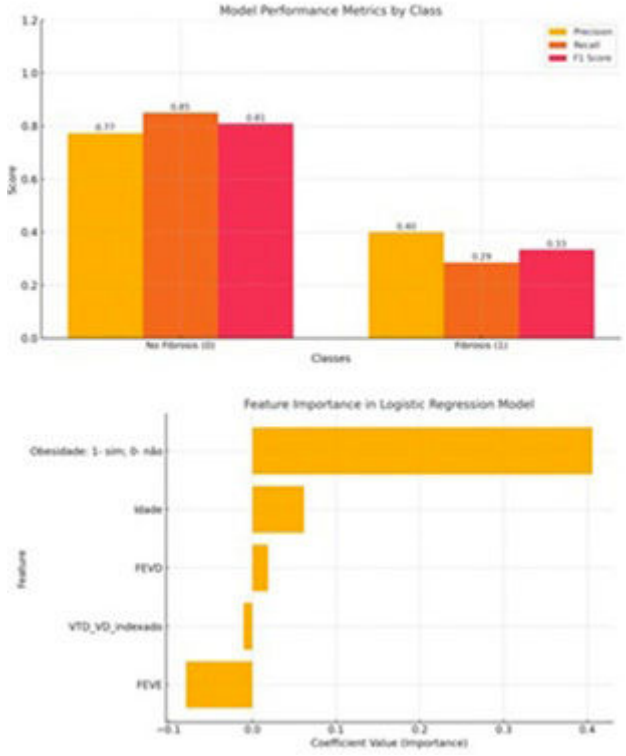
Rodrigo Neves Brandão, Inês Pereira de Miranda, Filipa Gerardo, Carolina Mateus, Mara Sarmento, João Bicho Augusto

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

Introduction: Frequent ventricular extrasystoles (VEs) with normal echocardiogram findings often prompt cardiac MRI evaluation to detect myocardial fibrosis.
Objectives: To characterize (1) the prevalence and location of fibrosis and (2) to assess the predictors of fibrosis in such patients.
Methods: We retrospectively analyzed patients referred for CMR for frequent VEs with normal echocardiograms between January 2022 and November 2024. Fibrosis was indicated by late gadolinium enhancement

(LGE). Feature selection via SelectKBest (ANOVA F-test) retained the top five predictors, and a logistic regression model with L2 regularization was developed. Data were split (70% training, 30% testing) and validated using stratified 5-fold cross-validation. Model performance was assessed via precision, recall, F1-score, and accuracy.
Results: Among 98 patients (54.3 ± 12.1 years, 55% male), 26.5% exhibited fibrosis. Of these, 19.2% had subendocardial fibrosis, consistent with a myocardial infarct pattern, while 80.8% had midwall and/or subepicardial fibrosis. The basal inferolateral and basal inferior regions were the most affected (23%). Patients with fibrosis were older (58.2 ± 10.4 vs. 53.0 ± 12.8 years, p = 0.03). Predictors included age (p = 0.01), hypertension (p = 0.02), obesity (p = 0.04) and left ventricular ejection fraction (p = 0.03). The model achieved 98.8% cross-validation accuracy and 70.4% accuracy on the holdout set. Non-fibrosis cases were reliably predicted (precision 77.3%, recall 85%, F1-score 80.9%), whereas performance for fibrosis cases was reduced (precision 40%, recall 28.6%, F1-score 33.3%).

Figure. (A) Model performance to predict absence or presence of fibrosis in cardiac MRI. Feature importance in logistic regression model is shown in (B).



Conclusions: Myocardial fibrosis was detected in over a quarter of patients with frequent VEs and normal echocardiograms, predominantly in the basal inferolateral region. Older age, hypertension, obesity, and reduced ejection fraction were key predictors. Cardiac MRI and clinical integration remain crucial for risk assessment.

PO 320. ATRIAL PARAMETERS GENERATED BY ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE AND ITS ASSOCIATION WITH ATRIAL FIBRILLATION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

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Introduction: Atrial fibrillation (AF) is an important comorbidity in hypertrophic cardiomyopathy (HCM), increasing rates of stroke and mortality. Therefore, developing new non-invasive strategies for earlier diagnosis, such as using artificial intelligence (AI) generated parameters from cardiac magnetic resonance (CMR) can help improve outcomes in patients with HCM.
Objectives: Our study aimed to investigate if there was an association between AF and atrial AI-derived CMR parameters in individuals with HCM.
Methods: We retrospectively analyzed a population of patients submitted to CMR, selected those with hypertrophic cardiomyopathy (HCM) and divided them in two groups – those with and without AF. We documented demographic factors, left atrial ejection fraction (LAEF), right and left atrial volumes and the longitudinal LA shortening obtained through AI in CMR for both groups. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 103 patients, 37.9% (n = 39) had HCM. When comparing groups, 59% were male, with mean age of 61 ± 13 years with no differences between groups. However, patients with AF had significantly lower LAEF (34.1 vs. 50.9%, p = 0.002), higher indexed diastolic LA volume (66.2 vs. 42.8 mL, p = 0.003) and lower left atrial longitudinal shortening (11.8 vs. 18.2, p = 0.033). In multivariate analysis, nevertheless, none proved to be independently significant.
Conclusions: CMR derived lower LAEF, higher indexed diastolic LA volume and lower left atrial longitudinal shortening are associated with AF in patients with HCM and could be an earlier indicator of development of arrhythmia and more complex cardiomyopathy. Although these were not independently associated, further studies with a larger population are required to establish possible predictors.

Sábado, 12 Abril de 2025 | 16:30-17:30

Área de Posters-écran 2 | Sessão de Posters 48 – Ressincronização cardíaca e CDI

PO 321. LONG-TERM COMPARATIVE EFFECTIVENESS OF A HEMODYNAMIC SENSOR-BASED CRT VERSUS STANDARD CRT: INSIGHTS INTO CARDIAC AND FUNCTIONAL IMPROVEMENTS

Inês Ferreira Neves, Julien Lopes, Francisco Cardoso, Guilherme Portugal, Hélder Santos, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Rita Moreira, António Gonçalves, Rui Cruz Ferreira, Mário Martins Oliveira

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Introduction: In cardiac resynchronization therapy (CRT), integration of a hemodynamic sensor into the device allows automatic individualized optimization of atrioventricular (AV) and interventricular (VV) timing based on ventricular contractility with the purpose of improving patient outcomes by dynamic adjustment to cardiac function. We aimed to compare the effectiveness of CRT using a sensor-based system (SonR, Microport) to standard CRT in terms of functional and cardiac remodeling outcomes.
Methods: Consecutive patients (P) with heart failure, symptomatic New York Heart Association (NYHA) class II-IV, with Left Ventricular Ejection Fraction (LVEF) ≤ 35% after 3 months of Guideline-directed medical therapy and a prolonged QRS submitted to CRT implantation at our center between 2015 and 2022 were included. P with an existing pacemaker or Implantable Cardioverter Defibrillator (ICD) who develop a clinical indication for CRT were also included. A paired-sample T-test analysis was performed to evaluate pre- and post-therapy metrics in two groups: SonR P and non-SonR P. Primary endpoints included changes in NYHA class, LVEF, and left ventricular end-systolic volumes (LVESV). The effect sizes were analysed using Cohen's and Hedge's correction.

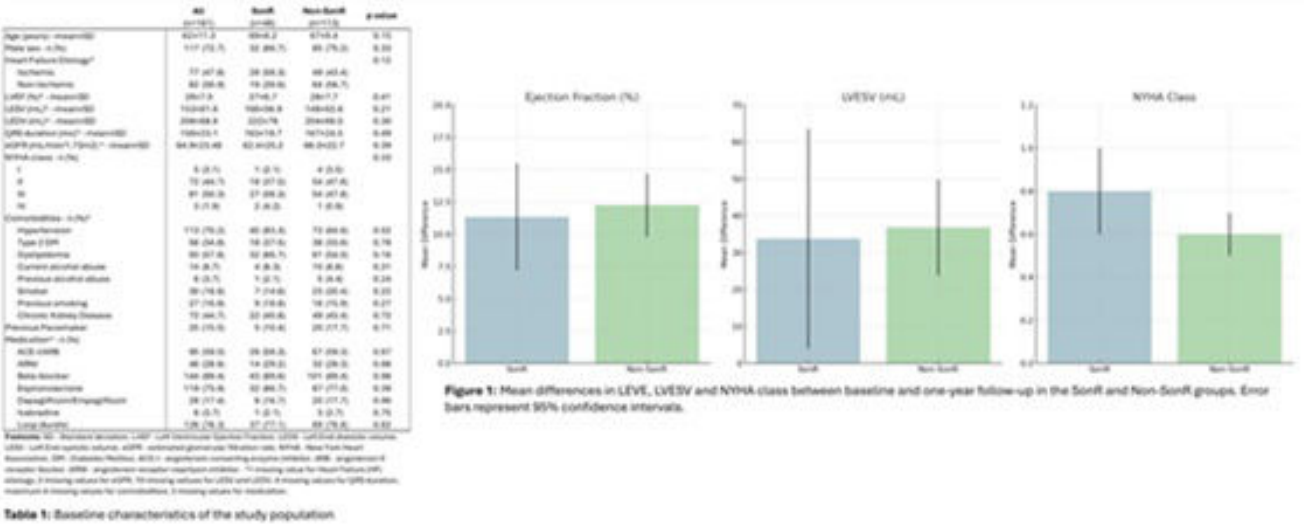

Table 1: Baseline characteristics of the study population

Figure 1: Mean differences in LEVE, LVESV and NYHA class between baseline and one-year follow-up in the SonR and Non-SonR groups. Error bars represent 95% confidence intervals.

Figure PO 321

Results: Out of 161 P (62 ± 11.3 years, 117 [72.7%] male), 48 (29.8%) were implanted with a SonR CRT system. The mean follow-up time was 55 ± 29 months. For the SonR group, a significant improvement in LVEF was observed, with an increase of 11.34 percentage points from baseline to one-year post-intervention (mean difference = 11.34, 95%CI [7.2, 15.5], p < 0.001). In the non SonR group, there was a mean difference of 12.25 (95%CI [9.8, 14.7], p < 0.001). Both groups showed a statistically significative difference in LVESV (mean difference = 33.8, p = 0.029 in the SonR group and mean difference = 36.8, p < 0.001 in the non-SonR group). The functional NYHA class had a greater improvement in the SonR group (mean difference = 0.8, 95%CI [0.6, 1.0], p < 0.001) than in the non SonR group (mean difference = 0.6, 95%CI [0.5, 0.7], p < 0.001). The SonR group had a greater effect size (Cohen's d = 1.211, 95%CI [0.792, 1.622] vs. Cohen's d = 0.868, 95%CI [0.627, 1.105] in the non-SonR group), indicating a more pronounced impact on functional status.
Conclusions: The sensor-based CRT was associated with similar improvement in LVEF and LVESV compared to the standard CRT. However, the SonR group exhibited a greater improvement in functional class, reflected by a larger effect size. These findings suggest that automatic individualized optimization of AV and VV intervals based on ventricular contractility may add benefit in enhancing patients' functional status.

PO 322. ARE PATIENTS WITH NON-ISCHEMIC CARDIOMYOPATHY LESS DESERVING OF PRIMARY PREVENTION DEVICE IMPLANTATION?

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Introduction: The role of implantable devices in preventing sudden cardiac death in heart failure patients with non-ischemic cardiomyopathy in primary prevention remains uncertain, primarily due to inconsistent evidence regarding their impact on outcomes such as mortality compared to medical therapy alone.
Objectives: This study aimed to evaluate differences in outcomes between patients undergoing implantable cardioverter-defibrillator (ICD) or cardiac resynchronization therapy defibrillator (CRT-D) implantation for primary prevention based on etiology (ischemic heart disease [IHD] vs. non-ischemic heart disease [NIHD]). Additionally, predictors of outcomes were assessed over a median follow-up of 35 months.
Methods: A retrospective analysis between 2020 and 2024 included 165 patients who underwent ICD/CRT-D implantation for primary prevention. Data collected included demographic characteristics, cardiovascular risk factors, documented arrhythmias, device type, and administered therapies (medical or device-based). Outcomes studied included hospitalization due to heart failure, myocardial infarction, stroke, or death. Predictors of outcome were identified using multivariate logistic regression.

Table 1: Baseline characteristics and outcomes of patients undergoing primary prevention device implantation, stratified by etiology;

	Ischemic (n=103, 69.6%)	Non- Ischemic (n=45, 30.4%)	Total n=165	*P* Value
Gender				
Female	18 (17.5%)	13 (28.9%)	38 (23.0%)	
Male	85 (82.5%)	32 (71.1%)	127 (77.0%)	0.129
Age	65 (58-73)	63 (54-71)	65 (58-73)	0.227
Diabetes Mellitus	50 (49.0%)	19 (43.2%)	75 (46.0%)	0.589
Dyslipidemia	78 (76.5%)	25 (56.8%)	114 (69.9%)	**0.019**
Arterial Hypertension	69 (67.6%)	21 (47.7%)	102 (60.6%)	**0.023**
Smoking *Status*	67 (65.7%)	24 (54.5%)	99 (60.7%)	0.264
Chronic Kidney Disease	21 (21.0%)	12 (27.3%)	38 (23.8%)	0.519
Heart Failure	91 (89.2%)	38 (36.4%)	145 (89.0%)	0.779
LVEF	30 (25-40)	46 (30-58)	35 (27-49)	**< 0.001**
Atrial Fibrillation	21 (20.6%)	18 (40.9%)	45 (27.6%)	**0.015**
Ventricular Tachicardia	5 (5.4%)	3 (7.1%)	12 (7.9%)	0.704
Ventricular Tachicardia Ablation	0 (0.0%)	1 (2.4%)	1 (0.7%)	0.311
Medical Therapy				
ACEi/ARB	32 (32.0%)	14 (33.3%)	57 (36.1%)	1.000
ARNI	62 (62.0%)	23 (53.5%)	90 (56.6%)	0.359
MRA	77 (77.0%)	26 (60.5%)	112 (70.4%)	**0.043**
SGLT2i	69 (69.7%)	23 (53.5%)	97 (61.4%)	0.063
B-blockers	90 (89.1%)	39 (20.7%)	144 (90.0%)	1.000
Antiarrhythmics	19 (19.0%)	11 (25.6%)	32 (20.1%)	0.375
Device mode				
ICD	85 (82.5%)	34 (77.3%)	203 (79.0%)	
CRT-D	18 (17.5%)	10 (22.7%)	54 (21.0%)	0.458
Device Therapies	12 (13.0%)	10 (25.0%)	22 (14.9%)	0.090
Number of therapies administered	3 (1-10)	2 (1-5)	2 (7-7)	0.430
Shocks	9 (9.8%)	8 (19.5%)	17 (11.4%)	0.121
Number of shocks administered	2 (1-8)	3 (2-8)	2 (1-7)	0.318
Inappropriate shocks	2 (2.2%)	4 (9.8%)	6 (4.0%)	0.073
Follow-up (months)	33 (18-43)	34 (17-44)	33 (17-43)	0.798
Composite Outcome	29 (28.7%)	16 (35.6%)	52 (31.9%)	0.408
Death	13 (12.7%)	7 (15.6%)	24 (14.6%)	0.647
AMI	14 (13.7%)	4 (8.9%)	19 (11.6%)	0.410
Stroke	2 (2.0%)	3 (6.7%)	8 (4.9%)	0.168
Hospitalization for HF	23 (22.5%)	11 (24.4%)	40 (24.4%)	0.802

ACEi – Angiotensin converting enzyme inhibitors; AMI – Acute myocardial infarction; ARB – Angiotensin receptor blockers; ARNI – Angiotensin receptor/neprilysin inhibitor; CRT-D – cardiac resynchronization therapy defibrillator; HF – Heart Failure; ICD – implantable cardioverter-defibrillator; LVEF – Left ventricle ejection fraction; MRA – Mineralocorticoid receptor antagonists; SGLT2i – Sodium-glucose cotransporter-2 inhibitors;

Results: Of the 165 patients (median age 65 [58-73] years; 77.0% male), 69.6% had IHD and 30.4% NIHD. IHD patients were more likely to have hypertension (HT) (67.6 vs. 47.7%, p = 0.023) and dyslipidemia (76.5 vs. 56.8%, p = 0.019), while NIHD patients had more atrial fibrillation (AF) (40.9 vs. 20.6%, p = 0.015). Median left ventricular ejection fraction was lower in IHD (30% [25-40], p < 0.001). Both groups received very similar medical and

device-based (shocks and therapies) treatment regimens, with no differences in terms of documented ventricular arrythmias. No significant differences in composite outcomes were observed between IHD and NIHD patients. Predictors of adverse outcomes included female gender (OR = 4.141, 95%CI: 1.305-13.144, p = 0.016), HT (OR = 3.553, 95%CI 1.025-12.311, p = 0.046), and AF (OR = 4.004, 95%CI 1.243-12.896, p = 0.020).
Conclusions: Patients undergoing device implantation for primary prevention had similar outcomes regardless of etiology, supporting the potential benefit of this therapy in both NIHD and IHD populations. Female gender, HT, and AF were significant predictors of adverse outcomes, consistent with prior findings in literature, while etiology was not shown to influence prognosis.

PO 323. RISK STRATIFICATION IN NONISCHEMIC DILATED CARDIOMYOPATHY: THE ROLE OF T1/T2 MAPPING AND EXTRACELLULAR VOLUME

Inês Amorim Cruz, Simão Carvalho, Carlos Costa, Tiago Aguiar, Ana Catarina Faustino, Luís Miguel Santos, Ana Briosa

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Introduction: Nonischemic dilated cardiomyopathy (NIDCM) is an increasingly recognized cause of cardiovascular morbidity and mortality. Despite this, accurate risk stratification of NIDCM remains challenging. Recent studies showed that the presence and extent of late gadolinium enhancement (LGE) are associated with adverse clinical outcomes. However, the prognostic value of T1, T2 mapping and extracellular volume (ECV) is less explored.
Objectives: To explore the predictive value of cardiovascular magnetic resonance (CMR) findings - T1, T2 mapping and ECV - for heart failure (HF)-related events in NIDCM patients.
Methods: Between February 2022 and October 2024, patients diagnosed with NIDCM who underwent CMR at our center were included. All CMR images were acquired using a 1.5-T scanner (Magnetom Sola, Siemens Healthcare, Erlangen, Germany). T1 mapping was quantified within the septal myocardium in areas without LGE enhancement (T1 native) and ECV was calculated using pre, post-contrast T1 and synthetic haematocrit. The primary endpoint was HF hospitalization.
Results: Among the 53 patients with NIDCM, 40% were women, with a median age of 64 years [IQR 52-69], 55% were in NYHA 2 or higher, 15% had an implantable device and the median LV ejection fraction was 40% [IQR 30-47]. During a median follow-up of 13 months [IQR 5-22], only 6 patients (11%) had a HF hospitalization. Apart from the NT-proBNP value (3578 [IQR 3,203-3,959], p = 0.008), these patients were similar compared with patients with no HF hospitalization. T1 mapping and ECV was similar between NYHA class (p = 0.21 and p = 0.33, respectively) and both were correlated with LV ejection fraction (r = -0.46, p = < 0.001 and r = -0.44, p = 0.001, respectively). In univariable Cox regression analysis, although T1 mapping (HR = 1.01, [95%CI, 0.99-1.02], p = 0.3) and T2 mapping (HR = 1.01, [95%CI, 0.83-1.23], p = > 0.9) were not associated with higher risk of HF hospitalization, patients with higher ECV had higher risk of HF hospitalization (HR = 1.11, [95%CI, 1.01-1.22], p = 0.03, Table 1). In multivariable Cox regression analysis, including age, gender and LV ejection fraction, ECV remain an independent predictor of HF hospitalization (HR = 1.13, [95%CI, 1.00-1.28], p = 0.046, Table 1).

CMR parameter	Univariable model		Multivariable model (adjusted for age, gender, LVEF)	
	HR (95% CI)	p-value	HR (95% CI)	p-value
T1 mapping	1.01 (0.99-1.02)	0.3		
T2 mapping	1.01 (0.83-1.23)	> 0.9		
ECV	1.11 (1.01-1.22)	**0.03**	1.13 (1.00-1.28)	**0.046**

Conclusions: In this cohort of patients diagnosed with NIDCM, extracellular volume was an independent predictor of HF hospitalization, suggesting its usefulness as a potential non-invasive marker for risk stratification in these patients.

PO 324. CARDIOPULMONARY EXERCISE TESTING TO ASSESS THE EFFECT OF CARDIAC RESYNCHRONISATION THERAPY

André Paulo Ferreira, Ana Raquel Santos, Sofia Jacinto, Hélder Santos, Bruno Valente, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: Cardiac resynchronization therapy (CRT) is a well-established intervention for a subgroup of patients with heart failure (HF), that often leads to reverse remodelling and symptomatic improvement. The cardiopulmonary exercise test (CPET) is a strong and validated exam to assess functional capacity that may be useful for evaluating the CRT benefits.
Objectives: To investigate the utility of CPET in assessing the impact of CRT on the cardiopulmonary systems, and to ascertain if it can aid in identifying likely responders.
Methods: A single-centre retrospective study of patients with HF and reduced left ventricle ejection fraction (LVEF) that underwent CPET and transthoracic echocardiogram before and after 6 months of CRT implantation. CRT responders were defined as those exhibiting an absolute > 5% improvement in LVEF at 6 months of follow-up. Multiple CPET parameters were analysed in both responder and non-responder groups and multivariate logistic regression models were used.
Results: A total of 24 patients were included in this study. Patient's mean age was 60.9 ± 11.7 years, and 83.3% were male. At the baseline, 46.1% had ischemic heart disease and 53.9% dilated cardiomyopathy, 71.4% had left bundle branch block with a QRS > 130 ms, the mean LVEF was 30.7 ± 6.8% and the median New York Heart Association functional (NYHA) class was 2 (IQ 2-3). At 6 months follow-up after CRT implantation, 67.4% of patients showed a reverse remodelling response with an improvement greater than 5% in LVEF. In the responder group, the mean LVEF was 35.8 ± 8.4% at 6 months, and the peak VO2 increased significantly 11.5 ± 3.8 vs. 12.7 ± 3.5 ml/kg/min (p = 0.039), as well as the per cent predicted peak VO2 43.9 ± 19.2 vs. 51.6 ± 19.1% (p = 0.034), while the minute ventilation/carbon dioxide production (VE/VCO2) slope decreased 43.0 ± 9.4 vs. 36.6 ± 7.5 (p = 0.021). An increase of ≥ 1 in NYHA classes was registered in 65.4% of the total patients. After multivariate analysis, patients with a VO2 peak < 50% of the predicted value were found to be more likely responders (p = 0.029). No other CPET parameters were predictive of CRT response or non-response.

	6 months after CRT	*p-value*
pVO2	11.5±3.8 vs 12.7±3.5 ml/kg/min	*p = 0.039*
Predicted pVO2	43.9±19.2% vs 51.6±19.1%	*p = 0.034*
VE/VCO2 slope	43.0±9.4 vs 36.6±7.5	*p = 0.021*

Conclusions: CPET appears to be a helpful tool in assessing the benefits obtained after CRT, possibly allowing a better prognostic and risk stratification, while the identification of the more probable responders remains a challenging task.

PO 325. THE IMPACT OF ATRIAL FIBRILLATION IN CARDIAC RESYNCHRONISATION THERAPY'S RESPONSE

André Paulo Ferreira, Ana Raquel Santos, Sofia Jacinto, Hélder Santos, Bruno Valente, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

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

Introduction: Cardiac resynchronisation therapy (CRT) can be a very impactful intervention in patients with heart failure with reduced ejection fraction (HFrEF) and ventricular desynchrony. However, the presence of atrial fibrillation (AF) may attenuate CRT rates of response due to a

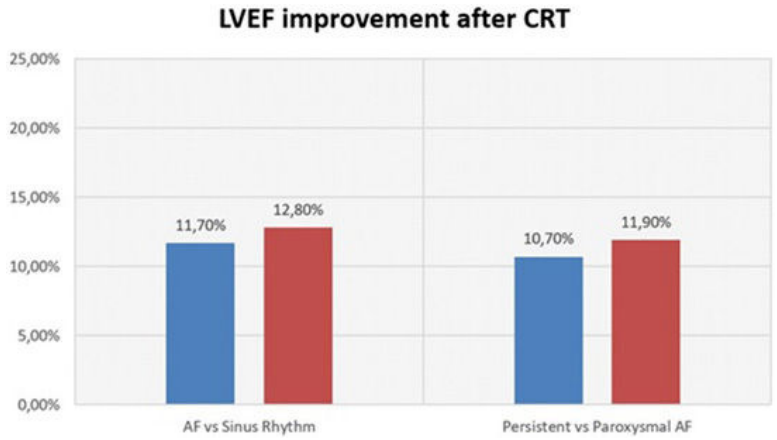

Figure PO 325

combination of reduced biventricular pacing and loss of atrioventricular synchrony.

Objectives: To investigate the impact of AF on CRT-induced reverse remodelling and functional capacity improvements.

Methods: A single-centre retrospective study of patients with HFrEF and a wide QRS complex who underwent CRT implantation between 2015 and 2022. CRT responders were defined as those exhibiting an absolute > 5% improvement in LVEF at 6 months of follow-up. CRT response was compared between patients with AF or sinus rhythm.

Results: A total of 166 patients were included in this study. Patient's mean age was 70.3 ± 10.5 years, and 73.0% were male. Of the total patients, 33.8% had ischemic heart disease and 66.2% dilated cardiomyopathy, 72.7% had left bundle branch block, and the median New York Heart Association functional class was 2 (IQ 2-3). Before CRT implantation, the mean LVEF was 26.2 ± 6.9%, and 44.6% of patients had AF. Of the latter, 43.2% had paroxysmal AF and 56.8% had persistent AF. At 6 months of follow-up after CRT implantation, we found that patients with AF had a similar mean increase in LVEF compared sinus rhythm (SR) 11.7 ± 4.5 vs. 12.8 ± 5.4% (p = 0.498), despite the presence of higher mean heart rates in the AF group, as suggested by the mean heart rates of 79.8 ± 9.2 vs. 71.4 ± 8.4 bpm (p = 0.039) at rest in the follow-up clinic visits. The improvement in LVEF did not differ significantly between the persistent vs. paroxysmal AF subgroups 10.7 ± 4.1 vs. 11.9 ± 5.5% (p = 0.644). The CRT response rate was consequently also similar in both AF and RS groups 71.4 vs. 75.2% (p = 0.325). However, the improvement of ≥ 1 classes in NYHA classification was significantly lower in the AF group, 60.7 vs. 75.1% (p < 0.01). There were no significant differences in mortality rates at 1 year of follow-up 3.4 vs. 3.9% (p = 0.687).

Conclusions: Patients with AF appear to show significant improvements and reverse remodelling effects after CRT implantation, similar to those of sinus rhythm patients, but smaller benefits are noted regarding functional outcomes.

PO 326. PREDICTORS FOR ADVERSE OUTCOMES IN ICD/CRT-D PATIENTS: INSIGHTS FROM A SINGLE-CENTER STUDY

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Introduction: Implantable cardioverter defibrillators (ICDs) and cardiac resynchronization therapy defibrillators (CRT-Ds) are used for preventing sudden cardiac death and managing heart failure (HF). However, many patients still face adverse outcomes, highlighting the need to identify predictors to optimize patient selection and care.

Objectives: To compare ICD/CRT-D patients who developed adverse outcomes with those who did not and to identify predictors of these outcomes.

Methods: This single-center retrospective study included consecutive patients who underwent ICD or CRT-D implantation between January 2020 and December 2023, with a mean follow-up of 35 months. Patients were grouped based on the occurrence of an adverse outcome – death, acute myocardial infarction, stroke and hospitalization for HF. Data were collected on demographic characteristics, HF medical therapy, device mode, administered device therapies and shocks, etiology and type of prevention. A multivariate logistic regression analysis was performed to identify independent predictors of adverse outcomes.

Table 1 – Baseline clinical characteristics of ICD/CRT-D patients.

	Adverse Outcome developement n=84, 32.4%)	No adverse outcome developement (n=175, 67.2 %)	Total n=264	*P* Valu
Gender				
Female	17 (20.2%)	37 (21.1%)	56 (21.2%)	
Male	67 (79.8%)	138 (78.9%)	208 (78.8%)	0.867
Age	66 (58-73)	65 (57-73)	66 (58-73)	**0.001**
Diabetes Mellitus	50 (59.5%)	66 (38.6%)	116 (45.1%)	**0.002**
Dyslipidemia	66 (78.6%)	112 (65.5%)	179 (69.6%)	**0.033**
Arterial Hypertension	65 (77.4%)	98 (57.3%)	164 (63.8%)	**0.002**
Smoking *Status*	54 (54.3%)	92 (53.8%)	146 (56.8%)	0.11
Chronic Kidney Disease	23 (28.4%)	29 (17.0%)	52 (20.5%)	**0.036**
Heart Failure	77 (91.7%)	141 (82.9%)	220 (85,6%)	0.061
LVEF	35 (27-47)	38 (30-52)	36 (29-50)	0.089
Atrial Fibrillation	30 (35.7%)	37 (21.5%)	69 (26.7%)	**0.015**
Ventricular Tachicardia	12 (17.4%)	23 (13.9%)	35 (14.8%)	0.50(
Ventricular Tachicardia Ablation	1 (1.5%)	9 (5.5%)	10 (4.3%)	0.17(
Medical Therapy				
ACEi/ARA	29 (35.8%)	71 (42.0%)	102 (40.5%)	0.348
ARNI	47 (58.0%)	84 (49.7%)	131 (52.0%)	0.218
MRA	55 (67.9%)	121 (71.2%)	176 (69.6%)	0.596
SGLT2i	49 (60.5%)	106 (62.7%)	155 (61.5%)	0.734
B-blockers	72 (87.8%)	152 (89.4%)	225 (88.6%)	0.704
Antiarrhythmics	19 (23.5%)	45 (26.5%)	65 (25.7%)	0.609
Device Therapies				
Therapies and/or shocks administered	20 (29.0%)	24 (16.0%)	46 (20.6%)	**0.026**
Inappropriate shocks	5 (7.1%)	4 (2.7%)	9 (4.0%)	0.147
Hospitalization after a shock	7 (9.0%)	9 (5.4%)	16 (6.1%)	0.29(
Device mode				
ICD VVI	44 (53.0%)	126 (74.6%)	173 (67.3%)	
ICD DDD	12 (14.5%)	17 (10.1%)	30 (11.7%)	
CRT-D	27 (32.5%)	26 (15.4%)	54 (21.0%)	**0.002**
Ischemic etiology	41 (61.2%)	96 (64.0%)	139 (63.2%)	0.692
Primary prevention	52 (70.3%)	111 (71.2%)	165 (70.2%)	0,89(
Secundary prevention	22 (30.1%)	44 (28.8%)	69 (29.9%)	0.831
Follow-up (months)	37 (26-52)	27 (13-40)	29 (14-42)	**< 0.00**

Results: The cohort included 264 patients, and the adverse outcome occurred in 84 patients (32.4%). This group included older patients (66 vs. 65 years, p = 0.001) and had higher rates of diabetes mellitus (59.5 vs. 38.6%, p = 0.002), dyslipidemia (78.6 vs. 65.5%, p = 0.033), arterial hypertension (77.4 vs. 57.3%, p = 0.002), chronic kidney disease (28.4 vs. 17.0%, p = 0.036), and atrial fibrillation (AF, 35.7 vs. 21.5%, p = 0.015). CRT-D implantation was significantly more common in the group with an adverse outcome (32.5 vs. 15.4%, p = 0.002). Device therapies and/or shocks were more frequent in the adverse outcome group (29.0 vs. 16.0%, p = 0.026). Most patients implanted

a device in primary prevention (70.2%), with no significant differences between groups. Mean follow-up duration was longer for patients with adverse outcomes (37 vs. 27 months, p < 0.001). Multivariate analysis revealed that increasing age, AF diagnosis and lower left ventricular ejection fraction (FEVE) were independent predictors of adverse outcomes.
Conclusions: Adverse outcomes occurred in 32.4% of patients, which presented older age, higher rates of comorbidities and mostly had a CRT-D. Etiology was not significantly associated with differences in outcomes. Advanced age, AF and lower LVEF are independent predictors of adverse outcomes. These findings emphasize the importance of considering these factors during pre-implantation evaluations and post-procedural follow-up to optimize patient outcomes.

Sábado, 12 Abril de 2025 | 16:30-17:30

Área de Posters-écran 3 | Sessão de Posters 49 - Ressincronização cardíaca e terapêutica médica

PO 327. IMPACT OF OPTIMIZED MEDICAL THERAPY ON ICD SHOCKS AND SURVIVAL IN HEART FAILURE PATIENTS

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Introduction: Implantable cardioverter-defibrillators (ICDs) are a cornerstone in preventing sudden cardiac death in pts with heart failure with reduced ejection fraction (HFrEF). Over the past decade, optimized medical therapy (OMT), including the introduction ARNIs and SGLT2 inhibitors, have significantly improved outcomes. However, the impact of these therapies on the incidence of appropriate ICD shocks (AS) and pts survival remains insufficiently studied.
Objectives: To compare the incidence of appropriate ICD shocks and overall survival between two cohorts of ischemic HFrEF pts with an ICD implanted: the *Old Era* group (treated before the widespread use of ARNIs and iSGLT2, 2012-2017) and the *New Era* group (treated after their introduction, 2017-2022, and the creation of an HF outpatient clinic).
Methods: A retrospective observational study was conducted, including pts with HFrEF who underwent ICD implantation between 2012 and 2022. Pts were divided into two groups: *Old Era* (2012-2017) and *New Era* (2017-2022). Data on ICD therapy, survival, and baseline characteristics were collected.
Results: This cohort included 354 pts with a mean age of 63.3 years (SD = 10.9) and 78% male predominance. The mean follow-up was 27 months (± 19), with 71% of pts having a current NYHA status of II and a mean ejection fraction (EF) of 28.6% (± 6.8). Cardiovascular comorbidities were prevalent, including hypertension (82%), dyslipidemia (78%), and obesity (39%). The frequency of AS was significantly lower in the *New Era* group (14.9%, n = 31) compared to the *Old Era* group (35.6%, n = 52; p < 0.001). Kaplan-Meier analysis showed a delayed onset of the first AS in the *New Era* group, with a median time to first shock of 19 months vs. 10 months in the *Old Era* group (p = 0.001, log-rank test). The *New Era* group exhibited improved overall survival, with a 5-year survival rate of 75% compared to 51% in the *Old Era* group (*HR* = 0.43, 95%CI 0.29-0.62, p = 0.001). This survival benefit was consistent across various subgroups, including age, diabetes, and baseline EF. After adjusting for potential confounders, OMT in *New Era* group was independently associated with a 66% lower risk of AS (*adjusted HR* = 0.34, 95%CI 0.20-0.59, p = 0.001) and a 59% lower risk of death (*adjusted HR* = 0.41, 95%CI 0.25-0.65, p = 0.001).
Conclusions: A multidisciplinary HF outpatient team and the implementation of OMT in ischemic HFrEF significantly reduced the frequency of appropriate ICD shocks and improved pts survival.

PO 328. TRANSFORMING HEART FAILURE CARE: THE IMPACT OF CARDIAC REHABILITATION

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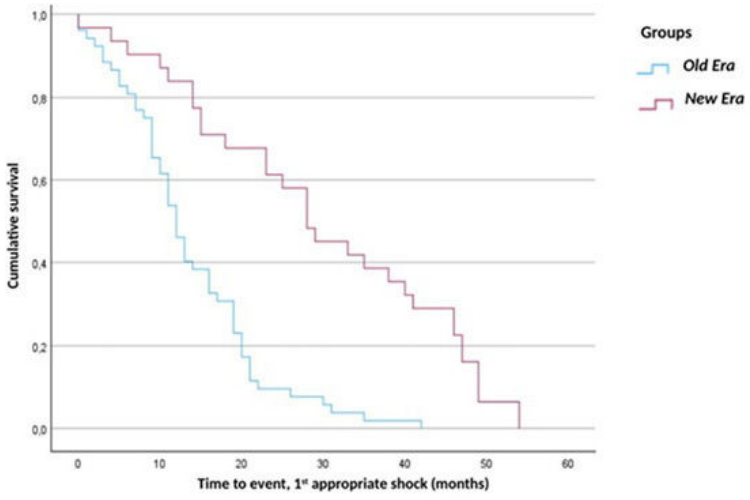
Introduction: Cardiac rehabilitation (CR) plays a pivotal role in managing heart failure (HF), providing significant benefits in functional capacity, symptom relief, and overall prognosis. The use of cardiopulmonary exercise testing (CPET) before and after CR allows for an objective evaluation of changes in key physiological parameters.
Objectives: Evaluate the impact of a phase II structured CR program on CPET metrics, echocardiographic parameters, and analytical biomarkers in patients with HF.



Graph 1: Kaplan-Meier Survival Curves for Two Groups

Figure PO 327

Cardiorespiratory fitness variables	Pre CRP	Post CRP	p-value
Maximum HR achieved (bpm) - mean ± SD	126.0 ± 21.4	130.1 ± 21.7	p=0.101
Percentage of predicted maximum HR (%) - mean ± SD	76.2 ± 13.3	79.3 ± 12.3	**p=0.038**
Heart rate decreased by 12 bpm or more after one minute of recovery - n (%)	30 (68.2)	38 (88.4)	p=1.000
Maximum systolic blood pressure (mmHg) - mean ± SD	161.2 ± 31.9	160.6 ± 31.4	p=0.955
Maximum diastolic blood pressure (mmHg) - mean ± SD	90.0 ± 14.2	86.9 ± 14.5	p=0.249
Peak VO2 (mL/kg/min) - mean ± SD	19.5 ± 6.5	21.6 ± 7.0	**p=0.020**
Percentage of predicted maximum VO2 (%) - mean ± SD	71.5 ± 21.4	78.8 ± 20.2	**p=0.010**
Peak circulatory power (mmHg·min/mL/kg) - mean ± SD	3259.6 ± 1444.9	3575.7 ± 1552.1	p=0.086
VO2 at the first anaerobic threshold (mL/kg/min) - median (IQR)	11.1 (5.2)	11.0 (4.5)	p=0.635
VO2 at the second anaerobic threshold (mL/kg/min) - mean ± SD	18.2 ± 6.2	18.8 ± 4.9	p=0.518
Oxygen pulse (mL/min) - mean ± SD	12.4 ± 4.4	13.0 ± 3.7	p=0.973
Respiratory reserve (%) - median (IQR)	48.5 (22.6)	40.0 (17.7)	**p=0.017**
VE/VCO2 slope (mL/kg/min) - median (IQR)	26.4 (11.3)	26.5 (8.0)	p=0.238
Resting PETCO2 (mmHg) - median (IQR)	37.0 (6.0)	35.0 (7)	p=0.341
HR at the first anaerobic threshold (bpm) - mean ± SD	99.7 ± 17.0	95.6 ± 13.2	**p=0.039**
HR at the second anaerobic threshold (bpm) - mean ± SD	120.1 ± 21.9	119.5 ± 15.5	p=0.690
OUES - mean ± SD	1.8 (0.6)	1.9 (0.9)	p=0.594
Physical performance (W) - mean ± SD	102.6 ± 58.4	124.2 ± 51.3	**p=0.004**
Percentage of watts relative to physical performance (%) - mean ± SD	65.7 ± 24.7	81.1 ± 26.0	**p<0.001**
Qualitative characterization of physical performance			
Normal or elevated - n (%)	17 (42.5)	24 (57.1)	**p<0.001**
Reduced - n (%)	23 (57.5)	18 (42.9)	
Metabolic Equivalent (METs) - mean ± SD	5.8 ± 2.2	6.4 ± 2.0	p=0.193
VO2/Work Rate slope (mL/kg/min/W) - median (IQR)	11.0 (4.0)	11.0 (1.8)	p=0.638

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

Figure PO 328

Methods: Single-center, retrospective observational study. Patients who successfully completed a supervised, structured CR program between January 2023 and September 2024 were included. Data were collected by a specialized multidisciplinary team. Statistical analysis was performed using SPSS 28.0.1.1 software.
Results: A total of 44 patients were included, with a mean age of 55.5 ± 12.4 years, 68.2% male. The most frequent referral criterion was coronary artery disease (26/59.1%), followed by HF (15/34.1%). The mean program duration was 22.3 weeks. 6/13.6% of patients had preserved, 15/34.1% had mid-range, and 21/47.7% had reduced left ventricular ejection fraction (LVEF). Advanced HF was identified in 9 patients (20.5%), and most were classified NYHA II (54.5%). Significant improvements in CPET parameters were observed. The percentage of predicted maximum heart rate (HR) increased (76.2 ± 13.3 to 79.3 ± 12.3, p = 0.038), along with peak VO_2 (19.5 ± 6.5 to 21.6 ± 7.0 mL/kg/min, p = 0.020) and the percentage of predicted maximum VO_2 (71.5 ± 21.4% to 78.8 ± 20.2%, p = 0.010). While peak circulatory power improved (3,259.6 ± 1,444.9 to 3,575.7 ± 1552.1 mmHg·min/mL/kg), this difference did not reach statistical significance (p = 0.086). The VE/VCO_2 slope remained similar before and after CR (26.4, IQR 11.3 vs. 26.5, IQR 8.0, p = 0.238). In terms of physical performance, there was a significant increase in peak power output (watts) after CR (102.6 ± 58.4 to 124.2 ± 51.3, p = 0.004), accompanied by an increase in the number of patients with normal or high physical performance (17 to 24, p < 0.001). LVEF significantly increased (41.2 ± 9.0% to 47.3 ± 12.6%, p = 0.007). Also, LDL cholesterol (77.0, IQR 64.0 to 60.0, IQR 36.0, p = 0.016), triglycerides (112.0, IQR 87.0 to 92.0, IQR 71.0, p = 0.016), and NT-proBNP (296.5, IQR 902.0 to 263.5, IQR 575.0, p = 0.006) significantly decreased.
Conclusions: A structured phase II CR program significantly improved functional capacity, as evidenced by enhanced CPET metrics, including peak VO_2 and predicted maximum HR, along with notable gains in physical performance. Also, the favorable changes in LVEF, NT-proBNP levels, and lipid profile suggest an overall enhancement in cardiovascular health. These findings emphasize the crucial role of CR in optimizing physiological, analytical, and clinical parameters, reinforcing its importance in the comprehensive management of HF patients.

PO 329. CARDIAC RESYNCHRONIZATION THERAPY IN SEVERE HEART FAILURE PATIENTS: THE ROLE OF ARNIS IN THE MODERN THERAPEUTIC LANDSCAPE

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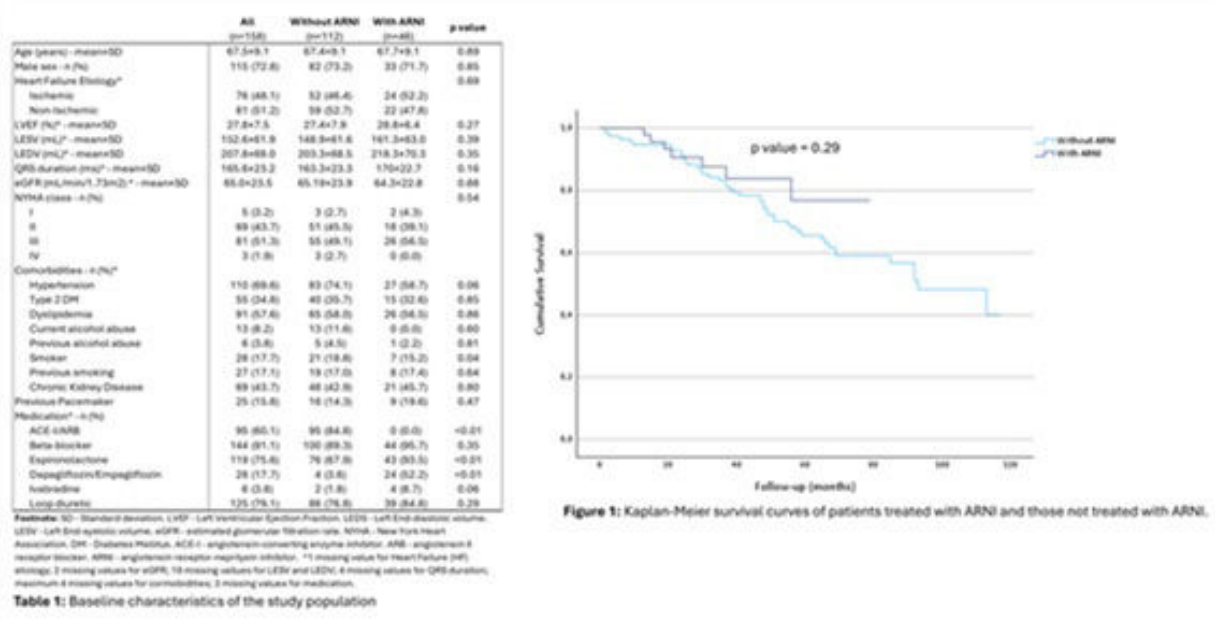

	All (n=158)	Without ARNI (n=112)	With ARNI (n=46)	p value
Age (years) - mean±SD	67.3±9.1	67.4±9.1	67.7±9.1	0.89
Male sex - n (%)	115 (72.8)	82 (73.2)	33 (71.7)	0.85
Heart Failure Etiology*				0.69
Ischemic	76 (48.1)	52 (46.4)	24 (52.2)	
Non-Ischemic	81 (51.2)	59 (52.7)	22 (47.8)	
LVEF (%)* - mean±SD	27.6±7.5	27.4±7.9	28.0±6.4	0.27
LESV (mL)* - mean±SD	152.6±61.9	148.9±61.6	161.3±63.0	0.39
LEDV (mL)* - mean±SD	207.8±68.0	203.3±68.5	218.3±70.3	0.35
QRS duration (ms)* - mean±SD	165.8±25.2	163.3±23.5	170±22.7	0.16
eGFR (mL/min/1.73m2)* - mean±SD	65.0±23.5	65.19±23.9	64.3±22.8	0.88
NYHA class - n (%)				0.54
I	5 (3.2)	3 (2.7)	2 (4.3)	
II	69 (43.7)	51 (45.5)	18 (39.1)	
III	81 (51.3)	55 (49.1)	26 (56.5)	
IV	3 (1.9)	3 (2.7)	0 (0.0)	
Comorbidities - n (%)*				
Hypertension	110 (69.6)	83 (74.1)	27 (58.7)	0.06
Type 2 DM	55 (34.8)	40 (35.7)	15 (32.6)	0.85
Dyslipidemia	91 (57.6)	65 (58.0)	26 (56.5)	0.88
Current alcohol abuse	13 (8.2)	13 (11.6)	0 (0.0)	0.00
Previous alcohol abuse	6 (3.8)	5 (4.5)	1 (2.2)	0.81
Smoker	28 (17.7)	21 (18.8)	7 (15.2)	0.04
Previous smoking	27 (17.1)	19 (17.0)	8 (17.4)	0.84
Chronic Kidney Disease	69 (43.7)	48 (42.9)	21 (45.7)	0.80
Previous Pacemaker	25 (15.8)	16 (14.3)	9 (19.6)	0.47
Medication* - n (%)				
ACE i/ARB	95 (60.1)	95 (84.8)	0 (0.0)	<0.01
Beta-blocker	144 (91.1)	100 (89.3)	44 (95.7)	0.35
Espironolactone	119 (75.6)	76 (67.9)	43 (93.5)	<0.01
Dapagliflozin/Empagliflozin	28 (17.7)	4 (3.6)	24 (52.2)	<0.01
Ivabradine	8 (3.8)	2 (1.8)	4 (8.7)	0.06
Loop diuretic	125 (79.1)	88 (78.6)	39 (84.8)	0.29

Footnote: SD - Standard deviation, LVEF - Left Ventricular Ejection Fraction, LESV - Left End-systolic volume, LEDV - Left End-systolic volume, eGFR - estimated glomerular filtration rate, NYHA - New York Heart Association, DM - Diabetes Mellitus, ACE-i - angiotensin-converting enzyme inhibitor, ARB - angiotensin II receptor blocker, ARNI - angiotensin-receptor-neprilysin inhibitor, *1 missing value for Heart Failure (HF) etiology; 2 missing values for eGFR; 10 missing values for LESV and LEDV; 4 missing values for QRS duration; maximum 4 missing values for comorbidities; 3 missing values for medication.

Table 1: Baseline characteristics of the study population

Figure 1: Kaplan-Meier survival curves of patients treated with ARNI and those not treated with ARNI.

Figure PO 329

Introduction: Cardiac resynchronization therapy (CRT) is recommended for symptomatic Heart Failure (HF) patients (P) with a QRS duration ≥ 150 ms, left bundle branch block QRS morphology, and left ventricular ejection fraction (LVEF) ≤ 35% despite guideline directed medical therapy (GDMT), to improve symptoms and decrease morbidity and mortality. However, the trials responsible for the inclusion of this indication in the guidelines predate the use of angiotensin receptor-neprilysin inhibitors (ARNIs). Whether the benefit of implanting a CRT with the contemporary available medication is maintained is not known.
Methods: Consecutive P with HF and reduced Ejection Fraction (HFrEF), symptomatic, with Left Ventricular Ejection Fraction (LVEF) ≤ 35% after 3 months of GDMT and a prolonged QRS submitted to CRT implantation for primary prevention at our center between 2015 and 2022 were included. Patients with an existing pacemaker or Implantable Cardioverter Defibrillator (ICD) who develop a clinical indication for CRT were also included. A paired-sample T-test analysis was performed to evaluate pre- and post-device implantation metrics in two groups: P medicated with ARNI and P not medicated with ARNI at the time of device implantation. Primary endpoints included changes in NYHA functional class, LVEF, and left ventricular end-systolic volumes. The *odds* of HF hospitalization and survival curves were calculated.
Results: Out of 158 P (mean age 67.5 ± 9.1, 115 [72.8%] male) included, 46 (29.1%) were medicated with ARNI at the moment of device implantation. Mean follow-up time was 54 ± 28.9 months. In the group not medicated with ARNI when submitted to device implantation, NYHA functional class improved by 0.64 after one year (95%CI: 0.50-0.78, p < 0.001), LVEF increased significantly by 13.28% (95%CI: -15.85 to -10.71, p < 0.001), and LVESV decreased by 38.53 mL (95%CI: 25.79-51.28, p < 0.001. In the ARNI-treated group, similar trends were noted. NYHA class improved by 0.72 points (95%CI: 0.50-0.94, p < 0.001), LVEF increased by 9.60% (95%CI: -13.39 to -5.81, p < 0.001), and LVESV decreased by 29.25 mL (95%CI: 0.55-57.95, p = 0.046). In the logistic regression, the use of ARNI was not a significant predictor of hospitalization due to HF (*odds ratio* 0.721 (95%CI: 0.308-1.686, p = 0.450). Among the ARNI-treated group, 15.6% were hospitalized due to HF, compared to 40.2% in the non-ARNI group. The Kaplan-Meier analysis demonstrated a non-statistically significant higher survival in patients medicated with ARNI (p = 0.291).
Conclusions: CRT significantly improves functional class, LVEF, and LVESV in HFrEF patients, irrespective of ARNI use at the time of implantation, suggesting that its benefit is maintained in the era of new pharmacotherapy. Although ARNI-treated patients showed trends toward lower HF hospitalization rates and improved survival, these differences were not statistically significant.

PO 330. EVALUATING RISK SCORES FOR CRT RESPONSE AND CLINICAL OUTCOMES: FINDING THE IDEAL TOOL

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Introduction: Up to a third of heart failure (HF) patients do not respond to cardiac resynchronization therapy (CRT). Several risk scores have been proposed to predict outcomes in this population. However, a lack of cross-validation between these scores limits their integration into clinical practice.
Objectives: To assess the applicability of the *EAARN* (Ejection Fraction [EF], Age, Atrial Fibrillation [AF], Renal Dysfunction, New York Heart Association [NYHA] class IV), *AAACC* (Age, Anemia, AF, Chronic kidney disease [CKD] and Chronic Lung Disease [CLD]), and *AL-FINE* CRT risk score (Age, non-Left Bundle Branch Block [LBBB], Furosemide, Ischemic etiology, NYHA, EF) in predicting outcomes in a cohort of CRT patients.
Methods: Single-center retrospective study of consecutive pts submitted to CRT implantation (2017-2024). The discriminative capacity of the *EAARN, AAACC,* and *AL-FINE* scores was analysed for three endpoints: all-cause mortality, a composite endpoint of all-cause mortality or HF hospitalizations (MACE), and CRT response (defined as ≥ 10% EF increase and/or NYHA class improvement). Scores were evaluated using ROC curves and corresponding area under the curve (AUC).
Results: A total of 206 patients (68.4% male, median age 74 ± 13 years, 67.5% non-ischemic cardiomyopathy) were included. Baseline QRS morphology was mainly LBBB (58.2%), with a mean QRS duration of 159.8 ± 27.6 ms and mean baseline LVEF of 30.3 ± 7.5%. Comorbidities were prevalent, including AF (36.9%), anemia (34.4%), CKD (20.9%) and CLD (9.7%). Most patients were at NYHA class II (53.2%), with a median baseline furosemide dosage of 20 ± 40 mg. At 1-year follow-up, CRT response rate was 89.8%. During a mean follow-up of 35 ± 24 months, MACE occurred in 31.9% of pts. The *AAACC* score demonstrated superior discriminative capacity compared to the *EAARN* and *AL-FINE* scores for predicting all-cause mortality (AUC *AAACC*: 0.71, 95%CI 0.62-0.80, p < 0.001; *AL-FINE*: 0.65, 95%CI 0.56-0.74, p = 0.002; *EAARN*: 0.63, 95%CI 0.53-0.73, p = 0.009) and MACE (AUC *AAACC*: 0.68, 95%CI 0.59-0.77, p < 0.001; *AL-FINE*: 0.65, 95%CI 0.56-0.74, p = 0.002; *EAARN:* 0.59, 95%CI 0.50-0.69, p = 0.063). However, *AL-FINE* was the best predictor for CRT response (AUC: 0.67, 95%CI 0.51-0.83, p = 0.036) compared to *AAACC* (AUC:

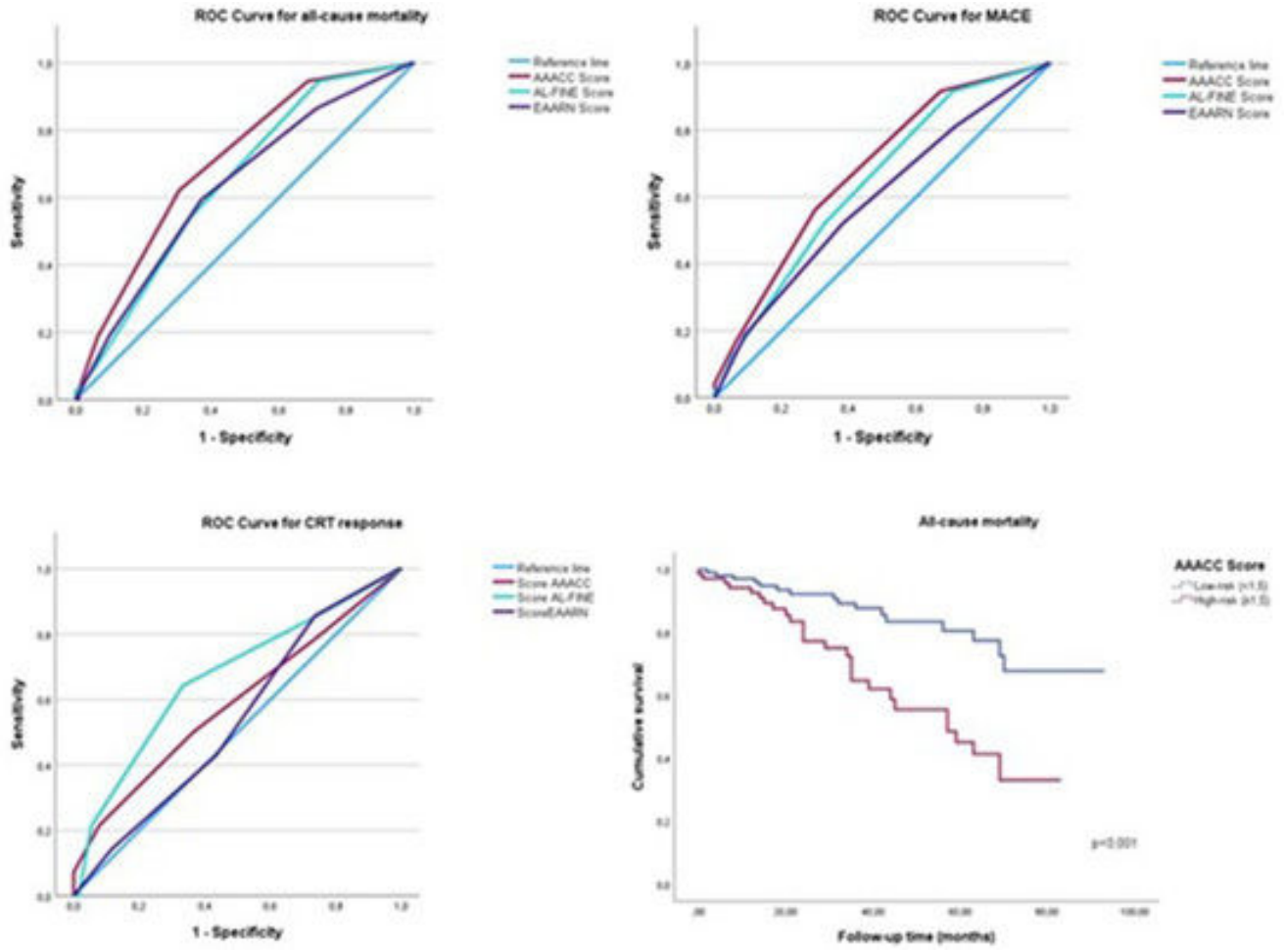

Figure PO 330

0.59, 95%CI 0.42-0.76, p = 0.313) and *EAARN* (AUC: 0.54, 95%CI 0.39-0.69, p = 0.610). Optimal *AAACC* score cut-off was 1.5 (62.2% sensitivity, 71.6% specificity), with higher mortality observed in patients with score ≥ 1.5 (37.5 vs. 15.1%, log-rank p < 0.001).
Conclusions: The *AL-FINE* score demonstrated superior predictive ability for CRT response, while *AAACC* score performed better for mortality and MACE. Nonetheless, all scores exhibited modest discriminative capacity, highlighting the need to optimize predictive tools for risk stratification in the current era of quadruple therapy for HFrEF.

PO 331. IMPACT OF LOW HEMOGLOBIN VALUES IN CRT RESPONSE

Luís Sousa Azevedo, Marta Bernardo, Isabel Martins Moreira, Isabel Nóbrega Fernandes, Pedro Mateus, José Pedro Guimarães, Renato Margato, Paulo Fontes, Sílvia Leão, Ilídio Moreira

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

Introduction: Heart failure (HF) is a complex condition frequently accompanied by comorbidities such as anemia, which is independently linked to worse outcomes in affected patients. Among individuals with HF who are candidates for Cardiac Resynchronization Therapy (CRT), the presence of anemia may influence the effectiveness of this treatment, potentially reducing its therapeutic benefits.
Objectives: We aimed to assess whether pre-implantation low hemoglobin levels affect the response to Cardiac Resynchronization Therapy (CRT).
Methods: This is an observational, retrospective study that included patients who underwent CRT device implantation between January 2017 and March 2024. Out of a total population of 201 patients, we included those who had at least one year of follow-up and met the evaluation criteria required for this study at that time. We classified patients as responders or non-responders based on their response to CRT. In this study, CRT response was considered positive if a reduction of at least 15% in left ventricular end-systolic volume at one-year follow-up occurred. Anemia was defined as a hemoglobin level below 12 g/dL. Differences between groups were assessed using Chi-square analysis for categorical variables and the median comparison test for numerical variables. The influence of each variable on the response to CRT was evaluated using binary logistic regression.
Results: This analysis included 86 patients, of whom 66.7% were male, with a median age of 76 years (range: 69-81) and a median hemoglobin level of 13 g/dL (range: 11.33-14.33). Responders comprised 64% of the study population. A comparison of responders and non-responders is presented in Table 1. Factors associated with a poorer response included male gender (p = 0.03), atrial fibrillation (p = 0.04), chronic kidney disease (CKD) (p = 0.02), and anemia (p = 0.03), while a history of left bundle branch block was linked to a better response (p = 0.003). Binary logistic regression identified anemia as a significant predictor of non-response to CRT, with an odds ratio of 8.543 (95%CI: 1.768-41.292; p = 0.008). Further details are provided in Table 2.
Conclusions: In this study, hemoglobin levels below 12 g/dL were linked to a poorer response to CRT, measured by cardiac reverse remodelling. Addressing anemia and correcting reversible causes could potentially enhance long-term CRT response. However, larger studies are needed to define more precise clinical targets.

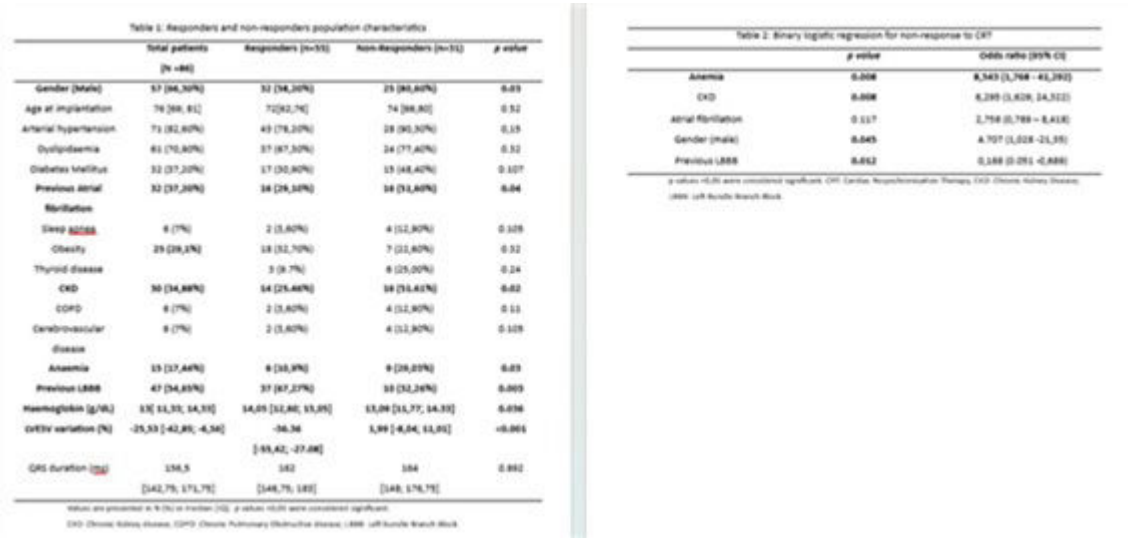

Figure PO 331

PO 332. LONG-TERM EFFECT OF ANGIOTENSIN RECEPTOR-NEPRILYSIN INHIBITORS ON ICD AND CRT-D THERAPY OUTCOMES IN PATIENTS WITH HFREF

Inês Ferreira Neves, Julien Lopes, Francisco Cardoso, Hélder Santos, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Rita Moreira, António Gonçalves, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction: Among patients (P) with heart failure with reduced ejection fraction (HFrEF) a significant proportion of deaths occur due to ventricular tachyarrhythmias. Implantable cardioverter defibrillators (ICD) are recommended in primary prevention to reduce sudden death and all-cause mortality in these population. For patients who additionally have a QRS duration ≥ 150 ms or left bundle branch block (LBBB) QRS morphology, cardiac resynchronization therapy with defibrillator (CRT-D) is advised. However, the trials responsible for the inclusion of this recommendation in the guidelines were performed before the clinical use of angiotensin receptor-neprilysin inhibitors (ARNIs). Whether the benefit on survival of implanting a defibrillator device after maintaining current guideline-directed medical therapy (GDMT) is not known.

Methods: Consecutive P with HFrEF, symptomatic and with LVEF ≤ 35% after 3 months of GDMT, submitted to ICD or CRT-D for primary prevention at our center between 2015 and 2022 were included. We retrospectively analyzed the time to device therapies in P not medicated with ARNI (group 1) and compared with a cohort of patients medicated with ARNI at the time of implantation (group 2). A Kaplan-Meier survival analysis was used to analyze the effect on incident defibrillator therapies.

Results: 450 P (78.9% males, 64.2 ± 10.9 years) were included; 319 (70.9%) in group 1 (ICD or CRT-D, not medicated with ARNI) and 131 (29.1%) in group 2 (ICD or CRT-D, medicated with ARNI). The mean follow-up duration was 53.1 ± 29.8 months. The absolute number of ICD therapies did not significantly differ between the groups (odds ratio [OR] 0.968; 95% confidence interval [CI] 0.582-1.609, p value = 0.89). In a Kaplan-Meier survival analysis, the mean "free from defibrillator therapies" survival time was longer in the group not medicated with ARNI (97.34 weeks; 95%CI: 92.50-102.19) compared to the ARNI medicated group (63.27 weeks; 95%CI: 57.86-68.67), but the difference in survival distributions was not statistically significant (p = 0.198).

Conclusions: In a population with HFrEF submitted to ICD or CRT-D implantation for primary prevention, the incidence of ICD therapies in P medicated with ARNI did not significantly differ from the cohort not medicated with ARNI at implantation. Our results suggest that the benefit of implanting a defibrillator in P with HFrEF and LVEF ≤ 35% is maintained in the current era of new GDMT with ARNI.

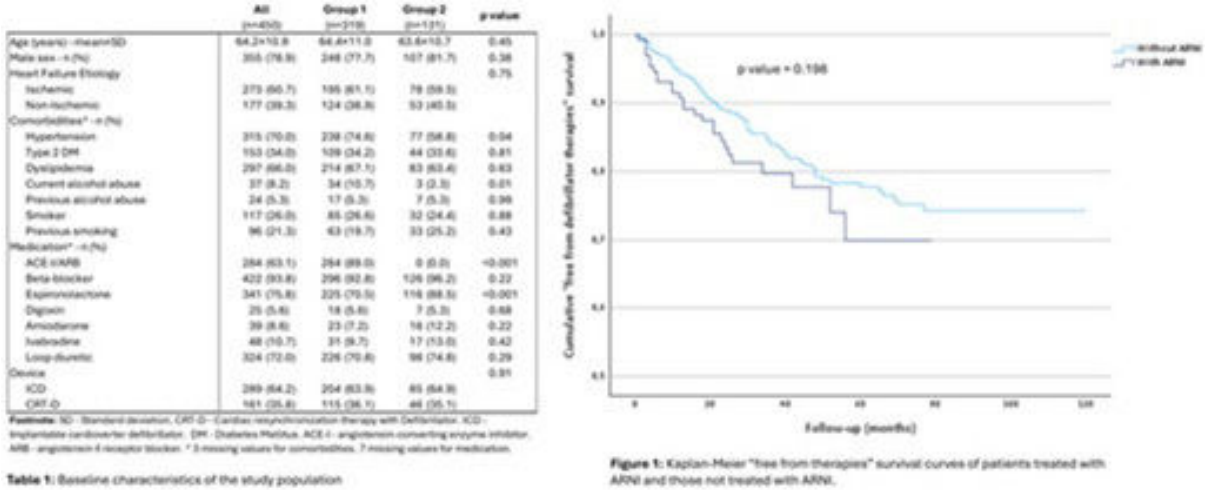

Figure PO 332

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

Área de Posters-écran 1| Sessão de Posters 50 – Diagnóstico e prognóstico na cirurgia cardíaca

PO 333. EARLY AND LONG-TERM OUTCOMES AFTER AORTIC VALVE REPAIR: A SYSTEMATIC REVIEW AND META-ANALYSIS USING RECONSTRUCTED INDIVIDUAL PATIENT DATA

João Mascarenhas[1], Rui Cerqueira[2], Maria Rodrigues[3], Joana Miranda[3], Inês Sousa[3], Adelino Leite-Moreira[4], Francisca Saraiva[3], Samuel Heuts[5]

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Objectives: The growing interest in Aortic Valve Repair (AVRep) and Valve Sparing Root procedures in adults has prompted a surge in clinical studies and available data. This systematic review aims to examine early and long-term outcomes of AVRep and Valve Sparing Root Procedures.
Methods: A systematic search was conducted across two electronic databases, with predetermined criteria agreed upon by all co-authors: Studies with a sample size greater than 200 patients, a mean or median follow-up duration of at least 5 years, and data on at least mortality or reoperation outcomes. Descriptive statistics were weighted by sample size for short-term outcomes. Individual patient data (IPD) were graphically extracted from Kaplan-Meier survival curves to represent pooled long-term outcomes. Additionally, we performed a study-level Cox-regression model, using as covariates patient age, sample size, study publication year, non-tricuspid aortic valve, dissection, concomitant aortic arch procedure or cardiac surgery, aortic insufficiency and aortic root surgery.
Results: A total of 48 studies published between 2006 and 2023 were included, encompassing a cumulative sample of 21,360 patients with a mean age of 52.4 (50.0-55.0) years. Root procedures were the focus in 27 studies, and AVR for heterogeneous samples of patients with aortic insufficiency was analyzed in 41 studies. Four studies focused exclusively on bicuspid aortic valve patients. Early outcomes showed a pooled incidence rate of 1.36% [1.06; 1.75] for hospital mortality, 3.73% [2.74; 5.06] for bleeding, 0.48% [0.29; 0.80] for myocardial ischemia, 1.06% [0.66; 1.70] for pacemaker implantation, and 1.33% [1.00; 1.77] for neurological events. Pooled analysis revealed a 3.38% [1.78; 6.32] incidence of postoperative aortic insufficiency of any degree in the short term. Regarding long-term outcomes and joining IPD survival data from 36 articles, combined using Guyot's algorithm to pool data, an overall survival curve was generated (n = 16612, Figure 2) with median follow-up time of 6.42 years, maximum 26.82 years. Survival at 1-, 5-, 10-, 15- and 20-years of follow-up was 96.8%, 92.5%, 83.8%, 75.2% and 67%, respectively. Joining IPD reoperation data from 41 articles, an overall freedom from reoperation curve was generated (n = 17569, Figure 2) with median follow-up time 5.39 years, maximum 26.38 years. Pooled freedom from reoperation at 1-, 5-, 10-, 15- and 20-years of follow-up was 97.9%, 93.9%, 88.2%, 83.6% and 77.5%, respectively.
Conclusions: AVR is generally performed in a low risk setting and has a favourable safety profile. However, the quality of evidence remains low due to high heterogeneity in outcome reporting, and randomized trials comparing AVR to other surgical alternatives are scarce. Standardizing outcome reporting is essential for improving the scientific value of future research.

PO 334. CLINICAL AND IMAGING SURVEILLANCE OF SURVIVORS OF ACUTE TYPE A AORTIC DISSECTION

Nuno Guerra[1], Francisca Montenegro[1], Tiago Velho[1], Beatriz Vargas Andrade[2], Mariana Saraiva[3], Gonçalo Cabral[4], Oliveira Baltazar[5], Ângelo Nobre[1], Luís Mendes Pedro[1]

[1]Centro Hospitalar Universitário de Lisboa Norte, EPE/Hospital de Santa Maria. [2]Hospital Distrital de Santarém, EPE. [3]Centro Hospitalar de Leiria/Hospital de Santo André. [4]Hospital Beatriz Ângelo. [5]Hospital Garcia de Orta

Introduction: Clinical and imaging surveillance in survivors of acute type A aortic dissection (ATAAD) is not fully established and varies from region to region, despite recent attempts at standardizing care after ATAAD, with the aim of better detecting and manage proximal and distal complications of dissection.
Objectives: To measure the completeness of adequate clinical and imaging follow up in survivors of ATAAD.
Methods: We retrospectively collected 402 consecutive ATAAD operated in our center since January 2001 to November 2024. Clinical and imagiological databases were searched to determine last appointment with Cardiology and Cardiac or Vascular Surgery, last cardiac (echocardiogram) and aortic imaging (Angio CT scan or Angio MRI) and the National Health Registry (RNU) was consulted individually to ascertain vital status. Data was analyzed with Excel 15.
Results: We identified 402 ATAAD, of which only 397 had an entry in the RNU and were analyzed (foreigners not living in Portugal were excluded). 63.0% were males and median age was 62.2 ± 13.6 years (lower 15 years, highest 85 years). In-hospital mortality was 97 pts (24.4%). 23 patients were discharged but died before 1 year and were not considered for Surveillance purposes. 277 patients survived over 1 year and in these patients average follow-up was 3,080 ± 2,043 days. We were able to obtain complete follow-up regarding clinical surveillance and imaging status in 227 patients. 61.6% of patients had undergone at least an echocardiogram after the surgery. Of these, 78 had an echocardiogram over 1 year old. Average and median time since last echocardiogram were 979 and 515 days. Overall, of patients with complete follow-up, 72.7% had never done an echo or it was over 1 year old. Similar findings were seen in distal aortic imaging. 128 patients (56.4%) had at least an aortic study after the surgery. Average and median time since last aortic study was 970 and 570 days respectively. Overall, of patients with complete follow-up, 170 (74.8%) had never underwent an aortic study or it was over 1 year old. 102 (44.9%) of patients with complete follow-up were regularly followed by a Cardiologist, and 24.6% of patients with complete follow-up were regularly followed by a Vascular surgeon.
Conclusions: Clinical and imagiological follow-up of survivors of ATAAD is frequently insufficient, and dedicated protocols for clinical and imaging surveillance may be needed.

PO 335. ADVERSE EVENTS WHILE WAITING FOR VALVULAR INTERVENTION: IDENTIFYING MODIFIABLE RISK FACTORS

Ana Carolina Pereira Mateus[1], Inês Miranda[1], Filipa Gerardo[1], Rodrigo Brandão[1], Mariana Passos[1], Inês Fialho[1], Pedro Farto e Abreu[1], Márcio Madeira[2], Miguel Santos[1], Sérgio Bravo Baptista[1], José Neves[2], Carlos Morais[1]

[1]Hospital Prof. Dr. Fernando da Fonseca, EPE/Hospital Amadora Sintra. [2]Hospital Santa Cruz ULSLO.

Introduction: Patients with valvular heart disease (VHD) are categorized into priority groups to optimize timing for intervention. Delays beyond the recommended waiting time for intervention (RWT) can increase the risk of adverse outcomes. This study evaluates the incidence and predictors of major adverse cardiovascular events (MACE) in a contemporary cohort discussed by a Heart Team (HT).
Methods: A retrospective, single-center study was conducted on all patients evaluated by the HT for valvular intervention between January 2018 and June 2021. Clinical records were reviewed for demographic data,

comorbidities, therapeutic decisions, time on waiting list and MACE incidence (i.e. death, stroke, myocardial infarction, hospital readmission and heart failure exacerbation). Demographic and clinical data were analyzed, and predictors of MACE were identified using logistic regression.
Results: A total of 312 patients with VHD were discussed in HT, with a median age of 76 years, (49.1% male). Aortic stenosis was the most common diagnosis (76.0%), followed by mitral regurgitation (14.1%) and mitral stenosis (8.0%). The HT proposed valvular intervention in 92.0% of patients, while 8.0% received a conservative approach. The mean waiting time for intervention was 233 days (7.4 months), with 74.4% exceeded the RWT. MACE occurred in 26.5% of patients, including death (12.6%), hospital readmissions (16.4%), and heart failure exacerbations (17.7%). Significant predictors of MACE included exceeding the RWT (p = 0.002), previous heart failure hospitalization (p = 0.001), atrial fibrillation (p = 0.002), NYHA class ≥ 3 (p = 0.004), 2 or 3 vessel coronary artery disease (p = 0.004), estimated Glomerular Filtration Rate (eGFR) < 51 mL/min/1.73 m^2 (p < 0.001), hemoglobin < 12.4 g/dL (p = 0.027), NT-proBNP levels > 1,709 pg/mL (p = 0.013), waiting time for intervention > 11 months (p = 0.016), and EUROSCORE II risk > 3.44% (p = 0.001). Logistic regression revealed that exceeding the RWT contributed to 18.5% of MACE risk, alongside NYHA class ≥ 3 and NT-proBNP levels > 1,709 pg/mL.
Conclusions: The incidence of MACE while awaiting valvular intervention is high, particularly in patients exceeding the RWT or with severe heart failure and elevated NT-proBNP. These findings highlight the critical need for timely intervention and effective stratification of priority groups to reduce adverse outcomes.

PO 336. PROSTHETIC VALVE ROCKING MOTION: A LOOK OVER THE LAST TEN YEARS IN A TERTIARY CARE CENTER

Maria Resende, Rita Carvalho, Márcio Madeira, Sara Ranchordás, Inês Alves, João Aquino, Catarina Brízido, José Pedro Neves, Regina Ribeiras, Miguel Sousa-Uva

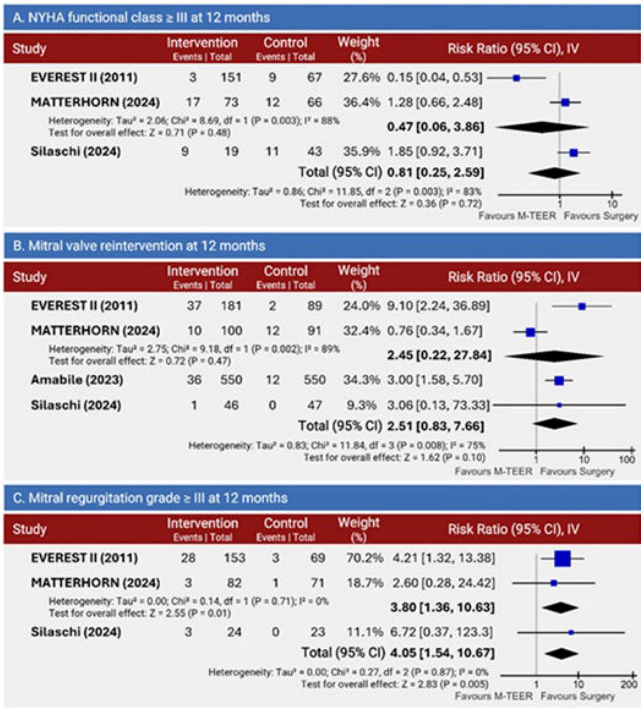
Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz.

Introduction and objectives: Prosthetic valve dehiscence with abnormal rocking prosthetic motion (RPM) is a rare and underreported complication of infective endocarditis (IE). We aimed to analyze a recent cohort of IE-related RPM regarding their clinical characteristics, imaging, surgical findings and patient outcomes.
Methods: Retrospective, single-center study including all consecutive patients diagnosed with PRM due to IE between 2014-2024 at a tertiary care center. RPM was defined either by motion > 15° in at least one plane by echocardiography (TTE/TEE) or presence of dehiscence of > 50% of the annular ring intraoperatively.
Results: Eleven patients were included (69 [32-89] years, 64% males). Main identifiable IE risk factors were previous IE (18%), presence of cardiac implantable electronic devices (18%), and dental procedures (9%). Only aortic (73%) and mitral (27%) valve prosthesis were involved, with multi-valvular EI in 36%. Most cases concerned biological prosthesis (73%), and all cases were late PVE. Mean time from first symptoms to IE diagnosis was 57 [11-300] days, with fever (73%) and heart murmur (55%) presenting as the main clinical findings. All patients were admitted for either congestive heart failure (64%) or cardiogenic shock (36%). Embolic events occurred in 27% of cases. Blood cultures were positive in 55% and mostly found *S. aureus* and *E. faecalis*. RPM was diagnosed by echocardiography in 64% of patients, with the remaining patients being exclusively diagnosed intraoperatively. From those diagnosed by imaging, 29% were only visible on TEE. By Duke's classification, 55% had definite IE criteria and 45% possible IE. Ten of the 11 patients underwent surgery (5 [1-14] days from IE diagnosis to intervention, mean EuroSCORE II 36.7 [8.3-87]%). The most common procedure was porcine aortic root prosthesis implantation (n = 7), 1 root Commando procedure and 2 biological aortic and mitral prothesis implantations. After surgery, the main complication was acute kidney injury (45%), 1 patient had a stroke and 1 needed mechanical circulatory support. Three patients (30%) needed re-intervention. Mean ICU stay was 7 [1-26] days, and in-hospital mortality was 36%. During a median follow-up of 18 [0-93] months, all 7 discharged patients were alive and with no hospital readmissions.
Conclusions: Patients with RPM due to IE present as critically ill and require prompt diagnosis by multi-modality imaging including early TEE. Quick referral to the Endocarditis Team and urgent complex surgical correction when feasible might allow patient survival with low morbidity in the long term.

PO 337. A META-ANALYSIS ON 12-MONTH EFFICACY OUTCOMES OF TRANSCATHETER MITRAL VALVE REPAIR VS. SURGERY ON MITRAL REGURGITATION

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

Unidade Local de Saúde do Alto Ave.



Mitral valve regurgitation (MR) is a serious condition, typically treated with surgery. However, mitral valve transcatheter edge-to-edge repair (MTEER) has emerged as a less invasive alternative. This meta-analysis compares 12-months efficacy outcomes between MTEER and surgical mitral valve intervention (SMVI). PubMed, Cochrane, Scopus, and Web of Science (on October 2024) were searched for randomized control trials (RCT) and propensity-matched cohort studies focused on significant MR treated with MTEER or SMVI, reporting on outcomes of interest at 12 months. An inverse variance random-effects meta-analysis assessed event prevalence, with risk ratios (RR) and 95% confidence intervals (CI). Two RCTs (MATTERHORN and EVEREST II) and three observational studies, totalling 1782 patients, were included. At 12 months, mitral valve (MV) reintervention was more frequent in the MTEER group (9.6%; 84/877) than in the surgical group (3.3%; 26/777), though this difference was not statistically significant (RR 2.51; CI 0.83-7.66). The higher rate in the MTEER group was primarily driven by the EVEREST II trial (20.4 vs. 2.2%) and the Amabile (2023) study (6.5 vs. 2.2%). Regarding recurrence of significant MR (defined as MR grade ≥ 3), rates were significantly higher in the MTEER group (13.1%; 34/259) compared to the SMVI group (2.5%; 4/163) (RR 4.05; CI 1.54-10.67). As for NYHA functional class ≥ III at 12 months, no significant differences were observed between the MTEER and SMVI groups (RR 0.81; CI 0.25-2.59). To mitigate selection bias inherent

to observational studies, only propensity-score matched cohorts were analyzed alongside RCTs. While no statistically significant differences in MV reinterventions were observed, SMVI was associated with fewer reinterventions overall. This may be partly due to the analysis focusing solely on MV reinterventions, without considering other surgery-related reinterventions in SMVI patients. Additionally, during the EVEREST trial, MTEER was a novel technique with limited experience, leading to higher failure rates, more reinterventions, and potentially higher recurrence of significant MR. The pooled population included both primary and secondary MR patients, and the use of different techniques across comparator groups added heterogeneity. This heterogeneity warrants caution in interpreting the results, as it may affect the robustness of the analysis.

PO 338. URGENT SURGERY FOR INFECTIVE ENDOCARDITIS: ARE WE FALLING BEHIND THE CLOCK?

Joana Massa Pereira, Sofia Andraz, Lucas Hamann, Eunice Isabel Soromenho Silva, Joana Guerreiro Pereira, Migue Espírito Santo, Hugo Alex Costa, Daniela Carvalho, Pedro Azevedo, Raquel Fernandes, Dina Bento, Jorge Mimoso

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

Introduction: Infective endocarditis (IE) is a severe condition associated with local and systemic complications, such as heart failure, uncontrolled

Table 1: Baseline characteristics of patients with infective endocarditis undergoing surgery, taking into account the timing until surgery;

				Indication for non-urgent surgery	Indication for urgent surgery	Total	p-value
				n=5 (20%)	n=20 (80%)	25	
Gender	Male		n (%)	4 (80%)	15 (75%)	19 (76%)	0.815
	Female		n (%)	1 (20%)	5 (25%)	6 (24%)	
Age (years)			*Mean±SD*	61 ±25	58 ± 16	62 ± 16	0.339
Medical History	Coronary disease		n (%)	1 (20%)	2 (10%)	3 (12%)	0.538
	Heart failure		n (%)	0	2 (10%)	2 (8%)	0.461
	COPD		n (%)	0	3 (15%)	3 (12%)	0.356
	Hypertension		n (%)	4 (80%)	11 (55%)	15 (60%)	0.307
	Diabetes Mellitus		n (%)	2 (40%)	6 (30%)	8 (32%)	0.668
	Dyslipidemia		n (%)	3 (60%)	9 (45%)	12 (48%)	0.548
	Obesity		n (%)	1 (20%)	4 (20%)	5 (20%)	1.000
	Low weight (IM<18)		n (%)	0	1 (5%)	1 (4%)	0.610
	Chronic kidney disease		n (%)	0	1 (5%)	1 (4%)	0.610
	Demencia		n (%)	0	0	0	
	Chronic liver disease		n (%)	0	2 (10%)	2 (8%)	0.461
	Atrial flibrillation or flutter		n (%)	2 (40%)	2 (10%)	4 (16%)	0.102
	HIV infection		n (%)	0	0	0	
	Intravenous drug users		n (%)	0	2 (10%)	2 (8%)	0.461
	Cancer		n (%)	0	4 (20%)	4 (16%)	0.275
	Previous IE		n (%)	2 (40%)	2 (10%)	4 (16%)	0.102
Cardiovascular device	Total number of patients		n (%)	6 (80%)	3 (15%)	9 (28%)	**0.012**
	Mechanic heart valve		n (%)	0	1 (5%)	1 (4%)	
	Biologic heart valve		n (%)	2 (40%)	2 (10%)	4 (16%)	
	Transcatether heart valve		n (%)	1 (20%)	0	1 (4%)	
	PM/CRT/ICD		n (%)	1 (20%)	0	1 (4%)	
	Aortic conduit		n (%)	2 (40%)	0		
Charlson index > 5			n (%)	0	4 (21%)	4 (17%)	0.106
Ability to perform daily activities	Independent on all activities		n (%)	5 (100%)	20 (100%)	25 (100%)	
	Dependent on some activities		n (%)	0	0	0	
	Dependent on most activities		n (%)	0	0	0	
Endocarditis as the 1st diagnosis			n (%)	2 (40%)	9 (47%)	13 (54%)	0.769
Location of the infection	Native heart valves	Aortic valve	n (%)	1 (20%)	11 (55%)	13 (48%)	0.228
		Mitral valve	n (%)	0	7 (35%)	7 (26%)	0.069
		Tricuspid valve	n (%)	0	0	0	
		Pulmonary valve	n (%)	0	0	0	
	Mechanic heart valve	Aortic position	n (%)	0	1 (5%)	1 (4%)	0.196
		Mitral position	n (%)	0	0	0	
	Biologic heart valve	Aortic position	n (%)	4 (33%)	3 (7%)	7 (13%)	**0.029**
		Mitral Position	n (%)	0	1 (2%)	1 (2%)	
	Pacemaker catheter		n (%)	1 (14%)	0	1 (1.8%)	0.211
	Aortic conduit		n (%)	1 (14%)	1 (5%)	2 (7%)	
Positive blood cultures			n (%)	5 (71%)	20 (100%)	25 (93%)	0.195
Vegetation size	<10 mm		n (%)	2 (29%)	2 (10%)	4 (15%)	0.056
	>10 mm		n (%)	0	10 (50%)	10 (37%)	
	Unknown		n (%)	5 (71%)	8 (40%)	13 (48%)	
Complications	No complications		n (%)	3 (60%)	0	3 (12%)	**<0.001**
	Heart Failure		n (%)	0	9 (45%)	9 (36%)	0.061
	Severe valve disfunction		n (%)	2 (40%)	16 (80%)	18 (72%)	0.075
	Abcess/Fistula		n (%)	0	3 (15%)	3 (12%)	0.356
	Emboli		n (%)	0	8 (40%)	8 (32%)	0.089
Time until surgery	Total (in days)		*Mean±SD*	40 ± 26	27 ± 20	30 ± 21	0.115
	<5 days		n (%)	0	0		

Figure PO 338

infection, and septic embolization. These complications often necessitate urgent (within 3-5 days) or emergent (within 24 hours) surgical intervention, which can improve first-year survival rates by up to 20%.
Objectives: To characterize a population of patients diagnosed with IE and evaluate the timing of surgical intervention in patients with IE-related complications.
Methods: A retrospective analysis was conducted at a single medical center on patients diagnosed with IE and surgically intervened between January 2020 and December 2023, with a mean follow-up of 19.8 ± 16.8 months. Patients were categorized based on the need for urgent surgery. Data included demographic characteristics, microorganisms, infection sites, vegetation size, and IE-related complications. Additionally, we assessed clinical outcomes, including IE recurrence, re-hospitalization rates, overall mortality, in-hospital mortality, and mortality within the first-year post-diagnosis.
Results: The study included 25 patients (mean age 62 ± 16 years; 76% male). Of these, 20 (80%) had indications for urgent surgery, and 5 (20%) did not. Both groups were largely similar in clinical characteristics, except for a significantly higher prevalence of cardiac devices in the non-urgent group (80 vs. 15%, p = 0.012). Aortic bioprosthetic valves were more frequently affected in the non-urgent group (33 vs. 7%, p = 0.029), while mitral valves were predominantly affected in the urgent surgery group (2 vs. 0%, p = 0.029). The absence of complications was more common in the non-urgent group (60 vs. 0%, p < 0.001). Despite a higher trend of complications in the urgent surgery group, no significant differences in overall prevalence were observed. The mean time to surgery for patients with urgent indications was 27 ± 20 days, with no patients undergoing surgery within the critical five-day window recommended by clinical guidelines.
Conclusions: While complications were more frequent in patients requiring urgent surgery, delays in intervention consistently exceeded guideline-recommended timelines, with no surgeries performed within five days. Although limited by the small sample size and single-center design, this study underscores the need for improved protocols to ensure timely surgical intervention, potentially enhancing outcomes for patients with IE-related complications.

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

Área de Posters-écran 2 | Sessão de Posters 51 – Diagnóstico e prognóstico na intervenção valvular aórtica percutânea

PO 339. PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION: IS IT A CONSEQUENCE OF THE TYPE OF PROSTHESIS USED?

Tomás M. Carlos, Luísa Gomes Rocha, Gonçalo Costa, Diogo Fernandes, Joana Guimarães, Gonçalo Terleira Batista, Tatiana Santos, Bernardo Resende, Mafalda Griné, Luís Leite, Marco Costa, Lino Gonçalves

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

Introduction: Transcatheter aortic valve implantation (TAVI) provides substantial clinical benefits, although it is also associated with certain adverse events, namely the need for pacemaker implantation (PI). Risk factor for PI include pre-existing conduction abnormalities and calcium distribution. This study assessed the influence of specific TAVI prosthesis on the incidence and timing of PI within 30 days post-procedure.
Methods: We conducted a single-centre retrospective study of 628 patients undergoing TAVI from March 2020 to September 2023. Patients were categorized into five groups based on the prosthesis used, and baseline characteristics were compared. Primary outcomes were the 30-day PI rate and time to its implantation. Statistical analysis included non-parametric tests, Kaplan-Meier survival analysis and Cox regression.
Results: Five different TAVI prostheses were used, with *Evolut*® being the most depicted (44.1%). Baseline characteristics included pre-TAVI conduction disturbances, particularly a higher prevalence of right bundle branch block (RBBB) in the *Sapien 3 Ultra*® cohort (21.4%). Aortic valve calcium score was also higher in *Sapien 3 Ultra*® and *Evolut*® cohorts (p = 0.001). Overall, 118 patients (18.8%) required PI, and its incidence varied significantly by valve type (p = 0.006), with *Navitor*® (29.4%) and *Sapien 3 Ultra*® (23.3%) showing the highest rates. Median time to PI did not differ statistically between valves (p = 0.079), although *Navitor*® showed a trend toward delayed PI (3.5 days, IQR 5.0). Kaplan-Meier analysis revealed significant variation in 30-day PI-free survival (log-rank test, p = 0.001), with *Portico*® achieving the highest rate (96.0%). *Navitor*® exhibited a tendency for prolonged pacemaker-free survival decline over time compared to other valves. After adjusting for confounding factors and using *Portico*® valve as reference, Cox regression suggested that *Navitor*® was associated with a higher PI risk (HR 10.66, CI 1.45-78.40, p = 0.020).

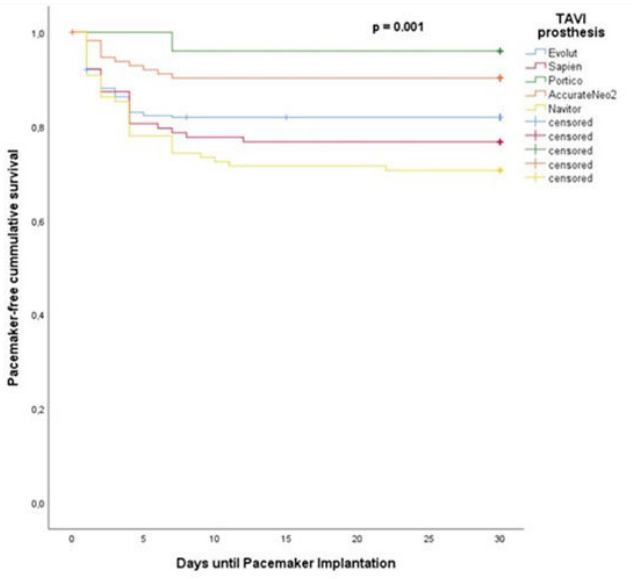


Figure 1. Kaplan-Meier analysis comparing pacemaker implantation over time across different TAVI prosthesis.

Conclusions: *Sapien 3 Ultra*® and *Navitor*® valves were linked to higher PI rates. In *Sapien 3 Ultra*®, this was attributed to higher calcium score and pre-existing conduction disturbances, whereas *Navitor*®'s increased PI risk appeared to be primarily related to its intrinsic properties, which contributed to a higher incidence of post-TAVI *de novo* rhythm disturbances. Additionally, *Navitor*® showed a trend toward a longer time to PI and a more prolonged decline in pacemaker-free survival over time.

PO 340. BALLOON VS. SELF-EXPANDABLE VALVES – AV CONDUCTION DISTURBANCE

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

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

Introduction: As transcatheter aortic valve implantation (TAVI) procedure becomes an increasingly ubiquitous solution for severe aortic stenosis, the choice of valve type - balloon expandable (BEV) vs. self-expandable (SEV) – remains variable among centers and operators. Post-procedure permanent-

Fig 1. Kaplan-Meier curves for PMK and mortality at FUP

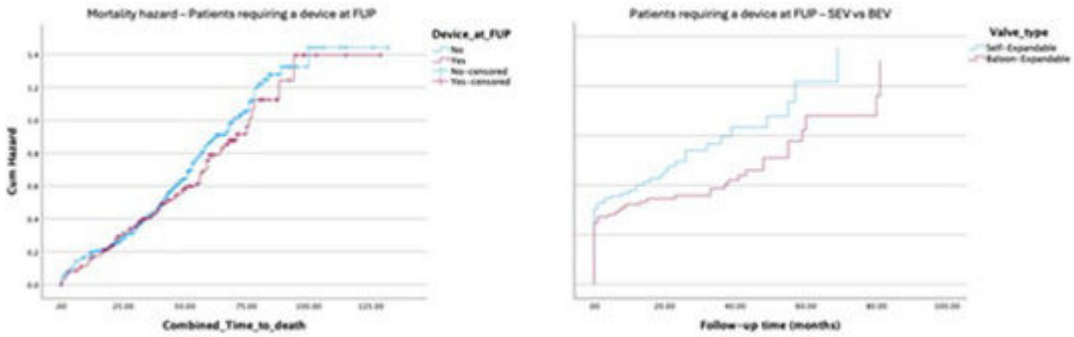


Figure PO 340

pacemaker implantation is one of the most common complications of TAVI and the vale type may impact outcome.

Objectives: To compare permanent pacemaker implantation rates of BEV and SEV.

Methods: We conducted a single center study, including patients (pts) who underwent TAVI between 2014 and 2023. Two cohorts were derived based on valve type – BEV vs. SEV. Groups were compared regarding baseline comorbidities, ECG, post procedural conduction disturbances and permanent pacemaker implantation. For statistical analysis, independent t-student and Chi-square tests were used. Kaplan Meier curves were drawn and Cox-regressions conducted to compare PMK need at FUP and mortality between groups.

Results: We included 709 pts submitted to TAVI from 09/2012 to 12/2023, 56.3% of which were female, with a mean age of 82 ± 6.5 years. Regarding valve type, 50.2% were balloon expandable (BEV) and 49.8% self-expandable (SEV). Cardiovascular risk factor burden was significant: hypertension in 91%, dyslipidemia in 73%, diabetes in 36%, CKD in 30%, 20% were smokers. Baseline EKG was sinus rhythm for 76% of pts and AF for 24% but 36% had history of AF. Regarding conduction disturbances, 17% had LBBB and 9% RBBB. There were no significant differences in these baseline characteristics between treatment groups. Upon valve implantation, pre-dilatation was performed in 36.4% of pts (29% in BEV vs. 44% in SEV, p <.001) and post-dilatation in 20.7% (15% in BEV vs. 26% in SEV p <.001). Immediately after implantation, 21% of pts developed complete AV block (18% in BEV vs. 24.7% in SEV p.034 OR 1.47), 6% LBBB and 1% RBBB. 24% of pts received a PMK during index hospitalization (21% in BEV vs. 27% in SEV p = NS), 67% of which for complete AV block, 15.4% for QRS prolongation, 8.8% for SND. Regarding device implantation at a mean FUP of 38.8 ± months, pts with BEV had a 31.4% lower risk of requiring a device for pacing when compared with SEV pts (HR 0.686 p = 0.05). When all cause death at FUP was compared between pts who received a device and those who didn't, there was no significative difference (p = NS).

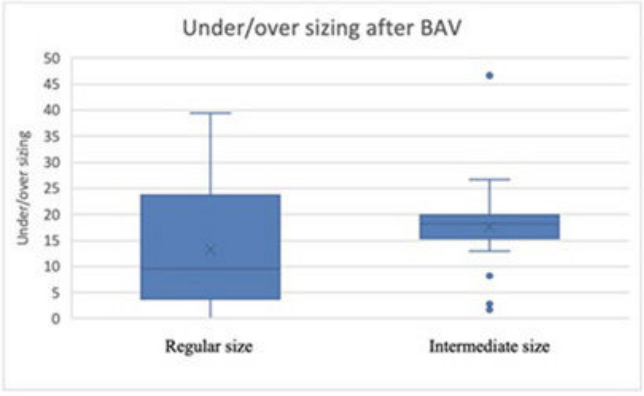
Conclusions: In our pt cohort, differences in new-onset conduction disturbances requiring in-hospital device implantation were not significatively different between BEV and SEV. However, over a mean FUP of 38.8 months, there was a 31.4% risk reduction for BEV pts to require a device comparing to SEV. These outcomes had no impact on overall mortality. Special attention should be given to SEV pts regarding conduction disturbances during follow-up.

PO 341. OVER- OR UNDER-SIZING OF VALVE PROSTHESES IN TAVR AND THE IMPORTANCE OF A BROADER RANGE OF SIZING OPTIONS TO ENSURE OPTIMAL VALVE FIT

Fernando Nascimento Ferreira, Francisco Albuquerque, Inês Rodrigues, Miguel Figueiredo, Barbara Teixeira, Francisco Cardoso, Mariana Caetano Coelho, Tiago Mendonça, Ruben Ramos, António Fiarresga, Rui Cruz Ferreira, Duarte Cacela

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

Introduction: Transcatheter aortic valve replacement (TAVR) has increasingly been adopted as a key treatment for severe aortic stenosis. As this technique has evolved, a growing number of valve models have been



Variables	Regular sizes (127)	Intermediate sizes (34)	p value
Over/under Sizing (±SD)	9,5% (0,1 - 46,7)	18,1% (1,7 - 46,67)	**0,016**
Average mean AV gradient post TAVR (±SD)	12mmHg (3 - 25)	13mmHg (6 - 28)	0,168
New onset PM – n (%)	27 (21,3)	11 (32,4)	0,135
1-year TAVR dis function - n (%)	11 88,7%)	2 (5,9%)	1

Figure PO 341

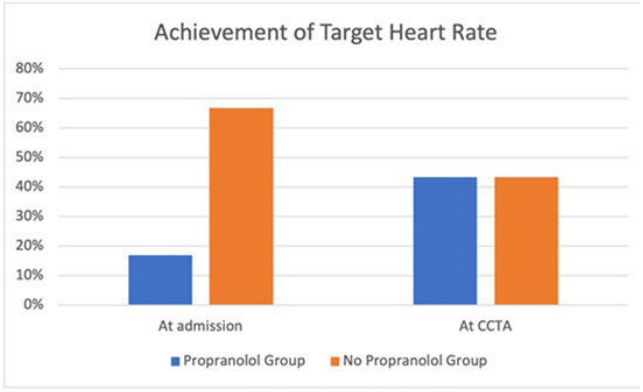
introduced. Among these, balloon-expandable valves have shown promising results in patients with complex or calcified anatomy. The range of valve sizes available has expanded, allowing a precise matching of prostheses to patient anatomy, ultimately enhancing procedural safety and efficacy.
Methods: Consecutive patients with severe aortic stenosis who underwent TAVR with balloon-expandable valves (Edwards Sapien) between 2019 and 2023 at a single centre were included. Two groups were defined based on whether the annulus area was compatible with Myval intermediate sizes (IS) or with regular sizes. Peri-procedural safety endpoints, technical success, intervention-related complications, 1-year mortality, and efficacy endpoints as defined by VARC-2 were assessed according to valve sizing. Statistical analysis was performed using the Chi-square test, Mann-Whitney U test, and independent samples t-test. A p-value < 0.05 was considered statistically significant.
Results: Of the 161 patients, 34 (21.1%) met the criteria for Myval intermediate sizes (IS). There were no significant differences between the two groups in terms of demographic characteristics (mean age 82 ± 7 years, 47.2% female). The group meeting criteria for IS had smaller valve perimeter and annulus area (74.5 ± 6.1 mm and 416 ± 69 mm^2, respectively). Regarding the procedure, the most frequently used valve was the Sapien 23 mm. Absolute over/under-sizing was significantly higher in the IS group (18.1% [1.7-46.67] vs. 9.5% [0.1-46.7], p < 0.05). Although not statistically significant, there was a trend towards a higher rate of pacemaker implantation (32.4 vs. 21.3%, p = 0.168) and higher mean aortic valve gradients (18.1 mmHg [1.7 -46.67] vs. 9.5 mmHg [0.1-46.7]) after TAVR, with only one patient with significant paravalvular leak. There was no statistically significant difference in 1-year mortality between the groups.
Conclusions: Our study found no significant differences between the two groups regarding peri-procedural safety or technical success following TAVR with balloon-expandable. However, a trend was observed towards higher pacemaker implantation rates and higher mean AV gradients in patients with Myval intermediate size annulus area. These findings suggest that offering a broader range of valve sizes to accurately match the procedure to patient anatomy could influence long-term outcomes. Further studies with larger sample sizes are necessary to validate these trends.

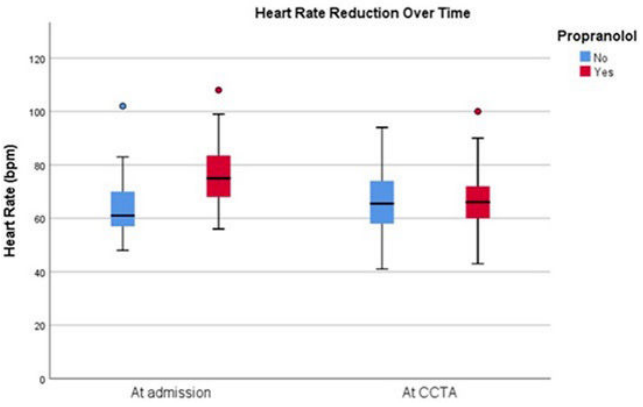
PO 342. PROPRANOLOL FOR HEART RATE CONTROL IN PRE-TAVI CARDIAC CT: A PROSPECTIVE STUDY ON EFFICACY AND SAFETY IN SEVERE AORTIC STENOSIS PATIENTS

Ana L. Silva, Gonçalo Ferraz Costa, Mariana Rodrigues Simões, Tatiana Pereira Dos Santos, Gonçalo Terleira Batista, Rafaela Fernandes, Vanessa Lopes, José Luís Martins, Ana Rita Ramalho, Lino Gonçalves, Rogério Teixeira

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

Introduction: Accurate heart rate (HR) control is crucial for high-quality cardiac computed tomography angiography (CCTA), especially in pre-procedural planning for transcatheter aortic valve implantation (TAVI) in severe aortic stenosis (AS) patients. The use of beta-blockers for HR reduction in AS patients has been limited due to potential hemodynamic risks. Propranolol, a non-selective beta-blocker, may offer an effective solution for this clinical challenge, though its safety and efficacy in this setting remain unclear.
Objectives: To evaluate the efficacy and safety of oral propranolol for HR control in patients with severe AS undergoing pre-TAVI CCTA.
Methods: This prospective, single-center observational study included 113 severe AS patients undergoing CCTA pre-TAVI. Based on baseline HR, 5 mg of propranolol was given for HR 55-64 bpm, and 10 mg for HR > 65 bpm. The primary outcome was achieving HR < 65 bpm during CCTA. Secondary outcomes included HR reduction and propranolol-related adverse events. Data were analyzed using SPSS 27.0.
Results: Among 113 patients, 73 received propranolol (97.3% at 10 mg, 2.7% at 5 mg) and 40 did not. The median age was similar between groups (84 vs. 80 years, p = 0.624), with comparable proportions of females (53 vs. 46.7%, p = 0.494). No significant differences were observed in hypertension, dyslipidemia, diabetes, or smoking status (p > 0.3). However, atrial fibrillation (22.9 vs. 40.0%, p = 0.016) and coronary artery disease (21.7 vs. 46.7%, p = 0.005) were more prevalent in the non-propranolol group. Heart failure and LVEF showed no differences, but beta-blocker use was higher in the non-propranolol group (43.3 vs. 26.1%, p = 0.006). At the moment of CCTA, 43.4% of the propranolol group achieved the target HR, compared to 43.3% in the non-propranolol group (χ^2 = 0.05, p = 0.94). The within-group comparison showed a statistically significant increase regarding the proportion of patients achieving target HR (χ^2 = 7.37, p = 0.007) in the propranolol group, but not for the non-propranolol group (χ^2 = 3.64, p = 0.057). The propranolol group showed a significant HR reduction from a mean of 76.3 ± 11 bpm at admission to a median of 66 bpm (IQR [60, 72]) at CCTA (p < 0.001). In contrast, the non-propranolol group had a median HR of 61 bpm (IQR [56, 70]) at admission and 65 bpm (IQR [57, 75]) at CCTA, with no significant reduction (p = 0.283). No major adverse events, including significant bradycardia (HR < 40 bpm), syncope, and symptomatic hypotension, were reported. Two patients in each group experienced asymptomatic hypotension (systolic blood pressure < 100 mmHg) during CCTA.





Conclusions: This study suggests that oral propranolol is an effective and safe option for HR control in patients with severe AS undergoing pre-TAVI CCTA. It significantly reduced HR without causing adverse hemodynamic effects, making it a viable option for HR management in this high-risk population.

PO 343. POST-TAVI PACEMAKER REQUIREMENT PREDICTION – SIMPLE MATH?

Nuno Madruga, Ana Abrantes, Miguel Azaredo Raposo, João Fonseca, Catarina Gregório, Daniel Inácio Cazeiro, João Mendes Cravo, Cláudia Moreira Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Carrilho Ferreira, Fausto J. Pinto

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

Introduction: As transcatheter aortic valve implantation (TAVI) procedures become increasingly common, predicting which patients will require

permanent pacemaker implantation (PPI) is a valuable, yet still eluding capability.
Objectives: To evaluate predictors of post-TAVI PPI and create a risk-defining calculator.
Methods: Single center study of pts submitted to TAVI without prior history of cardiac device implantation, from 2012 to 2023. Clinical, electrocardiography (ECG), echocardiographic and CT-derived data were collected and analyzed. For statistical analysis T-student, Chi-square tests and logistic regression were performed.
Results: We included 709 pts, 56.3% of which were female, with a mean age of 82 ± 6.5 years. Regarding baseline ECG, mean QRS was 107 ± 23 ms, with 26% of patients displaying complete bundle branch block. Of those, 65.4% were LBBB and 34.6% RBBB. Mean PQ interval was 169 ± 44 ms, with 18% of patients displaying 1st degree AV block. 24% of pts presented in AF. Mean aortic valve Agatston score was 3,368 ± 1,736 Hounsfield units. Roughly half of implanted valves were balloon-expandable (50.4%) and 49.6% self-expandable devices. Regarding valve oversizing index (OI), 6% of pts had undersized valves (OI < 0); 28.7% had oversized valves with an OI up to 20% and 65.3% had an OI greater than 20%. The QRS complexes were prolonged by 32 ± 27 ms at 48h post-TAVR and PQ increased 15 ± 33 ms. Regarding post-TAVR conduction disturbances – 21.7% developed complete AV block; 23.4% new-onset LBBB; 1.7% new-onset RBBB. Overall, 30% of pts required PPI – 27% during index hospitalization and 3% over a mean FUP of 38.8 ± 26 months. On bivariate analysis, baseline QRS duration (p = 0.002); post-TAVI PQ interval (p = 0.004) and QRS duration (p = 0.008); post-TAVI QRS prolongation (p = 0.03); implanted valve size (p = 0.01); history of AF (p 0.003; OR 4.9); baseline RBBB (p < 0.001; OR 4.9); baseline LBBB (p < 0.001 OR 2.28); new onset LBBB (p 0.049; OR 1.45); new onset RBBB (p 0.005 OR 4.9); and self-expandable valves (p 0.01; OR 1.53) had significative associations with PPI at FUP. When a logistical regression was conducted, only baseline complete branch block, baseline QRS duration and post-TAVI QRS duration emerged as independent predictors. The prediction model derived from these results performed poorly, explained about 31% of observed variance, and is not adequate for clinical use.
Conclusions: Several clinical, electrocardiographical, and CT-derived factors present a significative association with post-TAVI PPI. However, in our patient cohort, no model could be derived to accurately predict device implantation at FUP. Individual case assessment and clinical surveillance remain essential in post-TAVI follow-up.

PO 344. PREDICTORS OF EARLY STROKE AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Rafael Viana, Antonio Almeida, Marta Paralta de Figueiredo, Rita Louro, Orlando Luquengo, Miguel Carias, Bruno Piçarra, Diogo Bras, David Neves, Angela Bento, Renato Fernandes, Lino Patrício

Hospital do Espírito Santo, EPE, Évora.

Introduction: Despite a decrease in the rates of stroke when compared to initial transcatheter aortic valve replacement (TAVI) experience, stroke remains a severe complication following TAVI and is associated with increased morbimortality. Therefore, identifying patients at a higher risk could potentially impact outcomes.
Objectives: Our aim is to identify possible predictors of in-hospital stroke after TAVI for severe aortic stenosis (AS).
Methods: We retrospectively analyzed patients submitted to TAVI in our institution between 2021 and 2024. We documented demographic characteristics, risk scores, echocardiographic data pre-TAVI, CT-scan data and TAVI-procedure details. We then performed univariate analysis to establish the relationship between variables and incidence of stroke and multivariate analysis to identify independent predictors.
Results: We analyzed a population of 300 patients and documented an in-hospital stroke rate of 2.7% (n = 8). The population was 46.3% male (n = 139), with a mean age of 83 ± 5 years. Additionally, 86% were hypertensive, 71.3% had dyslipidemia, 34.7% were diabetic, 10.7% were smokers, 21.1% had a history of coronary artery disease, 21.7% had a history of atrial fibrillation (AF), and 17% had an STS score greater than 8. Regarding demographic characteristics and details of the TAVI procedure, including pre- and post-dilatation, there were no significant differences between groups. However, patients who experienced early stroke were more frequently classified with an STS score > 8 (50 vs. 16%, p = 0.012), had a higher prevalence of paradoxical low-flow low-gradient (pLFLG) aortic stenosis (25 vs. 6%, p = 0.032), and higher aortic root angles (52 vs. 48º, p = 0.049). After multivariate analysis, all variables maintained their significance (p = 0.027, p = 0.020, p = 0.036, respectively).
Conclusions: In our population, patients submitted to TAVI with higher STS scores (> 8), pLFLG aortic stenosis, and larger aortic root angles are at significantly increased risk for early in-hospital stroke. This could have clinical decision-making impact regarding the use of cerebral protection devices during the TAVI procedure. However, larger and more comprehensive studies are necessary.

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

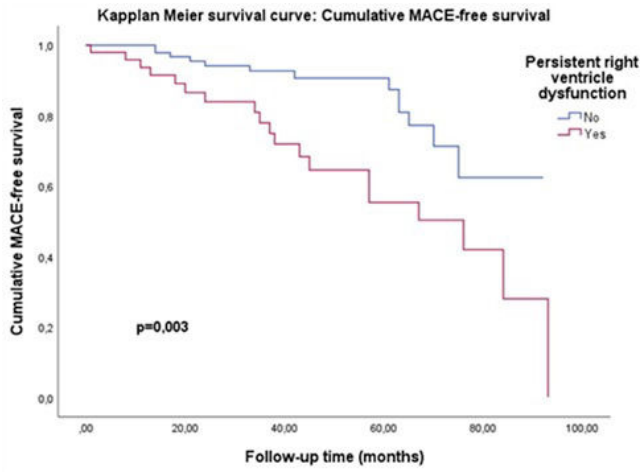
Área de Posters-écran 3 | Sessão de Posters 52 – IC, ressincronização e imagem

PO 345. IMPACT OF RIGHT VENTRICULAR DYSFUNCTION IMPROVEMENT IN HEART FAILURE PATIENTS TREATED WITH CARDIAC RESYNCHRONIZATION THERAPY

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

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

Introduction: Cardiac resynchronization therapy (CRT) is an established treatment in heart failure (HF). However, the effect of CRT on the right ventricle (RV) function and potential reverse remodelling have not been well described.
Objectives: This study aimed to evaluate the impact of RV dysfunction and CRT-induced changes in RV function on clinical outcomes in HF patients (pts) treated with CRT.
Methods: Single-center retrospective study of consecutive pts submitted to CRT implantation (2017-2024). Echocardiographic parameters were evaluated at baseline and 6-12 months post-CRT. RV systolic dysfunction (RVSD) was defined as S' velocity < 9.5 cm/s or tricuspid annular plane systolic excursion (TAPSE) < 17 mm. CRT response was defined as an increase of left ventricular ejection fraction (LVEF) ≥ 10% or left ventricle end-systolic volume reduction (LVESV) ≥ 15%, and superresponse as LVEF ≥ 50% at follow-up. Major adverse cardiac events (MACE) included HF hospitalization or cardiovascular mortality. Survival analysis with Kaplan-Meier method and *Log-rank* test was performed.
Results: A total of 206 pts (median age 74 [IQR 66-79] years, 68.4% male, 67.5% non-ischemic cardiomyopathy) were included, 74 (35.9%) of whom had RVSD at baseline. Pts with RVSD were younger (70.5 vs. 74.0 years, p = 0.049), had higher alcohol consumption (42.5 vs. 24.3%, p = 0.01), higher prevalence of atrial fibrillation (45.9 vs. 31.3%, p = 0.042) and valvular prothesis (23.0 vs. 3.7%, p < 0.001). They also had lower baseline LVEF (28.3 vs. 31.2%, p = 0.006) and were less likely to present left bundle branch block (44.6 vs. 64.3%, p = 0.008). RV function improved in 36.5% pts after CRT. Favorable RV response was more common in pts with significant baseline electromechanical intra-ventricular dyssynchrony (48.0 vs. 19.4%, p = 0.023). Pts with improved RV function exhibited better CRT response (83.3 vs. 51.6%, p = 0.014), a higher rate of superresponders (30.8 vs. 9.4%, p = 0.042), greater NYHA class improvement (84.6 vs. 59.4%, p = 0.036), and lower all-cause mortality (18.5 vs. 42.4%, p = 0.048). No differences were observed in HF medical therapy between groups. Over a mean follow-up of 35 ± 24 months, patients with persistent RVSD had a higher occurrence of MACE events (38.8 vs. 11.9%, *log-rank* p = 0.003).



Conclusions: In this cohort, CRT was associated with RV function improvement in approximately one-third of HF patients with RVSD, which correlated with LV reverse remodelling and improved prognosis. Persistent RV dysfunction post-CRT was associated with higher occurrence of MACE events.

PO 346. CARDIAC RESYNCHRONIZATION THERAPY FOR NON-LBBB PATIENTS AND QRS MID-RANGE: WORTH IT?

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

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

Introduction: The clinical benefit of cardiac resynchronization therapy (CRT) in patients with non-left bundle branch block (non-LBBB) morphology and QRS mid-range remains uncertain and controversial.
Objectives: To assess the impact of QRS morphology and duration in echocardiographic response to CRT and clinical outcomes in our population.
Methods: Single center retrospective analysis of pts admitted to CRT implantation between 2017-2024. Inclusion criteria: QRS duration ≥ 130 ms, left ventricular ejection fraction (LVEF) ≤ 35% and echocardiogram performed 6-12months post-implantation. Patients were classified into LBBB and non-LBBB groups and further stratified by QRS duration (130-149 ms and ≥ 150 ms). Echocardiographic response was defined as an improvement in LVEF ≥ 10%/reduction in left ventricular end systolic volume ≥ 15% at 6-12 months post-implantation. The primary endpoint was a composite of all-cause death and heart failure hospitalizations (HFH).
Results: We included 128 pts (70 ± 10 years, 66% males, LVEF 28 ± 6%, 34% ischemic cardiomyopathy), 77% in the LBBB group. The non-LBBB group had a higher proportion of males (97 vs. 56%, p < 0.005), atrial fibrillation (50 vs. 30%, p = 0.039) and less use of beta-blocker (87 vs. 67%, p = 0.012). Non-LBBB patients had a shorter baseline QRS duration (158 ± 20 ms vs. 165 ± 17 ms, p = 0.04) and larger left atrial volumes (51 mL [IQR 42-64] vs. 41 mL [IQR 36-49], p = 0.002). No differences in the rate of ICD implantations between groups (73 vs. 64%, p = 0.36). During the first year, there was a trend to higher echocardiographic response in the LBBB group (83 vs. 65%, p = 0.057) (Figure 1) with comparable rates of NYHA improvement (63 vs. 58%, p = 0.62). During a median follow-up of 34 [IQR 16-53] months, there were no statistically significant differences in the primary endpoint between groups (40 vs. 27%, p = 0.18), with similar rates of HFH (p = 0.34) and all-cause death (p = 0.13). However, the non-LBBB group experienced more ventricular arrhythmias (23.3 vs. 8.2%, p = 0.014). When we stratified the groups according to the QRS duration (LBBB+QRS ≥ 150 ms, LBBB+QRS 130-149 ms, Non-LBBB ≥ 150 ms, Non-LBBB+QRS 130-149 ms), it was noticeable that, despite the absence of significant differences in the rates of echocardiographic response (p = 0.20), there was a clear significant difference in the rates of the primary endpoint, with worse outcomes in the non-LBBB+ QRS 130-149 ms group (p < 0.005), mainly driven by all-cause death (Figure 2).

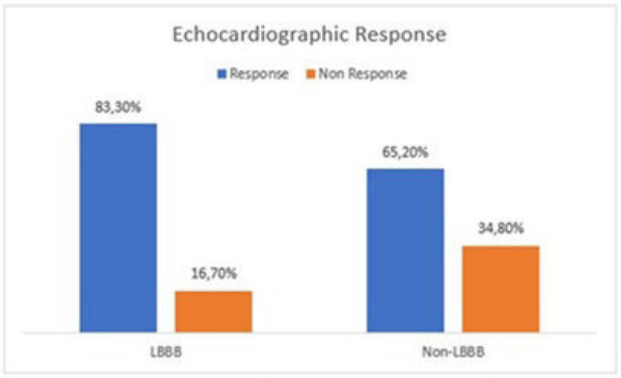


Figure 1- Ecocardiographic response to CRT according to the presence of LBBB.

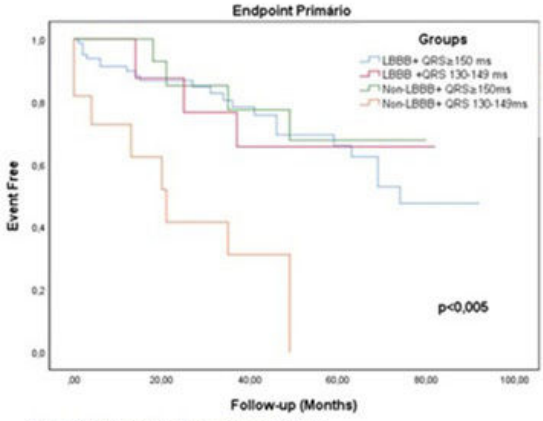


Figure 2- Kaplan-Meier for the primary endpoint.

Conclusions: In our cohort, pts with non-LBBB benefit for CRT, with notable echocardiographic and clinical improvements. Those with QRS ≥ 150 ms have clinical outcomes comparable to LBBB group, with worse prognosis of the ones with mid-range QRS. This underscores the importance of careful patient selection, particularly within the non-LBBB subgroup.

PO 347. LONG TERM CLINICAL OUTCOME AND ECHOCARDIOGRAPHIC RESPONSE OF PATIENTS SUBMITTED TO UPGRADE TO CARDIAC RESYNCHRONIZATION THERAPY

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

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

Introduction: The benefits of upgrading to cardiac resynchronization therapy from a prior implanted pacemaker or defibrillator device, in patients with heart failure and reduced ejection fraction (HFrEF), remain unclear, and the clinical outcomes are conflicting.
Objectives: To evaluate the echocardiographic response and clinical outcomes of a subgroup of patients (pts) submitted to upgrade CRT in comparison with the ones submitted to de-novo procedure.
Methods: Single centre, retrospective analysis of pts who underwent CRT implantation or upgrade procedures between 2017-2024. Echocardiographic response was defined as ≥ 10% improvement in left ventricular ejection fraction (LVEF) or ≥ 15% reduction in left ventricular end-systolic volume. The primary endpoint was all-cause mortality/heart failure (HF) hospitalization, while the secondary endpoint was all-cause mortality. The mean follow-up (FUP) was 33.0 ± 19.2 months.

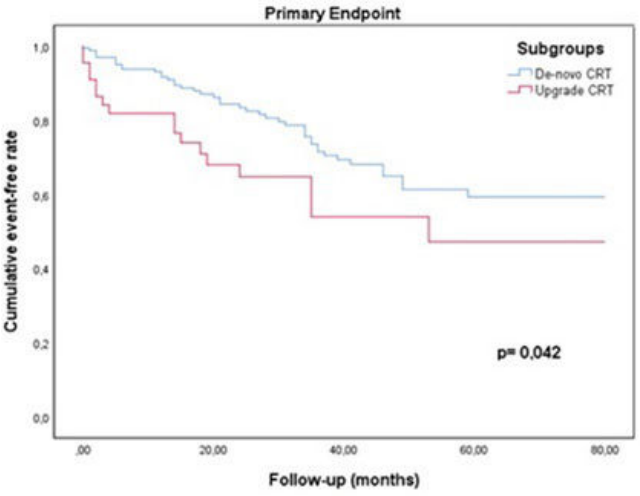


Figure 1- Kaplan-Meier curve for primary endpoint.

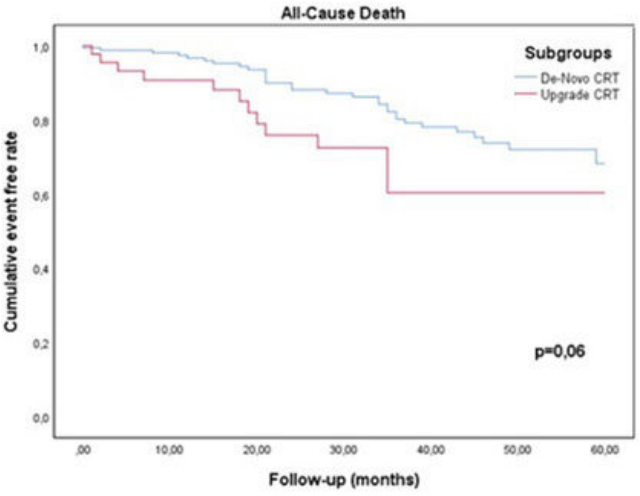


Figure 2- Kaplan-Meier curve for all-cause mortality.

Results: A total of 221 pts were included, 68% male, age 73 (IQR 66-78) years, mean LVEF 30 ± 8%, 33% ischemic. Of these, 20% underwent an upgrade procedure. The upgrade group had a higher rate of permanent atrial fibrillation (27 vs. 14%, p = 0.037) and tended to present with more severe HF symptoms (NYHA class III/IV: 51 vs. 36%, p = 0.08). The upgrade group had a higher prevalence of moderate-to-severe functional mitral regurgitation (54 vs. 39%, p = 0.096) and larger left atrial volumes (57 ± 20 vs. 48 ± 19 ml/m^2, p = 0.013). Also, secondary prevention indications to ICD implantation were more common in the upgrade group (31 vs. 6%, p < 0.005) as well as pre-implantation beta-blocker use (89 vs. 70%, p = 0.012). Rates of infection (p = 0.59) and lead dislodgement (p = 0.80) were similar. Echocardiographic response rates were comparable (78 vs. 63%, p = 0.073), as were superresponse rates (64 vs. 49%, p = 0.092), with a tendency for higher response in the de novo CRT group. Both groups had similar NYHA class improvement (61 vs. 61%, p = 0.96). During follow-up, the upgrade group had a higher rate of the primary endpoint (41 vs. 27%, log-rank p = 0.042) (Figure 1), driven by more HF hospitalization (30 vs. 14%, log-rank p = 0.011) and a trend toward higher mortality (30 vs. 23%, log-rank p = 0.06) (Figure 2). In multivariate analysis, after adjusting for potential confounders, the rates of the primary endpoint were comparable between the CRT upgrade and de novo groups (HR 1.56, 95%CI: 0.85-2.84, p = 0.15), as were all-cause mortality rates (HR 1.53, 95%CI: 0.70-3.30, p = 0.29).

Conclusions: In our cohort, patients undergoing CRT upgrade, despite having more comorbidities and advanced heart failure, showed a similar echocardiographic response and NYHA class improvement compared to those receiving de novo CRT. However, during FUP, this subgroup experienced worse clinical outcomes, which were attributed to differences between the two populations rather than the therapy itself.

PO 348. CARDIAC RESYNCHRONISATION THERAPY'S RESPONSE IN PATIENTS WITH NON-LBBB QRS COMPLEX MORPHOLOGY

André Paulo Ferreira, Ana Raquel Santos, Sofia Jacinto, Hélder Santos, Guilherme Portugal, Ana Lousinha, Bruno Valente, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Oliveira

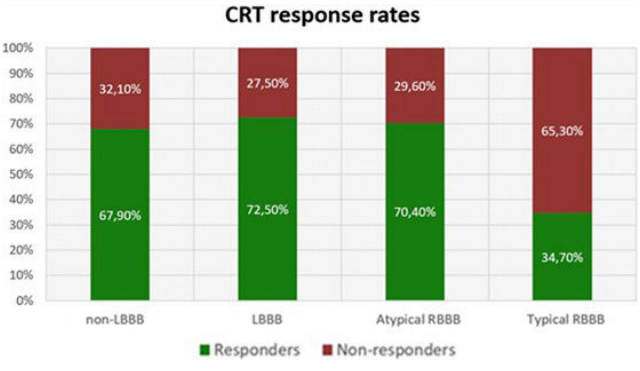
Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: The benefits of cardiac resynchronisation therapy (CRT) are optimal for patients with wide QRS complexes and left bundle branch block (LBBB) morphology. It remains uncertain whether patients with non-LBBB QRS complex morphologies can have the same rates of response to CRT and functional status improvement.

Objectives: To assess the impact and reverse remodelling effects of CRT implantation in patients with non-LBBB QRS complex morphology.

Methods: A single-centre retrospective study of patients with heart failure who underwent CRT implantation between 2016 and 2023. Responders were defined as those exhibiting an absolute > 5% improvement in LVEF at 6 months of follow-up. CRT response was compared between patients with LBBB and non-LBBB QRS complex morphologies, with the latter including right bundle branch block (RBBB), atypical RBBB, and interventricular conduction delay.

Results: A total of 190 patients were included in this study. Patient's mean age was 69.5 ± 10.1 years, and 70.8% were male. At the baseline, the New York Heart Association functional class (NYHA) was 2 in 30.5%, and 3 in 65.6% of patients, 25.6% had ischemic heart disease and 74.4% dilated cardiomyopathy. Of the total, 64.7% had LBBB and 35.3% non-LBBB QRS morphology. Analyzing the non-LBBB group, the mean baseline QRS width was 148 ± 23 ms and the mean left ventricle ejection fraction (LVEF) was 26.5 ± 5.7%. At 6 months of follow-up after CRT implantation, patients showed a similar response rate in both non-LBBB and LBBB groups, with a mean increase in LVEF of 11.6 ± 5.5 vs. 12.1 ± 3.4% (p = 0.655), and improvement of ≥ 1 classes in NYHA classification 65.7 vs. 74.3% (p = 0.248), respectively. The majority of patients in both groups were CRT responders 67.9 vs. 72.5% (p = 0.602). However, we should note that patients with atypical RBBB had significantly higher rates of response than those with typical RBBB 70.4 vs. 34.7% (p < 0.001). Patients with interventricular conduction delay had similar rates of response compared to those with atypical RBBB 63.8 vs. 70.4% (p = 0.104). Mortality rates at 1 year were similar between both groups 4.4 vs. 3.9% (p = 0.477).



Conclusions: The majority of patients with HFrEF and wide > 150 ms of non-LBBB morphology show a favourable CRT response, and therefore CRT implantation should be taken into consideration in these patients. Some specific non-LBBB morphologies appear to respond better than others, and this hypothesis should be further investigated in experimental studies.

PO 349. ECHOCARDIOGRAPHIC PREDICTORS OF SUSTAINED VENTRICULAR TACHYARRHYTHMIAS IN PATIENTS WITH CRT-D FOR PRIMARY PREVENTION

Julien Lopes, Inês Ferreira Neves, Francisco Cardoso, Sofia Jacinto, Hélder Santos, Guilherme Portugal, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Ana Galrinho, Rui Cruz Ferreira, Mário Martins Oliveira

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

Introduction: Patients with heart failure and reduced left ventricular ejection fraction (LVEF) have a higher incidence of ventricular arrythmias. Considering this, current guidelines recommend CRT-D implantation in primary prevention for patients with LVEF ≤ 35% and a QRS duration ≥ 150 ms with left bundle branch block after at least 3 months of optimal medical therapy. Our study aimed to identify echocardiographic predictors of ventricular arrhythmias in this patient population.
Methods: Retrospective study of all patients with CRT-D implantation in primary prevention from January 2015 to July 2023 in a tertiary centre. Only patients with a transthoracic echocardiogram performed before CRT-D implantation and another performed during a 1-year follow-up (FU) time after CRT-D implantation (excluding the first 3 months) were included. Appropriate CRT-D therapy (including shocks or Anti Tachycardia Pacing (ATP)) during follow-up was noted and patients were divided into two groups according to appropriate CRT-D therapy during FU. Echocardiographic parameters at baseline and 1-year FU were analysed between the two groups to determine their potential as predictors of ventricular arrhythmias using a logistic regression model.
Results: 91 patients (mean age 65.0 ± 13.16 years; 26.4% female) were included, with a mean FU of 4.0 ± 2.5 years. 50.5% of patients had ischemic heart disease. 14 patients (15.4%) had appropriate CRT-D therapy during follow-up. There were no statistically significant differences between groups regarding ARNI (p = 0.427), ACEi/ARB (p = 0.938), beta-blocker (p = 0.153), SGLT2i (p = 0.618) and mineralocorticoid antagonist therapy (p = 0.721). Echocardiographic parameters at baseline that were statistically significant between the two groups were LVEDVi (108.79 ± 32.71 vs. 132.40 ± 40.43 ml/m^2; p = 0.024) and LVESVi (79.34 ± 29.18 vs. 100.09 ± 41.26 ml/m^2; p = 0.032). Left ventricular ejection fraction was not statistically significant (28.22 ± 8.19 vs. 24.64 ± 8.60%; p = 0.139). Other echocardiographic parameters such as global longitudinal strain (p = 0.757), E/E' ratio (p = 0.576) and TAPSE (p = 0.308) were also not statistically significant. At 1 year follow-up, patients had a mean improvement of 16.69 ± 28.68 mL/m^2 in LVEDVi; of 19.27 ± 24.70 mL/m^2 in LVESVi and of 10.81 ± 10.87% in LVEF and these values were not statistically significant for the prediction of arrhythmic events (p = 0.445; p = 0.891; p = 0.813 respectively).
Conclusions: In our cohort of patients with CRT-D in primary prevention, left ventricular end-diastolic and end-systolic volumes before CRT-D implantation were predictive of arrhythmic events. Improvement in these parameters with a CRT implantation did not improve prognosis in these patients concerning the incidence of ventricular arrhythmias.

PO 350. EVALUATING SUPERRESPONSE IN CRT: A CLINICAL EDGE OR JUST A REMODELING EFFECT?

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

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

Introduction: Cardiac resynchronization therapy (CRT) is a key treatment in modern heart failure (HF) management, as it significantly reduces morbidity and mortality in patients. Among CRT responders, a subset of

Table 1 – Baseline clinical characteristics in CRT patients.

			CRTS-Response			
			N-S-RESP (n=37, 60,7%)	S-RESP (n=24, 39,3%)	Total (n=99)	p value
Gender	Male	n (%)	30,0 (81,8)	18,0 (75,0)	72,0 (75,8)	
	Female	n (%)	7,00 (18,9)	6,00 (25,0)	23,0 (24,2)	
						0,571
Age	Mean±SD - years		68,1±11,6	70,5±8,79	69,5±10,4	
						0,418
Hypertention		n (%)	29,0 (78,4)	17,0 (70,8)	64,0 (68,8)	
						0,525
Diabetes (type 2)		n (%)	22,0 (59,5)	11,0 (45,8)	52,0 (55,9)	
						0,297
Dyslipidemia		n (%)	29,0 (78,4)	16,0 (66,7)	69,0 (74,2)	
						0,310
Smoker		n (%)	12,0 (32,4)	12,0 (50,0)	37,0 (39,8)	
						0,057
Obesity		n (%)	11,0 (29,7)	5,00 (20,8)	22,0 (23,7)	
						0,440
Alcool		n (%)	10,0 (27,0)	7,00 (29,2)	23,0 (24,7)	
						0,856
Atrial fibrillation		n (%)	10,0 (27,0)	6,00 (25,0)	27,0 (29,0)	
						0,860
Ventricular tachycardia		n (%)	2,00 (5,40)	2,00 (8,30)	10,0 (10,8)	
						0,652
Chronic renal disease		n (%)	12,0 (32,4)	11,0 (47,8)	31,0 (34,1)	
						0,259
LBBB > 150ms		n (%)	24,0 (75,0)	17,0 (73,9)	63,0 (77,8)	
						0,927
Up-grade		n (%)	0,00 (0,00)	2,00 (8,30)	7,00 (25,9)	
						0,151
Need ventricular pacing		n (%)	10,0 (35,7)	5,00 (26,3)	21,0 (28,4)	
						0,498
Non-ischemic heart disease		n (%)	13,0 (41,9)	18,0 (75,0)	34,0 (55,7)	
						0,014
Optimized medical therapy	ARNI	n (%)	23,0 (82,3)	10,0 (41,7)	51,0 (55,4)	0,117
	ACEI/ARB	n (%)	10,0 (27,0)	12,0 (50,0)	32,0 (34,8)	0,068
	MRA	n (%)	25,0 (69,4)	15,0 (62,5)	62,0 (68,1)	0,579
	SGLT2I	n (%)	26,0 (72,2)	14,0 (58,3)	60,0 (65,9)	0,264
	Beta-blocker	n (%)	30,0 (83,3)	23,0 (95,8)	79,0 (86,8)	0,225
	AAP	n (%)	10,0 (27,8)	4,00 (16,7)	21,0 (23,1)	0,319
LVEF - pre	Mean±SD - %		32,4±10,2	29,2±6,60	33,5±11,1	0,026
LVEF - pos	Mean±SD - %		36,6±13,5	50,7±9,70	40,7±14,1	<0,001
			p<0,004	p<0,001	p<0,009	

Figure PO 350

patients, known as superresponders, demonstrate exceptional improvements cardiac remodeling. However, the prognostic benefit of superresponders compared to regular responders remains a subject of ongoing debate.
Objectives: To determine the impact of superresponse on outcome.
Methods: This single-center retrospective analysis included 95 patients who underwent CRT implantation between January 2020 and December 2023, with a mean follow-up of 35 months. Patients were grouped in a superresponder group and a non-superresponder group. CRT superresponse criteria were defined as: increase in LVEF of, at least, 10% or a decrease in the diastolic or systolic volume of, at least, 20% and 30%, respectively. Data were collected on demographic characteristics, presence of left branch block in the initial electrocardiogram, the need for ventricular pacing, non-ischemic etiology, HF medical therapy and cardiac chambers volumes pre and post-implantation. We analysed the primary outcome as a composite outcome of death, HF admissions, myocardial infarction (MI), stroke. The secondary outcomes are death, HF admissions, MI and stroke.
Results: The final cohort consisted of 61 patients, with 37 patients (60.7%) categorized as non-superresponders (N-S-RESP) and 24 patients (39.3%) as superresponders (S-RESP). There were no significant differences in gender, age, hypertension, diabetes mellitus, dyslipidemia, smoking, alcohol use and need for ventricular pacing. Notably, obesity (29.7 vs. 20.8%, p = 0.017) was significantly more common in non-superresponders. Non-ischemic heart disease was more frequent in the superresponders group (75 vs. 41.9%, p = 0.014). There was a significant improvement in LVEF in both groups, which was higher in superresponders (LVEF pre: 29.2 vs. LVEF post: 50.7%, p = 0.001). In contrast, non-superresponders exhibited a smaller, but also significant, change in LVEF (pre: 32.4 vs. post: 36.6%, p = 0.044). Neither the primary outcome nor the secondary outcomes showed significant differences between groups.
Conclusions: While CRT superresponders have an enhanced cardiac remodeling, this did not translate into a significant difference in clinical outcomes such as death, HF admissions, MI or stroke. These findings support the role of CRT in preventing disease progression beyond improving LVEF, contributing to a partial or complete remission of the disease.

Domingo, 13 Abril de 2025 | 09:30-11:00

Área de Posters-écran 1| Sessão de Posters 53 – Fibrilhação auricular e arritmias auriculares complexas

PO 351. OUTCOMES OF ATYPICAL FLUTTER ABLATION GUIDED EXCLUSIVELY BY SYSTEMATIC ANALYSIS OF HIGH-RESOLUTION MAPS (NO ENTRAINMENT MANEUVERS)

Francisco Salvaterra, Joana Brito, Ana Abrantes, Daniel Inácio Cazeiro, Miguel Azaredo Raposo, Joana Quaresma, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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

Introduction: Advancements in mapping systems have enhanced our understanding of atypical flutter (AFl) mechanisms. Systematic analysis of substrate and activation maps is crucial for arrhythmia interpretation and defining targeted ablation strategies.
Objectives: To evaluate the outcomes of AFl ablation exclusively guided by systematic analysis of high-resolution maps.
Methods: This is a single-center retrospective study of left-sided AFl patients (pts) who underwent ablation from 2015 to June 2024. High-resolution map interpretation was conducted following a systematic predefined workflow aimed at identifying the AFl mechanism and planning ablation lines targeting the critical isthmus. No entrainment maneuvers were performed. If AFl persisted after the first ablation set, a remap was performed. Acute success was defined as conversion to sinus rhythm with

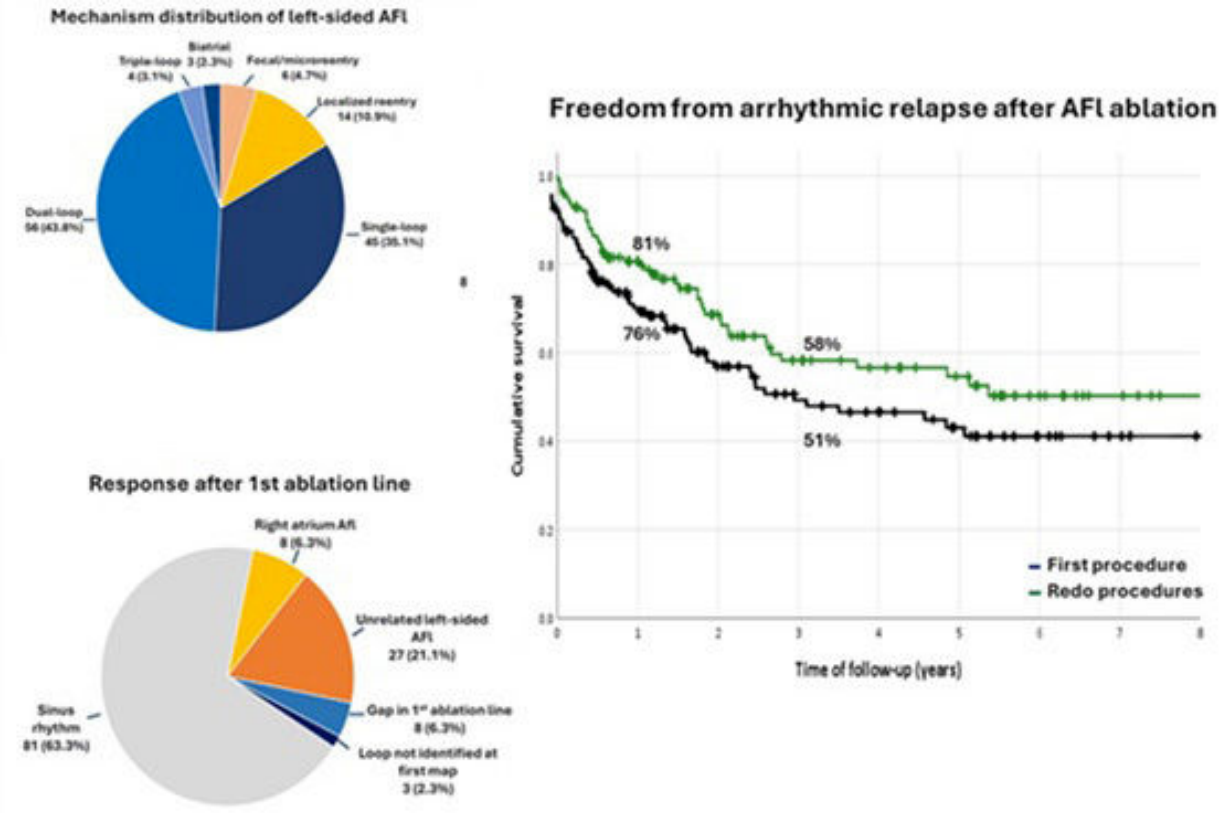


Figure PO 351

the planned ablation set. The procedure endpoint was the demonstration of conduction block over ablation lines. Outcomes were evaluated by survival free from any sustained atrial arrhythmia.
Results: A total of 128 pts were treated, 58% male, with a mean age of 68 ± 11 years. About 52% had undergone prior pulmonary vein isolation, with an additional left atrial linear ablation in 16% (n = 20). A macroreentrant circuit was observed in 84% of pts, using 2- or 3-loops in 46.8%, with single-loop flutters representing 35.1% (Figure 1). The perimitral loop was the most frequent reentrant circuit (n = 51, 56%). The first set of mechanism-tailored ablation restored sinus rhythm in 81 pts (63%). If AFl persisted, the mechanism was most often a completely distinctive left-sided circuit (n = 27) or a right-sided peri-tricuspid (n = 8). Completion of the ablation set restored sinus rhythm in 37 of these 47 pts, resulting in an overall acute success rate of 92% (118/128). Pts were followed over a median of 4.2 [2.7-5.6] years. After a single procedure, the 1-year success rate was 76%, decreasing to 51% at 3 years (Figure 2). A total of 22 pts underwent a redo procedure, consisting of typical AFl ablation in 3, PVI isolation in 1, focal AT in 1, and atypical AFl redo in 17 pts. Including redos, arrhythmia-free survival increased to 81% at 1 year and 58% at 3 years. In 10 pts (7.8%), AV nodal ablation was performed due to persistent arrhythmia.
Conclusions: The AFl mechanism identified through a systematic mapping approach was dual-loop reentry more commonly than presumed by studies based on entrainment maneuvers. Ablation targeting the shared isthmus resulted in high acute success with acceptable long-term outcomes.

PO 352. WILL IT BE BACK? PREDICTING RECURRENCE AFTER LEFT ATRIAL FLUTTER ABLATION

Daniel Inácio Cazeiro, Joana Brito, Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, Sara Neto, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: In recent years, catheter ablation has become a promising treatment for patients with atypical atrial flutter (AFl), driven by advancements in technology and a deeper understanding of arrhythmia mechanisms. However, its long-term effectiveness and the factors predicting recurrence remain inadequately understood.
Objectives: To evaluate the efficacy of atypical AFl ablation and identify predictors of recurrence.
Methods: We conducted a single-center, retrospective study of consecutive patients who underwent left atrium AFl ablation. A systematic, predefined high-resolution mapping workflow was employed to characterize the mechanism of the arrhythmia and guide the ablation strategy. Clinical, echocardiographic, and AFl substrate and mapping characteristics were evaluated as risk factors for atrial arrhythmic relapse during follow-up, assessed using Cox regression and Kaplan-Meier survival analysis.
Results: From 2015 to 2024, 128 patients were included (mean age: 68 years, 58% male). Fifty-two percent had undergone previous pulmonary vein isolation, and previous left atrial linear ablation had been performed in 16%. Overall acute success was high, with 92% conversion to sinus rhythm after the first ablation set. However, AFl recurrence was 24% and 49% at 1 and 3 years, respectively. The only two predictors of arrhythmic relapse on univariate analysis were left ventricular ejection fraction (LVEF) < 40% (HR 2.191, 95%CI: 1.124-3.870, p = 0.007) and the presence of atrial scar outside the AFl shared isthmus (HR 1.997, 95%CI: 1.123-3.550). Strikingly, left atrial volume had no influence on arrhythmic recurrence. We then assessed the incremental impact of having none, one, or both of the identified risk factors. Having one of these criteria increased the risk of relapse (HR 1.259, 95%CI: 0.653-2.427, p = NS) and the presence of both increased the risk by 4-fold (HR 4.395, 95%CI: 2.135-9.049, p < 0.001).
Conclusions: Two key risk factors were identified for arrhythmic relapse after AFl ablation: reduced LVEF and the presence of left atrial scar outside the shared isthmus. Interestingly, the risk of atrial arrhythmic relapse increased 4-fold with the presence of both features, while left atrial volume had no impact on recurrences.

PO 353. LEFT ATRIAL APPENDAGE OCCLUSION: RESULTS OF A LARGE LONG-TERM COHORT

Joao Santos Fonseca, Miguel Nobre Menezes, Catarina Gregório, Miguel Azaredo Raposo, Ana Rita Francisco, Catarina Oliveira, Tiago Rodrigues, João Silva Marques, Gustavo Silva, João de Sousa, Pedro Cardoso, Fausto J. Pinto

Unidade Local de Saúde de Santa Maria.

Introduction: Left atrial appendage occlusion (LAAO) is increasingly used as an alternative to prevent stroke in patients (pts) with atrial fibrillation (AF),

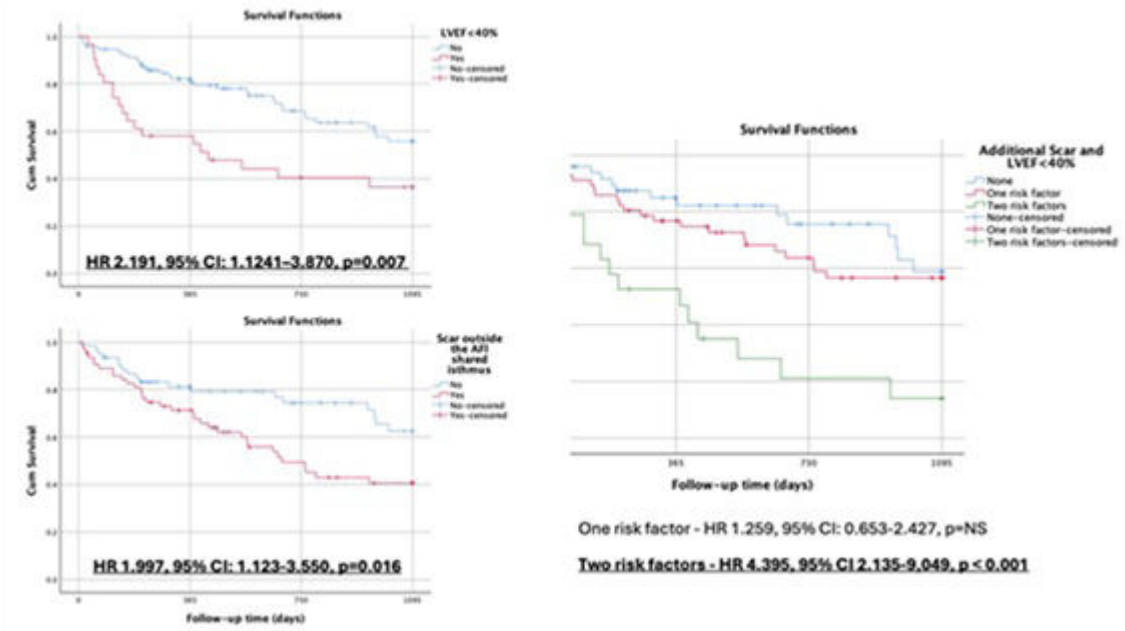

Figure PO 352

particularly those with trombo-embolic events despite oral anticoagulation (OAC) or OAC intolerance.
Objectives: To evaluate the efficacy and safety of LAAO in pts with AF.
Methods: Single-center retrospective study of consecutive pts who underwent percutaneous LAAO between November 2009 and December 2024. Comorbidity burden and thromboembolic risk were assessed using the Charlson Comorbidity Index (CCI) and CHA2DS2-VASc score. Efficacy was defined by the absence of stroke, cardiovascular death, or systemic embolic events. The composite safety endpoint included procedural complications and major bleeding events. Statistical analyses used Student's t-test for continuous variables and chi-square tests for categorical variables.
Results: A total of 215 pts were included (mean age of 74.5 ± 8.1 years, 64% male, 41% had paroxysmal AF); of these, 22% had CKD stage 3 or higher, and 20% had a history of cancer (9% gastrointestinal). The mean CCI was 5.7 ± 0.1. The mean CHA2DS2-VASc score was 4.1 ± 0.1, and one-third of the pts had a history of stroke. The annual bleeding risk was 6.1 ± 0.5% (mean HAS-BLED score 3.1 ± 0.1). The main reasons for referring pts for LAAO were previous gastrointestinal bleeding (37%), hemorrhagic stroke (19%), and ischemic stroke despite anticoagulation (9%). The procedure was successful in 96% of cases, with a mean duration of 89.7 ± 12 min. In 95% of cases, a Watchman device was implanted (42% were Watchman FLX, device size 27 ± 2 mm). The procedure was guided by intracardiac echocardiography in 28% of cases and transesophageal echocardiography in the remaining cases. Post-procedural antithrombotic therapy was administered as follows: 43% received dual antiplatelet therapy, 26% were treated with VKA and aspirin, 18% with NOACs, and the remaining with single antiplatelet therapy, for an average duration of 6.1 months. Acute procedural complications included 4 cases of pericardial tamponade and 4 vascular access complications (1 major). All major complications occurred up early 2015. During follow-up, 31 pts experienced bleeding events, of which 3 were classified as major (2 gastrointestinal, 1 genitourinary) according to the VARC-3 definition. The primary safety endpoint occurred in 38 pts. During a mean follow-up of 44.7 ± 3.3 months, there were 7 strokes and 1 thrombotic event. The primary efficacy endpoint was observed in 13 pts. Based on the CHA2DS2-VASc score, the expected stroke/systemic embolism rate in our population was 6.7%, but during follow-up, the observed event rate was only 0.09%, representing an 86% relative risk reduction.
Conclusions: LAAO demonstrated high procedural success and a favourable safety profile, effectively reducing thromboembolic events in a high-risk population over long-term follow-up.

PO 354. ADVANCEMENTS IN ATYPICAL ATRIAL FLUTTER ABLATION: IMPACT OF EVOLVING TECHNIQUES AND TECHNOLOGIES ON OUTCOMES

Maria Rita Giestas Lima, Ana Rita Bello, Daniel Gomes, Guilherme Flor, Daniel Matos, Gustavo Rodrigues, Pedro Galvão Santos, Francisco Moscoso Costa, Pedro Carmo, Diogo Cavaco, Francisco Bello Morgado, Pedro Adragão

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Introduction: Atypical atrial flutter (AFLA) is a macro-reentrant atrial tachycardia commonly associated with atrial fibrillation (AF). While novel technologies, including advanced mapping systems and energy sources, are now available, data comparing their benefits to older systems remain limited.
Objectives: To compare peri-procedural differences in AFLA ablation before and after 2020, and AFLA/AF recurrence rate.
Methods: Single-centre retrospective study including all consecutive patients who underwent AFLA ablation between 2015-2024. Clinical, echocardiographic and peri-procedural characteristics were collected from clinical records. We divided patients into two groups: pre-2020 (group 1) and post-2020 (group 2). The study endpoints were defined as a composite of AFLA or AF recurrence documented by ECG/24-h Holter.
Results: Overall, 108 consecutive patients were included-median age of 66years, 67 (62%) male, mean CHA2DS2-VA score 2 ± 2, and 66% with history of AF ablation. Most patients received anti-arrhythmic drugs pre-ablation: beta-blockers (61%), amiodarone (40%), sotalol (9%), flecainide (7%), and propafenone (6%). 46% of patients underwent ablation before 2020, while 54% underwent it after 2020. Concomitant AF ablation rates were comparable between the groups (p = 0.422). Group 1 had a higher median fluoroscopy time (11 vs. 8min, p < 0.001), but the median procedural time did not differ significantly between groups (3 ± 1 vs. 2.4 ± 1hrs, p = 0.173). Energy application was more frequently performed on the mitral isthmus (46 vs. 21%, p = 0.005) and roof line (46 vs. 28%, p = 0.047) in group 1. The use of Lasso and Orion catheters was higher in group 1 (40 vs. 7%, p < 0.001; 30 vs. 7%, p = 0.002, respectively), as was the use of the IntellNav and Rhythmia systems (22 vs. 3%, p = 0.003; 28 vs. 5%, p = 0.001, respectively). Conversely, the CARTO system (86 vs. 60%, p = 0.002) was more commonly used in group 2. Acute termination of AFLA during energy applications was more frequent in group 2 (88 vs. 64%, p = 0.003), while patients in group 1 required electric cardioversion at the end of the procedure more often (36 vs. 16%, p = 0.014). Recurrence rates of AFLA/AF were higher in group 1 (68 vs. 40%, p = 0.003). In group 1, the only predictor of AFLA/AF recurrence was AFLA inducibility post-ablation (Figure 1A). In group 2, AFLA inducibility was predictor of AFLA/AF recurrence, while concomitant AF ablation and isolation of pulmonary veins were protectors (Figure 1A). In multivariate analysis, only AFLA inducibility was predictor of AFLA/AF recurrence (Figure 1B).

A Univariate analysis of AFLA/AF recurrence after ablation

		HR	95% CI	*p*-value
Pre-2020 (group 1)	Inducible AFLA after ablation	9.42	1.51-58.9	**0.017**
Post-2020 (group 2)	Complete pulmonary veins isolation	0.29	0.11-0.81	**0.018**
	Concomitant AF ablation	0.18	0.06-0.54	**0.002**
	Inducible AFLA after ablation	3.86	1.32-11.31	**0.014**

B Multivariate analysis of AFLA/AF recurrence after ablation

		HR	95% CI	p-value
Post-2020 (group 2)	Inducible AFLA after ablation	10.44	1.35-80.94	**0.025**
	Complete pulmonar veins isolation	0.810	0.21-3.38	0.810
	Concomitant AF ablation	1.29	0.22-7.49	0.772

Conclusions: This study demonstrates improved procedural success and lower recurrence rates of AFLA/AF in patients undergoing ablation after 2020, likely driven by advancements in technology. AFLA inducibility post-ablation was a key predictor of recurrence, emphasizing the need for effective arrhythmia termination and inducibility at the end of the procedure.

PO 355. IMPACT OF DIASTOLIC DYSFUNCTION ON QUALITY OF LIFE IN ATRIAL FIBRILLATION PATIENTS UNDERGOING CATHETER ABLATION

Ana Inês Aguiar Neves, Rafael Teixeira, Inês Rodrigues, Marta Leite, Fábio Sousa Nunes, André Lobo, Marta Catarina Almeida, João G. Almeida, Helena Gonçalves, Marco Oliveira, João Primo, Ricardo Fontes-Carvalho

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

Introduction: Atrial fibrillation (AF) and heart failure with preserved ejection fraction (HFpEF) frequently coexist. However, HFpEF in AF patients is a diagnostic challenge because symptoms may often be misattributed to AF rather than HFpEF. Hemodynamic assessments using echocardiography can provide objective measurements of diastolic function and guide the management of HFpEF. This study aimed to evaluate the prevalence of diastolic dysfunction and its impact on quality of life (QoL) in AF patients undergoing catheter ablation.
Methods: Patients with AF who underwent ablation were prospectively followed using a hybrid follow-up program, including scheduled visits and remote monitoring through a digital health platform. Transthoracic echocardiography with assessment of diastolic function was performed the day following ablation, in sinus rhythm. Moderate-to-severe diastolic dysfunction (msDD) was defined by the presence of at least two of the following parameters: 1) medial e' < 7; 2) E/e' > 15; 3) tricuspid regurgitation

velocity > 2.8 m/s; and 4) left atrium volume index (LAVI) > 34 mL/m². QoL was assessed using the patient-reported Atrial Fibrillation Effect on Quality-of-Life (AFEQT) summary score. The primary outcome was the relative change in AFEQT from baseline at 12 months after ablation.
Results: 331 patients (32% female, median age 59 years) were followed for a median time of 1.7 years (IQR 1.1-2.4 years). At baseline, 65% of patients met the criteria for msDD. Patients with msDD were older (62 years vs. 56 years, $p < 0.001$) and were more likely to have persistent AF, dyslipidemia, and hypertension. Baseline QoL scores did not significantly differ between groups (50 ± 17 for msDD vs. 52 ± 18 for controls). However, at 12 months post-ablation, patients without msDD had significantly higher AFEQT scores (73 ± 16 for msDD vs. 79 ± 17 for controls), with a clinically relevant mean improvement of 6 points (95%CI 2-10, *p*-value for interaction < 0.001). No significant differences in AF recurrence rates were found between groups.
Conclusions: Most patients undergoing AF ablation have signs of diastolic dysfunction on echocardiography. Although AF ablation improved QoL in this cohort, patients with msDD tend to experience some residual impairment, even without a significant increase in AF recurrence. The coexistence of diastolic dysfunction and AF increases the likelihood of HFpEF, which may be responsible for the persistence of symptoms previously ascribed to HF. These findings highlight the importance of comprehensive evaluation and management of diastolic dysfunction in this population.

PO 356. REDEFINING SUCCESS IN ATRIAL FIBRILLATION - EFFICACY OF REDO ABLATION PROCEDURE AND IMPORTANCE OF LEFT ATRIAL VOLUME

Daniel Inácio Cazeiro, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Céu Barreiros, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: In patients with recurrent atrial fibrillation (AF) after pulmonary vein isolation (PVI), repeat ablation can reduce symptoms and prevent disease progression. However, its long-term efficacy varies and is influenced by patient and AF-related factors.
Objectives: To analyze the efficacy of AF redo ablation and identify predictors of recurrence.
Methods: Single-center, retrospective study of patients (pts) submitted to AF redo ablation from 2015 to June 2024. The ablation strategy involved PVI with point-by-point radiofrequency in cases of PV reconnection. Complementary ablation strategies were performed, at the operator's discretion, when extensive left atrial (LA) substrate was identified, including linear lesion deployment or scar homogenization. Ablation of non-PV triggers was also performed when appropriate. Cox regression uni- and multivariate analyses were used to identify risk factors for AF recurrence after the redo procedure.
Results: A total of 231 pts were included (mean age 62 years, 70% male, 57% paroxysmal AF) with a median follow-up of 3.9 years. Most pts (86%) had no evidence of structural heart disease. Median indexed LA volume was 38 mL/m², with moderate to severe dilation (> 42 mL/m²) present in 32% of pts. Previous PVI had been performed with RF, PVAC, or cryoablation in 41%, 26%, and 33% of pts, respectively. During the redo procedure, substrate mapping depicted reconduction of ≥ 1 PV in 85% of pts; additional low-voltage areas and non-PV triggers were identified in 35% and 5%, respectively. The AF recurrence rates at 1 and 3 years after the redo procedure were 20% and 40%. These pts had a significantly higher median LA volume (40 vs. 34 mL/m², p = 0.003). LA dilation was the only independent predictor of recurrence after redo, with the effect being more pronounced in patients with volume > 42 mL/m² (HR 2.814, 95%CI 1.221-6.486, p = 0.015). Interestingly, pts with persistent AF, compared to paroxysmal AF, experienced a shorter time to recurrence, but this was not statistically significant; redo was efficacious in this subgroup, with recurrence rates at 1 and 3 years of 27% and 47%, respectively.
Conclusions: AF redo ablation demonstrated a high success rate, with 80% of pts maintaining sinus rhythm at 1 year. These results underscore the pivotal role of this procedure in effective rhythm control of AF, regardless of its duration. LA dilation is an independent predictor of recurrence and may help identify pts who are more likely to benefit from redo ablation.

PO 357. A SIMPLIFIED PREDICTIVE SCORE FOR ATRIAL FIBRILLATION RECURRENCE AFTER ELECTRICAL CARDIOVERSION USING ELECTROCARDIOGRAPHIC PARAMETERS: THE RECAF-SCORE

João Gouveia Fiuza, Mariana Duarte Almeida, Gonçalo RM Ferreira, Francisco Rodrigues Santos, Oliver Kungel, Vanda Devesa Neto, Inês Pires, Nuno Craveiro, Júlio Gil Pereira, António Costa

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Introduction: Atrial fibrillation (AF) is the most common supraventricular arrhythmia and is linked to significant morbidity. Despite its role as a rhythm

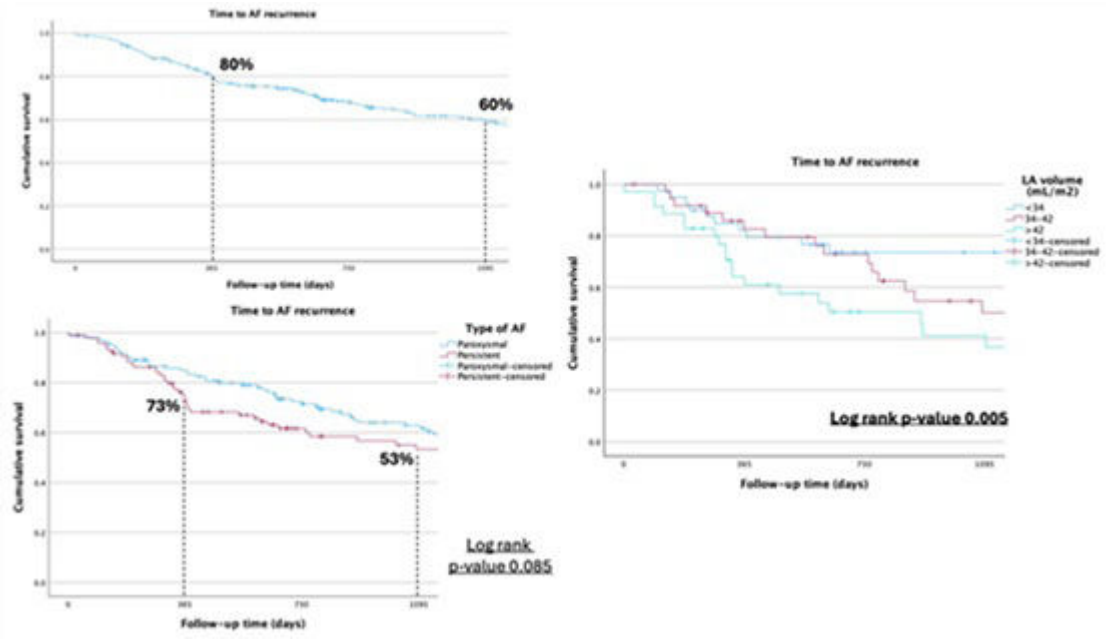
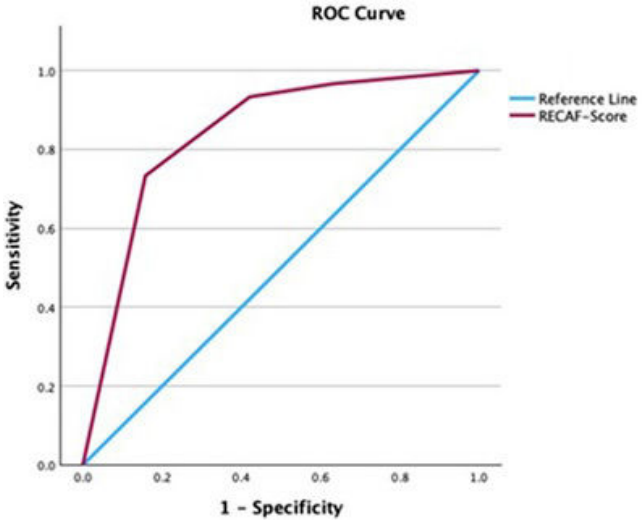


Figure PO 356

control strategy, electrical cardioversion (ECV) is associated with high recurrence rates. Identifying patients at high risk of AF recurrence is crucial for targeted follow-up and improved outcomes. Electrocardiographic (ECG) parameters are simple, reproducible and offer potential for risk prediction.
Objectives: To develop a simplified predictive score for identifying patients at high risk of AF recurrence within 12 months (12M).
Methods: A single-center retrospective study was performed including 49 patients admitted for ECV in AF. Key ECG parameters (heart rate, PR interval, maximum and minimum P wave duration, P wave dispersion, and P wave morphology) were analyzed after successful ECV. Chi-square and Mann-Whitney U were used for comparison between groups. The RECAF-Score (Recurrence after Electrical Cardioversion in AF Score) formula was derived by assigning weights to the predictors based on their relative contributions in the multivariate analysis, scaling them to balance their ranges: 1 point for PR maximum duration greater than 175 ms, 2 points for P wave maximum duration greater than 120 ms and 1 point for P wave dispersion greater than 40 ms. Internal validation was conducted using receiver operating characteristic (ROC) curve analysis to assess the score's predictive value.



Results: Mean age was 62 ± 8 years; 67.3% were men. At 12M, 30 patients (61.2%) had AF recurrence. At 12M, P wave maximum duration greater than 120 ms ($p < 0.01$), PR interval greater than 175 ms ($p < 0.01$) and P wave dispersion greater than 40 ms ($p < 0.01$) were associated with AF recurrence. A predictive score for AF recurrence at 12 months was developed using logistic regression analysis. Despite the individual predictors being non-significant in logistic regression, their combined effect demonstrated acceptable model performance. ROC analysis was performed and revealed that RECAF-Score, achieved an area under the curve of 0.815 ($p < 0.001$). The cut-off was 2.5, achieving a sensitivity of 93.3% and specificity of 57.9%. Using this threshold, patients were classified as high or low risk for AF recurrence. Crosstabulation of the dichotomized score demonstrated a significant association with AF recurrence (93.3 vs. 6.7%, $\chi^2 = 15.662$, $p < 0.001$).
Conclusions: The RECAF-Score demonstrated good discrimination for AF recurrence at 12M. The performance highlights the score's ability to discriminate between patients at high and low risk of AF recurrence. These findings suggest the score's potential utility, although further validation in larger, independent cohorts is warranted, given the above-mentioned caveats.

PO 358. AF RE-ABLATION: A COMPARATIVE ANALYSIS OF THE EFFICACY OF INITIAL PVI PROCEDURES

João Reis Sabido, Catarina Gregório, Daniel Inácio Cazeiro, Ana Abrantes, Ana Bernardes, Joana Brito, Afonso Nunes Ferreira, Gustavo Lima da Silva, Luís Carpinteiro, Nuno Cortez-Dias, Fausto J. Pinto, João de Sousa

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Introduction: Various ablation modalities have been explored to perform pulmonary vein isolation (PVI) in patients with atrial fibrillation (AF). Studying the patterns of pulmonary vein (PV) reconnection in redo procedures can provide insights into the lesion durability of these modalities, potentially leading to technical advancements.
Objectives: To compare the effectiveness of various ablation modalities for PVI by assessing the occurrence of PV reconnection in redo procedures.
Methods: Single-center, retrospective study of patients who underwent AF redo ablation from 2015 to November 2024. Redo procedure mapping was performed with high-density electroanatomic systems (Carto, Ensite, Rhythmia) to search for PV reconnection and the presence of low-voltage areas in various left atrial walls.
Results: A total of 264 patients were included (70% male, 62 ± 11 years old, 55.3% paroxysmal AF). The first ablation procedure was performed with Point-by-Point radiofrequency (RF) in 100 pts (38%), PVAC in 64 (25%), cryoablation in 96 (37%), pulsed field ablation in 3 pts, and surgical ablation in one. Substrate mapping revealed complete PV isolation in only 13% of the pts, with reconduction of at least one PV in the remaining 87%. Compared to other techniques, cryoablation was more effective in achieving sustained PVI, showing higher rates of persistent PVI of 2 or 3 PVs ($p = 0.008$) (Figure 1), although there was no difference in the pts that had all the PVs isolated (Figure 2). Additionally, cryoablation was associated with a higher percentage of persistent left superior, left inferior, and right inferior PV isolation ($p = 0.038$, 0.001, and 0.003, respectively), compared to PVAC and RF, with no differences regarding the left pulmonary trunk (Figure 1). In a

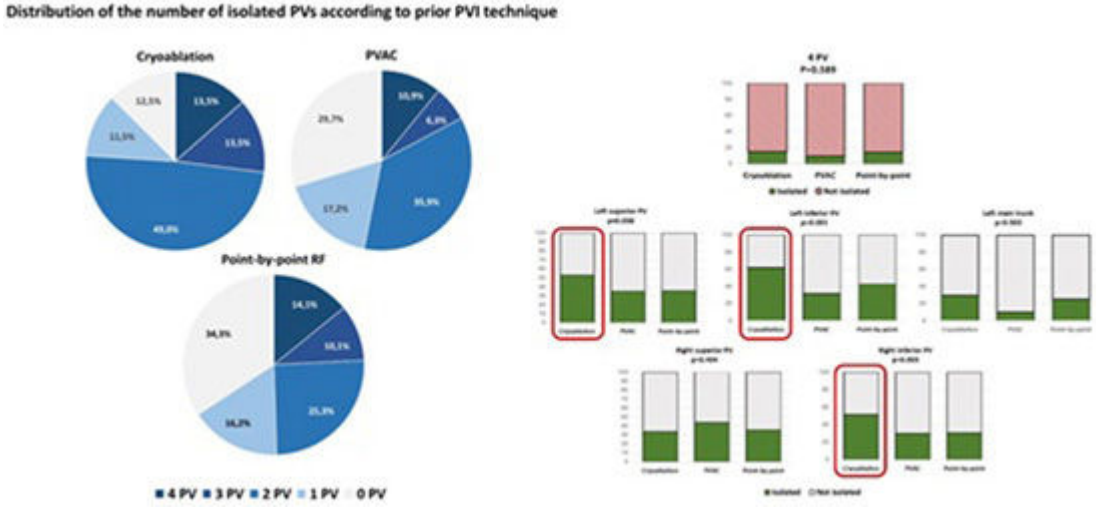

Figure PO 358

detailed analysis of each ablation technique, it was observed that with cryoablation, the right superior PV was the least likely vein to be isolated during the redo procedure (p = 0.001), whereas no pattern was observed with other modalities. Low-voltage areas outside of the PV antrum were documented in 31% of the pts, more frequently in the anterior wall (64%). Of these, substrate modification was performed in 83%. Furthermore, non-PV triggers were mapped in 13 pts (9 in the left atrium and 4 in the right atrium).

Conclusions: Most of the patients who underwent AF redo procedures showed PV reconnection, highlighting the need for a more efficient technique for first PVI. When compared to other ablation modalities, cryoablation showed higher rates of durable PV isolation.

PO 359. GENDER DIFFERENCES IN ATRIAL FIBRILLATION PATIENTS UNDERGOING CATHETER ABLATION

Sofia Nogueira Fernandes[1], Sofia Lobato Afonso[2], Mónica Dias[1], Filipe Vilela[1], Carla Ferreira[1], Inês Conde[1], Jorge Marques[1], Vítor Hugo Pereira[1], Sérgia Rocha[1]

[1]ULS Braga. [2]Universidade do Minho.

Introduction: Previous studies evaluating sex-specific outcomes in patients undergoing catheter ablations for atrial fibrillation (AF) are controversial. Delays in diagnosis, clinic visits, and ablation can impact patient outcomes.

Table 1. Characteristics of Patients.

	Men (n=87)	Women (n=45)	Total (n=132)	p value
Age, years, mean ± SD	57.9 ± 10.1	59.98 ± 8.3	58.6+9.5	0.254
BMI, kg/m2, mean ± SD	28.0 ±3.9	29.6±4.9	28.4+4.4	0.167
Type of AF				**0,022**
Paroxysmal AF	48 (55.2%)	34 (75.6%)	82 (62.1%)	
Persistent AF	39 (44.8%)	11 (24.4%)	50 (37.9%)	
LA diameter, mm, mean + SD	42.5 + 6.4	42.9+5.5	42.7+6.1	0.741
Indexed LA diameter, mm/m2, mean + SD	21.4+3.2	23.1+3.3	22.0+3.3	**0.005**
LA area, cm2, mean + SD	24.5+5.4	23.2+4.2	24.1+5.1	0.215
LVEF, qualitative, n (%)				0.505
Normal (> 50%)	77 (88.5%)	43 (95.6%)	120 (90.0%)	
Slightly depressed (41%–49%)	7 (8.0%)	1 (2.2%)	8 (6.1%)	
Moderately (31%–40%)	2 (2.3%)	1 (2.2%)	3 (2.3%)	
Severely (< 30%)	1 (1.1%)	0 (0.0%)	1 (0.8%)	
Hypertension, n (%)	64 (73.6%)	29 (64.4%)	93 (70.5%)	0.276
Diabetes mellitus, n (%)	11 (12.6%)	2 (4.4%)	13 (9.8%)	0.134
Dyslipidaemia, n (%)	52 (59.8%)	22 (48.9%)	74 (56.1%)	0.232
Smoking history, n (%)				<0.01
Non-smoker	52 (59.8%)	45 (100%)		
Previous smoker	26 (29.9%)	0 (0.0%)		
Current smoker	9 (10.3%)	0 (0.0%)		
Left ventricle hypertrophy, n (%)	34 (39.1%)	10 (22.7%)	44(33.6%)	0.061
Sleep apnoea, n (%)	27(31.0%)	14 (31.1%)	41 (31.1%)	0.993
Congestive heart failure, n (%)	11 (12.6%)	1 (2.2%)	12 (9.1%)	**0.048**
Coronary artery disease, n (%)	7 (8.0%)	1 (2.2%)	8 (6.1%)	0.184
Previous Transient Ischaemic Atack/Stroke, n (%)	7 (8.0%)	5 (11.1%)	12 (9.1%)	0.561
CHA2DS2-VA score, n (%)	-	-	-	0.578
0	15 (17.2%)	11 (24.4%)	26 (19.7%)	
1	36 (41.4%)	21 (46.7%)	57 (43.2%)	
2	23(26.4%)	9 (20.0%	32 (24.2%)	
3	11 (12.6%)	4 (8.9%)	15 (11.4%)	
4	2 (2.3%)	0 (0.0%)	2 (1.5%)	
Anti arrhythmic drugs use, n (%)	66 (75.9%)	33 (73.3%)	99 (75,0%)	0.750
Type of procedure, n (%)				0,517
Radiofrequency	32 (36.8%)	14 (31.1%)	46 (34.8%)	
Single shot Cryoablation	55 (63.2%)	31 (68.9%)	86 (65.2%)	
Recurrence at 12 months follow-up, n (%)				
Atrial fibrillation	16 (18.4%)	13 (28.9%)	29 (22.0%)	0.167
Atrial flutter	6 (7.0%)	1 (2.2%)	7 (5.3%)	0.251
Atrial tachycardia	0 (0.0%)	1 (2.2%)	1 (0.8%)	0.163

n: number of patients; SD: Standard deviation

Table 2. Time intervals between key stages in the management.

	Men (n=87)	Women (n=45)	p value
Time from first AF diagnosis to first cardiology clinic visit, number of days, median (IQR)	146 (IQR 576)	325 (IQR 495)	0,028
Time from first AF diagnosis to catheter ablation, number of days, median (IQR)	1250 (IQR 1646)	1558 (IQR 1848)	0,148
Time from first cardiology clinic visit to catheter ablation, number of days, median (IQR)	984 (IQR 1234)	965 (IQR 1502)	0,476
Time from AAD initiation to catheter ablation, number of days, median (IQR)	749 (IQR 1131)	774 (IQR 1183)	0,482

IQR: interquartile range

Figure PO 359

This study aimed to compare the time intervals between key stages in the management of AF — diagnosis, clinic visit, catheter ablation, and initiation of antiarrhythmic drugs (AAD) — between men and women.
Methods: We retrospectively analysed data from 132 patients who underwent catheter ablation for AF, between January 2018 and December 2021. Clinical characteristics, procedural details, time intervals between key stages in the management, and outcomes were compared between genders.
Results: Patients undergoing AF ablation were mainly men (66%). Mean age was 58.6 ± 9.5 years. Women were more likely to present with paroxysmal AF (75.6 vs. 55.2%, p = 0.022). Men showed higher rates of congestive heart failure (12.6 vs. 2.2%, p = 0.048). No significant differences were observed in CHA2DS2-VA scores and antiarrhythmic drug use. At 12 months, although women had more arrhythmia recurrence, the difference was not statistically significant (28.9% women vs. 18.4% men, p = 0.167). Women tend to have a longer time between the initial AF diagnosis and their first cardiology clinic visit, with a median of 325 days compared to 146 days for men (p = 0.028), suggesting that gender may influence the time to access specialized care. Although women have a longer time from initial AF diagnosis to catheter ablation (median 1,558 vs. 1,250 days), the difference is not statistically significant (p = 0.148). The time from the first cardiology clinic visit to catheter ablation is similar between men and women, suggesting that once cardiology care begins, referral times for ablation do not differ substantially between genders.
Conclusions: In this cohort study of patients, women experience a greater delay in accessing cardiology care after an AF diagnosis. This may reflect differences in clinical presentation between genders or barriers to access. Timely specialized care could be a critical point for interventions aimed at promoting the best clinical outcomes in AF management, insuring equity between genders. Further research is needed to better understand the implications of these differences on treatment outcomes.

Domingo, 13 Abril de 2025 | 09:30-11:00

Área de Posters-écran 2 | Sessão de Posters 54 - Intervenção mitral percutânea e cirurgia cardíaca

PO 360. COMPARISON OF REAL-WORLD MITRAL TEER OUTCOMES WITH COAPT AND MITRA-FR: A SINGLE-CENTER ANALYSIS

Marta Leite, Fábio Nunes, Inês Neves, André Lobo, Diogo Ferreira, Pedro Teixeira, Gustavo Pires-Morais, Bruno Melica, José Ribeiro, Pedro Braga, Ricardo Fontes-Carvalho

ULSGE.

Introduction: Heart failure patients with severe mitral regurgitation present complex management challenges. Percutaneous edge-to-edge mitral valve repair (Mitral TEER) has become an important therapeutic option for these patients. Completing our 100th Mitral TEER procedure marks a significant milestone in optimizing care for this population at our center.
Objectives: This study aims to profile heart failure patients with severe mitral regurgitation treated with Mitral TEER at our institution. By analyzing demographic, clinical, and echocardiographic characteristics, we compare our findings with the COAPT and MITRA-FR trials to explore shared patterns and distinct differences.
Methods: We performed a retrospective analysis of 100 heart failure patients who underwent Mitral TEER between 2014 and 2020 at our center. Data were collected on demographics, comorbidities, and echocardiographic parameters. Comparative analyses were conducted against relevant metrics reported in the COAPT and MITRA-FR trials.
Results: Among the study cohort, 58% were male and 42% female, with a median age of 76.5 years. Frequent comorbidities included arterial hypertension (69%), diabetes mellitus (36%), and atrial fibrillation/flutter (71%). Severe mitral regurgitation (Grade IV) was observed in 72%, predominantly of functional etiology (70%), with ischemic mitral regurgitation representing 43%. Most patients were in NYHA Class II (59%). Comparatively, the left ventricle end-diastolic volume index (LVEDVi) in our population (120 mL/m^2) was lower than in the MITRA-FR trial (135 mL/m^2) but exceeded COAPT values (101 mL/m^2). The effective regurgitant orifice area (EROA) was similar to COAPT (42 mm^2 vs. 41 mm^2) and larger than MITRA-FR (31 mm^2). Additional findings included a median left ventricular ejection fraction of 40%, tricuspid annular plane systolic excursion (TAPSE) of 18.0 mm, and indexed left atrial volume of 57.0 mL/m^2. Survival rates at 12 and 36 months were 89% and 47%, respectively.
Conclusions: This study characterizes the clinical and echocardiographic profiles of patients undergoing Mitral TEER at our center and compares outcomes with the COAPT and MITRA-FR trials. Our population aligns closely with COAPT in terms of EROA criteria but demonstrates a larger left ventricular chamber size. These findings provide a meaningful contribution to understanding Mitral TEER outcomes in diverse clinical settings.

PO 361. TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR IN SECONDARY MITRAL REGURGITATION: A META-ANALYSIS OF MORTALITY OUTCOMES

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

Unidade Local de Saúde do Alto Ave.

Secondary mitral regurgitation (SMR) in heart failure (HF) worsens outcomes and increases mortality. Transcatheter edge-to-edge mitral valve repair (MTEER) has emerged as a less invasive approach for patients with

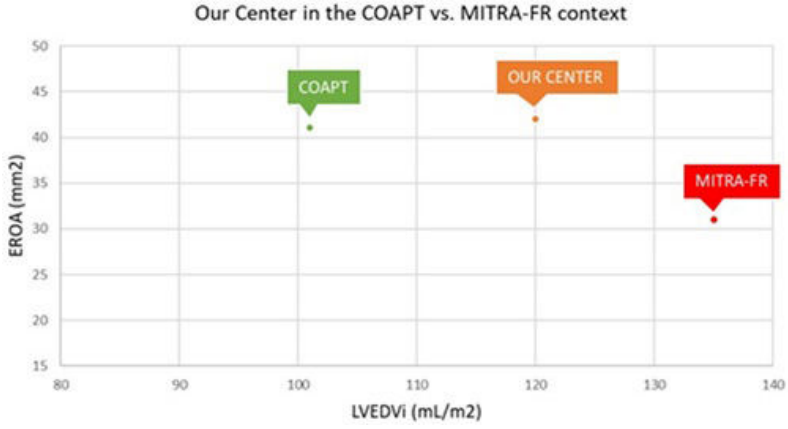

Figure PO 360

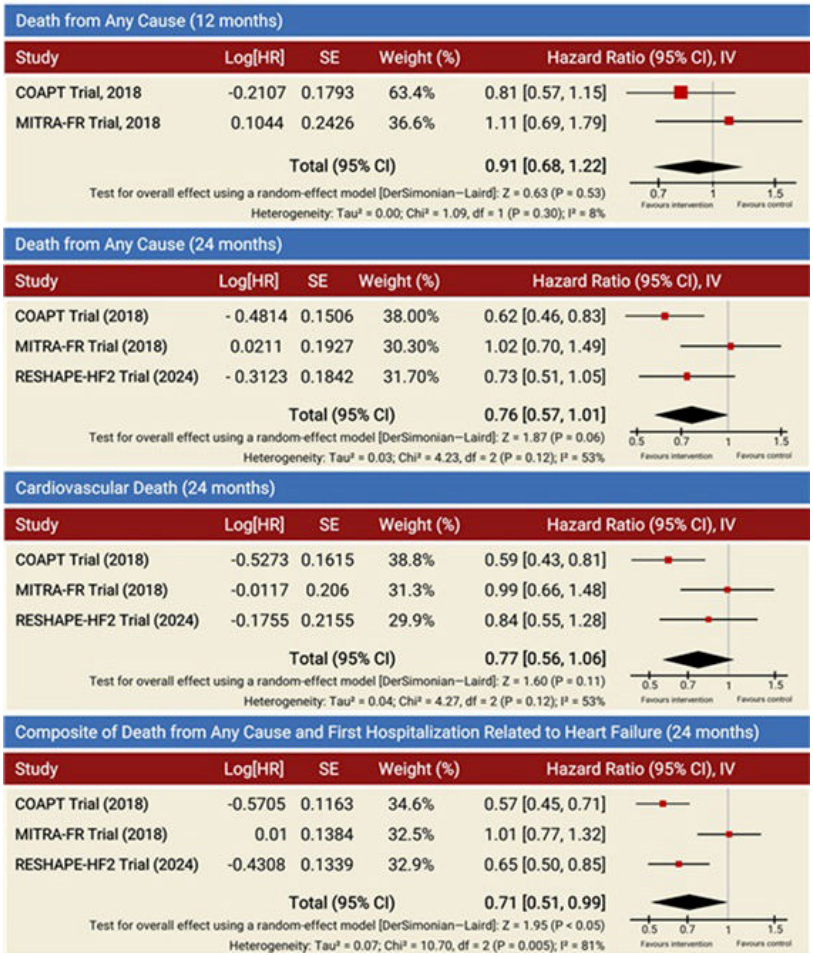

Figure PO 361

prohibitive surgical risk. This meta-analysis aims to assess the effects on mortality of MTEER plus guideline-directed medical therapy (GDMT) versus GDMT alone. PubMed, Cochrane, Scopus and Web of Science were searched (September, 2024) to identify Randomized Controlled Trials (RCT) comparing MTEER plus GDMT versus GDMT alone in adults with HF and SMR reporting on mortality. Data were pooled using an inverse variance random-effects model with mortality reported as hazard ratio (HR) with 95% confidence intervals (CI). Of the 1558 entries, three RCTs (COAPT, MITRA-FR, and RESHAPE-HF2) met the inclusion criteria, totalling 1423 patients. At 12 months, all-cause mortality showed no significant difference (HR 0.91 CI 0.68-1.22). At 24 months, pooled estimate of all-cause mortality showed a borderline non-significant difference favouring MTEER (HR 0.76 CI 0.57-1.01). This result was driven by COAPT, which demonstrated a significant benefit with MTEER, and RESHAPE-HF2, which showed a non-significant trend. For cardiovascular (CV) death, only COAPT demonstrated a significant advantage with MTEER. When pooling all trials, a borderline non-significant difference favouring MTEER was observed (HR 0.77, CI 0.56-1.06). When analyzing the composite endpoint of all-cause mortality and first HF hospitalization at 24 months, both COAPT and RESHAPE-HF2 reported significant benefits from M-TEER over medical therapy alone. This finding was consistent in the pooled meta-analysis of the three trials (HR 0.71 CI 0.51-0.99). The RESHAPE-HF2 trial provides new insights into the efficacy of MTEER in SMR, complementing the findings of COAPT while contrasting with MITRA-FR. COAPT showed significant reductions in mortality and CV death, whereas RESHAPE-HF2 revealed a non-significant trend toward reduced all-cause and CV mortality, positioning MITRA-FR as an outlier. Differences in MR severity, GDMT adherence, and ventricular remodeling across trials may explain these variations. These findings support MTEER as a beneficial therapy to improve survival in well-selected patients, noting that trials excluded those with right ventricular dysfunction or concomitant valvular disease.

PO 362. ISOLATED TRICUSPID VALVE SURGERY PATIENT PROFILE, RISK SCORE AND OUTCOME ASSOCIATION: SINGLE CENTER EXPERIENCE

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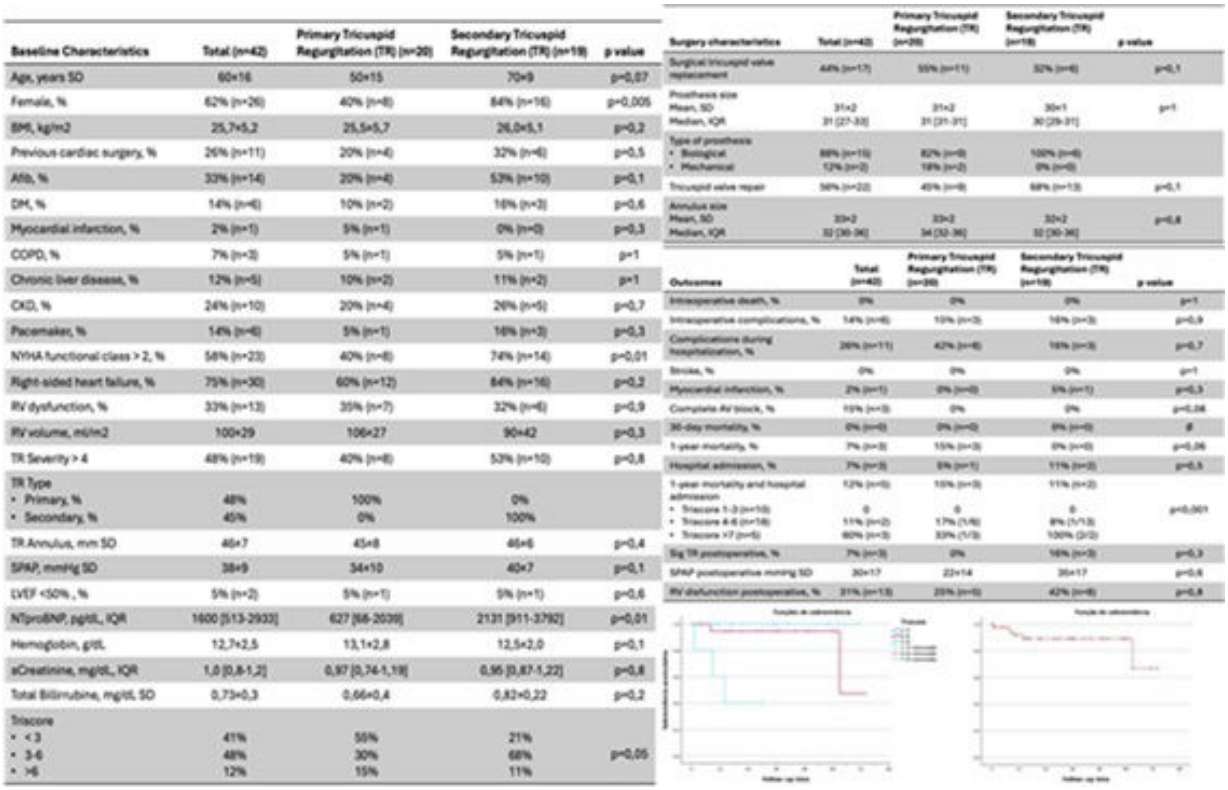
Introduction: The tricuspid valve disease has recently earned awareness due to the significant morbidity and mortality presented by recent evidence if left untreated. This study examines isolated tricuspid valve surgery's clinical characteristics, risk factors, and association with short and long-term outcomes.
Methods: This retrospective cohort study analyzed 42 patients undergoing isolated tricuspid valve surgery from 2018 to 2024 at a single tertiary center. Patients were grouped based on primary or secondary tricuspid regurgitation (TR). Baseline clinical characteristics, surgical details, and outcomes were assessed, with further stratification by Triscore risk.
Results: The study included 42 patients, with a mean age of 60 ± 16 years, and 62% female. Primary TR was present in 48% (n = 20), and secondary TR in 45% (n = 19). A history of prior cardiac surgery was noted in 26%. Secondary TR patients were not significantly older (70 ± 9 vs. 50 ± 15 years, p = 0.07) and were predominantly female (84 vs. 40%, p = 0.005). They also presented with worse functional status (NYHA > 2 in 74 vs. 40%, p = 0.01), higher NTproBNP levels (2131 vs. 627, p = 0.01), and elevated Triscore risk (> 3 in 79 vs. 45%, p = 0.05). There were no other differences in comorbidities prevalence between groups (Table 1). Surgery consisted of tricuspid valve repair in 56% and replacement in 44%, with bioprostheses used in 88% of



Baseline Characteristics	Total (n=42)	Primary Tricuspid Regurgitation (TR) (n=20)	Secondary Tricuspid Regurgitation (TR) (n=19)	p value
Age, years SD	60±16	50±15	70±9	p=0,07
Female, %	62% (n=26)	40% (n=8)	84% (n=16)	p=0,005
BMI, kg/m2	25,7±5,2	25,5±5,7	26,0±5,1	p=0,2
Previous cardiac surgery, %	26% (n=11)	20% (n=4)	32% (n=6)	p=0,5
Afib, %	33% (n=14)	20% (n=4)	53% (n=10)	p=0,1
DM, %	14% (n=6)	10% (n=2)	16% (n=3)	p=0,6
Myocardial infarction, %	2% (n=1)	5% (n=1)	0% (n=0)	p=0,3
COPD, %	7% (n=3)	5% (n=1)	5% (n=1)	p=1
Chronic liver disease, %	12% (n=5)	10% (n=2)	11% (n=2)	p=1
CKD, %	24% (n=10)	20% (n=4)	26% (n=5)	p=0,7
Pacemaker, %	14% (n=6)	5% (n=1)	16% (n=3)	p=0,3
NYHA functional class > 2, %	58% (n=23)	40% (n=8)	74% (n=14)	p=0,01
Right-sided heart failure, %	75% (n=30)	60% (n=12)	84% (n=16)	p=0,2
RV dysfunction, %	33% (n=13)	35% (n=7)	32% (n=6)	p=0,9
RV volume, ml/m2	100±29	106±27	90±42	p=0,3
TR Severity > 4	48% (n=19)	40% (n=8)	53% (n=10)	p=0,8
TR Type • Primary, % • Secondary, %	 48% 45%	 100% 0%	 0% 100%	
TR Annulus, mm SD	46±7	45±8	46±6	p=0,4
SPAP, mmHg SD	38±9	34±10	40±7	p=0,1
LVEF <50% , %	5% (n=2)	5% (n=1)	5% (n=1)	p=0,6
NTproBNP, pg/dL, IQR	1600 [513-2933]	627 [66-2039]	2131 [911-3792]	p=0,01
Hemoglobin, g/dL	12,7±2,5	13,1±2,8	12,5±2,0	p=0,1
sCreatinine, mg/dL, IQR	1,0 [0,8-1,2]	0,97 [0,74-1,19]	0,95 [0,87-1,22]	p=0,8
Total Bilirrubine, mg/dL SD	0,73±0,3	0,66±0,4	0,82±0,22	p=0,2
Triscore • < 3 • 3-6 • >6	 41% 48% 12%	 55% 30% 15%	 21% 68% 11%	p=0,05

Surgery characteristics	Total (n=42)	Primary Tricuspid Regurgitation (TR) (n=20)	Secondary Tricuspid Regurgitation (TR) (n=19)	p value
Surgical tricuspid valve replacement	44% (n=17)	55% (n=11)	32% (n=6)	p=0,1
Prosthesis size Mean, SD Median, IQR	 31±2 31 [27-33]	 31±2 31 [31-31]	 30±1 30 [29-31]	p=1
Type of prosthesis • Biological • Mechanical	 88% (n=15) 12% (n=2)	 82% (n=9) 18% (n=2)	 100% (n=6) 0% (n=0)	
Tricuspid valve repair	58% (n=22)	45% (n=9)	68% (n=13)	p=0,1
Annulus size Mean, SD Median, IQR	 33±2 32 [30-36]	 33±2 34 [32-36]	 32±2 32 [30-36]	p=0,4

Outcomes	Total (n=42)	Primary Tricuspid Regurgitation (TR) (n=20)	Secondary Tricuspid Regurgitation (TR) (n=19)	p value
Intraoperative death, %	0%	0%	0%	p=1
Intraoperative complications, %	14% (n=6)	10% (n=2)	16% (n=3)	p=0,6
Complications during hospitalization, %	26% (n=11)	42% (n=8)	16% (n=3)	p=0,7
Stroke, %	0%	0%	0%	p=1
Myocardial infarction, %	2% (n=1)	0% (n=0)	5% (n=1)	p=0,3
Complete AV block, %	10% (n=3)	0%	0%	p=0,08
30-day mortality, %	0% (n=0)	0% (n=0)	0% (n=0)	#
1-year mortality, %	7% (n=3)	15% (n=3)	0% (n=0)	p=0,06
Hospital admission, %	7% (n=3)	5% (n=1)	11% (n=2)	p=0,5
1-year mortality and hospital admission • Triscore 1-3 (n=10) • Triscore 4-6 (n=18) • Triscore >7 (n=5)	12% (n=5) 0 11% (n=2) 60% (n=3)	10% (n=3) 0 17% (1/6) 33% (1/3)	11% (n=2) 0 8% (1/13) 100% (3/3)	p=0,001
Sig TR postoperative, %	7% (n=3)	0%	16% (n=3)	p=0,3
SPAP postoperative morning SD	30±17	22±14	35±17	p=0,6
RV disfunction postoperative, %	31% (n=13)	25% (n=5)	42% (n=8)	p=0,8

Figure PO 362

replacements. Prosthesis size averaged 31 ± 2 mm, while annulus size for repairs was 33 ± 2 mm, with no differences between groups. Intraoperative mortality was 0%, and complications occurred in 14% (Table 2). During hospitalization, 26% of patients experienced complications, but the 30-day mortality rate was 0%. Patients with primary TR had non-significant more complications (42 vs. 16%, p = 0.7) and a non-significant higher rate of complete AV block (15 vs. 0%, p = 0.08). One-year mortality and readmission rates were both 7% (Table 3). Triscore risk stratification revealed a clear association with outcomes. Patients with a Triscore > 7 had a one-year mortality and hospitalization rate of 60%, compared to 11% for scores between 3-6 and 0% for scores < 3 (p < 0.001).

Conclusions: This study highlights the increasing focus on tricuspid valve disease and the utility of the Triscore for risk stratification. Low-risk patients (Triscore < 3) had excellent outcomes, with no mortality or hospitalizations in one year, demonstrating the safety and efficacy of isolated tricuspid valve surgery. On the other hand, high-risk patients (Triscore > 7) had significantly worse outcomes, emphasizing the importance of careful patient selection and management. Early intervention and tailored strategies are critical to improving survival and reducing complications in this patient population.

PO 363. PREDICTORS AND OUTCOMES OF PROSTHESIS-PATIENT MISMATCH AFTER TRIFECTA BIOPROSTHETIC AORTIC VALVE REPLACEMENT

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[1]Faculdade de Medicina da Universidade do Porto. [2]Centro Hospitalar Universitário de São João.

Introduction: Severe prothesis-patient mismatch (PPM) has been associated with higher risk of late mortality and incidence of structural valve deterioration (SVD). However, data on this matter is sparse and more clarifying results are need.

Aims: To assess the long-term mortality and reintervention due to SVD related to PPM after surgical aortic valve replacement (AVR) with Trifecta bioprosthesis (TF).

Methods: Single-center, longitudinal study, consecutive patients who underwent surgical AVR with TF between July 2011 and December 2019 with available data from post-operative transthoracic echocardiogram (TTE) were enrolled. Moderate PPM was characterized by an aortic valve effective orifice area indexed (EOAi) between 0.84-0.65 cm^2/m^2, while severe PPM was defined by an EOAi < 0.65 cm^2/m^2 based on the TTE performed (median of 4 months post-operatively). Multivariable logistic regression analysis was employed to assess the covariates influencing PPM. Time-to-event outcomes were studied using Kaplan-Meier Curves, Log-Rank test and multivariable Cox Regression. Median follow-up was 6 years, maximum 12 years.

Results: We included 974 patients, 54% being men and 8% exhibiting PPM: 7% moderate and 1% severe. The cohort was divided into PPM group (joining moderate and severe cases, n = 80) and Free-PPM group (n = 894). Most of the cardiovascular risk factors were comparable between groups, except for diabetes mellitus which was higher in the PPM group (50 vs. 33%, p = 0.003). The mean European System for Cardiac Operative Risk Evaluation (EuroSCORE II) was similar between groups (PPM 3.4 ± 3.1 vs. Free-PPM 3.8 ± 4.6%, p = 0.859) and the body surface area (BSA) was higher in the PPM group (1.82 ± 0.18 vs. 1.76 ± 0.17 m^2, p = 0.007)..Multivariable logistic regression identified diabetes mellitus (OR [95%CI]: 2.00 [1.25-3.18], p = 0.003) and women (OR [95%CI]: 1.75 [1.06-2.86], p = 0.027) as significant predictive factors for PPM. At 1-, 5- and 10- years of follow-up, cumulative survival for Free-PPM vs. PPM were 98 vs. 96%, 80 vs. 74% and 59 vs. 40%, respectively, Log-Rank test p = 0.044. Multivariable adjustment showed that PPM patients had a higher risk of all-causes mortality (HR [95%CI]: 1.48 [1.03-2.14], p = 0.035), adjusted for EuroSCORE II. Reintervention due to SVD was similar between groups (HR [95%CI]: 0.49 [0.21-1.17], p = 0.11).

Conclusions: PPM was linked to poorer survival outcomes compared to patients without PPM. Women and individuals with diabetes mellitus appear to face a higher risk of experiencing PPM. These results underscore the significance of conducting a thorough pre-operative evaluation to select appropriate prosthesis sizes for each patient.

PO 364. UNROOFING SURGERY FOR ANOMALOUS AORTIC ORIGIN OF THE RIGHT CORONARY ARTERY: A SINGLE CENTRE EXPERIENCE

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

Introduction: Anomalous aortic origin of the coronary artery (AAOCA) from the opposite sinus is a rare congenital coronary anomaly, which may involve the left or right coronary artery (RCA). The incidence of anomalous aortic origin of the RCA (ARCA) is around 0.05% to 0.1%. Clinical presentation can vary from asymptomatic to sudden cardiac death. The aim of this study is to assess the safety and efficacy of ARCA surgery in one tertiary hospital.
Methods: A retrospective observational study including all patients who underwent surgery for ARCA from January 2016 to December 2024 was performed. All cases were ARCA from the left coronary sinus. A total of 26 patients were submitted to surgery. Concomitant procedures were performed in 8 cases. Surgery was performed by median sternotomy with conventional cardiopulmonary bypass, aortic cross clamping and cardioplegic arrest. Through a transverse aortotomy the anomalous intramural portion of the RCA was accessed. A probe was placed inside the intramural course of the RCA and the intra-aortic roof of the artery was sharply opened throughout the intramural pathway from the origin to take-off in right coronary sinus. Edges were tacked down with fine sutures. When the intramural course was behind the right-to-left commissure, the procedure also included detaching and resuspension of the commissure.
Results: The mean population age was 40 (8 to 76) years, and 69% were males. Most patients were symptomatic (19 cases), with acute and chronic coronary syndrome, fatigue/dyspnoea and syncope. Two patients presented with cardiac arrest. Two patients were diagnosed intra-operatively. Mean CPB time was 69 (± 47) minutes and mean aortic cross-clamping time was 49 (± 31) minutes. One patient had a postoperative myocardial infarction with a subocclusion of the proximal RCA in the first day post-op. The patient underwent percutaneous coronary intervention with stenting of the RCA and was discharged in day 8 post-op, with no further complications. There were no other postoperative complications or in-hospital mortality. Mean ICU stay was below 2 days, and all were discharged home within 9 days after surgery (3 to 9 days). After a mean follow-up time of 2 years (6 days to 8 years), all patients were alive. One patient had a pacemaker implanted 2 months after surgery due to second degree AV block (Mobitz II), which was not present immediately after surgery. There were no other events during follow up.
Conclusions: ARCA is a rare but potentially fatal condition. Patients with malignant course or evidence of ischemia should undergo surgical treatment. Unroofing is a simple, safe and effective procedure for ARCA.

PO 365. INFLUENCE OF GENDER ON LIFE EXPECTANCY AFTER CORONARY ARTERY BYPASS SURGERY

Inês Sousa[1], Sílvia Diaz[1], Rui Cerqueira[1], Ana Filipa Ferreira[1], Mario Jorge Amorim[2], Paulo Pinho[2], André Lourenço[1], António Barros[1], Adelino Leite-Moreira[1], Francisca Saraiva[1]

[1]Faculdade de Medicina da Universidade do Porto. [2]Centro Hospitalar de S. João, EPE.

Introduction: The need for coronary artery bypass grafting (CABG) surgery is steadily rising in the general population, driven by increasing life expectancy. Women, however, tend to have a poorer prognosis following CABG compared to men.
Objectives: To compare long-term survival in patients submitted to CABG with a sex and aged-matched general population.
Methods: Longitudinal, retrospective, single center study, involving consecutive patients who underwent isolated primary CABG between 2004 and 2014. Exclusion criteria included emergency/salvage surgeries or the use of extracorporeal circulation without aortic clamping. All-cause mortality was assessed in February 2023. Long-term survival was evaluated through survival curve in the CABG cohort and general population. Portuguese life tables were taken from the INE (Instituto Nacional de Estatística), specifically for the study period plus follow-up (2004-2022), to estimate the expected number of deaths, using the age-specific death rate. To construct the survival curve for the reference population, estimate standardized mortality ratio (SMR = observed deaths/expected deaths) and to conduct the 1-sample Log-Rank test, comparing expected with observed deaths, we used the software provided by Massachusetts General Hospital Biostatistics Center. The mean follow-up time was 11 years, with a maximum of 19 years.
Results: From 3,978 patients included, 21% were women (W). W were older (mean age 67 ± 9 vs. 63 ± 10 years, $p < 0.001$) and had a higher prevalence of cardiovascular risk factors and severe chronic kidney disease compared to men (M). M more frequently had peripheral arterial disease and smoking habits. Although three-vessel disease was similar between sexes ($p = 0.111$), W were less frequently implanted with ≥ 3 grafts ($p < 0.001$). At 5, 10, and 15 years of follow-up, the cumulative survival rates were 89%, 73%, and 57% for men, and 88%, 68%, and 46% for women, respectively. Comparing with the survival of the Portuguese population, CABG allowed M to equalize the risk of mortality to what was expected (SMR = 1.1; 95%CI: 0.9-1.1), but W showed a higher risk of mortality after CABG than W in the reference population (SMR = 1.6, 95%CI: 1.3-1.8).
Conclusions: This single-center retrospective study demonstrated that CABG offers significant benefit for men, aligning their survival rates with those of the general aged-matched population. However, in women, post-CABG survival rates were lower than expected compared to the aged-matched population suggesting that CABG may be less effective for women.

PO 366. ADDRESSING COMPLICATIONS IN INFECTIVE ENDOCARDITIS: THE CRITICAL ROLE OF SURGICAL INTERVENTION POST-2023 GUIDELINES

Mariana Duarte Almeida, João Gouveia Fiuza, Gonçalo Marques Ferreira, Oliver Correia Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, Nuno Craveiro

ULS Viseu Dão-Lafões.

Introduction: Infective endocarditis (IE) is a severe disease with reported mortality rates ranging from 8% to 40%. Treatment is based on targeted antibiotic therapy and source control, which sometimes requires surgical intervention. The primary indications for surgery include heart failure, uncontrolled infection, and embolization. Performing early surgery is critical to reducing the mortality associated with IE. In fact, recent guidelines recommend urgent surgery (within 3-5 days) when the risk of embolization is high, particularly in cases of large vegetations.
Objectives: This study aimed to evaluate the mortality associated with IE, particularly by identifying IE-related complications and assessing the role of surgical treatment in a center without cardiac surgery.
Methods: Retrospective data were collected over 5 years (December 2018 to December 2023) from hospitalizations due to IE. Demographic data, clinical data, and outcomes were recorded. Mortality at a 6-month follow-up was analyzed. Group-wise comparisons were performed using Chi-square and Independent t-tests.
Results: A total of 88 pts were included, of whom 33.0% were female, with a mean age of 69.6 ± 12.2 years. Native valve IE was diagnosed in 57.5% of pts, prosthetic valve IE in 34.5%, and device-associated IE in 8.0%. The aortic valve was the most affected site (62.5%), followed by the mitral valve (31.3%). The most frequent etiological agents were *Staphylococci* (37.5%), *Streptococci* (22.7%), and *Enterococci* (15.9%). An indication for surgery was identified in 63 pts (87%), with the following complications reported: heart failure (n = 30), including cardiogenic shock (n = 12); local complications (n = 38), with perivalvular abscess being the most common (n = 13); vegetations ≥ 10 mm (n = 19); and cerebral embolization (n = 17). The average hospital stay in our center was 50.2 ± 25.8 days (4-125). Of the included pts, 21 died in our center, and 28 pts were transferred and had surgical intervention. The mean time from diagnosis to surgery was 43.3 ± 27.2 days (2-117). There was higher 6-month mortality among pts with a surgical indication who did not undergo surgery during the hospitalization (n = 17) compared to those who did (n = 2), $p < 0.001$. Among pts who

underwent surgery, no correlation could be established between the time from diagnosis to surgery and mortality.
Conclusions: Early identification of IE-related complications and surgical resolution is essential for better patient outcomes. This study shows a significant mortality difference between pts with surgical indication that underwent surgery comparing with those who did not. Although the guidelines recommend early surgical intervention, this was not consistently observed in our hospital. Further studies are needed to understand the causes of this delay. This study represents an opportunity to review current practices and optimize patient management workflows.

PO 367. IMPACT OF ETIOLOGY, AGE AND LEFT VENTRICULAR EJECTION FRACTION ON 12-MONTH MORTALITY EFFECTS OF TRANSCATHETER EDGE-TO-EDGE REPAIR VS. SURGERY: A META-REGRESSION ANALYSIS

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

Unidade Local de Saúde do Alto Ave.

Introduction: The optimal treatment approach for mitral regurgitation (MR) has recently been debated, particularly concerning outcomes between transcatheter edge-to-edge repair (MTEER) and surgical mitral valve intervention (SMVI). This meta-regression evaluates how the proportion of secondary MR, patient age, and left ventricular ejection fraction (LVEF) influence the 12-month all-cause mortality risk ratio (RR) between MTEER and SMVI.
Methods: A systematic search (October 2024) of PubMed, Cochrane, Scopus, and Web of Science identified randomized control trials (RCT) and propensity-matched observational studies comparing 12-month all-cause mortality in significant MR patients treated with MTEER or SMVI. A mixed-effects meta-regression assessed the influence of secondary MR proportion, age, and LVEF on the 12-month mortality RR.
Results: From 1,482 articles, two RCTs (MATTERHORN and EVEREST II) and three observational studies enrolling a total of 1,787 patients meet inclusion criteria. For a cohort composed only of primary MR cases, the baseline RR of 12-month mortality was estimated at 1.607 [0.622-4.150]. A decrease in RR by a factor of 0.984 [0.889-1.090] was observed per 10% increase in the prevalence of secondary MR. The pooled mean age did not show a significant effect. Meta-regression revealed a baseline RR of 12-month mortality for a 60-year patient of 0.561 [0.039-8.034] with an increase by a factor of 1.071 [0.842-1.363] per additional year. As of LVEF impact, estimated baseline RR for the outcome at a LVEF baseline of 50% was 1.444 [0.999-2.088]. For every additional 5% increase, the RR increased by a factor of 1.038 [0.804-1.340].
Conclusions: This meta-regression did not identify significant moderators of the 12-month all-cause mortality RR between MTEER and SMVI. However, the borderline confidence interval observed for the effect of secondary MR prevalence suggests that MTEER may provide better outcomes in patients with secondary MR, has seen in subgroups analyses of individual trials. The increasing RR trend with higher LVEF, though not significant, suggests SMVI is favoured in higher LVEF or while MTEER is preferred in significant dysfunction. Age showed very limited predictive value for the 12-month mortality RR between MTEER and SMVI. These trends warrant further investigation in larger datasets as small number of included studies (n = 5) limits the statistical power of the analysis and increases the risk of overfitting.

PO 368. COMPARING 30-DAY OUTCOMES OF TRANSCATHETER EDGE-TO-EDGE REPAIR VS. SURGERY IN MITRAL VALVE REGURGITATION: A META-ANALYSIS OF CLINICAL TRIALS AND PROPENSITY-MATCHED COHORTS

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

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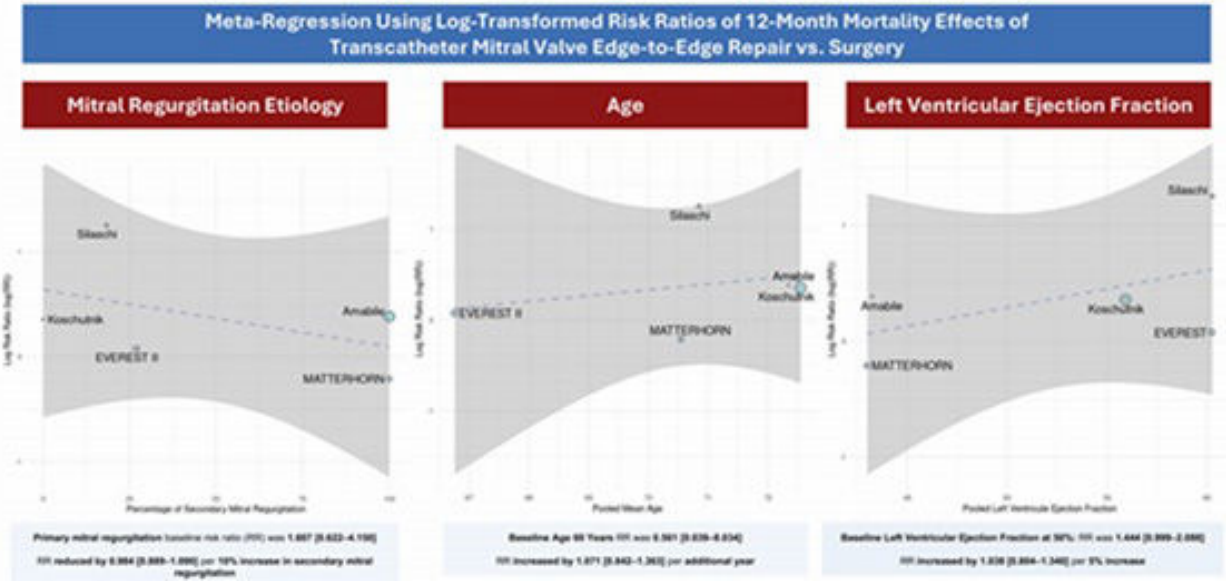
Surgery remains the standard treatment for mitral valve regurgitation (MR), with transcatheter edge-to-edge repair (MTEER) typically reserved for high-risk patients. While surgery is more invasive and carries significant risks, MTEER offers a less invasive alternative. This meta-analysis evaluates the 30-day outcomes of both interventions. In October 2024, PubMed, Cochrane, Scopus, and Web of Science were searched for randomized control trials (RCT) and propensity-matched cohort studies comparing MR patients undergoing either MTEER and SMVI. Pooled data was analyzed using a random-effects inverse variance meta-analysis of risk ratios (RR) and 95% confidence intervals (CI). From 1,482 entries, two RCTs (MATTERHORN and EVEREST II) and three observational studies meet inclusion criteria with a total of 1782 patients. At 30 days, all-cause mortality did not significantly differ between interventions (RR 0.72; CI 0.26-2.00), though more deaths occurred immediately post-intervention in the SMVI group (3.4%; 8/236) compared to MTEER (2.1%; 7/331), a trend specifically seen in pooled data from the RCTs (RR 0.48; CI 0.14-1.72). Regarding other safety outcomes at 30 days, pooled statistical analyses



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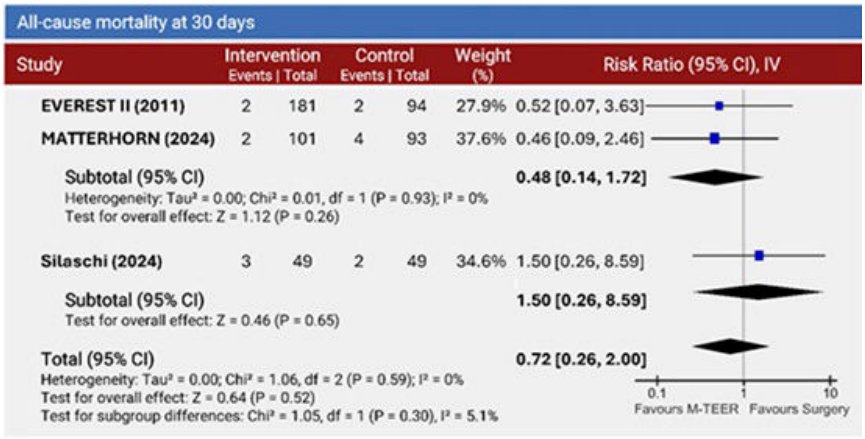

Figure PO 368

could not be performed due to limited reported data. The surgical group experienced more complications, mainly driven by major bleeding. Surgical group had higher rates of stroke (3.0 vs. 0.6%), major bleeding (30.9 vs. 8.9%), prolonged ventilation (> 48 hours), deep wound infections, renal failure requiring dialysis, and new-onset atrial fibrillation (13.6 vs. 1.8%). Reintervention rates were similar between groups (5.3 vs. 5.1%). The findings highlight distinct differences in 30-day outcomes. Surgery is associated with higher complication rates, while MTEER demonstrates fewer adverse events and comparable reintervention rates, with a nonsignificant trend toward higher mortality in the surgical group. However, EVEREST II did not account for patients with unsuccessful MTEER subsequently referred for surgery in outpatient settings, likely underestimating reintervention rates for MTEER. Nevertheless, it is also important to note that during the EVEREST trial, MTEER was a novel technique with limited operator experience, resulting in higher failure rates. The pooled population, combining primary and secondary MR cases, along with comparator groups using different techniques, may introduce heterogeneity that could influence the results.

Domingo, 13 Abril de 2025 | 09:30-11:00

Área de Posters-écran 3 | Sessão de Posters 55 – Arritmologia: novos desafios

PO 369. CARDIONEUROABLATION IN PATIENTS WITH HYPERVAGOTONIA – AN EFFECTIVE SOLUTION?

Margarida G. Figueiredo[1], Sofia B. Paula[2], Sara Laginha[1], Helena Fonseca[1], Hélder Santos[1], Guilherme Portugal[1], Pedro Silva Cunha[1], Bruno Valente[1], Rui Ferreira[1], Mário Oliveira[1]

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Introduction: Cardioneuroablation (CNA) is an ablation technique that targets epicardial ganglionic plexi to reduce syncope burden and avoid pacemaker implantation in young patients with cardioinhibitory vasovagal syncope (VVS). Although CNA has been used to treat VVS, it seems that this technique may have potential benefits in a variety of conditions mediated by hypervagotonia.
Objectives: Our purpose was to evaluate the role of CNA in the treatment of conditions associated with or exacerbated by increased vagal tone such as VVS, functional atrioventricular block (AVB), and sinus node dysfunction (SND).

Table 1. Characterization of P regarding conduction system disease before and after CNA

	Before CNA	After CNA
Sinus pauses >3sec (%)	71	24
1st Degree AVB (%)	35	18
2nd Degree AVB (%)	47	18
2:1 AVB (%)	6	6
High grade AVB (%)	29	6
3rd Degree AVB (%)	6	0

Table 2. Changes in conduction system immediately before and after CNA

	Immediately before CAN	Immediately after CNA	p value
Mean HR (bpm)	68±15	90±8	**<0.001**
Mean PQ interval (ms)	316±51	193±42	**0.001**
Mean Wenckebach cycle (ms)	707±151	470±66	0.110

Table 3. Comparison regarding P's HR, symptomatology and tilt test results before CNA and in the long-term follow-up

	Before CNA	After CNA	p value
Mean HR (bpm)	75 (68 – 83)	85 (80 – 94)	**0.005**
Minimun HR (bpm)	39 (33 – 48)	60 (44 – 77)	**0.046**
Syncope (%)	59	6	**0.002**
Other symptoms (%)	59	35	0.453
Asystole during tilt test (%)	29	6	0.219
Cardioinhibitory response in tilt test (%)	35	6	0.063

Methods: Prospective single-centre study evaluating patients (P) who underwent CNA due to multiple AVB, SND or VVS, and their long-term follow-up in terms of symptoms or evidence of conduction disease.
Results: A total of 17 CNA were performed (15 P, two patients underwent a CNA redo procedure). Median follow-up was 13 (6-27) months - in 53% of P follow-up was performed through remote and clinic follow-up of their implantable loop recorders (ILR); in the remaining P, follow-up was performed with a 24h-Holter. 71% of P were male, mean age was 37 ± 10 years. 29% of P practiced high-intensity training in various modalities. 53% of P performed a tilt test before and after CNA. Before CNA 5 patients presented type 2B response, with 6, 19, 27, 45 and 90 second of asystole; 2 P had a negative result, 1 P had a type 2A response, 1 P presented classic orthostatic hypotension and 1 P presented postural orthostatic tachycardia syndrome. After CNA 5 P had a negative tilt test, 2 P had a type 1 response, 1 P had a type 2A response and 1 P had a type 3 response. Conduction system disease before CNA and in the long-term follow-up after CNA is described in Table 1. The results in terms of heart rate and conduction disease immediately before and after CNA and symptomatology in the long-term follow-up are described in Table 2 and 3, respectively. Other symptoms mentioned in the table were mainly fatigue and dizziness. Pacemaker was only implanted in 1 P with recurrent syncope episodes before and after CNA. There were 2 P with complications: 1 P had a pericardial tamponade during the procedure and pericardial drainage; the

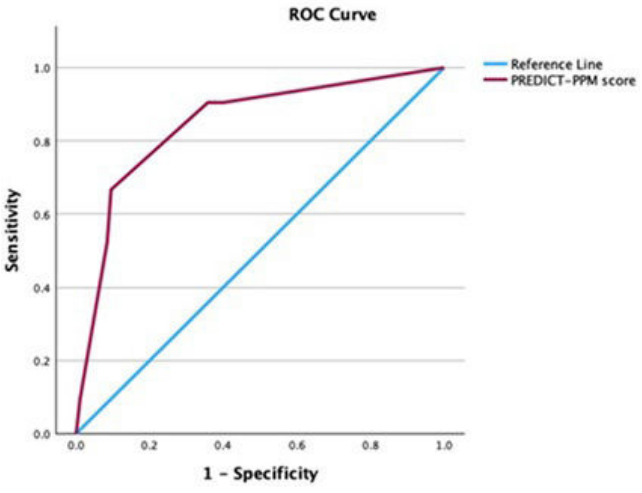
other complication was the migration of an ILR to the pleural space, causing complaints (mainly pleuritic pain) to the P.
Conclusions: In our study CNA showed to be a safe and efficient procedure in terms of treating symptoms (predominantly syncope) and conduction disease in P with conditions mediated by hypervagotonia. Larger studies are required to confirm these findings.

PO 370. SIMPLIFIED TOOL FOR PREDICTING PACEMAKER IMPLANTATION IN PATIENTS WITH BRADYCARDIC SYNCOPE UNDERGOING IMPLANTABLE LOOP RECORDER MONITORING: THE PREDICT-PPM SCORE

João Gouveia Fiuza, Gonçalo RM Ferreira, Mariana Duarte Almeida, Francisco Rodrigues Santos, Oliver Kungel, Vanda Devesa Neto, João Miguel Santos, Júlio Gil Pereira, António Costa

Unidade Local de Saúde de Viseu Dão-Lafões.

Introduction: Implantable loop recorders (ILR) are a valuable tool for investigating unexplained syncope. Identifying clinical predictors for permanent pacemaker implantation (PPMi) can enhance patient selection, improve resource utilization, and potentially prevent unnecessary interventions.
Objectives: To create a simplified score to predict PPMi in patients with suspected bradycardic syncope undergoing ILR monitoring.
Methods: Retrospective study of 119 patients that underwent ILR implantation for suspected bradycardic syncope. Baseline characteristics, symptoms and electrocardiographic parameters were analyzed. Chi-square and Mann-Whitney U were used for comparison between groups. A multivariate logistic regression analysis was performed to identify independent predictors of PPMi. To create PREDICT-PPM score, we assigned points to each variable based on the logistic regression analysis. The natural logarithm of the OR was calculated for each variable, providing a proportional representation of the variable's contribution to the outcome. For simplicity, these weights were then rounded to the nearest whole number. Each variable was assigned points proportional its contribution to the outcome.



Results: Mean age was 62 ± 17 years; 60.5% were women. After ILR placement, 17.6% of patients underwent PPMi. We found that patients with second degree Mobitz I conduction abnormality ($p < 0.001$), first-degree AV block ($p = 0.024$), sinus pauses ($p < 0.005$), abnormal baseline electrocardiogram (sinus bradycardia, AV conduction, intraventricular conduction or repolarization abnormalities) ($p = 0.01$), abnormal 24-hour Holter monitoring (non-significant pauses or significant burden of premature contractions) ($p < 0.005$), typical symptoms ($p < 0.001$) and fall with associated trauma ($p < 0.001$) had more PPMi. Logistic regression identified independent predictors. Two points were assigned to fall with trauma and two points to typical complaints (OR 4.89, $p = 0.01$ and OR 7.45, $p < 0.001$, respectively). First-degree AV block was assigned 1.5 points, reflecting its moderate contribution to the prediction of PPMi (OR 4.58, $p = 0.06$). Using ROC curve analysis, we obtained an AUC of 0.846 ($p < 0.001$). The optimal cutoff score of 2.75 achieved a sensitivity of 66.7% and a specificity of 90.5% (Youden's Index = 0.572). Patients were then classified as high or low risk. High risk group was significantly associated with PPMi (60.9 vs. 7.5%, $\chi^2 = 35.39$, $p < 0.01$).
Conclusions: The PREDICT-PPM score predicts PPMi in patients with suspected bradycardic syncope undergoing ILR monitoring. Given its high specificity, it has potential to identify patients with low risk, potentially reducing unnecessary procedures and improving cost-effectiveness. Future prospective studies with larger cohorts are needed to validate this scoring system and confirm its impact on clinical outcomes.

PO 371. PREDICTORS OF PACEMAKER IMPLANTATION IN PATIENTS UNDERGOING IMPLANTABLE LOOP RECORDER MONITORING FOR SUSPECTED BRADYCARDIC SYNCOPE

João Gouveia Fiuza, Gonçalo RM Ferreira, Mariana Duarte Almeida, Oliver Kungel, Francisco Rodrigues Santos, Vanda Devesa Neto, João Miguel Santos, Júlio Gil Pereira, António Costa

Unidade Local de Saúde de Viseu Dão-Lafões.

Introduction: Implantable loop recorders (ILR) are widely used to investigate unexplained syncope, palpitations and cryptogenic stroke. However, the diagnostic yield of ILRs in bradycardic syncope and their influence on subsequent clinical decisions, such as permanent pacemaker (PPM) implantation, remain areas of investigation.
Objectives: To identify clinical and electrocardiographic predictors of PPM implantation in patients with suspected arrhythmic syncope in patients with ILR.
Methods: Retrospective study of 119 patients that underwent ILR implantation for unexplained suspected bradycardic syncope. Baseline characteristics, symptoms and electrocardiographic parameters were analyzed prior to ILR implantation. Chi-square and Mann-Whitney U were used for comparison between groups. A multivariate logistic regression analysis was performed to identify independent predictors of PPM implantation.
Results: Mean age was 62 ± 17 years; 60.5% were women. After ILR placement, 17.6% of patients underwent PPM placement. We found that patients with second degree Mobitz I conduction abnormality (80 vs. 16.8%, $\chi^2 = 11.966$, $p < 0.001$), first-degree AV block (45.5 vs. 14.8%, $\chi^2 = 6.449$, $p = 0.024$), sinus pauses (100 vs. 16.1%, $\chi^2 = 13.788$, $p < 0.005$), abnormal baseline electrocardiogram (sinus bradycardia, repolarization, AV or intraventricular conduction abnormalities) (27.6 vs. 8.2%, $\chi^2 = 6.593$, $p = 0.01$), abnormal 24-hour Holter monitoring (non-significant pauses or significant burden of premature contractions) (29.3 vs. 6.5%, $\chi^2 = 7.861$, $p < 0.005$), typical symptoms (48.3 vs. 7.8%, $\chi^2 = 24.752$, $p < 0.001$) and fall with associated trauma (37.2 vs. 6.8%, $\chi^2 = 16.823$, $p < 0.001$) had more PPM implants. We did not find statistically significant differences in advanced age ($p = 0.184$), sex ($p = 0.52$), past medical history or drugs, right bundle branch block (BBB) ($p = 0.383$), left BBB ($p = 0.426$) or prolonged QT interval ($p = 0.746$). We conducted logistic regression to determine independent predictors. Fall with associated trauma (OR: 4.89, 95%CI: 1.47-16.30, $p = 0.010$) and the presence of typical symptoms (OR: 7.45, 95%CI: 2.33-23.81, $p < 0.001$) emerged as strong independent predictors of PPM implantation following ILR monitoring. First-degree AV block exhibited a trend towards significance (OR: 4.59, 95%CI: 0.94-22.58, $p = 0.060$) although not reaching significance. The model demonstrated good calibration (Hosmer-Lemeshow $p = 0.819$) and an overall accuracy of 85.3%.
Conclusions: This study highlights that the presence of typical symptoms and fall with associated trauma are key independent predictors of PPM implantation following ILR monitoring. These findings underscore the importance of careful clinical evaluation, as these predictors can help refine patient selection, optimize resource utilization and potentially improve outcomes.

PO 372. ENHANCING QUALITY OF LIFE IN REFLEX SYNCOPE PATIENTS: EFFICACY OF A STRUCTURED EDUCATIONAL PROGRAMME

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

Introduction: Reflex syncope (RS) is a prevalent clinical condition that significantly impairs patients' quality of life (QoL) and imposes substantial economic burdens on healthcare systems. Recurrent syncope episodes often lead to frequent emergency department visits and hospital admissions, escalating healthcare costs and adversely affecting patients' daily activities and psychological well-being. Despite recommendations for non-pharmacological interventions—such as patient education, lifestyle modifications, and reassurance—there remains a lack of structured educational programmes specifically tailored to RS patients, underscoring the need for targeted interventions to reduce syncope recurrence and improve QoL.
Objectives: This study aims to evaluate the efficacy of a structured educational programme in enhancing QoL among patients with recurrent RS. By focusing on patient education and reinforcement of syncope prevention strategies, this programme seeks to provide evidence supporting its integration into clinical practice.
Methods: We conducted a prospective study involving patients referred for head-up tilt testing (HUT) at our department between January 2023 and October 2024. Participants completed the Impact of Syncope on Quality of Life (ISQL) questionnaire at baseline. Post-HUT, patients engaged in a comprehensive educational and training programme aimed at mitigating syncope recurrence. Follow-up assessments, including ISQL re-evaluation and reinforcement of preventive measures, were conducted via teleconsultation at 3, 6, and 12 months.
Results: The study enrolled 163 patients (63.8% female; mean age 56.3 years), with 62% completing the programme. Syncope recurrence was observed in 21% (n = 34) of participants, with a recurrence rate of 1.5 episodes per year; only 7% (n = 11) required emergency department visits. Younger patients (≤ 40 years) with a hypotensive phenotype demonstrated the highest adherence to preventive measures. The mean ISQL score improved significantly from 44.9 ± 12.1 at baseline to 54.9 ± 6.4 at the final follow-up ($p < 0.05$), largely due to effective avoidance of specific triggers, such as "being in warm or hot environments" (severity at admission 6.35 vs. discharge 15.87) and "standing for long periods (> 5 min)" (severity at admission 6.35 vs. discharge 26.98), underscoring the value of targeted education.
Conclusions: Our findings demonstrate that a structured educational programme can significantly improve QoL in patients with recurrent RS by reducing syncope recurrence and fostering adherence to preventive strategies. This evidence supports the integration of patient-centred educational interventions into standard care protocols, highlighting the substantial benefit of structured education in managing RS effectively.

PO 373. MITRAL VALVE PROLAPSE: ARRHYTHMIC RISK AND PROGNOSIS

Mónica Dias, Sofia Fernandes, Diana Fernandes, Inês Conde, Rodrigo Silva, Carla Ferreira, Filipe Vilela, Nuno Salomé, Catarina Vieira

Hospital de Braga.

Introduction: Mitral valve prolapse (MVP) affects nearly 2 to 3% of the population and is the most common structural heart valve abnormality. It is a mostly benign condition, but there are subgroups of patients with MVP who are at increased risk of malignant ventricular arrhythmias (VA) and ultimately sudden cardiac death (SCD).
Objectives: To characterise a population of patients with MVP and identify factors associated with increased arrhythmic risk.
Methods: This was a retrospective observational study including patients with MVP who underwent transthoracic echocardiography (TTE) in our centre between 2014 and 2019, with a minimum follow-up of 1 year. Patients with left ventricular ejection fraction (LVEF) £35% and/or other significant structural heart disease were excluded. Patients were divided into three groups according to their arrhythmic risk: low risk (non-complex premature ventricular contractions (PVC), intermediate risk (frequent PVC: ≥ 5%) and high risk (complex ventricular arrhythmia). The factors associated with arrhythmic risk and predictors of high arrhythmic risk were identified. Multivariate analysis was performed to identify predictors of arrhythmic risk and Kaplan-Meier survival analyses was performed to evaluate differences in mortality among groups.
Results: 224 patients were included in the study (53.6% male, 66 ± 16.2 years). A total of five patients (4.9%) were included in the high-risk group, 60 patients (58.2%) in the intermediate-risk group, and 38 patients (36.9%) in the low-risk group. Patients with a higher arrhythmic risk were often older (75 vs. 64 years, $p = 0.021$) and more frequently exhibited atrial fibrillation (80 vs. 32%, $p = 0.032$), bileaflet MV prolapse (100 vs. 47%, $p = 0.021$), flail leaflet (20 vs. 10%, $p = 0.025$), severe left atrial dilatation (50 vs. 5%, $p = 0.005$) and severe mitral regurgitation (MR, 100 vs. 38%). On multivariate analysis, predictors of high arrhythmic risk were bileaflet MV prolapse and severe MR. The mortality rate was found to be significantly higher in this group (80 vs. 27%, $p = 0.004$), supported by the Kaplan-Meier curves showing that high arrhythmic risk had significant impact on time to death ($p = 0.002$).
Conclusions: Arrhythmic risk stratification should be considered in the follow-up and guidance of patients with MVP. Early identification of factors associated with a higher arrhythmic risk other than the severity of mitral valve disease will allow the identification of individuals who will benefit from a more regular clinical and heart rhythm assessment and from particular therapeutic interventions.

PO 374. DO IMPLANTABLE LOOP RECORDERS HAVE A ROLE IN HYPERTROPHIC CARDIOMYOPATHY?

Margarida G. Figueiredo, José Miguel Viegas, Isabel Cardoso, Pedro Brás, Guilherme Portugal, Ana Lousinha, Pedro Silva Cunha, Mário Oliveira, Sílvia Aguiar Rosa, Rui Ferreira

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

Introduction: Implantable loop recorders (ILRs) are a minimally invasive tool for the diagnosis of arrhythmias that have been increasingly used for the detection of infrequent arrhythmias in patients (P) with cardiomyopathies, especially in the presence of high-risk markers. The role of ILR in improving the detection of significant arrhythmias that require a change in clinical management remains unexplored.
Objectives: Our purpose was to evaluate the diagnostic yield of ILR monitoring, regarding clinically relevant arrhythmias and subsequent management in P with cardiomyopathies receiving an ILR.
Methods: Prospective single-centre study in P with cardiomyopathies in "grey zone" for the risk of ventricular arrhythmias, who, for this reason, underwent an ILR implantation. The primary endpoint was a meaningful arrhythmic event leading to a change in clinical management.
Results: 45 P were included, 51% (23P) male, median age 62 (48-71) years. The underlying disease was hypertrophic cardiomyopathy (HCM) in 69% (31P), dilated and non-dilated left ventricle cardiomyopathy (DCM/NDLVC) in 26% (12P) and transthyretin amyloidosis (ATTR) in 4% (2P). The most frequent risk markers were brief run of non-sustained ventricular tachycardia (VT) in 42%, unexplained syncope or pre-syncope in 36%, family history of premature sudden cardiac death (SCD) in a first-degree relative in 36%, and palpitations suspicious of arrhythmic origin in 18%. 58% of the P with DCM/NDLVC had LV ejection fraction < 50%, of which 8% had extensive late gadolinium enhancement (LGE). Regarding P with HCM, median HCM Risk-SCD score was 3.07 (2.68-3.76)%, with 16% having an estimated 5-year risk of SCD ≥ 4%. Mean maximum wall thickness was 20 ± 4 mm, left atrial diameter (LAD) 43 ± 7 mm, 23% had obstructive HCM, LGE was present in 74% - with 52% of P with extensive LGE - and LV apical aneurysm in 3%. During a mean follow-up of 19 ± 13 months, 44% of P had, at least, one ILR-guided diagnosis. ILR-guided diagnosis and therapies are described in Table 1 and 2, respectively. *De novo* atrial fibrillation (AF) was diagnosed in 24% of P and was the main detected event. Regarding devices,

Table 1. ILR-guided diagnosis in P with cardiomyopathies.

	Total N = 45	HCM N = 31	DCM/NDLVC N = 12	Amyloidosis N = 2
ILR-guided diagnosis (%)	20 (44)	12 (39)	6 (50)	2 (100)
De novo AF (%)	11 (24)	7 (23)	2 (17)	2 (100)
Ventricular tachycardia (%)	10 (22)	5 (16)	5 (42)	0
Non-Sustained VT (%)	9 (20)	5 (16)	4 (33)	0
Sustained VT (%)	2 (4)	1 (3)	1 (8)	0
Conduction disease (%)	4 (9)	4 (13)	0	0

Table 2. ILR-guided therapies in P with cardiomyopathies.

	Total N = 45	HCM N = 31	DCM/NDLVC N = 12	Amyloidosis N = 2
ILR-based therapy (%)	13 (29)	7 (23)	4 (33)	2 (100)
Oral Anticoagulation initiated (%)	10 (22)	6 (19)	2 (17)	2 (100)
Device implantation (%)	9 (20)	5 (16)	3 (25)	1 (50)
ICD (%)	9 (20)	5 (16)	3 (25)	1 (50)
Antiarrhythmic drugs initiated or changed (%)	4 (9)	2 (7)	0	2 (100)
EP study/Ablation (%)	3 (7)	2 (7)	1 (8)	0

Figure PO 374

20% of P received implantable cardioverter-defibrillators (ICD), one of which with subsequent appropriate shocks. The incidence of the primary endpoint was 36%.
Conclusions: This study provides insight into the incremental value of ILRs in this group of P, not only for the diagnosis of ventricular arrhythmias, but also for detection of subclinical AF, which can lead to a different therapeutic management in this specific population.

PO 375. THE EASY-WPW ALGORITHM IN PRACTICE: REAL-WORLD ACCURACY IN PREDICTING ACCESSORY PATHWAY LOCATIONS

Miguel Rocha, Pedro Palma, Helena Moreira, Ana Pinho, Cátia Oliveira, Luís Santos, Emanuel Oliveira, Bernardo Cruz, Joana Gonçalves, Benedita Couto Viana, Luana Alves, Rui Rodrigues

Centro Hospitalar de S. João, EPE.

Introduction: Accurate localization of accessory pathways (APs) is essential for effective ablation therapy. The EASY-WPW algorithm, published in 2023, is designed to help clinicians predict AP locations based on baseline ECGs, potentially enhancing procedural efficiency. However, external validation of the algorithm's accuracy and generalizability remains limited.
Objectives: This study aimed to assess the sensitivity and accuracy of the EASY-WPW algorithm in a cohort of patients who underwent successful AP ablation at a tertiary center in Portugal.
Methods: We conducted a retrospective analysis of patients who underwent successful AP ablation from 2021 to 2024. Baseline characteristics and procedural data were collected. Two electrophysiology department members, including a cardiology resident and an electrophysiologist, independently assessed baseline ECGs using the EASY-WPW algorithm. Additionally, an accessible artificial intelligence (AI)-based tool (ChatGPT) was utilized to apply the algorithm to ECGs. The algorithm's sensitivity and positive predictive value (PPV) were calculated based on results from electrophysiological (EP) studies.
Results: A total of 154 patients (72.5% male, n = 111) with a mean age of 33.9 ± 18.5 years were included. The mean body mass index (BMI) was 24.3 ± 5.4 kg/m^2, and the mean heart rate was 75.0 ± 17.3 bpm. Among the cohort, 27.1% were under 18 years old. The algorithm correctly identified AP location in 59% of cases, yielding a PPV of 57.8% and a sensitivity of 55.7%. PPVs for right-sided, left-sided, septal, and lateral pathways were 55.6%, 62.5%, 58.3%, and 56.8%, respectively. No significant differences in algorithm accuracy were found based on patient age (t = 0.733, p = 0.232), BMI (t = -10.16, p = 0.311), or heart rate (t = -1.389, p = 0.167). Similarly, clinician experience (resident vs. electrophysiologist) did not significantly affect accuracy (55.8 vs. 59%). ChatGPT's performance in predicting AP locations was significantly lower compared to clinicians (26.5 vs. 59%).
Conclusions: In this cohort, the EASY-WPW algorithm showed moderate accuracy, correctly localizing APs in 59% of cases. Patient age, BMI, heart rate, and clinician experience did not significantly impact algorithm performance. Our findings suggest that clinicians, especially those new to electrophysiology, should exercise caution when applying simplified algorithms across diverse populations. Furthermore, while the use of ChatGPT may be tempting, it is currently not advisable for this purpose given its lower accuracy in predicting AP locations.

PO 376. GENERAL ANAESTHESIA COMPARED TO CONSCIOUS SEDATION FOR CATHETER ABLATION OF ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA IN ADOLESCENTS

Pedro Miguel Mangas Neto da Palma, Miguel Rocha, Helena Moreira, Luís Santos, Cátia Oliveira, Ana Pinho, João Calvão, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Ana Lebreiro, Luís Adão

Centro Hospitalar de S. João, EPE.

Introduction: Atrioventricular nodal reentrant tachycardia (AVNRT) is one of the most common types of supraventricular tachycardia (SVT) in adolescents, with catheter ablation (CA) for slow pathway modification being the preferred treatment for symptomatic patients. For safety and comfort, ablation in paediatric patients is typically performed under general anaesthesia (GA). However, GA can contribute to prolonged procedural time

and extended hospital stays. Alternatively, ablation under conscious sedation (CS) has been safely performed in adolescents, though data on its procedural and long-term outcomes remain limited.
Objectives: To characterise AVNRT ablation in adolescents and evaluate long-term outcomes and complications in ablations performed under CS compared to those under GA.
Methods: We conducted a single-centre retrospective cohort study, including all patients aged 12 to 18 who underwent CA for AVNRT between 2016 and 2023. Patients with congenital heart disease, severe comorbidities or accessory pathways were excluded.
Results: A total of 58 patients underwent CA during the assessment period, with a mean age of 15.3 ± 2.19 years. The median weight was 56 kg (IQR 17 kg), and 59% were female. SVT was documented in 90% of cases. Additionally, 84% of patients were on antiarrhythmic medication: 67% were receiving beta-blockers alone, 14% were on a combination of beta-blockers and flecainide, and 3% were on flecainide alone. All patients underwent radiofrequency CA. In 55% of the procedures, patients received GA, and an electroanatomic mapping was performed in 76% of cases. Typical AVNRT was observed in the majority of patients (98%). Patients in the GA group were younger (mean age 14.4 vs. 16.3 years, $p < 0.001$) and had a lower median weight (56 kg vs. 65 kg, $p = 0.042$). Procedure duration tended to be longer in the GA group (65 vs. 51 minutes, $p = 0.058$), although fluoroscopic time (0.8 vs. 0.6 minutes, $p = 0.791$) and radiation dose (32 vs. 27 μGym^2, $p = 0.881$) were similar between the groups. Over a median follow-up of 3.5 years, AVNRT recurrence rates (9.1% in the GA group and 6.3% in the CS group, $p = 0.477$) and repeat ablation rates (4.5% in the GA group and 6.3% in the CS group, $p = 0.671$) were similar. No major complications were observed; however, two cases of first-degree AV block occurred in the GA group, while none were reported in the CS group.
Conclusions: Our study suggests that AVNRT CA in adolescents can be effectively performed under CS, with high procedural success and a low risk of complications or recurrence.

PO 377. PAEDIATRIC CATHETER ABLATION IN A TERTIARY CENTRE: CONTEMPORARY CHARACTERIZATION AND CLINICAL OUTCOMES

Pedro Mangas Palma, Helena Moreira, Miguel Rocha, Luís Santos, Ana Pinho, Cátia Oliveira, João Calvão, Ricardo Pinto, Marta Madeira, Gonçalo Pestana, Ana Lebreiro, Luís Adão

Centro Hospitalar de S. João, EPE.

Introduction: Catheter ablation (CA) is now the preferred treatment for various arrhythmias in paediatric and adolescent patients. While technique and applications have advanced, much of the existing literature relies on earlier data, highlighting a need for updated insights into current practice.
Objectives: This study aims to characterize the procedures and outcomes of paediatric CA at a tertiary care centre.
Methods: We conducted a single-centre retrospective cohort study including all patients under 18 years old referred for CA at our centre from 2016 to 2023. Baseline characteristics, procedure details, and arrhythmia recurrence were recorded.
Results: A total of 204 patients (mean age 14.9 ± 2.81 years; 56% male) were included. Most had structurally normal hearts, with 9.8% presenting congenital heart disease. A majority (91%) were on antiarrhythmic medications before ablation. The procedure was performed under general anaesthesia in 85% of cases. Electroanatomical mapping was used in 95%, with a low average radiation dose (23.6 ± 7.81 μGym^2), and a contact force catheter in 29%. The most common arrhythmias were atrioventricular reentrant tachycardia (61%) and atrioventricular nodal reentrant tachycardia (28%), followed by other supraventricular (8%) and ventricular tachycardias (3%). Ablation was performed in 91% of cases, with acute success in 98% of those. Repeat procedures were required in 2.9%, and no major complications occurred.
Conclusions: This study demonstrates that CA is highly effective and safe for paediatric arrhythmia patients, with a high success rate and low complication incidence, providing updated insights into the efficacy and safety of paediatric catheter ablation.

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

Área de Posters-écran 1| Sessão de Posters 56 - Cardioncologia de ponta I

PO 378. 18F-FDG UPTAKE: A POTENTIAL BIOMARKER FOR THORACIC AORTIC INFLAMMATION IN HYPERTENSIVE BREAST CANCER PATIENTS

Rafaela Fernandes, Didier Martinez, João Borges-Rosa, Rodolfo Silva, Gracinda Costa, Joana Moura Ferreira, Lino Gonçalves, Maria João Ferreira

CHUC - ULS Coimbra.

Introduction: High blood pressure (HBP) is a known cardiovascular risk factor (CVRF) linked to atherosclerosis and thoracic aorta aneurysms, potentially driven by pro-inflammatory metabolism induced by the oscillating shear stress. Fluorodeoxyglucose (^{18}F-FDG), a glucose analogue, is used for breast cancer (BC) stating and treatment monitoring. We hypothesized that patients with HBP, but no thoracic aorta disease may exhibit increased thoracic aortic ^{18}F-FDG uptake, indicating vascular inflammation.
Methods: Single-centre retrospective observational study of consecutive women under 55 years with BC, who underwent staging with ^{18}F-FDG PET/CT prior to treatment between 2018 and 2021. ^{18}F-FDG vascular uptake was obtained as tissue-to-background ratio (TBR) by measuring maximum standard uptake value (SUV) in the aorta, avoiding spill over from adjacent structures. The lesion maximum SUV was corrected for blood pool activity by dividing it by right atrium mean SUV. ^{18}F-FDG tumour uptake was obtained as metabolic tumour volume (MTV). Total lesion glycolysis (TLG) was the product of MTV and tumour medium SUV. Primary endpoint was the evidence of increased vascular thoracic aorta metabolism in patients with BC and HBP. Data was collected through revision of informatized clinical files. Statistical analysis used Kolmogorov-Smirnov, T Student test, and non-parametric equivalents.
Results: 45 women with BC were included. Mean age was 43.3 (± 7.59) years, 4 (8.89%) had HBP. Mean follow-up time was 47 (± 14.9) months. Mean ascending thoracic aorta TBR was 1.75 ± 0.57, median aortic cross TBR was 1.68 ± 0.73 and mean descending thoracic aorta TBR was 2.11 ± 0.64. A statistically significant relation between HBP and TBR was showed for the ascending thoracic aorta (*p-value* = 0.039) but not for the aortic cross (*p-value* = 0.093) nor the descending thoracic aorta (*p-value* = 0.383). All patients had normal-sized ascending thoracic aorta, with a median dimension of 31.0 (± 4.50) mm. Correlation between ascending thoracic aorta TBR and both MTV (*p-value* = 0.811) and TLG (*p-value* = 0.856) was not statistically significant. All-cause mortality was 22.2% (n = 10), with no cardiovascular (CV) mortality or significant CV events.
Conclusions: In BC patients with HBP, increased 18F-FDG uptake in the ascending thoracic aorta suggests vascular inflammation, potentially contributing to atherosclerosis and thoracic aortic aneurysms. Larger prospective studies with extended follow-up are required to confirm if this inflammation predisposes to cardiovascular events.

PO 379. CARDIOVASCULAR TOXICITY PREDICTION IN BREAST CANCER PATIENTS: THE HFA/ICOS RISK TOOL IN REAL-WORLD PRACTICE

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Introduction: Advances in cancer prevention and treatment have significantly improved breast cancer (BC) survival, but chemotherapy-related cardiac dysfunction (CTRCD) is a growing concern. The 2022 ESC Guidelines on Cardio-Oncology recommend baseline cardiovascular risk stratification using the risk assessment tools proposed by the Heart Failure Association (HFA) and the International Cardio-Oncology Society (ICOS) for

patients scheduled to receive anthracyclines (AC) and anti-human epidermal growth factor receptor-2 (HER2) agents. However, its ability to predict severe CTRCD lacks real-life validation, particularly in the Portuguese population.
Objectives: To evaluate the clinical application of HFA/ICOS risk score in BC patients undergoing chemotherapy with AC or anti-HER2 agents and its utility in predicting the development of CTRCD in a Portuguese population.
Methods: BC patients treated with AC or anti-HER2 agents and followed in Cardio-oncology consultation in a local Portuguese hospital were retrospectively divided according to the HFA-ICOS risk proforma. The primary endpoint was moderate to severe CTRCD. All-cause and cardiovascular (CV) mortality were secondary endpoints.
Results: We included 65 pts (100% women; mean age 60 ± 10 years; 38% ≥ 65 years). 15 (23%) had metastatic disease. Regarding chemotherapy regimens, 45% were exposed to AC only, 10% to anti-HER2 only and 45% to AC plus anti-HER2. According to the HFA-ICOS tool, 22 pts (34%) were classified as low risk, 24 (37%) as moderate risk, 11 (17%) as high risk, and 8 (12%) as very high risk. Median follow-up was 36 months (interquartile range 23-70). 15 pts (23%) developed CTRCD: 14 (93%) moderate to severe, 9 (60%) symptomatic. 9 pts (14%) died, 2 by CV cause. A statistically significant association between very high basal CV risk and development of moderate to severe CTRCD was found (p 0.009; OR = 8.9, 95%CI [1.8;43]).The same was verified for all-cause mortality (p 0.01; OR = 10, 95%CI [1.9;54]) and CV mortality (p 0.01; OR = 1.3, 95%CI [0.9;2]).
Conclusions: This study supports the HFA/ICOS score's ability to predict moderate to severe CTRCD in breast cancer pts treated with AC or anti-HER2 agents, highlighting the importance of close monitoring, especially in very-high risk pts.

PO 380. CARDIOVASCULAR TOXICITY RISK STRATIFICATION IN CANCER PATIENTS: AN UNMET NEED IN CARDIO-ONCOLOGY

Isabel Martins Moreira, Marta Catarina Bernardo, Luís Sousa Azevedo, Isabel Nóbrega Fernandes, Alzira Nunes, Inês Silveira, Ilídio Moreira

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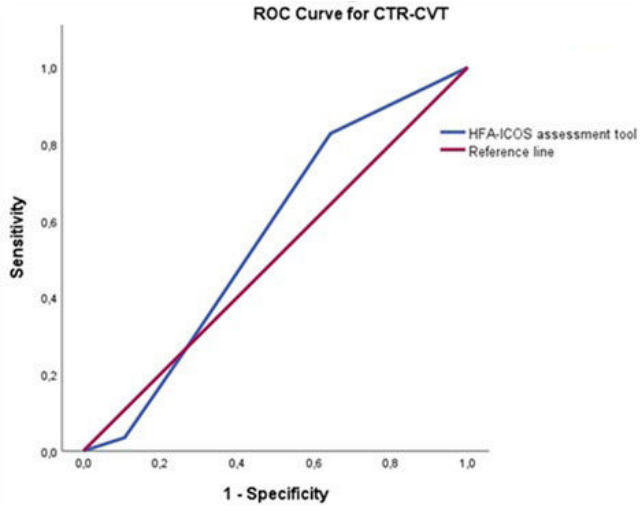
Introduction: Cardiovascular toxicity (CVT) risk stratification is crucial before initiating potentially cardiotoxic anticancer therapies. While the HFA-ICOS Cardio-Oncology risk assessment tool is recommended by ESC guidelines, its validation is not yet robustly established.
Objectives: This study aimed to evaluate the accuracy of the HFA-ICOS tool in predicting cancer therapy-related CVT (CTR-CVT) in a cohort of cancer patients.
Methods: A retrospective study was conducted on patients referred to cardio-oncology outpatient clinic in our center between May 2021 and July 2024. Baseline cardiovascular risk (BCVR) was assessed using the HFA-ICOS tool. CTR-CVT and cancer therapy-related cardiac dysfunction (CTRCD) were defined according to 2022 ESC Cardio-oncology guidelines. Demographic, clinical, echocardiographic, and laboratory data were analyzed. The predictive capacity of the HFA-ICOS tool was evaluated using ROC curves and their respective area under the curve (AUC).
Results: Of a total of 135 patients referred to cardio-oncology outpatient clinic, only 57 (42.2%) were eligibly classified by HFA-ICOS tool: 26.3% low, 49.1% intermediate, 17.5% high and 7.1% very high risk. These patients were mostly female (50.9%), with a mean age of 66.2 ± 11.5 years. Breast cancer was the most prevalent (42.1%), followed by hematological (31.6%) and gastrointestinal malignancies (17.5%), with a significant proportion of patients with metastatic disease (42.9%). Regarding chemotherapy regimens, 47.4% were exposed to anthracyclines and/or anti-HER-2 therapies, 24.6% to multiple myeloma therapies and 17.5% to vascular endothelial growth factor (VEGF) inhibitors. CTR-CVT occurred in 50.9% of patients, mainly in the form of CTRCD. CTRCD was observed in 18.5% of the patients (27.3% mild, 40.9% moderate and 31.8% severe), mostly asymptomatic (68.2%). Therapy suspension was required in 28% of cases, with a complete recovery rate of 44% during follow-up. ROC curve analysis demonstrated poor predictive power of HFA-ICOS for CTR-CVT development (AUC: 0.558, p = 0.457, 95%CI 0.405-0.710). There were no significant differences in all-cause mortality (21.4 vs. 34.9%, p = 0.347) or hospitalization (57.1 vs. 71.4%, p = 0.322) between patients with low vs. high BCVR.



Conclusions: In this cohort, HFA-ICOS tool exhibited a limited predictive ability for CTR-CVT development, and BCVR did not correlate to adverse events. These findings highlight the need for enhanced risk stratification tools to improve prevention and surveillance strategies in cancer patients.

PO 381. CHEMOTHERAPY-INDUCED CARDIOVASCULAR RISK FACTORS IN BREAST CANCER PATIENTS: WHAT'S NEW?

Rafaela Fernandes, Luísa Gomes Rocha, João Borges-Rosa, Rodolfo Silva, Gracinda Costa, Joana Moura Ferreira, Lino Gonçalves, Maria João Ferreira

CHUC - ULS Coimbra.

Introduction: Breast cancer (BC) is the most common cause of cancer in women. With increasing patient survival rates, it is crucial to understand the long-term effects of BC therapy on survivors' health. This study aimed to investigate the relationship between different chemotherapy therapies for BC and the development of cardiovascular risk factors (CVRF).
Methods: Single-centre retrospective observational study of consecutive women under 55 years with BC, who underwent staging with ^{18}F-FDG PET/CT prior to treatment between 2018 and 2021. ^{18}F-FDG vascular uptake was obtained as tissue-to-background ratio (TBR). ^{18}F-FDG tumour uptake was obtained as metabolic tumour volume (MTV). Total lesion glycolysis (TLG) was the product of MTV and tumour medium SUV. The study endpoints included the new diagnosis of CVRF and the relationship between CVRF, cancer therapy and tumour burden.
Results: 45 women with BC were included. Mean age was 43.3 (± 7.59) years. 35 (77.8%) had no CVRF, 2 (4.44%) were smokers, 7 (15.6%) had dyslipidaemia, 1 (2.22%) had diabetes *mellitus*, and 4 (8.89%) had hypertension. Positivity for hormonal receptors was high (oestrogen-30/71.4%; progesterone-24/58.5%), low for human epidermal growth factor-2 receptors (13/31.0%), and 7 (17.1%) were triple negative. Mean follow-up time was 47 (± 14.9) months. All-cause mortality was 22.2% (n = 10), with no cardiovascular (CV) mortality or significant CV events. There was only 1 (2.44%) new case of hypertension. A statistically significant increase in dyslipidaemia was observed, with 11 (28.9%) new cases (*p*-value = 0.01). This CVRF was associated with treatment with alkylating agents (*p-value* = 0.031) but not with other chemotherapy agents. No statistically significant relation was observed between new diagnosis of dyslipidaemia and metabolic tumour volume, total lesion glycolysis or aortic TBR at cancer diagnosis. Also, tumour receptor positivity had no statistically significant relation with new diagnosis of dyslipidaemia.
Conclusions: BC chemotherapy with alkylating agents was associated with new diagnosis of dyslipidaemia. If this increase in lipid levels is sustained in

cancer survivor patients is still unknown. However, these findings highlight the risk that this chemotherapy therapy has on CVRF. Larger prospective studies with extended follow-up are needed to determine whether this increase in lipid levels is sustained in cancer survivors and to assess its potential for future cardiovascular events.

PO 382. CARDIOTOXICITY ASSOCIATED WITH IMMUNE CHECKPOINT INHIBITORS: MYTH OR REALITY?

Nuno Madruga, Miguel Nobre Menezes, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Daniel Cazeiro, João Mendes Cravo, Marta Vilela, Inês Caldeira Araújo, Catarina Sena da Silva, Fausto J. Pinto, Manuela Fiúza

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Introduction: Cardiotoxicity associated with immune checkpoint inhibitors (ICIs) has become a significant concern in cancer treatment. While ICIs have been effective in improving survival rates, their use has been linked to various cardiovascular side effects, such as myocarditis, arrhythmias, and heart failure, which can be potentially fatal.
Objectives: To describe the cardiotoxic events in patients treated with ICIs and to identify the associated risk factors.
Methods: Retrospective, single-center study at a tertiary hospital involving patients who initiated ICI (ipilimumab, pembrolizumab, nivolumab, cemiplimab, avelumab) between 2021 and 2024, followed in the Oncology consultation. Demographic, laboratory, and echocardiographic data were collected for patients who experienced a cardiotoxicity event

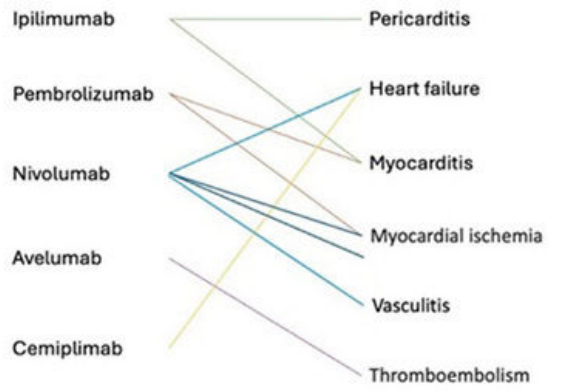


Figure 1 - Cardiotoxicity associated with immune checkpoint inhibitor therapy in our population

Results: Among 329 patients treated with ICIs, 10 (3%) experienced a cardiotoxicity event (4 males, mean age 71.9 ± 11.5 years). Regarding comorbidities, 60% had hypertension, 20% were diabetic, 80% were non-smokers, and 40% had a history of ischemic heart disease. Prior therapies included ACE inhibitors/ARBs and beta-blockers (70%), SGLT2 inhibitors (20%), and statins (30%), with 60% of patients on two or more medications. The most frequent malignancies were renal cell carcinoma (40%), melanoma (40%), and lung adenocarcinoma (20%). 4 patients were treated with nivolumab, 2 with ipilimumab, and 2 with pembrolizumab. Only 2 patients had been previously exposed to cardiotoxic therapies (anthracyclines). Cardiotoxicity events included 3 cases of acute coronary syndrome (2 in nivolumab), 2 cases of severe myocarditis, and 2 cases of new-onset heart failure, resulting in 7 cardiovascular-related hospitalizations. No arrhythmic events were reported. Forty percent of the patients had been referred to a cardio-oncology consultation prior to the event due to high/very high cardiotoxicity risk, 30% were referred during the event. No arrhythmic events were reported. Forty percent of the patients had been referred to a cardio-oncology consultation prior to the event due to high/very high cardiotoxicity risk, 30% were referred during the event. No reduction in LVEF occurred during follow-up. In both patients with acute myocarditis, intravenous corticosteroids were initiated. One patient with heart failure and both patients with myocarditis discontinued ICI therapy permanently. In a time-to-event analysis, the median time to cardiotoxicity was 94.5 days after initiating the drug (IQR: 38.3-267.8). Three patients died during follow-up, none from cardiovascular causes.
Conclusions: Cardiotoxicity associated with ICIs, though infrequent, is a clinically significant complication. Patients with a prior risk for cardiotoxicity or evidence of events should be referred to a cardio-oncology consultation to improve outcomes.

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

Área de Posters-écran 2 | Sessão de Posters 57 – Miocardiopatia hipertrófica

PO 383. IMPLICATIONS OF MYOCARDIAL BRIDGING ON HEART RHYTHM IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Inês Ferreira Neves, Mariana Caetano Coelho, Miguel Marques Antunes, Pedro Garcia Brás, Isabel Cardoso, José Miguel Viegas, Inês Almeida, António Fiarresga, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Martins Oliveira, Sílvia Aguiar Rosa

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

Introduction: Myocardial bridging has a prevalence ranging from 1% to 3% in the general population. Previous studies have shown that it is significantly more prevalent in patients with Hypertrophic Cardiomyopathy (HCM), reaching about 25% in some cohorts. The clinical relevance of myocardial bridging in patients with HCM is still mostly unknown, with some studies suggesting that this condition may have a role in arrhythmic events related to sudden cardiac death whilst other propose it is mostly benign. We aimed to study the influence of myocardial bridging on 24-hour Holter monitoring studies, particularly regarding ventricular events, in a population of patients with HCM.
Methods: Patients with HCM accompanied at our center who had coronary anatomy studied by either cardiac catheterization (CAT) or Coronary computed tomography angiography (CCTA) were included. We retrospectively analyzed the prevalence of myocardial bridging in our population and correlated the phenomenon to the characteristics of Holter studies. We also registered the occurrence of ventricular tachycardia (VT) events during follow-up.
Results: Sixty-four patients with HCM (mean age 66.7 ± 11.6, 50% male sex) were included. Fifteen (23%) patients (age 60.73 ± 8.5, 73.3% male sex) had myocardial bridging. The groups had similar baseline characteristics, and no significant differences were registered when comparing clinical aspects. There were no significant differences in medication, particularly in anti-arrhythmic drugs. No significant differences were seen regarding the findings on Holter monitoring. The patients with myocardial bridging did not have more ventricular ectopies, either in absolute number ($p = 0.53$) or percentage during the 24 hours ($p = 0.57$). There were no differences in the occurrence of non-sustained ventricular tachycardia between the groups ($p = 1.0$). Additionally, there was no significant difference in ST segment elevation or depression during the monitoring between the studied groups. There was no record of VT in neither of the groups during the follow-up time.
Conclusions: Our cohort of HCM patients had a prevalence of myocardial bridging similar to that described in previous studies. This condition seems to have no overall impact on arrhythmic events in our population.

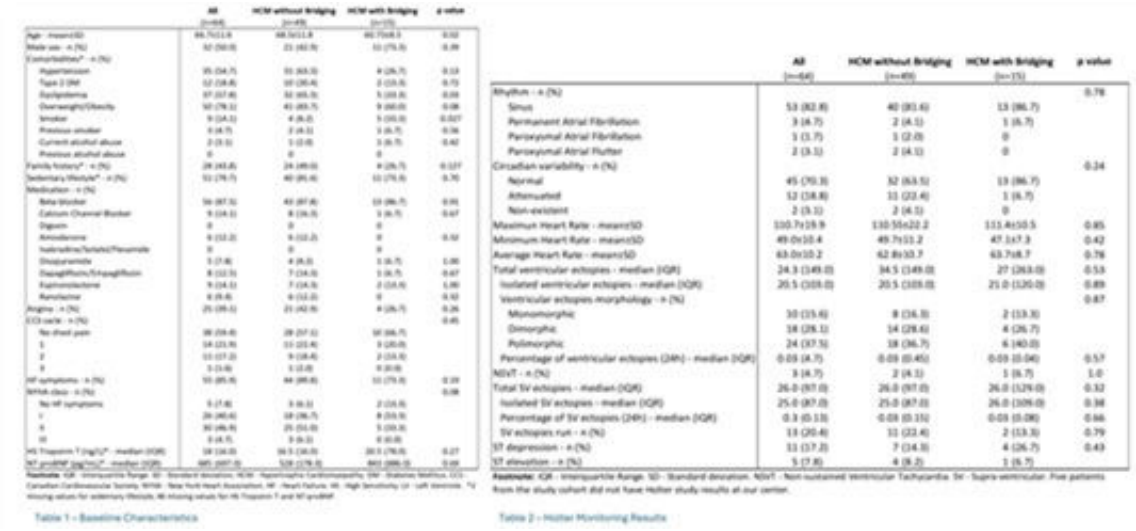


Figure PO 383

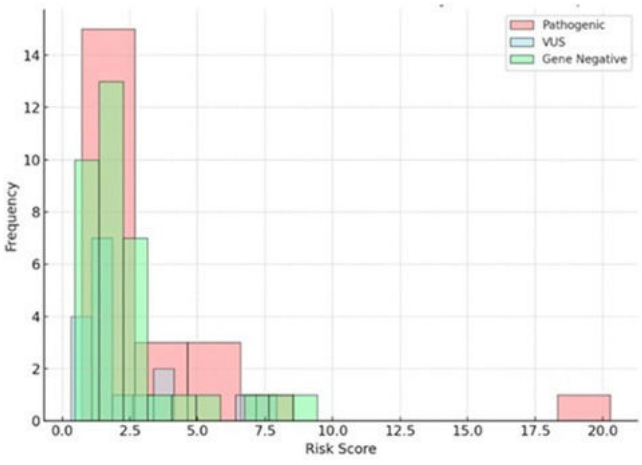
PO 384. INTEGRATING GENETIC VARIANTS INTO HYPERTROPHIC CARDIOMYOPATHY RISK STRATIFICATION: A QUANTITATIVE AND COMPARATIVE ANALYSIS

Inês Pereira de Miranda, Filipa Gerardo, Carolina Pereira Mateus, Mara Sarmento, Rodrigo Brandão, João Bicho Augusto

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

Introduction: Hypertrophic cardiomyopathy (HCM) is often associated with pathogenic or likely pathogenic (P/LP) genetic variants and variants of unknown significance (VUS). The prognostic value of gene-positive status, especially in the context of ESC Sudden Cardiac Death (SCD) risk scoring, remains underexplored.
Objectives: To evaluate (1) the prevalence of P/LP variants and VUS in a cohort of HCM patients, and (2) the prognostic role of these variants individually or integrated into existing risk stratification models.
Methods: Single-center prospective cohort of 92 HCM patients who underwent genetic testing between January 2018 and November 2024. The prevalence of P/LP variants and VUS was determined. Our primary endpoint was a composite of cardiovascular events that included admission for heart failure, ventricular fibrillation/tachycardia, cardiac syncope, cardiovascular cardiac death, myocardial infarction, ischemic stroke and/or complete heart block. A combined prognostic model was built by adding P/LP status to the ESC SCD risk score; logistic regression was performed to determine the optimal weight for P/LP status. Discrimination performance was assessed using C-statistics for the ESC SCD model alone and the combined model. Integrated discrimination improvement (IDI) and calibration analysis were conducted to assess the additional value of genetic data. The net clinical benefit of the baseline and combined models was compared across thresholds using decision curve analysis (DCA).
Results: A total of 71 HCM patients (65 ± 12 years, 49.3% female) were suitable for analysis, 77.5% septal HCM, 15.5% apical and 7% mixed disease. A mutation was observed in 49.3% of the patients, 66% of which were LP/P variants, 34% were VUS. The most frequent mutations involved the gene *MYBPC3*. Primary endpoint was met in 57.7% of patients. Mean ESC SCD risk scores were 3.40% for pathogenic, 2.33% for VUS, and 2.52% for gene-negative individuals ($p > 0.05$ for all comparisons). The baseline ESC SCD model achieved a C-statistic of 0.569; including a weighted P/LP variable (weight = 0.036) resulted in a C-statistic of 0.567. IDI for the weighted model was 0.001, with a modest improvement for events (+1.2%) and a decline for non-events (-1.1%). Calibration analysis showed minimal differences between the weighted model and ESC SCD risk score alone. Decision curve analysis highlighted marginal improvement in net benefit at lower risk thresholds when genetic data were included.

Figure 1. Distribution of ESC SCD risk scores by genetic group



Conclusions: Genetic testing reveals a prevalence of P/LP variants in 1 every 3 HCM patients but provides limited independent prognostic value. The ESC SCD risk score remains the dominant predictor of cardiovascular events, with minor incremental benefits from incorporating genetic pathogenicity. Larger studies are needed to validate these findings and explore advanced integration of genetic data into clinical practice.

PO 385. ALPHA-TROPOMYOSIN GENE VARIANTS IN HYPERTROPHIC CARDIOMYOPATHY: CLINICAL FEATURES AND DISEASE PROGRESSION

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Introduction: Sarcomere Hypertrophic Cardiomyopathy (HCM) is an autosomal-dominant disease with variable genotypic and phenotypic expressions. Alpha-tropomyosin (TPM1) variants account for 1-5% of cases, but their clinical significance and role in disease progression remain poorly understood.

Baseline		FUP 11.8 years (IQR 7.22–16.36)	
Predominant affected wall		Predominant affected wall	
Septum, n (%)	10 (42%)	Septum, n (%)	10 (42%)
Anterior, n (%)	9 (37%)	Anterior, n (%)	9 (37%)
Apical, n (%)	5 (21%)	Apical, n (%)	5 (21%)
Maximum wall thickness mm (median, IQR)	17.7 (± 1.1)	Maximum wall thickness mm (mean ±SD)	19.3 (± 0.7)
Septum mm (median, IQR)	16.4 (±0.8)	Septum mm (mean ±SD)	17.3 (± 0.7)
Posterior wall mm (mean ±SD)	9.9 (± 0.3)	Posterior wall mm (mean ±SD)	10.6 (± 0.4)
LVOT obstruction, n (%)	4 (40%)	LVOT obstruction, n (%)	3 (13%)
SAM, n (%)	10 (42%)	SAM, n (%)	10 (42%)
Mitral regurgitation, n (%)	7 (29%)	Mitral regurgitation, n (%)	10 (42%)
Left atrial size mm (mean ±SD)	45 (± 1.9)	Left atrial size mm (mean ±SD)	53 (± 2.6)
Q wave, n (%)	7 (29%)	Q wave, n (%)	10 (42%)
HCM SCD risk score (median, IQR)	1.66 (± 0.2)	HCM SCD risk score (mean ±SD)	2,3 (± 0.3)
Low risk (<4%) n (%)	23 (96%)	Low risk (<4%) n (%)	17 (71%)
Intermediate risk (4-6%) n (%)	1 (4%)	Intermediate risk (4-6%) n (%)	4 (17%)
High risk (>6%) n (%)	0	High risk (>6%) n (%)	3 (12%)

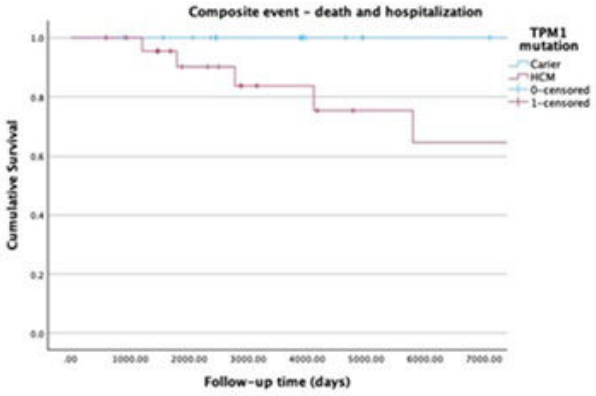

Figure 1: Clinical characteristics, risk stratification and outcomes in Hypertrophic Cardiomyopathy patients with TPM1 gene mutations. A) Composite outcome of all-cause mortality and cardiovascular hospitalizations in hypertrophic cardiomyopathy patients with TPM1 gene mutations

Figure PO 385

Objectives: To analyse the HCM phenotype and the evolutive profile in TPM1-HCM families.
Methods: A retrospective analysis of HCM patients (probands and affected relatives) followed in a tertiary center was performed, considering only those with TPM1 pathogenic/likely pathogenic variant. To assess clinical outcomes, a composite outcome of all-cause mortality and cardiovascular (CV) hospitalizations was defined.
Results: This study included 15 probands with HCM from unrelated families, totalling 48 individuals. Among them, 24 were mutation carriers without phenotypic (Ph-) expression, while 24 exhibited Ph expression. At diagnosis the mean age was 48 ± 3.9 years in the HCM group and 35 ± 3.2years in carriers Ph-, with a similar proportion of females in both groups. Most individuals carry the p.Arg21Leu variant (n = 38; 79%), while the remainder have the p.Met281Val variant (n = 10; 21%). In the HCM group, 54% were diagnosed due to symptoms (mainly chest pain), 38% through family screening and 8% by incidental findings. At baseline, 4 patients had LVOT obstruction, the mean left atrial size was 45 ± 1.9 mm and the maximum wall thickness was 17.7 (± 1.1) mm. The proportion of patients considered at intermediate or high risk for sudden death (ESC score) increased from 4% to 29% at follow-up (FUP). Two patients underwent septal reduction therapy, and 2 patients implanted cardioverter defibrillator in primary prevention. The median FUP time was 11.8 years (IQR 7.22-16.36). Only 1 mutation carrier Ph- at baseline progressed to HCM. Among HCM patients, 6 (25%) developed non-sustained ventricular tachycardia, 1 (5%) had atrial fibrillation and 1 (4%) developed a ventricular aneurysm. The composite event occurred in 5 HCM patients (21%). Significant associations were found between the composite outcome and NT-proBNP levels at diagnosis [377 pg/mL (IQR 196-558) vs. 3200 pg/mL (IQR 2,950-3,450); p = 0.019], left atrial size (43.3 ± 2 mm vs. 51.4 ± 4.3 mm; p = 0.05) and age at diagnosis (p = 0.023). HCM patients had a 6-fold increased risk of death or hospitalization compared to carriers Ph- (p = 0.012, OR 6.2).
Conclusions: In this cohort of HCM patients, TPM1 mutations were associated with clinical variability in disease expression, with some key predictors of a worse prognosis: increased NT-proBNP levels, enlarged left atrial size and older age at diagnosis.

PO 386. LEFT VENTRICULAR EJECTION FRACTION AS A PREDICTOR OF MAJOR VENTRICULAR ARRHYTHMIC EVENTS IN HYPERTROPHIC CARDIOMYOPATHY PATIENTS WITH AN ICD IN PRIMARY PREVENTION

Miguel Marques Antunes, Ricardo Carvalheiro, José Miguel Viegas, Inês Grácio Almeida, Hélder Santos, Guilherme Portugal, Bruno Tereno Valente, Ana Lousinha, Pedro Silva Cunha, Rui Cruz Ferreira, Mário Martins Oliveira, Sílvia Aguiar Rosa

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Introduction: Hypertrophic cardiomyopathy (HCM) is a prevalent and potentially life-threatening condition. Prediction of sudden cardiac death (SCD) and ventricular arrythmias (VA) in this heightened-risk population and its prevention with implantable cardiac defibrillators (ICDs) remains sub-optimal. Left ventricular ejection fraction (LVEF) is supra-normal in patients (P) with HCM, and an LVEF < 50% traditionally constitutes a known risk enhancer for ventricular events in these P – being a readily available and reproducible tool.

Table 1 – General patient characteristics and risk prediction features

Characteristics	Total patients (N=52)	Ventricular Arrythmias (N=6)	Absence of Ventricular Arrythmias (N=46)	p-value
Age - yr [IQR]	52 [42-64]	45 [57-70]	54 [45-65]	0.042
Male sex - n (%)	33 (63%)	5 (83%)	28 (61%)	0.282
NYHA class - [IQR]	2 [1-2]	2 [1-3]	2 [1-2]	0.035
Angina - n (%)	13 (25%)	2 (33%)	11 (24%)	0.639
Hypertension - n (%)	27 (52%)	4 (67%)	23 (50%)	0.442
Diabetes - n (%)	16 (30%)	3 (50%)	13 (28%)	0.278
Atrial fibrillation - n (%)	19 (37%)	3 (33%)	17 (37%)	0.862
Thyroid disease - n (%)	7 (13%)	0 (%)	7 (15%)	0.356
Heart Failure - n (%)	8 (15%)	5 (83%)	3 (7%)	<0.001
Coronary disease - n (%)	7 (13%)	2 (33%)	5 (11%)	0.129
Prior myocardial infarction - (%)	2 (4%)	1 (17%)	1 (2%)	0.083
Pharmacotherapy				
Beta-Blockers – n (%)	44 (85%)	6 (100%)	38 (83%)	0.267
Calcium Channel Blockers – n (%)	10 (19%)	1 (17%)	9 (20%	0.865
Class III antiarrhythmics – n (%)	14 (27%)	3 (50%)	11 (24%)	0.175
DOAC – n (%)	21 (40%)	4 (67%)	17 (37%)	0.163
ARNi/ACEi – n (%)	15 (29%)	4 (67%)	11 (24%)	0.030
SGLTi – n (%)	14 (27%)	3 (50%)	11 (24%)	0.175
MRA – n (%)	13 (25%)	5 (83%)	8 (17%)	<0.001
Oral diuretics– n (%)	13 (25%)	3 (50%)	10 (22%)	0.113

Table 2 – Implantable cardiac defibrillator data

Characteristics	Total patients (N=52)	Ventricular Arrythmia (N=6)	Absence of Ventricular Arrythmia (N=46)	p-value
HCM SCD 5-year risk score [IQR]	4.39% [3.33% - 6.20%]	6.74% [3.20% - 13.38%]	4.3% [3.38% - 6.01%]	0.023
SCD risk effect modifiers				
LGE > 15% - n (n of patients assessed)	39 (45)	2 (3)	37 (42)	0.332
LVEF < 50% - n (%)	4 (8%)	3 (50%)	1 (2%)	**<0.001**
LVEF – % [IQR]	66% [59% - 72%]	50% [42% - 59%]	66.5% [62%-73%]	**<0.001**
ICD activations				
Appropriate ICD activations	6 (12%)	6 (100%)	-	
Activation for Ventricular Tachycardia	3 (6%)	3 (50%)	-	
Activation for Ventricular Fibrillation	3 (6%)	3 (50%)	-	
Inappropriate ICD activations	4 (8%)	0 (0%)	4 (9%)	0.452

Figure 1 – Kaplan-Meier curve of ICD activation events

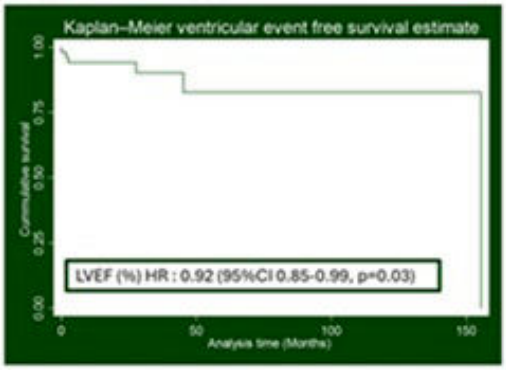

Figure PO 386

Objectives: To evaluate the impact of progressive LVEF depression in HCM P with an ICD in primary prevention, in comparison to other known predictors.

Methods: We retrospectively analyzed data from P followed at a Cardiomyopathy Clinic with an ICD in primary prevention. Patients were stratified according to their baseline SCD risk. The primary outcome was an appropriate ICD-delivered therapy, (shock or anti-tachycardia pacing. We performed a time-to-event analysis using a Cox proportional hazards regression model, to determine predictors of appropriate ICD therapy.

Results: 52 consecutive P with HCM and an ICD in primary prevention – 46 transvenous ICDs and 8 S-ICDs – were included. Median patient age at implantation was 52 [42-64] years; 33 (63%) were male. Median P follow-up was 2.2 [1.2-3.5] years at risk, with follow-up time ranging from 1 to 155 months. The primary outcome of appropriate ICD activation was met in 6 (12%) P – five shocks and one anti-tachycardia pacing. The observed rhythms were three VF (50%) and three VT (50%). Median HCM SCD risk score was 4.39% [3.33-6.20]. Patients that met the primary outcome had the following HCM SCD score distribution – High: 3; Intermediate:1; Low: 2. P that experienced VA were younger (45y vs. 54y) and more likely to be male (83 vs. 61%). Clinical heart failure was more prevalent in P with arrhythmic events (83 vs. 7%), which was compatible with a higher ACEi/ARNi (67 vs. 24%) and MRA (83 vs. 17%) use in this patient group. LVEF was identified as the strongest predictor of the primary outcome. A 1% increase in LVEF was associated with an 8% reduction in the risk of ICD activation - HR 0.92 (95%CI 0.85-0.99, p = 0.03).

Conclusions: In an HCM patient cohort at primary prevention with a median follow up time of 2.2 years the incidence of appropriate ICD activation was 12%. LV dysfunction was the strongest predictor of major ventricular arrhythmic events.

PO 387. SCREENING FOR ANDERSON-FABRY DISEASE IN PATIENTS WITH LEFT VENTRICULAR HYPERTROPHY AND DISEASE-RELATED "RED FLAGS"

Joana Certo Pereira, Maria Rita Lima, Rita Amador, Sérgio Maltês, Manuel Costa, Pedro Freitas, João Abecasis, Marisa Trabulo, António M. Ferreira, Carlos Aguiar, Regina Ribeiras, Bruno Rocha

ULS Lisboa Ocidental, Santa Cruz.

Introduction: Left ventricular hypertrophy (LVH) is a common finding in cardiovascular imaging. It might sometimes result from rare, often subtle, but specific underlying causes. "LVH" is a key feature of Anderson-Fabry Disease (AFD), a lysosomal storage disease caused by decreased (or absence) of the α-galactosidase A enzyme activity (GLA). We aimed to assess the prevalence of AFD in patients with LVH of undetermined aetiology and AFD-related 'red-flags' (RF).

Methods: Single-centre prospective study of consecutive patients with severe LVH [defined as left ventricular (LV) thickness ≥ 15 mm on cardiac magnetic resonance (CMR)] without an identifiable cause (i.e. confirmed cardiomyopathies or severe aortic stenosis). CMR studies from 2019 to May 2023 were reviewed, and patients presenting with at least one AFD-related RF (clinical, ECG, or cardiac imaging) were invited for screening with GLA activity testing (men) or genetic testing (women) starting in November 2023.

Results: Out of 256 patients identified with severe LVH, 162 (63%) without an identifiable cause were included [68 ± 13 years, 65% male, left ventricular ejection fraction (LVEF) 57 ± 14% and thickness (LVT) 18 ± 3 mm]. The main exclusion criteria were cardiac amyloidosis (45%), sarcomeric hypertrophic cardiomyopathy (27%), and death prior to evaluation (15%). Of these, 107 had ≥ 1 AFD-related RF and were invited for AFD screening. The most common RF were ECG abnormalities and imaging findings – namely reduced global longitudinal strain (≥ -15%) in 47 (29%) patients and late gadolinium enhancement (LGE) in the basal infero-lateral wall in 46 (29%) patients – whereas clinical RF were less frequent (Figure 1). Among those invited for screening, 86 (80%) accepted the invitation, resulting in a diagnosis of AFD in 5 (6%) patients. These patients [68 ± 9 years; 80% male; LVEF: 56 ± 6%; LVT: 18 ± 4mm] had a mean of 3 ± 1 RF, with the most frequent being basal infero-lateral LGE (80%). Two patients had classical AFD and the other three exhibited non-classical AFD. Four patients were referred for targeted therapy, of which two are already receiving treatment. Their families were referred for genetic counselling, having identified 2 obligate carriers, while the remainder of the individuals are undergoing further evaluation.

Conclusions: Targeted screening in patients with severe LVH and AFD-related RF identified AFD in 6% in our cohort, thus yielding a high positive rate compared to other well-established organized screening programmes. Our findings suggests that a structured routine screening should be considered in patients with severe LVH and AFD-related RF, promoting disease awareness, early detection, targeted treatment and family counselling, contributing to the improvement of prognosis and outcomes.

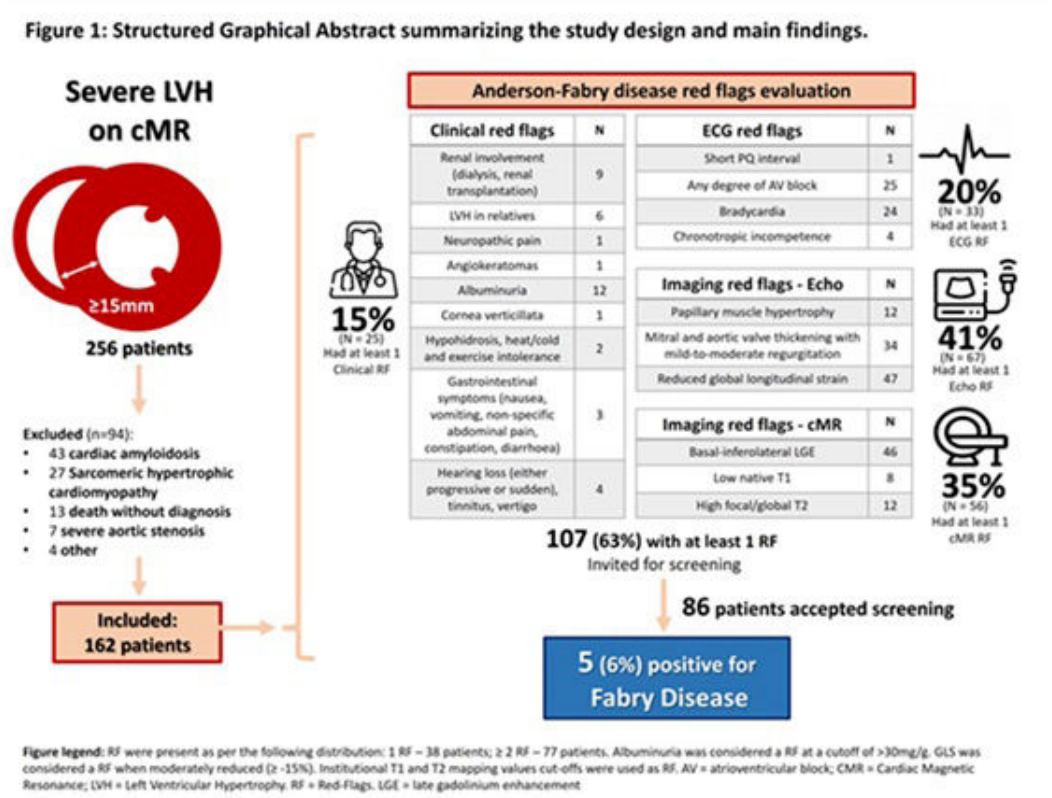

Figure PO 387

PO 388. ATRIAL FIBRILLATION PREDICTORS GENERATED BY ARTIFICIAL INTELLIGENCE IN CARDIAC MAGNETIC RESONANCE IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

Rafael Viana, Marta Paralta de Figueiredo, António Almeida, Rita Louro, Miguel Carias, Diogo Brás, Bruno Piçarra, Manuel Trinca

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Introduction: Patients with hypertrophic cardiomyopathy (HCM) have a much higher prevalence of atrial fibrillation (AF) than the general population. Even though it sometimes causes hemodynamic changes which are poorly tolerated, it can be subclinical. So earlier diagnosis and management of AF are vital to minimizing adverse outcomes. The generation of automatic parameters in CMR can revolutionize the way cardiac imaging data is analyzed, offering greater efficiency, accuracy, and potential for early detection and personalized treatment strategies.
Objectives: Our study aimed to investigate if there were AI-derived CMR parameters associated with development of AF in individuals with HCM.
Methods: We retrospectively analyzed a population of patients submitted to CMR, selected those with hypertrophic cardiomyopathy (HCM) and divided them in two groups – those with no AF and those who developed *de novo* AF after CMR. We documented demographic factors, left atrial (LAEF) and ventricular ejection fraction (LVEF), ventricular and atrial volumes and the longitudinal LA and LV shortening obtained through AI in CMR for both groups. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 103 patients, 37.9% (n = 39) had HCM. When comparing groups, 59% were male, with mean age of 61 ± 13 years and median LVEF of 63% (IQR 59.5-66.5), with no differences between groups. These patients had similar ventricular systolic and diastolic volumes and longitudinal ventricular shortening, as well as left and right atrial longitudinal shortening. However, patients who developed AF had significantly lower biplane LAEF (34.1 vs. 50.9%, p = 0.007) and higher indexed diastolic biplane LA volume (68.3 mL vs. 43.1 mL, p = 0.047). In multivariate analysis, nevertheless, none proved to be independently significant.
Conclusions: In patients with MCH, there is a positive association between lower LAEF and higher indexed diastolic biplane LA volume and the development of *de novo* AF. Although these were not independently associated, further studies with a larger population are required to establish possible predictors.

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

Área de Posters-écran 3 | Sessão de Posters 58 – Tromboembolismo

PO 389. LEFT ATRIAL APPENDAGE OCCLUSION IN COMBINATION WITH ANOTHER CARDIAC PROCEDURE: A MORE EFFICIENT APPROACH?

Ana Lobato de Faria Abrantes, Miguel Nobre Menezes, Catarina Gregório, Miguel Azaredo Raposo, Diogo Ferreira, Pedro Carrilho Ferreira, Gustavo Lima Silva, João Silva Marques, Cláudia Jorge, João de Sousa, Pedro Cardoso, Fausto J. Pinto

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Introduction: Left atrial appendage occlusion (LAAO) is increasingly used to prevent stroke in patients (pts) with atrial fibrillation (AF), sometimes in combination with another cardiac procedure. Real-world data for combined procedures is, however, limited.
Objectives: To evaluate the safety and efficacy of combining LAAO with other cardiac procedures (cLAAO).
Methods: Single-center retrospective study included consecutive pts who underwent LAAO from 2009 to early December 2024, either as an isolated

procedure (iLAAO) or in combination with another cardiac intervention. Groups were adjusted for CHA2DS2-VASc and HAS-BLED scores. Safety was defined as any acute complication and freedom from bleeding events during follow-up (FUP). Efficacy was assessed by freedom from thromboembolic events. Kaplan-Meier survival analysis was used for comparison outcomes.
Results: Among 215 pts undergoing LAAO, 46 underwent cLAAO (57% male, age 75 ± 20 years, mean CHA2DS2-VASc 2.6 ± 1.2, HAS-BLED 3.16 ± 1). Indication for LAAO was similar in both groups - high bleeding risk/OAC intolerance in 80%, followed by ischemic events despite OAC in 10%. LAAO was combined with TAVI (37%), AF ablation (33%), and percutaneous mitral interventions (22%) and was the initial procedure in only 3 cases. Implanted devices were Watchman (56%), Watchman Flx (35%), and Amulet (9%). Acute complications were more frequent with cLAAO. There were 4 cases of cardiac tamponade (3 with Watchman first gen devices and 1 with the Amulet device), 3 of which in cLAAO. All tamponades were promptly managed percutaneously and occurred during the early years of LAAO (before May 2015) (Table 1). There was one case of major vascular complication in cLAAO and 3 cases of minor vascular complications in iLAAO. 51% of pts were discharged on dual antiplatelet therapy, 28% on NOACs, 14% on VKAs with aspirin, and 7% on aspirin alone, similar between groups. Over a mean FUP of 4 years, hemorrhagic and ischemic event rates were comparable (cLAAO:8(%) vs. iLAAO:23(%) Long rank p = 0.8, cLAAO:3(%) vs. iLAAO: 2(%) Long rank p = 0.9) in both groups.

	cLAAO (N=46)	iLAAO (N=169)	P-value
Procedure time, mean±ST			
LAAO procedure time	70.4+37	94 ±30	<0.001
Total procedure time	166±73	94 ±30	<0.001
Acute success, n (%)	45 (97.8)	162 (95.9)	NS
Acute complications	6 (13)	3 (1.8)	0.012
Vascular access	2 (4.3)	2 (1.2)	NS
minor	1 (2.2)	2 (1.2)	NS
major	1 (2.2)	0	NS
Cardiac tamponade	3 (6.5)	1 (0.59)	NS
Hemorrhagic events, n	8 (17.4)	23 (13.6)	NS
Minor bleeding	2 (4.3)	13 (76.9)	NS
Major bleeding	1 (2.2)	2 (1.2)	NS
Ischemic events, n	8 (17.4)	2 (1.2)	NS
Stroke	1 (2.2)	6 (3.6)	NS
Other embolic event	1 (2.2)	3 (1.8)	NS

Table 1 - Comparison of cLAAO to iLAOO regarding procedure time, success, complications, long-term safety and efficacy.

Conclusions: Combining LAAO with another cardiac was associated with increased intra-procedural complication rates, but only earlier years of the procedure and with first generation devices. Long term, cLAAO had similar safety and efficacy when compared with iLAAO. cLAAO should be performed by experienced operators in high-volume centers, in order to ensure low complication rates.

PO 390. SEX DIFFERENCES IN PATENT FORAMEN OVALE CLOSURE: IMPACT ON OUTCOMES AND COMPLICATIONS

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

Introduction: Patent foramen ovale (PFO) is often detected in younger patients with stroke of undetermined etiology. The percutaneous PFO closure demonstrate effectiveness in reducing recurrent strokes but there is a notable absence of analysis of variances between sexes in this regard.
Methods: We conducted a one-centre, retrospective observational study, reviewing all patients who underwent percutaneous PFO closure between September 2003 and June 2023. Informatized clinical files were reviewed, and statistical analysis was performed using SPSS.
Results: A total of 378 patients were included and 56.1% were female. 345 patients underwent PFO closure after undetermined etiology stroke. The mean follow-up time was 65 (± 54) months. The number of women who underwent PFO closure after stroke were 190. The mean age among women was 48 (± 10.70) years, whereas for men, it was 47.13 (± 11.28) years. Although women showed higher occurrence of arterial hypertension (n = 59 vs. n = 45), diabetes (n = 17 vs. n = 12), hyperlipidemia (n = 81 vs. n = 74) and overweight (n = 41 vs. n = 38), none of these differences reached statistical significance. Significant differences were observed: women had higher risk of paradoxical embolism (roPE) score (6.76 ± 1.45 vs. 6.56 ± 1.75, p = 0.003), a lower prevalence of sleep apnea diagnosis (3.51 vs. 11.8%, p = 0.005) and smoke less frequently (9.95 vs. 28.19%, p < 0.001). No differences were found among high risk PFO features. Following PFO closure, females exhibited a higher incidence of residual shunt within the first month after device implantation, assessed by transthoracic echocardiography: 5.08 vs. 0.73%; OR = 7.29 (0.91-58.22); p = 0.047. Women experienced 3 procedural complications (2 vascular access complication and 1 device embolization) versus 1 in men (a vascular access complication in men), but the difference wasn't statistically significant. Long-term outcomes showed no difference between the composite of transient ischemic attack (TIA)/stroke recurrence, despite women having more events (n = 4 vs. n = 2). Throughout the follow-up period, seven patients (4 women and 3 men) developed atrial fibrillation, and six patients died (3 patients of each group).
Conclusions: Women were associated with higher incidence of residual shunt within the first month. Besides, they seem to be at a higher risk of procedural complications. Despite women have presented more TIA/stroke recurrence, long-term outcomes have shown no difference between genders.

PO 391. OUTCOMES OF LEFT ATRIAL APPENDAGE OCCLUSION IN ANTICOAGULATION FAILURE VS. CONTRAINDICATION

Rita Bertão Ventura, Mafalda Griné, Inês Brito e Cruz, Maria João Primo, Didier Martinez, Tomás Carlos, Luísa Rocha, Bernardo Resende, Manuel Oliveira-Santos, Luís Paiva, Marco Costa, Lino Gonçalves

ULS Coimbra.

Introduction: The failure of anticoagulation therapy in atrial fibrillation presents challenges in managing and preventing thromboembolic events. Percutaneous left atrial appendage occlusion (LAAO) offers mechanical cardioembolic protection and is a potential therapeutic option when anticoagulation therapy fails. This study aimed to evaluate the efficacy of LAAO in patients with thromboembolic events despite anticoagulation compared to those with contraindication to anticoagulation.
Methods: A single-centre retrospective cohort study analysed patients who underwent LAAO between 2010 and 2023. Patients were classified into two groups: Group 1 (patients with contraindication to anticoagulation) and Group 2 (patients with thromboembolic events despite anticoagulation). The primary endpoint was the occurrence of new events at 1 year, divided into thrombotic (ischemic stroke, transient ischemic attack, systemic embolism, and atrial thrombus) or hemorrhagic. Secondary analyses assessed periprocedural complications and all cause-mortality at 30 days.
Results: A total of 191 patients (mean age 74.2 ± 8.8 years, 67.0% male) were included, with 161 (84.3%) assigned to Group 1 and 30 (15.7%) to Group 2. New events at 1 year were observed in 11 patients (6.8%) in Group 1 and 1 patient (3.3%) in Group 2, without significant difference (p = 0.69). Group 1 had 7 hemorrhagic events (4.4%), while Group 2 had 1 (3.3%). There were 4 thrombotic events in Group 1 (2.5%) and none in Group 2. Periprocedural complications occurred less frequently in Group 1 (n = 5, 3.1%) than Group 2 (n = 4, 13.3%; p = 0.04). Reported complications included device embolization (n = 1, 0.6% Group 1; n = 0 Group 2), myocardial rupture (n = 1, 0.6% Group 1; n = 0 Group 2), femoral hematoma (n = 1, 0.6% Group1; n = 2, 6.7% Group 2), appendage rupture (n = 1, 0.6% Group 1; n = 1, 3.3% Group 2) and femoral artery pseudoaneurysm (n = 1, 0.6% Group 1; n = 1, 3.3% Group

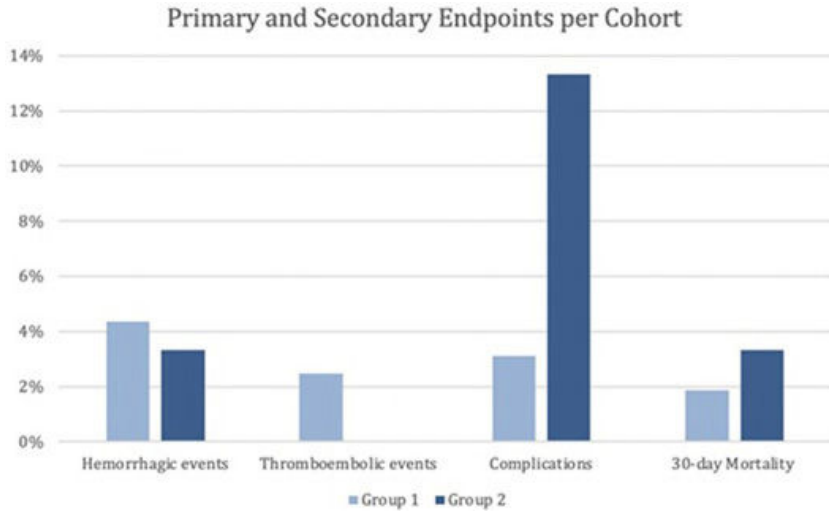


Figure PO 391

2). 30-day mortality was observed in 3 patients in Group 1 (1.9%) and 1 (3.3%) in Group 2, with no statistically significant difference (p = 0.50).
Conclusions: In a single centre cohort, there was no significant difference in thrombotic/hemorrhagic events after LAAO in patients referred due to anticoagulation contraindication or failure. In patients with anticoagulation failure, there were no thrombotic events after LAAO. These findings suggest that LAAO remains an important option for patients who experience new thromboembolic events despite anticoagulation therapy.

PO 392. COMPARATIVE OUTCOMES OF IN SITU FIBRINOLYSIS VERSUS MECHANICAL AND COMBINED TECHNIQUES IN REDUCING RIGHT HEART PRESSURES AND MORTALITY IN PULMONARY EMBOLISM PATIENTS

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

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

Introduction: Pulmonary embolism (PE) is a life-threatening condition caused by acute obstruction of pulmonary arteries, leading to increased right ventricular pressure, hemodynamic compromise, and potentially death. Management varies by severity, from anticoagulation in stable cases to advanced interventions in higher-risk presentations. Recent interest has focused on interventional treatments, including in situ fibrinolysis, mechanical thrombectomy (MT) devices like FlowTriever and Penumbra, and hybrid approaches. These techniques aim to improve thrombus resolution with lower systemic risks compared to fibrinolysis alone. However, randomized trials comparing the safety and efficacy of MT and catheter-directed thrombolysis (CDT) are limited, leaving their impact on right-sided pressures, mortality, and clinical outcomes unclear.
Objectives: This study aims to compare the effectiveness of in situ fibrinolysis with mechanical and combined therapies (CT) in reducing right heart pressures and improving survival in patients with acute PE, contributing to the ongoing effort to refine and personalize PE treatment strategies.
Results: A total of 98 patients with intermediate-low or higher risk PE were enrolled from 2020 to 2024: 69 in the CDT arm and 29 in the MT/CT arm (8 CT and 21 MT using Penumbra or FlowTriever). Most patients had intermediate-high risk PE, with more high-risk cases in the MT/CT arm (21%). Dyspnea was the most common symptom in both groups. History of DVT was the main risk factor in the CDT arm (17%), while active cancer was more frequent in the MT/CT arm (10%). ICU stays were slightly longer in the MT/CT group (4.7 vs. 3.7 days). At the 3-month follow-up, no significant differences were observed

Right heart catheterization	CDT (Mean ± SD)	MT/CT (Mean ± SD)	p-value
Change Systolic PAP Pre and Post-Intervention	17 ± 2	18 ± 4	0,586
Change Diastolic PAP Pre and Post-Intervention	7 ± 1	6 ± 2	0,878
Change Mean PAP Pre and Post-Intervention	10 ± 1	10 ± 2	0,896
TAPSE Change	2 ± 1	1 ± 2	0,57

	CDT	MT/CT
Complications (%)	6%	10%
Pulmonary dissection n, (%)	0 (0%)	1 (3%)
Pulmonary hemorrhage n, (%)	0 (0%)	1 (3%)
Peripheric hemorrhage n, (%)	1 (1%)	0 (0%)
Cardiogenic shock n, (%)	3 (4%)	1 (3%)
Recurrence of PE n, (%)	0 (0%)	1 (3%)
Recurrence of DVT n, (%)	1 (1%)	0 (0%)
CTEPH n, (%)	6 (9%)	0 (0%)
Mortality of all causes n, (%)	7 (10%)	3 (10%)
CV mortality n, (%)	1 (1%)	0 (0%)

Figure PO 392

between the CDT and MT/CT groups in systolic, diastolic, or mean pulmonary artery pressures (PAP). Systolic PAP was 17 ± 2 mmHg for CDT and 18 ± 4 mmHg for MT/CT (p = 0.586); diastolic PAP was 7 ± 1 mmHg and 6 ± 2 mmHg (p = 0.878); mean PAP was 10 ± 1 mmHg and 10 ± 2 mmHg (p = 0.896). Right ventricular function improvement was also similar between groups: 2 ± 1 for CDT and 1 ± 2 for MT/CT (p = 0.57). Complication rates were similar between CDT and MT/CT groups (6 vs. 10%). In the CDT group, complications included progression to cardiogenic shock, peripheral hemorrhage, and one case of recurrent deep vein thrombosis. The MT/CT group experienced pulmonary artery dissection, alveolar hemorrhage, and one case of recurrent PE. Six patients in the CDT group developed CTEPH, while no CTEPH cases occurred in the MT/CT group. Cardiovascular mortality was low, with one death in the CDT group due to refractory cardiogenic shock.
Conclusions: Both CDT and MT/CT are effective for treating pulmonary embolism. The CDT group had more hemorrhagic complications, while the MT/CT group showed higher mechanical complication rates. Treatment choice should consider individual risk profiles for hemorrhagic or mechanical events.

PO 393. IMPACT OF MECHANICAL THROMBECTOMY USING THE FLOWTRIEVER SYSTEM ON HEMODYNAMICS AND SAFETY IN ACUTE PULMONARY EMBOLISM

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

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

Pulmonary embolism (PE) is the leading preventable cause of death in hospitalized patients. The 2019 ESC guidelines recommend a risk-adjusted approach to acute PE management, stratifying patients by early mortality risk. Low and intermediate-low risk patients are treated with anticoagulation, while high-risk PE may require reperfusion therapy like systemic thrombolysis. However, thrombolysis is underused due to bleeding risks, contraindications, and occasional ineffectiveness. For intermediate-high-risk PE, the bleeding risks outweigh benefits. Catheter-directed reperfusion therapy is an alternative for high-risk cases where thrombolysis fails or is contraindicated. Studies, such as the FLASH trial, show that FlowTriever System (FT) thrombus aspiration is safe and effective for intermediate- and high-risk PE, though data in Portugal remain scarce and there is no follow-up data. We aim to assess the safety and hemodynamic effects of mechanical thrombectomy using the FT in patients with acute PE with at least intermediate risk, over a six-month follow-up period. Outcomes: the primary safety outcomes were the number of patients with major adverse events, including major bleeding and periprocedural device- or procedure-related adverse events, between baseline to 48. The efficacy outcomes were changes in pressures measured during right heart catheterization between baseline and six months. Other outcomes included lengths of in-hospital stay, and time spent at intensive care unit (ICU). From 2023-2024, 15 patients (mean age 60.3 ± 17.8 years) underwent mechanical thrombectomy using FT. Most patients were at high (20%) and intermediate-high (73.3%) risk, and one (6.7%) in intermediate-low risk, according to the 2019 ESC acute PE guidelines. The majority presented with dyspnea (53%) and syncope (26.6%). The most common risk factors were, in order: history of immobilization (26.6%), active cancer (6.7%), and a history of PE or DVT (6.7%). At the 6-month follow-up, before thrombectomy, the mean sPAP (58.3 ± 7.7 mmHg) and mPAP (37.0 ± 2.6 mmHg) were severely elevated. After thrombectomy, mean sPAP, diastolic PAP (dPAP), and mPAP decreased by 32 mmHg (95%CI: 2.7 to 61; p = 0.04), 14 mmHg (95%CI: 2.6 to 25.4; p = 0.03), and 17.7 mmHg (95%CI: 7.6 to 27.7; p = 0.02), respectively. Safety Outcomes: There was only one major access complication, which was a hemorrhage at the femoral access site, between baseline and 48 hours of follow-up. Importantly, one patient died during the 30-day follow-up due to refractory cardiogenic shock. We present our first experience with an advanced and dedicated large bore device for thrombus aspiration in pulmonary embolism. This device allows a fast retrieve of thrombus, with immediate reduction of right ventricle strain, and long-term reduction of PAP, in high and intermediate high-risk patients, without major safety concerns.

PO 394. RISK ASSESSMENT IN PATIENTS WITH INTERMEDIATE TO HIGH-RISK PULMONARY EMBOLISM: CAN THE VALIDATED SCORES HELP PREDICT THE NECESSITY FOR REPERFUSION THERAPY?

Francisco Rodrigues Dos Santos, Mariana Duarte Almeida, Gonçalo Ferreira, João Gouveia Fiuza, Oliver Kungel, Vanda Devesa Neto, António Costa, Inês Fiuza Pires

USL Viseu Dão-Lafões.

Introduction: Pulmonary embolism (PE) remains associated with unfavourable outcomes and high mortality rates. Early identification of high-risk patients is therefore crucial to ensure close monitoring and timely,

Right heart catheterization	Pre-procedure (Mean ± SD)	3 months Post-procedure (Mean ± SD)	Mean change (Mean 95% CI)	p-value
Systolic PAP, mmHg	58,3 ± 7,7	26,3 ± 2,8	32,0 (2,7 to 61)	**0,04**
Diastolic PAP, mmHg	26,0 ± 3,5	12,0 ± 1,2	14,0 (2,6 to 25,4)	**0,03**
Mean PAP, mmHg	37,0 ± 2,6	19,3 ± 0,8	17,7 (7,6 to 27,7)	**0,02**
CI, L/min/m2	2,6 ± 0,3	3,0 ±0,1	0,4 (-1,9 to 1,21)	0,43

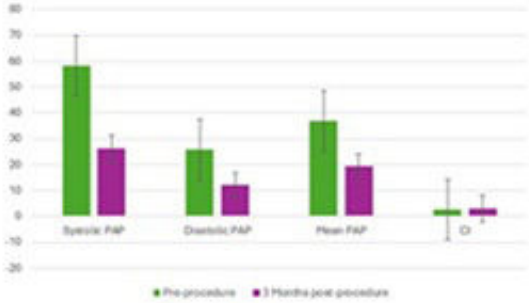
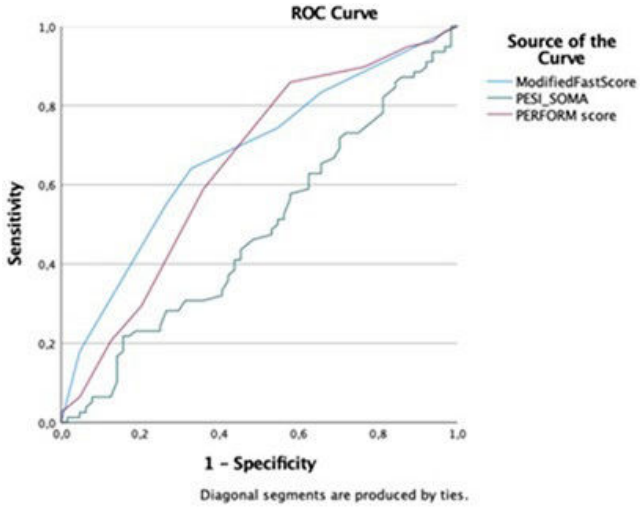


Figure PO 393

appropriate therapeutic management. Several risk scores have been developed to facilitate risk stratification, especially predicting mortality rates. This study aims to compare previous validated PE risk scores and if they can predict the need for reperfusion therapy (RT) in patients with intermediate to high-risk PE.

Methods: Retrospective analysis of all patients admitted to Cardiology department between January 2018 and November 2024 due to intermediate to high-risk pulmonary embolism (PE). Data was collected to calculate scores with clinical evidence for predicting mortality: Pulmonary Embolism Severity Index (PESI), Pulmonary Embolism Risk Score for Mortality in Computed Tomographic Pulmonary Angiography-confirmed Patients (PERFORM) and the Modified Fast Score (MFS). These scores were applied and their ability to predict the need for RT. Comparison of ROC curves were used for the comparative evaluation of the different scores.

Results: 154 patients were included; mean age was 62.7 ± 18.4 years, 61% (n = 94) were female. The 1-month mortality rate was 18% (n = 32). 51% (n = 78) were submitted to RT, 21% (n = 16) of those submitted to catheter-directed therapies. Identification of higher risk patients by each score was: MFS 47.4% patients (n = 73), PERFORM 68.2% (n = 105) and PESI 28.6% (n = 44) patients. The ability to predict need for reperfusion therapy was significant by PERFORM (43.5 vs. 7.1%; χ^2 = 20.4, p < 0.01) and MFS (32.5 vs. 18.2%; χ^2 = 16.6, p < 0.01). PESI (14.3 vs. 36.4%, p = 0.49) was not associated with need for RT. ROC curve analysis showed that AUC for PERFORM, MFS, and PESI for predicting RT were 0.647, 0.674, and 0.483, respectively, indicating superior predictive capacity of PERFORM and MFS compared to PESI (p < 0.01 and p = 0.01, respectively) (Figure 1).



Conclusions: PERFORM and MFS demonstrated superior predictive capacity for the need for RT compared to PESI score, but the predictive capacity was only satisfactory. Although previously validated to predict mortality, theses scores have not high predicting capacity do predict RT in these recent cohort. Systemic thrombolysis is the first-line reperfusion therapy, but due to contraindications and major bleeding concerns, the use of catheter-directed therapies is increasing as a suitable alternative, allowing more patients to being submitted to RT. Therefore, it becomes even more challenging applying standardized scores in heterogenic clinical scenarios.

PO 395. ENCERRAMENTO DE FOP POR SÍNDROME DE PLATIPNEIA-ORTODEOXIA NUM CENTRO NACIONAL

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Introdução: A síndrome de platipneia-ortodeoxia pode ocorrer por *shunt* direito-esquerdo intracardíaco em doentes com *foramen* oval patente (FOP), em doentes com patologias que levam à distorção desta região, nomeadamente com aneurisma ou alongamento da aorta ascendente, cifose espinhal, válvula de Eustáquio proeminente ou compressão externa da aurícula direita. Sendo uma indicação rara para o encerramento do FOP, a sua referenciação tem crescido nos últimos anos.

Métodos: Estudo retrospetivo descritivo dos doentes submetidos a encerramento de FOP por síndrome de platipneia-ortodeoxia num centro terciário nacional, no período de janeiro de 2020 a outubro de 2024.

Resultados: No período analisado efetuaram-se 181 encerramentos de FOP, dos quais 15 (8.3%) foram realizados por síndrome de platipneia-ortodeoxia. Dos procedimentos efetuados, a maioria (12) foram em mulheres, e 3 em homens. A idade média dos doentes foi de 72.9 ± 12.5 anos. Relativamente aos fatores de risco cardiovascular, há uma prevalência maior de dislipidemia e hipertensão arterial. Relativamente às causas para o aparecimento da síndrome, um doente apresentava esta síndrome por lobectomia com distorção do mediastino; num outro doente, a síndrome estava associada a dilatação da aorta ascendente. 5 encerramentos foram eletivos, com alta no dia seguinte ao procedimento; 10 foram não-eletivos, em contexto de internamento. Na maioria dos procedimentos foi utilizado um dispositivo bidisco, de acordo com a anatomia do FOP e em 4 casos foi utilizado um sistema de sutura. A única intercorrência a registar foi a ocorrência de hematoma de local de acesso venoso num doente. Durante o tempo de *follow-up*, não se registaram fibrilação auricular de novo, acidente vascular cerebral, hospitalizações, complicações vasculares major, enfartes agudos do miocárdio, derrames pericárdicos ou embolização do dispositivo; ocorreu um óbito. Em 13 doentes, não se verificou shunt residual; em 2 doentes, o shunt residual foi de pequenas dimensões e assintomático.

Conclusões: Na nossa amostra, a síndrome de platipneia-ortodeoxia causada por FOP, com indicação para encerramento ocorreu mais frequentemente em mulheres idosas. Apesar do encerramento de FOP em doentes de idade mais avançada e com mais comorbilidades se associar a um maior risco de complicações peri-procedimento e efeitos adversos a longo prazo, nesta amostra mostramos a segurança da realização deste procedimento nesta subpopulação.