C had similar 12-month survival compared with elective patients (log-rank 0.177, p = 0.151) (Figure 1).
Conclusions: Patients with advanced HF admitted for acute decompensation, with or without need for short-term MCS, had significantly shorter waiting list times compared with elective HT candidates. Despite having a higher complication burden during their admission, these patients had similar 12-month survival rates compared to those admitted electively for a HT.

PO 139. IMPACT OF THE HEARTMATE 3 ON QUALITY OF LIFE IN HEART FAILURE: A STUDY USING EQ-5D-5L

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Introduction: Advanced heart failure (HF) significantly impairs quality of life (QoL) due to severe symptom burden and functional limitations. Implantation of durable left ventricular assist devices (LVADs) such as HeartMate 3™ (HM3) has been shown to prolong life and improve QoL in eligible patients.
Objectives: To assess and compare QoL in advanced HF patients before and after HM3 implantation using the EuroQoL-5 Dimensions-5 Levels (EQ-5D-5L) questionnaire.
Methods: This cohort study included all patients currently or previously under HM3 support, followed at our center. QoL was assessed with the Portuguese telephone version of EQ-5D-5L, and responses were converted into scores using the Portuguese value set. Normality tests guided the selection of paired-samples t-test and Wilcoxon Signed Rank test for comparisons of pre- and post-HM3 scores. The latter was also compared with the societal values that serve as a reference score for the Portuguese population. Statistical significance was set at $p < 0.05$.
Results: Fourteen patients (mean age 55.9 years) with severe cardiac dysfunction (mean LVEF 20.0% ± 7.1%) were included. The most frequent etiology was ischaemic (57.1%), followed by dilated (28.6%) cardiomyopathy. Most patients were in INTERMACS profiles 2 or 3 at implantation, with 57.1% receiving HM3 as a bridge to transplantation and 14.3% with the goal of destination therapy. After a median LVAD duration of 19.5 months [16.0-32.0] months, QoL showed significant improvement: median EQ-VAS rose from 20.0 to 70.0 (p = 0.008), and mean EQ-5D-5L index increased from 0.347 to 0.895 (p = 0.001, 95%CI 0.230-0.867). Domain analysis revealed significant reductions in problems related to mobility (p = 0.006), usual day activities (p = 0.003), pain/discomfort (p = 0.044) and anxiety/depression (p = 0.041), while self-care limitations remained unchanged. Post-HM3 implantation QoL was comparable to the general Portuguese population (p = 0.388) and superior to the chronic disease subgroup (p = 0.011).
Conclusions: Advanced HF patients receiving HM3 experience significant QoL improvements, achieving levels similar to the general Portuguese population and exceeding those of patients with chronic diseases. These findings align with existing literature, including the HM3 ELEVATE registry.

PO 140. ASSESSMENT OF PALLIATIVE CARE NEEDS IN ADVANCED HEART FAILURE PATIENTS WITH LEFT VENTRICULAR ASSIST DEVICES

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Introduction: Durable left ventricular assist device (LVAD) implantation is a well-recognized trigger for specialist palliative care (PC) referral, as recognized by international guidelines. Despite the well-documented PC needs of this population, longitudinal PC integration remains rare in advanced heart failure (HF). Proper screening for these needs is critical to reduce suffering and improve quality of life.
Objectives: To evaluate the prevalence and characteristics of PC needs in patients under HeartMate 3™ (HM3) support, using the Integrated Palliative care Outcome Scale (IPOS).
Methods: This cross-sectional study included all patients on HM3 support at a single center. The Portuguese patient version of IPOS was administered once to assess holistic symptom burden over the preceding week. Clinically significant unmet needs were defined as items scored ≥ 2 and required feedback to the attending physician for further assessment or referral.
Results: Eleven patients (mean age 58.2 years) with HM3 support were included. LVAD was implanted for ischemic cardiomyopathy in 63.6% of cases and as a bridge to transplantation in 54.5%, with other goals including bridge to candidacy (27.3%) and destination therapy (18.2%). At a mean LVAD duration of 23.2 ± 10.6 months, 72.7% exhibited unmet PC needs, with a mean overall score of 7.73 ± 6.54 (out of 68). As main problems, two patients identified anxiety about future transplantation. 36.4% presented at least one clinically relevant physical symptom with weakness being the most troublesome. As additional symptoms, 63.6% of patients spontaneously described slight-to-moderate dizziness. Psychological needs were dominated by health-related anxiety, with a minority reporting mild depression (18.1%). On the other hand, 27.3% reported moderate spiritual distress. All patients felt adequately informed about their condition. Family anxiety (45.5%) and only partly addressed practical issues such as financial concerns (27.3%) represented the most common social challenges. Interventions following IPOS screening included one hospitalization for symptom management, three referral suggestions for social worker (n = 2) and psychological (n = 1) intervention. There were no significant differences between the IPOS overall score and NYHA functional classes (p = 0.088).

EQ-5D-5L	Prior to HeartMate 3 (n=14) mean±SD or median [IQR]	Under HeartMate 3 (n=14) mean±SD or median [IQR]	p	95% CI
Mobility	0,182 [0,000-0,356]	0,000 [0,000-0,048]	**0,006**	–
Self-care	0,024 [0,000-0,294]	0,000 [0,000-0,070]	0,242	–
Usual activities	0,199 [0,063-0,263]	0,022 [0,000-0,044]	**0,003**	–
Pain/discomfort	0,000 [0,000-0,254]	0,000 [0,000-0,000]	**0,044**	–
Anxiety/depression	0,060 [0,000-0,212]	0,000 [0,000-0,036]	**0,041**	–
EQ-5D-5L index	0,347±0,520	0,895±0,106	**0,001**	0,230 – 0,867
EQ-VAS	20,0 [10,0-30,0]	70,0 [65,0-70,0]	**0,008**	–

	HeartMate 3	Portuguese general population	p	95% CI	Portuguese chronic disease subgroup	p	95% CI
EQ-5D-5L index, mean	0,895	0,887	**0,388**	-0,527 – 0,069	0,822	**0,011**	0,012 – 0,134

Figure PO 139

IPOS Dimensions	Patients under HM3 (n=11)				
	Subscore		Palliative Care Needs, n (%)		
	median (IQR)	min-max	Yes	Moderate	Severe or Overwhelming
Physical [0-40]	2,0 (0,5-3,0)	0-20	4 (36,4)	2 (18,2)	2 (18,2)
Psychological [0-8]	1,0 (0,0-2,0)	0-4	5 (45,5)	3 (27,3)	2 (18,2)
Spiritual [0-4]	0,0 (0,0-1,0)	0-2	3 (27,3)	3 (27,3)	0 (0,0)
Information [0-4]	0,0 (0,0-0,0)	0-0	0 (0,0)	0 (0,0)	0 (0,0)
Social [0-12]	1,0 (0,5-4,5)	0-8	5 (45,5)	1 (9,1)	4 (36,4)

IPOS Score	Patients under HM3 (n=11)	
	mean ± SD	min-max
Overall IPOS score [0-68]	7,73 ± 6,54	0-31
Transformed IPOS score [0-100]	11,36 ± 9,62	0-21

Figure PO 140

Conclusions: To the best of our knowledge, IPOS had never been applied to patients under LVAD support before, although clinically validated in advanced HF. While LVADs enhance survival and quality of life, significant unmet PC needs persist in this population. This study highlights the utility of IPOS in identifying these needs. Repeated use of IPOS may provide valuable insights for tracking changes over time and tailoring interventions. Further research is needed to assess the impact of systematic PC screening on quality of life in LVAD-supported patients.

PO 141. CAUSES AND PROGNOSTIC IMPLICATIONS OF HOSPITAL ADMISSIONS FOLLOWING SUCCESSFUL HEART TRANSPLANTATION

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Introduction: Hospitalizations after successful heart transplantation (HT) are common and can occur for several reasons. However, there is limited data regarding their leading causes, timing and potential prognostic impact.
Methods: We conducted a single-center retrospective study of patients who underwent HT between 2018 and 2024 and survived to discharge. Patients with subsequent hospitalizations were characterized with respect to cause of admission, associated immunosuppression (IS), and total number of days spent in hospital. Additionally, the association between hospitalizations and all-cause mortality was evaluated and stratified according to the time elapsed since HT.
Results: The study population comprised 70 HT recipients (mean age 51 ± 11 years; 33% women). During the median follow-up of 646 days [IQR 327-1412], 10 patients died (14.3%). Overall, 31 patients (44%) were hospitalized at least once during follow-up (17 patients had ≥ 2 hospitalizations; maximum 8 hospitalizations per patient). Median time from HT to first hospitalization was 109 days [IQR 27-464]. Median length-of-stay was 16 days [IQR 9-52]. The first hospitalization occurred in the first year post-HT in 21 patients. Infections were the leading cause of hospitalization in this group (62%) (Figure 1), and 46% of these infections were linked to supratherapeutic IS. Rejection accounted for 24% of the remaining hospitalizations, and 40% of these were linked to subtherapeutic IS. Other causes of hospitalization included IS toxicity (9%). In-hospital mortality for the first hospitalization in the first year post-HT was 2.9%. The first hospitalization occurred after the first year post-HT in 10 patients. The cause of these admissions was infection in 30% of cases, of which 50% were linked to supratherapeutic IS. IS toxicity was the cause of another 20% of hospitalizations after the first year post-HT. No cases of acute allograft rejection were reported. In-hospital mortality for hospitalizations beyond the first year post-HT was 0%. All-cause mortality was higher among patients hospitalized within the first year post-HT compared with those without any hospitalization during follow up [HR 5.49; 95%CI 1.42-21.27, p = 0.014] (Figure 2). Patients with a first hospitalization after the first year post-HT had similar mortality compared with those without any hospitalization. Infection-related hospitalizations any time after HT were also associated with higher all-cause mortality [HR 5.43; 95%CI 1.40-21.04; p = 0.014] (Figure 3). Other causes of hospitalization did not impact subsequent survival.

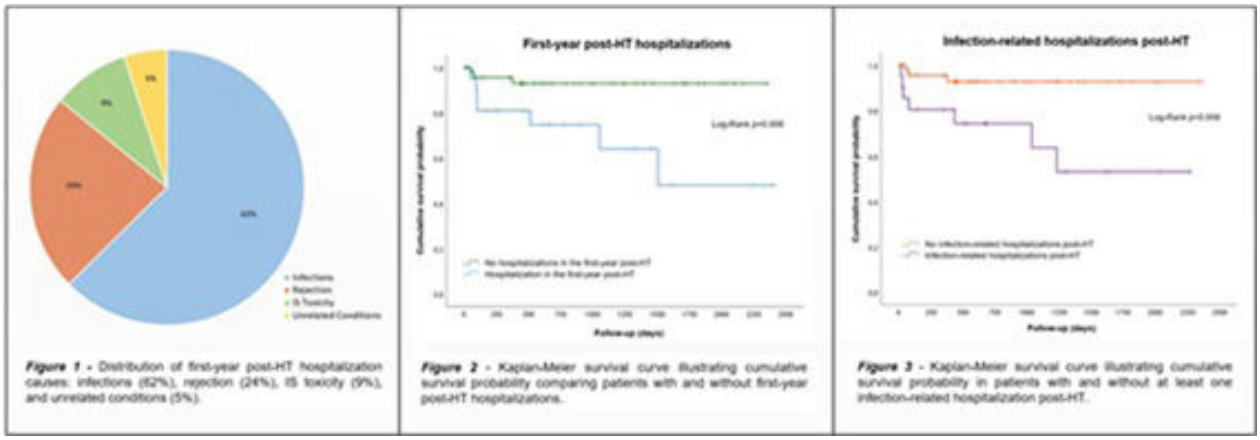

Figure PO 141

Conclusions: Infections are a major cause of hospitalization post-HT, particularly in the first year, and may contribute to increased all-cause mortality. These results underscore the delicate balance between IS and infectious risk, highlighting the need for optimized post-HT care strategies.

PO 142. THE ROLE OF MULTIDISCIPLINARY HEART FAILURE OUTPATIENT CLINICS IN THE MANAGEMENT AND PROGNOSIS OF PATIENTS WITH ADVANCED HEART FAILURE

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Introduction: Advanced heart failure (AHF) is defined as the persistence of severe symptoms despite optimized medical, surgical, and device therapies with a high risk of adverse outcomes. Nevertheless, not all pts are eligible for advanced treatments, such as heart transplantation or long-term mechanical circulatory support. Multidisciplinary HF outpatient clinics may help improving outcomes in these complex pts.
Objectives: To demonstrate the impact of our multidisciplinary HF unit on HF hospitalizations and emergency department visits in pts with advanced HF in a real-world setting.
Methods: This retrospective observational study included 74 outpatients with AHF followed at our HF unit, between September 2020 - September 2024. A "same day clinic" philosophy is provided with a 5 days/week open access clinic. Hospitalizations, HF events and all-cause mortality were analysed. AHF was defined according to the 2018 *Position statement from Heart Failure Association of the European Society of Cardiology for Advanced Heart Failure.*

Table 1: Baseline characteristics and clinical data of individuals with advanced HF

Characteristics	
Mean age - yr	72 ± 12,4
Sex - no (%)	
Male	50 (67,6)
Female	24 (32,4)
Mean body-mass index	26,2 ± 3,8
Mean ejection fraction at screening - %	38,5 ± 13,5
LVEF < 40% - no (%)	44 (59,5)
LVEF 40 - 49% - no (%)	12 (16,2)
LVEF ≥ 50% - no (%)	18 (24,3)
NYHA functional class - no (%)	
II	5 (6,8)
III	62 (83,8)
IV	7 (9,5)
Implantable device - no (%)	34 (45,9)
Hypertension - no (%)	54 (73)
Diabetes mellitus - no (%)	41 (55,4)
Chronic kidney disease	30 (40,6)
Levosimendan infusion - no (%)	33 (44,6)
Palliative care - no (%)	19 (25,7)
Outcomes	
Hospitalization for HF - no (%)	17 (23)
Programmed visits - mean	26,8 ± 17,5
Urgent HF visit to our unit - no (%)	68 (91,9)
Urgent HF visit to our unit - mean	5,9 ± 5,3
Death from any cause - no (%)	36 (48,6)
Death from cardiovascular cause	7 (9,5)

Results: This cohort included 74 pts with a mean age of 72 years (SD = 12.4), and a 68% male predominance. The mean follow-up was 18.5 months (± 9.2). Most pts (93%) had a current NYHA functional class of III or IV. A high prevalence of cardiovascular comorbidities was observed, including hypertension (73%), diabetes mellitus (55%), chronic kidney disease (39%), and obesity (32%). Ischemic cardiomyopathy was the etiology of HF in 46% of pts. The mean NT-proBNP level was 10,685 pg/mL and mean serum creatinine was 2.2 mg/dL. Regarding HF subtypes, 59.5% had HFrEF, 16.2% had HFmEF, and 24.3% had HFpEF. Although 68 outpatients (91.9%) required an urgent visit for intravenous diuretic therapy (mean 5.9 ± 5.3 visits per pt), only 17 pts (23%) were hospitalized for HF. Approximately 44.6% of pts were on levosimendan, which was associated with lower mortality (p = 0.005). Death from any cause occurred in 36 pts (48.6%), traducing pt severity, nevertheless death from cardiovascular causes only occurred in 7 pts (9.5%).
Conclusions: Our cohort demonstrated high rates of all-cause mortality and decompensation, consistent with those reported in pts with advanced or worsening HF. However, hospitalizations for HF were low. The role of our HF unit and multidisciplinary team was crucial, as most episodes of worsening HF were managed without hospitalization. We conclude that open access to specialized HF care can significantly improve outcomes in pts with AHF.

PO 143. PREDICTORS OF CARDIAC ALLOGRAFT VASCULOPATHY AND DYSFUNCTION IN HEART TRANSPLANTATION: A SINGLE-CENTER STUDY

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Hospital Santa Cruz ULSLO.

Introduction: Heart transplantation (HT) is the gold-standard treatment for selected patients with advanced heart failure. However, long-term outcomes may be significantly influenced by complications, particularly cardiac allograft vasculopathy (CAV) and late graft dysfunction (LGD). We aimed to evaluate the predictors of CAV and LGD following HT.
Methods: Retrospective single-center cohort study including all patients who underwent orthotopic heart transplantation between 2019 and 2023. Post-HT monitoring included endomyocardial biopsies (EMBs) to detect acute rejection, as well as blood tests to assess renal function and cardiac biomarkers at predefined intervals (1, 2, 3, 4, 6, 8, and 12 weeks; 4, 6, 8, 10, and 12 months). CAV was assessed by coronary angiography or cardiac CT and patients were classified as per the ISHLT Guidelines into CAV score 0-1 and score ≥ 2. LGD was evaluated by transthoracic echocardiography and defined as left ventricular ejection fraction (LVEF) < 55%. CAV and LGD were assessed at 1-year post-HT.
Results: The study included 57 patients (mean age 51 ± 11 years; 74% male). During the first year post-HT, cardiovascular risk factors were prevalent, including dyslipidemia (60%), diabetes mellitus (44%) and hypertension (40%). Among 595 EMBs, there were 54 (9%) rejection episodes in 25 (44%) patients, comprising of 18 acute cellular rejections (ACR) in 13 patients and 36 antibody-mediated rejections (AMR) in 16 patients. At 1-year post-HT, 6 patients (11%) had moderate-to-severe (ISHLT ≥ 2) CAV. These were all male (100 vs. 34%, p = 0.076) with a higher prevalence of cardiovascular risk factors [e.g., hypertension (83 vs. 36%, p = 0.030), higher median total cholesterol (188 ± 25 *vs.* 163 ± 25 mg/dL, p = 0.028), with a trend towards more patients with type 2 diabetes mellitus (83 *vs.* 42%, p = 0.058)] and renal dysfunction (mean creatinine 1.5 ± 0.5 *vs.* 1.1 ± 0.3 mg/dL, p = 0.025). Half of the patients with CAV experienced AMR episodes beyond the first month post-HT (50 vs. 17%, p = 0.065). There were no differences in cardiac biomarkers or ACR episodes between CAV 0-1 vs. score ≥ 2. At 1-year post-HT, the mean LVEF was 58 ± 5%. LGD was identified in 12 patients (21%). These patients were older (mean age 55 ± 49 years, p = 0.082) and had a higher body mass index (27 ± 3 *vs.* 24 ± 4 kg/m^2, p = 0.044). One in every three patients with LGD experienced ACR episodes beyond the first month post-HT (33 vs. 6%, p = 0.015). We found no differences in cardiac biomarkers levels or AMR episodes between patients with and without LGD.
Conclusions: In a contemporary cohort of HT patients, CAV was associated with sex (male), traditional cardiovascular risk factors and AMR episodes, and LGD was associated with age (older), body mass index (higher) and ACR episodes (Figure 1), thus reproducing older studies. These findings underscore that both non-modifiable and potentially modifiable markers may associate with CAV and LGD.

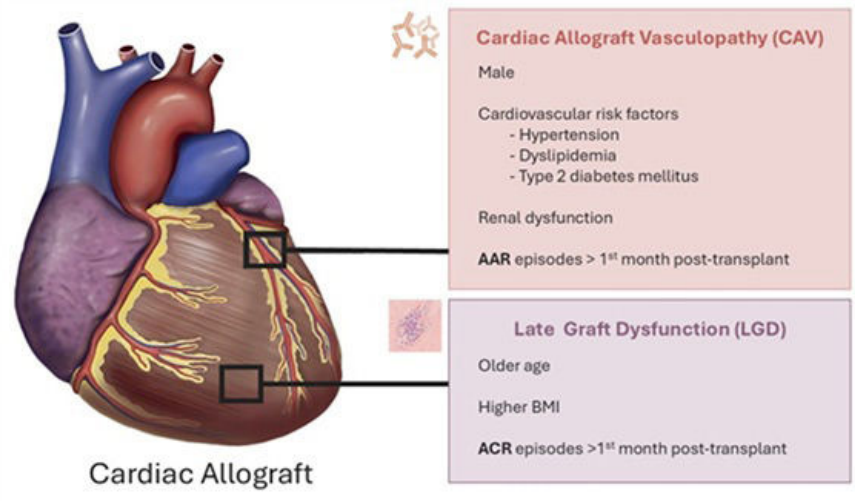

Figure 1. Risk factors associated with cardiac allograft vasculopathy (CAV) and late graft dysfunction (LGD) in our cohort of heart transplant recipients during the first-year post-transplant.

Figure PO 143

Sexta-feira, 11 Abril de 2025 | 16:15-17:15

Área de Posters-écran 1| Sessão de Posters 23 – Insuficiência cardíaca e hipertensão pulmonar: duas áreas de intensos avanços científicos

PO 144. CLINICAL AND BIOCHEMICAL CHARACTERISTICS ASSOCIATED WITH IMPROVED HEART FAILURE OUTCOMES FOLLOWING A TELEMONITORING PROGRAM

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Introduction: Telemonitoring (TM) is a method that leverages telecommunications to track patient health from a distance, playing a key role in the follow-up and preventive medicine of chronic heart failure (HF) patients. Currently there is a lack of robust evidence for which patients would benefit the most from such programs, and such better help clinicians decide who to refer.
Objectives: To identify patient characteristics associated with improved cardiovascular outcomes in HF patients enrolled in a TM program, to help optimize patient selection and improve program effectiveness.
Methods: Data was obtained and analysed from 31 HF patients in a TM program, comparing several biochemical and clinical endpoints in the year prior and after joining the program.
Results: The sample included 24 males (77%) with a mean age of 67 years, with multiple cardiovascular risk factors (CVRF) (61% hypertensive; 74% dyslipidaemic; 36% diabetic; 16% obese; 16% smoker) and multiple co-morbidities (23% chronic kidney disease; 19% atrial fibrillation; 16% sleep apnoea; 7% chronic obstructive lung disease). The majority of patients had ischaemic heart disease (81%) and a mean left ventricular ejection fraction (LVEF) of 34%. The most frequent TM alert was body-weight increase (59%), and the majority of the alerts were resolved without the need for a hospital visit (67%). After one year of follow-up, patients showed a mean decrease in hospitalizations (-0.7 mean; 0.95 SD), admission days (-5.8 mean; 11.0 SD), emergency room visits (-0.3 mean; 1.4 SD), NYHA class (-0.4 mean; 0.7 SD), diuretic dose (-0.7 mean; 33.3 SD), BNP levels (-1,542.3 mean; 5,000 SD), LDL levels (-30.6 mean; 51.9 SD), and an increase in LVEF (6.4 mean; 8.4 SD). Significant differences were found in number of hospitalizations ($p < 0.01$), days in hospital ($p < 0.01$), NYHA class ($p < 0.01$), LDL levels ($p < 0.01$), and LVEF ($p < 0.01$) (Table 1). Multivariate analysis was performed to identify which characteristics best correlate with positive clinical and biochemical outcomes. A significant reduction in clinical outcomes was observed in patients with higher previous hospitalizations, prolonged admissions, emergency room visits, NYHA functional class, diuretic dose, and lower LVEF, indicating that clinically worse patients with multiple recent events seem to benefit the most from this program.
Conclusions: HF patients with advanced disease showed the most benefit from telemonitoring, with reductions in hospitalizations and improvements in NYHA class and LVEF. The presence of additional risk factors or comorbidities alone did not predict better outcomes, suggesting instead telemonitoring is particularly beneficial for patients with multiple recent cardiac events.

PO 145. TELECONSULTATION: A TOOL TO SUPPORT PEOPLE WITH HEART FAILURE

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Introduction: Teleconsultation aims to offer a specialized evaluation that promotes proximity and ensures the accessibility of care in order to respond to the needs of patients. Heart failure (HF) is a public health problem with a high incidence and is the first cause of hospitalization after the age of 65 in industrialized countries. In order to create strategies that facilitate quick and personalized management in case of decompensation, adherence to treatment and support for the management of the person with HF, our outpatient HF clinic team created a direct contact for the person/family with HF and the primary health care (PHC) health team.
Objectives: To demonstrate the importance of unscheduled teleconsultation in the management of decompensations of people with HF.
Methods: Retrospective evaluation of teleconsults provided by HF outpatient nursing team, from January 2020 to November 2024. Clinical cases were discussed with HF specialists whenever necessary.
Results: We analyzed 5,551 telephone contacts, 3,057 (55%) of clinical acts. Contacts related to symptoms of congestion and low output were 29% (n = 880), clarification of doubts 37% (n = 1,122) (mainly about the therapeutic regimen), 24% (n = 730) related to other pathologies, 1.5% (n = 46) related to dysrhythmias and ICD shocks, 6.4% (n = 188) about therapeutic complications. We also receive contacts from primary care, 3% (n = 79), for clinical discussion or urgent referral to HF clinic. In 1,654 clinical contacts (86%) an action was taken: 35% (n = 570) were forwarded for urgent

Table 1. Paired Sample T-Tests of Clinical & Biochemical Differences After 1-Year Follow-Up

	Mean Difference	Standard Deviation	Two-Sided P-Value
Hospitalizations	0.68	0.95	<0.01
Days in Hospital	5.84	11.01	<0.01
Emergency Room Visits	0.32	1.35	0.19
NYHA Functional Class	0.42	0.67	<0.01
Diuretic Dose	0.65	55.26	0.92
LDL Serum Levels	30.55	51.88	<0.01
HbA1c Serum Levels	0.10	0.90	0.30
Left Ventricule Ejection Fraction	4.41	8.44	<0.01

Table 2. P-Values of One-Way ANOVA for Clinical & Biochemical Differences After 1-Year Follow-Up

Characteristics	Hospitalizations	Days in Hospital	ER Visits	NYHA Class	Diuretic Dose	BNP	LDL	HbA1c	LVEF
Hypertension	0.74	0.56	0.82	0.29	0.34	0.72	0.59	0.54	0.65
Dyslipedimia	0.27	0.22	0.31	0.11	0.59	0.74	0.15	0.77	0.12
Diabetes	0.32	0.47	0.68	0.19	0.42	0.41	**0.01**	0.78	0.98
Obesity	0.06	0.26	**0.02**	0.44	0.60	0.62	0.35	0.76	0.21
Alcohol	0.06	0.18	0.07	0.12	0.30	0.83	**0.02**	0.31	**< 0.01**
Smoking	0.06	0.18	0.89	0.95	0.13	0.49	0.66	0.76	0.89
Nº Cardiovascular Risk Factors	0.33	0.80	0.63	0.16	0.93	0.70	0.16	0.64	0.27
Atherosclerotic Disease	0.66	0.84	0.31	**0.02**	0.31	0.93	**< 0.01**	0.97	**0.05**
Chronic Kidney Disease	0.58	0.91	0.48	0.56	0.11	0.44	0.31	0.41	0.95
Chronic Pulmonary Disease	0.63	0.12	**0.05**	0.21	0.69	0.86	0.10	0.38	0.36
Sleep Apnea	0.41	0.66	0.57	0.95	0.96	**0.02**	0.06	0.02	0.21
Atrial Fibrillation	0.98	0.69	0.33	0.75	0.63	**0.01**	0.33	0.95	0.72
Nº Comorbidities	0.68	0.40	0.54	0.85	0.89	**0.03**	0.08	0.23	0.74
Hospitalizations	**< 0.01**	**< 0.01**	**< 0.01**	0.44	0.50	0.45	0.25	0.10	0.20
Days in Hospital	**< 0.01**	**< 0.01**	**< 0.01**	**< 0.01**	**0.05**	0.79	0.58	0.41	0.32
Emergy Room Visits	0.81	0.84	0.10	**< 0.01**	**0.04**	0.10	0.19	0.23	**0.08**
NYHA Functional Class	0.52	0.66	0.76	**< 0.01**	0.67	0.54	**0.04**	0.62	0.73
Diuretic Dose	0.07	0.06	**< 0.01**	0.90	**0.05**	0.32	**0.04**	0.06	0.52
Left Ventricule Ejection Fraction	**0.03**	0.47	0.68	0.72	0.54	0.83	**0.01**	0.70	0.21

Figure PO 144

HF outpatients clinic visits, 16% (n = 271) were sent for primary health care evaluation and 4% (n = 62) to the emergency room. In 45% (n = 751) of calls, immediate therapeutic adjustment was performed, and posterior in-person or non-face-to-face reassessment was made when necessary. Of the 343 contacts due to congestion and low output requiring urgent visit, 41% received intravenous therapy in the HF clinic and the remaining 59% underwent therapeutic adjustment. Only 6% (21) of these were sent to E.R. or to direct hospitalization and 33% (7) were non cardiac reasons.
Conclusions: Direct access to the HF multidisciplinary team with "an open-door philosophy" is crucial in the management of HF patients preventing emergency room visits and hospitalizations.

PO 146. PREVENTION OF HEART FAILURE HOSPITALIZATION BASED ON REMOTE MONITORING AND EARLY INTERVENTION

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Introduction: Remote monitoring (RM) has emerged as a critical tool in managing heart failure (HF) patients (P). HF algorithms can identify P with high risk of 30-day decompensation by combining parameters such as thoracic impedance, arrhythmia burden, percentage of right ventricular pacing, night ventricular rate, or patient activity levels. A multidisciplinary approach in RM leads to earlier therapeutic interventions, possibly impacting patient outcomes. We analyzed data from patients with HF and cardiac electronic implantable devices, under RM, focusing on high-risk alerts and examining the relationship between therapeutic interventions and hospitalization outcomes.
Methods: The sample included 49 P (69.4% male, median age 76 years), with various HF etiologies. A single-center retrospective analysis of high-risk alerts using two different algorithms (Triage HF, Medtronic®; and HeartLogic, Boston Scientific®) was conducted. We sought to study 30-day hospitalizations in P with high-risk alerts and their correlation with therapeutic interventions using chi-square tests.
Results: There were 55 high-risk alerts from January 2023 to November 2024. Of these high-risk alerts, 72.7% were related to increased thoracic impedance, 56.4% to low patient activity, and 52.7% to increased night ventricular rates. Therapeutic interventions occurred in 56.4% of these cases, while 43.6% were maintained under regular surveillance. Of all interventions, 71% were based on increasing diuretics. In two years, there were only 2 hospitalizations in 30-day follow-up of the alerts, suggesting that most interventions were successful, and the surveillance strategy was well identified and applied.
Conclusions: RM provides valuable insights into HF decompensation risk, with congestion and low activity being predominant triggers for high-risk alerts. From a total of 55 high-risk alerts only 3.6% required hospitalization. This suggests the important role of a RM programme in HF P in lowering hospitalizations.

PO 147. THE HIDDEN COST OF ANTHRACYCLINES: CARDIAC DYSFUNCTION AND FUNCTIONAL IMPAIRMENT IN BREAST CANCER

Margarida de Castro, Luísa Pinheiro, Mariana Tinoco, Tamara Pereira, Mário Lourenço, Liliana Oliveira, Mafalda Cunha, Geraldo Dias, Filipa Almeida, Olga Azevedo, João Português, António Lourenço

Unidade Local de Saúde do Alto Ave.

Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a prevalent and serious concern for Breast Cancer (BC) patients undergoing anthracycline chemotherapy (AC). However, current methods to detect CTRCD rely on resting echocardiographic parameters, such as left ventricular ejection fraction (LVEF) and global longitudinal strain (GLS), which have

Table 1.

CTRCD was defined as:
(i) new LVEF <40%;
(ii) new LVEF reduction by ≥10% to 40-49%;
(iii) new LVEF reduction by <10% to 40-49% with either a new GLS decline >15% from baseline or a new rise in cardiac biomarkers*
(iv) LVEF ≥50% with a new GLS decline >15% from baseline and/or a new rise in cardiac biomarkers*

*A rise in cardiac biomarkers was considered when hsTnI was above the 99th percentile or a new significant rise >20 pg/mL was observed from baseline (beyond biological and analytical variation), or in the presence of NT-proBNP values ≥125pg/mL

Figure PO 147

limited sensitivity in early stages of cardiac damage. Cardiorespiratory fitness (CRF) is a strong predictor of quality of life (QoL), heart failure (HF) and mortality in cancer patients, and is being explored for its potential to detect post-AC cardiac damage in BC patients.

Objectives: To evaluate the effects of AC on CRF in BC patients and to compare the value of impaired CRF to CTRCD criteria as a marker of cardiac damage in these patients.

Methods: Prospective study including women with early-stage BC undergoing AC, who underwent CPET and resting echocardiographic evaluation at three visits: before AC, 1-month and 6-months after completing AC. CTRCD was defined according to ESC cardio-oncology guidelines (Table 1). CRF was evaluated by cardiopulmonary exercise test (CPET). CPETs were considered maximal if at least two criteria were met: (1) reaching the maximal predicted HR, (2) achieving a respiratory exchange ratio (RER) of 1.05 or higher, or (3) experiencing respiratory exhaustion. Functional disability (FD) was defined as a VO2peak ≤ 18.0 mL/kg/min.

Results: We included 32 women with a mean age of 50.8 ± 9.3 years. Significant reductions were observed in both 2D and 3D LVEF at 1-month (2D: 63.3 ± 3.0% to 61.0 ± 4.0%, p = 0.007; 3D: 62.8 ± 4.9% to 61.0 ± 4.4%, p = 0.020) and at 6-months (2D: 60.9 ± 5.0%, p = 0.031; 3D: 59.5 ± 5.9%, p = 0.003). LV 2D-GLS showed a reduction from -19.9 ± 1.9% to -18.5 ± 1.9% at 1-month (p = 0.003) and to -18.4 ± 2.1% at 6-months (p < 0.001). LV 3D-GLS decreased from -19.5 ± 1.8% to -17.4 ± 2.7% at 1-month (p < 0.001) and to -18.2 ± 2.9% at 6-months (p = 0.002). CTRCD was detected in 68.8% (n = 22) (LVEF/GLS/biomarker criteria: n = 0/6/17) at 1 month and in 18.8% (n = 6) at 6 months (LVEF/GLS/biomarker criteria: n = 0/5/3). FD increased from 9% pre-AC to 44% at 1-month and 53% at 6-months post-AC. Patients with FD exhibited higher frequency of CTRCD at 1 month (85.7 vs. 55.5%; p < 0.05) and at 6-months (35.3 vs. 0%; p < 0.05). In univariate analysis, GLS and LVEF were not related to CRF.

Conclusions: CTRCD criteria detect cardiac damage in 68.8% at 1 month, while FD detects in only 44%, so CTRCD seems more sensitive for cardiac damage detection in an early stage. At 6-months post-AC, 53% of the patients had FD, while only 18.8% were diagnosed with CTRCD, suggesting that, with the current definition of CTRCD, many cases with potential long-term HF risk and morbimortality may be missed. Therefore, our study shows that CTRCD and FD criteria may have a complementary role in the evaluation of cardiac damage of AC in BC patients.

PO 148. ANÁLISE CUSTO-EFETIVIDADE DA ANGIOPLASTIA PULMONAR SOB TERAPÊUTICA VASODILATADORA PULMONAR VERSUS TERAPÊUTICA VASODILATADORA PULMONAR ISOLADA EM DOENTES COM HPTEC

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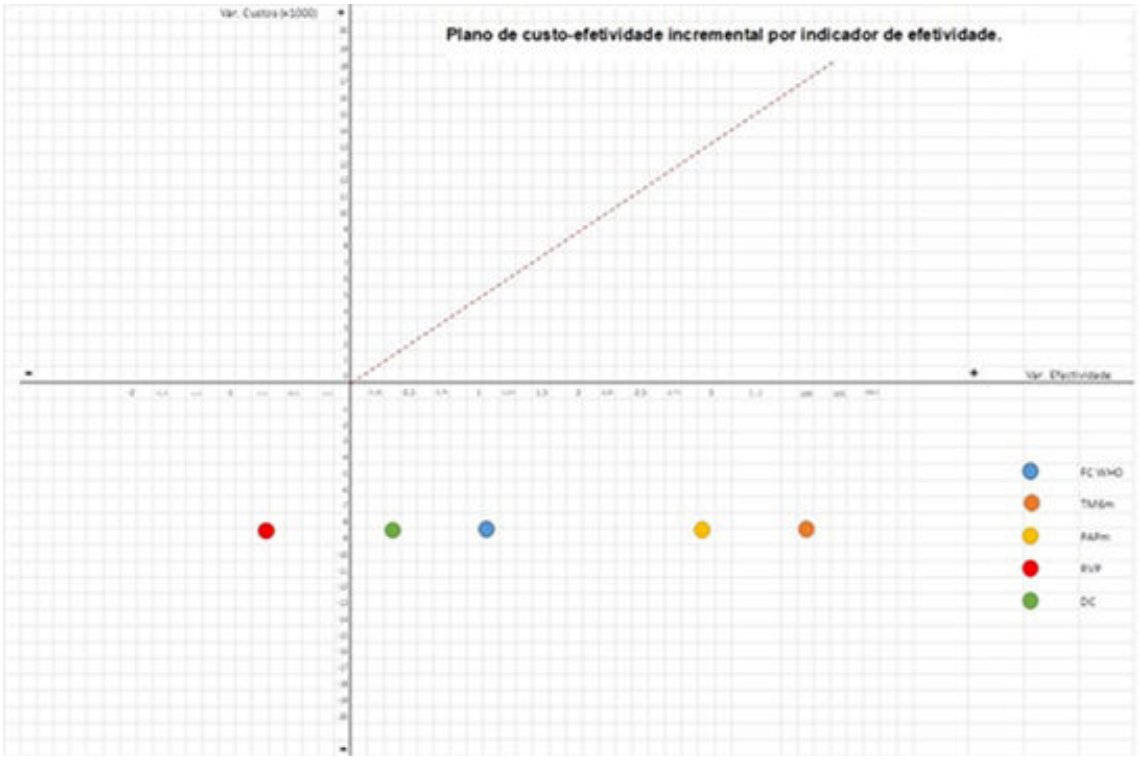

Figure PO 148

Introdução: A hipertensão pulmonar tromboembólica crónica (HPTEC) é uma doença progressiva, que se caracteriza pela obstrução da vasculatura arterial pulmonar por material trombótico organizado, limitando significativamente a vida dos doentes. A estratégia terapêutica para os doentes diagnosticados com HPTEC inoperável ou persistente/recorrente pós cirurgia, passa pela angioplastia pulmonar de balão (BPA) e/ou terapêutica vasodilatadora pulmonar (TVP). No entanto, até aos dias de hoje, não foi publicada nenhuma análise de custo-efetividade que comparasse estas opções de tratamento.
Métodos: Estudo de coorte retrospetivo em centro único, que incluiu dois grupos de doentes: um com 19 doentes que realizaram BPA e concomitantemente TVP (BPAT) e outro grupo de 16 doentes que realizaram TVP isolada (TVPi), comparando os custos diretos e indicadores de efetividade funcionais e hemodinâmicos a um ano de seguimento.
Resultados: A classe funcional da Organização Mundial de Saúde (CF-OMS) teve uma melhoria mais preponderante no grupo BPAT do que no da TVPi (BPAT: Δ = -1.3 e TVPi: Δ = -0.3), tal como o teste de marcha dos 6 minutos (TM6m) (BPAT: Δ = -73.8 m e TVPi: Δ = 26.4 m), a pressão da artéria pulmonar média (PAPm) (BPAT: Δ = -6.9 mmHg e TVPi: Δ = -4.7 mmHg) e o débito cardíaco (DC) (BPAT: Δ = 0.60 L/min e TVPi: Δ = 0.01 L/min). Já as resistências vasculares pulmonares (RVP), tiveram uma variação superior no grupo da TVPi em comparação com o grupo da BPAT (BPAT: Δ = -2.4 U Wood e TVPi Δ = -3.7 U Wood). Em relação aos custos anuais por doente, a BPAT demonstrou ser menos dispendiosa (61,836€ ± 30,492€) que o grupo da TVPi (70,695€ ± 30,524€).
Conclusões: Os nossos resultados sugerem que a BPAT é mais custo-efetiva do que a TVPi em quatro dos indicadores de efetividade avaliados, sabendo que os custos despendidos nesta opção são sensíveis aos fármacos vasodilatadores selecionados.

PO 149. ARTIFICIAL INTELLIGENCE-DRIVEN PHONOCARDIOGRAM ANALYSIS FOR NONINVASIVE DETECTION OF PULMONARY HYPERTENSION

André Lobo[1], Marta Catarina Almeida[1], Cátia Costa[1], Cristina Oliveira[1], Alex Gaudio[2], Noemi Giordano[3], Miguel Coimbra[4], Samuel Schmidt[5], Francesco Renna[4], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

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Introduction: The detection of pulmonary hypertension (PH), particularly by non-specialized personnel, remains a significant challenge in clinical practice. Developing noninvasive, accessible, and cost-effective solutions to aid in PH diagnosis is critical, especially in resource-limited settings. Automated analysis of cardiac auscultation and electrocardiogram (ECG), combined with advancements in telemedicine and artificial intelligence (AI), holds potential to improve the early identification of PH and make diagnostic tools more widely accessible. With this work, we aimed to evaluate the feasibility of using a bimodal stethoscope integrated with a machine learning (ML) algorithm for PH detection.
Methods: Phonocardiogram (PCG) data were collected from 12 patients using the Rijuven Cardiosleeve, a bimodal stethoscope capable of recording both heart sounds and electrocardiogram signals. As a reference standard, mean pulmonary artery pressure (mPAP) was measured via right heart catheterization (RHC). PH suspicion was assessed using echocardiography by measuring the maximum velocity of tricuspid regurgitation (TR). A velocity exceeding 2.8 m/s was considered suspicious for PH. A machine learning (ML) algorithm was applied to PCG data collected at the pulmonary auscultation site, focusing on the analysis of the S2 fundamental heart sound to differentiate patients with elevated pressures (mPAP > 20 mmHg, 10 subjects) from those with normal pressures (mPAP ≤ 20 mmHg, 2 subjects).
Results: The automated PCG analysis, when compared to the gold standard RHC measurements, achieved an average area under the Receiver Operating Characteristic (ROC) curve (AUC) of 0.80, demonstrating a promising ability to differentiate between elevated and normal pulmonary pressures. In the same cohort, echocardiographic analysis identified at least a moderate probability of PH (TRvmax > 2.8 m/s) in 6 of the 10 elevated pressure cases but failed to do so in 4 out of 10 cases (TRvmax ≤ 2.8), yielding a recall of 0.60.
Conclusions: This study highlights the potential of AI-driven analysis of cardiac auscultation and ECG as a noninvasive and accessible method for detecting PH. Its ease of use and ability to be performed by non-specialized personnel make it a promising tool for early PH identification, particularly in resource-constrained or telemedicine settings. In the future, this approach could also be combined with echocardiographic evaluation to enhance the accuracy of PH estimation. Further validation with larger, more representative datasets is required to confirm these findings and enhance clinical applicability.

Sexta-feira, 11 Abril de 2025 | 16:15-17:15

Área de Posters-écran 2 | Sessão de Posters 24 – Complicações na intervenção valvular aórtica percutânea

PO 150. PREDICTORS OF ACUTE KIDNEY INJURY AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

Miguel Abrantes de Figueiredo, Inês Rodrigues, Bárbara Teixeira, André Grazina, Francisco Albuquerque, Ricardo Carvalheiro, Tiago Mendonça, Rúben Ramos, António Fiarresga, Rui Cruz Ferreira, Duarte Cacela

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Introduction: Transcatheter Aortic Valve Replacement (TAVR) is an increasingly more frequent treatment for severe aortic valve stenosis, particularly in high surgical risk patients. Acute Kidney Injury (AKI) is a common complication associated with TAVR.
Objectives: This study aims to identify clinical, analytical and procedure-related risk factors associated with AKI after TAVR.
Methods: This was a retrospective study of all patients undergoing TAVR since January 2012 to November 2023 in one high-volume tertiary care center in Portugal. AKI was identified and categorized according to the Valve Academy Research Consortium (VARC)-2 criteria. Independent-samples t-test and chi-square were used to identify statistical significance between potential risk factors and AKI. Independent risk factors for AKI following TAVR were derived using binary logistic regression.
Results: AKI was present in 18.2% of patients after TAVR. Of the several variables analyzed, age, history of chronic kidney disease (CKD), hypertension, diabetes, vascular access complications, clinically significant hemorrhage and fall in hemoglobin were statistically significantly (p-value < 0.05) associated with AKI following TAVR. Binary logistic regression showed that history of CKD (OR: 2.909; 95%CI: 1.998-4.235; p < 0.001) and fall in hemoglobin (OR: 1.540; 95%CI: 1.352-1.754; p < 0.001) were very strong independent risk factors for AKI after TAVR. Additionally, the association between contrast volume and AKI was not statistically significant (p-value = 0.064).
Conclusions: AKI is a frequent complication after TAVR, with an incidence of 18.2% in this patient cohort. History of CKD and a decrease in hemoglobin are very strong independent predictors of AKI in patients undergoing TAVR.

PO 151. ATRIOVENTRICULAR VALVE REGURGITATION PROGRESSION AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

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Introduction: Aortic stenosis is the most frequent heart valve disease requiring intervention in the developed world. Transcatheter Aortic Valve Replacement (TAVR) is an excellent treatment modality for patients with high surgical risk or prohibitive surgical anatomy. In this population, the prevalence of multiple valvular heart disease (VHD) is high, and the persistence of atrioventricular valve regurgitation (AVVR) post-procedure is associated with higher mortality.
Objectives: To evaluate the predictors and the extent of change in AVVR after TAVR in patients with multiple VHD.
Methods: A retrospective analysis of all patients who underwent TAVR until November 2024 in one tertiary care center in Portugal was conducted. VHD was diagnosed and its evolution after TAVR was documented and classified by transthoracic echocardiogram according to the current guidelines. The predictors of AVVR improvement and deterioration were derived with t-test and chi-square analysis, followed by binary logistic regression to determine the independent predictors and their potency.
Results: Of the 831 patients included, mitral regurgitation (MR) had a prevalence of 69.07% and tricuspid regurgitation (TR) of 71.00%. A global reduction in the burden of AVVR was noticed (Figure 1), with 27.68% of patients experiencing an improvement in MR and 18.77% of patients with reductions in the degree of TR. MR improvement was significantly associated with mildly reduced left ventricular ejection fraction (LVEF) (p = 0.024), as well as with a lower body mass index (p = 0.021), while higher values of estimated pulmonary artery pressure (ePASP) were the sole independent predictor (OR 1.017 [95%CI: 1.003-1.030], p = 0.017) for MR reduction. TR improvement was found in patients with left ventricular disfunction (p = 0.001 for LVEF < 50% and p = 0.004 for LVEF < 40%), while non-elective TAVR was the sole independent predictor (OR 1.591 [95%CI: 1.008-2.511], p = 0.046) for TR reduction. Significant paravalvular leakage was associated with worsening MR (OR 4.196 [95%CI: 1.616-10.891], p = 0.003), while chronic kidney disease (OR 2.249 [95%CI: 1.140-4.435], p = 0.019) and higher ePASP (OR 1.031 [CI 95% 1.009-1.053], p = 0.005) were associated with worsening TR.
Conclusions: AVVR is prevalent but can be improved after TAVR in patients with multiple VHD. Acknowledging the risk factors for improvement and deterioration of AVVR is important to recognize which patients may be at a greater risk for worse clinical outcomes.

PO 152. CONDUCTION ABNORMALITIES POST-TAVI: IMPACT ON LVEF RECOVERY AND SURVIVAL

André Lobo, Marta Catarina Almeida, Marta Leite, Inês Neves, Inês Rodrigues, António Gonçalves, Ricardo Fontes-Carvalho

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

Introduction: Transaortic Valve Implantation (TAVI) has demonstrated significant benefits in patients with true severe aortic stenosis and left ventricular dysfunction. However, the development of left bundle branch block (LBBB), right bundle branch block (RBBB), or the need for pacemaker (PM) implantation is associated with a potential decrease in left ventricular ejection fraction (LVEF). The prevalence and impact of conduction abnormalities in the TAVI context are relevant. We aim to assess the effect of new-onset LBBB, PM implantation, and RBBB after TAVI on LVEF progression and overall survival in patients undergoing TAVI with reduced LVEF (< 50%).
Methods: Single-center retrospective cohort analysis including patients with reduced LVEF undergoing TAVI from January 2010 to January 2022. The primary outcomes evaluated were 1-year LVEF variation and all-cause mortality.
Results: A total of 148 patients underwent evaluation, with a median LVEF of 40%. Prior to TAVI, 10.8% exhibited pre-existing LBBB, 10.8% demonstrated RBBB, and 13.5% had undergone PM implantation. At 1-month post-TAVI follow-up, 22.3% exhibited LBBB, 8.1% RBBB, and 31.7% PM presence, encompassing both prior and new-onset conduction abnormalities. At 1-year follow-up, patients with new-onset conduction abnormalities showed a 6.7% lower LVEF variation compared to those without conduction abnormalities (95%CI: -10.1%, -3.9%; p < 0.001). For patients with new-onset conduction abnormalities, median survival was 48 months (95%CI: 24.1, 72.0) compared to 82 months (95%CI: 52.5, 111.5) in those without previous or new conduction abnormalities (p = 0.007). This difference was also seen when evaluating only patients with new-onset LBBB (p = 0.035).
Conclusions: Conduction abnormalities in TAVI patients extend beyond the consideration of PM implantation, impacting LVEF recovery and overall survival. Our findings underscore the significant influence of conduction

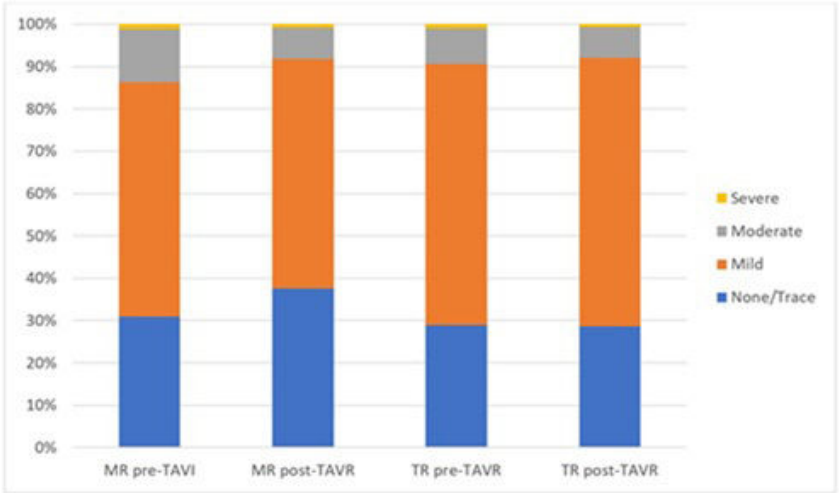

Figure 1: Atrioventricular valve regurgitation classification and evolution after TAVR. MR (mitral regurgitation); TAVR (transcatheter aortic valve replacement); TR (tricuspid regurgitation)

Figure PO 151

abnormalities on TAVI benefits, highlighting the need to explore strategies for post-TAVI conduction abnormality mitigation. Close monitoring of this population is essential to evaluate the potential advantages of resynchronization therapy.

PO 153. KIDNEY FUNCTION FOLLOWING PERCUTANEOUS TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI) IN HOSPITALIZED PATIENTS

C. Santos-Jorge, Samuel Azevedo, Maria Rita Lima, Márcia Presume, Rui Miguel Gomes, André Moniz Garcia, Rita Amador, Joana Certo Pereira, Miguel S. Domingues, Marisa Trabulo, Rui Campante Teles, Jorge Ferreira

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Introduction: Severe aortic stenosis leads to reduced renal perfusion, which can impact renal function, particularly in elderly patients with pre-existing chronic kidney disease (CKD). The impact of renal function on the prognosis of percutaneous transcatheter aortic valve implantation (TAVI) is significant and can influence short- and long-term outcomes. This study evaluated the impact of TAVI on kidney function in patients with severe aortic stenosis presenting with critical symptoms requiring hospital admission.
Methods: Retrospective observational cohort study of 171 hospitalized patients who underwent non-elective TAVI in a single tertiary center between January 2020 and December 2023. Median hospital stay was 12 days (IQR 3-21) and TAVI was performed at a median of 12 days post-admission (IQR 1-14). We evaluated estimated glomerular filtration rate (eGFR), calculated using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula at admission, discharge and follow-up. Patients were divided according to their baseline estimated glomerular filtration rate (eGFR) (mL/min/1.73 m^2) into 3 groups: Group 1 with eGFR ≥ 60; Group 2 with 30 ≤ eGFR < 60; and Group 3 with eGFR < 30. Patients undergoing dialysis prior to the procedure and those without a follow-up of at least six months were excluded.
Results: A total of 171 patients (83 ± 6 years, 54% women) were included. Patients in group 1 showed no significant change in eGFR between six months and one year after the procedure compared to baseline (76.82 ± 10.94 to 75.73 ± 14.33 mL/min/1.73 m^2). Group 2 and group 3 experienced significant improvement in mean eGFR at discharge and sustained improvement at six months to one-year post-TAVI ($p < 0.001$). At six months to one-year post-TAVI, mean eGFR in group 2 increased from 43.98 ± 8.57 to 51.73 ± 16.42 mL/min/1.73 m^2, while in group 3, it increased from 21.86 ± 5.25 to 32.59 ± 13.06 mL/min/1.73 m^2.
Conclusions: In high-risk patients hospitalized urgently for TAVI, renal dysfunction is highly prevalent. Optimizing renal function and minimizing contrast use should be prioritized. Our study demonstrated a significant improvement in post-procedure renal function in patients with CKD at stage 3 or higher. These findings suggest a potential for renal function recovery, which may influence therapeutic decision-making in this population.

PO 154. EARLY AND LATE PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION

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

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

Introduction: Pacemaker implantation (PI) is a common complication of transcatheter aortic valve implantation (TAVI), due to the proximity of the implanted valve to the heart's conduction system. The European Society of Cardiology recommends at least 7 days of surveillance for conduction disturbances, leading to prolonged hospitalizations. This study aimed to assess differences between early and late PI, based on our centre's median time to PI, and to identify predictors of late PI.
Methods: We conducted a retrospective, single-centre study of TAVI patients from March 2020 to September 2023. Patients were categorized in three groups: early-PI (≤ 2 days), late-PI (3-30 days), and no PI within 30 days of follow-up. Those with prior pacemaker were excluded. Baseline characteristics were compared, and binary logistic regression was performed to identify predictors of late PI, after excluding early PI cases.

Table 1: Baseline population characteristics

	All patients (n=171)	Group 1 (n=66)	Group 2 (n=83)	Group 3 (n=22)
Females, n (%)	93 (54,4%)	32 (48,5%)	46 (55,4%)	15 (68,2%)
Age (years, mean ± SD)	82,53±5,85	81,68±6.63	82,43±5,44	85,45±3,75
Diabetes, n (%)	85 (49,7%)	32 (48,5%)	46 (55,4%)	7 (31,8%)
Peripheral vascular disease, n (%)	24 (14%)	4 (6,1%)	16 (19,3%)	4 (18,2%)
Hypertension, n (%)	157 (91,8%)	59 (89,4%)	77 (92,8%)	21 (95,5%)
Obesity, n (%)	33 (19,3%)	11 (16,7%)	19 (22,9%)	3 (13,6%)
Dyslipidemia, n (%)	134 (78,4%)	53 (80,3%)	66 (79,5%)	15 (68,2%)
Non-Smoker, n (%)	141 (82,5%)	56 (84,8%)	67 (80,7%)	18 (81,8%)
Past Smoker, n (%)	24 (14%)	9 (13,6%)	12 (14,5%)	3 (13,6%)
Active Smoker, n (%)	6 (3,5%)	1 (1,5%)	4 (4,8%)	1 (4,5%)

Table 2 – Changes in Kidney Function Following TAVI

	N patients	eGFR pre-TAVI (mL/min/1.73m²)	eGFR at discharge (mL/min/1.73m²)	eGFR at 6 months to 1 year (mL/min/1.73m²)	p value
Group 1	66	76,82 ± 10,94	73,10 ± 18,31	75,73 ± 14,33	0,160
Group 2	83	43,99 ± 8,58	50,86 ± 14,65	51,73 ± 16,42	< 0,01
Group 3	22	21,86 ± 5,25	28,09 ± 12,60	31,59 ± 13,06	< 0,01

eGFR: estimated glomerular filtration rate; TAVI: transcatheter aortic valve implantation

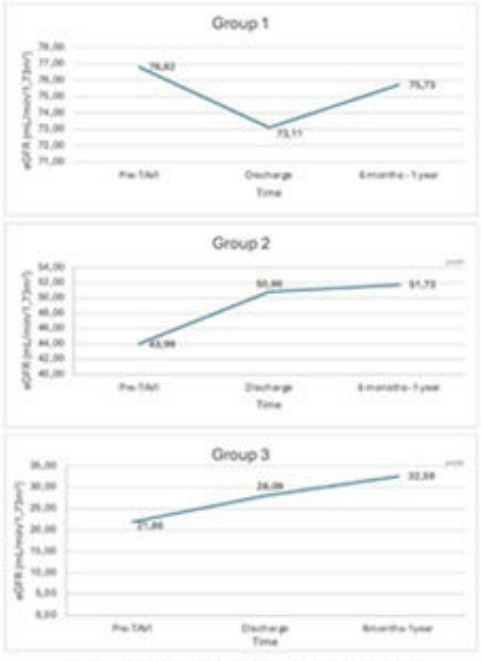

Figure 1 – Changes in Kidney Function Following TAVI

Figure PO 153

Table 1. Baseline characteristics of patients submitted to transcatheter aortic valve implantation, according to the need for pacemaker implantation and its timing.

	Early-PI (n = 67)	**Late-PI** (n = 51)	**No – PI** (n = 424)	***p*-value**
Age (years), mean (SD)	83.1 (5.4)	81.2 (5.1)	80.9 (6.2)	**0.021**
Male sex, n (%)	39 (58.2)	27 (52.9)	199 (46.9)	0.191
LVEF (%), mean (SD)	54.6 (13.5)	54.1 (15.7)	54.0 (13.2)	0.956
CV risk factors, n (%)				
Diabetes				
Type 1	1 (1.5)	0 (0.0)	2 (0.5)	0.522
Type 2 non-insulin treated	25 (37.3)	18 (35.3)	113 (26.7)	0.112
Type 2 insulin treated	1 (1.5)	5 (9.8)	18 (4.2)	0.093
Dyslipidaemia	45 (67.2)	31 (60.8)	301 (71.0)	0.294
Arterial Hypertension	55 (82.1)	45 (88.2)	350 (82.9)	0.605
Smoking habits				
Previous	4 (6.0)	6 (11.8)	39 (9.2)	0.538
Present	1 (1.5)	0 (0.4)	10 (2.4)	0.857
Previous Myocardial Infarction	5 (7.5)	3 (5.9)	42 (10.0)	0.882
Chronic kidney disease				
Stage IV	5 (7.5)	6 (11.8)	39 (9.2)	0.726
Stage V under dialysis	0 (0.0)	2 (3.9)	3 (0.7)	0.114
Kidney transplant	0 (0.0)	0 (0.0)	2 (0.5)	1.000
Conduction disturbances, pre-TAVI, n (%)				
LBBB	3 (5.2)	2 (4.2)	36 (10.9)	0.160
RBBB	22 (37.9)	7 (14.6)	33 (10.0)	**<0.001**
1st degree AVB	15 (30.0)	12 (29.3)	83 (28.7)	0.982
Conduction disturbances, post-TAVI, n (%)				
De novo LBBB	19 (34.5)	24 (52.2)	100 (34.1)	0.058
De novo 1st degree AVB	5 (14.3)	8 (27.6)	37 (18.0)	0.361
De novo 1st degree AVB + LBBB	3 (4.5)	4 (7.8)	18 (4.2)	0.463
AV Calcium score (UH), median (IQR)	3564 (2875)	3077 (2861)	3067 (1943)	0.964
Self-expanding valve, n (%)	54 (80.6)	40 (78.4)	352 (83.0)	0.668
TAVI prosthesis, n (%)				
Evolut	33 (49.3)	17 (33.3)	182 (42.9)	0.222
Sapien 3 Ultra	13 (19.4)	11 (21.6)	72 (17.0)	0.668
Accurate Neo2	6 (9.0)	5 (9.8)	95 (22.4)	**0.007**
Navitor	15 (22.4)	17 (33.3)	57 (13.4)	**0.001**
Portico	0 (0)	1 (2.0)	18 (4.2)	0.225

AV – aortic valve; AVB – atrioventricular block; CV – cardiovascular; IQR – interquartile range; LBBB – left bundle branch block; LVEF – left ventricle ejection fraction; n – number; RBBB – right bundle branch block; SD – standard deviation; TAVI – transcatheter aortic valve implantation. Statistically significant results are highlighted in **bold**.

Figure PO 154

Results: Among 542 patients, 67 (12.4%) underwent early PI, while 51 (9.4%) required late PI. Patients in early PI group were older (83.1 ± 5.4 years, $p = 0.021$) and had a higher prevalence of right bundle branch block (RBBB) (37.9%, $p < 0.001$). Late PI patients showed trends toward higher rates of type 2 insulin-treated diabetes and chronic kidney disease under dialysis. Notably, while the presence of pre-existing left bundle branch block (LBBB) did not influence the likelihood of PI, post-TAVI *de novo* LBBB was strongly associated with late PI. Regarding valve types, the *Accurate Neo2*® prosthesis showed no significant association with PI, while the *Navitor*® valve was linked to late PI and the *Evolut*® valve with early PI. Comparing early and late PI cases, early PI was primarily associated with pre-existing RBBB and use of the *Evolut*® valve, whereas late PI group correlated with post-TAVI *de novo* LBBB and use of the *Navitor*® valve. After excluding early PI patients, binary logistic regression identified *de novo* LBBB (OR 1.926, CI 1.001-3.706, $p = 0.050$), *Navitor*® valve use (OR 3.152, CI 1.495-6.644, $p = 0.003$) and chronic kidney disease under dialytic treatment (OR 18.048, CI 1.530-212.878, $p = 0.022$) as significant predictors of late PI.

Conclusions: Optimizing discharge timing after TAVI requires careful evaluation of conduction disturbances. Our findings suggest that patients with *de novo* LBBB and with *Navitor*® valve implanted, as well as dialysed patients, should warrant closer monitoring and potentially extended observation periods.

PO 155. PREDICTORS OF LEFT VENTRICULAR DYSFUNCTION RECOVERY ONE YEAR AFTER TAVR IN PATIENTS WITH PRE-EXISTING LEFT VENTRICULAR DYSFUNCTION (LVEF > 50%)

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

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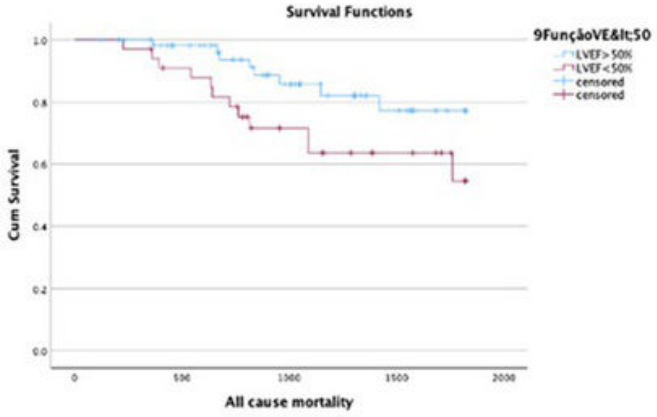
Introduction: Transcatheter aortic valve replacement (TAVR) has emerged as an effective treatment for patients with severe aortic stenosis. Although TAVR has been shown to improve left ventricular ejection fraction (LVEF), left ventricular dysfunction, often defined by a reduced LVEF, is a significant predictor of poor outcomes. Identifying factors that predict the maintenance of reduced LVEF (rLVEF) following TAVR is crucial, as persistent LVEF reduction is associated with poorer long-term outcomes.

Objectives: To identify pre-procedural predictors of sustained rLVEF in the medium term after TAVR and assess its prognostic impact.

Methods: A retrospective cohort study including patients who underwent echocardiographic re-evaluation one year after TAVR at a tertiary hospital

Variables	Univariate		Multivariate	
	OR (95% CI)	p value	OR (95% CI)	p value
Age in years	0,883 (0,816 - 0,955)	**0,002**	0,882 (0,803 - 0,969)	**0,009**
Aortic Valve mean gradient	0,939 (0,903 - 0,977)	**0,002**	0,957 (0,917 - 0,999)	**0,047**
Left Ventricular ejection fraction pre TAVR	0,919 (0,871 - 0,970)	**0,002**	0,945 (0,890 - 1,003)	0,062



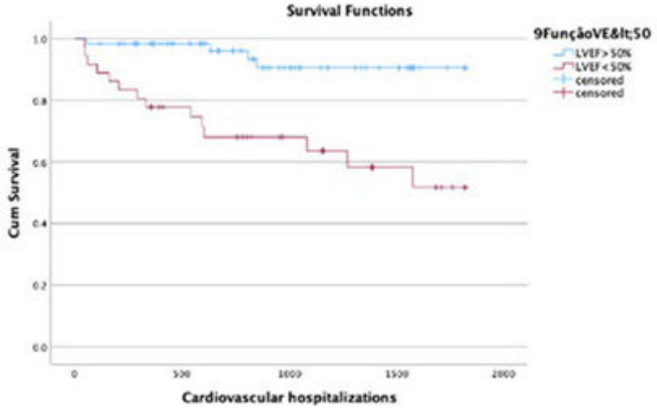


Figure PO 155

between 2018 and 2023, with pre-existing left ventricular dysfunction (LVEF < 50%). Baseline clinical characteristics and echocardiographic measurements were collected at the time of the procedure. Follow-up echo were performed to reassess LVEF. Univariate analysis, including chi-square and Independent t-tests, as well as a logistic regression model, Kaplan-Meier survival curves and Cox proportional hazards regression were used. A p-value < 0.05 was considered statistically significant.

Results: A total of 97 patients were included in the analysis, to groups were formed based on LVEF < 50% on midterm follow up. 36 (37.1%) pt had an LVEF < 50%. Patients who maintained rLVEF were significantly younger and male (mean age 77 ± 8.4 vs 82 ± 5.5 years, p = 0.048; male sex 33 vs 54%, p = 0.048). There were no significant differences the 2 groups regarding sex, comorbidities, and medication use. Additionally, patients with sustained reduced LVEF had a lower pre-TAVR LVEF (35.4 ± 9.5 vs. 40.7 ± 7.4%, p = 0.001) and mean aortic valve gradient (35.4 ± 12 mmHg vs. 45 ± 13.4 mmHg, p = 0.001). Logistic regression analysis identified age (OR = 0.882, 95%CI: 0.803-0.969, p = 0.009) and mean AV gradient (OR = 0.957, 95%CI: 0.917-0.999, p = 0.47) as independent factors associated with a lower likelihood of maintaining rLVEF. Kaplan-Meier survival analysis demonstrated that patients with sustained rLVEF had significantly higher all-cause mortality (HR 2.68 (1.052-6.811), p = 0.039) and cardiovascular hospitalizations (HR 9.195 (2.037-18.843), p = 0.001).

Conclusions: This study found that patients who maintained reduced LVEF post-TAVR had worse long-term outcomes, including higher all-cause mortality and cardiovascular hospitalizations. Younger age and a lower mean AV mean gradient were identified as factors linked to sustained rLVEF. These results highlight the importance of assessing pre-procedural characteristics to predict which patients are at risk for persistent reduced LVEF. Further research is needed to refine these predictors and improve post-procedural management strategies.

Sexta-feira, 11 Abril de 2025 | 16:15-17:15

Área de Posters-écran 3 | Sessão de Posters 25 - Além da recuperação - Avançando as fronteiras da reabilitação cardíaca

PO 156. BRIDGING THE GENDER GAP IN CARDIAC REHABILITATION: LONGITUDINAL PATTERNS OF PHYSICAL ACTIVITY ENGAGEMENT

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Centro Hospitalar de Leiria/Hospital de Santo André.

Introduction: Physical activity (PA) is a cornerstone of cardiovascular risk reduction and improved outcomes in cardiac rehabilitation (CR). Gender-specific differences in PA engagement remain underexplored, particularly

across the structured phases of CR programs. Understanding these patterns within single-centre settings can provide valuable insights into patient progress and program impact.
Objectives: This study aimed to evaluate gender-specific differences in PA levels, measured using the International Physical Activity Questionnaire (IPAQ), at baseline (T0), at the end of Phase 2 (T1), and three months after the conclusion of CR (Phase 3).
Methods: This single-centre longitudinal study included 307 participants (212 men and 95 women) who completed a standardized CR program. PA levels were categorized using the IPAQ into low, moderate, high, and very high activity levels. Assessments were conducted at baseline (T0), following Phase 2 (T1), and during Phase 3 (three months after the conclusion of CR). Chi-squared tests were performed to evaluate gender-specific differences at each time point.
Results: At baseline (T0), no significant differences in PA levels were observed between men and women (p = 0.148). By T1 (end of Phase 2), significant gender-specific differences emerged (p = 0.002). Women were more likely to achieve "high" PA levels (23.3%) compared to men (12.3%), while men predominantly engaged in "moderate" activity levels. By Phase 3 (three months post-CR), these trends persisted (p = 0.001), with women showing further improvements, reaching "high" (25%) and "very high" (2.2%) PA levels, while men exhibited stagnation with no representation in the "very high" category. Longitudinally, women consistently progressed to higher activity levels, while men showed minimal changes.
Conclusions: Gender-specific differences in PA engagement were evident by the end of Phase 2 and persisted during Phase 3. Women demonstrated significant improvements in PA levels, while men showed limited progression. These findings underscore the importance of tailored CR strategies to address gender-specific barriers and enhance PA engagement in men while reinforcing progress in women. Future research should investigate the physiological, cultural, and structural factors contributing to these disparities to optimize the long-term benefits of CR.

PO 157. ASSESSMENT OF BALANCE AND PHYSICAL CONDITION AS MEASURES: EVALUATE EFFECTIVENESS OF A CARDIAC REHABILITATION PROGRAMME IN IMPROVING CARDIAC FUNCTION AND FUNCTIONAL CAPACITY

Carina Rebelo[1], José Bastos[1], Vera Afreixo[2], Ana Abreu[3]

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Introduction: Patients with reduced LVEF experience daily limitations, impaired mobility, and increased dependency, promoting frailty and comorbid risks. Exercise inertia exacerbates physical decline and cardiovascular vulnerability. We review studies supporting balance as a quantitative marker of functional capacity in phase 1 cardiac rehabilitation to identify the most correlated variables.
Objectives: To assess if balance and physical condition of patients are tools to evaluate the efficacy of the program aimed at improving their cardiac condition and functional capacity.
Methods: Longitudinal, prospective, experimental study of inpatients hospitalized with coronary artery disease. Dynamic balance and mobility (Fullerton battery of tests), upper body strength (handgrip strength test), cardiorespiratory fitness was used to evaluate physical fitness. Also were submitted to Morisky Medication Adherence Scale, STOP-Bang scale, and IPAQ. Using R version 4.2.2, simple linear regression, multiple linear regression with and without multiple variable selection/elimination (based on Akaike information criterion - AIC) approaches were applied. p-values less than 0.05 are considered as significant.
Results: On the day of discharge, 212 patients were evaluated, 79% were male, with a median age of 66 and interquartile range (57, 74), of which 35% had LVEF ≤ 40%; 73% had high blood pressure, 75% had dyslipidemia. The Shapiro-Wilk normality test, Durbin-Watson test and Breusch-Pagan studentized test were used to assess normality, independence and homogeneity assumptions, respectively. The variance inflation factor (VIF) was used to assess multicollinearity. The following table 1 shows that there was a significant association (p < 0.05) between the Fullerton Balance Assessment Battery score and: male gender, LVEF ≤ 40, hemoglobin, lower limb strength, flexibility of right upper limb, up and go test, 6MWT, average right-hand strength, IPAQ and HADS-Depression.
Conclusions: People with a low balance score have a high cardiovascular risk profile, reduced exercise capacity and higher levels of disability. This is a promising group to target for cardiac rehabilitation (CR) to help improvement. We propose that balance assessment could become a key indicator for evaluating the effectiveness of CR, as disability is strongly associated with reduced functional capacity. The authors believe that the balance assessment model can be applied to.

PO 158. CARDIAC REHABILITATION: IMPROVING FITNESS AND PERFORMANCE METRICS IN CORONARY ARTERY DISEASE

Bernardo Manuel Lisboa Resende, Ana Luísa Silva, Rafaela Fernandes, Luísa Gomes Rocha, Tomás Carlos, Mafalda Griné, Mariana Simões, Gonçalo Batista, Miguel Vicente, João Gameiro, Paulo Dinis, Lino Gonçalves

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

Introduction: Current guidelines strongly recommend Cardiac Rehabilitation (CR) for patients with coronary artery disease (CAD). While beneficial effects

Tabel 1 – Simple and multiple linear regression with and without multiple variable selection/elimination (based on Akaike information criterion - AIC)

Characteristic	Simple		Multiple		Step AIC	
	95% CI[1]	p-value	95% CI[1]	p-value	95% CI[1]	p-value
Male	0.03, 5.0	**0.047**	-4.1, 1.3	0.295	-3.9, -0.57	**0.009**
LVEF ≤40	4.8, 8.7	**<0.001**	0.48, 4.0	**0.013**	0.69, 3.6	**0.004**
Hemoglobin	1.4, 2.4	**<0.001**	0.18, 0.98	**0.005**	0.32, 0.97	**<0.001**
Lower limb strength	1.7, 2.2	**<0.001**	-0.11, 0.69	0.150	0.10, 0.67	**0.009**
Flexibility of right upper limb	0.27, 0.42	**<0.001**	0.00, 0.24	0.054	0.03, 0.14	**0.004**
Up and go test	-1.2, -0.82	**<0.001**	-0.55, -0.13	**0.001**	-0.49, -0.14	**<0.001**
6MWT	0.07, 0.09	**<0.001**	0.00, 0.03	0.092	0.00, 0.03	**0.015**
Average right hand strength	0.26, 0.43	**<0.001**	-0.02, 0.24	0.103	0.01, 0.16	**0.020**
IPAQ	0.00, 0.00	**<0.001**	0.00, 0.00	0.063	0.00, 0.00	**0.011**
HADS-Depression	-1.1, -0.62	**<0.001**	-0.37, 0.02	0.084	-0.38, -0.11	**<0.001**

[1]CI = Confidence Interval

Figure PO 157

Cardiorespiratory fitness variables	Pre CRP	Post CRP	p-value
Maximum HR achieved (bpm) - mean ± SD	122.0 ± 19.9	125.4 ± 20.3	p=0.129
Percentage of predicted maximum HR (%) - mean±SD	77.2 ± 10.8	78.8 ± 11.2	p=0.191
Heart rate decreased by 12 bpm or more after one minute of recovery - n (%)	39 (73.6)	45 (84.9)	p=0.370
Maximum systolic blood pressure (mmHg) - mean ± SD	169.6 ± 25.9	174.2 ± 25.4	p=0.185
Maximum diastolic blood pressure (mmHg) - mean ± SD	87.8 ± 15.7	86.5 ± 13.0	p=0.519
Peak VO2 (mL/kg/min) - mean ± SD	20.8 ± 6.4	21.7 ± 6.4	p=0.190
Percentage of predicted maximum VO2 (%) - mean ± SD	77.9 ± 19.6	83.2 ± 17.3	**p=0.035**
VO2 at the first anaerobic threshold (mL/kg/min) - median (IQR)	11.6 (3.2)	11.0 (3.2)	p=0.145
Percentage of VO2 at the first anaerobic threshold relative to the reference value (%) - median (IQR)	48.6 (18.8)	43.6 (9.8)	p=0.130
VO2 at the second anaerobic threshold (mL/kg/min) - mean ± SD	19.4 ± 5.9	19.2 ± 4.7	p=0.897
Oxygen pulse (mL/min) - mean ± SD	14.2 ± 3.9	13.5 ± 2.6	p=0.196
Respiratory reserve (%) - mean ± SD	45.6 ± 13.6	41.7 ± 15.1	p=0.051
VE/CO2 slope (mL/kg/min) - median (IQR)	25.2 (7.4)	25.6 (7.9)	p=0.623
Resting PETCO2 (mmHg) - median (IQR)	36.5 (6.3)	36.0 (6.3)	p=0.446
HR at the first anaerobic threshold (bpm) - mean ± SD	97.7 ± 13.8	93.2 ± 13.2	p=0.082
HR at the second anaerobic threshold (bpm) - mean ± SD	119.9 ± 17.5	119.1 ± 15.6	p=0.706
OUES - mean ± SD	2.0 ± 0.6	1.8 ± 0.5	p=0.108
Physical performance (W) - mean ± SD	110.8 ± 39.8	132.5 ± 48.9	**p<0.001**
Percentage of watts relative to physical performance (%)- mean ± SD	71.2 ± 20.1	85.9 ± 25.1	**p<0.001**
Qualitative characterization of physical performance			
Normal or elevated - n (%)	20 (37.7)	34 (64.2)	**p=0.005**
Reduced - n (%)	25 (47.2)	16 (30.2)	
Metabolic Equivalent (METs) - median (IQR)	6.3 (2.2)	6.0 (2.7)	p=0.444
VO2/Work Rate slope (mL/kg/min/W) - median (IQR)	11.6 (2.9)	11.7 (1.8)	p=0.525

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

Figure PO 158

are well-established, continuous monitoring of CR program outcomes is essential to optimize patient care and ensure ongoing quality improvement.
Objectives: Compare cardiorespiratory fitness parameters before and after a phase II exercise-based CR program in patients with established CAD.
Methods: This single-center, retrospective observational study analyzed consecutive patients who successfully completed a supervised exercise-based CR program between January 2023 and September 2024. The program duration was at least 12 weeks. Data were collected by a specialized multidisciplinary team. Continuous variables were analyzed using paired T-Test or Wilcoxon signed-rank tests, as appropriate. Categorical variables were analyzed using Chi-Square test.
Results: The cohort comprised a total of 53 patients, primarily males (44/83.3%), with a mean age of 59.6 ± 11.1 years. The average program duration was 20.0 ± 8.0 weeks. A statistically significant improvement was observed in the mean percentage of predicted maximum VO2 (77.9 ± 19.6 vs. 83.2 ± 17.3%, *p-value* = 0.031). Significant improvements were also found in quantitative physical performance (110.8 ± 39.8 vs. 132.5 ± 48.9 W, *p*-value < 0.001) and in the percentage of watts relative to physical performance (71.2 ± 20.1 vs. 85.9 ± 25.1%, *p*-value < 0.001). A statistically significant association was also observed between program participation and qualitative assessments of physical performance (reduced physical performance: 25/47.2 vs. 16/30.2%, *p*-value = 0.005).
Conclusions: This study demonstrates that a structured phase II CR program significantly improves cardiorespiratory fitness and physical performance in patients with CAD. These findings highlight the importance of ongoing monitoring and evaluation of CR programs to optimize patient outcomes and enhance the quality of care.

PO 159. HIGH-INTENSITY INTERVAL AND CONTINUOUS TRAINING FOR HEART TRANSPLANT PATIENTS AND ITS IMPACT ON HEART RATE RECOVERY

Ana Raquel Carvalho Santos, Ricardo Carvalheiro, Vânia M. G. Martins, Francisco Gregório, Miguel Trindade, Ana Rita Caramelo, Jorge Dias, Rita Ilhão Moreira, António Gonçalves, Joana Pinto, Pedro Rio, Rui Ferreira

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

Introduction: Heart rate recovery (HRR) during cardiopulmonary exercise testing (CPET) is a critical marker of autonomic function and cardiorespiratory fitness. Understanding its role in predicting functional gains during cardiac rehabilitation (CR) and the influence of training modalities, such as high-intensity interval training (HIIT) versus continuous training (CT), can optimize rehabilitation outcomes, particularly in heart transplant recipients.
Methods: We retrospectively analyzed data from heart transplant recipients undergoing a structured CR program. HR metrics (baseline HR, maximum HR, and first-minute HR recovery during CPET) were assessed pre- and post-rehabilitation. Fitness improvements were evaluated using changes in 6-minute walk test (6MWT) distance and VO2 max. Correlations between HRR and fitness improvements were calculated for the overall cohort and stratified by training modality (HIIT vs. CT).
Results: A total of 15 patients (HIIT: 5, CT: 10) were included. In the HIIT group, HRR metrics demonstrated strong correlations with fitness

	High Intensity Interval Training - Pearson correlation (r)	Continuous Training - Pearson correlation (r)
Baseline HRR x VO2 max	-0.98	
Baseline HRR x 6MWT		-0.58
Maximum HRR x VO2 max	0.83	0.48
Maximum HRR x 6MWT	1	0.09
1st minute HHR x 6MWT	1	0.16

HRR – Heart rate recovery; VO2 max - maximal oxygen consumption; 6MWT - 6 Minute Walk Test

Figure PO 159

improvements. Maximum HRR was perfectly correlated with 6MWT distance improvement (r = 1.00) and had a strong positive correlation with VO2 max improvement (r = 0.83). Baseline HRR was inversely correlated with VO2 max improvement (r = -0.98), indicating that patients with poorer baseline autonomic function derived greater benefits. In contrast, the CT group exhibited weaker correlations. Maximum HRR was moderately associated with VO2 max improvement (r = 0.48), while baseline HRR showed a negative correlation with 6MWT improvement (r = -0.58).
Conclusions: In heart transplant recipients, HIIT demonstrated stronger associations between HRR metrics and fitness improvements compared to CT, underscoring its effectiveness in enhancing autonomic recovery and functional capacity in this unique population. Transplant recipients with impaired baseline autonomic function benefited the most, particularly from HIIT, as reflected by improvements in VO2 max and 6MWT distance. HRR metrics, are valuable predictors of fitness improvements and should be routinely monitored in cardiac rehabilitation programs tailored for heart transplant patients.

PO 160. RESTING ENERGY EXPENDITURE AS A SURROGATE OF MUSCLE MASS QUANTIFICATION IN PATIENTS WITH HEART FAILURE AND REDUCED EJECTION FRACTION: A PILOT PROSPECTIVE COHORT STUDY

Miguel Sobral Domingues[1], Débora Correia[1], Raquel Alves[2], Rita Barbosa Sousa[1], Maria Clarissa Rodrigues[1], Manuel Pedro[2], Sara Henriques[2], Vanessa Santos[2], Helena Santa-Clara[2], Gonçalo Cunha[1]

[1]Centro Hospitalar Universitário de Lisboa Ocidental, EPE/Hospital de Santa Cruz. [2]Faculdade de Motricidade Humana, Universidade de Lisboa.

Introduction: Sarcopenia is associated with poorer prognosis in heart failure patients. However, measuring muscle mass in clinical practice remains challenging. Given the significant role of muscle mass in energy expenditure among healthy individuals, we hypothesized that resting energy expenditure (REE) could serve as a surrogate for muscle mass quantification in patients with heart failure and reduced ejection fraction (HFrEF), a hypothesis not previously tested.
Objectives: To evaluate the relationship between REE and muscle mass quantification in HFrEF patients.
Methods: In this prospective cohort study, we recruited consecutive patients with HFrEF. Participants underwent dual-energy X-ray absorptiometry (DEXA) and a 30-minute resting metabolism test (RMT) at the same day. Muscle mass was quantified using DEXA, by subtracting bone mineral composition from the obtained whole-body lean mass and adjusted for body surface area. REE was estimated via indirect calorimetry based on the most stable 10-minute period over a 30-minute assessment. Statistical analysis was conducted using Pearson correlation and linear regression to assess the strength and direction of the relationship between these variables and determine the extent to which REE could predict muscle mass quantification.
Results: We recruited 24 patients (79% male, mean age 66; mean LVEF 38 ± 7%). This cohort included patients with ischemic heart disease (n = 14), dilated cardiomyopathy (n = 5), valvular heart disease (n = 4) and burnout hypertrophic cardiomyopathy (n = 1). The mean muscle mass adjusted for body surface area was 23.4 ± 2.5 kg/m^2, and the mean REE was 1.56 ± 0.35 kcal/min. Notably, there was a considerable disparity in the relationship between muscle mass and REE, with muscle mass ranging from 18.9 to 28.9 kg/m^2 and REE ranging from 1.07 to 2.23 kcal/min. A significant correlation was observed between REE and muscle mass (Pearson coefficient 0.752, p < 0.001).

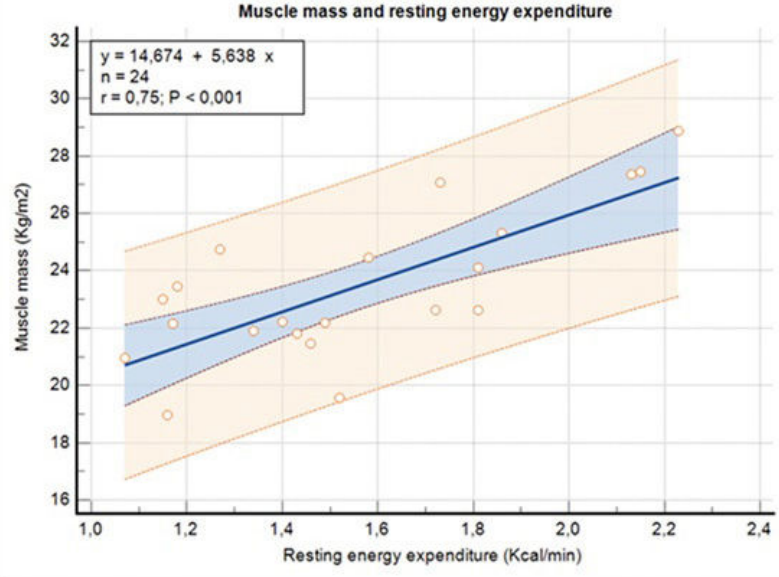

Figure 1. Relationship between muscle mass (Kg/m2) and resting energy expenditure (Kcal/min). The regression line (y = 14.674 + 5.638x) shows a significant positive correlation (r = 0.75, P < 0.001, n = 24), with shaded areas representing confidence (in blue) and prediction (in orange) intervals.

Figure PO 160

Linear regression demonstrated a strong relationship between these two variables (Muscle mass = 14.67 + 5.7*REE; R^2 = 0.57) (Figure 1).
Conclusions: Resting energy expenditure showed a significant correlation with muscle mass quantification in patients with HFrEF, suggesting it could serve as a viable surrogate. Given the promising results of this pilot study, further validation of these findings in real-world settings is warranted. The next phase of this study will involve integrating a simplified resting metabolism protocol during the resting phase of cardiopulmonary exercise testing (CPET) to assess its applicability in a routine clinical practice scenario.

PO 161. THE ROLE OF CPET FOR THE ASSESSMENT OF PATIENTS WITH TRANSTHYRETIN AMYLOID CARDIOMYOPATHY

Débora da Silva Correia, Rita Almeida Carvalho, Rita Amador, Rita Barbosa, Samuel Azevedo, Sérgio Maltês, Tânia Laranjeira, Miguel Mendes, Bruno Rocha, Carlos Aguiar, Gonçalo Cunha

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

Introduction: Cardiopulmonary exercise testing (CPET) is a well-established tool for assessing functional capacity but is underutilized in Transthyretin Amyloid Cardiomyopathy (ATTR-CM). We aimed to evaluate the correlation between CPET parameters and ATTR-CM disease stage and the potential prognostic value of CPET in these patients.
Methods: This is a single-centre study of ATTR-CM patients diagnosed followed in our dedicated rare disease program which underwent CPET since November 2019. ATTR-CM was confirmed as per the recommended non-invasive algorithm. Patients performed CPET on a treadmill using an exercise protocol with progressive increase in workload. The test was considered to be maximal if a respiratory exchange ratio (RER) ≥ 1.05 was obtained. ATTR-CM severity was classified as per the Gilmore staging system and patients were grouped as follows: stage I [NT-proBNP ≤ 3,000 ng/L and estimated glomerular filtration rate (eGFR) ≤ 45 mL/min) or stage II/III (NT-proBNP > 3,000 ng/L and/or eGFR < 45 mL/min). The primary endpoint of interest was a composite of all-cause death, cardiovascular hospitalization or emergency room visits.
Results: We analysed CPET data from 47 patients (mean age 83 ± 6 years, 85% male, 53% stage I) diagnosed with ATTR-CM. The mean duration of CPET was 7.7 ± 3.2 minutes and it was maximal in 43% (n = 20) of patients. Compared to those in stage I, patients in stage II/III had worse CPET parameters, as noted by a lower peak oxygen consumption (pVO_2) (13 ± 3 *vs.* 15 ± 4 mL/kg/min, p = 0.025) and the presence of exercise oscillatory ventilation (EOV) (41 vs. 8%, p = 0.008), lower percentage of predicted peak heart rate (82 ± 19 vs. 99 ± 2%, p = 0.004) and reduced heart rate reserve (9 [IQR 12] vs. 14 [IQR 26] bpm, p = 0.008). A total of 20 (43%) patients met the composite outcome at a median follow-up of 21 months. Stage II/III patients had higher rates of death (4 vs. 1%, p = 0.002) and cardiovascular hospitalization (46 vs. 16%, p = 0.042). Univariable analysis identified pVO2 < 16 ml/kg/min (Weber class C and D) and O_2 pulse as predictive of the primary endpoint.
Conclusions: CPET in feasible in patients with ATTR-CM and correlates well with disease severity, as per the Gillmore staging system. The role of CPET in the prognostic evaluation warrants further investigation in a properly conducted multicentre prospective study.

Sexta-feira, 11 Abril de 2025 | 17:15-18:15

Área de Posters-écran 1| Sessão de Posters 26 – Cardiogenética em ação!

PO 162. ASSOCIATION OF SLC30A8 RS1326634 GENE VARIANT WITH CENTRAL FAT DISTRIBUTION IN OVERWEIGHT AND OBESE WOMEN

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

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Introduction: Epidemiological studies suggest that the location and distribution of excess fat, rather than overall adiposity, provide better insights into the risk of cardiometabolic diseases. Fat distribution, often

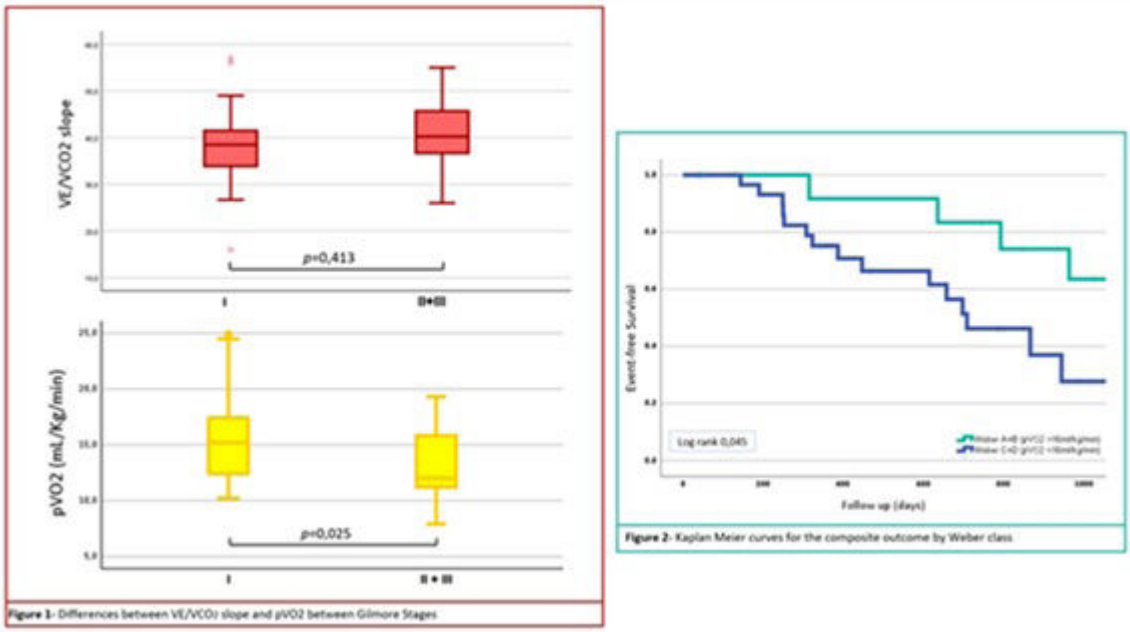
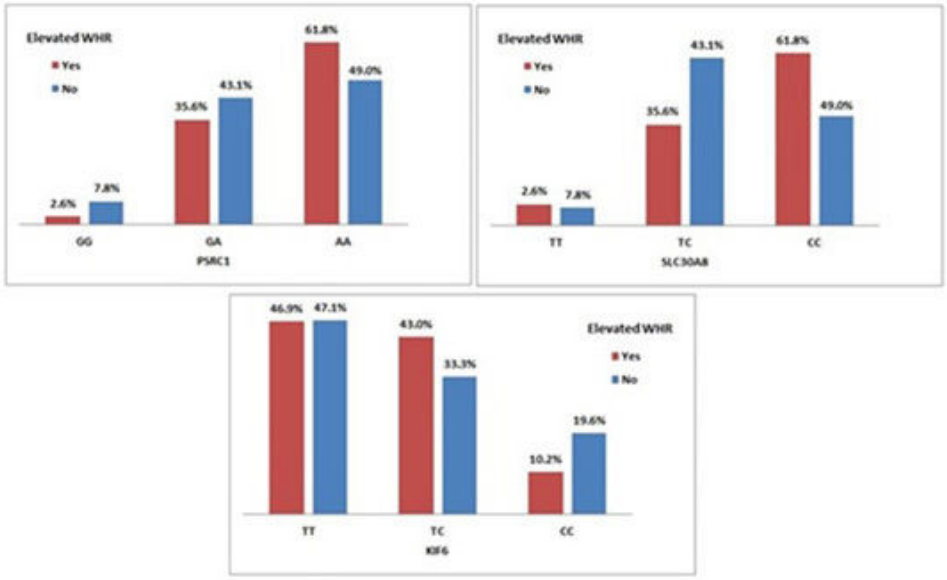


Figure PO 161



PSRC1, SLC30A8 and KIF6 genotype distribution

Variables independently associated with elevated WHR

Variables	B	S.E.	Wald	df	Odds ratio (95% CI)	P value
Diabetes	1.290	0.449	8.263	1	3.63 (1.51 – 8.75)	0.004
SLC30A8 (CC)	0.917	0.308	8.876	1	2.50 (1.37 – 4.57)	0.003
Constant	1.499	0.204	53.926	1	4.475	<0.0001

Variables excluded from the equation: age; smoking; hypertension; dyslipidemia; physical inactivity; PSRC1 (AA+GA) and KIF6 (TT).

Figure PO 162

assessed through waist-to-hip ratio (WHR), has been shown to have a heritable component, with twin-based heritability estimates ranging from 30-60% and narrow-sense heritability estimated at approximately 50% in women and only around 20% in men. However, which genetic factors influence fat distribution in overweight and obese women remain poorly understood.

Objectives: Assess the relationship between a set of single nucleotide polymorphisms previously associated with obesity and the WHR in overweight and obese women.

Methods: A cohort study was conducted in 512 women (aged 56.1 ± 6.4 years) with Body Mass Index (BMI) > 25 kg/m^2. Waist-to-Hip Ratio (WHR) was calculated as the ratio of waist circumference (measured at the narrowest point between the lower rib and the iliac crest) to hip circumference (measured at the widest point of the hips). Two groups were composed according WHR values: WHR > 0.85 (android/central fat distribution) and WHR ≤ 0.85 (gynoid fat distribution). Fifteen single nucleotide polymorphisms previously linked to obesity and lipid metabolism abnormalities were genotyped using TaqMan real-time PCR. The association of these SNPs with WHR was achieved by bivariate and multivariate logistic regression analysis, and the dominant or recessive genetic model were considered for comparison.

Results: After bivariate analysis, PSRC1 variant rs599839 (AA+GA vs. GG) showed a significant association with android type obesity (OR = 3.18; 95%CI 0.99-10.27; p = 0.041), together with SLC30A8 rs1326634 (CC vs. TT+TC) (OR = 2.38; 95%CI 1.31-4.33; p = 0.004). KIF6 rs20455 (TT vs. CC+CT) showed an association with gynoid type obesity (OR = 0.47; 95%CI 0.22-0.99; p = 0.043) in bivariate analyses. After multivariate logistic regression with these three significant genes adjusted for the traditional risk factors, only SLC30A8 rs1326634 (CC vs. TT+TC) that encodes the secretory granule-resident and largely endocrine pancreas-restricted zinc transporter ZnT8, remained in the equation as independently associated with an increased WHR (OR = 2.50; 95%CI 1.37-4.57; p = 0.003).

Conclusions: A significant association between the SLC30A8 rs1326634 gene variant and android/central fat distribution was found in overweight and obese women. Understanding the genetic basis of obesity and central fat distribution can enable lifestyle changes or pharmacologic interventions to attenuate risk of cardiometabolic complications.

PO 163. CAN THE GENE VARIANT ZC3HC1 RS11556924 C > T INCREASE ESSENTIAL HYPERTENSION RISK? INFLUENCE OF SMOKING IN THE RELATIONSHIP

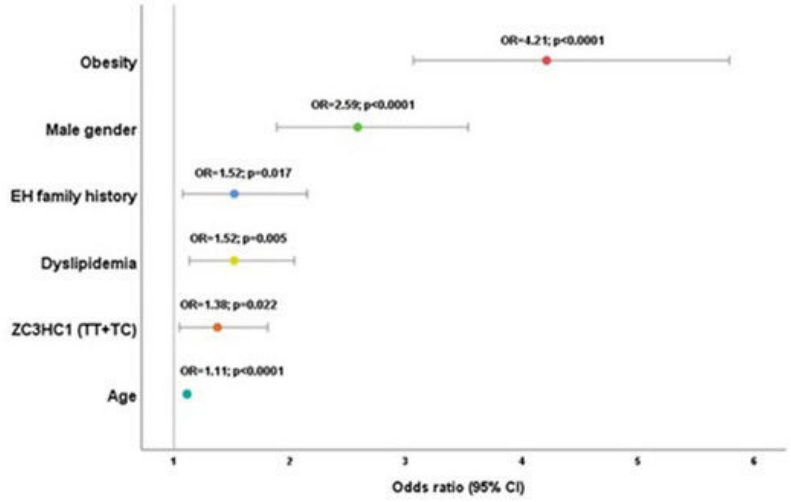
Carolina Olim[1], Maria Isabel Mendonça[1], Débora Sá[1], Francisco Sousa[1], Gonçalo Abreu[1], Matilde Ferreira[1], Eva Henriques[1], Sónia Freitas[1], Sofia Borges[1], Graça Guerra[1], Ana Célia Sousa[1], Roberto Palma dos Reis[2]

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

Introduction: Essential Hypertension (EH) is a multifactorial disorder resulting from environmental and genetic factors and a primary factor for morbidity and mortality worldwide. A genetic variant in the ZC3HC1 gene, resulting in an arginine-to-histidine at the 363 position of the NIPA protein, has been associated with coronary artery disease (CAD). Still, its relationship with EH remains less clear.

Objectives: Investigate whether ZC3HC1 rs11556924C>T was associated with Essential Hypertension in a Portuguese Population without apparent CAD.

Methods: A prospective study included 1421 participants from our Research Center dataset on a normal Portuguese population without apparent CAD. Participants were followed during an extended period (average ± 7.0 ± 5.7 years), and all demographic, biochemical, CV risk factors and clinical data were performed. ZC3HC1 rs11556924 was genotyped by TaqMan assays



Multivariate logistic regression analysis with variables associated with Essential Hypertension.

Figure PO 163

real-time polymerase chain reaction (PCR). The allelic and genotypic frequency distribution were estimated, and the Hardy-Weinberg equilibrium was tested. Data were displayed as absolute numbers, means and standard deviations (SD). The Student's t-test compared numerical variables, and the Chi-square was analyzed categorically. Multivariate logistic regression adjusted to confounders was performed. Statistical significance was defined as $p < 0.05$, and all analyses were performed using SPSS statistical software, 25.0 version.

Results: The population was in the Hardy-Weinberg equilibrium either in the group with EH (p = 0.438) or without EH (p = 0.768). In the overall population, the frequencies of the CC, CT, and minor TT genotypes were, respectively, 38.4%, 48.2% and 13.4% in the EH group and 43.9%, 45.1% and 11.0% in the non-EH group (p = 0.074). In bivariate analysis, the dominant model (TT+TC vs. CC) presented an OR = 1.255; p = 0.031 and the recessive model (TT vs. TC+CC) had an OR = 1.249; p = 0.162. The dominant model was also risk against EH in the non-smoking population, with statistical significance (p = 0.016). In this population (non-smoking), after multivariate logistic regression adjusted for all other co-variables, ZC3HC1 also remained in the equation, with an OR = 1.376 (CI: 1.047-1.809; p = 0.022).

Conclusions: ZC3HC1 rs11556924 was shown to be a risk factor for essential hypertension. However, this variant may no longer be independently significant in the general population. Meanwhile, in non-smokers, this variant increases EA risk, either in bivariate or in multivariate model. Smoking, through vascular damage or inflammation pathways, can act as a confounder or modifier of EH in the general population. Removing smokers may reduce noise, unmasking the proper relationship between the variant and hypertension.

PO 164. GENETIC CONTRIBUTION TO CAD IN PATIENTS WITH FEW TRADITIONAL RISK FACTORS BUT A SEDENTARY LIFESTYLE

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

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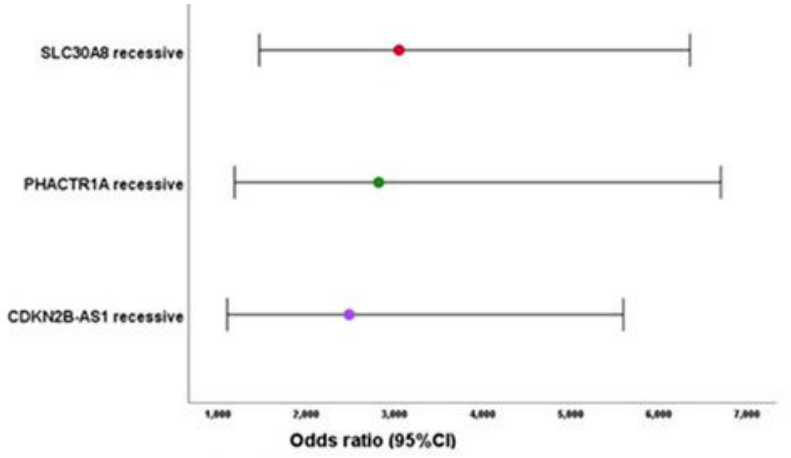
Introduction: Physical inactivity has mainly been recognised as a risk factor for coronary arterial disease (CAD), an essential modifiable risk impacting public health. Although there is a significant correlation between physical inactivity and the incidence of cardiovascular disease (CV), a considerable proportion of people with sedentary lifestyles remain CAD-free. This



Genetics variables independently and significantly associated with susceptibility to CAD

Figure PO 164

disparity prompts fascinating inquiries into the intricate interactions among environmental, epigenetic, and genetic factors contributing to CAD.
Objectives: Evaluate which genetic polymorphisms are responsible for a higher probability of occurrence of CAD in individuals with physical inactivity but without other CV risk factors.
Methods: A case-control study was conducted involving individuals with physical inactivity, with a few traditional risk factors: density lipoprotein (LDL) levels < 100 mg/dL, non-diabetic, and non-hypertensive. Of 3.157 participants, 152 (77.6% men; aged 50.8 ± 8.9) were enrolled and subdivided into two groups: 100 patients with CAD (defined as having at least 70% stenosis in one major coronary artery) and 52 controls without CAD. Four polymorphisms previously associated with CAD by GWAS but not with TRFs (CDKN2B-AS1 G > C, PHACTR1 C > T, ACE I > D and SLC30A8 T > C) were genotyped using TaqMan real-time PCR. Then, we performed a bivariate analysis to evaluate genotype distribution in case and controls and a multivariate regression analysis to assess what genotype or genetic models were significant and independently associated with CAD.
Results: After bivariate analysis, PHACTR1 rs1332844 variant, ACE I/D rs4340, CDKN2B-AS1 rs1333049 and rs497757 variants, and SLC30A8 rs1326634 were significantly more prevalent in the CAD cohort. After multivariate regression analysis entering the four variants in the recessive genetic models, PHACTR1 C > T remained in the equation significantly associated with CAD (OR 2.82; p = 0.019) together with SLC30A8 T > C (OR 3.05; p = 0.003) and CDKN2B-AS1 T > C (OR 2.49; p = 0.028).
Conclusions: Although the variation in physical activity and sedentariness is likely to be determined by many factors, the genetics influence is significant. Our findings suggest three genetic variants related to the cellular cycle, apoptosis, endothelial dysfunction, and inflammation, which are significantly associated with CAD in sedentary people with few traditional risk factors. A synergistic effect of a sedentary lifestyle and genetic influence may explain CAD susceptibility.

PO 165. HOW GENETIC VARIANTS AND EXCESS OF WEIGHT INFLUENCE RISK OF CORONARY ARTERY DISEASE

Matilde Ferreira[1], Maria Isabel Mendonça[2], João Adriano Sousa[3], Débora Sá[1], Francisco Sousa[1], Gonçalo Abreu[1], Graça Guerra[2], Eva Henriques[2], Mariana Rodrigues[2], António Drumond[1], Ana Célia Sousa[1], Roberto Palma dos Reis[4]

[1]Hospital Dr. Nélio Mendonça. [2]Research Centre Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Hospital Dr. Nélio Mendonça. [4]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

Introduction: Excessive weight is a significant risk factor for coronary artery disease (CAD), contributing to the development of cardiovascular events through complex metabolic and inflammatory mechanisms. While advancements have been made in understanding this relationship, the genetic basis underlying the link between excessive weight and CAD remains incomplete.
Objectives: Evaluate which genetic polymorphisms are responsible for a higher probability of occurrence of CAD in patients with excessive weight without other traditional risk factor.
Methods: A case-control study was conducted involving individuals with excessive weight but a few of the other traditional risk factors as it is with low-density lipoprotein (LDL) levels < 100 mg/dL, non-diabetic, and non-hypertensive. From 3,157 individuals of our dataset, a total of 202 (77.7% men; aged 51.0 ± 8.5 years) were selected, comprising 120 patients with CAD (defined as having at least 70% stenosis in one major coronary artery) and 82 controls without CAD. Thirty-three genetic polymorphisms previously associated with CAD were genotyped using TaqMan real-time PCR. From these, five were selected not associated with the traditional risk factors: SLC30A8 rs1326634, PHACTR1 rs1332844, MTHFR rs1801131, APOE rs7412/rs429358 e o TCF21 rs12190287. The bivariate analysis evaluated differences between genotypes, and after this, a multivariate logistic regression analysis showed which variants were significant and independently associated with CAD, using the appropriated genetic model.
Results: SLC30A8, PHACTR1, MTHFR, APOE and TCF21 were significantly more prevalent in the CAD cohort. After multivariate logistic regression analysis of these five polymorphisms, three remained in the equation: PHACTR1 (OR = 1.90; p = 0.047), MTHFR (OR = 6.28; p = 0.021) on the recessive model and APOE (OR = 2.66; p = 0.011) on the dominant genetic model as independent and significantly associated with CAD risk in our population.
Conclusions: Obesity is a multifactorial disease with complex interactions among genes and environments. Our finding showed that three genetic variants (PHACTR1, MTHFR1298, and APOE) were associated with an increased risk of CAD in individuals with excessive weight and without other main CV risk factors. These genetic variants that influence inflammatory pathways and oxidative stress may interfere with overweight conditions, synergistically contributing to subclinical atherosclerosis and CAD.

PO 166. THE ADDITION OF A POLYGENIC RISK SCORE TO A CLINICAL RISK SCORE IN THE PREDICTION OF CARDIOVASCULAR DISEASE

Débora Sá[1], Maria Isabel Mendonça[2], Francisco Sousa[1], Gonçalo Abreu[1], Matilde Ferreira[1], Sónia Freitas[3], Mariana Rodrigues[3], Sofia Borges[3], Graça Guerra[3], António Drumond[1], Ana Célia Sousa[3], Roberto Palma dos Reis[4]

[1]Hospital Dr. Nélio Mendonça. [2]Centro de Investigação Dra Maria Isabel Mendonça, SESARAM EPERAM. [3]Centro de Investigação Dra. Maria Isabel Mendonça, SESARAM EPERAM. [4]Faculdade de Ciências Médicas de Lisboa/NOVA Medical School.

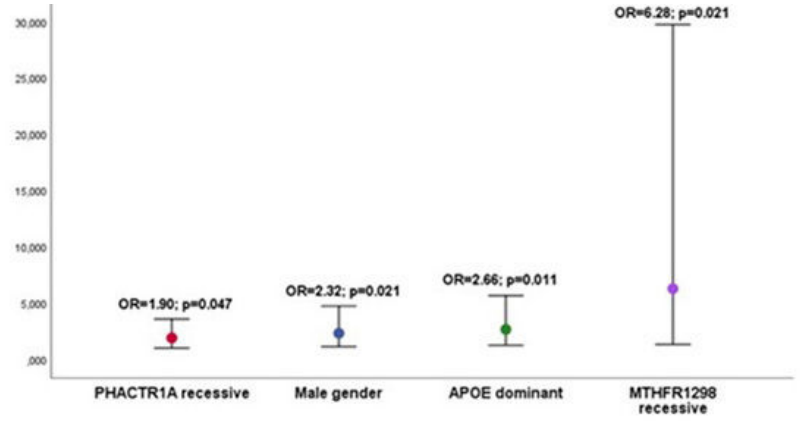
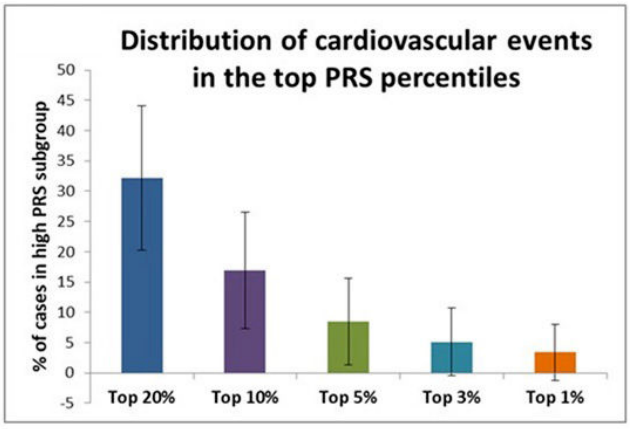
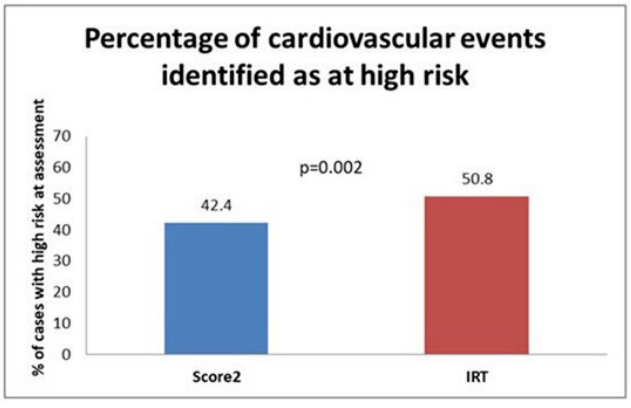


Figure PO 165

Introduction: Recent research showed that adding a polygenic risk score (PRS) for cardiovascular disease (CVD) to clinical risk tools has improved risk prediction for CVD. It has been proved that this addition enhances the identification of individuals at increased risk for CV events in a real-world clinical setting.
Objectives: Investigate in a regular cohort of a Southern European population whether adding a CVD-PRS to clinical SCORE2, in the form of an integrated risk tool (IRT), increased the proportion of high-risk individuals with, at least, one major CV event compared with the SCORE2.
Methods: An asymptomatic Southern European population composed of 1103 individuals (53.4 ± 6.9 years; 74.2% male) was analysed in this study. From the 33 genetic variants mostly used in our CVD-PRS, only 13 variants that presented a Hazard Ratio > 1 for events were included. The additive PRS is the product sum of each individual's risk alleles, weighted by its effect size (HR). We constructed IRT using the formula W1*SCORE2 + W2*PRS, where W1 and W2 are weights determined through AUC curves validation. So, IRT = 0.6*Score2 + 0.4*PRS. We divided IRT in three categories < 5%, 5%-10% e > 10% we used the higher. When about 60 individuals (cases) had a major event, NRI reclassification (with PRS added to SCORE2) was performed. Statistical analysis was done using R package "survIDINRI" and SPSS version 25.
Results: From the 59 events occurred in the end of follow-up, 32.2% occurred in the top 20%, i.e. in the highest percentile of PRS; 16.5% occurred in the top 10%; 8.5% in the top 5%; 5.1% in the top 3% and 3.4% in the top 1%. 42.4% of individuals in the highest category in SCORE2 presented cardiovascular events. When we used the integrated risk tool (combination of SCORE2 and polygenic risk score), there was a significant increase in events (8.4%) in the high-risk population.





Conclusions: In a clinical situation, adding genetic information to clinical risk assessment significantly aids in identifying those at high risk for events, allowing preventive measures to be applied to a higher proportion of such individuals at high risk who went on to have a major CV event.

PO 167. PREDICTORS AND OUTCOMES OF AMYLOID CARDIOMYOPATHY CAUSED BY TRANSTHYRETIN V30 MUTATION

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

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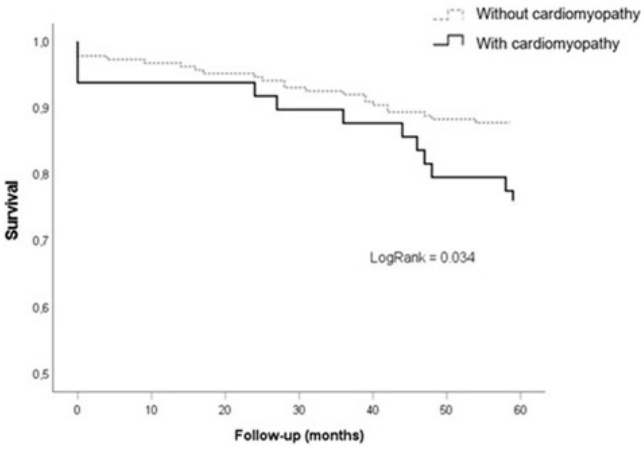
Introduction: Transthyretin-related amyloid cardiomyopathy (ATTR-CM) results from mutations in the TTR gene (vATTR) or conformational changes in wild-type TTR protein (wtATTR). Regarding TTR mutations, a particular early-onset phenotype, presenting predominantly as a peripheral neuropathy (named Familial Amyloid Polyneuropathy) is endemic in Portugal, with the V30M being the most common pathogenic variant. The aim of this study was to characterize the occurrence of V30M ATTR-CM, as well as its predictors and outcomes.
Methods: We conducted a retrospective study including patients diagnosed with TTR V30M mutation, with and without amyloid cardiomyopathy, consequently seen in Cardiology appointments in 2019 at our center and followed for at least 5 years. Diagnostic criteria for ATTR-CM were considered according to ESC recommendations. Multiple linear regression was used to identify independent predictors for ATTR-CM. Death rates were plotted as Kaplan-Meier curves.
Results: We enrolled a total of 248 TTR V30M patients, mean age of 54 years old, 53% males, 68% with early onset disease (< 50 years); 49 (21%) patients fulfilled the criteria for ATTR-CM diagnosis (with an additional 10% possibly having cardiomyopathy without fulfilling all diagnostic criteria). V30M ATTR-CM was associated with male gender (78 vs. 46%, p < 0.001), older age (62.4 ± 13.7 years vs. 52.1 ± 13.4 years, p < 0.001), late-onset disease (40 vs. 18%, p = 0.002), liver transplantation (49 vs. 28%, p = 0.004), orthostatic hypotension (55 vs. 30%, p < 0.001), ophthalmologic manifestations (31 vs. 16%, p = 0.019), and lower creatinine clearance (81.5 ± 25.3 ml/min vs. 94.0 ± 30.4 ml/min, p = 0.009). There was no difference between groups regarding neurological involvement (present in 90 vs. 82%) or GI, renal and urological manifestations. In multivariate analysis, male gender (OR 4.69; 95%CI 1.85-11.93; p < 0.001) and liver transplant (OR 6.41; 95%CI 1.93-21.24; p = 0.002) were the only independent predictors of CM identified. Median follow-up time was 57 (5) months. ATTR-CM was associated with worse outcomes (survival 78.5 vs. 91.3%, LogRank = 0.034) (Figure 1).

Figure I – Kaplan-Meier survival curve showing the probability of death according to the presence of cardiomyopathy



Conclusions: ATTR-CM affects more than one fifth of our TTR V30M patients and is independently predicted by male gender and liver transplantation. It is associated with worse outcomes, highlighting the need for early detection and management to improve prognosis.

Sexta-feira, 11 Abril de 2025 | 17:15-18:15

Área de Posters-écran 2 | Sessão de Posters 27 – Formação em cardiologia e farmacoterapia

PO 168. TRAINING ON A BUDGET: INDUSTRY SPONSORSHIPS IN CARDIOLOGY RESIDENCY

Inês Brito e Cruz[1], Tomás Carlos[1], Rita Bertão Ventura[1], Mafalda Griné[1], Luísa Gomes Rocha[1], Maria João Primo[1], Didier Martinez[1], Vanda Devesa Neto[2], Gonçalo Ferraz Costa[1], Luís Leite[1], Rui Baptista[3]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio. [3]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.

Introduction: Since 2013, Portuguese legislation has required entities within the pharmaceutical and medical device sectors to publicly declare all economic advantages granted or received through the *Plataforma de Comunicações – Transparência e Publicidade* (PCTP) managed by *Infarmed*. Although industry payments to physicians may raise concerns regarding potential conflicts of interest, these funds play a crucial role in supporting residents' medical training. This study aimed to assess the evolution of the number and monetary value of sponsorships received by Portuguese cardiology residents over the last decade.
Methods: A cross-sectional analysis was conducted by integrating data from the Administração Central do Sistema de Saúde with records from the PCTP regarding cardiology residents. The primary outcomes were the number and monetary value of sponsorships received by each resident throughout their five-year training period, stratified by entry-year cohort. Secondary analyses explored the influence of geographical region, number of residents per hospital per year, and hospital affiliation per cohort.
Results: 127 cardiology residents who began their training in 2013 (n = 29), 2015 (n = 29), 2017 (n = 35), and 2019 (n = 34) were included. The mean number of sponsorships was 20.24 ± 7.93 with a mean monetary value of €9,223.37 ± 4,490.42 during their training period. Although the number of sponsorships increased significantly from 2013 to 2019 ($p < 0.001$), this wasn't reflected in the total sponsorship values. In fact, the highest mean values were observed in 2013 (€10,413.86) and 2015 (€10,772.01) cohorts, with significant differences noted between the 2017 and both the 2013 ($p = 0.026$) and 2015 ($p = 0.010$) cohorts. Despite an increasing number of residents per year, the overall total sponsorship value decreased over time. Sponsorship numbers varied significantly by region ($p = 0.040$), while the total value approached statistical significance ($p = 0.067$). Conversely, neither the number of residents per hospital per year nor hospital affiliation significantly influenced sponsorship patterns.
Conclusions: This study highlights the significant variations in the number and value of sponsorships received by cardiology residents over the years, revealing notable decline in the average sponsorship per resident. As curriculum demands continue to grow, sponsorships remain vital for residents to achieve academic and professional milestones.

PO 169. CARDIOLOGY IN DECLINE: UNVEILING THE DOWNWARD TREND IN RESIDENT PREFERENCES

Luísa Gomes Rocha[1], Tomás M. Carlos[1], Mafalda Oliveira Griné[1], Bernardo Lisboa Resende[1], Susana Costa[1], Vanda Devesa Neto[2], Rui Baptista[3], Gonçalo Ferraz Costa[1], Lino Gonçalves[1]

[1]Centro Hospitalar e Universitário de Coimbra, EPE/Hospitais da Universidade de Coimbra. [2]Centro Hospitalar Tondela-Viseu, EPE/Hospital de São Teotónio, EPE. [3]Centro Hospitalar de Entre Douro e Vouga, EPE/Hospital de S. Sebastião.

Introduction: Cardiology has long been regarded as one of the most sought-after medical specialties. However, evolving preferences among medical graduates and advancements in other fields may have influenced its appeal. Understanding these trends is essential to assess shifts in specialty selection over time.
Objectives: This study aimed to analyze trends in entry positions for Cardiology from 2016 to 2024 and to assess disparities between Cardiology and other highly chosen specialties —Dermatology and Ophthalmology— as well as Gastroenterology, which shares a medical and technical complexity similar to Cardiology.
Methods: Utilizing data from Administração Central do Sistema de Saúde (ACSS), this observational study focused on normalized entry positions from 2016 to 2024, using the Kruskal-Wallis test for longitudinal analysis and Mann-Whitney U tests for 2024 comparisons. Given the substantial variability in exam scores year over year, the analysis concentrated on normalized entry positions rather than scores. A Normalized Attractiveness Index (NAI) was formulated to assess each specialty's relative appeal, calculated as: 1 minus the product of the median entry position divided by the total number of candidates in that year and the ratio of the number of vacancies in the specialty to the total number of vacancies across the four specialties in that year.

Figure PO 168

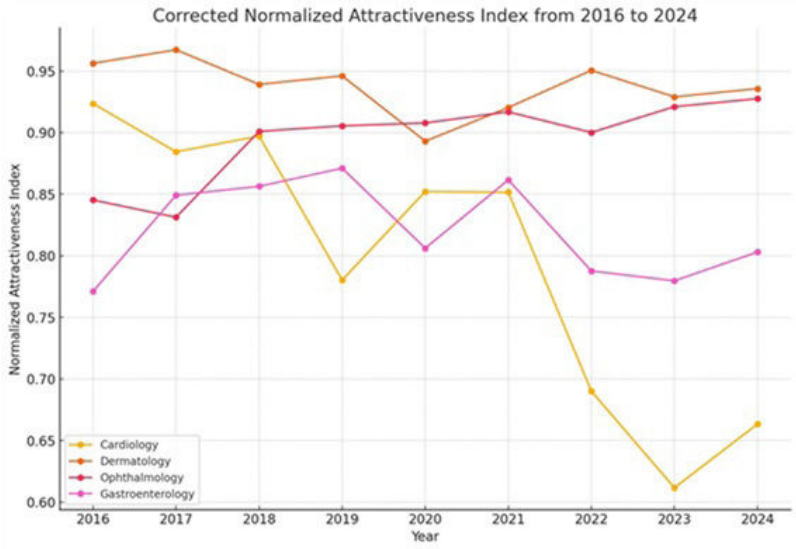


Figure PO 169

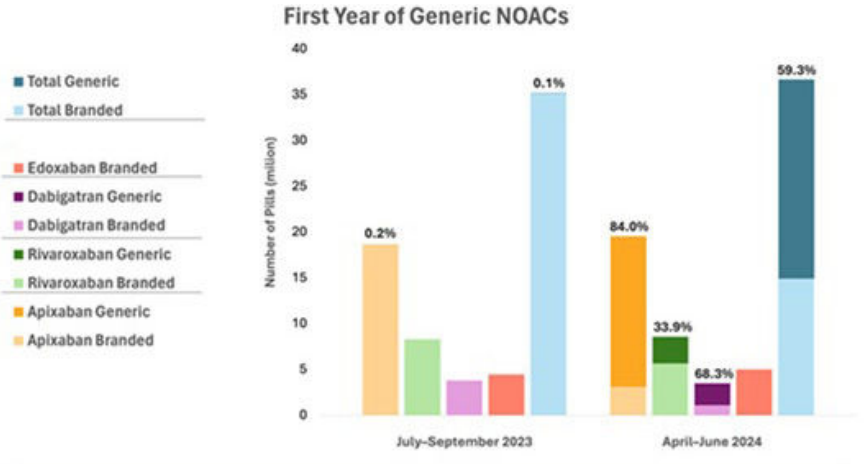
Results: Cardiology's median entry positions rose from 61st in 2016 to 362nd in 2023, with no significant differences in positions over the years (p = 0.394). Comparisons in 2024 revealed no significant differences between Cardiology and the other specialties, with p-values of 0.840, 0.523, and 0.947. However, NAI showed Dermatology (average 0.937) and Ophthalmology (average 0.895) as more attractive than Cardiology, which notably declined, reaching its lowest index at 0.612 in 2023. Gastroenterology maintained moderate attractiveness (average 0.821).
Conclusions: Despite the statistical analyses not yielding statistically significant differences in the entry positions among the specialties, several factors could account for this outcome. Conversely, the NAI indicates a notable decline in Cardiology's appeal relative to others. This trend, requiring further investigation, suggests the need for targeted interventions and strategic adjustments in medical training and recruitment.

PO 170. THE FIRST YEAR OF GENERIC NOACS: IMPLICATIONS FOR PATIENTS AND THE HEALTHCARE SYSTEM

Rita Barbosa Sousa, Afonso Félix de Oliveira, Rita Almeida Carvalho, Joana Certo Pereira, Eduardo Infante de Oliveira

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

Introduction: In Portugal, non-vitamin K antagonist oral anticoagulants (NOACs) have become standard of care in the management of non-valvular atrial fibrillation (NVAF) since their approval for reimbursement in 2014. Generic versions of NOACs were introduced in September 2023 for apixaban, followed by dabigatran in January 2024 and rivaroxaban later in April 2024. Our study describes the adoption of generic NOAC versions and the economic impact on patient and healthcare spending.



Number of pills (million)	35.2	36.7
Public healthcare co-payment (million)	30.5 €	27.0 €
Patient costs (million)	13.7 €	12.1 €
Total costs (million)	44.3 €	39.1 €

Figure 1 – Comparison of the number of NOACs pills sold (branded and generic) and their associated costs to patients (out-of-pocket expenses) and the national healthcare system (co-payment) from the first to the last trimester of the study period. NOACs, non-vitamin K antagonist oral anticoagulants.

Figure PO 170

Methods: We reviewed data from the public database on medications commercialized and their associated expenses in Portugal. We analyzed the number of NOAC pills sold –branded and generic– and their costs to patients (out of pocket) and the national healthcare system (co-payment) between July 2023 and June 2024. We have divided the study period in trimesters where appropriate.
Results: In the study period, €142 million (M) NOAC pills –branded and generic– were sold in Portugal corresponding to a total expense of €167.4M. The total out of the pocket expense – patient's costs – was €51.9M and the total co-payment was €115.5M. Among NOACs – branded and generic - sold during the study period, apixaban accounted for 53.2%, rivaroxaban 23.5%, edoxaban 13.2% and dabigatran 10.2%. Generics corresponded to 33.2% of all NOACs sold. There was a strong trend towards the adoption of generic NOACs representing 0.1% in the first trimester, 26.5% in second trimester, 45.9% in third trimester and 59.3% in the last trimester. By the last trimester, 84.0% of apixaban pills sold were generics. A similar pattern was seen with dabigatran and rivaroxaban. Despite being introduced later, generic versions of dabigatran and rivaroxaban accounted for 68.3% and 33.9% respectively (Figure 1). In 2023, the national healthcare system allocated €1 593.8M to medications, with patients contributing €859.8M. Anticoagulants ranked as the second-highest drug class in terms of total costs, with apixaban and rivaroxaban being the second and third active substances associated with the highest expenses, respectively. In the first trimester of the study period, expenses for NOACs amounted to €13.7M for patients and €30.5M for public healthcare co-payment. By the final trimester, patient costs had decreased to €12.1M and public healthcare co-payment to €27.0M, reflecting reductions of 11.7% and 11.5%, respectively.
Conclusions: Generic have been widely adopted by patients in Portugal leading to a significant decrease in costs for patients and the public healthcare system. Economic factors and previous experience with generic drugs likely influenced patient choice.

PO 171. THE EFFICACY AND SAFETY OF DIRECT ORAL ANTICOAGULANTS COMPARED TO WARFARIN FOR LV THROMBUS RESOLUTION

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Introduction and objectives: Left ventricular thrombus (LVT) is a frequent complication of myocardial infarction (MI) and heart failure with reduced ejection fraction (HFrEF). Once diagnosed, anticoagulation with vitamin K antagonists (VKA) up to 6-months is recommended. Clinical experience with direct oral anticoagulation (DOAC) in this setting is scarce and contradicting. Our aim is to describe the effectiveness and safety of DOAC for LVT resolution compared to warfarin.
Methods: Single-centre retrospective cohort study of consecutive patients with recently diagnosed LVT, either after MI or HFrEF, conducted from January 2010 to May 2024. Primary endpoint was LVT resolution whereas safety endpoints were major bleedings and thromboembolic events, both evaluated at 24 months. Diagnosis and subsequent assessments were performed with echocardiography and complemented with cardiac magnetic resonance and computed tomography when appropriate. Decisions regarding anticoagulant type, dose and duration and any simultaneous antiplatelet therapy were left to physician's discretion.
Results: In a cohort of 171 patients (82.5% male; mean age 59.8 ± 14.7 years), 99 received DOAC therapy, while the remaining received warfarin (Figure 1). Primary endpoint occurred in 111 patients (64.9%). At 24 months, LVT resolution occurred significantly more in patients treated with DOAC (66.7%, n = 66) compared to those on warfarin (50%, n = 36), with a hazard ratio (HR) of 2.0 (95%CI: 1.07-3.73; p = 0.029). Thrombus tended for faster resolution on DOAC (185 days [IQR: 97-377] vs. 220 days [IQR: 128-378], p = 0.214). DOAC remained a significant predictor of LVT resolution, independently of simultaneous antiplatelet use (HR: 3.0, 95%CI: 1.414-6.131; p = 0.004). During a median nine months period (IQR 5-23) 5 (2.9%) major bleeding, 9 (5.3%) thromboembolic events, and 9 (5.3%) deaths were recorded, without significant differences between therapeutic arms.
Conclusions: In this cohort, DOAC use for LVT showed improved resolution with similar safety profile compared to warfarin. Further randomized clinical trials are needed to confirm these findings.

PO 172. ASSESSING THE BEST ANTICOAGULATION STRATEGY FOR LEFT VENTRICLE THROMBUS AFTER ANTERIOR MYOCARDIAL INFARCTION

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

USL Viseu Dão-Lafões.

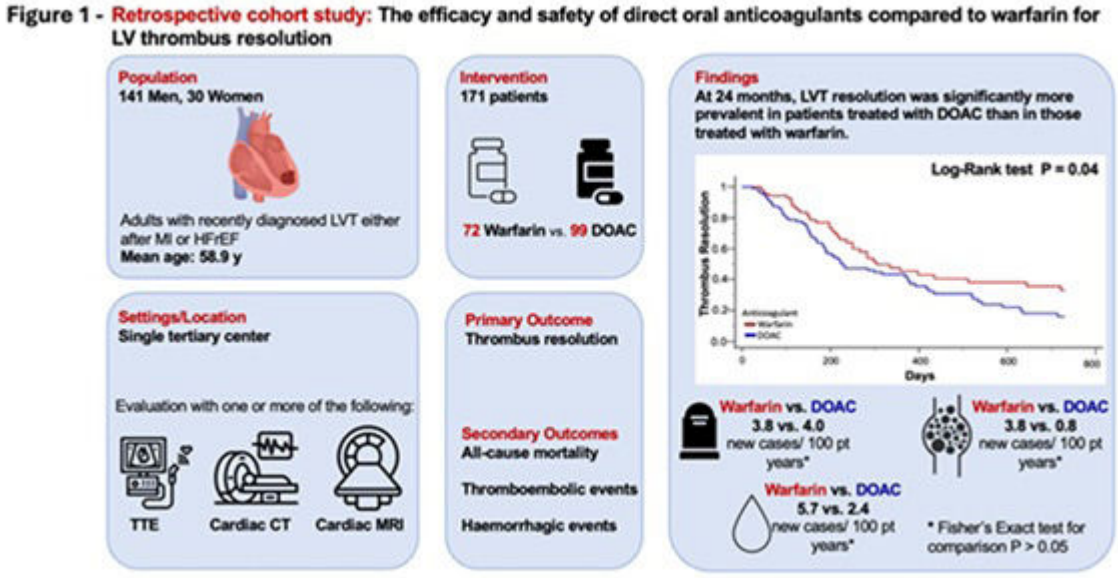

Figure PO 171

Introduction: There is a lack of prospective randomized data on the optimal anticoagulation regimen for treatment of Left Ventricle Thrombus (LVT) following Acute Myocardial Infarction (AMI). The choice of therapy should be tailored to the patient's clinical status and the results of follow-up investigation. The aim of this study is to evaluate the impact of Vitamin K Antagonists (VKAs) comparing to Direct Oral Anticoagulants (DOAC) in patients with LVT after AMI.
Methods: Retrospective analysis of patients diagnosed to LVT after anterior STEMI between January 2019 and December 2023. All patients underwent treatment with Percutaneous Coronary Intervention (PCI). LVT diagnosis was made by transthoracic echocardiography (TTE) in the first 2 weeks after AMI. Anticoagulation strategy was adopted by the clinician, considering patient's clinical status. Patients were divided into two groups (DOAC vs. VKA) and the following outcomes were considered in the follow-up period: major haemorrhagic events, stroke, all-cause mortality and LVT resolution in following TTE, 3-6 months after LVT diagnosis. Chi-square and Mann-Whitney U tests were used for group comparisons and Cox regression analysis was used for multivariable analysis.
Results: The study sample included 90 patients, with a mean age of 65.9 ± 12.2, 81.1% (n = 73) male, with a mean LVEF of 37.6%. 62.2% (n = 56) of patients were on DOAC therapy. Over a mean follow-up period of 2.4 years, the following outcomes were observed: stroke in 12.2% (n = 11) patients, hospitalizations in 55.6% (n = 50) patients, haemorrhagic events in 14.4% (n = 13) patients, thrombus resolution in 51.0% (n = 46) patients and mortality in 15.6% (n = 14) patients. Patients on DOACs showed a reduced risk of stroke (5.4 vs. 23.5%; χ^2 = 6.512, p = 0.018), a reduced risk of haemorrhagic events (5.4 vs. 29.4%; χ^2 = 9.905, p = 0.004) and an increased rate of thrombus resolution on 3 to 6-month follow-up TTE (60.7 vs. 35.3%; χ^2 = 7.421 p = 0.024). No statistically significant impact was observed on mortality (p = 0.136) or hospitalizations (p = 0.258). Multivariate logistic regression analysis supported previous results showing a reduced risk of stroke (OR: 0.184, 95%CI: 0.045-0.752, p = 0.018), haemorrhagic events (OR: 0.136, 95%CI: 0.034-0.539, p = 0.005) and an increased rate of thrombus resolution on TTE (OR: 3.643, 95%CI: 1.395-9.511, p = 0.008) in the DOAC group.
Conclusions: This analysis suggests that DOAC are viable option for LVT treatment, with best safety profile. These findings support recent evidence favouring DOACs over VKAs. However, despite their potential relevance to daily clinical practice, these results should be validated in randomized controlled trials.

PO 173. LOW DOSE COLCHICINE FOR SECONDARY PREVENTION IN PATIENTS WITH PREVIOUS ATHEROSCLEROTIC EVENT: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED TRIALS

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Introduction: Colchicine is now recommended for secondary prevention in the latest European Cardiology Society guidelines for managing chronic coronary syndromes. Previously, two major trials and several meta-analyses, which included smaller randomised controlled trials (RCTs), showed that colchicine reduced major cardiovascular events (MACE), though it did not reduce cardiovascular (CV) mortality. Over the past year, three major trials have been published, all demonstrating no significant reduction in cardiovascular events. Two of these trials included patients with ischemic cerebrovascular events, broadening the context for colchicine's in atherosclerotic disease.
Objectives: To evaluate the efficacy and safety profile of low dose colchicine in secondary prevention among patients with a prior cardiovascular or cerebrovascular event.
Methods: A systematic search of electronic databases, including Medline and the Cochrane Library, was conducted to identify RCTs comparing colchicine with placebo or usual care in secondary prevention. The primary outcome was a composite measure of CV death, myocardial infarction or stroke. Risk of bias was assessed using the Cochrane quality assessment tool and outcomes were analyzed using an inverse-variance random-effects model.
Results: A total of 11 RCTs, involving 30,753 patients with a follow-up period exceeding one month met the inclusion criteria. Of these, 15 381 patients (50.0%) received colchicine, showing a lower risk of the primary outcome (6.2 vs. 7.2%; relative risk (RR) = 0.80; 95%CI, 0.67-0.94; I^2 = 56%), reported MACE (7.4 vs. 9.0%; RR = 0.70; 95%CI, 0.57-0.85; I^2 = 72%) and myocardial infarction (2.2 vs. 2.7%; RR = 0.76; 95%CI, 0.61-0.94; I^2 = 30%). There is a trend suggesting a potential benefit of colchicine in stroke prevention, but it did not reach statistical significance (2.8 vs. 3.2%; RR = 0.79; 95%CI, 0.61-1.04; I^2 = 49%). No significant benefit was found for CV mortality (1.3 vs. 1.4%; RR = 0.91; 95%CI, 0.70-1.17; I^2 = 0%) or all-cause mortality (2.5 vs. 2.6%; RR = 0.98; 95%CI, 0.79-

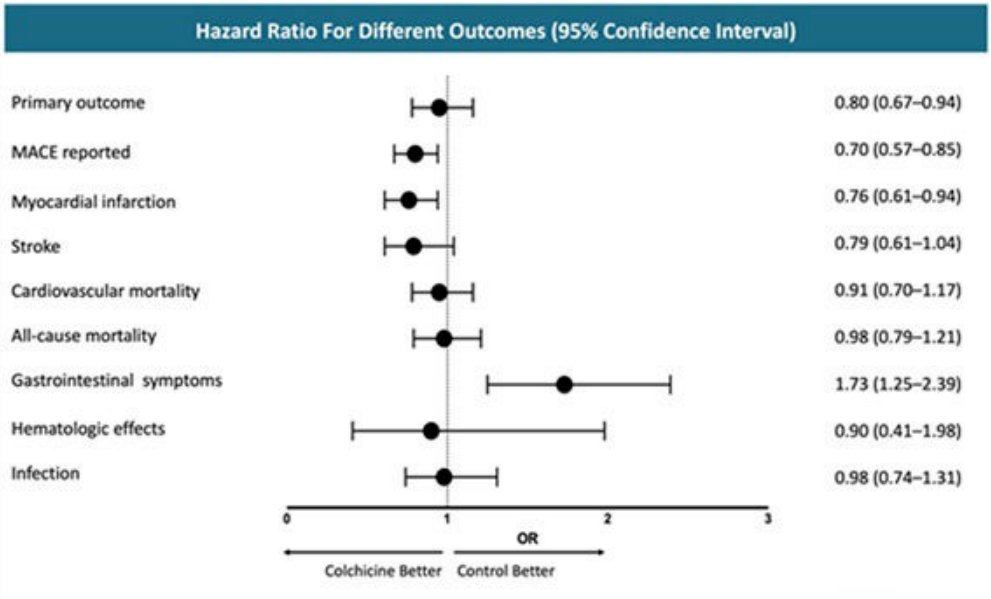

Figure 1 - Meta-analysis summary plot of colchicine for secondary prevention outcomes. MACE, major cardiovascular events.

Figure PO 173

1.21; I^2 = 39%). The colchicine group reported a higher incidence of gastrointestinal symptoms (12.7 vs. 9.6%; RR = 1.73; 95%CI, 1.25-2.39; I^2 = 91%). Other adverse events, including hematologic effects (0.4 vs. 0.4%; RR = 0.90; 95%CI, 0.41-1.98; I^2 = 58%) and infections (2.2 vs. 2.2%; RR = 0.98; 95%CI, 0.74-1.31; I^2 = 55%) were similar across groups, showing no statistically significant differences. As limitations, we should point out the presence of high heterogeneity across studies and the possibility of publication bias.
Conclusions: While colchicine did not reduce CV and all-cause mortality, it still demonstrated significant efficacy in secondary prevention of MACE and myocardial infarction, maintaining a relatively favourable safety profile. High heterogeneity and the possibility of publication bias are important limitations to consider.

Sexta-feira, 11 Abril de 2025 | 17:15-18:15

Área de Posters-écran 3 | Sessão de Posters 28 – Ecocardiografia de *stress*

PO 174. UNVEILING THE IMPACT OF ANTHRACYCLINE CHEMOTHERAPY ON RESTING AND EXERCISE ECHOCARDIOGRAPHY

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Introduction: Cancer therapy-related cardiac dysfunction (CTRCD) is a prevalent concern for Breast Cancer (BC) patients (pts) undergoing anthracycline chemotherapy (AC). Current methods to detect CTRCD rely on resting echocardiographic (echo) parameters, such as LVEF or GLS, which have limited sensitivity in early stages.
Objectives: To evaluate AC impact on echo parameters at rest and exercise in order to identify ones with better sensitivity than LVEF and GLS to detect post-AC cardiac damage.
Methods: Prospective study including women with early-stage BC between May 2022 and December 2023. Each pt had 3 visits: before starting AC, 1-month after and at 6-months after completing AC. During each visit, they performed cardiopulmonary exercise test (CPET), resting and exercise echo. During CPET, exercise echo images were obtained with the pt on the treadmill at different stages. An experienced echocardiographer, blinded to prior results, performed image acquisition. All echo measurements were performed offline by a single blinded interpreter. Inter- and intra-observer variabilities were assessed in 30% of randomized pts using an intraclass correlation coefficient (ICC).
Results: We included 32 women, with a mean age of 50.8 ± 9.3 years. Significant reductions were observed in LVEF at 1-month (2D: 63.3 ± 3.0% to 61.0 ± 4.0%, p = 0.007; 3D: 62.8 ± 4.9% to 61.0 ± 4.4%, p = 0.020) and at 6-months (2D: 60.9 ± 5.0%, p = 0.031; 3D: 59.5 ± 5.9%, p = 0.003) comparing to baseline. During peak exercise, 2D LVEF decreased from 70.3 ± 5.3% to 66.6 ± 5.8% at 1-month (p < 0.001) and to 64.4 ± 4.3% at 6-months (p < 0.001). LV 2D-GLS showed a reduction from -19.9 ± 1.9% to -18.5 ± 1.9% at 1-month (p = 0.003) and to -18.4 ± 2.1% at 6-months (p < 0.001) and LV 3D-GLS from -19.5 ± 1.8% to -17.4 ± 2.7% at 1-month (p < 0.001) and to -18.2 ± 2.9% at 6-months (p = 0.002). During exercise, LV 2D-GLS dropped from -19.0% to -17.3 ± 1.5% at 1-month and -17.3 ± 1.8 at 6-months (p < 0.001). Myocardial work (MWI) parameters (global work index (GWI) and global constructive work (GCW)) changed significantly at rest and during exercise at both 1 and 6-months (Table 1). At rest, GWI showed a reduction from 1,839 ± 260 to 1,607 ± 288 at 1-month (p < 0.001) and to 1,588 ± 277 at 6-months (p < 0.001) and GCW from 2,142 ± 311 to 1,899 ± 300 at 1-month (p < 0.001) and to 1,874

Table 1. Effect of anthracycline chemotherapy (AC) on resting and exercise echocardiography parameters.

	Pre-AC	1-month	6-months	p-value*	p-value#
Resting echocardiography parameters					
2D LVEF (%)	63.3±3.0	61.0±4.0	60.9±5.0	**0.007**	**0.031**
Stroke volume (ml)	60±9	54±11	53±13	**0.003**	**0.004**
Cardiac output (L/min)	4.8±0.9	4.3±0.9	3.9±1.1	**0.007**	**<0.001**
2DSTI and MWI					
LV GLS (%)	-19.9±1.9	-18.5±1.9	-18.4±2.1	**0.003**	**<0.001**
GWI (mmHg*%)	1839±260	1607±288	1588±277	**<0.001**	**<0.001**
GCW (mmHg*%)	2142±311	1899±300	1874±311	**<0.001**	**<0.001**
GWW (mmHg*%)	100±49	96±42	93±59	0.706	0.534
GWE	95.6±1.8	95.2±1.8	95.4±2.5	0.309	0.580
3D EF and 3DSTI					
3D LVEF (%)	62.8±4.9	61.0±4.4	59.5±5.9	**0.020**	**0.003**
LV 3D-GLS (%)	-19.5±1.8	-17.4±2.7	-18.2±2.9	**<0.001**	**0.002**
LV 3D-GRS (%)	54.5±9.4	48.0±12.6	49.9±10.7	**0.022**	**0.009**
LV 3D-GCS (%)	-18.6±2.9	-17.3±3.1	-16.8±3.5	**0.043**	**0.004**
LV 3D-GAS (%)	-31.7±3.2	-29.9±6.1	-29.7±4.9	**0.049**	**0.006**
Exercise echocardiography parameters (at peak)					
2D LVEF (%)	70.3±5.3	66.6±5.8	64.4±4.3	**<0.001**	**<0.001**
Contractile reserve (%)[£]	7.0±2.8	5.6±3.1	3.5±1.9	0.232	**0.010**
Stroke volume (ml)	87±27	79±22	76±24	**0.028**	**0.016**
Cardiac output (L/min)[£]	12.8±4.5	11.9±4.1	10.5±4.0	**0.031**	**<0.001**
Cardiac reserve (L/min)[¥]	7.9±4.6	7.6±4.2	6.5±4.1	0.320	**0.016**
2DSTI and MWI					
LV GLS (%)	-19.0±1.1	-17.3±1.5	-17.3±1.8	**<0.001**	**<0.001**
GWI (mmHg*%)	1926±501	1519±437	1473±444	**<0.001**	**<0.001**
GCW (mmHg*%)	2521±509	2276±433	2212±496	**0.001**	**<0.001**
GWW (mmHg*%)	348±237	275±144	308±201	**0.034**	0.430
GWE	89.2±4.5	89.1±4.6	87.8±6.2	0.938	0.249

Data provided as mean ± standard deviation. AC: anthracycline chemotherapy; FWLS: Free Wall Longitudinal Strain; GAS: Global Area Strain; GCS: Global Circumferential Strain; GCW: Global Constructive Work; GLS: Global Longitudinal Strain; GRS: Global Radial Strain; GWE: Global Work Efficiency; GWI: Global Work Index; GWW: Global Wasted Work; LAVi: Left Atrial Volume Index; LVEF: Left Ventricle Ejection Fraction; MWI: Myocardial Work Index; PACS: Peak Atrial Contraction Strain; PALS: Peak Atrial Longitudinal Strain; RVEF: Right Ventricular Ejection Fraction; STI: Speckle Tracking Imaging; [£]Contractile reserve: absolute difference between peak exercise LVEF and resting LVEF. [£]Cardiac output: calculated using 2-D pulsed wave Doppler echocardiography as stroke volume times heart rate. [¥]Cardiac reserve: absolute difference between peak exercise and resting cardiac output. *Pre-AC vs 1-month. #Pre-AC vs 6-months

Figure PO 174

± 311 at 6-months (p < 0.001). The intra- and inter-observer reproducibility of echocardiographic parameters was generally good or excellent.
Conclusions: Our study support the results of others showing that BC patients exposed to AC present significant reductions in LVEF, LV GLS and MWI both at rest and exercise. Peak exercise LVEF and GLS may be more sensitive and earlier markers of cardiac damage than LVEF and GLS at rest in these pts. Beyond, AC cardiotoxicity is very early, being immediately visible in the first month and remaining sustained on FU. Further research is necessary to fully understand the effects of AC on cardiac function.

PO 175. EVALUATION OF MYOCARDIAL WORK DURING EXERCISE ECHOCARDIOGRAPHY IN A HEALTHY POPULATION

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Introduction: Exercise echocardiography (ExE) is an essential diagnostic tool for evaluating ischemia, heart failure with preserved ejection fraction (HFpEF), and the underlying causes of symptoms like dyspnea. Recently, the myocardial work index (MWI), derived from speckle-tracking echocardiography, has emerged as a promising marker of cardiac performance. This study aims to assess the impact of exercise on myocardial work parameters in a healthy population.
Methods: We conducted a single-center retrospective analysis of 845 patients referred for ExE between January 2022 and November 2024. Of these, 280 individuals (aged 30-65 years) without known coronary artery disease and with normal ExE results (no wall motion abnormalities, good functional capacity > 80% predicted work, and ≥ 6 minutes of exercise) were included. Myocardial work (MW) parameters—global longitudinal strain (GLS), global work efficiency (GWE), global work index (GWI), global constructive work (GCW), and global wasted work (GWW)—were evaluated at rest and at a heart rate of 100 bpm.
Results: The cohort consisted of 59% male, mean age 59 ± 4.5 years, BMI 27.5 ± 3.8 kg/m^2, 21% obese, 14% with diabetes, 65% with hypercholesterolemia, and 39% current or former smokers. Baseline MW parameters were within normal ranges (NORRE study): GLS = -16.4% ± 2.5%, GWE = 92% (IQR 5%), GWI = 1501 (IQR 389 mmHg%), GCW = 1,856 (IQR 444 mmHg%), GWW = 134 (IQR 118 mmHg%). Multivariable analysis identified age as the only independent factor influencing MW parameters, with a modest effect on GWE (p = 0.038, partial eta squared = 0.085). During exercise, all MW parameters significantly increased compared to baseline (p < 0.001). No demographic or clinical factors were associated with exercise-induced changes in MW parameters.
Conclusions: In individuals without known coronary artery disease and with normal ExE results, myocardial work parameters significantly increase during exercise, reflecting the heart's adaptive response to physiological stress. Baseline age was the only demographic factor affecting myocardial work efficiency, suggesting a potential impact of aging on cardiac performance. These findings provide reference values for myocardial work during exercise and establish a foundation for future studies examining myocardial work in pathological conditions.

PO 176. THE ATHLETE'S HEART: INSIGHTS INTO ATRIAL AND VENTRICULAR PERFORMANCE

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Introduction: Structural and functional adaptations in the athlete's heart can mimic cardiomyopathies, necessitating precise cardiac assessment. Both right ventricular (RV) function and left atrial (LA) strain are critical components of this evaluation. Traditional parameters, such as TAPSE for RV function and volumetric assessments for LA size, may fail to capture subtle cardiac remodeling. Advanced techniques like RV free wall strain (RVFWS) and LA strain provide deeper insights into myocardial mechanics and physiological adaptations in athletes.
Objectives: This study aimed to comprehensively evaluate RV and LA remodeling and function in professional soccer players compared to healthy controls, assessing the utility of strain imaging in distinguishing physiological adaptations from potential dysfunction.
Methods: A retrospective analysis was conducted on echocardiographic data, including RV free wall strain (RVFWS) and LA strain, from professional male soccer players and healthy male controls. Imaging was performed using the GE Vivid E95 ultrasound system, with data analyzed via EchoPAC V.206

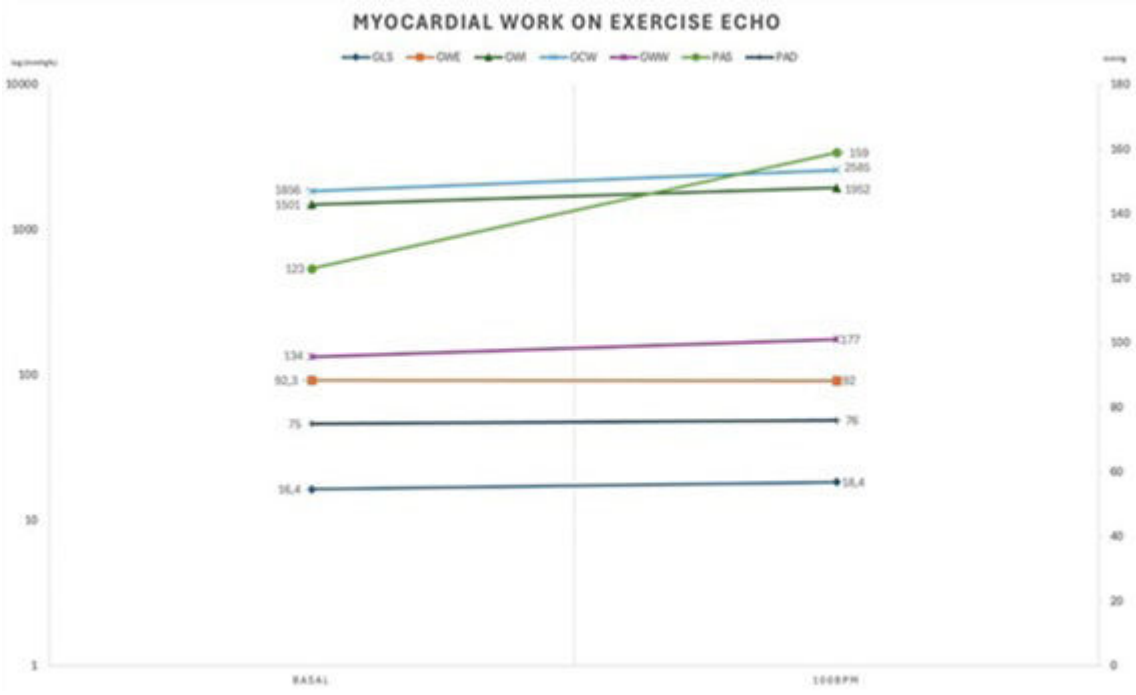

Figure PO 175

Table nr. 1 – descriptive analysis	Athletes (N=111)	Control (N=70)	*p* value
Age (years)	24 (21-31)	26 ± 4	0.013
Indexed Left atrial end-systolic volume (mL/m²)	41 ± 9	31 ± 7	<0.001
E/e' ratio	4.4 ± 0.9	5.0 (4.5–5.8)	<0.001
Left atrial reservoir strain - LASr (%)	34 ± 8	34 (31–41)	0.151
Left atrial conduit strain - LAScd (%)	-25 ± 7	-23 ± 9	0.123
Left atrial contraction strain - LASc (%)	-9 (-11 – -8)	-12 ± 4	<0.001
Indexed right atrial end-systolic volume (mL/m²)	32 ± 9	21 ± 6	<0.001
Tricuspid annular plane systolic excursion – TAPSE (mm)	27 ± 4	25 ± 4	<0.001
Pulmonary artery acceleration time (ms)	154 ± 27	137 (123–152)	<0.001
Right ventricle free wall longitudinal strain – GLS FW (%)	-23.4 ± 3.6	-23.8 (-25.9 – -21.7)	0.898

Figure PO 176

software (GE Vingmed Ultrasound AS, Horten, Norway). Statistical analyses were conducted using SPSS v.27.

Results: The study included 111 professional male athletes (median age: 24 [21-31] years) and 71 healthy male controls (median age: 26 ± 4 years). Right ventricular free wall strain (RVFWS) did not significantly differ between groups (p = 0.898), measuring -23.4 ± 3.6% in athletes and -23.8 (-25.9 - -21.7%) in controls. However, both pulmonary acceleration time and indexed right atrium volume were significantly higher in athletes (p < 0.001). Athletes had a significantly higher indexed left atrial end-systolic volume compared to the control group (41 ± 9 ml/m² vs. 31 ± 7 ml/m², p < 0.001). Despite the difference in volume, the early and late diastolic tissue velocities were similar in both groups and E/E' was lower (4.4 ± 0.9 vs. 5.0 (4.5-5.8), p < 0.001). There were no significant differences between athletes and the control group in Left Atrial Reservoir Strain (LASr) and Left Atrial Conduit Strain (LAScd). The active contraction of the left atrium during atrial systole is reduced in athletes, which had a significantly lower left atrial contraction strain compared to the control group (-9 (-11 – -8) vs. -12 ± 4%, p < 0.001).

Conclusions: In professional athletes, RV free wall strain (RVFWS) was comparable to controls, indicating preserved RV function despite remodeling, such as increased pulmonary acceleration time and right atrial volume. LA remodeling showed increased size and reduced contraction strain, while reservoir and conduit strain remained normal. These findings suggest that observed changes reflect physiological adaptations to the high cardiac output demands of chronic exercise. Strain imaging offers valuable insights into the cardiac remodeling of athletes' hearts.

PO 177. THE INFLUENCE OF RESTING, EXERCISE-INDUCED HYPERTENSION AND CARDIAC REMODELING ON MYOCARDIAL WORK INDICES

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Introduction: Hypertension is a leading risk factor for cardiovascular disease and can subtly affect myocardial function before clinical manifestation. Advanced myocardial mechanics, such as Myocardial Work (MW) indices – Global Work Efficiency (GWE), Global Work Index (GWI), Global Constructive Work (GCW), and Global Wasted Work (GWW)– offer sensitive measures of cardiac performance. The impact of hypertension left ventricular (LV) remodeling and hypertensive responses to exercise on these parameters remains underexplored.

Objectives: This study aimed to: 1. Compare MW parameters between hypertensive and normotensive individuals; 2. Investigate the impact of elevated resting blood pressure (BP) and hypertensive response during exercise on myocardial function; 3. Assess the influence of left ventricular remodeling on MW indices.

Methods: We conducted a single-center study of 822 patients without known cardiovascular disease who underwent exercise echocardiography. Of these, 583 patients completed the test (achieving predicted METs > 85%). Participants were stratified by hypertension status, baseline BP, exercise-induced hypertensive response and LV echocardiographic remodeling patterns, including concentric remodeling and concentric left ventricle hypertrophy (LVH).

Results: Hypertension did not limit test completion. Hypertensive patients had higher E/e' and significantly lower GWI compared to normotensive individuals. Left ventricular remodeling patterns, except for concentric hypertrophy, did not significantly affect MW indices. Concentric hypertrophy was associated with higher GWW (p = 0.022). The most significant determinants of MW parameters were elevated baseline (BP) and hypertensive responses during exercise (p < 0.05). Multivariate analysis identified concentric LVH and elevated baseline BP as the sole independent predictor of impaired MW indices, significantly affecting GWI, GCW, and GWW.

		Total (n = 583)	No HTN	HTN	p-value
Exercise Echocardiography					
	Predicted METs >85%	583	218 (37%)	365 (63%)	**<0.001**
	HTN response	395	175	220	0,726
	E/e'	8.35 IQR 3.09	8.03 IQR 2.95	8.56 IQR 3.19	**0,002**
	GLS (%)	-18.5 ± 2.7	-18 ± 2.6	-18.2 ± 2.6	0,407
	GWE (%)	92.1 ± 4	93 IQR 2.5	92.8 ± 4.4	0,799
	GWI (mmHg%)	1885.8 ± 453.2	1864.3 ± 404.5	1043 ± 393.9	**0,044**
	GCW (mmHg%)	2596 ± 485	2595.9 ± 501.3	2722.3 ± 476	0,248
	GWW (mmHg%)	220.5 ± 127	163 IQR 99	176 IQR 159	0,447

	Exercise Echography				
	Structural normal (325)	Concentring remodeling (162)	p-value	Concentric Hypertrophy (41)	p-value
GWE (%)	92.8 ± 3.4	92.8 ± 3.4	0,369	88 ± 5.9	0,048
GWI (mmHg%)	1951.6 ± 408.1	2016.9 ± 377	0,693	1761 IQR 684	0,556
GCW (mmHg%)	2647.2 ± 484	2707.4 ± 472.1	0,9	2758.7 ± 535.2	0,533
GWW (mmHg%)	164 IQR 115	154.7 ± 165.9	0,668	356.2 ± 193.1	**0.022**

	Exercise Echography					
	Normal BP	Elevated Blood pressure	p-value	Non-HTN response	Hypertensive response	p-value
GWE (%)	92.8 ± 3.8	91.6 ± 4.1	**0,041**	92.7 ± 3.6	92.4 ± 4.1	0,211
GWI (mmHg%)	1908.3 ± 393.4	2043.7 ± 376.1	**<0.001**	1869.6 ± 357	2009 ± 419.5	**<0.001**
GCW (mmHg%)	2565.7 ± 473.8	2814.2 ± 460	**0.003**	2531.6 ± 429.3	2709.1 ± 518.5	**0.04**
GWW (mmHg%)	195.3 ± 128	204.5 IQR 121.7	**<0.001**	165.5 IQR 142	187 IQR 139	**0,043**

Conclusions: Elevated baseline blood pressure and hypertensive responses during exercise significantly impair myocardial work, as evidenced by reductions in GWI and GCW and increases in GWW. Left ventricle remodeling also impacts myocardial efficiency by increasing wasted work. These findings underscore the importance of addressing blood pressure management to mitigate early myocardial dysfunction, even in the absence of overt cardiovascular disease.

PO 178. LEFT VENTRICULAR OUTFLOW TRACT OBSTRUCTION DURING DOBUTAMINE STRESS TEST ECHOCARDIOGRAPHY – PREDICTORS AND PROGNOSTIC IMPACT

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Introduction: Dynamic left ventricular outflow tract obstruction (DO) is a recognized phenomenon during dobutamine stress echocardiography (DSE), but its predictors and prognostic significance remain poorly understood.

Table 1. Comparative results of patients with and without dynamic left ventricle outflow tract obstruction (gradient ≥30mmHg)

	Without gradient (n=307)	With gradient (n=48)	p value
Age - yr	70.5 ± 10.7	68.7 ± 10.4	0.26
Female sex – no. (%)	34.2	60.0	**<0.001***
Cardiovascular Risk Factors			
• Hypertension (%)	76.5	83.3	0.36
• Diabetes (%)	34.3	33.3	1.0
• Dislipidemia (%)	60.6	62.5	0.87
• Smoking (%)	29.3	29.2	0.72
• Alcohol (%)	10.7	8.3	0.61
• Chronic Kidney Disease (%)	36.8	19.6	**0.03***
Patient Characteristics			
• Left Bundle Branch Block (%)	14.7	4.2	**0.05***
• Atrial Fibrilation (%)	20.5	18.8	0.85
• Beta-blockers use (%)	60.7	43.8	**0.001***
Basal and DSE Echocardiogram			
• Basal septal thickness (mm)	12.0 ± 2.2	12.6 ± 3.0	0.08
• Left atrial volume (mL/m2)	32.9 ± 8.0	30.4 ± 7.4	0.23
• Diastolic dysfunction (%)	44.9	45.8	0.91
• Baseline LVEF (%)	55.7 ± 12.7	63.6 ± 8.4	**<0.001***
• Baseline systolic blood pressure (mmHg)	122.6 ± 24.2	128.5 ± 19.7	0.16
• Peak systolic blood pressure (mmHg)	167.3 ± 40.2	149.5 ± 31.3	0.06
• Hypertensive response (%)	9.5	2.0	**<0.001***
• Baseline heart rate (bpm)	67.7 ± 13.9	67.7 ± 13.8	0.99
• Peak Heart Rate (bpm)	140.6 ± 18.5	144.4 ± 11.4	0.06
• Arrhythmias during exam (%)	64.1	81.3	**0.04***
Follow-up			
5-point-MACE (%)	17.6	12.5	0.38

Figure PO 178

Objectives: To evaluate the predictors and prognostic implications of DO during DSE.

Methods: Single-center retrospective study including 355 consecutive patients (P) undergoing DSE for ischemia evaluation. P were stratified into two groups based on the presence or absence of DO, defined as a gradient ≥ 30 mmHg during DSE. Comparative analysis was performed to identify potential predictors of DO and P were followed for 2 years to evaluate 5-point MACE (defined as death, myocardial infarction, stroke, heart failure hospitalisation and urgent revascularization). Statistical analyses, including the t-Test, Chi-square, and Logistic Regression, were performed using SPSS.

Results: A total of 355 DSE cases were analyzed, with 48 P (13.5%) presenting DO. The mean age was 70.3 ± 10.7 years, with 62.3% being male. Cardiovascular risk factors were present in 87.6%, with hypertension (77.5%) and dyslipidemia (60.8%) being the most common. Comparative analysis showed no differences in age (70.5 ± 10.7 vs. 68.7 ± 10.4; p = 0.26), hypertension prevalence (76.5 vs. 83.3%; p = 0.36), diabetes (34.3 vs. 33.3%; p = 1.0), dyslipidemia (60.6 vs. 62.5%; p = 0.87), smoking (29.3 vs. 29.2%; p = 0.72), alcohol use (10.7 vs. 8.3%; p = 0.61), or atrial fibrillation (20.5 vs. 18.8%; p = 0.85). P with DO were more likely to be female (60.0 vs. 34.2%; p < 0.001) and less likely to have left bundle branch block (4.2 vs. 14.7%; p = 0.05), chronic kidney disease (19.6 vs. 36.8%; p = 0.03), or beta-blocker use (43.8 vs. 60.7%; p = 0.001). Echocardiographic findings showed no differences in basal septal thickness (12.0 ± 2.2 mm vs. 12.6 ± 3.0 mm; p = 0.08), left atrial volume (32.9 ± 8.0 vs. 30.4 ± 7.4 mL/m^2; p = 0.23), or diastolic dysfunction (44.9 vs. 45.8%; p = 0.91). However, P with DO had a significantly higher LVEF (63.6 ± 8.4 vs. 55.7 ± 12.7%; p < 0.001), fewer hypertensive responses (2.0 vs. 9.5%; p < 0.001), and more arrhythmias (81.3 vs. 64.1%; p = 0.04). In P with DO, there was a lower probability of a positive DSE result compared to those without DO (10.4 vs. 29.2%; p = 0.02). At two years, 5-point MACE rates were similar (17.6 vs. 12.5%; p = 0.38). Logistic regression identified predictors of DO: female sex (HR = 2.65, CI 1.28-5.48; p = 0.009), beta-blocker use (HR = 0.36, CI 0.18-0.73; p = 0.005), LVEF (HR = 1.05, CI 1.01-1.09; p = 0.007), and basal septal thickness (HR = 1.24, CI 1.07-1.43; p = 0.004). The model explained 23% of the outcome variance with 79% accuracy.

Conclusions: According to this study, DO during DSE is associated with female sex, higher baseline LVEF, increased basal septal thickness, and absence of beta-blocker therapy, and has no impact on short-term prognosis.

PO 179. SYSTOLIC FUNCTION PREDICTORS IN PATIENTS WITH TAKOTSUBO SYNDROME

Maria Leonor Moura, Marta Catarina Almeida, Francisca Rafaela Nunes, Francisco Lemos de Sousa, Inês Arrobas Rodrigues, António Gonçalves, André Lobo, Marta Leite, Inês Neves, Olga Sousa, Rita Faria, Ricardo Fontes-Carvalho

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

Introduction: Takotsubo syndrome (TS) is characterized by segmental systolic dysfunction. Usually, but not always, systolic disfunction is transitory.
Objectives: This study aims to characterize global systolic function (SF) predictors in patients with TS.
Methods: This retrospective study analysed patients with diagnosis of TS between 2018 and 2024 admitted in a cardiology unit. SF at admission, at discharge and at revaluation was registered. Normal SF was considered when left ventricular ejection fraction was equal to or above 55%. Comorbidities, ST segment elevation, QT duration, apical ballooning on admission, edema on cardiac magnetic resonance imaging (CMR) and evolution of cardiac and inflammatory biomarkers during hospitalization were collected. Kruskal-Wallis, Mann-Whitney and Chi-Square tests were used to test the correlations. Logistic regression was used to predict systolic disfunction at discharge.
Results: The study enrolled 74 patients with a median age of 69.5 [19] years and 62 (83.8%) females. At admission, 21 patients (28.4%) had normal SF and 49 (66.2%) reduced SF [4 (5.4%) missing]. Patients with reduced SF tended to have higher levels of C-reactive protein (CRP) at admission ($p = 0.016$) and a higher maximum level of high sensitivity troponin (MT) ($p = 0.004$). At discharge, 28 patients (37.9%) maintained an abnormal cardiac function. Reduced SF at discharge was associated with history of cardiomyopathy ($p = 0.023$), higher levels of troponin at admission (AT) ($p = 0.047$) and MT ($p < 0.001$) and apical ballooning on echocardiogram at admission ($p = 0.026$). Reduced SF at discharge was predicted (R^2 0.782, $p = 0.012$) by SF at admission ($p = 0.021$), AT ($p = 0.013$), MT ($p < 0.001$), NTproBNP ($p = 0.029$) and apical ballooning at admission ($p = 0.011$). SF was reevaluated in 48 patients and only 5 patients (6.9%) had systolic dysfunction. Reduced SF after discharge was associated with lower levels of AT ($p = 0.048$), smoking ($p = 0.027$) and history of ischemic cardiopathy ($p = 0.010$).
Conclusions: In this study, there was a low prevalence of abnormal SF in patients with TS. Cardiac biomarkers (troponin and NTproBNP) and CRP were associated with systolic dysfunction. Apical ballooning was also associated with systolic disfunction at discharge and during follow-up. This highlights the importance of considering laboratorial biomarkers, as well as identifying patients with apical ballooning at admission, since these TS patients are more likely to have reduced SF.

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

Área de Posters-écran 1| Sessão de Posters 29 – Fibrilhação auricular: da prevenção à intervenção

PO 180. LEFT ATRIAL APPENDAGE OCCLUSION IN CKD: A SAFE OPTION FOR STROKE PREVENTION OR JUST A PIPE DREAM?

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

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

Introduction: Atrial fibrillation (AF) and chronic kidney disease (CKD) often coexist, both increasing thromboembolism risk. While non-vitamin K oral anticoagulants (NOACs) are preferred over vitamin K antagonists (VKAs), their safety and efficacy in severe CKD are less established and are often used off-label. Left atrial appendage occlusion (LAAO) may offer a viable alternative for stroke prevention in these patients.
Objectives: To evaluate the efficacy and safety of LAAO in severe CKD patients with AF.
Methods: A single-center study was conducted on consecutive patients undergoing percutaneous LAAO. Procedure details, complications, CHA2DS2-VASc and HAS-BLED scores were recorded. Efficacy was defined as the absence of stroke, cardiovascular death, or systemic embolism, while safety endpoints included procedural complications and major bleeding events. Severe CKD was defined as an eGFR < 30 ml/min/1.73 m^2, using the CKD-Epidemiology Collaboration equation. Kaplan-Meier survival analysis was performed to evaluate the efficacy and safety endpoints.
Results: A total of 215 patients undergoing LAAO were included (mean age 74.5 ± 8.1 years, 63.7% male), with 25 patients having CKD. CKD patients had a significantly higher history of stroke (75 vs. 5%, $p = 0.03$), acute myocardial infarction (35 vs. 10%, $p = 0.015$), and peripheral arterial disease (14 vs. 5%, $p = 0.04$) compared to non-CKD patients. There were no differences regarding age, sex, CHA2DS2-VASc or HAS-BLED scores between groups. The main reason for referral to LAAO in CKD patients was gastrointestinal bleeding (62 vs. 16%, $p = 0.003$), while ischemic or hemorrhagic stroke under OAC was the primary indication in non-CKD patients (40 vs. 0%, $p = 0.005$). No differences were

Fig 1 – Survival analysis for the efficacy and safety endpoints according to presence of severe CKD

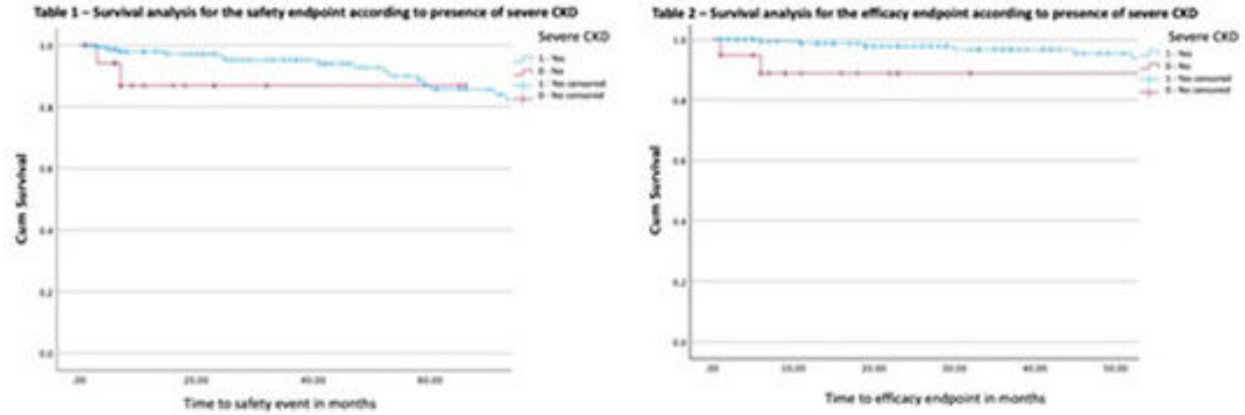


Figure PO 180

found in procedure time, type of device implanted, or procedural success. After LAAO, most CKD patients received mono or dual antiplatelet therapy, while non-CKD patients were more commonly treated with VKA and aspirin ($p < 0.001$). The presence of CKD was not associated with acute procedural complications, with only one minor vascular access-related complication observed (1.6 vs. 4.2%, p = NS). Additionally, no major bleeding events were observed in CKD patients during follow-up (3 minor bleeds in CKD vs. 3 major bleeds and 25 minor bleeds in non-CKD patients, p = NS). During a mean follow-up of 18.3 ± 4.2 months, there were 7 strokes (1 CKD patient, 6 non-CKD patients), 1 systemic embolism, and 5 cardiovascular deaths, none of which occurred in CKD patients. No statistically significant differences were found between CKD and non-CKD patients regarding either safety (LogRank p = 0.177) or efficacy endpoints (LogRank p = 0.054).
Conclusions: In this cohort, percutaneous LAAO demonstrated similar safety and efficacy outcomes in both CKD and non-CKD patients. Therefore, LAAO should be considered as a therapeutic strategy for stroke prevention in CKD patients.

PO 181. DEVELOPMENT OF ATRIAL FIBRILLATION AFTER CAVOTRICUSPID ISTHMUS-DEPENDENT ATRIAL FLUTTER ABLATION: ANALYSIS OF INCIDENCE AND RISK FACTORS IN A PORTUGUESE TERTIARY CARE CENTER

Maria João Primo, Natália António, Carolina Saleiro, Pedro Sousa, Inês Brito e Cruz, Rita Bertão Ventura, Didier Martinez, Luís Elvas, Lino Gonçalves

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

Introduction: Cavotricuspid isthmus (CTI) ablation is a highly successful procedure for the treatment of typical atrial flutter (AFL). However, these patients have a high incidence of new onset atrial fibrillation (AF) post-ablation. This study aims to evaluate the incidence, timing and predictors of AF development following successful ICT ablation.
Methods: We conducted a retrospective cohort study involving patients who underwent successful catheter ablation for typical AFL at a tertiary hospital, between January 2019 and December 2023. Patients with prior history of AF or incomplete follow-up information were excluded. Only patients with a minimum follow up period of 12 months after FLA ablation were included in the study. Baseline characteristics, procedural details, and follow-up outcomes were collected from electronic health records. The primary outcome was the development of new-onset AF, assessed through routine follow-up visits and ECG and 24-hours Holter monitoring. Secondary endpoints were determining the predictors of AF development post ICT ablation. Non-parametric statistical tests, as well as logistic regression were used to estimate AF incidence and to try to identify associated risk factors.
Results: Overall, 121 patients were included, with a mean age of 65.0 ± 10.6 years, the majority being male (85.1%). Persistent typical AFL was documented in 68% of patients, while 25.6% had records of paroxysmal AFL. Three-dimensional electroanatomical mapping systems were used in only 24% of the procedures and all CTI ablations employed radiofrequency energy. During follow up, 14 patients (11.6%) developed atrial fibrillation. The median time to AF onset was approximately 18 months post-ablation (interquartile range: 6-50 months). Eleven of these patients developed paroxysmal AF and 3 of them showed persistent AF. Univariate analysis of comorbidities showed an association between hypertension ($x^2(1) = 6.927$, $p = 0.013$) and dyslipidaemia ($x^2(1) = 9.185$, $p = 0.003$) and the development of AF post FLA ablation. However, adjusting for confounders, logistic regression did not identify significant independent predictors of AF development.
Conclusions: Despite successful ablation of typical AFL, a significant proportion of patients develop AF. AFL patients with hypertension and dyslipidaemia should benefit from a closer follow up for early detection of AF. However, further investigation is needed to determine significant risk factors that influence AF development.

PO 182. ANTICOAGULATION AFTER CAVOTRICUSPID ISTHMUS-DEPENDENT ATRIAL FLUTTER ABLATION: ESSENTIAL OR OVERUSED?

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

Centro Hospitalar Universitário de S. João, EPE.

Introduction: Catheter ablation is the standard treatment for cavotricuspid isthmus-dependent atrial flutter (AFL), however, the benefit of long-term anticoagulation post-AFL ablation, particularly in low thromboembolic risk patients (pts), remains uncertain.
Objectives: To describe the thromboembolic risk and anticoagulation status in pts post-AFL catheter ablation and their association with relevant clinical outcomes.

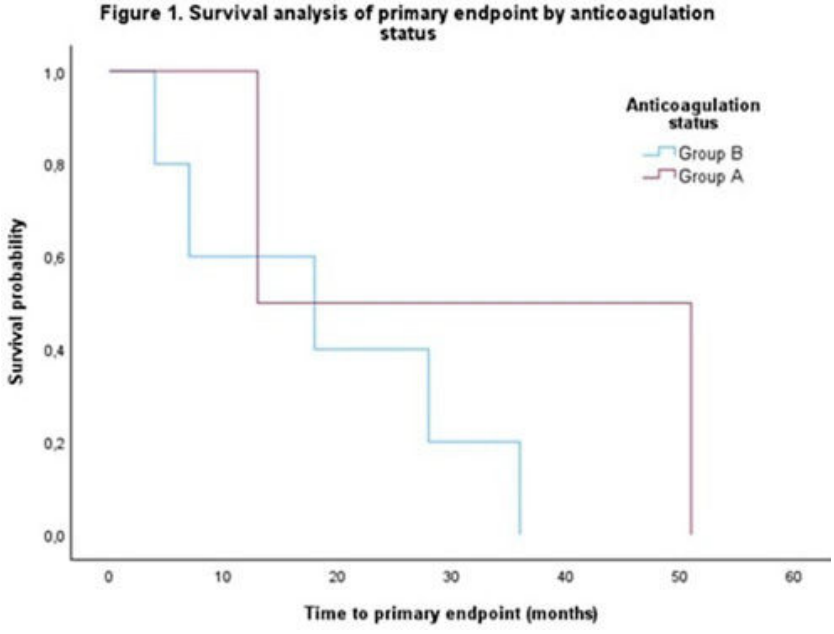


Figure PO 182

Methods: Retrospective single-center analysis of pts who underwent first-time typical AFL radiofrequency ablation between 2017 and 2024. Data was based on medical records review. The primary composite endpoint included all-cause mortality, cardiovascular hospitalizations, major bleeding or ischemic events.
Results: A total of 187 pts were included, mostly male (n = 136, 72.7%) with a mean age of 64 ± 13 pts. Cardiovascular risk factors were predominant: most pts had arterial hypertension (n = 101, 54%) and more than one-fourth had diabetes mellitus (n = 53, 28.3%). Nearly half had structural heart disease (n = 75, 41.1%; p = 0.55), with congenital heart disease as the most common diagnosis (n = 26, 37.7%). Regarding other comorbidities, 4.3% (n = 8) had advanced chronic kidney disease and 10.2% (n = 19) had an history of malignancies. Only one case of acute unsuccessful ablation was reported, and no major peri-procedural complications occurred. Mean CHA_2DS_2-VA score at discharge was 2 ± 1 points: 26.7% (n = 50) with 0 points, 19.3% (n = 36) with 1 point and 59.4% (n = 101) with ≥ 2 points. All pts were discharged on anticoagulation regardless of CHA_2DS_2-VA score, 92.5% (n = 173) with direct oral anticoagulants. At the time of first clinical revaluation, anticoagulation was only discontinued in 8.6% (n = 16), 8 ± 6 months post-ablation, with clinicians' decision to suspend anticoagulation solely driven by evidence of sinus rhythm (in standard 12-lead electrocardiogram) and a CHA_2DS_2-VA score of 0 points in all pts. At mean follow-up of 27 ± 22 months, the primary endpoint occurred in 11% (n = 20), similarly across all CHA_2DS_2-VA scores (p = 0.53). Notably, there were no significant differences between anticoagulation status regarding the primary outcome (p = 0.26) or the time to its occurrence (log-rank 0.92) (Figure 1) (group A: discontinued anticoagulation; group B: on anticoagulation). Analysing individual components, similar results were observed, including ischemic (n = 1, 1.1%; p = 0.83) and bleeding events (n = 5, 2.7%; p = 0.06).
Conclusions: In our cohort only a slight proportion of pts discontinued anticoagulation post-AFL ablation, however, CHA_2DS_2-VA score and anticoagulation status after typical AFL ablation did not significantly impact clinical outcomes. These findings suggest that current risk stratification tools and the benefit of long-term anticoagulation in this population may benefit from further evaluation and refinement.

PO 183. SEMAGLUTIDE AND ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

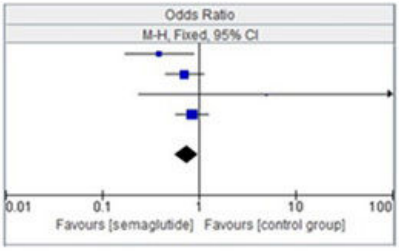
Maria João Primo, Luísa Gomes Rocha, Gonçalo Ferraz Costa, Rita Bertão Ventura, Didier Martinez, Inês Brito e Cruz, Lino Gonçalves

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

Introduction: Semaglutide is a glucagon-like peptide-1 receptor agonist that has been highly recommended for glycemic control and weight reduction. Obesity can also increase the risk of developing atrial fibrillation (AF).
Objectives: To assess the association of semaglutide with cardiac arrhythmias, primarily AF.
Methods: We performed a systematic searched PubMed, Embase and Cochrane database, encompassing studies published between the 1st of January 2010 and October 2024, to identify semaglutide's randomized controlled trials (RCTs) with or without diabetic patients that reported new-onset AF. A Mantel-Haenszel method and fixed and random-effects model were used to calculate the odds ratio (OR) and 95% confidence interval (CI).
Results: 4 RCTs were included, 3 of them using subcutaneous semaglutide and 1 oral semaglutide. A total of 9116 patients were included, providing 215 new-onset AF. Our meta-analysis revealed a lower incidence of new-onset AF in semaglutide patients (pooled OR, 0.75; 95%CI 0.57, 0.98, p = 0.03; I^2 = 32%). The pooled analysis for subcutaneous semaglutide yielded an OR of 0.73 (95%CI: 0.55-0.96, p = 0.02), indicating a significant reduction in the odds of new onset AF. Heterogeneity was low to moderate (I^2 = 30%, p = 0.24). In contrast, a single study evaluating oral semaglutide reported an OR of 5.02 (95%CI: 0.24-104.88), with wide confidence intervals and no statistical

Studies included	Semaglutide		Comparator		Weight	Odds ratio
	Events (AF)	Total	Events (AF)	Total		M-H Fixed, 95% CI
Butler et al. 2024	8	573	20	573	16.3%	0.39 [0.17, 0.90]
Kosiborod et al. 2024	33	1914	44	1829	36.6%	0.71 [0.45, 1.12]
Rosenstock et al. 2019	2	465	0	465	0.4%	0.86 [0.58, 1.26]
Marso et al. 2016	50	1648	58	1649	46.6%	5.02 [0.24, 104.88]
Total (95% CI)		4600		4516	100.0%	0.75 [0.57, 0.98]
Total events	93		122			
Heterogeneity: $Chi^2 = 4.39$, $df = 3$ ($P = 0.22$); $I^2 = 32\%$						
Test for overall effect: $Z = 2.11$ ($P = 0.03$)						

Table 1:Meta-analysis of atrial fibrillation (AF) events in patients receiving semaglutide versus comparator across four studies. Heterogeneity was low to moderate (I^2=32%, P=0.22), and the overall effect was statistically significant (Z=2.11, P=0.03).



Graph 1: Forrest plot of atrial fibrillation (AF) events in patients receiving semaglutide versus comparator across four studies.

Figure PO 183

significance. The pooled analysis of four studies regarding prevention of new-onset heart failure yielded an odds ratio (OR) of 0.57 (95%CI: 0.21-1.54). While this suggests a potential reduction in heart failure odds in the semaglutide group, the result is not statistically significant (p = 0.27). Notably, there was substantial heterogeneity among the studies (I^2 = 91%, p < 0.00001), indicating considerable variability in the reported effect sizes. The analysis was conducted using a random effects model to account for this heterogeneity. The wide confidence interval and high heterogeneity highlight the need for further studies to clarify this association.
Conclusions: Our study suggests that in patients with or without diabetes, semaglutide reduces the risk of new-onset atrial fibrillation. This analysis provides an additional cardiovascular benefit of this drug besides the major adverse cardiovascular events protection.

PO 184. UNMASKING THE HEART'S RESPONSE: ATRIAL FIBRILLATION IN IBRUTINIB-TREATED PATIENTS

Inês Caldeira Araújo, Miguel Nobre Menezes, Catarina Gregório, João Fonseca, Ana Abrantes, Miguel Azaredo Raposo, Marta Vilela, João Cravo, Diogo Ferreira, Andreia Magalhães, Fausto J. Pinto, Manuela Fiuza

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Introduction: Ibrutinib (IBT), a Bruton's tyrosine kinase inhibitor, is a targeted therapy widely used in the treatment of B-cell malignancies. While effective in improving survival outcomes, ibrutinib has been increasingly associated with cardiovascular toxicities, particularly atrial fibrillation (AF).
Objectives: To characterize the incidence, risk factors, and clinical outcomes of ibrutinib-induced atrial fibrillation (IRAF) in patients with hematologic malignancies.
Methods: A retrospective, single-center study analyzed patients treated with ibrutinib between 2010 and 2024. Demographic, clinical, and treatment data were collected. Statistical analyses were performed to identify potential predictors of AF and its impact on patient outcomes.
Results: Among 93 patients receiving IBT, 14 (15.1%) developed new-onset AF, with a median time to onset of 33.5 months (IQR 15-82) from therapy initiation. Patients with IRAF were older (75.6 ± 5.0 vs. 69.5 ± 10.8 years; p = 0.002) and had a higher prevalence of arterial hypertension (71.4 vs. 59.5%; p = 0.398) and diabetes (35.7 vs. 19.0%; p = 0.172). Regarding cancer type, the majority of patients who experienced IRAF were diagnosed with chronic lymphocytic leukemia (9, 64.3%), followed by Waldenstrom's macroglobulinemia (3, 21.4%). Additionally, patients who underwent other forms of cancer therapy were significantly more likely to develop IRAF (92.8 vs. 64.6%; p = 0.035) than ibrutinib as first line therapy. Ibrutinib dose did not impact the risk of developing IRAF (p = 0.100). Among baseline echocardiographic parameters, left atrial volume was larger in patients who presented with IRAF (42.5 mL vs. 30.2 mL; p = 0.09), though baseline and post-therapy left ventricular ejection fractions were comparable. Median follow-up time was 37 (IQR 13-62) months. In the IRAF cohort, 3 patients (21.4%) discontinued ibrutinib therapy, while 1 patient (7.1%) required a dose reduction. Of the 14 patients who developed IRAF, 8 were started on anticoagulation - 2 of which received full-dose therapy and 6 of which received reduced-dose therapy due to high hemorrhagic risk. One thromboembolic event occurred in the group that did not receive anticoagulation, while no such events were reported in the anticoagulated group. The incidence of hemorrhagic events was comparable between the two groups. Mortality rates were slightly higher in the IRAF group (28.6 vs. 20.3%; p = 0.491), with cardiovascular-related deaths occurring in 7.1% of IRAF patients versus 1.3% without (p = 0.405).
Conclusions: Patients who developed IRAF tended to be older, have a higher burden of cardiovascular risk factors, and larger left atrial volumes. These findings underscore the need for vigilant cardiac monitoring in high-risk patients receiving ibrutinib to optimize management strategies and minimize complications.

PO 185. IMPACT OF CANCER THERAPIES ON ATRIAL FIBRILLATION: INCIDENCE, RISK FACTORS, AND CLINICAL IMPLICATIONS

Nuno Madruga, Andreia Magalhães, Catarina Gregório, Miguel Azaredo Raposo, Ana Abrantes, Diogo Rosa Ferreira, Marta Vilela, Inês Caldeira Araújo, Catarina Sena da Silva, Miguel Nobre Menezes, Manuela Fiúza, Fausto J. Pinto

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

Introduction: Atrial fibrillation (AF) is a common arrhythmia associated with significant morbidity and mortality. Cancer therapies, while improving survival rates, are increasingly recognized as contributing to cardiac toxicity and to the development of AF.
Objectives: To investigate the incidence, risk factors, and clinical implications of AF induced by cancer therapies.

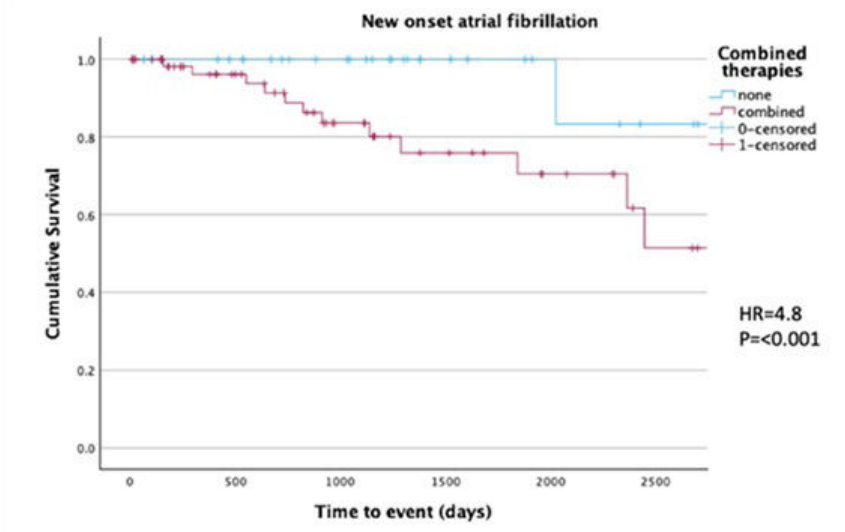

Figure 2. New-onset atrial fibrillation in patients that received prior cancer therapy prior to ibrutinib (combined therapies) and ibrutinib alone.

Figure PO 184

Methods: A retrospective, single-center, observational study was conducted, including patients seen in a cardio-oncology consultation at a tertiary university hospital between 2022 and 2023. Statistical analyses were performed using parametric and non-parametric tests.

Baseline characteristics	Without new-onset AF	With new-onset AF	p
n (%)	168 (90.8)	17 (9.2)	
Age, years (mean ±SD)	64±15	71 ±11	0.057
Male, n (%)	76 (45.2)	11 (64.7)	0.125
Co-morbidities			
Arterial hypertension, n (%)	85 (50.6)	11 (64.7)	0.278
Dyslipidemia, n (%)	58 (34.5)	6 (35.3)	0.949
Smoker or former smoker, n (%)	24 (14.3)	2 (11.8)	0.309
Diabetes, n (%)	43 (25.6)	3 (17.6)	0.462
Chronic Kidney disease, n (%)	17 (10.1)	3 (17.6)	0.341
Heart failure, n (%)	18 (10.7)	1 (5.9)	0.532
Coronary artery disease n (%)	15 (8.9)	2 (11.8)	0.700
Cancer treatment			
Chemotherapy, n (%)	77 (45.8)	6 (35.3)	0.405
Anthracyclines, n (%)	21 (12.5)	0 (0.0)	0.122
Antimetabolite drugs, n (%)	39 (23.2)	3 (17.6)	0.602
Alchilant drugs, n (%)	40 (23.8)	3 (17.6)	0.566
Mitose inhibitors, n (%)	27 (16.1)	2 (11.8)	0.642
Tyrosine kinase inhibitors, n (%)	12 (7.1)	1 (5.9)	0.846
Target therapy, n (%)	65 (38.7)	8 (47.1)	0.501
Immune checkpoint inhibitors, n (%)	13 (7.7)	0 (0.0)	0.234
Hormone therapy, n (%)	30 (17.9)	7 (41.2)	0.022
Radiotherapy, n (%)	50 (29.8)	6 (35.3)	0.636
Follow-up			
Mean time months (mean ±SD)	15.9±9.4	16.7±9.0	0.434
Events, n (%)			
Hospitalization for CV cause, n (%)	17 (10.1)	4 (23.5)	0.097
Death, n (%)	34 (11.6)	4 (23.5)	0.932
CV cause, n (%)	3 (1.8)	1 (5.9)	0.268

Figure 1. Baseline characteristics and follow-up in patients that did and did not develop new-onset AF after cancer therapy

Results: A total of 185 patients (48% male, mean age 64 ± 15 years) were included. Of these, 22 patients had previous AF (12%). During follow-up, 17 patients (9.2%) developed AF after initiating cancer treatment (prevalence of 9.1%). Patients who developed AF were older with a mean age of 71 ± 11 versus 64 ± 15 years in patients without AF (p = 0.057). The most prevalent comorbidities amongst this group of patients were arterial hypertension (64.7%), dyslipidemia (35.3%), diabetes (17.6%) and chronic kidney disease (17.6%). There was no statistical association between comorbidities and new-onset AF. Regarding cancer therapies, 47.1% underwent target therapy, 41.7% hormone therapy, 35.3% of patients' chemotherapy and 35.3% radiotherapy. Hormone therapy was highly associated with the development of AF (p = 0.022). There was no statistical association with other types of cancer therapy and new-onset AF. During a mean follow-up time of 15.9 ± 9.3 months, 23.5% of patients with new-onset AF had at least one hospitalization for cardiovascular causes versus 10.1% of patients without AF (p = 0.097). However, this did not translate into an increase in mortality (p = 0.932). Amongst the 17 patients with new-onset AF, 16 initiated anticoagulation. This was not related to an increase in hemorrhagic complications (p = 0.797).

Conclusions: New-onset AF is a common event in patients undergoing cancer therapies, particularly hormone therapy. Although AF did not increase mortality, it was associated with higher hospitalization rates for cardiovascular causes. These findings emphasize the need for proactive cardiovascular monitoring and management in cancer patients to reduce AF-related complications and improve overall outcomes.

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

Área de Posters-écran 2 | Sessão de Posters 30 – IC crónica: tratamento

PO 186. INTRARENAL VENOUS DOPPLER-GUIDED DIURETIC MANAGEMENT ON HOSPITAL STAY

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

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

Introduction: In acute heart failure (AHF), intravascular congestion and elevated central venous pressure cause renal parenchymal congestion. Kidney interstitial oedema reduces renal perfusion pressure, leading to hypoxia. Excessive diuretic therapy poses a risk of hypotension and renal hypoperfusion. Detecting euvolemia and determining the optimal time for reducing and transitioning to oral administration are crucial for effective decongestion without inducing acute kidney injury.

Objectives: Assessing the value of intrarenal venous doppler (IRVD) to guide diuretic therapy versus usual standard of care and its impact on total hospital duration time.

Methods: We conducted a single-center, prospective, observational cohort study from September 2022 to November 2023 on AHF patients (pts) with hemodynamic profile B. Pts were randomized into two groups: IRVD group, guiding diuretic management with IRVD alongside standard congestion evaluation; control group, guided by standard congestion assessment alone with physician blinding to IRVD results. Daily IRVD was performed in both

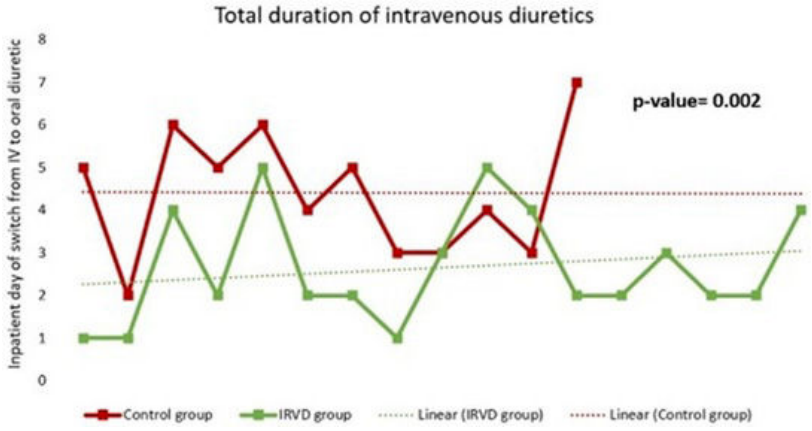

Figure PO 186

groups. In the IRVD group, continuous trace presence prompted switching IV diuretics to oral.
Results: A total of 29 pts were included (33.3% female; mean age 68.4 ± 11.7 years); 12 pts were randomized to the control group and the remaining 17 to the IRVD group. At admission, in both groups, the mean ADVOR congestion score was 3 ± 2 (p = 0.939) and there were no differences on the IV furosemide dose administrated on the first day (p = 0.910). According to the study protocol, on average, IV furosemide was switched to oral in the second day of hospitalization in the IRVD group vs. the fourth day in the control group (p = 0.002). There was no difference in total hospitalization stay because most of the patients stayed hospitalized besides euvolemia for other reasons (p = 0.402). There were no differences in NTproBNP, haematocrit or serum creatinine variation between admission and the end of the study protocol. If the IRVD was known in the control group it had led to 9 different decisions: in 5 patients (41.7%) the doppler was continuous in the previous days which means the transition to oral could have been done earlier; in 4 patients (33.3%) the doppler was still discontinuous by the end of the study protocol, and half of those patients was readmitted 30 days after discharge. However, there were no differences between groups regarding 30 and 90-day readmission rate (p = 0.125 and 0.675 respectively).
Conclusions: The IVRD, combined with standard congestion evaluation, reduces IV diuretic duration by half. In our small cohort, no differences in total hospitalization time or readmission rates were observed. Nevertheless, IRVD-guided diuretic management may reduce overall hospitalization time, potentially mitigate hospital-associated complications, enhancing quality of life, with the prospect of reducing readmission rates.

PO 187. INTERMITTENT LEVOSIMENDAN IN ADVANCED PALLIATIVE HEART FAILURE IMPROVES QUALITY OF LIFE AND REDUCES HEART FAILURE DECOMPENSATIONS: A SINGLE CENTER-EXPERIENCE

Jéni Quintal, Tatiana Duarte, Sara Gonçalves, Ana Sousa, Crisálida Ferreira, Patrícia Bernardes, Rui Antunes Coelho, Catarina Lagoas Pohle, David Campos, Marco Tomaz, Ermelinda Pedroso, Filipe Seixo

Unidade Local de Saúde da Arrábida, E.P.E.

Introduction: Levosimendan, with its unique pharmacological profile, offers prolonged inotropic effects and can be administered in an outpatient setting, making it a valuable option for advanced heart failure (AHF) patients not eligible for advanced therapies. Pulsed levosimendan infusion may improve symptoms and reduce hospitalizations, though evidence remains limited, warranting further research.
Objectives: This study aimed to assess the impact of intermittent levosimendan cycles on quality of life and outcomes in AHF patients, who are not candidates for advanced therapies, in an outpatient setting.
Methods: We conducted a retrospective single-center cohort study, including AHF patients who were not candidates for advanced therapies, referred for intermittent intravenous administration of levosimendan in an outpatient setting between 1 July 2020 and 30 May 2024. Baseline and follow-up evaluations included clinical assessments, laboratory tests, and analysis of HF hospitalizations and HF decompensations. Outcomes were assessed at 6 months and 1-year post-initiation of levosimendan treatment. Statistical analyses were conducted with appropriate tests for data distribution.
Results: A total of 16 patients were included, with a mean age of 70 (± 12) years, 63.5% of whom were male. The most common etiologies for heart failure were ischemic cardiomyopathy (43.8%) and non-ischemic dilated cardiomyopathy (31.3%). The population had a high prevalence of cardiovascular risk factors, atrial fibrillation, and coronary artery disease. The median LVEF before levosimendan initiation was 30% (13-38%), with all patients in NYHA class III or higher. Comparing the need for ICD shocks or therapies before and 6 months and 1 year after levosimendan, a significant reduction was observed (18.8 vs. 0 vs. 0%, p < 0.001) (Table 1). NYHA classes and functional capacity (assessed by the 6-minute walk test) showed significant improvement over the course of levosimendan cycles (p < 0.001 and p = 0.018, respectively). Additionally, levosimendan significantly reduced hospitalizations due to heart failure and unplanned day hospital visits for HF decompensations (p < 0.001 and p = 0.051, respectively). There were no significant differences regarding NT-proBNP levels. After a median follow-up of 17 (1-37) months and an average of 6 (± 4) cycles, with an average duration of 18 (± 15) months, 7 deaths were verified.
Conclusions: Our center's experience reinforces that intermittent levosimendan therapy in patients with advanced heart failure in the palliative phase not only enhances quality of life and functional capacity but also leads to a significant reduction in heart failure decompensations, hospitalizations, and the need for ICD therapies. These findings underscore its potential as a valuable therapeutic option in this patient population.

Table 1. Characteristics of the study population during levosimendan cycles

Variables	0 Months	6 Months	1 Year	p value
Pharmacological therapy				
ICD shocks in the previous year	3 (18.8)	0	0	p< 0.001
ICD therapy in the previous year	3 (18.8)	0	0	
Clinical characteristics				
NYHA class, n (%)				
NYHA I		1 (6.3)	- -	
NYHA II		9 (60.0)	3 (45.5)	p< 0.001
NYHA III	9 (56.3)	4 (26.7)	5 (54.5)	
NYHA III-IV	6 (37.5)	1 (6.7)	- -	
NYHA IV	1 (6.3)			
NT-proBNP, median (Q1-Q3), pg/mL	17 817 (3 336-35 000)	4 451 (546-24 925)	16 438 (1 172-35 000)	0.500
6-meter walking test, median (Q1-Q3), m	198 (191-394)	248 (214-304)	268 (194-359)	**0.018**
Total score in EQ-5D/VAS score, median (Q1-Q3), %	30 (20-55)	58 (30-90)	55 (45-55)	0.102
Systolic blood pressure, median (Q1-Q3), mmHg	101 (78-120)	100 (69-135)	100 (72-149)	0.232
Outcomes				
HF admissions, n (%)	10 (62.5)	1 (6.3)	- -	
0	6 (37.5)	14 (93.3)		
1	8 (50.0)	1 (6.3)		p< 0.001
2	1 (6.3)			
> 3	1 (6.3)			
Unplanned HF visits, n (%)	16 (100)	3 (20.0)	3 (27.3)	p= 0.051
0		12 (80.0)	8 (72.7)	
1	3 (18.8)	1 (6.7)	2 (18.2)	
2	5 (31.3)	2 (13.3)	- -	
> 3	8 (50.0)		1 (9.1)	
Death, n (%)		3 (18.8)	- -	

ICD – Implantable Cardioverter-Defibrillator; HF – Hear Failure.

Figure PO 187

PO 188. IMPROVEMENT OF FUNCTIONAL STATUS AND ENHANCED SURVIVAL ESTIMATES AFTER 330 LEVOSIMENDAN ADMINISTRATIONS

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

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

Introduction: Levosimendan, a calcium sensitizer with inotropic and vasodilatory effects, is utilized in advanced heart failure (adHF) for palliation or as a bridge to advanced therapies. With increasing real-world experience, evidence supporting its impact on adHF outcomes is growing.
Objectives: To evaluate changes in functional status, hospital admissions, and survival estimates in patients receiving intermittent intravenous (IV) levosimendan infusions in a dedicated heart failure (HF) unit.
Methods: We conducted a single center study of consecutive adHF patients with reduced ejection fraction, integrated in the ambulatory intermittent levosimendan infusion program of our Institution. Patients were included if: 1) they were in New York HF Association (NYHA) class III-IV; 2) they had recurrent hospital admissions; 3) they were on maximum tolerated doses of guideline directed medical therapy. Exclusion criteria were acute infections, systolic arterial pressure less than 80 mmHg or severe hepatic dysfunction. They received levosimendan by continuous infusion (0.05-0.2 µg/Kg/min) for 24 hours once a month or fortnightly, with no bolus dose. Vital signs, hemogram and biochemistry were evaluated before and up to 2 hours after the end of infusion.
Results: From January 2021 to August 2024 a total of 44 patients with 330 administrations were included. The median age was 67 (IQR 56-75) years, 84% were males (n = 34). Ischemic HF was present in 64% (n = 28) of patients, median ejection fraction was 23% (IQR 19-30) and 95% (n = 42) were in NYHA class III. Six months after levosimendan infusion it was observed a significant reduction in hospital admissions (mean of 1.36 vs. 0.53 before and after levosimendan program, respectively; $p < 0.001$), a reduction in functional NYHA class (95 vs. 22% of NYHA III, $p < 0.001$). There was a trend towards lower NTproBNP after each cycle, although it was not significant (mean difference -2223, $p = 0.141$) and creatinine showed a non-significant slight increase (1.58 to 1.72 g/dL; 9%). Survival estimated by the SEATTLE-HF model was higher after 6 months of levosimendan treatment, possibly reflecting disease stabilization - SEATTLE-HF at 5 years 46 vs. 57% before and after levosimendan treatment, respectively; $p = 0.01$ and SEATTLE-HF at 1 year 84 vs. 88%; $p = 0.043$.
Conclusions: Intermittent levosimendan infusions are associated with improved functional status, reduced hospital admissions, and enhanced survival estimates in patients with adHF. A favorable trend in NT-proBNP reduction could further support its role in stabilizing disease progression.

PO 189. A REAL WORLD EXPERIENCE OF 330 LEVOSIMENDAN ADMINISTRATIONS

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

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

Introduction: Levosimendan is a positive inotrope used in advanced heart failure (adHF) as a bridge to heart transplant, to decision, to recovery or as a palliative therapy. As the experience with this calcium sensitizer increases, real world data is becoming more robust about the benefits on adHF.
Objectives: To describe the experience of intermittent intravenous (IV) administration of 24-hour levosimendan infusions in adHF patients.
Methods: We conducted a single center study of consecutive adHF patients with reduced ejection fraction, integrated in the ambulatory intermittent levosimendan infusion program of our HF unit. Patients were included if: 1) they were in New York HF Association (NYHA) class III-IV; 2) they had recurrent hospital admissions; 3) they were on maximum tolerated doses of guideline directed medical therapy. Exclusion criteria were acute infections, systolic arterial pressure less than 80 mmHg or severe hepatic dysfunction. They received levosimendan by continuous infusion (0.05-0.2 µg/Kg/min) for 24 hours once a month or fortnightly, with no bolus dose. Vital signs, hemogram and biochemistry were evaluated before and up to 2 hours after the end of infusion.
Results: From January 2021 to August 2024, 44 patients underwent 330 levosimendan infusions. Median age was 67 years (IQR 56-75), and 84% (n = 34) were male. Ischemic HF was observed in 64% (n = 28), median ejection fraction was 23% (IQR 19-30), and 95% (n = 42) were in NYHA class III. Most patients were chronically medicated with guideline directed medical therapy: beta-blockers (89%), ACE inhibitors/ARNI (100%), MRAs (89%), and SGLT2 inhibitors (86%). Palliation was the treatment goal in 41% (n = 20) whereas 32% (n = 14) were candidates for heart transplant or left ventricle assistant device (LVAD). The initial infusion frequency was monthly for 84% (n = 37) of patients, with 18% (n = 8) requiring an increase to fortnightly dosing due to clinical deterioration. The mean treatment duration was 7 ± 5 months. NT-proBNP decreased by 30% (7,660 ng/dL to 5,436 ng/dL) over 6 months. Notably, 60% of patients discontinued levosimendan due to improved functional status and HF stabilization. Four patients underwent heart transplantation, and one received LVAD. By December 2024, there were 7 deaths (16%): 4 from advanced HF, 2 of unknown causes, and 1 from meningitis.

Baseline charateristics	**N=44 (%)**
Age, years	67 years (IQR 56-75)
Male sex	34 (84%)
Hypertension	29 (66%)
Dyslipidemia	24 (55%)
Diabetes Mellitus	18 (41%)
Smoker	4 (9%)
Previous smoker	18 (41%)
Atrial Fibrillation	26 (59%)
Etiology	
Ischemic heart disease	28 (64%)
Idiopatic Cardiomyopathy	12 (27%)
Hereditary Cardiomyopathy	12 (27%)
NYHA Class	
3	42 (95%)
4	2 (5%)
Cardiac implantable devices	
ICD	19 (43%)
CRT-P	5 (11%)
CRT-D	9 (20%)
Vital Signs	
Systolic blood Pressure, mmHg	105 (+/- 15)
Heart Rate, bpm	78 (+/- 11)

Conclusions: Intermittent 24-hour IV levosimendan infusions were safe and effective in stabilizing advanced heart failure, improving functional status, and reducing NT-proBNP levels. These findings support levosimendan as a valuable option in advanced heart failure management.

PO 190. OPTIMAL INITIAL FUROSEMIDE DOSING IN ACUTE HEART FAILURE: IMPACT ON HOSPITALIZATION AND 1-YEAR MORTALITY

João Reis Sabido[1], Catarina Gregório[1], Diogo Ferreira[1], João Lucas Temtem[2], Daniel Inácio Cazeiro[1], Ana Abrantes[1], Miguel Azaredo Raposo[1], Joana Rigueira[1], Rafael Santos[1], Fausto J. Pinto[1], Dulce Brito[1], João R. Agostinho[1]

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

Introduction: Despite the lack of prognostic impact, intravenous loop diuretic, mainly furosemide, is still the mainstay of acute heart failure (HF) treatment, being a widely used and effective choice to alleviate congestive symptoms. Paradoxically, there is no consensus regarding the best initial furosemide dose and its impact in the need for hospitalization or post-

Table 1. Population Baseline Characteristics

N	186
Age (years)	82,6 ± 9,1 years
Atrial Fibrillation	63,8%
Hypertension	82,8%
Smoking history	12,9%
Dyslipidemia	65,5%
Type 2 Diabetes	37,9%
Left Ventricular Ejection Fraction	50% ± 14
Estimated Glomerular Filtration Rate (mL/min/1,73m²)	42,9 ± 18,5
NTproBNP (pg/mL)	15239 ± 24846
Ischemic Heart Disease	26,7%
Signs on presentation	
Peripheral congestion	77,6%
Pulmonary oedema	80,2%

Table 2. Groups Comparison

	Hospitalization group	Discharge group	p-value
Age (years)	83,2 ± 8,0	81,8 ± 10,0	NA
Left Ventricular Ejection Fraction	52% ± 13,6	46% ± 15,0	0,027
Estimated Glomerular Filtration Rate (mL/min/1,73m²)	41,9 ± 19,6	43,9 ± 17,2	NS
NTproBNP (pg/mL)	12454 ± 17388	19262 ± 33097	NS
Daily loop diuretic dose	47,8 ± 22,2	45,8 ± 19,3	NS

Figure 1. Survival Analysis

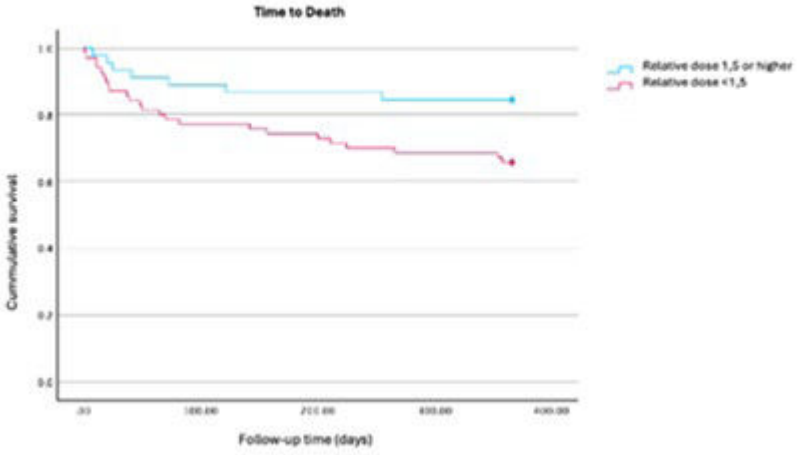

Figure PO 190

discharge mortality. This study aims to establish the best initial dose of furosemide to avoid hospitalization and to reduce post-discharge mortality. **Methods:** A retrospective analysis was performed including 186 consecutive patients, already on oral loop diuretics, admitted to the emergency department of a tertiary hospital between January and March of 2023 due to acute HF. The initial doses of loop diuretic (defined as the ratio between the intravenous dose and the patient's previous oral daily dose) used in patients that were hospitalized following the emergency department and in those discharged were compared. Receiver operating characteristic (ROC) curve was used to establish the best minimum relative dose of furosemide to avoid post-discharge mortality. Kaplan-Meier survival analysis was performed to assess whether treatment with a higher initial relative dose of furosemide had an association with 1-year survival. **Results:** Both the discharge and the hospitalization groups were similar in age, estimated glomerular filtration rate, NT-proBNP levels at initial evaluation and ambulatory dose of loop diuretic, the exception being the mean baseline left ventricular ejection fraction, which was lower in the discharged group (45.8 vs. 52.2% respectively; p = 0.027). In comparison to the hospitalization group, the discharged group was treated with a significantly higher first dose of furosemide (64.20 vs. 40.31 mg, p = 0.01) and, consequently, a higher relative dose (1.54 vs. 1.03, respectively; p = 0.032). Using the ROC curve analysis, the lower relative furosemide dose to avoid post-discharge mortality was 1.416 (AUC: 0.632). To simplify, survival analysis was performed using a relative dose cut-off of 1.5 or higher, based on the previous findings. A significant decrease in 1-year mortality was observed in those treated with a higher initial relative dose (HR 2.4; 95%CI 1.054-5.683; p = 0.037) (Figure 1). **Conclusions:** Individuals presenting with acute HF who were hospitalized had a less aggressive initial diuretic strategy. A higher initial loop diuretic dose (at least 1.5 times the usual oral daily dose) was associated with a lower rate of hospitalization and post-discharge mortality in patients with acute heart failure. Adjustment of diuretic dose to each patient's usual dose could be used as a rule-of-thumb for choosing the initial strategy.

PO 191. INTERMITTENT LEVOSIMENDAN THERAPY IN ADVANCED HEART FAILURE PATIENTS AWAITING HEART TRANSPLANTATION: A SINGLE-CENTER EXPERIENCE

Ricardo Carvalheiro, Ana Raquel Santos, Rita Teixeira, António Valentim Gonçalves, Rita Moreira, Tiago Pereira da Silva, Valdemar Gomes, Pedro Coelho, Rui Soares

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

Introduction: Advanced heart failure patients often require bridging strategies to heart transplantation (HTx) due to their clinical instability. Levosimendan, a calcium sensitizer with inotropic and vasodilatory properties, has emerged as a potential option to optimize hemodynamic status while reducing the need for frequent hospitalizations. We aimed to evaluate the impact of intermittent levosimendan therapy in a cohort of patients with advanced heart failure awaiting HTx.

Methods: This retrospective study included patients categorized as INTERMACS 3, receiving intermittent levosimendan infusions at a single tertiary center. Baseline and pre-transplant hemodynamic and biomarker parameters were analyzed. Clinical stability and short-term survival outcomes were assessed.

Table 1 - Baseline characteristics (n=21)

Age (years)	49 (IQR: 32-67)
Male gender	14 (67%)
Ischemic Etiology	7 (33%)
Systolic Arterial Pressure (mmHg)	92 ± 11
Heart Rate (bpm)	65 ± 13
Daily furosemide dose (mg)	80 (IQR: 50-160)
Glomerular filtration rate (mL/min)	63.4 ± 26.9
NTproBNP (pg/mL)	4269 (IQR: 1836-7595)
End diastolic LV diameter (mm)	65 ± 12
End systolic LV diameter (mm)	53 ± 13
LV ejection fraction (%)	31 ± 10
Global longitudinal strain (-%)	9.0 (IQR: 11.2-3.7)
Cardiac output (L/min)	3.7 ± 0.9
Cardiac index (L/min/m2)	2.0 ± 0.5
PCWP (mmHg)	21 ± 7
RA pressure (mmHg)	11 ±
mPAP (mmHg)	30 ± 8
PVR (WU)	2.8 ± 1.6
PAPi	3.1 (IQR: 1.4-5.4)
CPO (W)	0.3 ± 0.1
pVO2 (mL/kg/min)	12.8 ± 2.7
Predicted pVO2 (%)	44 ± 8
VE/VCO2 Slope	42 ± 9
Respiratory Exchange Ratio	1.0 ± 0.1

Results: The cohort consisted of 21 pts (median age 42 [IQR : 32-67] years, 67% male). The main etiology for heart failure was ischemic heart disease (7pts, 33%). Pt characteristics are displayed in table 1. Levosimendan was administered in 6-hour infusions every two weeks, for a median of 111 (IQR: 54-257) days until HTx. During treatment, median NTproBNP levels showed a decrease from 4269.0 to 3112.5 (p = 0.286) and troponin levels slightly declined from 33.40 to 29.85 (p = 0.758), but the changes were not statistically significant. Mean glomerular filtration rate (GFR) also remained stable during treatment (63.4 vs. 63.8, p = 0.887). Despite 67% of pts having history of hospital admission for heart-failure in the 6 months prior to levosimendan initiation, only 3 pts (14%) required emergency admission during treatment. All pts successfully underwent HTx with no evidence of inotrope-dependent vasoplegia related to prior levosimendan administration. 2 pts died during the first 30 days after transplantation due to severe graft dysfunction.

Conclusions: Intermittent levosimendan therapy demonstrated utility as a bridging strategy for heart transplantation in advanced heart failure patients, providing hemodynamic stability and reducing emergency hospitalizations. Our findings support the use of intermittent levosimendan as a safe and effective adjunctive therapy in carefully selected INTERMACS 3 patients, optimizing pre-transplant stability without adversely affecting transplant outcomes.

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

Área de Posters-écran 3 | Sessão de Posters 31 – Valvulopatia mitral e tricúspide – Diagnóstico e intervenção valvular

PO 192. PREDICTORS OF MORTALITY IN A LEAD-RELATED TRICUSPID REGURGITATION POPULATION – IS THE RIGHT VENTRICLE THE KEY?

João Mendes Cravo, Catarina Gregório, Joana Rigueira, Marta Vilela, Pedro Alves Silva, Daniel Caldeira, Rui Plácido, Fausto J. Pinto, Catarina Sousa

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Introduction: The hemodynamic effects of cardiac implantable electronic device (CIED) related tricuspid regurgitation (TR), in the right heart

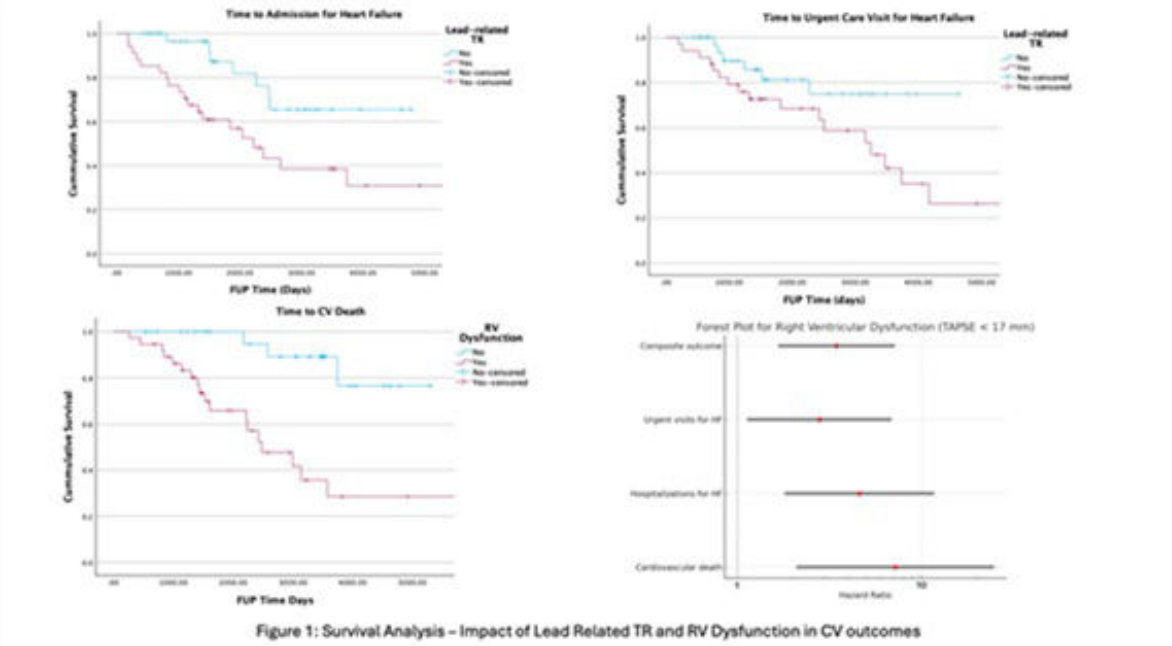

Figure 1: Survival Analysis – Impact of Lead Related TR and RV Dysfunction in CV outcomes

Figure PO 192

chambers is already established. Continuous volume overload leads to right ventricle (RV) adverse remodeling with dilation/dysfunction. Our study aimed to identify predictors of development of severe lead-related TR and assess if development of RV dysfunction has a prognostic impact.
Methods: Pre/post procedural echocardiographic data was collected in patients (pts) submitted to CIED implantation in the prior 10 years. Only pts who fulfilled criteria for lead-related TR were included. Predictors for development of severe lead-related TR were evaluated. The impact of severe TR and RV dysfunction on the composite outcome (admission for heart failure, time to first urgent care visit and death) was evaluated with Kaplan–Meier estimates and Cox proportional-hazards mode with multivariable analysis. A Forest Plot was constructed to visually represent these results.
Results: We included 68 pts, 57% male, mean age 77 years. 34 pts (50%) developed severe TR after CIED implantation, and 37 (54%) developed RV dysfunction. The mean TAPSE was 18.5 mm, mean right atrium area was 20 cm^2 and median LV ejection fraction was 54%. Median follow-up time was 8.4 years. On univariate analysis we observed that an increase in the QRS interval of 1 ms was associated with a 2% increased risk of developing severe related TR. Baseline TAPSE was inversely associated with the risk of developing severe related TR, and the effect was consistent after adjusting for other variables (OR 0.701, 95%[CI], 0.555-0.885, p = 0.003). At follow-up severe TR was associated with an increased risk for unplanned urgent care visit for heart failure (HF) (HR 4.667, 95%[CI] 1.540-14.143, p = 0.005) and HF hospitalization (HR 5.510, 95%[CI] 1.879-16.159, p = 0.001). Development of RV dysfunction was associated with increased risk for a composite outcome of CV death, hospitalization/unplanned urgent care visits for HF on univariate analysis. It remained an independent predictor of CV mortality after adjusting for other factors: age, gender, device, NYHA class, Ejection Fraction (HR 8.199, 95%[CI] 1.033-65.092, p = 0.047).
Conclusions: In a patient population with lead-related TR, severe TR and development RV dysfunction are strongly associated with adverse cardiovascular outcomes. Our work highlights the role of RV function and CIED-related TR severity in determining prognosis and the need for close monitoring of this population.

PO 193. SECONDARY MITRAL REGURGITATION SUBTYPES: LINKING ETIOLOGY, LEFT ATRIAL MECHANICS, AND CLINICAL PHENOTYPES

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

Introduction: Secondary mitral regurgitation (SMR) arises from diverse mechanisms impacting the mitral apparatus. Ventriculogenic SMR (SMR-V) is driven by left ventricular (LV) dysfunction or dilation, whereas atriogenic SMR (SMR-A) stems from atrial remodeling, frequently linked with atrial fibrillation (AF) or HFpEF. We aimed to characterize SMR patients and compare clinical and echocardiographic features, focusing on left atrial (LA) mechanics, diastolic parameters, and survival outcomes between SMR-V and SMR-A groups.
Methods: We retrospectively examined 96 pts with SMR diagnosed with transesophageal echocardiogram in a single tertiary center between 2018 and 2023. Pts were categorized as having SMR-V if they showed LV dilation or systolic dysfunction, and as having SMR-A otherwise.
Results: Of 96 pts (mean age 67 ± 14 years, 62% female), 73 (76%) presented SMR-V and 23 (24%) SMR-A. Pts with SMR-A were less symptomatic (mean NYHA 2 vs. 3, p = 0.043) and had less severe MR by EROA (24.7 vs. 33.9 cm^2, p = 0.016), although there were no differences in regurgitant volume (41.3 vs. 47.0 mL, p = 0.23). Pts were more frequently female (p = 0.003), with a higher prevalence of atrial fibrillation (65 vs. 22% p = 0.001). They had lower E/e' (10.0 vs. 15.5, p = 0.015) and a longer deceleration time (169.0 vs. 144.5 ms, p = 0.028), suggesting less severe diastolic dysfunction. They had higher conduit LAS (10.0 vs. 7.0%, p =0.001) and a trend towards higher reservoir strain (11.0 vs. 9.0%, p = 0.078), along with significantly lower LA stiffness (0.8 vs. 1.7, p = 0.002). In multivariate analysis, patient rhythm didn't account for the differences shown in LA strain. Overall survival over 60 months did not differ between the SMR-V and SMR-A groups (p = 0.391), despite slightly higher mean survival estimates in the SMR-A group (47.98 vs. 42.63 months). Notably, although pts with SMR-A seemed to have less severe mitral regurgitation, EROA alone did not fully explain the differences found in LA strain and mortality trends in multivariate analysis, suggesting other pathophysiological factors underlie the divergent LA mechanics and prognosis.
Conclusions: In our cohort, while patients with SMR-A presented with less symptomatic disease, lower EROA, and more favorable diastolic parameters, they ultimately shared similar long-term survival with SMR-V patients. Recognizing the distinct remodeling pathways of pts with SMR may aid in clarifying the prognosis for the different subtypes.

PO 194. DEVELOPMENT OF TRICUSPID REGURGITATION AFTER LEFT-SIDE HEART SURGERY

Mónica Dias, Rodrigo Silva, Carolina Ferreira, Sofia Fernandes, Inês Conde, Carla Ferreira, Filipe Vilela, Nuno Salomé, Carla Marques Pires

Hospital de Braga.

Introduction: The current practices for diagnosing, managing, and treating right-sided heart valve disease vary greatly. There is a lack of robust information regarding the incidence and predictors of tricuspid regurgitation (TR) development following left-sided heart surgery.

Laboratory and Echocardiographic Variables	All (n= 96)	Ventriculogenic MR (n=73)	Atriogenic MR (n=23)	p
Laboratory Variables				
NTproBNP - median (IQR)	2798.0 (1289.0-6802.3)	3166.0 (1380.5- 7816.5)	1744.0 (1161.5- 3120.0)	0.161
I Troponin - median (IQR)	17.0 (9.2-26.4)	19.1 (10.7-28.4)	6.8 (2.8-11.3)	**0.028**
Echocardiographic Variables				
EROA - mean ± SD	31.8 ± 18.1	33.9 ± 18.5	24.7 ± 14.8	**0.016**
Regurgitant Volume - mean ± SD	45.7 ± 24.5	47.0 ± 24.4	41.3 ± 24.9	0.233
LVTDVI - median (IQR)	84.9 (58.6-111.1)	93.8 (71.8-123.9)	55.3 (39.5-66.3)	**<0.001**
LVEF - mean ± SD	41.6 ± 12.1	36.9 ± 9.2	57.2 ± 5.9	**0.041**
TAPSE - mean ± SD	18.6 ± 4.7	18.1 ± 4.8	19.9 ± 4.2	0.359
Peak TR velocity - mean ± SD	3.0 ± 0.5	3.0 ± 0.5	3.1 ± 0.6	0.362
LAVI - median (IQR)	57.6 (48.0-74.1)	57.3 (48.0-73.5)	58.7 (44.1-76.1)	0.761
E velocity - mean ± SD	104.2 ± 26.3	104.4 ± 26.4	103.4 ± 26.6	0.870
E/A ratio - median (IQR)	2.1 (1.4-2.9)	2.2 (1.3-3.0)	2.0 (1.8-2.6)	0.919
Deceleration time - median (IQR)	152.5 (130.5-191.8)	144.5 (126.5-189.0)	169.0 (145.0-196.5)	**0.028**
E/e' - median (IQR)	14.0 (10.0-21.0)	15.5 (11.0-21.0)	10.0 (8.0-15.0)	**0.015**
LAS-CD (-%) - median (IQR)	7.0 (5.0-9.0)	7.0 (5.0-8.0)	10.0 (13.0-7.0)	**0.001**
LAS-CT (-%) - median (IQR)	1.0 (5.0-0.0)	1.5 (5.0-0.0)	0.0 (3.0-0.0)	0.347
LAS-R (%) - median (IQR)	9.0 (7.0-13.0)	9.0 (60-12.0)	11.0 (9.0-14.0)	0.078
LA stiffness - median (IQR)	1.5 (1.0-2.6)	1.7 (1.1-2.8)	0.8 (0.6-1.5)	**0.002**
LA-LV coupling - median (IQR)	0.6 (0.4-0.8)	0.5 (0.3-0.7)	0.9 (0.7-1.1)	**<0.001**

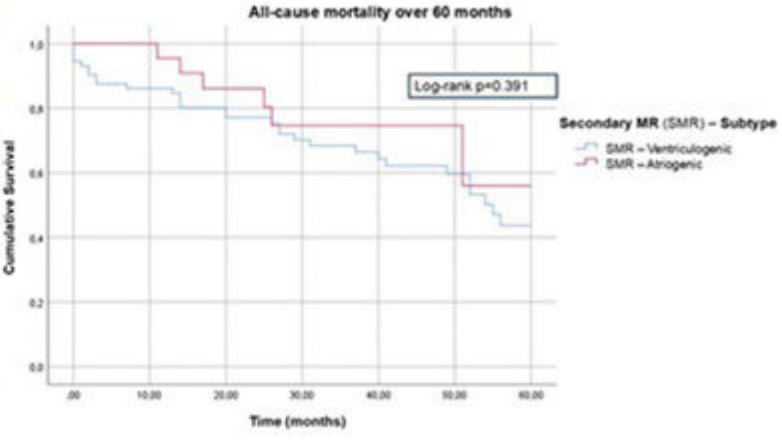

Figure PO 193

Objectives: To evaluate the incidence and predictors of TR development after left-sided surgery in patients without an indication for tricuspid valve (TV) intervention at the time of surgery; to assess the prognostic impact of TR development in these patients.
Methods: We conducted a retrospective observational study including patients from inpatient care in our center who underwent heart surgery between 2011 and 2019. "Group T" consisted of patients who underwent TV intervention, while "group no-T" included those who did not. Unadjusted (Kaplan-Meier) and adjusted (Cox regression) survival analyses were performed to evaluate the occurrence of a composite endpoint (mortality and/or heart failure (HF) hospitalization).
Results: The study included 320 patients (60.3% male, median age 74 [IQR 16] years). 73 patients underwent TV annuloplasty (group T), while 247 did not. Of these, 245 had no indication for TV intervention (group no-T). The median follow-up period was 3.92 years [IQR 4.3]. During this time, 48.6% died from any cause and 23.4% required hospitalization due to a deterioration of their heart failure status, with no differences between the groups. A worsening of preoperative TR was observed in 12.4% of patients, with a higher prevalence in the no-T group (14.5 vs. 5.9%, p < 0.001). Patients with worsening TR were more likely to be female, older at the time of surgery, have a higher prevalence of COPD, and experience a higher incidence of atrial fibrillation (AF). In multivariate analysis, COPD was the only significant predictor of worsening TR (p = 0.047; OR = 3.43). Patients with worsening TR had significantly higher rates of heart failure hospitalization (50 vs. 19%, p < 0.001), mortality (52 vs. 29%, p = 0.039), and composite endpoint (72 vs. 49%, p = 0.004). On multivariate analysis, COPD (p = 0.025; OR = 8.137), left ventricular ejection fraction deterioration (p = 0.029; OR = 13.943), and worsening TR (p = 0.041; OR = 4.538) were identified as predictors of the composite endpoint. However, Kaplan-Meier curves showed no significant difference in time to event between groups (p = 0.091).
Conclusions: TR may progress in a significant proportion of patients following left-side cardiac surgery. As TR progression is associated with a worse late prognosis, a more liberal approach to addressing TR during left-sided surgery, or at least closer clinical and echocardiographic monitoring postoperatively, may be justified in patients with risk factors.

PO 195. THE IMPACT OF TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR ON FUNCTIONAL OUTCOMES IN SECONDARY MITRAL REGURGITATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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

Unidade Local de Saúde do Alto Ave.

Secondary mitral regurgitation (SMR) frequently complicates heart failure (HF) and is associated with poor functional status and outcomes. Transcatheter edge-to-edge mitral valve repair (MTEER) has emerged as a minimally invasive strategy to address SMR. This meta-analysis aimed to evaluate the impact of MTEER on functional outcomes in patients with HF and SMR. PubMed, Cochrane Central Register of Controlled Trials, Scopus, and Web of Science were searched on September 2024, to identify randomized controlled trials (RCTs) comparing MTEER plus guideline-directed medical therapy (GDMT) versus GDMT alone in patients with HF and SMR reporting functional outcomes. Pooled data were analyzed using an inverse variance random-effects model, with continuous outcomes expressed as mean differences (MD) and categorical outcomes as risk ratio (RR). Among 1,558 entries, three RCTs (COAPT, MITRA-FR, and RESHAPE-HF2) were included, with a total of 1,423 patients. At 12 months, COAPT and RESHAPE-HF2 showed a significantly higher proportion of patients in NYHA class I/II in the MTEER group compared to the control group, whereas MITRA-FR did not observe this difference. COAPT was the only trial to sustain this benefit at 24 months. The pooled meta-analysis confirmed this benefit at both 12 months (RR 1.25 [1.04; 1.50]) and 24 months (RR 1.28 [1.05; 1.56]). Regarding the six-minute walk test, COAPT and RESHAPE-HF2 reported significant improvements in the MTEER group at 12 months, but MITRA-FR did not show similar results. The pooled estimate for the change in six-minute walk test distance did not reach statistical significance (MD 26.31 [-3.71; 56.33]). A sensitivity analysis using an alternative endpoint for MITRA-FR also confirmed the lack of significance (MD 24.94 [-8.96; 58.84]). This meta-analysis highlights the potential of MTEER to improve functional status measured by NYHA classification. However, its impact on

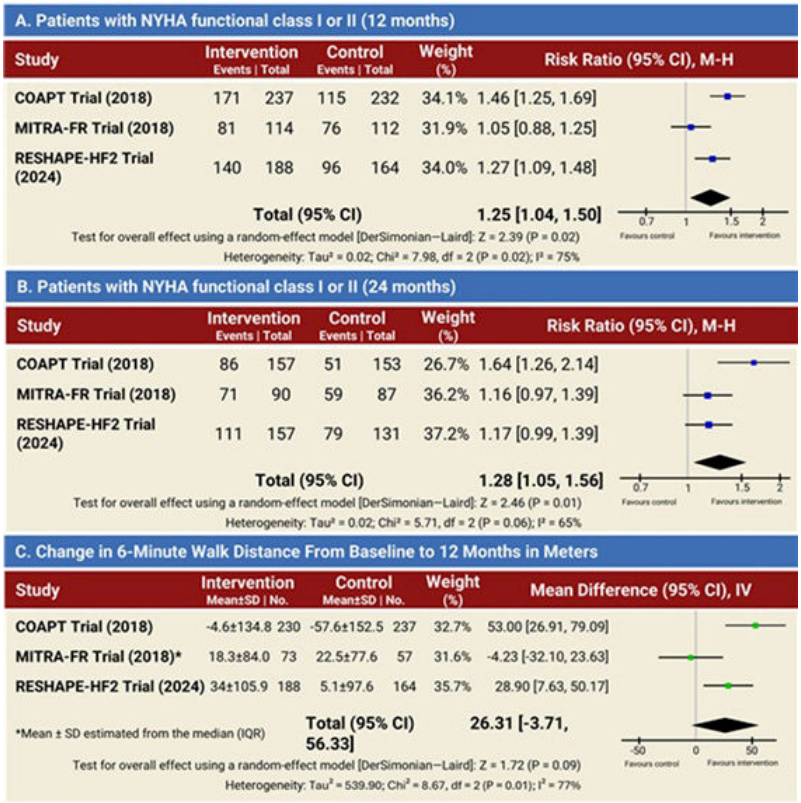

Figure PO 195

exercise capacity, as measured by the six-minute walk test, remains inconclusive. These discrepancies may reflect differences in patient populations, the severity of mitral regurgitation, and left ventricular remodeling across the included trials. The high heterogeneity observed in the meta-analysis warrants caution in interpreting these results. Future patient-level meta-analyses are needed to better understand the benefits of MTEER and identify patient subgroups most likely to experience functional improvement from this intervention.

PO 196. IMPACT OF LEFT VENTRICULAR VOLUME AND EFFECTIVE REGURGITANT ORIFICE AREA ON MORTALITY EFFECTS OF TRANSCATHETER EDGE-TO-EDGE MITRAL VALVE REPAIR: A META-REGRESSION ANALYSIS

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

Unidade Local de Saúde do Alto Ave.

Introduction: The effectiveness of transcatheter edge-to-edge mitral valve repair (MTEER) in reducing mortality in patients with secondary mitral regurgitation (SMR) remains debated. This meta-regression evaluates how baseline left ventricular end-diastolic volume (LVEDV) and effective regurgitant orifice area (EROA) influence mortality effects of MTEER when compared to guideline-directed medical therapy (GDMT).
Methods: On September 2024, PubMed, Cochrane Central Register of Controlled Trials, Scopus, and Web of Science was search for randomized controlled trials (RCTs) of patients with SMR, randomized to MTEER plus GDMT or GDMT alone, reporting on mortality. Hazard ratios (HR) between the two groups for all-cause mortality at 24 months were pooled using a mixed-effects meta-regression model (DerSimonian-Laird) with EROA and LVEDV as moderators.
Results: From 1,558 identified articles, the final analysis included the COAPT, MITRA-FR, and RESHAPE-HF2 trials with a total of 1,423 patients. The pooled mean LVEDV showed a significant effect on HR. Meta-regression revealed a baseline HR of 24-month all-cause mortality for a reference LVEDV of 180 mL of 0.583 [0.429-0.793], with an increase by a factor of 1.076 [1.002-1.157] per additional 10 mL ($p = 0.045$, pseudo-R^2 1.0). As for pooled mean EROA, meta-regression estimated a HR for 24-month all-cause mortality of 0.921 [0.416-2.037] for a patient with an EROA of 0.2 cm^2, with an increase by a factor of 0.860 [0.484-1.527] per 0.1 cm^2 increment in EROA. The pseudo-R^2 was -1.13, and the p-value was 0.606, indicating no significant association.
Conclusions: Although baseline EROA did not appear to influence the effects of MTEER on 24-month all-cause mortality, the model demonstrated a significant association between LVEDV and mortality. This finding suggests that MTEER may be significantly more beneficial in patients with less dilated ventricles. However, the perfect fit for LVEDV (pseudo-$R^2 = 1.0$) may indicate overfitting, likely due to the small number of included studies (n = 3). Caution is warranted when interpreting these results, as the limited number of trials reduces the robustness of the conclusions. Future studies with larger sample sizes and additional trials are needed to validate the observed relationship between LVEDV and the outcomes of MTEER versus GDMT.

PO 197. SAFETY AND EFFICACY OF TRANSCATHETER EDGE-TO-EDGE REPAIR IN ATRIAL FUNCTIONAL MITRAL REGURGITATION

Mafalda Griné[1], Rita Bertão Ventura[1], Diogo Matias[2], Diana de Campos[1], Luísa Rocha[1], Tomás Carlos[1], Bernardo Resende[1], Manuel Oliveira-Santos[1], Lino Gonçalves[1]

[1]ULS Coimbra. [2]Faculdade de Medicina da Universidade de Coimbra.

Introduction: The optimal treatment strategy for atrial functional mitral regurgitation (AFMR) remains unclear. We sought to evaluate the safety and efficacy of mitral transcatheter edge-to-edge repair (M-TEER) in this patient subset.
Methods: We conducted a single-center retrospective analysis of consecutive M-TEER cases from November 2018 to November 2023. Patients were divided into two groups: those with and without AFMR (non-AFMR), according to baseline echocardiographic characteristics. Clinical and echocardiographic outcomes up to one year were analyzed.
Results: Of the total of 93 patients that underwent M-TEER during the study period, 29 (31%) met AMFR criteria. AFMR patients were older (median age of 80 years [interquartile range (IQR): 77-84] vs. 76 years [IQR: 68-82] in the non-AFMR group; $p = 0.01$) and displayed greater left atrial volume (74 mL/m^2 (IQR: 50-98) vs. 58 mL/m^2 (47-72), $p = 0.047$) and left ventricular ejection fraction (55% (IQR: 53-58) vs. 42% (IQR: 31, 57), $p = 0.002$). Procedural success was achieved in 96.8% of cases, with no difference between groups ($p = 0.8$). There was one device detachment at 12 months. MR grade = II was achieved in 100% and 90.2% at 3 months ($p = 0.5$) and in 86.2% and 82.8% at 1 year ($p = 0.8$) in patients with AFMR and non-AFMR, respectively. All-cause mortality and heart failure hospitalization rates at 1 year did not differ between groups (6.9 vs. 6.3%, $p = 0.7$; 17.2 vs. 15.6%, $p = 0.3$, respectively). Periprocedural complications were infrequent (6.5%) and rarely severe (3 bleeding events, 2 atrial arrythmias, 1 acute heart failure decompensation). There were no periprocedural deaths nor urgent conversions to open heart surgery.
Conclusions: M-TEER was equally safe and effective in AFMR and non-AFMR. Considering contemporary evidence, M-TEER appears to be a viable treatment strategy for AFMR.

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

Área de Posters-écran 1| Sessão de Posters 32 - Doenças cardiovasculares - EAMCSST

PO 198. THE SAFETY OF EARLY DISCHARGE FOR LOW-RISK STEMI PATIENTS IDENTIFIED BY ZWOLLE RISK SCORE

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[1]Centro Hospitalar de Trás-os-Montes e Alto Douro, EPE/Hospital de Vila Real. [2]CNCDC.

Introduction: Early discharge of patients (pts) with low-risk ST elevation myocardial infarction (STEMI) may be associated with better prognosis and increases efficiency of health care. The Zwolle Risk Score (ZRS) was designed to identify STEMI pts at risk of in hospital complications and has been validated for selection of pts for early discharge (Figure 1).
Objectives: To identify the safety of early discharge (< 72 h) in a population of pts with low-risk STEMI identified by Zwolle risk score.
Methods: Retrospective study of low-risk STEMI pts enrolled in a multicentre registry from 2010-2024, identified by a Zwolle risk score ≤ 3 points. Pts were categorized into two groups: ED (early discharge group, < 72h) and LD (Late discharge group, > 72 h). The primary endpoint was death/hospital readmission during 1 year of follow-up (FUP).
Results: A total of 5,977 pts were included: 22.1% (1319) ED group, 77.9% (4,658) LD group, mean age of 59.6 years, 80.1% males. LD pts were significantly older (57.7 (± 11.3) years vs. 60.1 (± 12.1) years, $p < 0.001$), had higher prevalence of arterial hypertension (55.5 vs. 49.9%, $p < 0.001$) and diabetes mellitus (21.7 vs. 15.2%, $p < 0.001$) and less prevalence of past/active tobacco use (67.8 vs. 58.6%, $p < 0.001$). LD pts had higher burden of comorbidities, namely chronic kidney disease (2.0 vs. 1.1%, $p = 0.03$), neoplasia history (3.9 vs. 2.7%, $p = 0.04$) and chronic obstructive pulmonary disease (2.5 vs. 1.5%, $p = 0.04$). The median ZRS was 1 (IQR 0-2) for ED group

and 2 (IQR 1-3) for LD group. During FUP, LD group had a significantly higher rate of the primary endpoint (14.8 vs. 10.8%, log-rank p = 0.009). In the multivariate analysis, age (HR 1.01, 95%CI 1.0-1.1, p = 0.006), arterial hypertension (HR 1.3, 95%CI 1.0-1.7), diabetes mellitus (HR 14.4, 95%CI 2.0-104, neoplasia (HR 2.1, 95%CI 1.4-3.2) and dementia (HR 3.0, 95%CI 1.5-5.9) were associated with higher risk of the primary endpoint, whilst early discharge was not. In fact, early discharge remained associated with lower risk of primary endpoint (HR 0.74, 95%CI 0.58-0.98, p = 0.042).

	Points
Killip class	
1	0
2	4
3–4	9
TIMI flow post	
3	0
2	1
0–1	2
Age, y	
<60	0
≥60	2
3-vessel disease	
No	0
Yes	1
Anterior infarction	
No	0
Yes	1
Ischemia time >4 hours	
No	0
Yes	1

Figure 1- Zwolle Risk Score. TIMI- Thrombolysis in myocardial infarction

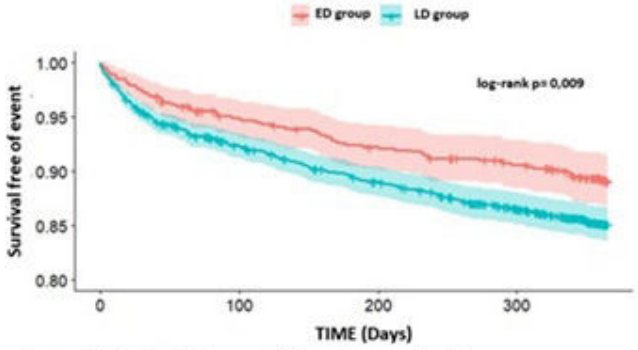

Figure 2- Kaplan-Meier curve for primary endpoint.

Conclusions: In our cohort of low-risk STEMI patients identified by ZRS, early discharge was a feasible and safe option, potentially reducing hospitalization costs without compromising long-term outcomes. However, even in this subgroup of low-risk, there was an association between worse prognosis and adverse baseline characteristics, highlighting the need to integrate scores with clinical judgment.

PO 199. TRENDS IN PRIMARY ANGIOPLASTY OUTCOMES: MORTALITY, PROCEDURAL ADVANCEMENTS, AND LESION TYPE EVOLUTION OVER TIME

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

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

Primary angioplasty has advanced over the past two decades, with improvements in procedural techniques, patient care, and post-procedural strategies. This study analyzes trends in mortality, procedural changes, lesion characteristics, and the use of mechanical support over time. We conducted a retrospective analysis of primary angioplasty data from 2002 to 2023, grouped into three periods: 2002-2009, 2010-2019, and 2020-2023. Data were analyzed for mortality rates (30-day [30d], 1-year [1y], 3-year [3y], and 5-year [5y]), procedural changes (complete revascularization, access route, IIb/IIIa inhibitors), lesion types (including bifurcation lesions), usage of IABP, Impella, ECMO, mechanical ventilation [MV] and cardiac arrest. 30d Mortality remained stable, with slight reduction in 2020-2022. 1y Mortality showed significant reduction (p < 0.0001), reflecting advancements in PCI. 3y and 5y Mortality showed substantial decreases in 2020-2022 (p < 0.01), indicating long-term survival improvements. Complete Revascularization increased, reducing follow-up interventions. A significant shift from trans-femoral to trans-radial access was observed (p < 0.0001), reflecting safer techniques. The use of IIb/IIIa inhibitors declined significantly, aligned with evolving guidelines. Major complications decreased (p < 0.01). The use of IABP and Impella was more frequent in earlier periods, reflecting higher reliance on mechanical circulatory support. However, in 2020-2022, both devices were used less frequently. ECMO use also declined, reflecting improvements in patient stabilization techniques and a reduced need for invasive mechanical support. MV and cardiac arrest incidents decreased across periods (p < 0.01). Regarding Lesion Types, proximal right coronary artery remained the most common lesion, while proximal circumflex artery and proximal left anterior descending artery increased in 2010-2019 before declining in 2020-2022, reflecting changes in treatment approaches. The incidence of bifurcation lesions decreased. This study demonstrates significant improvements in mortality, procedural safety, and patient outcomes in primary angioplasty over the past two decades. Advances in PCI, including trans-radial access and complete revascularization, have reduced complications and improved survival. The decline in IIb/IIIa inhibitors, IABP, Impella, ECMO, and MV, along with evolving lesion management, highlights continued progress in PCI techniques and post-procedural care.

PO 200. ACUTE HEART FAILURE FOLLOWING ST-ELEVATION MYOCARDIAL INFARCTION: PATIENT PROFILING

Miguel Abrantes de Figueiredo, Ana Rita Teixeira, André Ferreira, Inês Rodrigues, João Ferreira Reis, António Fiarresga, Ana Teresa Timóteo, Rui Cruz Ferreira

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

Introduction: Acute heart failure (AHF) is a major complication following ST segment elevation myocardial infarction (STEMI), significantly impacting patient outcomes.
Objectives: To clarify the disparities between patients who develop AHF following STEMI and those without AHF, potentially identifying risk factors and clinical markers.
Methods: A retrospective analysis of patients admitted with STEMI between 2015 and 2021 in one high-volume center in Portugal was conducted. Patients were categorized in two groups based on the presence or absence of AHF (Killip class greater than 1) during the post-infarction period. Demographic, clinical, and laboratory data were collected and compared between the two groups. Logistic regression was performed to assess predictors of new-onset AHF.
Results: Of the 1,050 STEMI patients included, 16.2% had AHF either on admission or during hospitalization. These patients were more likely to be older (p < 0.001) and female (32.9 vs. 21.9%, p = 0.002). Cardiovascular risk factors, including diabetes (30.6 vs. 18.9%, p < 0.001), arterial hypertension (47.6 vs. 57.6%, p = 0.017), dyslipidemia (39.4 vs. 25.9%, p < 0.001) and chronic kidney disease (7.6 vs. 3.1%, p = 0.004) were more prevalent among the AHF group, while smoking (28.8 vs. 46.5 vs. p < 0.001) and family history (3.5 vs. 8.8%, p = 0.021) were less prevalent. AHF rate was higher with a positive history of previous coronary artery bypass grafting (p = 0.001). Anterior STEMI was more prevalent in the AHF group (53.5 vs. 44.8%, p = 0.036) as well as involvement of the right ventricle (2.9 vs. 0.2%, p < 0.001). Patients with AHF had a higher concentration of leucocytes (p < 0.001), cardiac troponins (p < 0.001) and natriuretic peptides (p < 0.001), with a lower hemoglobin (p = 0.047) concentration. Patients with AHF were more likely to have multivessel disease (p = 0.022), more

likely not to receive complete revascularization (p = 0.020) and had higher in-hospital mortality (p < 0.001) through multivariate analysis. Independent predictors of AHF in patients with STEMI included old age, higher troponin and natriuretic peptides at presentation and right ventricle infarction (p < 0.001, all).
Conclusions: Elevated levels of troponin and natriuretic peptides at presentation along with right ventricle infarction were predictors of new onset AHF in hospitalization for STEMI. The association of AHF with higher in-hospitality mortality underscores its clinical relevance, suggesting the need to closely monitor these high-risk patients.

PO 201. CLINICAL PROFILE AND PREDICTORS OF 30-DAY ALL-CAUSE MORTALITY OF STEMI PATIENTS RECEIVING FIBRINOLYTIC THERAPY IN AN ULTRA-PERIPHERAL REGION

Margarida Câmara Farinha, Inês Coutinho dos Santos, Fabiana Duarte, André Viveiros Monteiro, Luís Oliveira, António Fontes, Santos Serena, Emília Santos, Nuno Pelicano, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: In remote locations, fibrinolysis remains a valuable intervention in ST-Elevation Myocardial Infarction (STEMI) patients. Despite its effectiveness, mortality rates remain high among these patients. Despite its timely administration, some patients still face poor outcomes. Understanding the factors associated with mortality is crucial for improving care and enhancing clinical outcomes.
Objectives: To assess demographics and outcomes of STEMI patients who underwent fibrinolysis in an ultra-peripheral center and to determine key predictors of 30-day mortality.
Methods: We retrospectively enrolled consecutive STEMI patients who underwent fibrinolysis and were subsequently transferred to our center for facilitated or rescue percutaneous coronary intervention (PCI) between 2020 and 2023. Demographic information and mortality outcomes were examined. A logistic regression analysis was conducted to determine the key factors associated with 30-day all-cause mortality.
Results: The study included 154 patients with an average age of 61.3 ± 12.6 years, of whom 71.0% were men. Overweight or obesity was observed in 73.4% of the cohort, while 69.7% had hypertension, 65.7% presented with dyslipidaemia, and 30.3% had diabetes. Additionally, 56.0% were active smokers, and 13.4% reported a prior history of acute coronary syndrome. Tenecplase was the fibrinolytic agent used in 83.8% of cases. The antiplatelet of choice in the peri-thrombolytic phase was clopidogrel in 50.6%. The infarct-related artery was the left anterior descending artery in 48.3% of patients, and multivessel disease was present in 33.3%. Killip class III/IV was found in 18.3% of patients. Reperfusion criteria were met in 65.1% of patients after fibrinolysis. The median time from symptoms to fibrinolysis was 3.01 hours (IQR 1.63-5.65) and from fibrinolysis to PCI was 6.38 hours (IQR 3.23-11.07). Mortality occurred in 6.5% of patients and 28.5% had haemorrhagic complications. The analyses revealed that age ≥ 75 years (OR 2.066, p = 0.003), a prior history of acute coronary syndrome (OR 1.674, p = 0.016), peripheral arterial disease (OR 1.748, p = 0.022), chronic kidney disease (OR 2.127, p = 0.007) and Killip class ≥ II (OR 3.619, p < 0.001) were independent predictors of 30-day mortality. Following fibrinolysis, congestive heart failure (OR 3.415, p < 0.001) and atrial fibrillation (OR 1.748, p = 0.022) were found to also effect mortality.
Conclusions: Despite challenges, fibrinolysis remains a valuable and impactful treatment option for STEMI patients in remote locations without timely access to PCI. Advanced age, previous coronary disease, and Killip class were identified as independent predictors of 30-day mortality.

PO 202. EFFECT OF AIR TEMPERATURE ON ACUTE MYOCARDIAL INFARCTION INCIDENCE: A STUDY IN THE CENTRE-SOUTH REGION OF PORTUGAL

Diogo Santos da Cunha[1], José Costa[2], Oliveira Baltazar[1], João Mirinha Luz[1], Gonçalo Morgado[1], Nazar Ilchyshyn[1], Adriana Silva[1], Liliana Brochado[1], Lourenço Aguiar[1], Tiago Lobão[1], Hélder Pereira[1]

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

Introduction: Previous literature has linked acute coronary syndrome (ACS) incidence and atmospheric features. The aim of this study is to study the correlation between myocardial infarction (MI) incidence and ambient temperature in the centre-south region of Portugal, a temperate climate.
Methods: A retrospective cohort study of 1,880 patients (949 NSTEMI, 939 STEMI) was conducted from January 1 of 2017 to December 31 of 2021 in a region with a Mediterranean temperate climate characterized by hot summers and mild winters. Daily data of air temperature derived from a

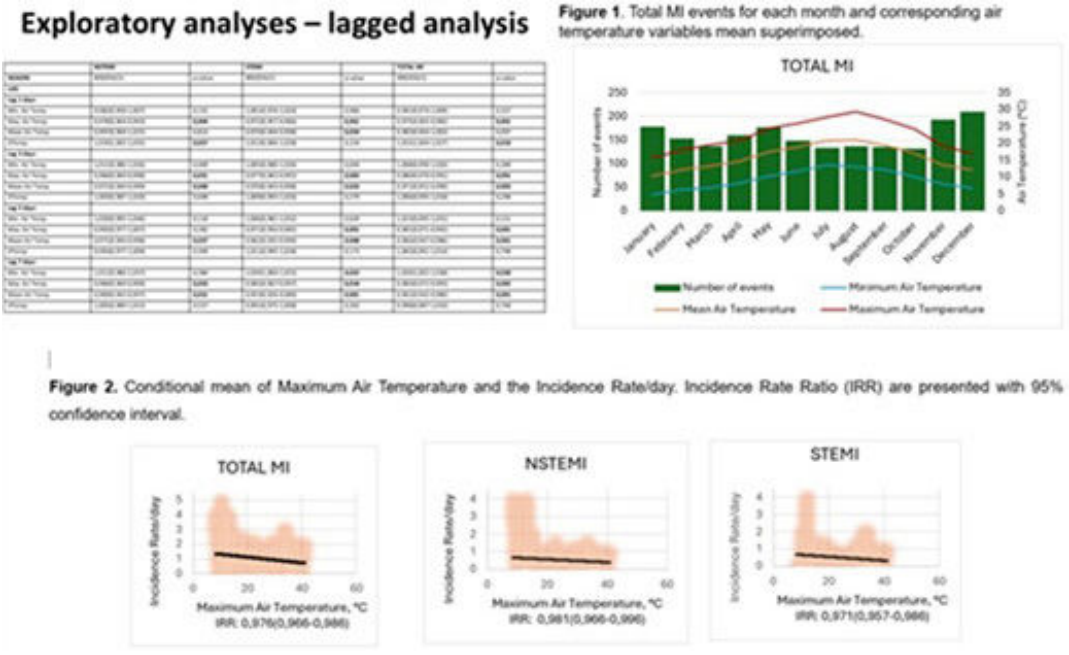

Figure PO 202

single station of a government-led institute. Patients were selected from a hospital database that included all patients referred for coronary angiography because of suspected MI. The date of symptom onset was recorded for every patient and merged with the data on daily air temperature. Analysis was done using Poisson regression models.
Results: Decreasing maximum air temperature was associated with an increase in both types of MI incidence, with the STEMI group having the strongest association (1 °C decrease in maximum air temperature leading to a 2.9% increase in incidence rate - IRR, 0.971; 95%CI, 0.957-0.986; p <.001). On lagged analysis (for days 1, 3, 5, and 7), the same negative association was seen between mean and maximum air temperature and total MI, STEMI and NSTEMI.
Conclusions: We concluded that in the center-south region of Portugal, there is a positive association between the decrease in maximum temperature and the increase of MI. That relationship remains present on lagged analysis, also for mean temperature.

PO 203. EVALUATING THE BENEFITS OF HIGH-DOSE STATIN LOADING IN STEMI MANAGEMENT: INSIGHTS FROM A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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

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

Introduction: Acute ST-Elevation Myocardial Infarction (STEMI) is a medical emergency that requires prompt reperfusion therapy. Although percutaneous coronary intervention (PCI) is recognized as the standard treatment, the periprocedural pharmacological management of STEMI remains a topic of debate, with potential for improvement. Several observational studies and randomized clinical trials (RCTs) on patients with STEMI suggest that prior high-dose statin loading may enhance coronary blood flow, evidenced by the Thrombolysis In Myocardial Infarction (TIMI) frame count after PCI, and is also associated with improved short-term clinical outcomes.
Objectives: Conduct a Systematic Review and Meta-Analysis to evaluate the efficacy of high-dose statin loading in STEMI patients undergoing PCI.
Methods: We systematically searched the Cochrane Controlled Register of Trials, EMBASE, and PubMed for RCTs. The primary outcome was post-PCI TIMI flow 3, while the secondary endpoint was a composite of 30-day Major Adverse Cardiovascular Events (MACE), defined as cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke within 30 days. Loading strategies of 40-80 mg of atorvastatin or 20-40 mg of rosuvastatin were admitted. We pooled dichotomous data using odds ratios (OR) to describe effect sizes, employing a Mantel-Haenszel procedure in a random-effects model, with a 95% confidence interval. Heterogeneity was assessed statistically using the I^2 index (< 25% low, 25%-50% moderate, > 50% high heterogeneity).
Results: Of the 1.085 records identified, six studies were included, providing data on a total of 1.599 patients. Our meta-analysis revealed a higher incidence of post-PCI TIMI flow 3 in the high-dose statin group (pooled OR 2.08 [1.28, 3.38], p = 0.63, I^2 = 0). Additionally, the experimental strategy demonstrated a lower rate of 30-day MACE (pooled OR 0.55 [0.37, 0.82], p = 0.55; I^2 = 0%). Although we included only RCTs, we acknowledge that the outcomes analyzed in our meta-analysis may encompass endpoints that were not utilized for calculating the sample size.
Conclusions: Our results indicate that high-dose statin loading prior to PCI in STEMI patients is associated with a significant improvement in post-PCI TIMI flow 3 and a reduction in the incidence of 30-day MACE. These findings support the clinical benefit of implementing high-dose statin loading in the acute management of STEMI. Therefore, we consider that further research is warranted with larger-scale RCTs.

PO 204. UNCOATING NEW STRATEGIES: DRUG-COATED BALLOONS AS A PROMISING CHOICE

Fábio Viveiros, Miguel Azaredo Raposo, Catarina Gregório, Ana Abrantes, Marta Vilela, Diogo Rosa Ferreira, João Mendes Cravo, João Fernandes Pedro, Ana Rita Francisco, João Silva Marques, Fausto J. Pinto, Pedro Pinto Cardoso

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

Introduction: Drug-eluting stents (DES) are still the default treatment of coronary artery disease. However, drug-coated balloons (DCB) represent a new alternative in certain anatomic conditions. Although their use is

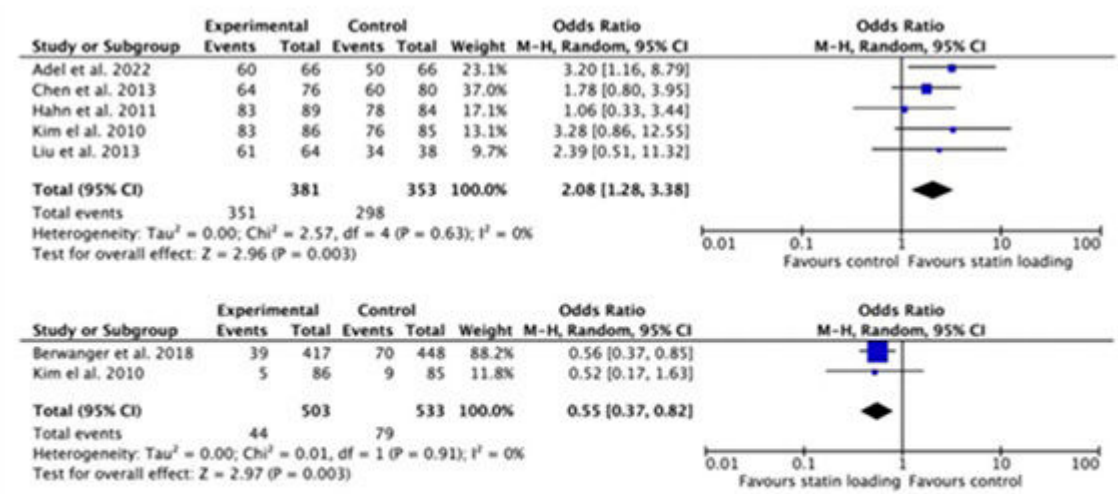

Image 1. Forest plot graphics of the analysed outcomes. 1.1 Post-percutaneous coronary intervention Thrombolysis In Myocardial Infarction flow 3; 1.2 Major Adverse Cardiovascular Events, defined as cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke within 30 days.
CI – Confidence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

Figure PO 203

established for in-stent restenosis of both bare-metal and DES, there are other emerging indications.
Objectives: To evaluate DCB angioplasty outcomes.
Methods: Single-center observational study of patients (pts) submitted to DCB percutaneous intervention (PCI). Clinical characteristics and procedure-related data were collected at baseline and primary endpoint, defined as same vessel stenosis, was evaluated at follow-up (FUP).
Results: Two hundred and one pts (75.6% male; mean age 68 ± 11.5 years) were submitted to PCI, with a mean FUP of 31 months. In terms of comorbidities: 87.1% had arterial hypertension, 81.6% hypercholesterolemia and 40.3% smoking habits. Clinical reasons to perform PCI included stable angina in 55.8% of pts, unstable angina in 13.7%, NSTEMI in 25.4% and STEMI in 5.1%. DCB were most frequently applied in the left anterior descending artery (40.3%, $p < 0.001$), followed by the right coronary artery (18.4%), circumflex (14.9%) and marginal artery (10.4%). Two arteries angioplasty was performed in 6 pts and 58 pts treated a second vessel with DES. Regarding the indications for a DCB PCI, most pts had stent restenosis (58.2%), 23.4% small caliber vessel disease and 8.5% a bifurcation lesion. From a technical point of view, pre-dilation was performed in 83% of pts, 80% of which with non-compliant balloons. InPact Falcon was the most frequently used DCB (63.7%) followed by Pantera Lux (33.3%), Sequent Please (2%) and Pantera Leo (1%). DES implantation after DCB PCI was performed in 14.5% of pts due to residual lesion (42.9%) or stenosis (14.3%), 14.3% due to dissection and for optimal final result in 7.1%. TIMI III post-procedure flow was obtained in the vast majority of pts (97%). During FUP, 38 pts were submitted to a new PCI, mainly due to stable angina. Primary outcome was observed in 7.5% of pts: 9 of them with a conservative approach (mild stenosis), 1 submitted to balloon PCI and 5 underwent DES PCI. 64% of pts underwent a new vessel PCI. Regarding pts previously submitted to DES implantation after DCB angioplasty, 5 repeated coronarography at FUP and a good angiographic result of the former procedure was verified, with statistically significant association between DES implantation at baseline and good angiographic results at FUP ($p = 0.047$). At baseline, 4 of these pts were submitted to angioplasty of the same lesion treated with DCB and 1 to proximal PCI. Stenosis didn't correlate with the treated vessel ($p = 0.177$) nor with balloon diameter or length.
Conclusions: Although DCBs are mainly used in restenosis, new indications and clinical benefits are emerging. Final result optimization, as with DES implantation, was associated with good angiographic results at FUP.

PO 205. TEMPORAL TREND OF DRUG ELUTING BALLOON OVER THE LAST 10 YEARS

Rita Louro, Gustavo Sá Mendes, David Neves, Lino Patrício, Pedro Jerónimo Sousa, Rita Calé

Hospital Évora.

Introduction: Drug-eluting balloons (DEBs) delivered antiproliferative drugs to the lesions without leaving foreign material behind, avoiding the caveats of stent thrombosis, accelerated atherosclerosis, impossibility of surgical revascularization and disruption of vessel dynamics. Initially indicated for in-stent restenosis, DEBs have expanded to application in large-calibre vessels, diffuse disease, ostial lesions and in some cases chronic total occlusions (CTO).
Methods: Registry data were collected in collaboration with the Portuguese Association of Interventional Cardiology (APIC), with contributions from each participating centre. The national publication of this review was acknowledged by the CNCD- National Center for Cardiology Data Collection.
Results: This registry evaluates the use of DEB procedures performed between 2014 and 2023 across 13 Portuguese centres, totalling 3.198 interventions (Figure). DEB usage rose significantly from 209 procedures in 2014 to 703 in 2023 ($p < 0.001$), reflecting an increase in DEB as a percentage of total percutaneous coronary interventions (PCIs) from 3.5% to 9.6% over the same period ($p < 0.001$). This trend was independent of the number of PCI per year/centre. Despite this tendency, the penetrance of DEB per region remains different, with a positive gradient from North to South: North 4.34%, Center 10.39%, Lisbon and Tagus Valley 9.64%, and South + Islands 12.35%.

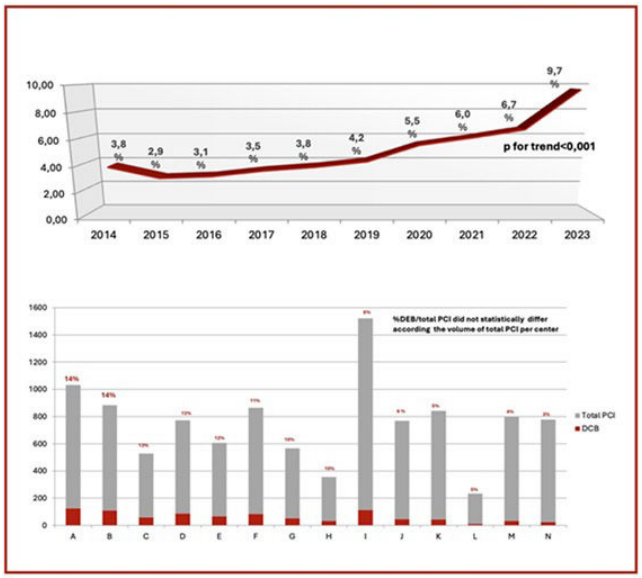

Figure: The graph above represents the trend of DEB/ PCI (%) per year and the graph bellow represents the penetrance of DEB in 2023 per center.

Conclusions: These findings indicate a growing adoption of DEBs in diverse clinical and anatomical contexts. This highlights the importance of long-term follow-up to ensure the quality and durability of treatment outcomes.

PO 206. EXPERIENCE WITH DRUG-ELUTED BALLOONS: INSIGHTS FROM A TERTIARY CARE CENTRE

João Reis Sabido, Miguel Azaredo Raposo, Miguel Nobre Menezes, Cláudia Moreira Jorge, João Silva Marques, Pedro Carrilho Ferreira, Tiago Rodrigues, Ana Rita Francisco, José António Duarte, José Marques da Costa, Pedro Cardoso, Fausto J. Pinto

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

Introduction: Drug-eluting balloons (DEBs) are semi-compliant catheters coated with antiproliferative drugs, delivered to vessel walls during inflation. They are effective for in-stent restenosis and show promise in small vessel disease, bifurcation lesions, and high bleeding-risk patients.
Objectives: To characterize the experience with DEBs at a tertiary centre.
Methods: Observational, single-center study on percutaneous coronary intervention (PCI) with DEB. Clinical and procedural data were prospectively recorded in hospital clinical records from May 2011 to December 2023.
Results: A total of 266 PCIs using DEBs were performed. DEB use increased from 0.09% of angioplasties in 2011 to 5.71% in 2023 (CAGR 41%). Among patients, 74.4% were male, and the mean age was 68.1 years. Key comorbidities included smoking (39.8%), diabetes (55.3%), hypertension (86.1%), hypercholesterolemia (80.8%), and chronic kidney disease (37.2%). Prior interventions included PCI (57.1%) and surgical revascularization (4.5%). Angiographies were performed due to chronic coronary syndrome (51.5%), NSTEMI (29.7%), unstable angina (10.9%), and STEMI (6.4%). The main indication for DEB use was stent restenosis (53.1%), followed by small vessel disease (26.3%) and bifurcation lesions (12.2%). DEBs were used in the left anterior descending artery (38%), right coronary artery (18.8%), and circumflex artery (15%). Paclitaxel DEBs were more prevalent, representing 98.5% of all (PANTERA-LUX 32.3%, IN-PACT Falcon 49.6%, SeQuent Please 8.3%, PREVAIL 8.3%). Sirolimus DEBs were used in 1.5% (SELUTION SRL). The mean diameters and lengths were 2.7 mm and 21 mm, respectively. Imaging was performed in 16.1% of interventions (IVUS 10.5%, OCT 5.6%). Lesion preparation involved balloon angioplasty in 85.3% and calcium-modifying techniques in 13.2% (cutting balloon 3.8%, lithotripsy 4.5%, and rotational atherectomy 1.1%). TIMI 3 flow was achieved in 97.4%. Rescue drug-eluting stents were used in 14.7% for significant residual lesions or dissection. At

Baseline characteristics	
Male, n (%)	198 (74.4)
Age, mean±SD	68.1±11.4
Comorbidities	
Arterial hypertension, n (%)	229 (86.1)
Diabetes, n (%)	147 (55.3)
Dyslipidemia, n (%)	215 (80.8)
Chronic kidney disease, n (%)	99 (37.2)
Previous CAD	
PCI, n (%)	152 (57.1)
CABG, n (%)	21 (7.9)
Angiography indication	
Chronic coronary syndrome, n (%)	137 (51.5)
Unstable angina, n (%)	29 (10.9)
NSTEMI, n (%)	79 (29.7)
STEMI, n (%)	17 (6.4)
Interventioned artery	
Left anterior descending artery, n (%)	101 (38.0)
Right coronary artery, n (%)	50 (18.8)
Circumflex artery, n (%),n (%)	40 (15.0)
Obtuse marginal artery	31 (11.7)

DEBs characteristics	
Type	
Pantera Lux, n (%)	86 (32.3)
In-Pact Falcon, n (%)	132 (49.6)
SeQuent Please, n (%)	22 (8.3)
PREVAIL, n (%)	22 (8.3)
SELUTION SRL, n (%)	4 (1.5)
DEB diameter, mean±SD	2.7±0.5
DEB length, mean±SD	21.0±7.8
Intracroronary imaging	
OCT, n (%)	15 (5.6)
IVUS, n (%)	28 (10.5)
Lesion preparation	
Ballon angioplasty, n (%)	227 (85.3)
Calcium-modifying techniques	
Cutting ballon, n (%)	10 (3.8)
Lithotripsy , n (%)	12 (4.5)
Rotational atherectomy, n (%)	3 (1.1)
Post-procedure TIMI	
2, n (%)	7 (2.6)
3, n (%)	259 (97.4)

Follow-up	
Time, mean±SD	33.7±34.2
Target lesion failure	
Restenosis, n (%)	18 (6.8)
Thrombosis, n (%)	2 (0.8)
Heart failure admissions, n (%)	20 (7.5)
Death, n (%)	61 (22.9)
Cardiovascular cause, n (%)	40 (15.0)

Figure PO 206

discharge, 30.8% were on DAPT (66.2% aspirin/clopidogrel) for a median of 12 months. Final therapy included aspirin (62.9%), clopidogrel (21%), and DOACs (13.3%). Over 33 months of follow-up, 16.9% had repeat angiography (7.6% target lesion failure: 6.8% restenosis, 0.8% thrombosis). Heart failure admissions were 7.5%, and mortality was 22.9%, with 15% due to cardiovascular causes.
Conclusions: DEBs show high success, safety, and efficacy in real-world use, with low restenosis and thrombosis rates.

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

Área de Posters-écran 2 | Sessão de Posters 33 - Doenças cardiovasculares - MINOCA e síndrome de Takotsubo

PO 207. THE PORTUGUESE PERSPECTIVE ON THE MANAGEMENT OF MINOCA PATIENTS

Margarida G. Figueiredo[1], Sofia B. Paula[2], Mariana Santos[3], Hélder Santos[1], Samuel Almeida[2], Lurdes Almeida[3]

[1]Centro Hospitalar de Lisboa Central, EPE/Hospital de Santa Marta. [2]Hospital Garcia de Orta, EPE. [3]Centro Hospitalar Barreiro/Montijo, EPE/ Hospital Nossa Senhora do Rosário.

Introduction: In January 2017, the European Society of Cardiology (ESC) published a position paper introducing the diagnostic criteria for MINOCA (Myocardial infarction with non-obstructive coronary artery disease). The prevalence of MINOCA varies between 1-14% and can have different causes. Currently, there is still great variability in the management of this entity.
Objectives: To compare the differences between patients (P) hospitalised in Portugal with a diagnosis of MINOCA before and after the publication of the ESC position paper, regarding the management of these P, namely in terms of pharmacological treatment.
Methods: Multicentre retrospective study, based on the Portuguese Registry of ACS, from 1/10/2010 to 7/05/2024. Only P hospitalized with a diagnosis of MINOCA (coronary stenosis < 50%) were included. P were then divided into two groups: A – before 2017 – and B – from 2017.

Table 1A. Patients' pharmacological treatment before hospitalisation according to group.

	Group A	Group B	p value
Acetylsalicylic acid (%)	35	34	0.937
Clopidogrel (%)	17	13	<0.001
Ticagrelor (%)	4	9	<0.001
B-Blocker (%)	26	22	0.002
ACEi/ARB (%)	44	38	<0.001
Statins (%)	41	11	<0.001
Nitrates/Nitrates-like (%)	10	6	<0.001
CCB (%)	16	15	0.442

Table 1B. Patients' pharmacological treatment during hospitalisation according to group.

	Group A	Group B	p value
Acetylsalicylic acid (%)	78	94	<0.001
Clopidogrel (%)	78	29	<0.001
-Before coronary angiography (%)	91	61	<0.001
-After coronary angiography (%)	8	29	<0.001
-Loading dose 300mg (%)	60	37	<0.001
-Loading dose 600mg (%)	15	43	<0.001
Ticagrelor (%)	7	58	<0.001
-Before coronary angiography (%)	86	83	0.592
-After coronary angiography (%)	7	11	0.436
AAS + Clopidogrel (%)	61	28	<0.001
AAS + Ticagrelor (%)	7	58	<0.001
UFH (%)	12	34	<0.001
Enoxaparin (%)	72	39	<0.001

Table 1C. Patients' pharmacological treatment at discharge according to group.

	Group A	Group B	p value
Acetylsalicylic acid (%)	81	88	<0.001
Clopidogrel (%)	37	35	0.299
Ticagrelor (%)	3	43	<0.001
AAS + Clopidogrel (%)	35	30	0.026
AAS + Ticagrelor (%)	3	43	<0.001
B-Blocker (%)	70	76	0.006
ACEi/ARB (%)	73	79	0.002
Statins (%)	88	78	<0.001
Nitrates/Nitrates-like (%)	18	15	0.062
CCB (%)	17	17	0.992

Results: Group A had 1,905 P (39%) while group B had 3,004 P (61%). 58% of P were male in group A vs. 71% in group B (p < 0.001), mean age was 65.8 ± 12.8 vs. 66.3 ± 12.7 years, and the majority of patients were 45 to 55 years old in both groups (39.4 vs. 39.9%, p = 0.760). 24% of P in group A had diabetes mellitus comparing to 28% of P in group B (p = 0.013), 63% of P had dyslipidaemia vs. 58% (p < 0.001), and 21% of P were smokers vs. 24%

(p = 0.006). The most common clinical presentation was chest pain (94% in both groups); 45% of P in group A and 28% in group B had a normal ECG (p < 0.001), with the main alterations in ECG being T wave inversion (18 vs. 10%, p < 0.001). Elevation of cardiac troponins was presented in 15% of P in group A vs. 25% of P in group B (p < 0.001) and 78% of P had preserved ejection fraction (LVEF ≥ 50%) vs. 68% in group B (p < 0.001). All P of both groups performed coronary angiography, 4% of P in group A performed > 1 coronary angiography vs. 18% in group B (p < 0.001). Pharmacological treatment of both groups before hospitalisation, during hospitalisation and at discharge is described in tables 1A, 1B and 1C, respectively. There was no information in the Registry of ACS regarding cardiac magnetic resonance imaging (MRI) or invasive coronary function testing. In which concerns complications during hospitalisation, P in group A developed more heart failure (8 vs. 4%, p < 0.001) while intrahospital mortality was higher in P in group B (2.0 vs. 0.8%, p < 0.001).

Conclusions: MINOCA is a term that encompasses a heterogeneous group of underlying causes, making it crucial to perform further assessments and investigations to establish the underlying cause of the MINOCA, which allows appropriate management of P, since failure to identify the underlying cause of MINOCA may result in inadequate therapy. In our study, a significant number of P in group B was discharged under dual antiplatelet therapy. Functional coronary assessment and cardiac MRI would have been important tools to make a decision regarding pharmacological therapy of these patients.

PO 208. TAKOTSUBO SYNDROME IN THE 21ST CENTURY: A PORTUGUESE PICTURE FROM A TERTIARY CENTER

C. Santos-Jorge, Márcia Presume, Rui Miguel Gomes, André Moniz Garcia, Ana Rita Bello, Rita Almeida Carvalho, Rita Barbosa Sousa, Débora da Silva Correia, João Presume, António Tralhão, Catarina Brízido, Marisa Trabulo

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

Introduction: Takotsubo syndrome (TTS) is a cause of acute heart failure (AHF), and its presentation mimics an acute coronary syndrome. Despite its classical presentation as an acute transient left ventricular dysfunction preceded by a specific trigger, a variety of clinical courses and outcomes have been described. We aimed to characterize a contemporary cohort of patients with TTS.

Methods: Retrospective analysis of patients diagnosed with TTS admitted to a tertiary care center between 2009-2024. Baseline characteristics, clinical presentation and in-hospital complications, serial cardiac imaging and short-term outcomes at first outpatient follow-up appointment were analyzed.

Results: A total of 107 patients (72 ± 12 years, 86% women) were included. The most common presenting symptom was chest pain (66%; n = 71), with an identified trigger in 50% of patients. A recurrent episode was present in 5 patients. ST-segment elevation was the most frequent finding on ECG (47%, n = 40), accompanied by troponin (peak 719 ng/L [IQR 280-1,478]) and NTproBNP (peak 5,162 pg/ml [IQR 2,399-11,204]) elevation. Regional wall motion abnormalities were identified by TTE (n = 100) and/or ventriculography (n = 48), with apical ballooning by TTE and ventriculography on 86% and 81% of patients, respectively. Left ventricular ejection fraction (LVEF) was preserved in around 1/3 of patients, mildly reduced in 1/3 and reduced in 1/3. Obstructive CAD was evaluated in 87% (n = 93) and excluded in 88% (n = 82) of patients; no percutaneous coronary intervention was performed. Most patients had an uncomplicated clinical course and LVEF improved significantly before discharge (Figure 1). However, 15% of patients presented with AHF, including 6.5% in cardiogenic shock. Cardiac arrest occurred in 5.6%, and in-hospital mortality was 3.8% (n = 4). LVEF < 50% at admission was a predictor of in-hospital complications (OR 0.20, 95%CI 0.06-0.73, p = 0.014). At discharge, 69% of patients were on angiotensin converting enzyme inhibitors and 73% were on beta-blocker. The first follow-up appointment (median 3 months [IQR 1-4]) was attended by 67 patients, with no TTS recurrences or readmissions in this timeframe. LVEF was reassessed in 47 patients at follow-up, maintaining significant improvement (Figure 1).

Conclusions: TTS represents a relevant cause of cardiac hospitalization, and despite a benign course, some patients still have worse outcomes. Long-term follow-up with routine multimodality imaging might shed light on pathophysiology and predictors of worse outcomes.

PO 209. CLINICAL FEATURES AND OUTCOMES OF TAKOTSUBO SYNDROME

João Martins Neves, Catarina Gregório, Ana Abrantes, Miguel Azaredo Raposo, Diogo Ferreira, Daniel Inácio Cazeiro, Marta Vilela, João Fonseca, João Cravo, Inês Araújo, Fausto J. Pinto, Dulce Brito

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

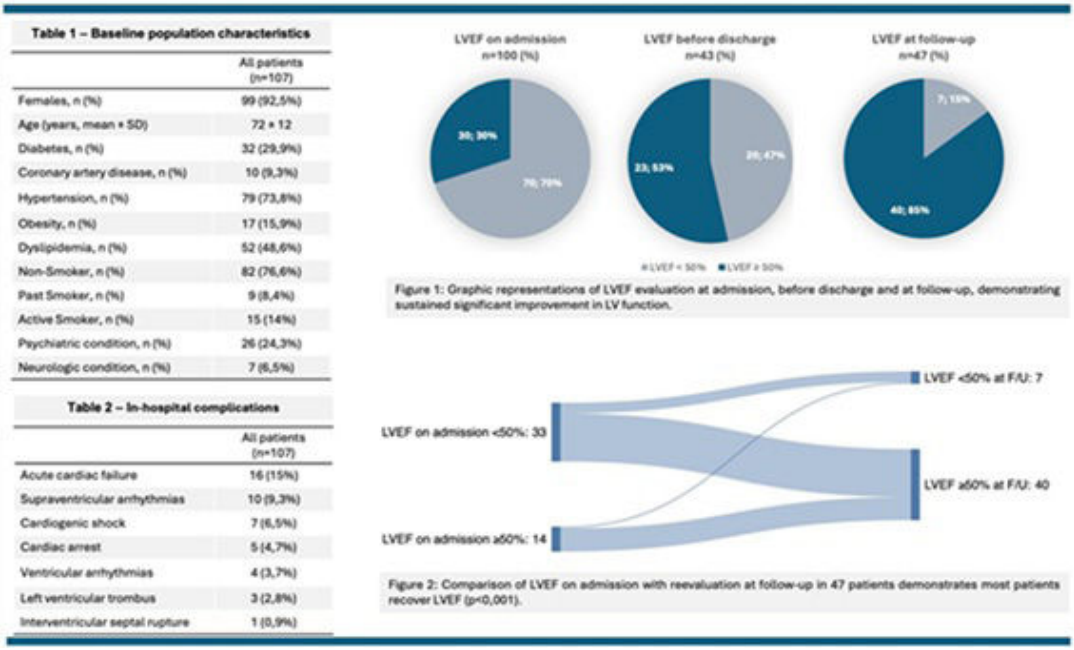

Table 1 – Baseline population characteristics

	All patients (n=107)
Females, n (%)	99 (92,5%)
Age (years, mean ± SD)	72 ± 12
Diabetes, n (%)	32 (29,9%)
Coronary artery disease, n (%)	10 (9,3%)
Hypertension, n (%)	79 (73,8%)
Obesity, n (%)	17 (15,9%)
Dyslipidemia, n (%)	52 (48,6%)
Non-Smoker, n (%)	82 (76,6%)
Past Smoker, n (%)	9 (8,4%)
Active Smoker, n (%)	15 (14%)
Psychiatric condition, n (%)	26 (24,3%)
Neurologic condition, n (%)	7 (6,5%)

Table 2 – In-hospital complications

	All patients (n=107)
Acute cardiac failure	16 (15%)
Supraventricular arrhythmias	10 (9,3%)
Cardiogenic shock	7 (6,5%)
Cardiac arrest	5 (4,7%)
Ventricular arrhythmias	4 (3,7%)
Left ventricular thrombus	3 (2,8%)
Interventricular septal rupture	1 (0,9%)

Figure 1: Graphic representations of LVEF evaluation at admission, before discharge and at follow-up, demonstrating sustained significant improvement in LV function.

Figure 2: Comparison of LVEF on admission with reevaluation at follow-up in 47 patients demonstrates most patients recover LVEF (p<0,001).

Figure PO 208

Introduction: Takotsubo syndrome (TS) is characterized by a transient systolic and diastolic left ventricular dysfunction with a variety of wall-motion abnormalities. It has been increasingly recognized, but a comprehensive understanding of its clinical approach remains incomplete.
Objectives: To describe the clinical characteristics, triggering factors and outcomes of TS.
Methods: A retrospective analysis of TS patients admitted to a tertiary hospital between 2008 and 2023 was conducted. We collected patient data, including baseline characteristics, laboratory values, results on electrocardiography (ECG), cardiac imaging and coronary angiography (CA), and major adverse outcomes – defined as a composite outcome of cardiogenic shock, acute pulmonary oedema (APE), ventricular arrhythmias (VA), high-grade atrioventricular block (HGAVB) and stroke. Descriptive statistic and univariate analysis were performed.
Results: Ninety-eight patients were included (86% women, mean age 77 ± 11 years). Of them, 83% had arterial hypertension, 29% diabetes, 53% dyslipidaemia, and 38% neuropsychiatric disorders (mainly anxiety and depression). The predominant symptom on admission was chest pain (76%). A trigger was identified in 61% of patients, being physical triggers more frequent than emotional (63 vs. 37%). ECG on admission showed ST-segment elevation in 52% of cases, T-wave inversion in 60%, and ST-segment depression in 12%; the mean QTc interval was 463 ms. Mean NT-proBNP and troponin T maximum levels were 4,483 pg/mL and 511 ng/L, respectively. A reduced left ventricular ejection fraction (LVEF) was observed in 82% of patients (mean value 42 ± 8%) at admission. Apical TS was identified in 95% of patients, whereas the midventricular form was found in 3%, and left ventricular outflow tract obstruction in 2 cases. Cardiac magnetic resonance revealed oedema in 29% of patients and late gadolinium enhancement was absent in 83% of cases. All patients performed CA, obstructive coronary artery disease was diagnosed in 9% and percutaneous intervention was done in 4%. Left ventriculography identified apical ballooning pattern in 76% of patients. During hospital admission, the rate of major adverse events was 23%, being HGAVB, APE and VA the most frequent. Physical triggers and reduced LVEF on admission were predictors of adverse events (p = 0.001 and p = 0.045, respectively).
Conclusions: TS represents an acute heart failure syndrome in which psychological and physical factors interplay, with substantial morbidity associated.

PO 210. HIGH-SENSITIVITY TROPONIN I PEAK IN MINOCA – A USEFUL TOOL IN THE RIGHT CLINICAL CONTEXT?

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Introduction: Myocardial infarction with nonobstructive coronary arteries (MINOCA) is defined by a clinical diagnosis of Myocardial Infarction (MI) and exclusion of significant epicardial stenosis on coronary angiography. In the presence of clinical suspicion, the decision to perform coronary angiography is based on biomarker levels.
Objectives: To evaluate if high-sensitivity troponin-I (hsTnI) in patients with myocardial infarction and elevated cardiac biomarkers has a good discriminative power to predict MINOCA.
Methods: A retrospective analysis of consecutive AMI patients who underwent coronary angiography admitted to the Cardiology Department from November 2021 to October 2022 was conducted. We analysed demographic and cardiovascular risk factors, initial and peak hsTnI, index-hospitalization data and evaluated the presence of significant coronary artery stenosis at coronary angiography. Univariable and multivariable analysis was performed to obtain the Odds Ratio (OR, 95%CI, p-value) for significant coronary artery disease (CAD). ROC curve and area under the curve (AUC) were obtained to determine the discriminative power of peak hsTnI as predictor of a positive coronary angiography. Optimal cut-point value was obtained (Youden index) and patients were divided according to this value.
Results: A total of 375 patients (72.0% males) with a mean age of 66.4 ± 12.3 years were submitted to coronary angiography. MINOCA was present in 18 patients (4.8%). When comparing patients with or without significant CAD at coronary angiography, the groups differed in relation to male sex (p = 0.033), regional wall motion abnormalities at admission (p = 0.039) and peak hsTnI (p = 0.001). Optimal cut-point value for predicting the presence of significant coronary artery stenosis at coronary angiography was a peak hsTnI of 7010 pg/mL (AUC 0.724, p-value 0.001, 95%CI 0.593-0.855). The characteristics of the two groups are described in Table 1. In the hsTnI > 7010 group, mean age was 65.6 ± 12.9 years and 61% were male; 58% had a diagnosis of hypertension, 55% had dyslipidemia, 55% had type 2 diabetes mellitus and 66% were smokers. The two groups differed significantly in the presence of dyslipidemia (p = 0.033), type 2 Diabetes mellitus (p = 0.033), and presence of regional wall motion abnormalities at admission (p < 0.001) (Table). After adjustment, peak hsTnI > 7010 pg/mL was the only independent predictor of significant CAD (OR 4.732, 95%CI 1.469-15.243, p-value 0.009).

Table 1: Comparison between groups based on peak hs-TnI levels above or below the optimal cut-off value (7010 pg/mL)

	hsTnI >7010 pg/mL (n=225)	**hsTnI <7010 pg/mL** (n=150)	**p value**
Age in years, mean±SD	65.6±12.9	67.6± 11.3	0.120
Male, n (%)	165 (61.1)	105 (38.9)	0.481
Hypertension, n (%)	153 (58.0)	111 (42.0)	0.212
Dyslipidemia, n (%)	106 (54.9)	87 (45.1)*	**0.033**
Type 2 Diabetes Mellitus, n (%)	106 (54.9)	87 (45.1)*	**0.033**
Obesity, n (%)	47 (56.0)	37 (44.0)*	0.371
Smokers, n (%)	75 (66.4)	38 (33.6)	0.098
Family history of AMI, n (%)	5 (55.6)	4 (44.4)	1.000
Regional wall motion abnormalities on admission, n (%)	200 (67.3)	97 (32.7)	**<0.001**
LDL-cholesterol, mean±SD	114.1±45.1*	116.0± 43.8*	0.696
Total cholesterol, mean±SD	178.2±49.5*	182.0±52.0*	0.498
Lipoprotein (a), median (IQR)	25.2 (10.4-53.0)*	26.1 (10.4-56.6)*	0.797
Glycosylated hemoglobin, median (IQR)	5.8 (5.4-6.5)*	5.9 (5.5-6.9)*	0.044

Footnote: AMI – acute myocardial infarction. MINOCA - Myocardial infarction with non-obstructive coronary arteries. hsTnI – High-sensitivity troponin-I. IQR - Interquartile Range. SD - Standard deviation. *Missing values

Conclusions: In the right clinical context where there is high suspicion for MINOCA, decision to perform and/or timing of coronary angiography could be based on peak hsTnI values. In this population, patients with hsTnI < 7010 pg/mL without established cardiovascular risk factors, namely dyslipidemia and type 2 diabetes mellitus and without region wall motion abnormalities at admission, are more likely to have MINOCA.

PO 211. THE HIDDEN THREAT OF SEPTIC CARDIOMYOPATHY: UNMASKING ITS IMPACT ON ICU SURVIVAL

Sofia Esteves[1], Miguel Azaredo Raposo[1], Ana Rita M. Figueiredo[1], Catarina Santos Gregório[1], Ana Abrantes[1], Marta Vilela[1], Diogo Rosa Ferreira[1], Inês Caldeira de Araújo[1], João Fernandes Pedro[1], João Mendes Cravo[1], Fausto J. Pinto[1], Doroteia Silva[2]

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Introduction: Septic cardiomyopathy (SC) is characterized by myocardial dysfunction in patients with sepsis, leading to severe hemodynamic instability. Many uncertainties still remain regarding mechanisms, characteristics, treatment and even prognosis of this condition.
Objectives: To compare intensive care unit (ICU) mortality between patients with septic cardiomyopathy (SC) and patients without septic cardiomyopathy (controls). Also, to compare clinical, laboratory and echocardiographic characteristics of SC patients who survived (SCs) and those who did not (SCd).
Methods: Retrospective, observational, single-center study of patients admitted in ICU during 2022 and 2023 due to sepsis, with or without a diagnosis of SC. Kaplan-Meier survival analysis was performed.

Results: We included 58 SC patients (mean age 66.7 ± 15.4 years, 62.1% male) and 248 controls (mean age 65 ± 16.2 years, 61.3% male). Regarding SC patients, in-hospital mortality was 56.9%, with 55.2% of deaths occurring during ICU stay. The mean time to death was 3.5 days for SC patients and 5 days for non-SC patients. ICU mortality was significantly higher in SC patients than controls (p = 0.01, log rank test) (Figure 1). Regarding SC patients, length of ICU stay was similar between survivors and non-survivors. However, infection source control was significantly better in survivors (SCs: 80 vs. SCd: 46%, p = 0.01). Inotrope and vasopressor doses were higher in non-survivors (peak noradrenaline dose SCd: 220 µg/min vs. SCs: 60 µg/min, p < 0.001). Organ dysfunction was similar between groups, except for KDIGO III acute renal failure, which was higher in non-survivors, though not statistically significant (SCd: 83.3 vs. SCs: 70%, p = 0.052). Non-survivors had higher troponin (SCs: 48 ng/L vs. SCd: 103 ng/L, p = 0.015) and peak lactate levels (SCd: 95 mg/dL vs. SCs: 45 mg/dL, p = 0.05), at ICU admission. Left ventricular ejection fraction recovery at ICU discharge was significantly higher in survivors (SCd: 10.3 vs. SCs: 93.3%, p < 0.001).

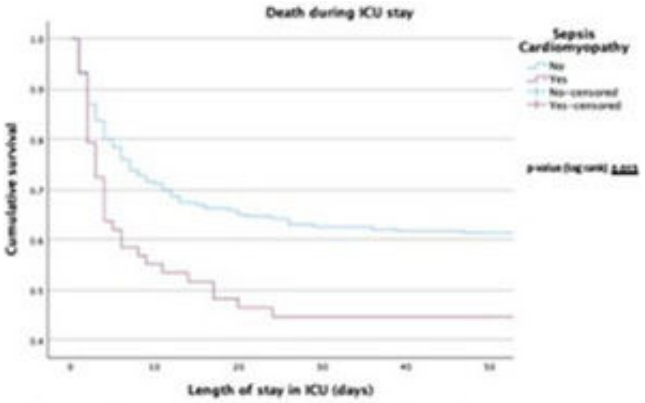

Figure 1: Kaplan-Meier Curve for ICU Survival of Patients with and without Septic Cardiomyopathy

Conclusions: SC was linked to higher ICU mortality. Infection source control was better in SC survivors. Non-survivors had higher doses of inotropes/vasopressors and higher troponin and lactate levels, at ICU admission. Early recognition and management are crucial for SC prognosis improvement.

PO 212. DIAGNOSTIC PERFORMANCE OF BIOMARKERS IN PREDICTING SEPTIC CARDIOMYOPATHY: A STUDY ON PROCALCITONIN, NT-PROBNP, AND TROPONIN T IN SEPSIS PATIENTS

Ana Rita M. Figueiredo[1], Catarina Gregório[1], Miguel Raposo[1], Ana Abrantes[1], João Fonseca[1], Marta Vilela[1], Daniel Cazeiro[1], Diogo Ferreira[1], João Cravo[1], Sofia Esteves[1], Susana M. Fernandes[2], Doroteia Silva[3]

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Introduction: Sepsis-induced myocardial dysfunction is a major cause of morbidity and mortality in critically ill patients and early identification of patients at risk can significantly impact prognosis. Various biomarkers have been investigated as potential predictors of this condition, but none is well defined.
Objectives: To assess the ability of procalcitonin, NT-proBNP, troponin, and their peak values to predict the occurrence of septic cardiomyopathy in septic patients.
Methods: Retrospective, observational study of consecutive patients with sepsis diagnosis, admitted in a Polivalent Intensive Care Unit. The area under the curve (AUC), sensitivity, specificity, and diagnostic accuracy were calculated to assess the predictive value of the 3 biomarkers.
Results: A total of 306 patients were included, of which 19% had septic cardiomyopathy (SC) and 81% did not. The prevalence of cardiovascular comorbidities and prior structural heart disease was comparable between the two groups (SC: 20.4 vs. no SC: 22.2%). Procalcitonin, NT-proBNP and troponin T levels were investigated as potential predictors of SC. At admission, procalcitonin exhibited an area under the curve (AUC) of 0.608, with an optimal cutoff value of 38.55, yielding a sensitivity of 48.3%, specificity of 74.2%, and diagnostic accuracy of 1.225. These results suggest that procalcitonin has limited diagnostic utility for septic cardiomyopathy, with relatively low sensitivity. NT-proBNP at admission demonstrated a slightly higher AUC of 0.653, with a cutoff of 11072, resulting in a sensitivity of 58.5%, specificity of 75.2%, and diagnostic accuracy of 1.337. While NT-proBNP showed better performance than procalcitonin, its diagnostic accuracy remains moderate. Troponin T at peak levels showed the highest AUC (0.684), with a cutoff value of 238, sensitivity of 46.6%, specificity of 85.3%, and diagnostic accuracy of 1.319. Despite its lower sensitivity, peak troponin T exhibited excellent specificity, indicating its potential role in ruling out septic cardiomyopathy. Peak procalcitonin demonstrated an AUC of 0.630, with a sensitivity of 63.8% and specificity of 63.3%, yielding a diagnostic accuracy of 1.271. This suggests a moderate performance but does not outperform the other markers. Finally, peak NT-proBNP showed an AUC of 0.663, with a cutoff value of 11,180.5, sensitivity of 60%, specificity of 72.8%, and diagnostic accuracy of 1.328, making it the most promising marker in this study for predicting septic cardiomyopathy.
Conclusions: While none of the biomarkers demonstrated high diagnostic accuracy, peak NT-proBNP and peak troponin T showed the best diagnostic performance. These findings suggest that a strategy of biomarkers combination, especially of their peak values, may enhance the diagnosis of septic cardiomyopathy in septic patients.

PO 213. UNVEILING THE POPULATION DYNAMICS OF SEPSIS CARDIOMYOPATHY: A COMPREHENSIVE EVALUATION

Inês Caldeira Araújo[1], Ana Abrantes[2], Catarina Gregório[2], Miguel Azaredo Raposo[2], João Fonseca[2], Marta Vilela[2], Daniel Cazeiro[2], Diogo Ferreira[2], João Cravo[1], Sofia Esteves[2], F. J. Pinto[2], Doroteia Silva[3]

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Introduction: Sepsis cardiomyopathy (SC) is a condition marked by ventricular dilation, reduced ejection fraction (EF) and normal filling pressures, typically resolving within 7-10 days in septic patients. Despite its clinical importance, SC is poorly understood, with limited research and an unclear prognosis.
Objectives: This study aims to characterize patients diagnosed with SC between 2022 and 2023 and compare their clinical profiles and Intensive Care Unit (ICU) outcomes with those of patients without SC (noSC).
Methods: Retrospective, observational, single-center study of consecutive patients with SC diagnosis, between January 2022 and December 2023.
Results: 306 patients were included, 19% with SC and 81% without SC. Cardiovascular comorbidities and previous structural heart disease were comparable between groups (SC: 20.4 vs. noSC: 22.2%). Median ICU length of stay did not differ significantly between the two groups (SC: 4 vs. noSC: 5 days). However, in-hospital cardiac arrest occurred more frequently in SC patients (20.7 vs. 8.1%; p = 0.005). ICU mortality was significantly higher in the SC group (55.2 vs. 39.3%; p = 0.027), although overall in-hospital mortality showed no significant difference (SC: 56.9 vs. noSC: 52%). Infection source control and time to effective source control were similar between the two groups. Regarding end-organ dysfunction, SC patients exhibited higher rates of encephalopathy (56 vs. 36.6%; p = 0.014), hepatocellular injury (78 vs. 57.7%; p = 0.009), and renal dysfunction (6.9 vs. 9.9%; p = 0.017). Analogously, inotrope and vasopressor use was higher in SC patients, being noradrenaline and dobutamine the most used drugs (peak

Baseline Characteristics	Sepsis Cardiomyopathy (n=58)	No Sepsis Cardiomyopathy (n=248)	p-value
Male sex - n (%)	36 (62.1)	152 (61.3)	0.913
Age - mean ± SD	66.7 ± 15.4	65.0 ± 16.2	0.477
Comorbidities - n (%)			
Arterial hypertension	36 (64.3)	141 (61.3)	0.680
Diabetes	18 (32.7)	71 (31.7)	0.883
Dyslipidemia	20 (37.0)	103 (46.4)	0.215
Smoking history	6 (11.5)	53 (25.5)	**0.032**
Atrial fibrillation	7 (13.7)	28 (14.4)	0.908
Structural heart disease - n (%)	11 (20.4)	48 (22.2)	0.768
Clinical Characteristics and Evolution	**Sepsis Cardiomyopathy (n=58)**	**No Sepsis Cardiomyopathy (n=248)**	**p-value**
Length of ICU stay (days) - median [IQR]	4 [2-9]	5 [3-11]	0.204
In-hospital cardiac arrest - n (%)	12 (20.7)	20 (8.1)	**0.005**
In-hospital death - n (%)	33 (56.9)	116 (52.0)	0.507
During ICU stay	32 (55.2)	97 (39.3)	**0.027**
Site of infection - n (%)			
Gastrointestinal tract	24 (41.4)	127 (51.6)	
Urinary tract	12 (20.7)	33 (13.4)	0.098
Respiratory tract	8 (13.8)	50 (20.3)	
Other	14 (24.1)	36 (14.6)	
Infection source control - n (%)	35 (61.4)	144 (63.4)	0.776
Initial appropriate antimicrobial therapy - n (%)	36 (67.9)	146 (69.5)	0.822
Time to infection source control (days) - median [IQR]	0 [0-1]	0 [0-2]	0.501
Organ dysfunction			
Cardiovascular - n (%)			
Inotrope and vasopressor use			
Peak dobutamine (mcg/kg/minute) - median [IQR]	5 [2.5-5]	5 [4.5-10]	0.225
Peak noradrenaline dose (mcg/minute) - median [IQR]	165 [60-240]	80 [38-180]	**0.002**
Respiratory	2.0 [0.8-6.3]	2.0 [1.0-7.0]	
Invasive mechanical ventilation (days) - median [IQR]	58 (100)	213 (91.8)	0.993
Renal - n (%)	4 (6.9)	23 (9.9)	**0.017**
KDIGO I	7 (12.1)	48 (20.7)	
KDIGO II	21 (36.2)	69 (29.7)	
KDIGO III	26 (44.8)	73 (31.5)	
KDIGO III + Renal replacement therapy	39 (78.0)	97 (57.7)	0.055
Hepatocellular - n (%)			**0.009**
Hematological - n (%)	40 (72.7)	133 (63.9)	
Thrombocytopenia	9 (18.0)	18 (10.9)	0.222
Disseminated intravascular coagulation	28 (56.0)	64 (36.6)	0.185
Neurological (encephalopathy) - n (%)			**0.014**

Figure 1: Baseline characteristics of a sepsis cardiomyopathy population.

Figure PO 213

noradrenaline dose 165 mcg/min in SC vs. 80 µg/min, peak dobutamine 5 µg/Kg/min in both groups). Mean SvO2 at admission was significantly lower in SC patients (63.3 vs. 69.6%; p = 0.010), while peak lactate levels were significantly higher (SC: 64 mg/dL vs. noSC: 46 mg/dL; p = 0.011). Patients in both groups had similar CRP peak (26.1 mg/dL in both groups), but SC patients had higher peak troponin T (SC: 62 ng/L vs. noSC: 49 ng/L, p value 0.070) and NTproBNP levels (SC: 15,434 pg/mL vs. noSC: 4,887 pg/mL, p value 0.004).

Conclusions: SC worsens septic patient outcomes by impairing hemodynamic stability and organ dysfunction, emphasizing the need for early detection and treatment.

PO 214. MANAGEMENT OF NEW-ONSET ATRIAL FIBRILLATION IN THE INTENSIVE CARE UNIT: WHERE DO WE STAND?

Ana Rita M. Figueiredo[1], Catarina Gregório[1], Miguel Raposo[1], Ana Abrantes[1], João Fonseca[1], Marta Vilela[1], Daniel Cazeiro[1], João Cravo[1], Diogo Ferreira[1], Susana M. Fernandes[2], Fausto J. Pinto[1], Doroteia Silva[3]

[1]Department of Cardiology, Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa. [2]Faculdade de Medicina, Universidade de Lisboa, Clínica Universitária de Medicina Intensiva, Hospital de Santa Maria (ULSSM). [3]Serviço de Medicina Intensiva e Equipa de Insuficiência Cardíaca - Hospital de Santa Maria (ULSSM), CAML, CCUL@RISE, Faculdade de Medicina, Universidade de Lisboa.

Introduction: New-onset atrial fibrillation (NOAF) is frequently observed in patients (pts) treated in an intensive care unit (ICU), yet the long-term impacts on patient outcomes remain unclear. While various management strategies are utilized, the evidence available is limited and primarily derived from non-ICU populations.

Objectives: To characterize the population of pts with NOAF admitted to the ICU and evaluate the preferred management strategies.

Methods: Observational, single-center, retrospective study of pts with NOAF admitted to a multidisciplinary ICU between January 2020 and June 2022. Clinical and demographic data were collected.

Results: Of the 3,692 patients (pts) admitted in the ICU, NOAF was observed in 161 pts (4.4%) (101 males, 69.5 ± 11.8 years). Among these patients, 67% had hypertension, 35% diabetes, 21% obesity, 13% ischemic heart disease, and 15% a history of heart failure. 30% of pts were previously on therapy with beta-blockers (BB) and 4% on antiarrhythmics. The main reasons for ICU admission were sepsis/septic shock (73%), trauma (10%), and cardiogenic shock (7%). During hospitalization, 79% developed cardiovascular dysfunction. The preferred first-line strategy for managing NOAF was rhythm control (85%), observation (7.5%) or rate control (7.5%). Among the subgroup managed with rhythm control, 27 pts underwent electrical cardioversion combined with amiodarone, 5 received electrical cardioversion alone, and the remaining 104 were treated with amiodarone therapy. Other antiarrhythmics were not used. There was no difference between BB and digoxin use, among frequency control strategy. Anticoagulation was initiated in only 72 pts (39% enoxaparin, 6% unfractionated heparin). A recurrent episode of AF occurred in half of the pts during hospitalization. 33% of pts died during their ICU stay; however, AF recurrence was not a predictor of ICU mortality. No predictors of ICU mortality were identified in the NOAF cohort. At discharge, only 45% of pts were on anticoagulation therapy. Among these, 24% were on BB, and 14% were on a combination of amiodarone and BB. During a follow-up (Fup) period of 428 days (1-1,705), 47% of pts

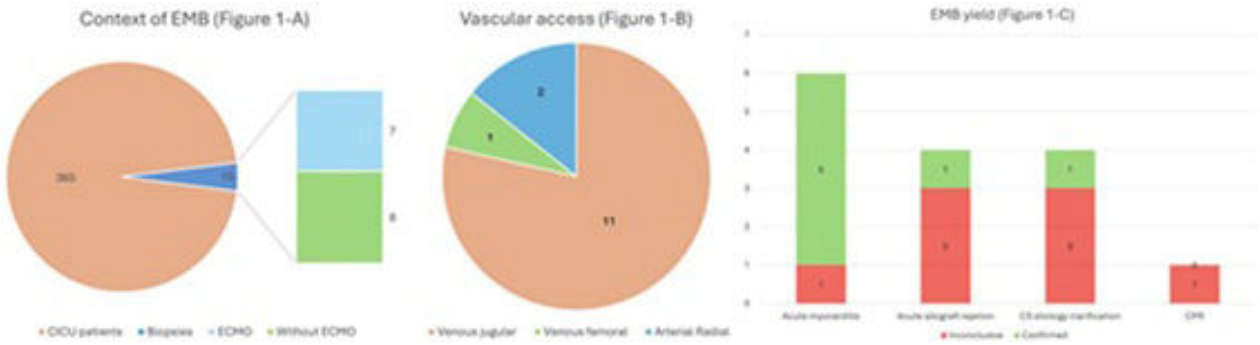

Figure PO 215

experienced AF recurrence, and 35% of pts died (13 from cardiovascular causes). 10 pts were readmitted to the hospital for cardiovascular causes (2 pts for heart failure decompensation due to AF with a high ventricular rate, and 1 patient for cardioembolic stroke).
Conclusions: In ICU pts with NOAF, rhythm control is the preferred strategy. Recurrence rates of AF remain high during ICU stay and in the Fup, despite the limited initiation of anticoagulation therapy. The acute severe illness that led to ICU admission may act as a trigger for pre-existing atrial disease, underscoring the importance of continuous monitoring and Fup of these pts.

PO 215. ENDOMYOCARDIAL BIOPSY IN CARDIOGENIC SHOCK: EXPERIENCE FROM A CONTEMPORARY CICU PORTUGUESE COHORT

Rui Miguel Gomes, Débora da Silva Correia, Márcia Presume, C. Santo-Jorge, André Moniz Garcia, Ana Rita Bello, João Presume, Catarina Brízido, Christopher Strong, António Tralhão, Carlos Aguiar, Jorge Ferreira

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

Introduction: Endomyocardial biopsies (EMB) are a useful diagnostic tool in the etiological investigation of patients presenting with cardiogenic shock (CS). They assist in determining the underlying cause, such as myocarditis, cardiac allograft rejection, or other rare conditions, which can guide management and treatment strategies.
Methods: Retrospective analysis of CS patients admitted to a Cardiac Intensive Care Unit (CICU) from 2017 to 2024, who underwent EMB for CS etiology clarification. Data on demographics, diagnosis, procedure details and safety outcomes were analyzed.
Results: Out of 365 patients, 15 (4%) underwent EMB during CICU admission for CS. EMB was performed at bedside in the CICU in 60% (n = 9) of cases, with the remaining performed at the catheterization laboratory. Notably, 47% of patients (n = 7) were under veno-arterial extracorporeal membrane oxygenation (VA-ECMO) support, with anticoagulation being temporarily interrupted at the time of the procedure (Figure 1-A). Main indications were suspected acute myocarditis (40%, n = 6), clarification of CS etiology (26%, n = 4) and exclusion of acute cardiac allograft rejection (26%, n = 4). Venous jugular access was used in 11 patients (73%), while venous femoral access and arterial radial access were used in 1 and 2 patients, respectively (Figure 1-B). Eighty-seven percent (n = 13) of samples were obtained from the right ventricle, with 5 (IQR 3-6) myocardial tissue fragments obtained per procedure. In terms of safety, there were no recorded major complications, such as ventricular tachycardia, pericardial effusion or cardiac tamponade, stroke, or pneumothorax. For patients with suspected acute myocarditis, 83% of EMB yielded a positive result; additionally, viral nucleic acid testing by RT-PCR identified Parvovirus B19 in one patient. CS etiology was only clarified in 1 patient diagnosed with AL amyloidosis; another patient had Parvovirus B19 identified, but no Dallas criteria for acute myocarditis were met. Furthermore, acute cardiac allograft rejection was confirmed in 1 of the 3 EMB performed in suspected cases (the 4th being a control EMB after treatment for acute cellular and humoral allograft rejection) (Figure 1-C).
Conclusions: EMB was a safe and valuable diagnostic procedure in patients with CS, particularly in confirming acute myocarditis and excluding acute cardiac allograft rejection. The absence of major complications, even when performed at the bedside at the CICU and with ongoing VA-ECMO support underscores the procedure's safety and feasibility in this setting.

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

Área de Posters-écran 3 | Sessão de Posters 34 – TAVI 2

PO 216. TAVI OUTCOME ANALYSIS IN OFF-LABEL ANATOMIC SETTINGS

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

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Introduction: Transcatheter aortic valve implantation (TAVI) has expanded the treatment options for severe aortic stenosis (AS). Still, in anatomic settings, such as bicuspid aortic valve, severe aortic valve (AV) calcification, and horizontal aorta, TAVI is considered off-label. These features pose challenges and may impact procedural outcomes. This study evaluates the outcomes of TAVI in normal versus off-label anatomic settings.
Methods: A retrospective cohort of 300 TAVI procedures with self-expandable Evolut Core Valve was analyzed. Off-label was defined as bicuspid AV, severe AV calcification (calcium score [AVCS] > 3,000 A.U.), or horizontal aorta (angle of aortic annulus > 60°). Standard anatomic settings were verified in 169 and off-label in 131, of which 90 had AVCS > 3,000 A.U., 41 had horizontal aortas, and 17 had bicuspid AV. Baseline characteristics and outcomes of death at 30 days, 1 year, stroke, and hospital readmission were analyzed.
Results: Mean age was similar across groups (81-83 years, p = 0.1). Female patients were more common in the on-label (71%) compared to the off-label group (33%, p < 0.001). There were no significant differences in STS scores, with 19% of on-label patients and 14% of off-label having STS > 8 (p = 0.4). Clinical characteristics, including NYHA > II and previous hospitalization for AS, were similar. Left ventricular ejection fraction, transaortic mean gradient, AV area, and systolic pulmonary artery pressure showed no significant differences. The AVCS was higher in the severe AV calcification group (4,308 ± 1,214 vs. 1,984 ± 642, p < 0.001). Creatinine and NT-proBNP tended to be higher in off-label subgroups, particularly in bicuspid AV. There were no significant differences in events between groups. Death at 30 days occurred in 2% of on-label and 3% of off-label patients (p = 0.9), and 1-year death rates of 9% and 12%, respectively (p = 0.4). Stroke rates were similar, with 4% in on-label and 3% in off-label

Baseline characteristics	On-label anatomy group (n=169)	Off-label anatomy group (n=131)	High Aortic Ca^{2+} score group (n=90)	Horizontal Aorta (n=41)	Bicuspid aortic valve (n=17)
Age, (y, SD)	83±5	82±6, p=0,1	82±5 P=0,2	83±6 P=0,5	81±7 P=0,4
Female, (%)	71% (n=93)	33% (n=34) P=0,001	27% (n=24), p=0,001	56% (n=18) P=0,8	53% (n=9) P=0,9
STS > 8, (%)	19% (n=24)	14% (n=14) P=0,4	14% (n=12) P=0,3	19% (n=6) P=0,7	31% (n=5) P=0,1
BMI, (kg/m2, SD)	26,7±4,8	27,4±4,4 P=0,6	27,5±4,3 P=1	27,0±5,2 P=0,5	27,4±4,1 P=0,9
NYHA > II, (%)	50% (n=65)	52% (n=54) P=0,7	56% (n=50) P=0,3	44% (n=14) P=0,4	60% (n=10) P=0,5
AS hospital admission, (%)	18% (n=23)	26% (n=26) P=0,1	27% (n=24) P=0,2	16% (n=5) P=0,5	29% (n=5) P=0,4
GFR < 60ml/kg/m2, (%) ECG	46%(n=60)	47% (n=48) P=0,9	46% (n=44) P=0,8	59% (n=19) P=0,2	59% (n=10) P=0,4
LBBB (%)	9% (n=12)	12% (n=12) P=0,5	12% (n=11) P=0,4	13% (n=4) P=0,6	6% (n=1) P=0,6
RBBB (%)	6% (n=8)	8% (n=8) P=0,6	9% (n=8) P=0,3	1% (n=3) P=0,4	6% (n=1) P=0,9
LVEF, (%, SD)	56±11	56±11 P=0,7	55±11 P=0,9	56±10 P=0,4	55±13 P=0,4
LVEF < 40% (%)	13% (n=16)	15% (n=14) P=0,6	15% (n=12) P=0,7	10% (n=3) P=0,8	27% (n=4) P=0,09
Mean Gradient (%, SD)	46±14	50±12 P=0,2	50±12 P=0,1	51±13 P=0,9	47±11 P=0,3
AVA (cm2, SD)	0,74±0,20	0,71±0,22 P=0,9	0,71±0,22 P=0,8	0,68±0,21 P=0,7	0,76±0,24 P=0,5
SPAP (mmHg, IQR)	36, 18	32, 21 P=0,2	31, 21 P=0,06	32, 22 P=0,6	37, 28 P=0,5
Aortic Ca^{2+} score (U.A., SD)	1984±642	3956±1406 P<0,001	4308±1214 P<0,001	3000±1143 P=0,2	3231±1649 P=0,3
Min femoral artery diameter (mm, SD)	7,0±1,4	7,2±1,2 P=0,5	7,4±1,2 P=0,4	7,3±1,4 P=0,6	7,1±1,0 P=0,2
Hemoglobin, (g/dL, SD)	12,0±1,8	12,6±2,0 P=0,3	12,5±2,1 P=0,2	12,6±2,0 P=0,9	12,0±2,0 P=0,7
Serum creatinine (mg/dL, IQR)	1,0, 0,6	1,1, 0,4 P=0,08	1,1, 0,5 P=0,09	1,1, 0,5 P=0,3	1,2, 0,5 P=0,1
NTproBNP (pg/dL, IQR)	1360, 1988	1090, 2581 P=0,6	1010, 2018 P=0,3	1700, 3526 P=0,5	3050, 4020 P=0,6

Outcomes	On-label anatomy group (n=169)	Off-label anatomy group (n=131)	High Aortic Ca^{2+} score group (n=90)	Horizontal Aorta (n=41)	Bicuspid aortic valve (n=17)
Death, stroke and readmission	31%(n=29)	22% (n=16) P=0,2	26% (n=16) P=0,7	14% (n=3) P=0,2	27% (n=3) P=0,9
Death and stroke	5% (n=7)	4% (n=4) P=0,7	6% (n=5) P=0,6	3% (n=1) P=0,8	0% (n=0) P=0,4
Death at 30 days	2% (n=2)	3% (n=3) P=0,9	4% (n=3) P=0,4	0% P=0,4	0% (n=0) P=0,6
Death a 1 year	9% (n=8)	12% (n=9) P=0,4	11% (n=7) P=0,9	17% (n=4) P=0,4	20% (n=2) P=0,4
Stroke	4% (n=5)	2,9% (n=3) P=0,7	3% (n=3) p=1	3% (n=1) P=0,9	0% (n=0) P=0,5
Hospital readmission	30% (n=28)	18%(n=13) P=0,09	19% (n=12) P=0,2	9% (n=2) P=0,1	27% (n=3) P=0,7
Vascular complication	8% (n=10)	8% (n=8) P=1	6% (n=5) P=0,4	9% (n=3) P=0,8	6% (n=1) P=0,8
Hemorrhage	5,3% (n=7)	8% (n=8) P=0,5	10% (n=9) P=0,2	6% (n=2) P=0,7	6% (n=1) P=0,8
Pacemaker implantation	17% (n=22)	22% (n=23) P=0,3	24% (n=22), p=0,2	19% (n=6) P=0,9	29% (n=5) P=0,3

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groups (p = 0.7). Hospital readmissions tended to be lower in off-label patients (18 vs. 30%, p = 0.09). Combined death and stroke rates were 5% in on-label and 4% in off-label groups (p = 0.7). Vascular (8 vs. 8%, p = 1) and major bleeding complications (5.3 vs. 8%, p = 0.5) were like. There was no significant difference in pacemaker implantation between on-label and off-label patients (17 vs. 22%, p = 0.3), with the highest rate in the bicuspid subgroup (29%, p = 0.3).

Conclusions: Despite the challenges posed by off-label anatomic features, like bicuspid, severe AV calcification, and horizontal aorta, TAVI with self-expandable Evolut Core Valve demonstrated comparable safety and efficacy outcomes to standard settings. There were no significant differences in mortality, stroke, or major complications at 30 days and 1 year. These findings support TAVI as a viable option even in anatomically complex cases, broadening its applicability to previously considered higher-risk cases.

PO 217. TAVI IN PURE AORTIC INSUFFICIENCY: OUR CASE SERIES

Francisco Rocha Cardoso, Francisco Albuquerque, Mariana Coelho, Fernando Ferreira, Miguel Figueiredo, Inês Rodrigues, André Grazina, Tiago Mendonça, Rúben Ramos, António Fiarresga, Rui C. Ferreira, Duarte Cacela

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Introduction: Transcatheter Aortic Valve Implantation (TAVI) is widely used for the treatment of aortic stenosis in high-risk surgical patients. Recently, its off-label use for moderate to severe pure aortic insufficiency (AI) has been explored as an alternative in patients deemed inoperable or with contraindications to conventional surgery. This study analyses our clinical

Clinical and Safety Outcomes	
Mortality	
30-day all-cause	0
30-day cardiovascular	0
12 month all-cause	2
12-month cardiovascular	1
Mortalaty during hospitalization	1
Major stroke(30days)	0
Major bleething	3
Acute kidney injury(stage 2 or 3)	2
Myocardial infarction	0
Accesssite or vascular complications	2
Major	1
Minor	1
PM Definitive	3
SAVR pos TAVI	1
2º Valve during procedure	2
Wrong Valve Position	3
Migration for Left Ventricule	1
Embolization	2
Procedure success	4

BASE LINE CHARACTERISTICS (N=7)	
Medium Age	79
Female	3
Diabetes	2
Previous CABG	2
Previous PCI	1
Medium creatinine	2,27
Chronic renal failuire	5
Previous stroke	0
Hypertension	5
Coronary artery disease	3
Atrial fibrilation	3
Previous myocardial infarction	1
LVEF <50 %	2
Moderate aortic stenosis	1
NYHA functional class	
II	3
III	4

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experience with TAVI for moderate to severe pure AI, highlighting the technical challenges associated with this procedure.
Methods: We retrospectively analysed 7 patients who underwent TAVI for moderate to severe pure AI at a central hospital in Portugal. Baseline characteristics, complications, and clinical outcomes at 30 days and 12 months were assessed.
Results: The mean age was 79 years, with a predominance of male patients (57%). The mean STS score was 4.3. Five patients had chronic renal failure, three atrial fibrillation, and three had a history of coronary artery disease. The procedure was technically successful in 57% of cases. Complications included three cases of valve malposition: one migration into the left ventricle and two embolization to a supra-annular position with subsequent ectopic implantation and required a second valve during the procedure. In one patient no valve was implanted and needed an urgent surgical aortic valve replacement (SAVR) due to rapid clinical deterioration after TAVI attempt. Vascular complications occurred in 29% of cases (one major, one minor). There were no reported cerebrovascular events. Two patients experienced major bleeding, and two developed acute kidney injury. In-hospital mortality was 14%, while overall mortality at 12 months was 29%.
Conclusions: TAVI implantation in pure AI presents significant technical challenges. The absence of calcification in the annulus reduces prosthesis anchoring, increasing the risk of migration and malposition. Additionally, the frequent dilation of the aortic root and ascending aorta in these patients complicates device stabilization, while the elliptical geometry of the annulus and severe regurgitant flow further challenge accurate positioning. These challenges explain the occurrence of complications such as valve migration, the need for a second valve, and conversion to open surgery. Despite these technical difficulties, our results align with previous studies confirming the feasibility of the procedure in carefully selected patients. TAVI represents a promising alternative for patients with moderate to severe AI who are not candidates for conventional surgery. However, the inherent technical challenges of the implantation, including anchoring difficulties and vascular complications, underscore the need for technological advancements, meticulous planning, and technical expertise to optimize outcomes.

PO 218. TRANSCATHETER AORTIC VALVE REPLACEMENT IN DIALYSIS PATIENTS: SURVIVAL AND COMPLICATION RATES - A SINGLE CENTER EXPERIENCE

Tatiana Pereira dos Santos, Andreia Rita Henriques, Ana L. Silva, Mariana Rodrigues Simões, Gonçalo Terleira Batista, Elisabete Jorge, Emanuel Ferreira, Marco Costa, Rui Alves, Lino Gonçalves

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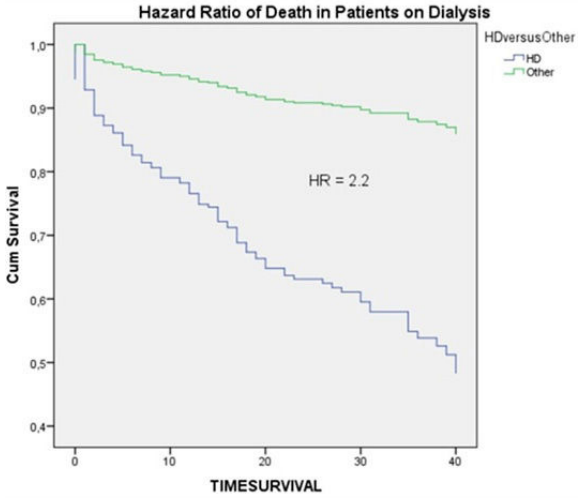
Introduction: Transcatheter aortic valve replacement (TAVR) is one of the standard procedures for treatment of severe aortic stenosis. Patients with end-stage renal disease on dialysis are associated with higher mortality rates and adverse outcomes in surgical substitution. Regarding TAVR they are unrepresented.
Methods: Retrospective analysis of TAVR patients (March 2020-June 2024) at a tertiary hospital. Evaluate outcomes, procedure complications in dialysis patients (HD) submitted to TAVR in comparison to non-HD patients.
Results: Among the 903 patients subjected to TAVR, 20 patients were on hemodialysis (2.2%). The group was composed of 70% of men with a median age of 77.5 (71-84) years. The median follow-up time was 274 (IQR 207) days. The EuroSCORE II had a mean of 5.12 ± 3.8%. Among cardiovascular risk factors, 55% had diabetes, 90% dyslipidemia, 95% hypertension, 15% were smokers. Also 10% had a previous myocardial infarction (MI), and 30% a previous heart failure hospitalization. All used transfemoral access with 55% balloon-expandable valves. HD patients had a higher risk (OR 3.7, 95%CI 1.3-10.6, p = 0.022) of procedure and access complications. There were 5 vascular complications on HD patients: 2 immediate occlusions of the right common femoral artery and 1 perforation, promptly resolved; 2 pseudoaneurysms, 1 requiring surgery. No episodes of stroke or MI occurred. There was no statistical difference in major adverse cardiovascular events post-TAVR. There were 5 deaths in the HD group (1 case of sepsis and the remaining unknown). At 12 months the HD group versus non-HD patients presented a survival of 80 vs. 94% and at 24 months 75 vs. 91%, respectively. Importantly, HD patients had a 2.2 higher risk of all-cause mortality (HR 2.2, 95%CI 1.4-3.5, p = 0.001), even after controlling for potential confounders (age, coronary artery disease, heart failure, CV risk factors). At the time of follow-up, 1 patient was hospitalized for TAVR structural deterioration 1 year after implantation and is currently being studied for a valve-in-valve procedure.



Conclusions: TAVR in dialysis patients appears to be associated with a higher risk of procedure-related complications and all-cause mortality. Evaluation of valve durability was limited due to low survival and short follow-up. A better representation of this subgroup is needed.

PO 219. OUTCOMES OF TRANSCATHETER AORTIC VALVE IMPLANTATION IN YOUNG LOW-RISK PATIENTS: A COMPREHENSIVE META-ANALYSIS OF EFFICACY AND SAFETY

António Maria Rocha de Almeida[1], Maria Rita Lima[2], Daniel Gomes[2], Renato Fernandes[1], Eduardo Infante Oliveira[2], Pedro Araújo Gonçalves[2], Rui Campante Teles[2], Manuel Almeida[2], Lino Patrício[1]

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Introduction: Severe aortic stenosis (AS) was traditionally managed with surgical aortic valve replacement (SAVR). Transcatheter aortic valve implantation (TAVI) emerged as a less invasive alternative, originally for high-risk patients. Its use expanded to intermediate- and low-risk older patients based on promising results. This meta-analysis evaluates TAVI's outcomes in younger, low-risk patients, where SAVR is currently the gold standard.
Methods: Following PRISMA guidelines, we systematically searched randomized controlled trials (RCTs) comparing TAVI with SAVR in young (i.e. mean age < 75 years) low-risk patients (i.e. STS score < 4%) with severe symptomatic AS. The primary endpoint was a composite of death or disabling stroke. Secondary endpoints included all-cause mortality, disabling stroke, atrial fibrillation (AF), permanent pacemaker implantation (PPI), bleeding, functional class (NYHA), and quality of life (KCCQ score) improvements and prosthesis-related outcomes.
Results: Four RCTs were included with 4,252 patients (2,125 TAVI and 2,127 SAVR). At a mean follow-up of 16 ± 5 months, TAVI had a non-significantly lower incidence of death or disabling stroke (2.8 vs. 5.1% logRR 0.02 [0.00-0.04] p = 0.11), and all-cause mortality (2.1 vs. 3.7%, logRR 0.01 [0.00-0.03] p = 0.15). Disabling stroke was significantly lower in the TAVI group (0.9 vs. 2.1 logRR 0.01 [0.00-0.02] p < 0.01). Hospital readmission (7.1 vs. 9.5% logRR 0.03 [0.01-0.04] p < 0.01), and bleeding rates (4.7 vs. 16%, logRR 0.14 [0.07-0.20] p < 0.01) were significantly lower in the TAVI group. On the other hand, TAVI had a higher PPI rate (14 vs. 6%, logRR -0.08 [-0.13; -0.02], p < 0.01) and significant paravalvular leak (2.5 vs. 0.5% logRR -0.02 95%CI [-0.04; -0.00] p < 0.01 I2 = 77%). There were no statistically significant differences in the other prosthesis-related outcomes between both groups. Faster symptomatic and quality of life improvements were sustained in the TAVI group.

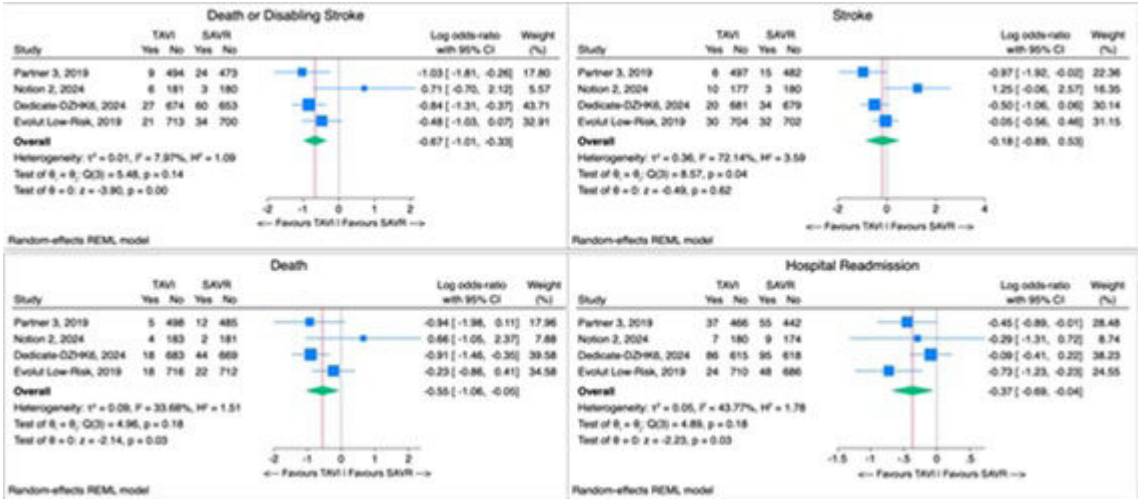

Figure PO 219

Conclusions: TAVI is a viable option for young low-risk patients with severe AS, being non-inferior to SAVR in all short-term outcomes. The benefits of TAVI included a lower risk of disabling strokes, reduced rates of readmission and bleeding, and faster and sustained improvements in symptoms and quality of life. The higher PPI and paravalvular leak rates in the TAVI group highlight the need for careful patient selection.

PO 220. ADDRESSING SMALL ANNULUS IN TAVR: PROCEDURAL SUCCESS AND CLINICAL OUTCOMES

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Introduction: Transcatheter aortic valve replacement (TAVR) is a key treatment for severe aortic stenosis (AS). Patients with small aortic annuli (SAA) present unique challenges, including higher risks of PVL and elevated gradients, which may reduce its hemodynamic, symptomatic, and prognostic benefits. Outcomes in this group require further study.
Objectives: To evaluate the echocardiographic and clinical outcomes of AS patients with SAA (defined as area ≤ 4.3 cm^2 by CT), submitted to TAVR.
Methods: Single-center, retrospective study on patients submitted to TAVR between 2017 and 2023. Clinical and echocardiographic data were collected from hospital records. Kaplan-Meier (KM) survival analysis was performed.
Results: A total of 530 patients were included (55% female, median age 81.9 years), of which 287 had SAA. There were no significative differences in demographic characteristics, comorbidities or baseline echocardiographic assessment between the two groups. 51% of patients received a self-expandable valve and 49% received a balloon-expandable valve. Transthoracic echocardiogram (TTE) at discharge revealed higher maximum (20.2 mmHg vs. 17.2 mmHg, p < 0.01) and mean aortic gradients (11.3 mmHg vs. 9.8 mmHg, p < 0.01) for SAA, despite similar doppler velocity index (DVI) in both groups (0.6). At 1 year follow up, there was a significant higher mean AV gradient in SAA patients (19.2 mmHg vs. 9.8 mmHg, p = 0.03) and similar maximum AV gradients (19.2 mmHg vs. 19 mmHg, p = 0.07) and DVI. There were no significant differences regarding clinical outcomes: death at 1 year (9 vs. 13% p = NS); cardiovascular hospitalization (12% in both groups) ; stroke (4 vs. 11% p = NS); moderate to severe aortic regurgitation (2 vs. 3% p = NS) and valvular dysfunction, defined as mean AV gradient of at least 20 mmHg at 1 year (3 vs. 2% p = NS). Kaplan-Meier curve and Cox regression analysis showed similar rates of death during a mean FUP of 41 ± 22 months (p = NS)
Conclusions: TAVR in patients with SAA is associated with higher post-procedural and 1-year mean AV gradients, despite similar DVI. No significant differences in clinical outcomes were observed. Further research is needed to understand the implications of these findings and optimize TAVR outcomes in this important subgroup of patients submitted to TAVR.

Table 1. Small annuli characteristics and outcomes

Discharge TTEcho	Small annuli (n=287)	Normal annuli (n= 243)	p value
Maximum AV gradient (mmHg) - mean±SD	20.2±8.7	17.2±8.4	<0.01
Mean AV gradient (mmHg) - mean±SD	11.3±5.1	9.8±4.7	<0.01
Doppler velocity index - mean±SD	0.6±0.11	0.6±0.11	NS
Mean gradient >20mmHg - %	5%	5.3%	NS
Moderate leak - %	3.5%	2.7%	NS

1 year TTEcho	Small annuli (n=287)	Normal annuli (n= 243)	p value
Maximum AV gradient (mmHg)- mean±SD	19.2±8.3	19±9.7	NS
Mean AV gradient (mmHg) - mean±SD	11.2±5.5	9.8±5.4	0.026
Doppler velocity index - mean±SD	0.64±0.16	0.59±0.18	NS
Mean gradient >20mmHg - %	5.5%	5.7%	NS
Moderate leak - %	3.3%	3.7%	NS

Outcomes	Small annuli (n=287)	Normal annuli (n= 243)	p value
Death at 1 year n(%)	25 (9%)	33 (13%)	NS
Stroke n(%)	12 (4%)	11 (4%)	NS
CV hospitalization n(%)	34 (12%)	30 (12%)	NS
Mean gradient >20mmHg at 1year - n(%)	10(3%)	6 (2%)	NS
> moderate regurgitation	5 (2%)	7 (3%)	NS

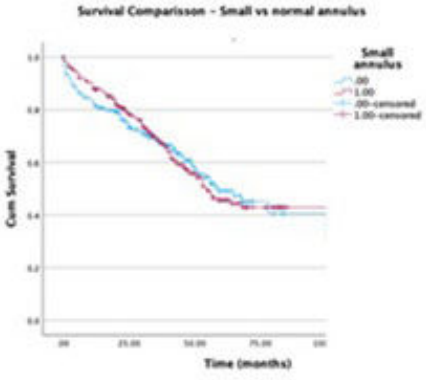

Figure PO 220

PO 221. CHALLENGES AND OUTCOMES OF AORTIC VALVE INTERVENTION: INSIGHTS FROM A SINGLE-CENTER STUDY ON SEVERE HIGH-GRADIENT AORTIC STENOSIS

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ULS Viseu Dão-Lafões.

Introduction: Severe high-gradient aortic stenosis (AS) is a life-threatening condition associated with a life expectancy of less than 2 years if symptomatic and untreated. Treatment options include surgical aortic valve replacement (SAVR) or transcatheter aortic valve implantation (TAVI). However, a growing disparity between the number of pts requiring intervention and healthcare system capacity has led to prolonged waiting lists. The Portuguese Society of Cardiology recommends that high-priority pts undergo intervention within 2 weeks of being added to the surgical list and priority pts within 6 weeks.
Objectives: This study aimed to characterize pts referred for aortic valve intervention at our center, analyze the referral process, and outcomes of pts on the waiting list.
Methods: Pts who underwent transthoracic echocardiography between January and September 2022 with documented severe high-gradient AS and referred for intervention were included. Demographic and clinical data were collected. Adverse outcomes were defined as all-cause mortality, unplanned hospitalizations, or emergency visits due to significant cardiovascular symptoms or events within 1 year after the initial evaluation or until the intervention, if performed within 1 year. Group-wise comparisons were performed using Independent t-tests.
Results: Of 85 identified pts, 65 were referred for intervention, of those 50.8% females, with a mean age of 74.4 ± 8.3 years (58-89). Among these, 50.8% underwent SAVR, 29.2% underwent TAVI, 12.3% remained on the waiting list on December 15th 2024, 3.1% died while awaiting intervention, 3.1% declined intervention, and 1.5% was deemed unsuitable for interventional treatment. Twenty patients (32.8%) initially proposed for SAVR were later redirected to TAVI by the surgical team. The mean time from the first surgical evaluation to intervention was 9.3 ± 6.5 months (1-30). Time to intervention was significantly longer for TAVI compared to SAVR (13.0 ± 8.7 vs. 7.4 ± 4.0 months, p = 0.001) and for pts whose initial treatment strategy was modified to TAVI compared to those whose initial strategy was followed (16.0 ± 7.9 vs. 7.2 ± 4.2 months, p < 0.001). Adverse outcomes occurred in 23.1% of pts during follow-up. Although time to intervention was longer for pts with adverse outcomes (9.6 ± 5.8 months) than for those without (9.2 ± 6.7 months), this difference was not significant (p = 0.432).
Conclusions: Waiting times for valve intervention in severe AS at our center far exceed the recommendations of scientific societies, highlighting the need for optimization of patient pathways and priorization, particularly for TAVI. Despite the high rate of adverse outcomes, longer waiting times were not significantly associated with increased events. This study underscores the importance of adequate referral and multidisciplinary discussion to address delays caused by changes in therapeutic strategy.

PO 222. CLASSIC CLARITY, PARADOXICAL PUZZLE: PROGNOSTIC EVALUATION IN LOW FLOW LOW GRADIENT AORTIC STENOSIS AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

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

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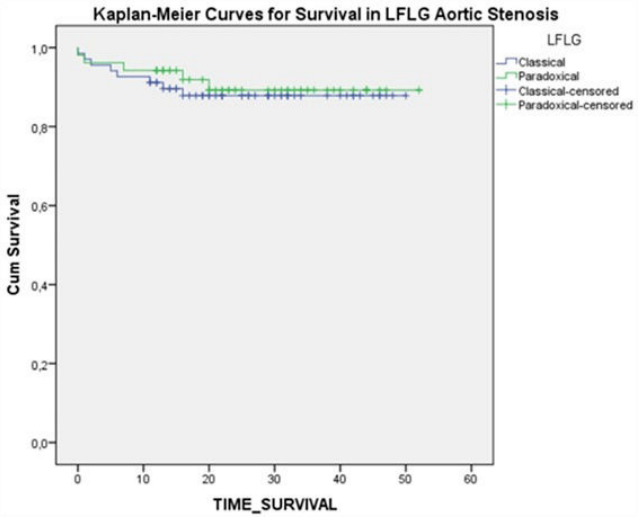
Introduction: In severe aortic stenosis (AS), patients with reduced ejection fraction have worse prognosis than those with preserved ejection fraction. Paradoxical AS is defined as severe AS with an aortic valve area (AVA) < 1.0 cm^2, mean gradient (MG) < 40 mmHg, indexed systolic volume (SVi) ≤ 35 ml/m^2, and preserved left ventricular ejection fraction (LVEF ≥ 50%).
Methods: Retrospective analysis of patients undergoing transcatheter aortic valve replacement (TAVR) for severe AS (March 2020-December 2023) at a tertiary hospital, with a median follow-up of 777 (IQR 579) days. The main objective was to compare patients with paradoxical low flow, low gradient (paradoxical LFLG) and classic low flow, low gradient (classic LFLG) with reduced ejection fraction (LVEF < 50%).
Results: Of 719 TAVR patients, 52 (7.3%) were treated for paradoxical LFLG, and 68 (9.5%) for classic LFLG. The paradoxical LFLG group was 53.8% male with a median age of 84 years (IQR 7), whereas the classic LFLG group was 69.1% male with a median age of 82 years (IQR 9). Age distribution differed significantly (p = 0.001), with paradoxical LFLG patients being older. No gender difference was found. Regarding cardiovascular (CV) risk factors: 25.0 vs. 42.6% (p = 0.054) had diabetes, 75.0 vs. 61.8% (p = 0.132) had dyslipidemia, 90.4 vs. 79.4% (p = 0.169) had hypertension, and 7.7 vs. 19.1% (p = 0.112) were smokers in paradoxical LFLG and classic LFLG, respectively, with no significant difference. Also, 9.6 vs. 19.1% (p = 0.199) had a history of myocardial infarction, 5.8 vs. 10.3% (p = 0.51) of stroke. Univariate analysis showed that the classic LFLG group was associated with more renal disease (OR 2.4, 95%CI 1.1-5.2, p = 0.017) and acute congestive heart failure (OR 1.9, 95%CI 1.2-3.2, p = 0.007), but after multivariate analysis, lost its significance. Both groups had similar rates of major adverse events, like stroke or myocardial infarction. Kaplan-Meier curves showed comparable all-cause mortality between the two groups. Survival at 12 months was 94.2% for paradoxical LFLG and 89.6% for classic LFLG, with no significant difference (p = 0.705). At three years, survival curves also showed no significant differences.



Conclusions: Patients with paradoxical AS undergo TAVR at an older age than those with classic AS, likely due to delayed diagnosis. The similar mortality outcomes suggest that TAVR provides a prognostic benefit, with both groups sharing the same mortality risk despite different pathophysiological features.

PO 223. LEFT VENTRICULAR EJECTION FRACTION IMPROVEMENT AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT – PREDICTORS AND PROGNOSIS

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Introduction: Transcatheter aortic valve replacement (TAVI) has become an effective and safe approach towards patients with severe aortic stenosis (AS). While severe AS is known to negatively impact left ventricular ejection fraction (LVEF), previous studies have suggested that TAVI can lead to an improvement in LVEF and outcomes. However, predictors of improvement are not clearly identified.
Objectives: Our aim is to characterize a population of patients submitted to TAVI with LVEF < 40%, verify if there is an improvement in LVEF after TAVI and determine possible predictors.

Methods: We retrospectively analyzed patients submitted to TAVI in our institution between 2021 and 2024 and selected those with LVEF < 40%. We documented demographic characteristics, clinical presentation, risk scores, echocardiographic data pre-TAVI and 3 months after, CT-scan data, TAVI-procedure details, complications and follow-up. We then performed univariate analysis to establish the relationship between variables and multivariate analysis to identify independent predictors.
Results: Out of 300 patients, we selected 12.3% (n = 37) that had LVEF < 40%, with a mean LVEF of 32 ± 5.7%. In terms of demographic factors - 62% were male (n = 23) with a mean age of 82 ± 4.6 years, 81% were hypertense and has dyslipidemia, 49% were diabetic, 19% were smokers and 32% had established coronary artery disease (CAD). At a 3-month reassessment post-TAVI, 67.6% had a statistically significant increase in LVEF of 17.3 ± 10.8% (p < 0.001). History of CAD was associated with lack of improvement (62.5 vs. 24%, p = 0.044), as was pacemaker implantation after TAVI (PM) (43 vs. 4%, p = 0.006), with only the latter remaining an independent predictor in multivariate analysis (p = 0.033). There were no differences regarding rehospitalization and no deaths were observed during the follow up period (317 ± 75 days).
Conclusions: In patients with AS and reduced LVEF submitted to TAVI there was a significant early improvement in LVEF after the procedure. Those with CAD or definitive PM were less likely to experience LVEF recovery. Although no differences regarding rehospitalization and no deaths were observed during the follow up period, further studies with a larger population are required.

PO 224. INTRA-HOSPITAL OUTCOMES FOR TAVR UNDER 75: CAN IT HOLD A CANDLE TO SAVR?

João Reis Sabido, Ana Abrantes, Miguel Azaredo Raposo, Catarina Gregório, Diogo Ferreira, Daniel Inácio Cazeiro, Tiago Rodrigues, Cláudia Moreira Jorge, Miguel Nobre Menezes, João Silva Marques, Pedro Carrilho Ferreira, Fausto J. Pinto

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Introduction: In light of recently published studies supporting non-inferiority of transcatheter aortic valve replacement (TAVR) versus surgical aortic valve replacement (SAVR) in low-risk patients, real-world evidence supporting the use of TAVR for younger patients under 75 years of age is still building.
Objectives: To compare in hospital outcomes of TAVR to surgical aortic valve replacement (SAVR) previously published results.
Methods: Retrospective single center study, analyzing a population of non-consecutive patients who underwent TAVR between 2014 and 2023, aged under 75 years. We compared the baseline characteristics and intra-hospital outcomes with results previously published with data from the German Quality Assurance Registry on Aortic Valve Replacement (AQUA), from a similar group of patients under 75 years of age, submitted do SAVR between 2013 and 2014[1].

Table 1. Comparisson of our <75y TAVR cohort with a previously described cohort of <75y SAVR patients

Baseline characteristics	TAVR (n=113)	SAVR (reported) (n= 624)
Age* - mean±SD	69.8±5.6	70.5±2.8
Males - %	57%	49,00%
Hypertension - %	87%	70%
Atrial fibrillation - %	39%	9%
Diabetes mellitus (insulin dependent) - %	12%	13%
COPD - %	34%	12%
LV function <30% - %	8%	6%
EuroSCORE 2 - mean±SD	2.4±2.6	4±3.8

Complications	TAVR (n=113)	SAVR (reported) (n= 624)
Post-Op days in hospital	8.8±9.9	12.5±10.7
In-hospital death	2.7%	2%
Neurologic events	1%	2%
Arterial vascular complications	8%	1.3%
Renal failure requiring dyalisis	1%	5%
New pacemaker implantation	16%	3.5%

Results: We analyzed a population of 113 patients submitted to TAVR. 57% were male, mean age was 69.8 ± 5.6 years. Regarding comorbidities, 87% had hypertension, 80% dyslipidemia, 55% diabetes *mellitus*, 32% chronic kidney disease, 22% peripheral arterial disease and 39% atrial fibrillation. 41% were at NYHA class II, and 55% class III at time of TAVR. Mean EuroSCORE was 2.4 ± 2.6. Ejection fraction was preserved in 68% of patients, with a mean of 53 ± 13%, with 8% of patients having a LVEF of under 30%. Median admission time was shorter in patients who underwent TAVR, with 8.8 ± 9.9 days, comparing to 12.5 ± 10.7 days for SAVR. Intra-hospital death was similar, with 2.7 vs. 2%. Procedural related arterial vascular complications were more common in TAVR – 8 vs. 1.3% - as was the need for permanent pacemaker implantation – 16% for TAVR vs. 3.5% for SAVR. Renal failure requiring dialysis and acute neurologic events were more common for patients who underwent SAVR – 1 vs. 5% and 1 vs. 2%, respectively.
Conclusions: Our findings suggest TAVR vs. SAVR in patients under 75 years may provide similar results to SAVR, with reduced in-hospital stay, acute kidney injury requiring dialysis and neurologic complications. Rate of pacemaker implantation and arterial vascular complications are, however, higher, as would be expected due to technical differences between techniques.

Sábado, 12 Abril de 2025 | 11:00-12:30

Área de Posters-écran 1| Sessão de Posters 35 – Doenças cardiovasculares - Choque cardiogénico 1

PO 225. EFFICACY AND SAFETY OF IMPELLA VERSUS STANDARD OF CARE IN CARDIOGENIC SHOCK SECONDARY TO ACUTE MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW

Gonçalo Terleira Batista[1], Dulce Iolanda Gonçalves[2], Ana L. Silva[1], Marian Rodrigues Simões[1], Tiana Pereira dos Santos[1], Bernardo Resende[1], Mafalda Griné[1], Luisa Gomes Rocha[1], Tomás M. Carlos[1], Joana Delgado Silva[1], Lino Gonçalves[1]

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Introduction: Cardiogenic shock (CS) remains associated with high mortality rates. The introduction of the microaxial pump device, commonly known as Impella, has introduced an innovative yet debated approach in this critical context. However, only a limited number of randomized controlled trials (RCT) have rigorously evaluated the efficacy of this device.
Objectives: To compare the Impella device with standard of care (SC) in patients with CS secondary to acute myocardial infarction (AMI).
Methods: A systematic review was conducted using PubMed, Embase, the Cochrane Central Register of Controlled Trials, and grey literature to identify observational and interventional studies published up to August 2024 that compared Impella to standard of care (SC). The primary endpoint was all-cause mortality. Secondary outcomes included major adverse cardiovascular events (MACE: death, myocardial infarction, or stroke), bleeding, renal replacement therapy and vascular complications. The Cochrane Risk of Bias tool was used to assess the quality of the studies, and data analysis was performed using RevMan 2.0.
Results: After initial screening, a total of five observational studies and one RCT were included, comprising 101,823 participants (14,163 in the Impella arm and 87,660 in the standard of care [SC] arm). Regarding all-cause mortality, a trend towards lower mortality was observed in the SC arm, though this difference was not statistically significant. Significant heterogeneity was noted between the included studies (57.7 vs. 45.1%; Odds Ratio [OR]: 1.35; 95% Confidence Interval [CI]: 0.95-1.92; p = 0.09; I^2 = 97%) Similarly, for MACE the SC arm showed lower event rates than the Impella arm, but the difference remained statistically non-significant (62.9 vs. 49.0%; OR: 1.47; 95%CI: 0.74-2.93; p = 0.27; I^2 = 98%). In contrast, the Impella arm showed significantly higher rates of bleeding (OR: 2.60; 95%CI: 2.04-3.31; p < 0.001) and a greater need for renal replacement therapy (OR: 3.31; 95%CI: 2.16-5.07; p < 0.001). No data were available to analyze vascular complications.

Conclusions: Although observational studies suggest a trend favoring standard of care (SC), conflicting results from the single included RCT highlight the need for further investigation. Large, rigorously conducted RCTs are essential to define the role of the Impella device in managing CS.

PO 226. VASCULAR COMPLICATIONS IN INTRA-AORTIC BALLOON PUMP PATIENTS: INSIGHTS FROM A 20-YEAR SINGLE-CENTER EXPERIENCE

Jéni Quintal[1], André Lobo[2], Marta Catarina Almeida[2], Daniel Caeiro[2], Marta Ponte[2], Marisa Passos Silva[2], Pedro Gonçalves Teixeira[2], Adelaide Dias[2], Pedro Braga[2], Ricardo Fontes-Carvalho[2]

[1]Unidade Local de Saúde da Arrábida, E.P.E. [2]Unidade Local de Saúde de Gaia/Espinho.

Introduction: Intra-aortic balloon pump (IABP) is a valuable intervention for managing acute myocardial infarction (AMI) in carefully selected patients. However, its broader application is hindered by a significant risk of vascular complications. To enhance patient selection and reduce adverse events, a comprehensive understanding of the clinical predictors of major vascular complications is essential yet remains limited.

Objectives: We aimed to assess the incidence of vascular complications and to identify predictors of major vascular complications (MVC) in patients with AMI implanted with IABP in a tertiary center.

Methods: We conducted a retrospective single-center cohort study. Patients with AMI who received IABP support between 1 January 2005 and 31 May 2023 were included. Patients with missing data on vascular complications were excluded. Demographic data, comorbidities, clinical characteristics, vascular complications, and outcomes were assessed. The sample was divided into two groups based on the presence (group B) or absence (group A) of MVC. Statistical analyses, including multivariable logistic regression, were used to compare the groups, and identify independent predictors of MVC.

Results: A total of 694 patients were included (73.2% male, mean age 67 ± 12 years, mean BMI 27 ± 4 kg/m²). There was a high prevalence of cardiovascular risk factors and heart failure (Table 1). The main indications for IABP implantation were cardiogenic shock (40.6%) and hemodynamic support until CABG (27.4%). Most patients had severely reduced left ventricle ejection fraction (27.7%). The overall rate of MVC rate was 4.8% (n = 33), including cases of lower limb ischemia (2.2%), 11 of major hemorrhage (1.6%), 8 vascular lesions requiring vascular surgery (1.2%), and 2 of intra-arterial balloon rupture (0.3%). Minor vascular complications occurred in 7.5% (n = 52), with 43 local hematomas (6.2%) and 9 minor hemorrhages (1.3%). Group B had a higher proportion of severely depressed LVEF (45.5 vs.

Table 1. Baseline profile and outcomes of the study cohort

Variables	Total cohort	Group A	Group B	P-value
	n=694	n= 661 (95.2)	n = 33 (4.8)	
Patient demographics				
Age, mean (± SD), years	67 (±12)	68 (±12)	64 (±19)	0.831
Male gender, n (%)	508 (73.2)	486 (73.5)	22 (66.7)	0.385
BMI, mean (± SD), m²	27 (±4)	27 (±4)	27 (±3)	0.543
Comorbidities				
Hypertension, n (%)	462 (66.7)	442 (67.0)	20 (60.6)	0.449
Diabetes mellitus, n (%)	223 (32.2)	212 (32.1)	11 (33.3)	0.884
Dyslipidemia, n (%)	446 (64.4)	426 (64.5)	20 (60.6)	0.645
Smoking history, n (%)	259 (37.4)	243 (36.8)	16 (48.5)	0.176
Obesity, n (%)	200 (30.7)	193 (31.2)	7 (21.9)	0.266
CAD, n (%)	241 (34.7)	231 (34.9)	10 (30.3)	0.584
History of Stroke, n (%)	55 (7.9)	52 (7.9)	3 (9.1)	0.740
PAD, n (%)	49 (7.1)	47 (7.1)	3 (12.0)	1.000
Valvular heart disease, n (%)	41 (5.9)	39 (5.9)	2 (6.1)	1.000
Heart Failure, n (%)	154 (22.2)	146 (22.1)	8 (24.2)	0.771
Clinic characteristics				
LV ejection fraction, n %				
Normal EF	156 (22.5)	156 (22.7)	6 (18.2)	0.545
Mildly reduced EF	71 (10.2)	70 (10.6)	1 (3.0)	0.239
Moderately reduced EF	141 (20.3)	137 (20.7)	4 (12.1)	0.231
Severely reduced EF	192 (27.7)	177 (26.8)	15 (45.5)	**0.019**
PCI	378 (54.5)	360 (54.5)	18 (54.5)	0.173
CABG	262 (37.9)	249 (37.8)	13 (39.4)	0.852
IABP indication, n (%)				
Cardiogenic shock	280 (40.6)	264 (40.2)	16 (48.5)	0.343
High risk PCI	124 (18.0)	121 (18.4)	3 (9.1)	0.173
Hemodynamic support until CABG	189 (27.4)	179 (27.2)	10 (30.3)	0.701
Refractory angina	96 (13.9)	92 (14.0)	4 (12.1)	1.000
Initial Killip class				
I	44 (21.2)	42 (21.8)	2 (13.3)	0.742
II	25 (12.0)	24 (12.4)	1 (6.7)	1.000
III	25 (12.0)	22 (11.4)	3 (20.0)	0.399
IV	105 (50.5)	97 (50.3)	8 (53.3)	0.819
CrCl, mean (± SD), mL/min	60 (±26)	61 (±29)	51 (±26)	0.193
Clinical outcomes				
Duration of in-hospital stay, median (Q1-Q3), days	8 (0-156)	8 (0-156)	8 (1-84)	0.579
Duration of IABP support, median (Q1-Q3), days	2 (0-27)	2 (0-27)	3 (1-10)	0.836
Need for inotropes/vasopressors, n (%)	112 (53.6)	17 (65.4)	11 (73.3)	0.111
AMI mechanical complications, n (%)	83 (12.0)	80 (12.1)	3 (9.4)	1.000
Minor complications, n (%)	63 (10.4)	59 (10.1)	4 (16.0)	0.316
In-hospital mortality, n (%)	169 (24.4)	154 (23.3)	15 (45.5)	**0.004**

AMI - acute myocardial infarction; BMI – body mass index; CABG – coronary artery bypass grafting; CAD – coronary artery disease; CrCl – creatinine clearance; EF – ejection fraction; IABP - intra-aortic balloon pump; LV – left ventricle; PAD – peripheral artery disease; PCI - percutaneous coronary intervention.

Table 2. Final multivariable logistic regression

Variables	Multivariate analysis		P-value
	OR	95% C.I.	
Severely reduced EF, n (%)	2.57	1.18-5.62	0.018
In-hospital mortality, n (%)	2.23	1.01-4.88	0.036

Figure PO 226

26.8%, p = 0.019) and a trend toward lower creatinine clearance (51 ± 26 vs. 61 ± 29 mL/min, p = 0.193), and greater vasopressor use (73.3 vs. 65.4%, p = 0.111). In-hospital mortality was higher in group B (45.5 vs. 23.3%, p = 0.004). No differences in-hospital stay or duration of IABP support were observed between the groups. Multivariate analysis showed that severely depressed EF (OR 2.57; CI 1.8-5.62, p = 0.018) and in-hospital mortality (OR 2.23; CI 1.01-4.88, p = 0.036) were independently associated with MVC (Table 2).

Conclusions: Major vascular complications were infrequent in AMI patients with IABP support but linked to higher in-hospital mortality. Severely depressed LVEF and in-hospital mortality were independently associated with the complications. These findings underscore the importance of careful patient selection for IABP therapy.

PO 227. PREDICTORS OF MORTALITY IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION MANAGED WITH INTRA-AORTIC BALLOON ASSISTANCE: A 20-YEARS SINGLE-CENTER EXPERIENCE

Jéni Quintal[1], Marta Catarina Almeida[2], André Lobo[2], Daniel Caeiro[2], Marta Ponte[2], Marisa Passos Silva[2], Pedro Gonçalves Teixeira[2], Adelaide Dias[2], Pedro Braga[2], Ricardo Fontes-Carvalho[2]

[1]Unidade Local de Saúde da Arrábida, E.P.E.. [2]Unidade Local de Saúde de Gaia/Espinho.

Introduction: Intra-aortic balloon (IABP) counterpulsation improves coronary perfusion and decreases left ventricular (LV) workload, thereby

Table 1. Characteristics and clinical outcomes of in-hospital survivors versus non-survivors

Variables	Total cohort n = 717	A – Survivors n= 543 (75.8)	B – Non-Survivors n = 173 (24.2)	P-value
Patient demographics				
Age, mean (± SD), years	67 (±12)	66 (±12)	69 (±12)	**0.011**
Male gender, n (%)	524 (73.1)	412 (75.9)	111 (64.2)	**0.002**
BMI, mean (± SD), m²	27 (±4)	27 (±4)	28 (±4)	**0.031**
Comorbidities				
Hypertension, n (%)	478 (66.9)	365 (67.2)	112 (65.9)	0.747
Diabetes mellitus, n (%)	230 (32.2)	163 (30.0)	66 (38.8)	**0.032**
Dyslipidemia, n (%)	457 (64.0)	353 (65.0)	103 (60.6)	0.295
Smoking history, n (%)	266 (37.3)	216 (39.8)	50 (29.4)	**0.015**
Obesity, n (%)	205 (30.5)	154 (30.1)	50 (31.4)	0.743
CAD, n (%)	250 (34.9)	191 (35.2)	58 (33.7)	0.727
History of Stroke, n (%)	55 (7.7)	32 (5.9)	23 (13.4)	**0.001**
PAD, n (%)	49 (6.8)	36 (6.6)	12 (7.0)	0.874
Valvular heart disease, n (%)	44 (6.1)	28 (5.2)	16 (9.3)	**0.049**
Heart Failure, n (%)	161 (22.5)	111 (20.4)	49 (28.5)	**0.027**
Clinic characteristics				
LV ejection fraction, n %				
Normal EF	159 (22.2)	150 (27.6)	9 (5.2)	**<0.001**
Mildly reduced EF	75 (10.5)	69 (12.7)	6 (3.5)	**0.001**
Moderately reduced EF	146 (20.4)	124 (22.8)	22 (12.7)	**0.004**
Severely reduced EF	196 (27.3)	96 (17.7)	100 (57.8)	**<0.001**
IABP indication, n (%)				
Cardiogenic shock	291 (41.3)	143 (26.8)	147 (86.0)	**<0.001**
High risk PCI	127 (18.0)	122 (22.9)	5 (2.9)	**<0.001**
Hemodynamic support until CABG	189 (26.8)	175 (32.8)	14 (8.2)	**<0.001**
Refractory angina	98 (13.9)	93 (17.4)	5 (2.9)	**<0.001**
Postprocedural TIMI flow grade, n (%)				
0	20 (12.3)	9 (9.4)	10 (15.4)	0.080
1	28 (17.3)	12 (12.5)	16 (24.6)	0.246
2	22 (13.6)	13 (13.5)	9 (13.8)	**0.047**
3	92 (56.8)	62 (64.6)	30 (46.2)	**0.020**
PCI	396 (55.7)	284 (52.3)	112 (64.7)	**0.020**
CABG	263 (36.9)	245 (45.4)	18 (10.4)	**0.006**
Complete revascularization	53 (62.4)	37 (63.8)	16 (59.3)	0.688
Initial Killip class				**<0.001**
I	44 (21.2)	38 (28.8)	6 (8.0)	**0.025**
II	25 (12.0)	21 (15.9)	4 (5.3)	0.361
III	25 (12.0)	18 (13.6)	7 (9.3)	**<0.001**
IV	105 (50.5)	46 (34.8)	58 (77.3)	
CrCl, median (Q1-Q3), mL/min	58 (4-146)	67 (10-146)	47 (4-121)	**<0.001**
Clinical outcomes				
Duration of in-hospital stay, median (Q1-Q3), days	8 (0-156)	9 (0-117)	4 (0-156)	**<0.001**
Duration of IABP support, median (Q1-Q3), days	2 (0-27)	2 (0-16)	2 (0-27)	0.060
Need for inotropes/vasopressors, n (%)	111 (53.4)	43 (32.3)	68 (90.7)	**<0.001**
AMI mechanical complications, n (%)	83 (11.6)	47 (8.7)	36 (20.8)	**<0.001**
Major vascular complications of IABP, n (%)	33 (4.8)	18 (3.4)	15 (8.9)	**0.004**
Severe complications, n (%)	29 (4.8)	14 (3.0)	15 (11.0)	**<0.001**

AMI - acute myocardial infarction; BMI - body mass index; CABG - coronary artery bypass grafting; CAD - coronary artery disease; CrCl - creatinine clearance; EF - ejection fraction; IABP - intra-aortic balloon pump; LV - left ventricle; PAD - peripheral artery disease; NSTEMI - non-ST-elevation myocardial infarction; PCI - percutaneous coronary intervention; STEMI - ST-elevation myocardial infarction.

Table 2. Final multivariable logistic regression for in-hospital mortality

Variables	Multivariate analysis OR	95% C.I.	P-value
Heart Failure, n (%)	1.78	1.1-2.89	0.002
LV ejection fraction, n %	1.18	1.02-1.36	0.027
IABP indication, n (%)	0.37	0.29-0.47	<0.001
Postprocedural TIMI flow grade 3, n (%)	0.22	0.09-0.55	0.001
Need for inotropes/vasopressors, n (%)	14.45	6.39-32.68	<0.001

Figure 1 PO 227

enhancing oxygen delivery and stabilizing hemodynamics. While current guidelines primarily recommend its use in patients with mechanical complications of acute myocardial infarction (AMI), some studies suggest clinical benefits in cardiogenic shock, refractory angina, and severe ischemia in the setting of AMI. However, research on mortality predictors in AMI patients treated with IABP is still limited.
Objectives: We sought to evaluate the predictors of in-hospital mortality in patients with AMI implanted with IABP in a tertiary center.
Methods: We performed a retrospective single-center cohort study. Patients with AMI who received IABP support between 1 January 2005 and 31 May 2024 were enrolled. Basal characteristics of the population were determined. The sample was divided in 2 groups (g) according to in-hospital mortality: survivors (gA) and non-survivors (gB). Patient's demographics, comorbidities, clinical characteristics and outcomes were compared. According to the data distribution, appropriate statistical tests were conducted to compare independent samples. Multivariable logistic regression was used to analyze independent predictors of in-hospital mortality.
Results: This cohort included 717 patients (mean age 67 ± 12 years, 73.1% male). In-hospital mortality was 24.2% (173 patients). Non-survivors were older (69 ± 12 vs. 66 ± 12 years, p = 0.011), with higher BMI (28 ± 4 kg/m^2, p = 0.031) and a greater prevalence of diabetes (38.8 vs. 30%, p = 0.032), HF (28.5 vs. 20.4%, p = 0.027), valvular disease (9.3 vs. 5.2%, p = 0.049), and stroke (13.4 vs. 5.9%, p = 0.001). They had worse LVEF (severely depressed in 57.8 vs. 17.7%, p < 0.001), more frequent Killip IV presentation (77.3 vs. 34.8%, p < 0.001), lower creatinine clearance (47 vs. 67 mL/min, p < 0.001) and more severe IABP-related complications (11 vs. 3%, p < 0.001). The length of in-hospital stay was significantly shorter in gB (4 vs. 9 days). Cardiogenic shock was the primary indication for IABP in non-survivors (86 vs. 26.8%, p < 0.001), explaining a higher need of inotropic support (90.7 vs. 32.3%, p < 0.001 in this group. In the multivariate analysis the presence of HF (OR 1.78; CI 1.1-2.89, p = 0.002), LEVF (OR 1.18; CI 1.02-1.36, p = 0.027), IABP indication (OR 0.37; CI 0.29-0.47, p < 0.001), postprocedural TIMI flow grade 3 (OR 0.22; CI 0.09-0.55, p = 0.001) and inotropes use (OR 14.45; CI 6.39-32.68, p < 0.001) were independent predictors of in-hospital mortality (Table 2).
Conclusions: Our study suggest that severely depressed EF, cardiogenic shock, and the need for inotropes are associated with a higher risk of in-hospital mortality, whereas TIMI 3 flow is linked to improved survival. These factors may help identify the patients most likely to benefit from IABP in the context of AMI.

PO 228. OUTCOMES OF EXTRACORPOREAL MEMBRANE OXYGENATION VS. INTRA-AORTIC BALLOON PUMP IN STEMI PATIENTS UNDERGOING PRIMARY PCI: A RETROSPECTIVE COMPARATIVE ANALYSIS

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In patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI), mechanical circulatory support devices, such as intra-aortic balloon pump (IABP) and extracorporeal membrane oxygenation (ECMO), play a critical role in select cases. While existing studies suggest potential benefits of ECMO over IABP, detailed comparative analyses of outcomes and patient characteristics remain essential to inform clinical decisions. This retrospective analysis compared clinical outcomes and baseline characteristics between patients treated with IABP-only (n = 104) and ECMO-only (n = 24). Variables included demographics, revascularization completeness, stent use, number of vessels treated, complications, mechanical ventilation, provisional pacemaker use, and mortality outcomes. Patients in the ECMO-only group were younger (mean age 56.3 vs. 62.7 years, p = 0.032) and more frequently presented with cardiac arrest before intervention (41.7 vs. 12.5%, p = 0.003), reflecting a higher severity of illness. Complete revascularization was achieved in 65% of IABP-only patients compared to 50% of ECMO-only patients (p = 0.097). Stent use was similar (97.1 vs. 95.8%, p = 0.623). ECMO-treated patients had fewer vessels treated (1.83 vs. 2.31, p = 0.045) with no significant differences in the number of lesions addressed. Provisional pacemaker use was more frequent in the ECMO group (37.5 vs. 19.2%, p = 0.049), as was the need for invasive ventilation (58.3 vs. 36.5%, p = 0.042). Thirty-day mortality was higher in ECMO-only patients (29.2 vs. 11.5%, p = 0.006). However, this group also experienced more cardiac arrests and had greater overall risk, suggesting that patient selection influenced outcomes. Complications, including angiographic and clinical events, and rates of 30-day rehospitalization did not differ significantly between groups. Among STEMI patients undergoing PCI, ECMO-only support was associated with higher 30-day mortality compared to IABP-only support, but this likely reflects the severity of illness in ECMO patients. Younger age and greater cardiac arrest prevalence in the ECMO group highlight the importance of patient selection. While ECMO may benefit high-risk cases, careful evaluation is required to optimize outcomes. These findings align with prior studies suggesting ECMO benefits in selected populations, though further trials are needed to clarify its role.

	Intra-aortic ballon pump	Veno-arterial Extracorporeal membrane oxygenation	p-value
Age (mean, standard deviation)	62.7 ± 10.5	56.3 ± 12.1	0.032[1]
Number of lesions (mean, standard deviation)	2.1 ± 0.7	1.8 ± 0.8	0.056[1]
Complete revascularization (%)	65.1	50.3	0.097[2]
Stent implantation (%)	97.1	95.8	0.0623[2]
Number of treated vessels (mean, standard deviation)	2.31 ± 0.5	1.83 ± 0.6	0.045[1]
Cardiac arrest (%)	12.5	41.7	0.003[2]
Provisional pacemaker (%)	19.2	37.5	0.049[2]
Mechanical ventilation (%)	36.5	58.3	0.042[2]
30-day mortality (%)	11.5	29.2	0.006[2]

1- T-test; 2 - Chi-squared test

PO 229. PREDICTORS OF MORTALITY IN VA-ECMO PATIENTS: A RETROSPECTIVE COHORT ANALYSIS USING LASSO REGRESSION

Marta Leite, Inês Neves, Fábio Nunes, Mariana Brandão, Pedro Teixeira, Marisa Silva, Gustavo Pires-Morais, Marta Ponte, Adelaide Dias, Pedro Braga, Daniel Caeiro, Ricardo Fontes-Carvalho

ULSGE.

Introduction: Venoarterial extracorporeal membrane oxygenation (VA-ECMO) serves as a critical rescue support in patients with refractory cardiogenic shock (CS), yet mortality rates remain high. Identifying clinical predictors of mortality in this population could aid in optimizing patient selection and timing of intervention.
Methods: We conducted a retrospective observational study, encompassing patients admitted with cardiogenic shock and treated with VA-ECMO from 2011 to 2023 in our center. Key patient data, including demographics, comorbidities, clinical presentation, ECMO-related complications, and outcomes, were extracted from medical records. This single-center study analyzed clinical predictors of mortality in a cohort of VA-ECMO patients, utilizing a LASSO logistic regression model for feature selection and risk estimation. LASSO regularization was used to enhance the model's predictive accuracy, with hyperparameters optimized via cross-validation. Model performance was evaluated by metrics such as accuracy, sensitivity, specificity, and area under the receiver operating characteristic curve (ROC AUC).
Results: From January 2011 to October 2023 our center treated a total of 85 patients in VA-ECMO (mean age 54.5 ± 11.9 years-old; 61.2% male). The final model is resumed in Figure 1 and identified several significant predictors of mortality, including gender, use of an unloading device, invasive mechanical ventilation, and a higher SAVE score. Notably, the SAVE score exhibited the largest association with mortality, with an odds ratio of 1.46 (46% increase in odds), followed by male gender (odds ratio: 1.26, 26% increase). Model performance showed moderate discriminative ability, with an ROC AUC of 0.638, accuracy of 44.4%, and a Brier score of 0.243. Sensitivity analysis indicated a slight improvement in mortality prediction when stratifying patients by SAVE score and use of mechanical ventilation.
Conclusions: This study highlights specific clinical features, notably the SAVE score and the presence of invasive ventilation, as significant clinical

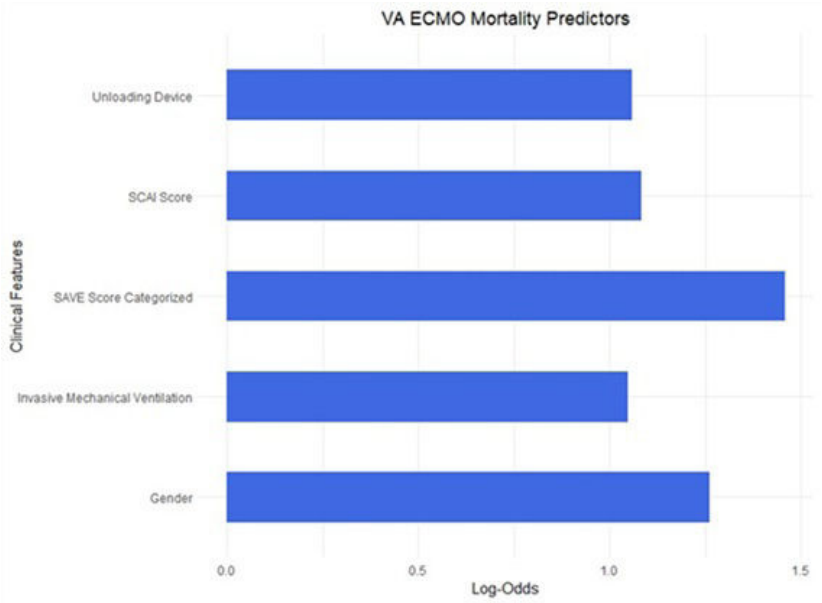

Figure PO 229

predictors of mortality in VA-ECMO patients with cardiogenic shock. Although model accuracy was moderate, these findings underscore the importance of early risk stratification and may guide candidate selection.

PO 230. SCAI CLASSIFICATION AS A PREDICTOR OF MORTALITY IN CARDIOGENIC SHOCK: WHAT IS THE BEST TIME TO CLASSIFY PATIENTS?

Marta Catarina Almeida[1], Catarina Pohle[2], André Lobo[1], Marta Leite[1], Inês Neves[1], Adelaide Dias[1], Daniel Caeiro[1], Marisa Silva[1], Marta Ponte[1], Pedro Teixeira[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Cardiogenic shock (CS) can be categorized by severity as proposed by the Society for Cardiovascular Angiography and Interventions (SCAI). When applied retrospectively for research purposes, SCAI classification poses challenges, particularly regarding timing of the classification.
Objectives: The aim of the study was to compare the time of SCAI classification and its correlation with mortality.
Methods: A retrospective study of 175 patients with CS in a tertiary intensive cardiac care unit between 2018 and 2022 was done. SCAI classification based on information at admission (SCAI 0) and with data up to six hours after admission (SCAI 6) was done. Mortality outcomes at 30 days and 1 year were registered. Chi-square test was used to test the association between SCAI classifications and mortality at 30 days and 1-year and logistic regression was used to predict mortality.
Results: At SCAI 0, 38 patients (21.7%) were classified as stage A, 36 (20.6%) at stage B, 54 (30.9%) at stage C, 7 (4.0%) at stage D and 40 (22.9%) at stage E. Based on SCAI 6, 14 patients (8.0%) were on a stage A, 28 (16.0%) at stage B, 65 (37.1%) at stage C, 41 (23.4%) at stage D and 27 (15.4%) at stage E. There was a statistically significant difference between the distribution of SCAI classification at SCAI 0 and SCAI 6 ($p < 0.001$), exposed in Graph 1. SCAI 0 did not correlate with mortality at 30 days (p 0.938) nor 1-year (p 0.863). SCAI 6 was associated with mortality at 30 days ($R^2 = 0.135$, $p < 0.001$) and with mortality at 1-year ($R^2 = 0.129$, $p = 0.002$).
Conclusions: SCAI classification has challenges related to the retrospective collection of data, with frequent missing information or omission of the real timing of the data registered. Doing a classification based on data from the admission and evolution during the first six hours showed a significant difference and only using data up to six hours after admission was correlated

Graph 1. Relationship map of changes in SCAI classification at admission and with data up to six hours after admission

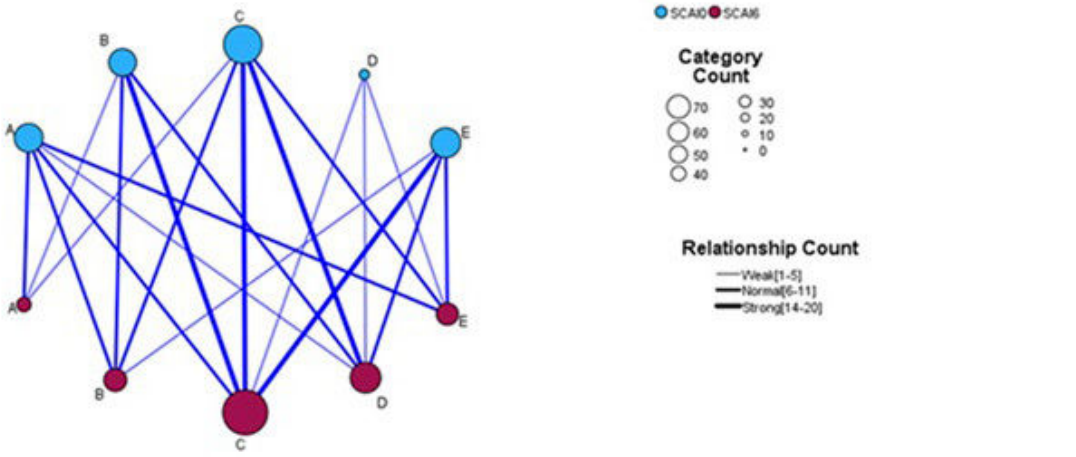

Figure PO 230

with mortality. This study may suggest that assignment of the SCAI shock stage done later after admission may help better classify and predict mortality in patients with cardiogenic shock.

PO 231. CLASSIC VERSUS NORMOTENSIVE CARDIOGENIC SHOCK: A SINGLE CENTER COMPARISON ANALYSIS

Marta Catarina Almeida[1], André Lobo[1], Catarina Pohle[2], Jéni Quintal[2], Marta Leite[1], Inês Neves[1], Adelaide Dias[1], Daniel Caeiro[1], Marisa Silva[1], Marta Ponte[1], Pedro Teixeira[1], Ricardo Fontes-Carvalho[1]

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Introduction: In cardiogenic shock (CS), severe impairment in cardiac output results in organ hypoperfusion. In normotensive shock, this occurs with blood pressure still equal to or above 90 mmHg.

Objectives: The aim of the study was to compare classic with normotensive CS, namely critical care support used and mortality.

Methods: Retrospective data of 175 CS patients admitted to an intensive cardiac unit for 5 years was analyzed. Patients in cardiac arrest at admission were excluded (n = 34). Comorbidities, diagnosis, left ventricular ejection fraction (LVEF) and analytic data at admission, SCAI classification, critical care support and mortality at 30 days and 1 year were registered. Chi-square and Mann-Whitney tests were used to compare patients with classic and normotensive CS.

Results: This study included 141 patients, 36 (25.5%) with classic and 105 (74.5%) with normotensive CS, as characterized in table 1. Median blood pressure in patients with classic CS was 80 [10] mmHg and 112 [36] mmHg in patients with normotensive CS. There were no differences regarding comorbidities, diagnosis or LVEF at admission. SCAI classification was different between groups (p 0.017), with no patients in stage A and almost half of the patients in stage C (16 patients, 44%) in classic CS and a wider distribution in patients with normotensive CS [14 patients (13.3%) in stage A, 23 (21.9%) in stage B, 33 (31.4%) in stage C, 26 (24.8%) in stage D and 9 (8.6%)

Table 1. Baseline characteristics, diagnosis, left ventricular ejection fraction, SCAI classification, intensive care support and mortality outcomes in patients with cardiogenic shock

Characteristics	Total (n = 175)	Classic (n = 101)	Normotensive (n = 74)	p value
Female sex, n (%)	39 (27.7%)	10 (27.8%)	29 (27.6%)	0.985
Age, years, median [interquartile range]	70 [20]	69 [18]	72 [21]	0.483
Hypertension, n (%)	85 (60.3%)	21 (58.3%)	64 (61.0%)	0.844
Dyslipidemia, n (%)	81 (57.4%)	20 (55.6%)	61 (58.1%)	0.846
Diabetes, n (%)	54 (38.3%)	14 (38.9%)	40 (38.1%)	0.933
Active smoking, n (%)	58 (41.1%)	14 (38.9%)	44 (41.9%)	0.845
Obesity, n (%)	42 (29.8%)	8 (22.2%)	34 (32.4%)	0.296
Heart failure, n (%)	32 (22.7%)	6 (16.7%)	26 (24.8%)	0.365
Coronary artery disease, n (%)	33 (23.4%)	10 (27.8%)	23 (21.9%)	0.473
Valvular heart disease, n (%)	14 (9.9%)	3 (8.3%)	11 (10.5%)	0.765
Atrial fibrillation/flutter, n (%)	20 (14.2%)	6 (16.7%)	14 (13.3%)	0.782
Chronic kidney disease, n (%)	27 (19.1%)	11 (30.6%)	16 (15.2%)	0.052
Peripheral artery disease, n (%)	15 (10.6%)	4 (11.1%)	11 (10.5%)	0.915
Diagnosis				0.957
Acute coronary syndrome, n (%)	85 (60.3%)	24 (66.7%)	61 (58.1%)	
Acute heart failure, n (%)	31 (22.0%)	7 (19.4%)	24 (22.9%)	
Electrical storm, n (%)	6 (4.3%)	2 (5.6%)	4 (3.8%)	
Myocarditis, n (%)	5 (3.5%)	1 (2.8%)	4 (3.8%)	
Progression of valvular disease, n (%)	5 (3.5%)	1 (2.8%)	4 (3.8%)	
Complete atrioventricular block, n (%)	4 (2.8%)	1 (2.8%)	3 (2.9%)	
Tachycardiomyopathy, n (%)	3 (2.1%)	0 (0%)	3 (2.9%)	
Cardiomyopathy (other), n (%)	2 (1.4%)	0 (0%)	2 (1.9%)	
SCAI classification				**0.017**
Stage A, n (%)	14 (9.9%)	0 (0%)	14 (13.3%)	
Stage B, n (%)	27 (19.1%)	4 (11.1%)	23 (21.9%)	
Stage C, n (%)	49 (34.8%)	16 (44.4%)	33 (31.4%)	
Stage D, n (%)	34 (24.1%)	8 (22.2%)	26 (24.8%)	
Stage E, n (%)	17 (12.1%)	8 (22.2%)	9 (8.6%)	
Left ventricular ejection fraction				0.918
Preserved, n (%)	22 (15.6%)	7 (19.4%)	15 (14.3%)	
Mildly reduced, n (%)	8 (5.7%)	2 (5.6%)	6 (5.7%)	
Moderately reduced, n (%)	42 (29.8%)	11 (30.6%)	31 (29.5%)	
Severely reduced, n (%)	69 (48.9%)	16 (44.4%)	53 (50.5%)	
Analytic data				
Hemoglobin, g/dL, median [IQR]	13.4 [4]	12.65 [4]	13.5 [4]	0.333
Creatinine, mg/dL, median [IQR]	1.3 [9]	1.5 [1.7]	1.2 [0.9]	**0.025**
NTproBNP, pg/mL, median [IQR]	13453 [15979]	7193 [1321]	7690 [16161]	0.730
High S. T troponin, ng/L, median [IQR]	423 [2521]	931 [4332]	326 [2143]	0.254
Lactate, U/L, median [IQR]	2.4 [3]	3.2 [6]	2.3 [3]	0.060
C reactive protein, mg/dL, median [IQR]	2.2 [8]	3.1 [9]	2.2 [8]	0.615
Intensive care support				
Mechanical ventilation, n (%)	59 (41.8%)	18 (50%)	41 (39.0%)	0.328
Renal replacement therapy, n (%)	19 (13.5%)	3 (8.3%)	16 (15.2%)	0.402
Temporary pacemaker, n (%)	25 (17.7%)	10 (27.8%)	15 (14.3%)	0.080
IABP / Impella®, n (%)	56 (39.7%)	11 (30.6%)	45 (42.9%)	0.238
ECMO, n (%)	15 (10.6%)	5 (13.9%)	10 (9.5%)	0.532
Noradrenaline, n (%)	112 (79.4%)	33 (91.7%)	79 (75.2%)	0.054
Dobutamine, n (%)	60 (42.6%)	16 (44.4%)	44 (41.9%)	0.846
Levosimendan, n (%)	34 (24.1%)	9 (25.0%)	25 (23.8%)	0.885
Mortality outcomes				
Death at 30 days, n (%)	56 (39.7%)	13 (36.1%)	43 (41.0%)	0.695
Death at 1 year, n (%)	60 (42.6%)	14 (38.9%)	43 (41.0%)	0.697

Figure PO 231

in stage E]. Only creatinine was significantly different between patients with classic and normotensive CS [1.5 [1.7] vs. 1.2 [0.9] mg/dL, p 0.025]. Lactate levels were higher in classic CS but without statistically significant differences (3.2 [6] vs. 2.3 [3] U/L, p 0.060). There were no statistically significant differences regarding critical care support use, although noradrenaline use was higher in patients with classic CS [33 (92%) vs. 79 (75%), p 0.054]. Mechanical circulatory support, mechanical ventilation and renal replacement therapy were used similarly in classic and normotensive CS. Mortality outcomes at 30 days and 1 year were similar between groups.
Conclusions: Only SCAI classification and creatinine levels were significantly different between patients with classic and normotensive CS. No differences regarding critical care support were verified and mortality in classic and normotensive CS were similar, enhancing the importance of recognition and adequate support of CS even when there is no hypotension at presentation.

PO 232. A SINGLE CENTER ANALYSIS EXPLORING MECHANICAL CIRCULATORY SUPPORT IN CARDIOGENIC SHOCK

Marta Catarina Almeida[1], Jéni Quintal[2], André Lobo[1], Inês Neves[1], Marta Leite[1], Adelaide Dias[1], Daniel Caeiro[1], Marisa Silva[1], Marta Ponte[1], Pedro Teixeira[1], Ricardo Fontes-Carvalho[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho, EPE. [2]Centro Hospitalar de Setúbal, EPE/Hospital de São Bernardo.

Introduction: Mechanical circulatory support (MCS) is an invasive support strategy in patients with cardiogenic shock (CS).
Objectives: The aim of the study was to compare CS patients with or without MCS and to identify predictors of implantation.
Methods: Retrospective analysis of CS patients in an intensive cardiac unit submitted to MCS between 2018 and 2022 was conducted. Comorbidities, diagnosis, left ventricular ejection fraction (LVEF) and analytic data at presentation, SCAI classification, intensive care support and mortality at 30 days and 1 year were registered. Chi-square, t-test and Mann-Whitney tests were used to test the associations. Logistic regression was used to predict implantation of MCS.
Results: In 175 patients with CS, 74 patients (42%) had MCS, namely 63 (36%) with intra-aortic ballon pump or Impella® heart pump and 25 (14.3%) with extracorporeal membrane oxygenation (ECMO). A comparison of patients with and without MCS use is presented in Table 1. Mean age didn't show statistically significant differences (68 ± 14.6 in patients without MCS versus 64 ± 13.9 years in patients with MCS, p 0.055). Active smoking (OR 2.218, p 0.013), history of heart failure (OR 0.16, p < 0.001), valvular heart disease (OR 0.08, p 0.005) and atrial flutter/fibrillation (OR 0.11, p < 0.001) were associated with MCS implantation. Diagnosis (R^2 = 0.128, p < 0.001), SCAI classification (R^2 = 0.198, p < 0.001), high sensitivity T troponin levels (z = -2.178, p 0.029), invasive ventilation (OR 2.01, p 0.032) and renal replacement therapy (OR 2.71, p 0.038) correlated with MCS implantation". The above data predicted MCS use (R^2 = 0.426, p < 0.001). Mortality outcomes at 30 days and 1 year weren't significantly different between patients with or without MCS.

Table 1. Baseline characteristics, diagnosis, left ventricular ejection fraction, SCAI classification, intensive care support and mortality outcomes

Characteristics	Total (n = 175)	No MCS (n = 101)	MCS (n = 74)	p value
Female sex, n (%)	47 (26.9%)	27 (26.7%)	20 (27.0%)	0.965
Hypertension, n (%)	101 (57.7%)	59 (58.4%)	42 (56.8%)	0.826
Dyslipidemia, n (%)	99 (56.6%)	57 (56.4%)	42 (56.8%)	0.966
Diabetes, n (%)	61 (34.9%)	36 (35.6%)	25 (33.8%)	0.873
Active smoking, n (%)	75 (42.9%)	35 (34.7%)	40 (54.1%)	**0.013**
Obesity, n (%)	52 (29.7%)	29 (28.7%)	23 (31.1%)	0.741
Family history of CV disease, n (%)	9 (5.1%)	5 (5.0%)	4 (5.4%)	0.893
Heart failure, n (%)	37 (21.1%)	32 (31.7%)	5 (6.8%)	**<0.001**
Coronary artery disease, n (%)	39 (22.3%)	22 (21.8%)	17 (23.0%)	0.856
Valvular heart disease, n (%)	15 (8.6%)	14 (13.9%)	1 (1.4%)	**0.005**
Cardiomyopathy (other), n (%)	8 (4.6%)	6 (5.9%)	2 (2.7%)	0.470
Atrial fibrillation/flutter, n (%)	22 (12.6%)	20 (19.8%)	2 (2.7%)	**<0.001**
Cerebrovascular disease, n (%)	18 (10.3%)	10 (9.9%)	8 (10.8%)	0.845
Chronic kidney disease, n (%)	29 (16.6%)	17 (16.8%)	12 (16.2%)	0.914
Peripheral artery disease, n (%)	17 (9.7%)	9 (8.9%)	8 (10.8%)	0.797
Alcohol consumption, n (%)	21 (12%)	14 (13.9%)	7 (9.5%)	0.482
Diagnosis				**<0.001**
Acute coronary syndrome, n (%)	112 (64.0%)	53 (52.5%)	59 (79.7%)	
Acute heart failure, n (%)	32 (18.3%)	26 (25.7%)	6 (8.1%)	
Electrical storm, n (%)	9 (5.1%)	6 (5.9%)	3 (4.1%)	
Myocarditis, n (%)	5 (2.9%)	1 (1.0%)	4 (5.4%)	
Progression of valvular disease, n (%)	5 (2.9%)	5 (5.0%)	0 (0%)	
Complete atrioventricular block, n (%)	5 (2.9%)	5 (5.0%)	0 (0%)	
Tachycardiomyopathy, n (%)	3 (1.7%)	3 (3.0%)	0 (0%)	
SCAI classification				**<0.001**
Stage A, n (%)	14 (8.0%)	7 (6.9%)	7 (9.5%)	
Stage B, n (%)	28 (16.0%)	19 (18.8%)	9 (12.2%)	
Stage C, n (%)	65 (37.1%)	51 (50.5%)	14 (18.9%)	
Stage D, n (%)	41 (23.4%)	15 (14.9%)	26 (35.1%)	
Stage E, n (%)	27 (15.4%)	9 (8.9%)	18 (24.3%)	
Left ventricular ejection fraction				0.116
Preserved, n (%)	28 (16.0%)	16 (15.8%)	12 (16.2%)	
Mildly reduced, n (%)	13 (7.4%)	9 (8.9%)	4 (5.4%)	
Moderately reduced, n (%)	48 (27.4%)	21 (20.8%)	27 (36.5%)	
Severely reduced, n (%)	86 (49.1%)	55 (54.5%)	31 (41.9%)	
Intensive care support				
Mechanical ventilation, n (%)	89 (50.1%)	44 (43.6%)	45 (60.8%)	**0.032**
Renal replacement therapy, n (%)	22 (12.6%)	8 (7.9%)	14 (18.9%)	**0.038**
Temporary pacemaker, n (%)	29 (16.6%)	14 (13.9%)	15 (20.3%)	0.306
Noradrenaline, n (%)	144 (82.3%)	83 (82.2%)	61 (82.4%)	0.965
Dobutamine, n (%)	75 (42.9%)	38 (37.6%)	37 (50.0%)	0.123
Levosimendan, n (%)	34 (19.4%)	22 (21.8%)	12 (16.2%)	0.440
Mortality outcomes				
Death at 30 days, n (%)	70 (40.0%)	36 (35.6%)	33 (44.6%)	0.274
Death at 1 year, n (%)	79 (45.1%)	38 (37.6%)	37 (50.0%)	0.123

Figure PO 232

Conclusions: Smokers had higher odds of having MCS support, opposite to patients with history of heart failure, valvular heart disease or atrial flutter/fibrillation. Diagnosis, SCAI classification and troponin levels at admission predicted the implantation of MCS. Patients submitted to invasive ventilation and renal replacement therapy had more than twice the odds of having MCS. Mortality outcomes were similar irrespective of MCS use. Almost half of the prediction of MCS implantation was explained by SCAI classification and it was also associated with mortality, enhancing the focus on staging these patients to assist in timely decision on MCS implantation.

PO 233. PREDICTORS OF MORTALITY IN CARDIOGENIC SHOCK: CLINICAL STAGING AND CARDIOVASCULAR SUPPORT

Marta Catarina Almeida, Inês Neves, André Lobo, Marta Leite, Rafael Teixeira, Fábio Nunes, Adelaide Dias, Daniel Caeiro, Marisa Silva, Marta Ponte, Pedro Teixeira, Ricardo Fontes-Carvalho

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

Introduction: Cardiogenic shock (CS) is a condition in which cardiac output isn't enough to meet organ demands. Factors related to mortality are inconsistent in literature.
Objectives: The aim of the study was to assess comorbidities, clinical presentation, diagnosis, analytic data and CV support in patients with CS and its impact on mortality.
Methods: A retrospective study of patients admitted to an intensive cardiac unit in 5 years was conducted (n = 6,950). Patients with CS were included (n = 175). Comorbidities, diagnosis, left ventricular ejection fraction (LVEF) and analytic data at admission, SCAI classification, CV support and mortality at 30 days and 1 year were registered. Chi-square, t-test and Mann-Whitney tests were used to test the associations. Logistic regression was used to predict mortality.

Table 1. Baseline characteristics

Characteristics (n = 175)	Frequency (%)
Hypertension, n (%)	101 (57.7%)
Dyslipidemia, n (%)	99 (56.6%)
Diabetes, n (%)	61 (34.9%)
Active smoking, n (%)	75 (42.9%)
Obesity, n (%)	52 (29.7%)
Family history of cardiovascular disease, n (%)	9 (5.1%)
Heart failure, n (%)	37 (21.1%)
Coronary artery disease, n (%)	39 (22.3%)
Previous coronary intervention, n (%)	27 (15.4%)
Valvular heart disease, n (%)	15 (8.6%)
Previous valvular intervention, n (%)	4 (2.3%)
Cardiomyopathy (other than previous), n (%)	8 (4.6%)
Atrial fibrillation/flutter, n (%)	22 (12.6%)
Peripheral artery disease, n (%)	17 (9.7%)
Cerebrovascular disease, n (%)	18 (10.3%)
Dementia, n (%)	6 (3.4%)
Chronic kidney disease, n (%)	29 (16.6%)
Chronic pulmonary disease, n (%)	8 (4.6%)
Alcohol consumption, n (%)	21 (12%)
Diagnosis, n (%)	
Acute coronary syndrome	112 (64.0%)
Heart failure	32 (18.3%)
Electrical storm	9 (5.1%)
Myocarditis	5 (2.9%)
Valvular heart disease	5 (2.9%)
Complete atrioventricular block	5 (2.9%)
Cardiomyopathy (other)	4 (2.3%)
Tachycardiomyopathy	3 (1.7%)

Results: Mean age was 66 years and 73% were male. Comorbidities and diagnosis are described in Table 1. Half of the patients had severely reduced LVEF at admission. SCAI classification was A in 14 patients (8%), 28 (16%) in stage B, 65 (37%) in stage C, 41 (23%) in stage D and 27 (15%) in stage E. Vasoactive drugs mainly used were noradrenaline in 144 patients (82%), dobutamine in 75 (46%) and levosimendan in 34 (19%). Mechanical circulatory support used was intra-aortic balloon pump or Impella® in 63 (36%) and extracorporeal membrane oxygenation (ECMO) in 25 (14%) patients. Mortality rate at 30 days was 40% and 45% at 1 year. Mortality at 30 days was associated with age (OR 1.02, p 0.014), SCAI classification (R^2 0.135, p < 0.001), ECMO (OR 2.67, p 0.028), noradrenaline (OR 2.59, p 0.043) and dobutamine (OR 3.44, p < 0.001). Except for the ECMO support, 1-year mortality had the same associations [age (OR 1.04, p < 0.001), SCAI classification (R^2 0.129, p 0.002), noradrenaline (OR 3.07, p 0.016) and dobutamine (OR 2.34, p 0.009)] and temporary pacemaker implantation was also associated (OR 3.05, p 0.008). Aforementioned factors predicted mortality at 30 days and 1-year (p < 0.001). Diagnosis, LVEF and analytic data weren't associated with mortality.
Conclusions: Most patients were SCAI C to E. A high mortality rate was observed and SCAI classification was the strongest predictor. Age and vasoactive drugs were also associated with mortality. ECMO support was associated with 30-day and temporary pacemaker implantation with 1-year mortality. This study emphasizes the importance of staging shock, on top of age, to help decide which and how much CV support to use.

Sábado, 12 Abril de 2025 | 11:00-12:30

Área de Posters-écran 2 | Sessão de Posters 36 – Tudo sobre lípidos

PO 234. FIBRINOGEN IS A PREDICTOR OF CEREBROVASCULAR DISEASE RISK IN A PORTUGUESE POPULATION

Cátia A. Martins[1], Ana Célia Sousa[1], Patrícia Nunes[1], João Gouveia[1], Sofia Almada[1], Mónica Jardim[1], Sofia Borges[1], Maria João Oliveira[1], Mariana Rodrigues[1], Eva Henriques[1], Maria Isabel Mendonça[1], Roberto Palma dos Reis[2]

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

Introduction: Several studies report that markers of systemic inflammation, such as fibrinogen, are involved in atherosclerosis and endothelial dysfunction and associated with cardiovascular disease. However, the role of these inflammatory markers in the pathophysiology of cerebrovascular disease (CVD) is still incompletely understood.
Objectives: With the present work, we intend to evaluate whether a marker of inflammation, fibrinogen is a predictor of cerebrovascular disease.
Methods: A study with 1,390 individuals (74% male, mean age of 52.2 ± 8.3 years), without diagnosed cardiovascular or cerebrovascular disease at study entry were followed during 7.2 ± 5.2 years. Demographic and biochemical factors (e.g., fibrinogen) were evaluated, as well as CVD risk factors (diabetes, hypertension, dyslipidemia, obesity, smoking and sedentary lifestyle). We evaluated the individuals who, during the follow-up period, had ischemic CVD namely stroke or transient ischemic attack (TIA). A case-control study was performed comparing the cases group with stroke/TIA (n = 33) with the normal control group (n = 1,357), in relation to serum fibrinogen. A ROC curve was performed, and a cut-off point was calculated for fibrinogen in relation of having a stroke/TIA. Subsequently, a Cox regression analysis was performed with fibrinogen, adjusted for other traditional CVD risk factors (diabetes, hypertension, dyslipidemia, obesity, smoking, sedentary lifestyle). Finally, Kaplan Meier estimated the events-free survival.
Results: Fibrinogen was higher in the stroke/TIA group than in the control group, with statistical significance (p = 0.035). Cut-off point for fibrinogen risk

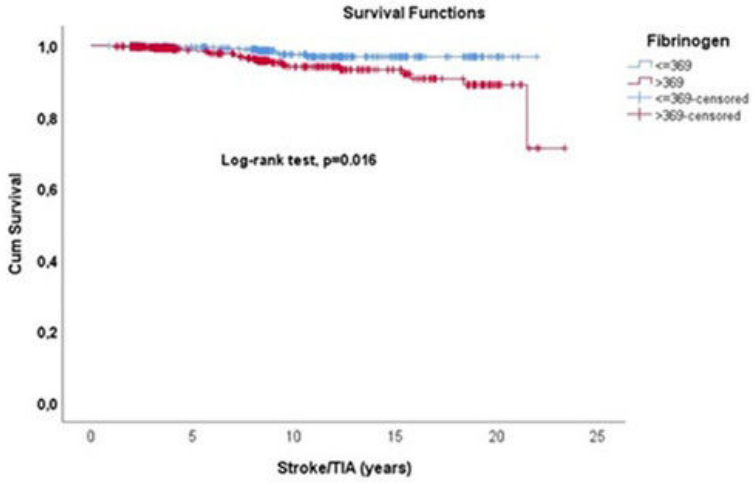

Figure: Kaplan-Meier survival analysis of fibrogen groups in relation of having stroke/TIA

Figure PO 234

was 369 mg/dL. After Cox analysis adjusted for traditional risk factors, fibrinogen remained in the equation, as well as smoking, being both significantly and independently associated with stroke/TIA (HR = 2.513, 95%CI 1.164-5.428; p = 0.019 and HR = 3.039, 95%CI 1.533-6.026; p = 0.001, respectively). Kaplan-Meier curves demonstrated that, during the follow-up period, individuals with higher fibrinogen are more likely to have a stroke/TIA.
Conclusions: According to the results obtained, it is noteworthy that the serum values of the inflammatory biomarkers such as fibrinogen are predictors of stroke/TIA risk. Given the importance of these markers in the involvement of atherosclerosis, endothelial dysfunction and their knowledge, it will help us in the future to find new therapeutic approaches.

PO 235. THE IMPORTANCE OF FIBRINOGEN AS A CARDIOVASCULAR RISK FACTOR

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Introduction: Several epidemiological studies have shown that an increase in serum fibrinogen levels is associated with a higher risk of cardiovascular disease (CVD), as well as a higher risk of organ damage and poor cardiovascular outcomes. However, the value of fibrinogen cut-point to increased CVD risk is not yet well established.
Objectives: We intend to evaluate whether fibrinogen is a CVD risk factor and establish the value from which it represents CVD risk, in a Portuguese population.
Methods: In 1,390 individuals (74% male, mean age of 52.2 ± 8.3 years), without CVD diagnosed at study entry, a follow-up was carried out over an extended period (7.2 ± 5.2 years). We studied the occurrence of CVD (acute myocardial infarction, angina pectoris, stroke, transient stroke and peripheral arterial disease). We evaluated demographic and biochemical variables (e.g. fibrinogen) and classic CVD risk factors (diabetes, hypertension, dyslipidemia, obesity, smoking and sedentary lifestyle). A case-control study compared the group that had CVD during the follow-up (n = 61) with the controls (n = 1,329), in relation to fibrinogen levels. We made a ROC curve and calculated the cut-off point of fibrinogen, to find the optimal point of specificity and sensitivity in relation to having CVD. A multivariate analysis was performed with fibrinogen, adjusted for traditional CV risk factors.
Results: Significant differences were obtained in CVD and control groups in relation to serum fibrinogen levels (p = 0.035). The cut-off point for fibrinogen in relation to having CVD was 416 mg/dL. After multivariate regression analysis, adjusted for CVD risk factors, fibrinogen remained in the equation (OR = 2.137; p = 0.005), as well as smoking (OR = 2.913; p < 0.0001) and arterial hypertension (OR = 1.908; p = 0.020) as significantly and independently associated with CVD.

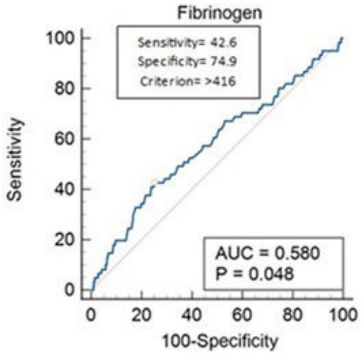

Figure 1 - ROC curve for fibrinogen in relation to CVD.

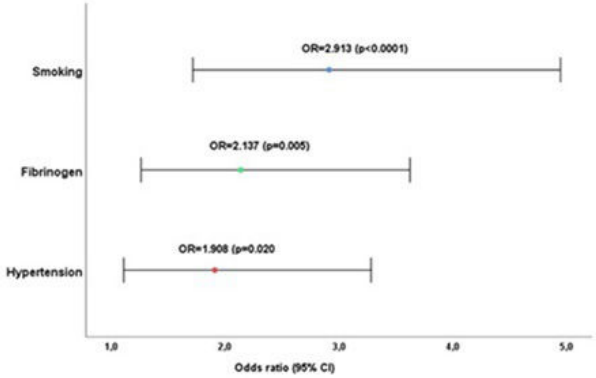

Figure 2 – Multivariate regression analysis with fibrinogen, adjusted for traditional risk factors.

Conclusions: With the present work, we proved that serum fibrinogen is a predictor of CVD risk and established the value above which fibrinogen is a risk of cardiovascular events in our population: 416 mg/dL. The determination of the optimal value with greater specificity and sensitivity of fibrinogen in relation to CVD risk may contribute to establish a risk parameter in the future and can be used in clinical practice to estimate CVD risk.

PO 236. THE ROLE OF THE TRIGLYCERIDE-GLUCOSE INDEX AS A PREDICTOR OF CORONARY ARTERY DISEASE SEVERITY IN YOUNG PATIENTS

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ULSR Leiria.

Introduction: The triglyceride-glucose (TyG) index has emerged as a reliable marker of insulin resistance, a recognized risk factor for coronary artery disease (CAD). Elevated TyG index values have been consistently linked to increased CAD severity. While this association is well-documented in older populations, evidence in younger patients (pts) remains scarce.
Objectives: Evaluate the association between the TyG index and the extent of CAD in young adults, based on the number of stenosed coronary arteries (CA) detected through coronary angiography.
Methods: Retrospective single-center study of adult pts under 45 yrs of age who were admitted to our center, either electively or urgently, for cardiac catheterization due to suspected CAD between 2017 and 2023. We included only pts with significant coronary artery stenosis (≥ 70% in epicardial vessels or ≥ 50% in the left main CA). Pts were classified in the single-vessel disease group (Group 1) or multi-vessel disease group (Group 2). The presence of cardiovascular risk factors and potential analytical predictors of CAD was assessed. The TyG index was calculated as ln [TG (mg/dL) × FBG (mg/dL)/2]. Comparative analyses were performed.
Results: 152 pts were included; median age was 42 yrs (IQR 5) and 132 pts (86.8%) were male. 132 pts (86.8%) were urgently admitted for suspected acute coronary syndrome, with 65.2% presenting as ST-segment elevation myocardial infarction. Angiographic findings showed 95 pts (62.5%) with single-vessel disease (SVD) (Group 1), while 57 pts (37.5%) presented with multi-vessel disease (MVD) (Group 2). Group 1 pts were younger (42 [IQR 7] vs. 43 [IQR 4] yrs, p = 0.013), with a lower prevalence of diabetes (3.2 vs. 12.3%, p = 0.041) and higher smoking rates (73.1 vs. 57.4%, p = 0.049). They also exhibited significantly lower HbA1c, fasting blood glucose (FBG), triglycerides and TyG index levels (Table 1A). Through the ROC curve analysis, the TyG index had strong predictive value for MVD (AUC 0.847, p < 0.001; 95%CI 0.773-0.920), with an optimal cutoff at 8.991 (80% sensitivity, 83% specificity). After multivariate logistic regression, triglycerides (OR 3.82, 95%CI 1.03-14.13) and TyG index (OR 10.93, 95%CI 2.85-41.88) were independent predictors of MVD.
Conclusions: Consistent with previous studies in older populations, we confirmed that elevated triglycerides and TyG index independently predict complex CAD in young pts, highlighting TyG index's potential as a high-risk marker in this group.

PO 237. COST-EFFECTIVENESS ANALYSIS AND BUDGET IMPACT MODEL OF LIPOPROTEIN (A) TESTING IN PORTUGUESE PATIENTS WITH ATHEROSCLEROTIC CARDIOVASCULAR DISEASE IN SECONDARY PREVENTION

Sara Monge, Joana Gomes da Costa, César Ferreira

Novartis Farma.

Objectives: Elevated Lipoprotein (a) [Lp(a)] is a genetically inherited condition that has been causally associated with an increased risk for cardiovascular disease (CVD). Despite guidelines recommendation of broad Lp(a) testing, this is not implemented in real-world clinical practice. Absence of targeted therapies and economic concerns have been indicated as barriers on general Lp(a) testing. This study aims to assess the cost-effectiveness and budget impact of implementing Lp(a) testing for secondary prevention in an atherosclerotic cardiovascular disease (ASCVD) population

(A)

	Total (n=152)	Group 1 (n=95)	Group 2 (n=57)	p-value
Male gender – n (%)	132 (86.8)	83 (87.4)	49 (86.0)	0.804[a]
Age at diagnosis (yrs) – median (IQR)	42 (5)	42 (7)	43 (4)	**0.013[b]**
Type of admission – n (%)				
Urgent	132 (86.8)	84 (88.4)	48 (84.2)	0.457[a]
Elective	20 (13.2)	11 (11.6)	9 (15.8)	0.585[a]
Past medical history – n (%)				
Overweight (BMI 25-29.9 kg/m²)	63 (43.8)	35 (39.3)	28 (50.9)	0.173[a]
Obesity (BMI ≥30 kg/m²)	45 (41.3)	26 (29.2)	19 (34.5)	0.502[a]
Hypertension	47 (30.9)	25 (26.3)	22 (38.6)	0.113[a]
Dyslipidemia*	70 (46.4)	43 (45.7)	27 (47.4)	0.846[a]
History of CAD	13 (8.6)	5 (5.3)	8 (14.0)	0.076[a]
Diabetes mellitus	10 (6.6)	3 (3.2)	7 (12.3)	**0.041[a]**
History of smoking*	99 (67.3)	68 (73.1)	31 (57.4)	**0.049[a]**
Family history of CVD*	30 (31.9)	21 (35.0)	9 (26.4)	0.394[a]
Analytical variables				
Total cholesterol (mg/dl)* – mean (SD)	197.6 (45.2)	194.4 (42.3)	204.4 (52.6)	0.426[c]
HDL-C (mg/dl)* – median (IQR)	40.0 (10.0)	40.5 (12.0)	40.0 (11.0)	0.138[b]
LDL-C (mg/dl)* – mean (SD)	128.1 (40.4)	125.6 (36.5)	131.4 (48.9)	0.697[c]
Triglycerides (mg/dl)* – median (IQR)	147.0 (84.0)	119.0 (60.0)	181.5 (88.0)	**<0.001[b]**
Fasting blood glucose (mg/dl)* – median (IQR)	101.0 (20.0)	95.5 (19.0)	103.0 (16.0)	**<0.001[b]**
TyG index* – median (IQR)	8.86 (0.65)	8.73 (0.48)	9.19 (0.54)	**<0.001[b]**
HbA1c (%)* – median (IQR)	5.5 (0.5)	5.4 (0.4)	5.6 (0.5)	**0.005[b]**

(B)

Variables	OR	CI 95%	p-value
Diabetes mellitus	0.514	0.066 - 3.990	0.524
History of smoking	0.365	0.119 - 1.117	0.077
Fasting blood glucose (≥100 mg/dl)	1.135	0.324 - 3.981	0.843
HbA1c (≥5.7%)	1.173	0.339 - 5.060	0.801
Triglycerides (≥150 mg/dl)	3.821	1.034 - 14.128	**0.044**
TyG index (≥8.991)	10.925	2.851 - 41.875	**<0.001**

Table 1. (A) Patient baseline characteristics and analytical variables. (B) Multivariate logistic regression.
Statistical analysis: [a]Chi-square test, [b]Mann-Whitney U test, [c] t-student test. Abbreviations: **BMI** - body mass index, **CAD** - coronary artery disease, **CI** - confidence interval, **CVD** – cardiovascular disease, **HbA1c** - glycated hemoglobin, **HDL-C** - high-density lipoprotein-cholesterol, **LDL-C** - low-density lipoprotein-cholesterol, **OR** - odds ratio, **TyG** - triglyceride-glucose. *Missing values for the variables analyzed in the total population: 8 for "Overweight" and "Obesity", 1 for "Dyslipidemia", 5 for "History of smoking", 58 for "Family history of CV disease", 2 for "Fasting blood glucose"; 13 for "Total cholesterol", "HDL-C", "LDL-C", "Triglycerides", and "TyG index"; 28 for "HbA1c".

Figure PO 236

in absence of targeted therapies, adopting the perspective of the Portuguese National Health Service (P-NHS).
Methods: A decision tree economic model followed by a Markov model and the UK Biobank's (UKBK) predictive risk equations were used to develop the economic model. The costs and outcomes with and without Lp(a) testing were compared, with the assumption that testing might induce a behavioural change which in turn might impact other cardiovascular (CV) risk factors.
Results: Different scenarios were considered, and Lp(a) testing is deemed to be a cost-effective strategy in most of the scenarios with a minimal change (< 2%) in two CV risk factors. When considering a sizeable change in a single CV risk factor such as LDL-C as previously observed, Lp(a) testing is dominant. In this scenario, the budget impact model showed that testing was able to generate cost savings in a Portuguese secondary prevention ASCVD population.
Conclusions: Testing for Lp(a) in a secondary prevention population can be a cost-effective approach. When considering a significant change in CV risk factors, testing can be cost saving, potentially leading to relevant benefits to the P-NHS, even in the absence of target therapies. Although Lp(a) testing may contribute towards an optimization of CV risk management, the unmet need of reducing Lp(a) associated CV risk remains.

PO 238. LIPOPROTEIN(A) AND ACUTE CORONARY SYNDROME: ASSOCIATIONS WITH SEX, AGE AND TRADITIONAL CARDIOVASCULAR RISK FACTORS

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Introduction: Lipoprotein(a) [Lp(a)] is an independent risk factor for coronary disease due to its atherogenic, proinflammatory, and prothrombotic properties. Current guidelines recommend a single measurement in adults to refine the risk of acute coronary events.
Objectives: We aim to characterize Lp(a) levels in patients presenting with acute coronary syndrome (ACS) and explore associations with sex, age, comorbidities, and traditional cardiovascular risk factors (TCVRF).
Methods: We included all patients admitted with ACS from January 2022 to December 2023 in our center who had Lp(a) levels measured at admission. Patients were stratified into two groups based on Lp(a) levels: elevated (> 100 nmol/L) vs. normal (≤ 100 nmol/L). Premature coronary disease was defined as occurring in men aged ≤ 55 years and women aged ≤ 60 years. Demographic and clinical data, including TCVRF (dyslipidemia, diabetes, hypertension, smoking, and obesity), were collected from hospital records. Chi-square and independent t or Mann-Whitney tests were used to compare categorical and quantitative variables between groups, respectively.
Results: A total of 388 patients were included in our analysis: 238 (61.3%) with normal Lp(a) levels and 150 (38.7%) with high Lp(a) levels. The cohort comprised 19.6% women and 80.4% men, with a median age of 63 years (IQR 55-73); 32.5% had premature coronary disease. Women tended to have higher Lp(a) levels [47% of women had high Lp(a) vs. 37% of men with high Lp(a)] although not significant (p = 0.082). There were no significant differences in age distribution (p = 0.4) [Figure 1]. There were no significant differences in comorbidities, event characteristics, or complications between groups. A higher percentage of patients in the high Lp(a) group were treated with ezetimibe (14 vs. 8.4%; p = 0.081). No correlation was found between Lp(a) and LDL-c, HDL-c, total cholesterol, or triglycerides (p = 0.312, 0.514, 0.208, 0.162, respectively). Overall, 10.7% of patients had no TCVRF, while 89.3% had at least one. Lp(a) levels did not differ significantly across TCVRF categories, and no specific risk factor was associated with elevated Lp(a). Among patients without TCVRF, women had higher Lp(a) levels than men. In those with ≥ 1 TCVRF, older women exhibited a tendency for higher Lp(a) levels.
Conclusions: Lp(a) levels show heterogeneous distribution with no significant associations with TCVRF, age, lipid parameters, or other comorbidities, However, a trend indicating higher Lp(a) levels in women presenting with ACS compared to men was noted. These findings highlight Lp(a) as an independent cardiovascular risk factor and underscore the need for larger, more comprehensive studies to explore the potential relation between Lp(a) levels and sex.

PO 239. THE HIGH HDL CONTROVERSY CONTINUES: THE PROGNOSIS FOR WOMEN WITH A HIGH HDL PROFILE IS SERIOUSLY UNFAVOURABLE

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

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Introduction: Elevated HDL-c has been associated with increased all-cause mortality in conditions like cancer or liver disease. The traditional "more HDL is better" paradigm is no longer universally accepted. Understanding prognosis is crucial in evaluating cardiovascular and overall risk, especially in women.
Objectives: To investigate the association between HDL-c levels and all causes of events and mortality in a Southern European Population.
Methods: 1,421 normal individuals from a Southern European population (aged 52.2 ± 8.3 years, 73.6% male) were followed during an extended follow-up (mean of 7.3 ± 5.2 years). Demographic data, smoking status, alcohol intake, physical activity and clinical risk factors were collected from questionnaires

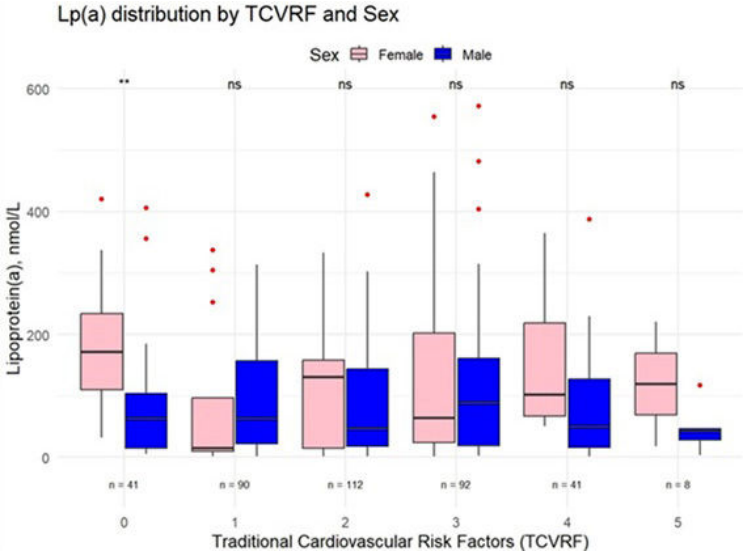
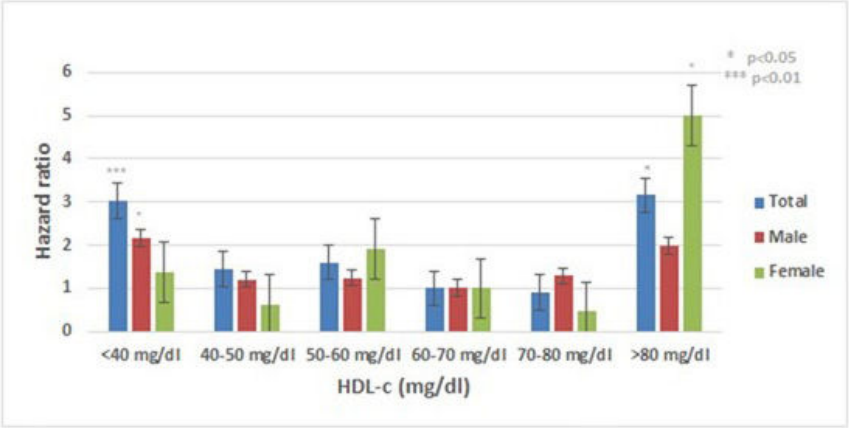


Figure PO 238



Risk of total events (vascular and non-vascular) in the six HDL-cholesterol groups

Figure PO 239

at baseline in 2000. Continuous data were expressed as the mean ± SD and compared using t Student test. Categorical variables were described by percentages and compared using the Chi-square test. The population was stratified into six groups based on HDL-c levels in mg/dl (< 40, 40 to 49, 50 to 59, 60 to 69, 70 to 79, and ≥ 80). To investigate the association between HDL-c levels and events, we subdivided each category level into three subgroups (overall population, male and female). In an adjusted multivariate model, Cox regression tested the association between HDL-c levels and all-cause events and mortality (vascular and non-cardiovascular) adjusted for potential confounders.

Results: At the end of follow-up, 156 total events (vascular and nonvascular) were identified (event rate, 15.3 per 1,000 person-years). In the lower category of HDL, the general population subgroup and men were significantly associated with an increase in total events compared to the reference group. However, in the highest HDL profile (≥ 80 mg/dl), the women have a much higher risk of events (5 times more risk than the reference and, approximately, 2.5 times above men).

Conclusions: Our findings highlight the importance of appropriate HDL-C levels in reducing the risk of events and death and challenge the conventional notion that higher HDL-c levels are better. More studies are necessary to clarify whether the associations observed in our study are causal and to elucidate the potential mechanisms.

PO 240. LDL ON TARGET - STRIKE EARLY AND STRIKE STRONG… JUST STRIKE!

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Introduction: Current ESC guidelines recommend stepwise, LDL-guided lipid-lowering therapy (LLT) in post-acute coronary syndrome (ACS) patients, but this approach often fails to achieve target LDL levels, leaving patients at residual risk. An alternative "strike early and strike strong" strategy[1], combining high-intensity (HI) statins with ezetimibe upfront, may improve lipidic control and outcomes.

Table 1 – Baseline clinical characteristics of post-ACS patients.

			LDL < 55 mg/dL	LDL ≥ 55 mg/dL	Total	P-value
			(n=76, 36%)	(n=135, 64%)	(n=211, 100%)	
Gender	Male	n (%)	60 (79%)	97 (72%)	157 (74%)	0.257
	Female	n (%)	16 (21%)	38 (21%)	54 (26%)	
Age (years)		Mean±SD	65 ± 12	64 ± 12	65 ± 12	0.284
Foreign nationality		n (%)	11 (15%)	18 (13%)	29 (14%)	0.393
Diagnosis at admission	STEMI	n (%)	39 (51%)	58 (43%)	97 (46%)	0.712
	NSTEMI	n (%)	33 (43%)	69 (51%)	102 (48%)	
	Unstable Angina	n (%)	1 (1%)	2 (2%)	3 (1.4%)	
	MI of unknown location	n (%)	3 (4%)	6 (4%)	9 (4.3%)	
Medical History	MI	n (%)	14 (18%)	37 (27%)	51 (24%)	0.143
	Stroke/TIA	n (%)	4 (5%)	9 (7%)	13 (6.2%)	0.684
	Dyslipidemia	n (%)	40 (53%)	77 (57%)	117 (56%)	0.537
	Hypertension	n (%)	57 (74%)	82 (61%)	139 (66%)	**0.036**
	Diabetes Mellitus	n (%)	31 (40%)	40 (30%)	71 (34%)	0.100
	Chronic kidney disease	n (%)	3 (4%)	9 (7%)	12 (6%)	0.413
	Cancer	n (%)	5 (7%)	9 (7%)	14 (7%)	0.980
Previously medicated with HI-statin		n (%)	21 (27%)	41 (30%)	62 (29%)	0.675
Active smokers		n (%)	22 (31%)	58 (43%)	71 (34%)	0.313

Figure PO 240

Objectives: To provide a comprehensive analysis of the lipid profile and discharge medication of post-ACS patients treated at our center.
Methods: This single-center retrospective study included ACS patients admitted between January 2020 and October 2020, with a mean follow-up of 42 months. The patients were grouped by follow-up LDL (< 55 mg/dL and ≥ 55 mg/dL). Data on demographics, admission diagnosis, medical history, metabolic profile, and discharge lipid-lowering therapy (LLT) were collected.
Results: This cohort included 211 patients (74% male, mean age 65 ± 12 years), with 36% achieving LDL < 55 mg/dL at follow-up. Hypertension was more common in the LDL < 55 mg/dL group (74 vs. 61%, p = 0.036). There were no significant differences between the groups in other baseline characteristics. NSTEMI was the most frequent diagnosis (48%), with similar distributions across groups. During hospitalization, patients with LDL < 55 mg/dL had lower levels of total cholesterol (184 ± 55 vs. 209 ± 51 mg/dL, p < 0.001) and LDL cholesterol (124 ± 48 vs. 146 ± 48 mg/dL, p < 0.001). High-intensity statins combined with ezetimibe were more commonly prescribed to the LDL < 55 mg/dL group at discharge (46 vs. 31%, p = 0.05), and adherence was higher in this group (94 vs. 81%, p < 0.001). At follow-up, LDL cholesterol was significantly lower in the LDL < 55 mg/dL group (44 ± 9 vs. 97 ± 43 mg/dL, p < 0.001) with a greater LDL reduction (80 ± 48 vs. 49 ± 53 mg/dL, p < 0.001). BMI, smoking, diastolic BP, and HbA1c were similar between groups, while systolic BP was lower in the LDL < 55 mg/dL group (p = 0.045).
Conclusions: In this cohort, only 36% of post-ACS patients achieved LDL levels < 55 mg/dL at follow-up, highlighting the challenge of achieving optimal lipid control. Patients in this group were more likely to have received a combination of HI-statins and ezetimibe at discharge, with better adherence and greater LDL reductions. These findings support the "strike early and strike strong" approach to LLP as a more effective strategy for achieving LDL targets in very high-risk patients.

PO 241. ASSOCIATION BETWEEN LIPOPROTEIN(A) AND RENAL FUNCTION: INSIGHTS FROM A CROSS-SECTIONAL STUDY

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Introduction: Lipoprotein(a) [Lp(a)] is a genetically regulated risk marker of atherosclerotic cardiovascular disease (ASCVD). Elevated Lp(a) levels have been linked to chronic kidney disease (CKD), potentially indicating impaired renal clearance and associated metabolic imbalances. This study aims to explore the relationship between Lp(a) levels and estimated glomerular filtration rate (eGFR), shedding light on its clinical relevance in renal function assessment.
Methods: This cross-sectional study included 301 patients recruited between May 2023 and October 2024. Plasma Lp(a) levels were categorized based on European Atherosclerosis Society thresholds: Lp(a) < 75 nmol/L and Lp(a) > 100 nmol/L. eGFR was calculated using the Cockcroft-Gault equation. Correlations between Lp(a) and eGFR were assessed using Spearman's rank coefficient, with p < 0.05 considered statistically significant.
Results: The mean age of the cohort was 63 ± 1 years, with 79.1% male. Comorbidities included hypertension (65.1%), dyslipidemia (64.8%), and diabetes (24.6%). Median Lp(a) levels were 65 nmol/L (IQR: 22-180 nmol/L), and mean eGFR was 83 ± 2 mL/min/1.73 m^2. A significant inverse correlation was observed between Lp(a) and eGFR (r = -0.112, p = 0.027). Patients with Lp(a) > 100 nmol/L had lower mean eGFR (77 ± 3 mL/min/1.73 m^2) compared to those with Lp(a) < 75 nmol/L (85 ± 3 mL/min/1.73 m^2; p = 0.033). An incremental rise in Lp(a) levels with declining eGFR was noted across CKD stages, although significance in advanced stages was limited by small sample sizes.
Conclusions: Elevated Lp(a) levels were associated with reduced eGFR. While cross-sectional data limit causal inference, Lp(a) may contribute for the increased risk of ASCVD in patients with renal impairment. Future longitudinal studies are warranted to confirm these findings and explore therapeutic strategies targeting Lp(a).

PO 242. LONG-TERM LIPID TARGET ACHIEVEMENT AFTER ACUTE MYOCARDIAL INFARCTION AND ISCHEMIC STROKE: A REAL-WORLD ANALYSIS

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Hospital da Luz Lisboa.

Introduction: Despite clear guidelines for lipid management after acute cardiovascular events, real-world achievement of he recommended targets remains elusive. Contemporary European Society of Cardiology (ESC) guidelines set ambitious lipid goals, particularly for LDL-cholesterol, yet their attainment in clinical practice is poorly characterized.
Objectives: To evaluate the achievement of ESC recommended lipid targets in patients after acute myocardial infarction and ischemic stroke.
Methods: In a single-center retrospective study, we analyzed lipid control in 966 consecutive patients following acute myocardial infarction (58.0%) or ischemic stroke (42.0%). The cohort (65.6% male, median age 71.0 years

Table 1 – Baseline Characteristics

Baseline Characteristics	All patients (n=301)	Lp(a)<75nmol/L (n=161)	Lp(a) >100nmol/L (n=124)
Age	63+-1	63+-1	65+-1
Male	238 (79.1%)	132 (82%)	94 (75.8%)
BMI	27 (24-29)	27 (24-30)	26 (24-29)
Hypertension	196 (65.1%)	104 (64.6%)	84 (67.7%)
Dyslipidemia	195 (64.8%)	100 (62.1%)	85 (68.5%)
Diabetes	74 (24.6%)	40 (24.8)	33 (26.6%)
Current smoker	113 (37.5%)	70 (43.5%)	35 (28.2%)
Previous ACS	76 (25.2%)	34 (21.1%)	39 (31.5%)
Previous CABG	19 (6.3%)	5 (3.1%)	14 (11.3%)
Previous Stroke	10 (3.3%)	3 (1.9%)	6 (4.8%)
Peripheral Arterial Disease	14 (4.7%)	6 (3.7%)	8 (6.5%)
Creatinine	1 (0.8-1.2)	1 (0.8-1.2)	1 (0-8-1.2)
eGFR mL/min/1.73m2	83+-2	85+-3	77+-3
Lp(a), nmol/L	65 (22-180)	24 (11-46)	199 (150-239)
Total Cholesterol, mg/dL	159 (123-199)	149 (122-197)	162 (119-201)
LDL, mg/dL	90 (57-131)	83 (56-123)	95 (57-132)
TG, mg/dL	114 (86-161)	125 (87-179)	103 (83-142)
HDL, mg/dL	43 (36-53)	43 (35-53)	45 (38-53)

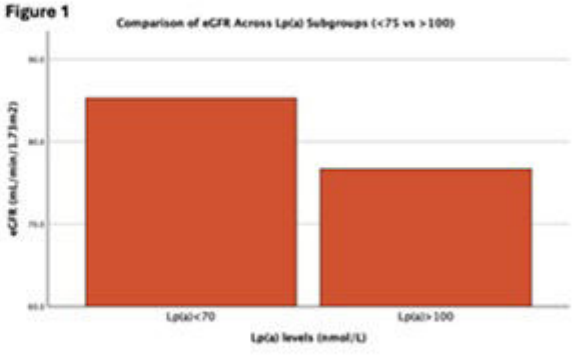

Figure PO 241

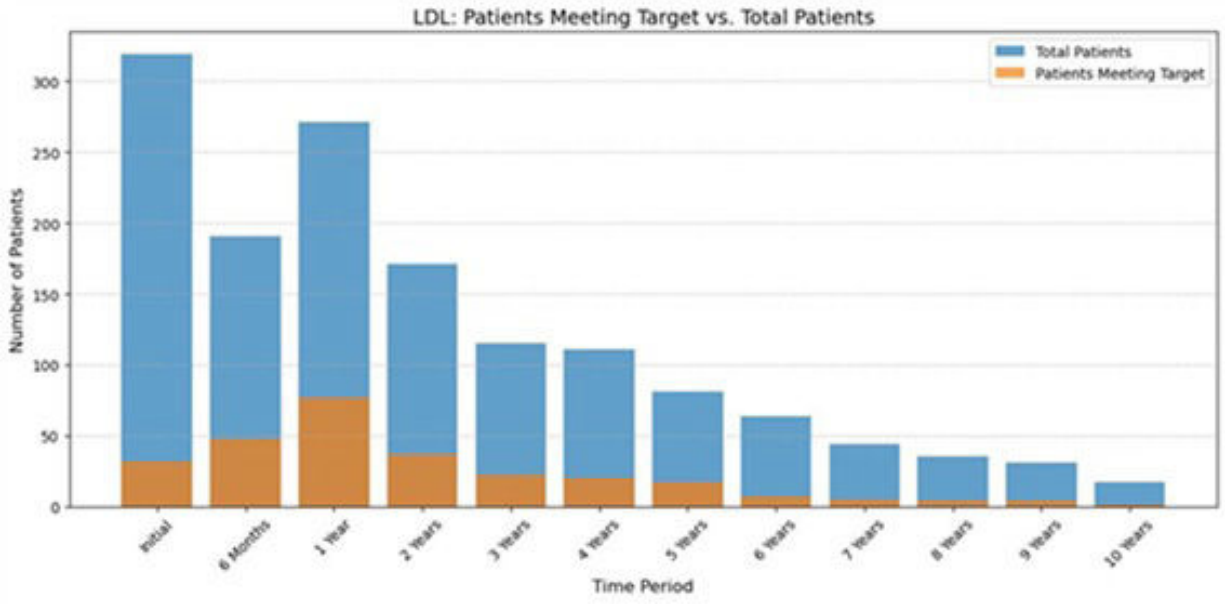

Figure PO 242

[IQR: 21.8]) was followed for up to 5 years. Electronic health records were scrutinized for lipid measurements, evaluating achievement of guideline targets: LDL-C < 55 mg/dL, non-HDL-C < 85 mg/dL, triglycerides < 150 mg/dL, and HDL-C > 40/50 mg/dL for males/females.
Results: Initial LDL-C target achievement at baseline was remarkably low at 10.0% (32/319), improving to 25.1% (48/191) at 6 months and reaching its peak at 27.9% (79/283) at 1 year. Subsequently, target achievement declined: 22.4% (35/156) at 2 years, 19.1% (22/115) at 3 years, 18.0% (20/111) at 4 years, and 21.0% (17/81) at 5 years. In contrast, triglyceride targets were consistently achieved by most patients, ranging from 76.8% (235/306) initially to 80.5% (66/82) at 5 years. While HDL-C levels showed achievement rates between 53.6% (187/349) and 64.0% (57/89) throughout follow-up.
Conclusions: Our findings reveal a striking gap between guideline recommendations and reaching real-world LDL-C targets after major cardiovascular events. The transient peak in reaching target LDL-C at one year, followed by declining success rates, suggests that maintaining long-term lipid control remains a very significant challenge in clinical practice. These results underscore the urgent need for more effective strategies to optimize lipid management in high-risk cardiovascular patients.

Sábado, 12 Abril de 2025 | 11:00-12:30

Área de Posters-écran 3 | Sessão de Posters 37 - Doenças cardiovasculares - terapêutica antitrombótica

PO 243. EFFICACY AND SAFETY OF TICAGRELOR VERSUS CLOPIDOGREL IN ACUTE MYOCARDIAL INFARCTION-ASSOCIATED CARDIOGENIC SHOCK: A PROPENSITY SCORE-MATCHED ANALYSIS

Márcia Presume, Samuel Azevedo, João Presume, Ana Rita Bello, C. Santos-Jorge, Rui Miguel Gomes, André Moniz Garcia, Catarina Brízido, Christopher Strong, António Tralhão, Manuel Almeida, Jorge Ferreira

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

Introduction: Cardiogenic shock secondary to acute myocardial infarction (AMICS) is a critical condition with significant hemostatic challenges. Despite the widespread use of P2Y12 inhibitors, current evidence comes primarily from stable populations. This study aimed to compare the efficacy and safety of ticagrelor versus clopidogrel in a propensity-matched cohort of AMICS patients.
Methods: We conducted a single-center retrospective study to evaluate the impact of ticagrelor versus clopidogrel in AMICS patients receiving dual antiplatelet therapy (DAPT), hospitalized between 2016 and 2024. Propensity score matching was performed on a cohort of 151 patients (103 on clopidogrel; 48 on ticagrelor) using a 1:1 matching protocol without replacement (matching tolerance 20%). Matching variables included age, sex, chronic kidney disease (CKD), peak troponin levels (pTn), occurrence of cardiac arrest, and initial SCAI shock classification. The primary endpoint was 30-day all-cause mortality. Secondary endpoints included major adverse cardiovascular events (MACE), defined as a composite of cardiovascular death, myocardial reinfarction, stroke or transient ischemic attack, and embolic events, as well as major bleeding events, defined as BARC ≥ 3.
Results: A total of 88 patients were included, 44 within each group, with a mean age of 60.5 ± 11 years, 71.6% male, 44.3% presenting in SCAI-C, and 47.7% on mechanical circulatory support (MCS), including IABP, VA-ECMO, and/or Impella. At 30-day follow-up, 39 patients (44.3%) had died. Baseline characteristics were well balanced between groups, including age (p = 0.138), sex (p = 0.813) and SCAI shock classification (p = 0.910) (Table 1). Although not statistically significant, other antithrombotic therapies showed numerical variations between groups. Anticoagulation was more common in clopidogrel-treated patients (70.5 vs. 56.8%), whereas Gp IIb/IIIa antagonists were more frequent in those receiving ticagrelor (20.5 vs. 11.4%). Ticagrelor was associated with a significantly lower 30-day mortality rate (34.1 vs. 54.6%; Log-rank p = 0.018) (Figure 1), and reduced MACE incidence (34.1 vs. 56.8%; Log-rank p = 0.018) (Figure 2). In the subgroup with MCS the magnitude of benefit was similar (OR 0.419 [95%CI = 0.159-1.101]; p = 0.078), despite not reaching statistical significance. No significant differences were observed between groups regarding the incidence of major bleeding events (63.6 vs. 59.1%; OR 1.212 [95%CI = 0.513 - 2.861]; p = 0.662).
Conclusions: In this propensity score-matched analysis of AMICS patients receiving DAPT, ticagrelor was associated with significantly lower 30-day mortality and MACE rates compared to clopidogrel, without a corresponding increase in major bleeding risk. These findings may suggest a potential benefit of ticagrelor in this high-risk population; however, further prospective studies are needed.

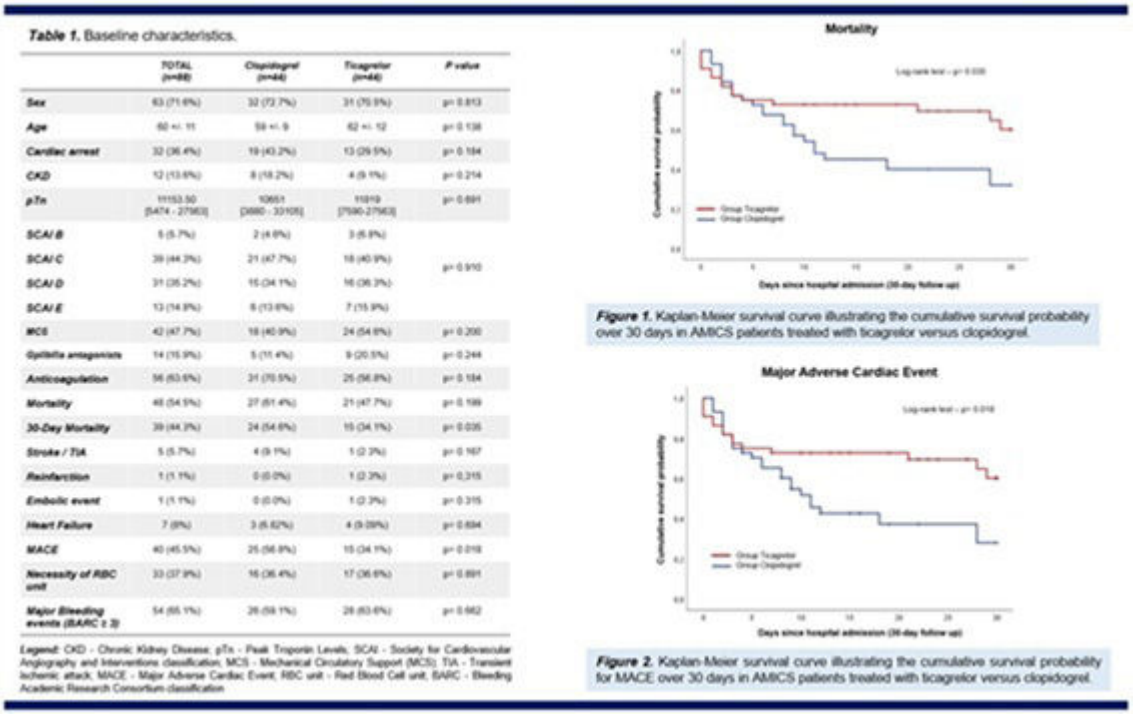

Table 1. Baseline characteristics.

	TOTAL (n=88)	Clopidogrel (n=44)	Ticagrelor (n=44)	P value
Sex	63 (71.6%)	32 (72.7%)	31 (70.5%)	p= 0.813
Age	60 +/- 11	59 +/- 9	62 +/- 12	p= 0.138
Cardiac arrest	32 (36.4%)	19 (43.2%)	13 (29.5%)	p= 0.184
CKD	12 (13.6%)	8 (18.2%)	4 (9.1%)	p= 0.214
pTn	11153.50 [5474 - 27563]	10651 [3680 - 33105]	11819 [7590-27563]	p= 0.691
SCAI B	5 (5.7%)	2 (4.6%)	3 (6.8%)	p= 0.910
SCAI C	39 (44.3%)	21 (47.7%)	18 (40.9%)	
SCAI D	31 (35.2%)	15 (34.1%)	16 (36.3%)	
SCAI E	13 (14.8%)	6 (13.6%)	7 (15.9%)	
MCS	42 (47.7%)	18 (40.9%)	24 (54.6%)	p= 0.200
Cytilitis antagonists	14 (15.9%)	5 (11.4%)	9 (20.5%)	p= 0.244
Anticoagulation	56 (63.6%)	31 (70.5%)	25 (56.8%)	p= 0.184
Mortality	48 (54.5%)	27 (61.4%)	21 (47.7%)	p= 0.199
30-Day Mortality	39 (44.3%)	24 (54.6%)	15 (34.1%)	p= 0.035
Stroke / TIA	5 (5.7%)	4 (9.1%)	1 (2.3%)	p= 0.167
Reinfarction	1 (1.1%)	0 (0.0%)	1 (2.3%)	p= 0.315
Embolic event	1 (1.1%)	0 (0.0%)	1 (2.3%)	p= 0.315
Heart Failure	7 (8%)	3 (6.82%)	4 (9.09%)	p= 0.694
MACE	40 (45.5%)	25 (56.8%)	15 (34.1%)	p= 0.018
Necessity of RBC unit	33 (37.9%)	16 (36.4%)	17 (38.6%)	p= 0.891
Major Bleeding events (BARC ≥ 3)	54 (65.1%)	26 (59.1%)	28 (63.6%)	p= 0.662

Legend: CKD - Chronic Kidney Disease; pTn - Peak Troponin Levels; SCAI - Society for Cardiovascular Angiography and Interventions classification; MCS - Mechanical Circulatory Support (MCS); TIA - Transient Ischemic attack; MACE - Major Adverse Cardiac Event; RBC unit - Red Blood Cell unit; BARC - Bleeding Academic Research Consortium classification

Figure 1. Kaplan-Meier survival curve illustrating the cumulative survival probability over 30 days in AMICS patients treated with ticagrelor versus clopidogrel.

Figure 2. Kaplan-Meier survival curve illustrating the cumulative survival probability for MACE over 30 days in AMICS patients treated with ticagrelor versus clopidogrel.

Figure PO 243

PO 244. ANTI-THROMBOTIC THERAPY FOR AMI-CS ON MECHANICAL CIRCULATORY SUPPORT: DO WE NEED DAPT?

Rita Almeida Carvalho, Rita Lima, C. Santos-Jorge, Márcia Presume, Rui Miguel Gomes, André Moniz Garcia, Ana Rita Bello, João Presume, Catarina Brízido, Christopher Strong, Jorge Ferreira, António Tralhão

Hospital Santa Cruz ULSLO.

Introduction: Acute myocardial infarction complicated by cardiogenic shock (AMI-CS) is a critical condition with high morbidity and mortality. After primary percutaneous coronary intervention (PCI), short-term mechanical circulatory support (ST-MCS) can achieve hemodynamic stability in refractory cases. While anticoagulation (AC) is essential to mitigate ST-MCS-related thromboembolism, the concurrent use of dual antiplatelet therapy (DAPT) after PCI poses challenges regarding bleeding risk. This study assesses the spectrum of antithrombotic therapies employed and their related adverse events in AMI-CS patients undergoing ST-MCS.

Methods: This retrospective single-center study included all AMI-CS patients requiring ST-MCS admitted to our Cardiac Intensive Care Unit between January 2017 and October 2024. Only PCI-treated patients were included. Anticoagulant and antiplatelet regimens were documented from MCS initiation until resolution of cardiogenic shock, defined as the cessation of ST-MCS and/or vasoactive support. Ischemic and hemorrhagic complications during this period were analyzed.

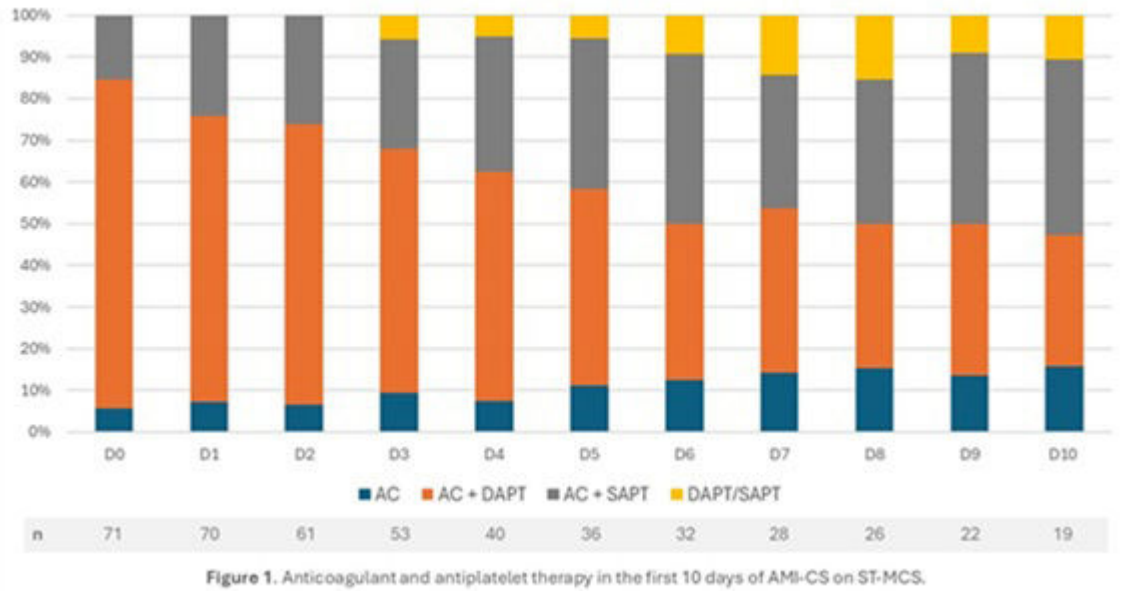

Figure 1. Anticoagulant and antiplatelet therapy in the first 10 days of AMI-CS on ST-MCS.

Figure 1 PO 244

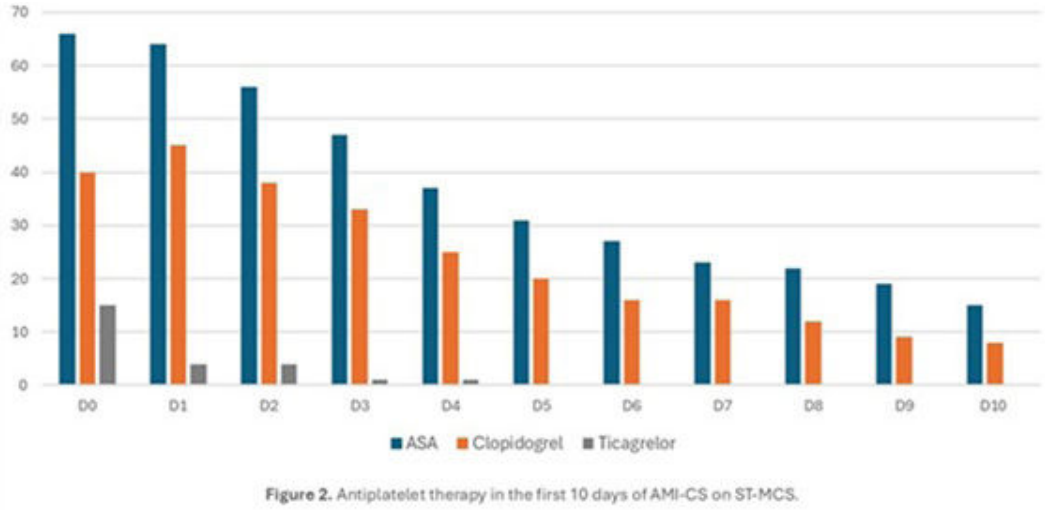

Figure 2 PO 244

Results: From 181 AMI-CS patients, 71 on ST-MCS were included (mean age 62 ± 12 years, 68% male). Sixty patients received an intra-aortic balloon pump, 11 received extracorporeal membrane oxygenation (ECMO) and 3 received an Impella CP, with 28 (39%) patients receiving more than one type of device. Ten-day and 30-day mortality rates were 32% (n = 23) and 45% (n = 32), respectively. Among the survivors, the mean time from ST-MCS implantation until resolution of cardiogenic shock was 6.7 ± 6.5 days. On Day 0 (D0), 79% (n = 56) of patients were on triple therapy (AC + DAPT) (Figure 1). After one week (D7), this proportion declined to 39% (n = 11), with 32% (n = 9) on AC with single antiplatelet therapy (SAPT) and 14% (n = 4) on AC alone. By Day 10 (D10), fewer patients remained on triple therapy, with an increasing proportion of patients on AC + SAPT (n = 8, 42%) and AC alone (n = 3, 16%). Though ticagrelor was common on D0 (n = 15, 21%), from D1 onward aspirin (ASA) and clopidogrel were the most frequently used agents (Figure 2). Ischemic complications occurred in 13% (n = 9) of patients, with ST-MCS-related limb ischemia accounting for five cases. Despite the early de-escalation of antiplatelet therapy, no cases of stent thrombosis were recorded. Hemorrhagic complications were more frequent, with 32% (n = 23) of patients presenting with Bleeding Academic Research Consortium (BARC) Grade 3 or higher events. The mean time from ST-MCS implantation to first bleeding event was 1.6 ± 1.7 days, with ECMO patients being disproportionately affected (n = 14, 61%).
Conclusions: Our findings indicate that early de-escalation of antiplatelet therapy may be safe to reduce bleeding risk. This underscores the critical importance of tailoring antithrombotic therapy for patients with AMI-CS on ST-MCS.

PO 245. PREDICTORS OF HEMORRHAGIC EVENTS IN PATIENTS WITH MYOCARDIAL INFARCTION COMPLICATED BY CARDIOGENIC SHOCK UNDERGOING DUAL ANTIPLATELET THERAPY

Samuel Azevedo, Márcia Presume, João Presume, Débora Silva Correia, Rita Barbosa Sousa, Ana Rita Bello, Rita Almeida Carvalho, Catarina Brízido, Christopher Strong, Manuel Sousa Almeida, Jorge Ferreira, António Tralhão

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

Introduction: Acute myocardial infarction complicated by cardiogenic shock (AMI-CS) is associated with considerable morbidity and mortality. Despite advancements in the management of these patients, bleeding complications remain prevalent and represent a critical challenge in this clinical context.
Objectives: To evaluate the incidence, etiology, and predictors of hemorrhagic events in AMI-CS patients treated with dual antiplatelet therapy (DAPT).
Methods: A retrospective analysis was performed on 154 patients with AMI-CS admitted to a cardiac intensive care unit between January 2017 and October 2024. Baseline demographics, clinical characteristics, bleeding events, and transfusion requirements were collected. Major bleeding events were defined according to Bleeding Academic Research Consortium (BARC) criteria, class ≥ 3. Univariate logistic regression analysis was used to identify

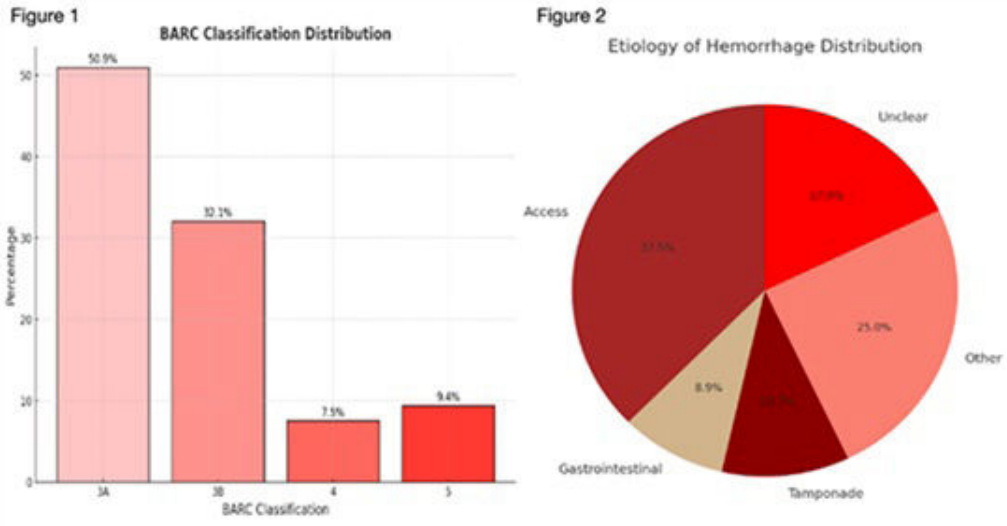

Figure PO 245

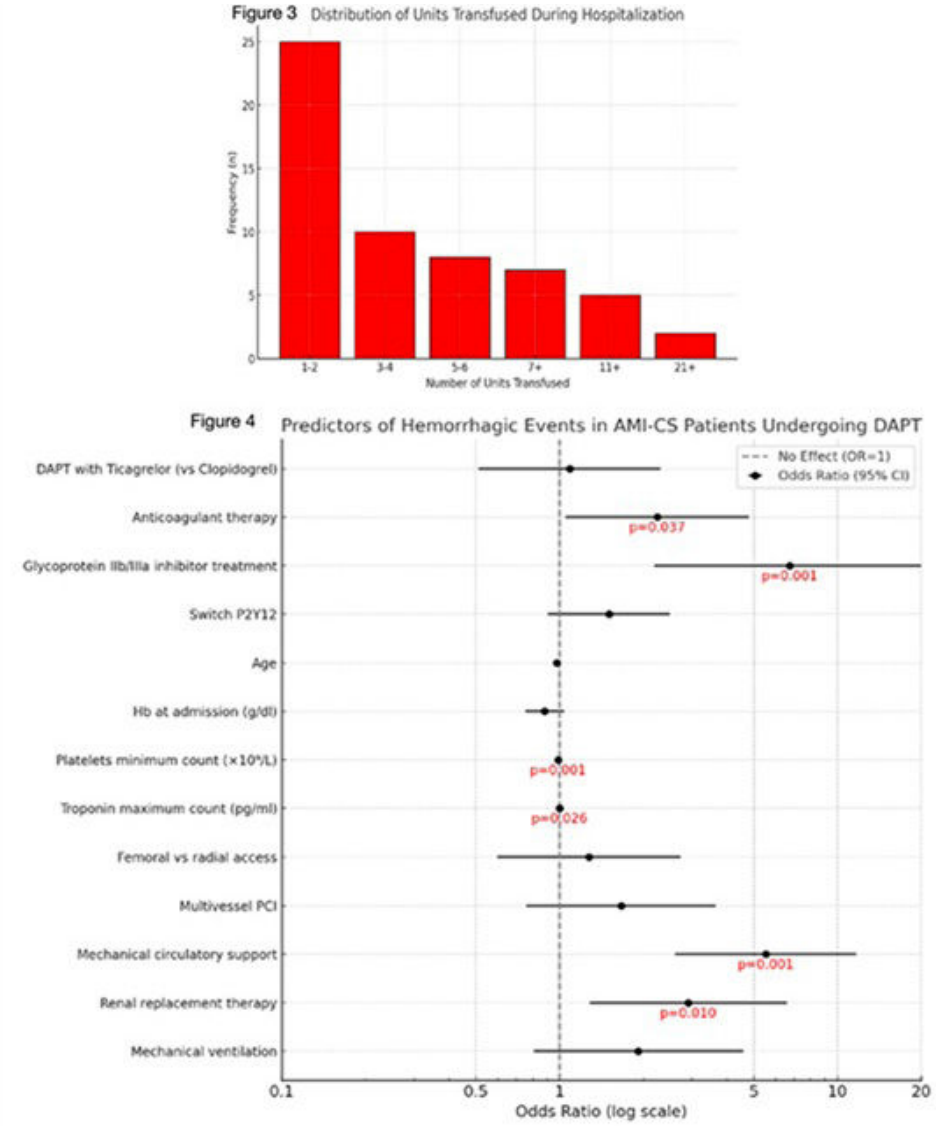

Figure PO 245 ***(cont.)***

predictors of hemorrhagic events, including demographic, clinical, laboratory, and procedural variables.

Results: The cohort had a median age of 67 years, with 65.6% male. The most prevalent comorbidities included hypertension (74%), diabetes mellitus (44.2%), and dyslipidemia (63%). Major bleeding events occurred in 29.2% of patients, with BARC3A (Figure 1) and access-site hemorrhages (Figure 2) accounting for 50.9% and 37.5%, respectively. Patients experiencing major bleeding events frequently required red blood cell transfusions, with 43.4% receiving more than four units (figure 3). Independent predictors included lower minimum platelet count [(for each 1 × 10^9/L decrease in platelet count, OR 0.986 (95%CI: 0.979-0.993; p < 0.001)], the use of mechanical circulatory support (OR: 5.517; 95%CI: 2.602-11.697 p < 0.001) and renal replacement therapy (OR: 2.906; 95%CI: 1.285-6.571 p = 0.010). Antithrombotic therapy with glycoprotein IIb/IIIa inhibitors (OR: 6.729; 95%CI: 2.183-20.745 p < 0.001) and anticoagulants (OR: 2.246; 95%CI: 1.049-4.806 p = 0.037) were strongly associated with an increased risk of major bleeding. The choice of ticagrelor (29.9%) [vs. clopidogrel (70.1%)] was not identified as a significant predictor of hemorrhagic events (Figure 4).

Conclusions: Hemorrhagic events are common in AMI-CS patients on DAPT, influenced by preexisting conditions and procedural factors. Antithrombotic therapy with glycoprotein IIb/IIIa inhibitors and anticoagulants significantly increased risk, underscoring the need for tailored strategies to manage bleeding in this high-risk population.

PO 246. ANTI-THROMBOTIC AND GLUCOSE LOWERING THERAPY IN PATIENTS WITH DIABETES AND CORONARY ARTERY DISEASE UNDERGOING PCI. FINAL REPORT ON TWO-YEAR OUTCOMES OF THE ARTHEMIS STUDY

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

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

Introduction and objectives: In a nationwide prospective registry, anti-platelet and glucose-lowering prescription regimens, treatment compliance and clinical outcomes were evaluated in unselected patients with type-2

diabetes (DM) undergoing PCI with stent implantation. Current analysis reports on the final 2-year results.
Methods: Patients (N = 1,000, 68 ± 13 yo, 55.5% ACS) were recruited between January and November 2021 in 12 centres. Information on recommended therapy (namely anti-thrombotic strategy), compliance, vital status, as well as ischemic, heat failure and bleeding events were captured at 6, 12, 18 and 24-months at each participating centre, and summarized at 12 and 24-months as appropriate.
Results: Data on vital status was available for 98.2% and 96.6% of pts at 12 and 24-months, respectively. Total and cardiovascular mortality rates were 7.4% and 2.3% at 2-years. Ischemic MACE (death+MI+revasc) occurred in 17.7% of pts (mostly repeat revascularizations [9.7%]) and the rate of admission for heart failure was 3.9%. Baseline ischemic DAPT-Score (≥ 2) was not associated with MACE (17.6 vs. 18.5% in High vs. Low risk; p = 0.75). Haemorrhagic events were reported in 11.4% of pts (15.6 vs. 9.3% in High vs. Low baseline PRECISE-DAPT bleeding risk; p = 0.007), being mostly BARC-1 (n = 41/99), and one fatal bleeding (0.1%). At the 12-months landmark, anti-platelet regimens were consistent with baseline strategy in 71.6% of cases. In the remaining, 5.8% were on (or changed to) a less aggressive regimen; conversely, 19.2% changed in the opposite direction (more aggressive treatment), a proportion that rose to 40.9% at 2-years. Change was mostly driven by medical decision (66% of cases). Use of SGT2 and GLP-1 inhibitors (but not other glucose-lowering drugs), increased steadily over time. As compared to baseline, metabolic control consistently improved over the observation period (HbA1c 7.6% at inclusion vs. 7.1% at 1 and 2-years; p = 0.002 Related-Samples Friedman's Ranked Two-Way ANOVA).
Conclusions: In this cross-sectional study of a representative population of patients with DM and CAD warranting stent implantation, both ischemic and bleeding event rates were significant. Maintenance of potent anti-platelet regimens remained frequent over time, likely as a consequence of recurrent ischemic events. Prescription of prognosis-modifying drugs for diabetes increased steadily, and metabolic control improved significantly over the study period.

PO 247. TRENDS IN P2Y12 INHIBITOR USE AFTER ACUTE CORONARY SYNDROMES IN PORTUGAL: A DECADE OF INSIGHTS FROM THE PROACS REGISTRY

Ana Inês Aguiar Neves[1], Marta Leite[1], Rafael Silva Teixeira[1], Fábio Sousa Nunes[1], Marta Ponte[1], Marisa Passos-Silva[1], Adelaide Dias[1], Daniel Caeiro[1], Ricardo Fontes-Carvalho[1], Portuguese Registry of Acute Coronary Syndromes Investigators[2]

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

Introduction: The choice of P2Y12 inhibitors, namely clopidogrel, ticagrelor, and prasugrel, in dual antiplatelet therapy (DAPT) is critical following percutaneous coronary intervention (PCI) for acute coronary syndromes (ACS). This study examines trends in P2Y12 inhibitor prescription from 2010 to 2023, focusing on shifts in utilization across different patient demographics and clinical presentations.
Methods: Patients with a diagnosis of acute coronary syndrome upon hospital admission who were enrolled in the ProACS registry between January 2011 and December 2023 were included if they underwent PCI and received DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, ticagrelor or prasugrel) during the index hospitalization. Patients treated conservatively, referred for surgical revascularization, or with missing data concerning the therapeutic strategy were excluded. P2Y12 prescription patterns were stratified by age, sex, clinical diagnosis, and in-hospital outcomes. Changes in prescription patterns over time were assessed using p-trend analysis.
Results: Among 12 147 patients (24.3% female), clopidogrel was the most commonly prescribed P2Y12 inhibitor (67%), followed by ticagrelor (32%) and prasugrel (1%). Significant changes in prescription patterns were observed: clopidogrel use decreased progressively, with ticagrelor becoming the preferred agent post-2015, although a downtrend was noted after 2021. Prasugrel use remained low but increased slightly in 2022-2023. Clopidogrel use was more common in older patients (median age 65.7 [IQR 55.7-75.7] years) with comorbidities such as diabetes and hypertension. In comparison, ticagrelor and prasugrel were predominantly used in younger patients (median age 62.8 [IQR 53.9-71.5] years and 57.3 [IQR 52.1-64.7] years, respectively) and those presenting with ST-elevation myocardial infarction. Clopidogrel showed a relative increase in prescription rates among female patients after ACS from 2017 onwards, with women making up a maximum of 35% of patients prescribed clopidogrel in 2019 (p-value for trend < 0.001). When stratified by sex, no significant differences were observed in prescription trends for ticagrelor, prasugrel, or overall P2Y12 inhibitor use.
Conclusions: This study highlights evolving trends in P2Y12 inhibitor prescriptions, driven by patient demographics, clinical factors, and updated guidelines. In this Portuguese registry, clopidogrel was the most frequently prescribed second antiplatelet agent in patients who underwent PCI after ACS. However, a notable decline in clopidogrel use was observed over time, coinciding with an increase in ticagrelor prescriptions, which has since become the predominant choice.

PO 248. TICAGRELOR VERSUS CLOPIDOGREL IN PATIENTS WITH STEMI TREATED WITH FIBRINOLYSIS: A RETROSPECTIVE REAL-WORLD ANALYSIS

Margarida Câmara Farinha, Inês Coutinho dos Santos, Fabiana Duarte, André Viveiros Monteiro, Maria Inês Barradas, Luís Oliveira, António Fontes, Santos Serena, Carina Machado, Miguel Pacheco, Anabela Tavares, Dinis Martins

Hospital do Divino Espírito Santo, Ponta Delgada.

Introduction: In remote locations, thrombolytic therapy provides a critical alternative for patients with ST-segment elevation myocardial infarction (STEMI) when percutaneous coronary intervention (PCI) is not immediately accessible.

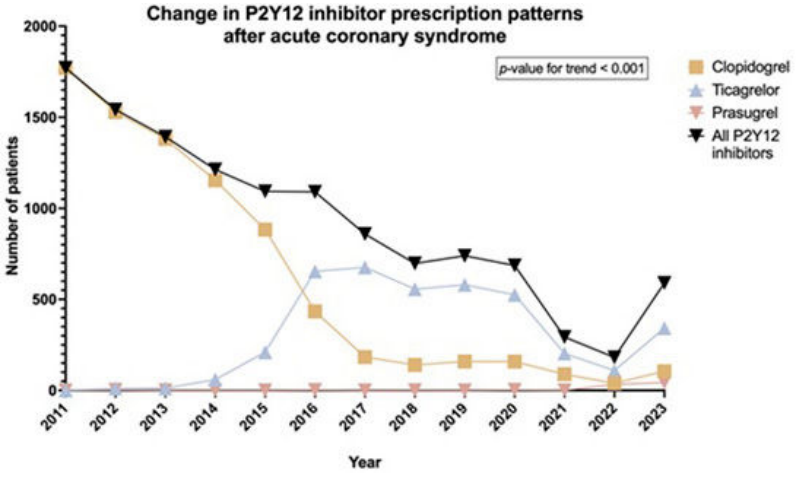

Figure PO 247

Clopidogrel remains the recommended choice during the peri-thrombolytic phase, primarily due to concerns regarding haemorrhagic complications. However, data on the use of ticagrelor in this setting remain limited.
Objectives: To compare outcomes between STEMI patients who underwent fibrinolysis with clopidogrel and ticagrelor.
Methods: We conducted a retrospective study of STEMI patients who underwent fibrinolysis between 2020 and 2023 and were subsequently transferred to our center for facilitated or rescue PCI. Patients were divided into two groups based on antiplatelet therapy: Group 1 with clopidogrel and Group 2 with ticagrelor. The primary endpoint was a combined outcome of cardiovascular mortality, myocardial infarction or stroke. The secondary endpoint was intrahospital haemorrhagic complications according to TIMI definition.
Results: A total of 154 patients were included (mean age 61.3 ± 12.6 years, 29% women): 78 with clopidogrel (Group 1) and 76 with Ticagrelor (Group 2). No differences were found between groups regarding hypertension (75.6 vs. 64.5%, p = 0.13), diabetes (29.5 vs. 30.3%, p = 0.92), dyslipidaemia (71.8 vs. 58.7%, p = 0.09), smoking (62.8 vs. 71.1%, p = 0.28), overweight (71.8 vs. 75%, p = 0.65), and previous coronary disease (12.8 vs. 13.2%, p = 0.95). Primary endpoint was observed without significant difference in 10.3% of patients in Group 1 and 9.2% in Group 2 (p = 0.83). Regarding haemorrhagic complications, TIMI minimal bleeding was more frequent in Group 2 (16.7 vs. 31.6%, p = 0.03). However, rates of TIMI bleeding requiring medical attention and major bleeding were comparable between the groups (3.8 vs. 3.9%, p = 0.97 and 1.3 vs. 1.3%, p = 0.99 respectively).
Conclusions: In our real-world remote setting, ticagrelor demonstrated a similar efficacy and safety profile compared to clopidogrel as adjunctive therapy of fibrinolysis in STEMI patients. Its use in the peri-thrombolytic phase could potentially simplify treatment protocols by eliminating the need to switch antiplatelet therapy.

PO 249. COMPARATIVE IN-HOSPITAL OUTCOMES OF P2Y12 INHIBITORS FOLLOWING ACUTE CORONARY SYNDROMES: EVIDENCE FROM THE PROACS REGISTRY

Ana Inês Aguiar Neves[1], Marta Leite[1], Rafael Silva Teixeira[1], Fábio Sousa Nunes[1], Marta Ponte[1], Marisa Passos Silva[1], Adelaide Dias[1], Daniel Caeiro[1], Ricardo Fontes-Carvalho[1], Portuguese Registry of Acute Coronary Syndromes Investigators[2]

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

Introduction: The choice of P2Y12 inhibitor in dual antiplatelet therapy (DAPT) following percutaneous coronary intervention (PCI) may influence in-hospital outcomes in patients with acute coronary syndromes (ACS). This study aims to retrospectively evaluate the comparative effectiveness of the second antiplatelet agent with regard to in-hospital mortality, reinfarction and bleeding events using data from a Portuguese registry.
Methods: Patients with a diagnosis of ACS upon hospital admission who were enrolled in the ProACS registry between January 2011 and December 2023 were included if they underwent PCI and received DAPT with aspirin and a P2Y12 inhibitor (clopidogrel, ticagrelor or prasugrel) during the index hospitalization. Patients treated conservatively, referred for surgical revascularization, or with missing data regarding the therapeutic strategy were excluded. Incidences of reinfarction, cerebrovascular events, bleeding complications, and arrhythmias were compared across the three groups.
Results: Among 12 147 patients (24.3% female), clopidogrel was the most commonly prescribed P2Y12 inhibitor (67%), followed by ticagrelor (32%) and prasugrel (1%). In comparison with ticagrelor or prasugrel, clopidogrel was more frequently prescribed in older patients (median age 65.7 [IQR 55.7-75.7] years for clopidogrel, 62.8 [IQR 53.9-71.5] years for ticagrelor and 57.3 [IQR 52.1-64.7] years for prasugrel) and in patients with comorbidities including diabetes and hypertension. When compared to the ticagrelor group, patients on clopidogrel were more likely to have significant left main disease (6.6 vs. 4.9%), have a reduced left ventricular ejection fraction (40.5 vs. 28.1%), have a higher median BNP level (267 [IQR 114, 641] pg/ml vs. 111.5 [IQR 43, 288] pg/ml), require inotropic therapy (4.6 vs. 2.8%) and to have undergone femoral access for invasive coronary angiography (37.9 vs. 10.0%; $p < 0.001$ for all). Clopidogrel use was associated with higher rates of in-hospital mortality (2.2 vs. 1.2%, p < 0.001), cerebrovascular events (0.6 vs. 0.3%, p = 0.032), and major bleeding events (0.9 vs. 0.3%, p = 0.001) when compared to ticagrelor. No major bleeding events, cerebrovascular accidents or in-hospital mortality events were observed in the prasugrel group. Patients prescribed clopidogrel also experienced more frequent complications, including acute heart failure, arrhythmias, and cardiogenic shock, compared to those on ticagrelor or prasugrel ($p < 0.05$ for all).
Conclusions: In this cohort, patients prescribed clopidogrel after ACS tended to be older and present more comorbidities than those prescribed prasugrel or ticagrelor. Clopidogrel use was associated with worse in-hospital outcomes, which may reflect higher baseline risk and a greater number of comorbidities in these patients.

PO 250. EARLY DOAC THERAPY AFTER INVASIVE ACUTE PULMONARY EMBOLISM THERAPY: FAST TRACK PE?

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

Introduction: Percutaneous invasive therapies, including catheter-directed thrombolysis (CDT) and mechanical thrombectomy (MT), have emerged as treatment options for high-risk and selected intermediate high-risk PE.

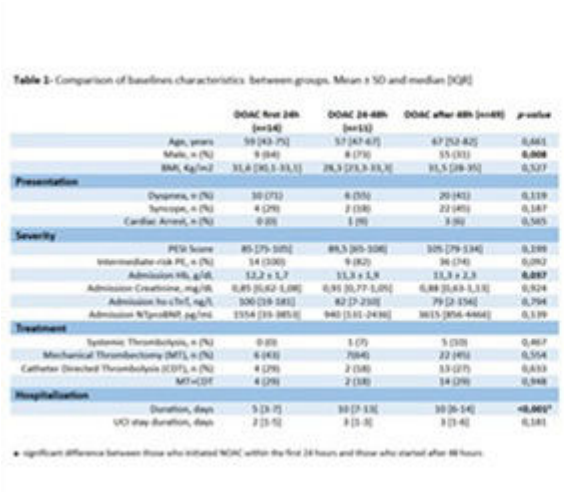

Table 1- Comparison of baselines characteristics between groups. Mean ± SD and median [IQR]

	DOAC first 24h (n=114)	DOAC 24-48h (n=51)	DOAC after 48h (n=49)	p-value
Age, years	59 [43-75]	57 [47-67]	67 [52-82]	0,661
Male, n (%)	9 (64)	8 (73)	55 (31)	**0,008**
BMI, Kg/m2	31,8 [30,1-33,1]	28,3 [23,3-33,3]	31,5 [28-35]	0,527
Presentation				
Dyspnea, n (%)	30 (71)	6 (55)	20 (41)	0,119
Syncope, n (%)	4 (29)	2 (18)	22 (45)	0,187
Cardiac Arrest, n (%)	0 (0)	1 (9)	3 (6)	0,565
Severity				
PESI Score	85 [75-105]	89,5 [65-108]	105 [79-134]	0,399
Intermediate-risk PE, n (%)	14 (100)	9 (82)	36 (74)	0,092
Admission Hb, g/dl	12,2 ± 1,7	11,3 ± 1,9	11,3 ± 2,3	**0,037**
Admission Creatinine, mg/dl	0,85 [0,62-1,08]	0,91 [0,77-1,05]	0,88 [0,63-1,13]	0,924
Admission hs-cTnT, ng/L	100 [10-181]	82 [7-210]	79 [2-156]	0,794
Admission NTproBNP, pg/mL	1554 [35-3853]	940 [131-2436]	3615 [856-4464]	0,139
Treatment				
Systemic Thrombolysis, n (%)	0 (0)	1 (7)	5 (10)	0,467
Mechanical Thrombectomy (MT), n (%)	6 (43)	7(64)	22 (45)	0,554
Catheter Directed Thrombolysis (CDT), n (%)	4 (29)	2 (18)	13 (27)	0,633
MT+CDT	4 (29)	2 (18)	14 (29)	0,948
Hospitalization				
Duration, days	5 [3-7]	10 [7-13]	10 [6-14]	**<0,001***
UCI stay duration, days	2 [1-5]	3 [1-3]	3 [1-6]	0,181

* significant difference between those who initiated NOAC within the first 24 hours and those who started after 48 hours.

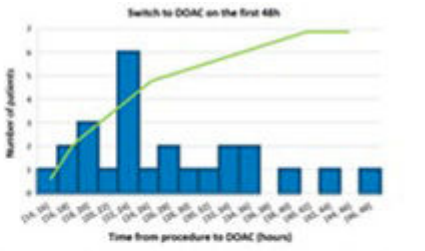

Figure 1- Distribution of NOAC initiation Timing Within the patients that switched to NOAC on the first 48 Hs

Table 2- Multivariate analysis of predictors of early switch to DOAC (first 48h)

	Adjusted Hazard Ratio	95% CI	p-value
Male	0,340	0,124-0,936	**0,037**
Syncope at presentation	0,739	0,172-3,142	0,685
Dyspnea at presentation	0,947	0,234-3,336	0,939
Systolic BP at presentation	1,025	1,002-1,048	**0,031**
Admission Hb	1,031	0,795-1,338	0,816
Intermediate-risk PE	0,935	0,248-3,524	0,921
Saddle Thrombus	0,323	0,114-0,914	**0,033**

Figure PO 250

Patients undergoing these procedures were excluded from the landmark DOAC trials, so the safety and efficacy of early DOAC therapy in this setting remains unexplored. We aimed to access these outcomes in a cohort of invasively treated PE patients.
Methods: Retrospective cohort study analysing PE patients who underwent CDT and/or MT at a tertiary centre from 2020 to 2024. Patients were grouped based on the timing of DOAC initiation: within 24 hours (group 1), between 24-48 hours (group 2), and after 48 hours (group 3). The primary safety outcome was major bleeding events according to International Society on Thrombosis and Haemostasis (ISTH) criteria, and the primary effectiveness outcome was venous thromboembolism recurrence.
Results: A total of 74 patients (mean age 59 ± 16 years; 43% male) underwent percutaneous interventions for PE, 47% with MT, 26% with CDT using recombinant tissue-type plasminogen activator (rt-PA), and 27% with both. All patients received unfractionated heparin post-procedure. A total of 14 patients initiated DOAC (apixaban or rivaroxaban) within 24 hours, and 11 additional patients within 48 hours (Figure 1). No significant baseline differences were observed between groups, except for higher admission haemoglobin in Group 1 and male gender in group 2 (Table 1). However, group 3 had more patients with syncope or cardiac arrest, and higher PESI scores and NTproBNP levels. Systemic rt-PA was administered in 1 patient in group 2 and 5 patients in group 3 (p = 0.47). The type of invasive PE therapy was comparable across groups. The low number of bleeding complications (9 major bleeding events) occurred mostly in group 3, and all during index hospitalization. At 30-days follow-up, no venous thrombosis recurrence had occurred. Patients on group 1 experienced a significantly shorter hospital stay compared to those on group 3 (5 days [3-7] vs. 10 days [6-14], p < 0.001). No differences were noted between groups 1 and 2. On multivariate analysis, female sex, higher systolic blood pressure, and the absence of a saddle thrombus were identified as predictors of an early switch to DOAC within the first 48 hours (Table 2).
Conclusions: Early initiation of DOACs following MT and/or CDT for acute PE appears to be a safe approach. Moreover, no signs of lower efficacy were raised by this analysis and is additionally associated with a shorter hospital stay. Patient selection criteria for this treatment strategy should be further analysed, to allow shorter hospitalizations and improve patient outcomes.

PO 251. ACUTE CORONARY SYNDROMES WITHOUT THE USUAL SUSPECTS: PREVALENCE AND CLINICAL OUTCOMES OF PATIENTS WITHOUT STANDARD MODIFIABLE RISK FACTORS (SMURF-LESS)

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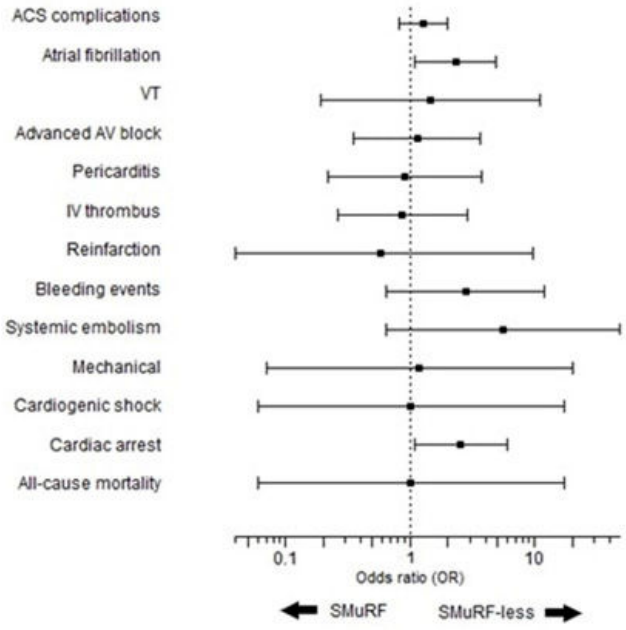
Centro Hospitalar Universitário de S. João, EPE.

Introduction: Clinical outcomes of acute coronary syndromes (ACS) in patients (pts) without standard modifiable risk factors (SMuRF) are reportedly comparable, yet this population remains underrepresented in major clinical trials, raising the need for further research.
Objectives: To describe and compare the prevalence and clinical outcomes of SMuRF and SMuRF-less pts hospitalized with ACS.
Methods: We conducted a retrospective analysis on pts admitted due to ACS in our centre from 2009 to 2023. Pts were categorized as SMuRF (≥ 1 risk factor: arterial hypertension, dyslipidemia, overweight, smoking and diabetes mellitus) or SMuRF-less (no standard risk factors). The primary individual endpoints included in-hospital all-cause mortality and ACS complications. Comprehensive data was collected via medical records review.
Results: A total of 3,539 pts were included, with 96.5% (n = 3,415) classified as SMuRF and 3.5% (n = 124) as SMuRF-less. SMuRF-less pts were mostly female (52.4% in SMuRF-less vs. 32.3% in SMuRF; p < 0.001; OR 2.3, 95%CI: 1.6-3.3). Other baseline characteristics, including mean age (64 ± 13 years; p = 0.074), family history of premature cardiovascular (CV) disease (7.3%; p = 0.97), and prior coronary revascularization (12%; p = 0.89), were similar. Arterial hypertension and dyslipidemia were the most prevalent risk factors in SMuRF pts (68%). Non-ST segment elevation myocardial infarction (NSTEMI) was the most common diagnosis in both groups (45.1% in SMuRF vs. 45% in SMuRF-less; p = 0.26). SMuRF-less pts presented more frequently with cardiac arrest (4.8% in SMuRF-less vs. 1.96% in SMuRF; p = 0.041; OR 2.4, 95%CI: 1.08-5.98) while SMuRF pts tended to have more multivessel disease (56.8%; p = 0.001; OR 1.8, 95%CI: 1.26-2.69). Most pts had percutaneous coronary intervention (56.4% in SMuRF vs. 54.8% in SMuRF-less; p = 0.59).

Figure 1. Forest plot illustrating the primary endpoints.



ACS: Acute coronary syndrome; AV: Atrioventricular; IV: Intraventricular; SMuRF: Standard Modifiable Risk Factors; VT: Ventricular tachycardia.

Figure PO 251

Approximately one-fourth of the pts had ACS complications (16.7% in SMuRF vs. 20.2% in SMuRF-less; p = 0.31) (Figure 1). Rhythm disturbances were the most frequent, with new-onset of atrial fibrillation (AF) being more common in SMuRF-less pts (32% in SMuRF-less vs. 17.4% SMuRF; p = 0.032; OR 2.3, 95%CI 1.10-4.86). Cardiogenic shock and mechanical complications accounted for 2% of the SMuRF complications, with no cases in SMuRF-less pts (p = 0.68 and p = 0.63, respectively). In-hospital mortality was low (0.4% in SMuRF vs. no deaths in SMuRF-less; p = 0.63). Both groups had median discharge at 6 days (IQR 5; p = 0.89).
Conclusions: SMuRF-less pts represented a small subset of the ACS population in our study, likely reflecting the high prevalence of CV risk factors. Within the SMuRF-less pts there was a notable predominance of female pts, as well as higher rates of cardiac arrest at presentation and new-onset of AF during hospitalization. These findings highlight the need for targeted research and tailored strategies to optimize care for this underrepresented population.

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

Área de Posters-écran 1| Sessão de Posters 38 – Análise de deformação miocárdica

PO 252. MYOCARDIAL WORK BY SPECKLE-TRACKING ECHOCARDIOGRAPHY IN PACEMAKER CARRIERS ACCORDING TO PACING SITE

Diana Ribeiro, Andreia Campinas, Ricardo Costa, André Alexandre, David Sá Couto, Mariana Pereira Santos, Bruno Brochado, Maria João Sousa, Pinheiro Vieira, Hipólito Reis, Sofia Cabral, Severo Torres

Unidade Local de Saúde de Santo António.

Introduction: The optimal lead position for right ventricle (RV) pacing remains unclear. Myocardial work (MW) has emerged as a more sensitive tool for assessing left ventricular (LV) systolic function.
Objectives: To compare MW and global longitudinal strain (GLS) between right ventricular non-apical pacing (RVNAP), RV apical pacing (RVAP) and patients without pacemaker (PMK).
Methods: A cross-sectional single-center study on double-chamber PMK carriers categorized by RV pacing site according to fluoroscopic and electrocardiographic criteria. Moderate/severe valvular disease, LV ejection fraction (LVEF) < 50%, segmental wall-motion abnormalities, pulmonary hypertension, cardiomyopathies, or RV dysfunction were exclusion criteria. RVNAP and RVAP groups (30 and 25 patients, respectively) were compared against 26 age-matched patients. GLS and MW parameters (GWI: Global Work Index; GCW: Global Constructive Work; GWW: Global Wasted Work; GWE: Global Work Efficiency) using speckle tracking imaging were compared between groups. RV pacing was required at imaging acquisition.
Results: The baseline data of the three groups were well-matched (all p = NS). Regarding echocardiography analysis, aside from GCW, which had no differences between groups, GWE and GLS were higher in the control group, whereas GWI was significantly higher in the control group but only in relation to the RVAP group (all p < 0.05). Contrarily, GWW was statistically higher in pacing groups (p < 0.05).
Conclusions: Our findings indicate a reduced efficiency in LV deformation and myocardial energy management in PMK carriers, without a significant influence of the pacing site. These results establish a proof of concept for the detrimental impact of right ventricular (RV) pacing on LV performance.

PO 253. GLOBAL LONGITUDINAL STRAIN AND STRAIN RATE AS MARKERS OF SUBCLINICAL SYSTOLIC DYSFUNCTION IN PATIENTS WITH MODERATE AORTIC STENOSIS

Inês Arrobas Rodrigues[1], Rafael Teixeira[1], António Santos[2], António Gonçalves[1], Leonor Moura[1], Marta Almeida[1], André Lobo[1], Inês Neves[1], Marta Leite[1], Fábio Nunes[1], Francisco Sampaio[1], Ricardo Fontes-Carvalho[1]

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

Introduction: Aortic stenosis (AS) induces an adaptative ventricular remodeling leading to left ventricular (LV) hypertrophy as a compensatory response to increased afterload. While this adaptation temporarily preserves normal ejection fraction (EF), significant myocardial dysfunction may already be developing. Once LVEF begins to decline, it may not recover even after aortic valve replacement (AVR). Therefore, identifying alternative markers to detect subclinical dysfunction before EF deterioration is crucial to improving patient outcomes.
Objectives: To explore the role of baseline left ventricle global longitudinal strain (GLS) and strain rate (SR) as markers of subclinical LV dysfunction, predictors of LVEF decline, and their impact on survival of patients with moderate AS.
Methods: Patients with moderate AS and LVEF ≥ 50% in at least 2 previous echocardiograms were retrospectively identified. Prosthetic and bicuspid valves were excluded. Baseline LV GLS and SR were used as covariates in cox regression models to predict the cumulative incidence of LVEF depression over 5 years and overall survival after multivariable adjustment including time-dependent AVR.
Results: A total of 574 patients were included (age 76 ± 9 years; 51% female; median follow-up time of 8.97 years). The average baseline aortic peak velocity was 3.4 ± 0.8 m/s, mean pressure gradient was 25 ± 9 mmHg, aortic valve area was 1.1 ± 0.3 cm^2, and LVEF 60 ± 5%. The mean GLS was -17 ± 7% and the peak systolic SR was 1.2 ± 0.5/s. Both baseline GLS (HR = 0.88 for each -1%; 95%CI = 0.79-0.99; p = 0.04) and SR (HR = 0.89 for each +0.1/s; 95%CI = 0.80-0.99; p = 0.03) were associated with a 5-year incidence of LVEF depression (< 50%). Incorporating SR to GLS improved risk discrimination (increase in area under curve from 0.78 to 0.84; 95%CI = 0.01-0.10; p = 0.04). Furthermore, a nonlinear relation was found between GLS (optimal boundary < -15.8%; p = 0.35) and SR (optimal boundary > 0.96/s; p = 0.34) and overall survival.
Conclusions: This study establishes baseline GLS and SR as predictors of LVEF depression in moderate AS emphasizing their role in detecting subclinical LV dysfunction. The combined use of GLS and SR may enhance the prediction of LV function decline, supporting their potential utility in planning early interventions strategies. Although their direct relationship with survival needs further exploration, these findings highlight the importance of incorporating GLS and SR in AS management to enable timely AVR and improve patient outcomes.

PO 254. IMPACT OF CARDIOVASCULAR RISK FACTORS IN MYOCARDIAL WORK

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[1]Hospital de Vila Franca de Xira, EPE. [2]Hospital da Luz Setúbal.

Introduction: Myocardial work (MW) is an emerging echocardiographic tool that quantifies left ventricular function through pressure–strain loops. Validated against invasive pressure–volume measurements, MW provides a comprehensive assessment of myocardial performance. In this study, we evaluated the prevalence and severity of subclinical left ventricular dysfunction in a general population and examined its association with cardiovascular (CV) risk factors.
Methods: We conducted a retrospective, single-center analysis of patients with no known cardiovascular disease, who underwent MW assessment between January 2022 and November 2024. Participants were characterized based on traditional CV risk factors, and MW parameters were analyzed,

Impact of Cardiovascular Risk Factors in Myocardial Work - Univariable Analysis									
		GWE (%)	p-value	GWI (mmHg%)	p-value	GCW (mmHg%)	p-value	GWW (mmHg%)	p-value
Sex	Male	92.2 ± 4.3	**0.002**	1536.4 ± 303	0.287	1900.8 ± 312	0.904	148.2 ± 93	**<0.001**
	Female	91.2 ± 4.5		1566 ± 307		1907.4 ± 379		182.8 ± 95	
BMI ≥25	Yes	91.5 ± 4.5	**0.014**	1543.5 ± 314	0.368	1891.9 ± 335	0.472	166 ± 96	0.696
	No	92.4 ± 4		1571.5 ± 280		1936 ± 365		161.7 ± 94	
BMI ≥30	Yes	90.7 ± 4.9	**0.007**	1557.4 ± 300	0.380	1924.8 ± 333	0,121	158.7 ± 109	**0.028**
	No	92 ± 4.3		1526.8 ± 325		1819.7 ± 373		189.1 ± 91	
HTN	Yes	91.8 ± 4.4	0.546	1563.1 ± 311	0.338	1937.3 ± 343	0.079	161.3 ± 98	0.425
	No	91.6 ± 4.3		1536.2 ± 298		1836.1 ± 336		169.2 ± 92	
Diabetes	Yes	91.3 ± 4.4	0.274	1492.5 ± 315	0.065	1826.6 ± 308	0.147	160.4 ± 85	0.695
	No	91.8 ± 4.4		1562.5 ± 303		1923.8 ± 350		165.6 ± 97	
Hypercholesterolemia	Yes	92.0 ± 4.3	**0.033**	1553.4 ± 296	0.842	1920.9 ± 328	0.304	155.2 ± 94	**0.016**
	No	91.2 ± 4.5		1547.7 ± 321		1858.4 ± 378		179.2 ± 96	
Smokers	Yes	92.4 ± 4	**0.009**	1528.1 ± 289	0.268	1886.6 ± 305	0.639	150 ± 83	**0.037**
	No	91.4 ± 4.6		1561.5 ± 312		1913.3 ± 363		170.9 ± 99	

Figure PO 254

including global constructive work (GCW), global wasted work (GWW), global work index (GWI), and global work efficiency (GWE).

Results: A total of 822 patients were included (52.8% male, mean age 63 ± 11 years, BMI 27.5 ± 3.8 kg/m^2). Among them, 21% were obese, 14% had diabetes, 65% had hypercholesterolemia, and 39% were smokers or recent quitters. Only 15% had no CV risk factors. Basal clinical and echocardiographic parameters were withing the normal range: SBP 124 ± 16 mmHg, DBP 74 ± 10, LVEF 59.7 ± 7, E/e' 7.3 ± 2.5, PASP 23 ± 6 mmHg, GWE 91.7 ± 4.4%, GWI 1551 ± 305 mmHg%, GCW 1903 ± 343 mmHg% and GWW 165 ± 95 mmHg%. Univariable analysis revealed that GWW and GWE were significantly associated with sex, age, obesity, hypercholesterolemia, and smoking (Table 1). Multivariable analysis identified obesity and hypercholesterolemia as independent predictors of GWW and GWE, explaining 8% of the variance (partial η^2 = 0.08). After adjusting for age and sex, obesity remained the sole independent determinant of GWW and GWE. Obese patients had higher GWW (189 ± 109 vs. 159 ± 91 mmHg%, p = 0.028) and lower GWE (90.7 ± 4.9 vs. 92.0 ± 4.3%, p = 0.007).

Conclusions: This study highlights that obesity is a key, independent contributor to impaired myocardial efficiency, reflected by higher GWW and lower GWE. These findings underscore the importance of targeting obesity as a modifiable risk factor to mitigate early left ventricular dysfunction and improve cardiovascular outcomes.

PO 255. OPTIMIZED MEDICAL THERAPY ENHANCES LEFT ATRIAL STRAIN IN HFREF PATIENTS: A NOVEL PROGNOSTIC INDICATOR

Ana Lobato de Faria Abrantes, Catarina Gregório, Miguel Azaredo Raposo, João Cravo, Daniel Cazeiro, Inês Araújo, Pedro Silva, Daniel Caldeira, Joana Rigueira, Rui Plácido, Fausto J. Pinto, Catarina Sousa

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

Introduction: Left atrial strain (LAS) has emerged as a precise method to evaluate left atrial (LA) function, and recent studies suggest that LAS correlates with NTproBNP levels and adverse outcomes in heart failure (HF) patients (pt). However, the impact of optimized medical therapy (OMT) on LAS remains unclear.

Objectives: To evaluate differences in LAS after OMT and to investigate the correlation between LAS and NTproBNP levels at follow-up (FUP).

Methods: Single-center retrospective study included pts with HF with reduced ejection fraction (HFrEF) from 2021 to January 2024. Echocardiography data were collected at baseline and at least 3 months after OMT. Speckle tracking LAS was performed using General Electric's post-processing system by two different operators, calculating Reservoir (LASr), Conduit (LASc), and Contractile (LASct) strain. The left atrioventricular coupling index (LACi) was calculated by dividing end-diastolic LA and left ventricular (LV) volumes. For statistical analysis, Chi-square tests, Pearson correlation and t Student test were used as appropriate.

Results: We included 23 pts, 41% men, with a mean age of 64 ± 9 years. Most pts had dilated cardiomyopathy (50%) followed by ischemic cardiomyopathy (36%). At baseline, 94.5% of pts were in NYHA class II or higher, mean NTproBNP levels were 2721 ± 4756 pg/ml. Differences in treatment at baseline, OMT and FUP are presented in Table 1. At baseline, LAS correlated with LV dysfunction and filling pressures: lower LASct strongly correlated with higher E/E' ratio and LACi (p = 0.009, r = 0.64; p = 0.034, r = 0.53, respectively), lower LASc strongly correlated with lower EF (p = 0.006, r = -0.596), and lower LASr strongly correlated with lower EF, higher E/E', and LACi (p = 0.023, r = 0.507; p = 0.013, r = -0.706; p = 0.007, r = -0.646, respectively). After OMT, there was a significant improvement in LAS (LASc -5.6 ± 3 vs. -10.2 ± 7%, p = 0.015; LASct -5.5 ± 5 vs. -11 ± 6%, p = 0.002; LASr 10.8 ± 3 vs. 21.8 ± 11%, p < 0.001), independent of sex, atrial fibrillation, and HF etiology. A strong correlation was observed between LAS improvement and reduction of diuretic dose (LASc p = 0.049, r = 0.54; LASct p = 0.43, r = 0.55; LASr p = 0.031, r = -0.57) as well as reduction of NTproBNP levels (LASc p < 0.001, r = 0.717; LASct p = 0.001, r = 0.657; LASr p < 0.001, r = -0.79) during a mean FUP of 13 ± 4 months. Additionally, higher LAS strongly correlated with a reduction of LACi (LASct p = 0.021, r = 0.63; LASc p = 0.02, r = 0.63; LASr p < 0.001, r = -0.82), indicating improved LA-LV coupling after OMT. The low event incidence prevented assessing LAS-event correlation.

	Beta-blocker				IACE/ARA				ARNI				Spironolactone				SGLT2i	
Dose	No	Low	Middle	Target	No	Low	Middle	Target	No	Low	Middle	Target	No	Low	Middle	Target	No	Target
Baseline	23.8%	29.4%	38.1%	4.8%	52.4%	14.3%	14.3%	19%	66.7%	19%	9.5%	4.8%	28.6%	19%	42.9%	9.5%	19%	81%
At MOT	9.1%	22.7%	54.5%	13.6%	86.4%	0%	9.1%	4.5%	18.2%	22.7%	22.7%	36.4%	4.5%	91.%	77.3%	18.2%	0%	100%
Follow-up	4.8%	4.8%	61.9%	28.5%	86.7%	4.8%	4.8%	4.8%	4.8%	4.8%	66.7%	3.8%	14.3%	19%	23.8%	42.9%	4.8%	95.2%

Table 1: Distribution of patients according to prognostic modifying drug and dosage at baseline, optimized medical therapy and follow-up

Figure PO 255

Conclusions: In our population, OMT significantly improved LAS, which strongly correlated with NTproBNP levels at FUP. LAS appears to be an important additional parameter in pts with HFrEF, that might provide additional prognostic value but further studies are required.

PO 256. LEFT ATRIUM STRAIN ANALYSIS IN WILD-TYPE TRANSTHYRETIN AMYLOID CARDIOMYOPATHY: A PREDICTIVE TOOL FOR ATRIAL FIBRILLATION

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Hospital da Senhora da Oliveira, EPE-Guimarães.

Introduction: Left atrial (LA) deformation analysis using speckle tracking echocardiography has been established as a useful tool for predicting atrial fibrillation (AF) in the general population. Patients with wild-type transthyretin amyloid cardiomyopathy (wtATTR-CM) have a notably higher prevalence of AF, making it important to identify those at increased risk. LA strain analysis could serve as a valuable method to predict AF in this patient population.
Objectives: This study aimed to evaluate the predictive value of LA strain analysis in determining the occurrence of AF in wtATTR-CM patients.
Methods: Retrospective, single-center study of patients with the diagnosis of wtATTR-CM between 2014 and 2024 in sinus rhythm at the time of the diagnosis. The primary analysis focused on baseline echocardiographic parameters, including Peak Atrial Longitudinal Strain (PALS), Peak Atrial Contraction Strain (PACS), and Peak Atrial Conduit Strain (PCS). We analyzed the relationship between these baseline strain measures and the occurrence of AF. The optimal cutoff values for strain measures were determined using the Youden index, and their predictive accuracy was assessed using Odds Ratios (OR).
Results: Of a total of 111 patients, 59 patients were in sinus rhythm at the time of the diagnosis (73% males, mean age 80 ± 6 years). Median follow up was 30 [IQR 16-36] months. During follow-up 30 patients (51%) developed AF. Mean PALS value was lower in patients who developed AF (12.13 ± 4.76 vs. 15.22 ± 6.13%, p = 0.034). PACS had significant worst values in patients that did not maintain sinus rhythm (-6.29 ± 3.84 vs. -9.05 ± 5.54%, p = 0.030). PCS value did not differ between the groups (-5.85 ± 2.66 vs. -6.17 ± 3.37%, p = 0.688). The optimal cutoff value for PACS was identified as -11.4%, with an OR of 7.368 (95%CI 1.449-37.462, p = 0.016). For PALS, with a cutoff value of 14.6%, an OR of 0.339 (95%CI 0.114-1.008, p = 0.052).
Conclusions: LA strain analysis, particularly PACS, shows promise as a tool for assessing the risk of AF development in wtATTR-CM patients. Although PALS demonstrated a trend toward significance, further studies with larger sample sizes are necessary to validate these findings.

PO 257. ASSESSMENT OF LEFT VENTRICULAR MYOCARDIAL WORK PERFORMANCE IN PATIENTS WITH ESSENTIAL HYPERTENSION

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Introduction: Myocardial work (MW) is an advanced echocardiographic tool that evaluates left ventricular (LV) function by integrating afterload and myocardial deformation. Hypertension (HTN), a major cardiovascular risk factor, is associated with LV remodeling and dysfunction. This study aimed to characterize global MW indices in hypertensive and non-hypertensive individuals.
Methods: A retrospective, single-center study was conducted, including patients without known cardiovascular disease who underwent MW assessment between January 2022 and November 2024. Echocardiographic parameters, including global constructive work (GCW), global wasted work (GWW), global work index (GWI), and global work efficiency (GWE), were analyzed. Patients were stratified by hypertension status (HTN diagnosis and elevated blood pressure [BP] during the exam). LV remodeling patterns (concentric remodeling [CR] vs. left ventricular hypertrophy [LVH]) were also evaluated. Multivariate analyses adjusted for age and sex identified predictors of MW parameters.
Results: Among 822 patients (43.7% with HTN), hypertensive individuals exhibited more cardiovascular risk factors, higher resting BP, greater LV remodeling (CR and LVH), and larger left atrial volumes (all p < 0.05). MW parameters were comparable between hypertensive and non-hypertensive groups (p > 0.05), and LV remodeling patterns did not significantly influence MW indices. However, patients with elevated resting BP (≥ 140/90 mmHg) demonstrated significantly higher GWI, GCW, and GWW (p < 0.05). Multivariate analysis identified elevated resting BP as the sole independent predictor of MW parameters, strongly influencing GWI, GCW, and GWW.

Characteristics		Total (n = 822)	No HTN	HTN	p-value
Total no. (%)		822	356 (43.7)	463 (56.3)	
Female no (%)		396	195	201	**0.002**
Age (yo)		62.9 ± 11.2	61 ± 12.9	66 ± 8.9	**<0.001**
BSA (m^2)		1.86 ± 0.2	1.86 ± 0.2	1.89 ± 0.2	**<0.001**
BMI (Kg/m^2)		27.2 ± 3.6	26.4 ± 3.5	27.5 ± 3.2	**<0.001**
Blood Pressure	SBP rest (mmHg)	124.4 ± 15.6	120.6 ± 17	125.2 ± 14.4	**<0.001**
	DBP rest (mmHg)	73.6 ± 9.8	66.5 ± 10.2	73.4 ± 8.3	0.128
	Basal HTN	160	97	63	0.222
Echocardiographic Findings					
	RWT	0.40 ± 0.1	0.34 ± 0.05	0.40 ± 0.1	**0.003**
	Mass (g/m^2)	83.6 ± 26.5	80.9 ± 13.9	95.5 ± 25.4	**<0.001**
	Concentric Remodeling (%)	162 (30.6)	54 (10.2)	108 (20.4)	**0.005**
	Concentric LVH (%)	41 (7.7)	11 (2)	30 (5.7)	**0.037**
	LA vol (mL/m^2)	38.8 IQR 11	39.3 ± 6.7	40.6 ± 11.4	**0.004**
	E/e'	7.33 IQR 2.84	6.97 IQR 2.64	7.69 IQR 2.95	**<0.001**
	LVTDV (mL/m^2)	103.3 ± 28.5	103.9 ± 27.4	108 ± 28.4	0.06
	LVEF	59.7 ± 7	57.8 ± 5.3	57.2 ± 9	0.679
	GLS (%)	-16.5% ± 2.5	-15.9 ± 2.3	-16.8 ± 2.5	0.444
	GWE (%)	91.7 ± 4.4	93 ± 2.4	92.3 ± 4.7	0.341
	GWI (mmHg%)	1551.3 ± 305.3	1529.8 ± 314.2	1586.4 ± 265.6	0.331
	GCW (mmHg%)	1903.7 ± 342.8	2595.9 ± 501.3	2722.3 ± 476	0.06
	GWW (mmHg%)	164.8 ± 95.4	210 IQR 99	203 IQR 15.9	0.263

	Structural normal	Concentric Remodeling	P value	Concentric Hypertrophy	P value
GWE	93 IQR 5	94 IQR 3.7	0,1	89 ± 4.6	0,319
GWI	1536.3 ± 262.8	1673.3 ± 350.1	0,311	1624.7 ± 258.5	0,792
GCW	1892.9 ± 282.8	2097.3 ± 376.3	0,1391	1936.1 ± 278.3	0,639
GWW	121 IQR 84	125 IQR 67.5	0,260	204.7 ± 91	0,153

	Normal BP at rest	Elevated BP at rest	P value
GWE	92.1 ± 4.1	91.1 ± 4.3	0,327
GWI	1503.3 ± 260.9	1759.2 ± 360	**<0.001**
GCW	1853.2 ± 289.2	2214 ± 351.5	**<0.001**
GWW	130 IQR 101	197.3 ± 289.1	**<0.001**

Conclusions: In this unselected cohort, MW indices derived from deformation imaging were similar between hypertensive and non-hypertensive patients and across LV remodeling patterns. However, elevated resting BP was independently associated with increased myocardial workload, reflected by higher GWI, GCW, and GWW, underscoring the augmented afterload on the LV. These findings emphasize the importance of BP control to mitigate excessive myocardial strain and preserve LV performance.

PO 258. EXPLORING RV-ARTERIAL COUPLING: COMPARING CMR-DERIVED RV STRAIN AND ECHO-BASED MYOCARDIAL WORK INDICES IN PRE-CAPILLARY PULMONARY HYPERTENSION

Ricardo Carvalheiro, Margarida Figueiredo, Bárbara Lacerda Teixeira, Inês Neves, Miguel Antunes, Isabel Cardoso, Vera Ferreira, João Reis, Ana Galrinho, Sílvia Aguiar Rosa, Rui Ferreira

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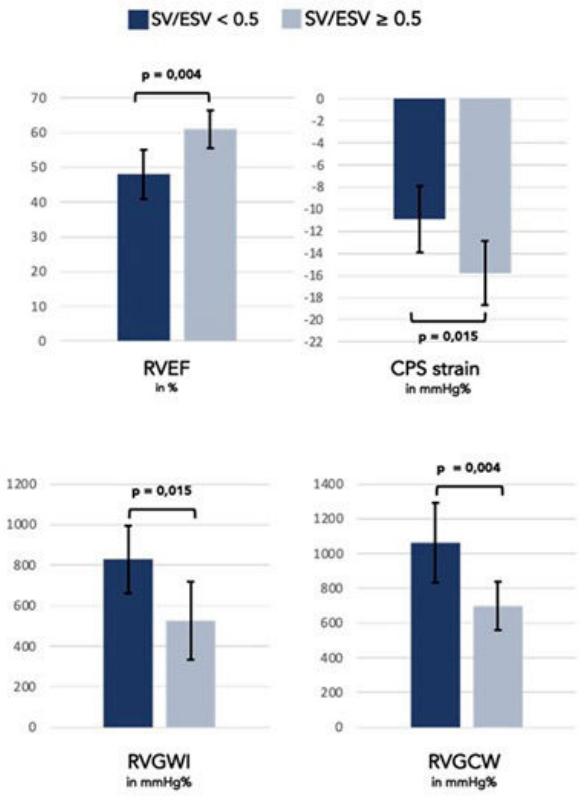
Introduction: Right ventricular-arterial coupling (RVAC), measured by the end-systolic to arterial elastance ratio (Ees/Ea), is the gold standard for

assessing right ventricular (RV) function to increased afterload in pulmonary hypertension (PH). However, this method is time-consuming. The stroke volume (SV) to end-systolic volume (ESV) ratio offers a simplified, prognostically relevant alternative, with a cut-off value of 0.5. Cardiac magnetic resonance (CMR) can assess this ratio and derive strain metrics, while transthoracic echocardiography (TTE) enables RV myocardial work (RVMW) evaluation via pressure-strain loops. The relationship between these parameters, particularly in pre-capillary PH, remains underexplored.

Objectives: To investigate the relationship between the SV/ESV ratio, CMR-derived RV strain, and TTE-derived RVMW in Group I and IV PH patients, and to compare these parameters in patients with SV/ESV ratios above and below 0.5.

Methods: Thirteen pre-capillary PH patients underwent CMR, TTE, and right heart catheterization. CMR feature-tracking assessed RV strain, while TTE software analyzed RV myocardial work indices.

Results: Patients (69% women, mean age 67) had a mean PAP of 35 mmHg (± 13.5) and PVR of 4.8 WU (± 4.9). SV/ESV ratio strongly correlated with CMR-derived RV ejection fraction (RVEF) (r = 0.888, p < 0.001) and circumferential strain (CPS) (r = 0.538, p = 0.037), but not with longitudinal strain (LPS). TTE-derived RVMW showed significant correlations between SV/ESV ratio and global work index (RVGWI) (r = 0.580, p = 0.038) and constructive work (RVGCW) (r = 0.654, p = 0.015). In contrast, wasted (RVGWW) and efficient work (RVGWE) showed no significant associations. Patients with SV/ESV < 0.5 exhibited lower RVEF (48 ± 7.1 vs. 61 ± 5.5, p = 0.004), lower CPS strain (-10.9 ± 3.0 vs. -15.8 ± 2.9, p = 0.015), but higher RVGWI (828 ± 167.4 vs. 526 ± 192.0, p = 0.015) and RVGCW (1,061 ± 228.5 vs. 698 ± 141.0, p = 0.004).



Comparison of CMR-derived RVEF and circunferencial strain and TTE-derived RVMW parameters between patients with SV/ESV < or ≥ 0.5.

Conclusions: The SV/ESV ratio correlated with both CMR-derived circumferential strain and TTE-derived RV myocardial work indices (RVGWI and RVGCW). Patients with a lower SV/ESV ratio demonstrated lower strain but higher work indices, suggesting compensatory mechanisms. Larger studies are needed to validate these findings and assess their prognostic value.

PO 259. RESERVOIR STRAIN OUTPERFORMS TRADITIONAL ECHOCARDIOGRAPHIC PARAMETERS IN PREDICTING MORTALITY IN SECONDARY MITRAL REGURGITATION

Ricardo Carvalheiro, Miguel Marques Antunes, Isabel Cardoso, José Miguel Viegas, Vera Vaz Ferreira, Pedro Rio, Ana Teresa Timóteo, Ana Galrinho, Rui Cruz Ferreira

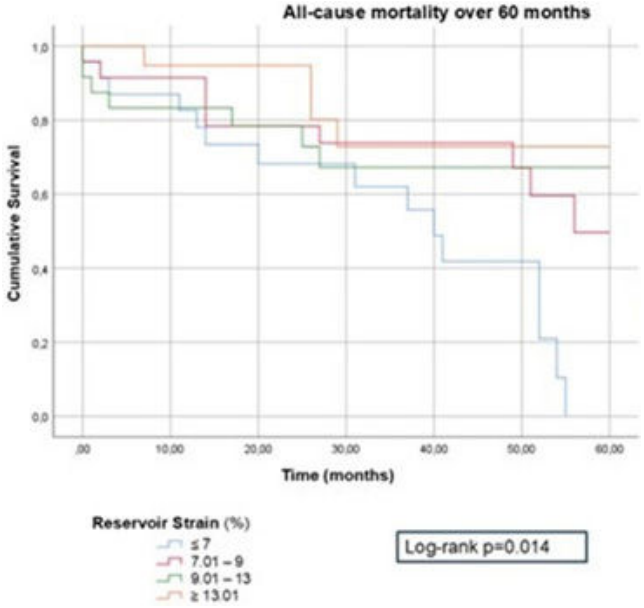
Centro Hospitalar Universitário de Lisboa Central, EPE/Hospital de Santa Marta.

Introduction: Secondary mitral regurgitation (SMR) is associated with poor outcomes, yet the prognostic value of left atrial strain (LAS) and stiffness compared to traditional echocardiographic parameters remains unclear.

Objectives: To assess the prognostic significance of left atrial strain parameters and stiffness in predicting overall mortality in pts with SMR over 60 months.

Methods: We performed a single-center retrospective study of patients with SMR between 2018 to 2023.

Results: The analysis included 96 pts (62% female) with a mean age of 67 ± 14 years, followed up (FUP) for a mean of 34 ± 22 months after TTE examination. 37 pts (39%) died during FUP after a median of 20 (IQR: 3-40) months. Pts had a mean EROA of 32 ± 18 cm^2, regurgitant volume (RV) of 46 ± 24 mL, LVEF of 42 ± 12%, and peak TR velocity of 3.0 ± 0.5 m/s. LAS analysis revealed a mean reservoir strain (LAS-R) of 10 ± 5%, with an LA stiffness index (assessed as [E/e']/[LAS-R]) of 2.0 ± 1.6. 47% of pts were in atrial fibrillation (AF) at the time of TTE examination. Higher LAS-R values were a significant protective factor for mortality (HR = 0.88, 95%CI: 0.80-0.97, p = 0.007). Conversely, LA stiffness (HR = 1.27, 95%CI: 1.05-1.53, p = 0.016) and peak TR velocity (HR = 2.21, 95%CI: 1.15-4.26, p = 0.017) were associated with increased mortality risk over 60 months. Measures of regurgitation severity (e.g., RV or EROA), left and right ventricular systolic function (e.g., LVEF, GLS, or TAPSE), and other diastolic function parameters were not associated with mortality. Age was the only clinical variable independently associated with the outcome (HR = 1.03, 95%CI: 1.00-1.56, p = 0.049). While LA stiffness was a significant predictor in isolation, its effect weakened when included in a model with LAS-R (p = 0.594). In multivariate analysis, LAS-R remained a significant protective factor for mortality (HR = 0.865, 95%CI: 0.76-0.98, p = 0.023), while peak TR velocity showed a non-significant trend towards increased mortality risk (HR = 1.787, p = 0.193), after adjustment for LVEF and mitral regurgitation severity. The association between LAS and prognosis remained significant after adjusting for the pts' rhythm.



Conclusions: Reservoir strain (LAS-R) emerges as a robust and independent predictor of mortality in pts with secondary mitral regurgitation,

outperforming traditional echocardiographic markers such as LVEF or measures of regurgitation severity. Its protective role underscores the importance of evaluating atrial mechanics, providing a potential target for improved risk stratification in SMR.

PO 260. LEFT ATRIAL STRAIN AS A PREDICTOR OF ATRIAL FIBRILLATION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

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

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

Introduction: Atrial fibrillation (AF) stands as the prevailing arrhythmia across all forms of cardiomyopathies. The occurrence of AF in individuals with hypertrophic cardiomyopathy (HCM) is 4 to 6 times more frequent compared to the general population of the same age. Patients (P) with HCM and FA are at higher risk of adverse outcomes. To date, there is not a widely validated model that can predict the risk for development of AF in P with HCM. We aimed to study the role of left atrial (LA) myocardial deformation imaging as a toll for predicting FA development, in a population with HCM.
Methods: P with HCM accompanied at our Cardiomyopathies Center who had no palpitations or documented AF at the time of echocardiographic evaluation were included. During follow-up, AF was established as an atrial tachyarrhythmia with uncoordinated atrial electrical activation lasting more than 30 seconds. For evaluation of outcomes, our cohort was divided into two groups (with and without AF). For the group with AF, the last transthoracic echocardiogram (TTE) performed before the diagnosis of AF was considered, for the group without AF, a TTE was analyzed in P with a similar follow-up duration. LA deformation imaging using two-dimensional speckle tracking echocardiography was performed according to the consensus document of the EACVI/ASE/Industry Task Force to standardize deformation imaging.
Results: Forty-nine P with HCM (age 70.60 ± 12.0, 43% male sex) were included. Twenty-six (53%; age 63.3 ± 13.11.30.4% male sex) developed AF during the follow-up (FU) (mean FU of 29.5 ± 25 months). The groups had similar baseline clinical and demographic characteristics, and no significant differences were registered when comparing clinical aspects or regular medication. When analyzing the LA strain, there were no significative differences between the reservoir or conduit phases of the LA cycle, in either apical four chamber (A4C) view, apical two chamber (A2C) view or biplane analysis. The contraction phase of the LA cycle was significantly different between the two groups (p = 0.02 for A4C, p = 0.04 for A2C and p = 0.05 for biplane). The ROC curves were drawn, with an area under the curve of 0.665 for A4C, 0.698 for A2C and 0.673 for biplane. Based on ROC curve analysis, an optimal cut-off point of -8.5% for sensitivity and specificity in the contraction phase of the LA cycle strain was determined. After Cox regression analysis, P with a value of LA strain for the contraction phase ≤ -8.5% had a higher risk of developing AF (hazard ratio [HR] 4.29; 95% confidence interval [CI] 1.25-14.74, p-value 0.021).
Conclusions: In our cohort of HCM P, atrial strain, particularly the contraction phase of the LA cycle, appears to be a valuable predictor for the development of AF.

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

Área de Posters-écran 2 | Sessão de Posters 39 – Imagem cardíaca na estenose aórtica

PO 261. MEASURING INTEGRATED BACKSCATTER IN PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION

André Paulo Ferreira, Julien Lopes, Pedro Rio, Ana Teresa Timóteo, Ana Leal, Fernanda Varela, Duarte Cacela, Ana Galrinho, Rui Cruz Ferreira

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

Introduction: Calibrated integrated backscatter (cIB) derived by 2D echocardiography quantifies myocardial ultrasound reflectivity, and it has been used in previous studies as a surrogate for myocardial fibrosis. Before the advent of other cardiac imaging techniques, it was a major focus of tissue characterization research.
Objectives: We examined whether cIB may help identify patients undergoing transcatheter aortic valve implantation (TAVI) at risk of procedure-related complications.
Methods: Consecutive patients submitted to transfemoral TAVI between January and December 2022 were routinely imaged by echocardiography in the five days peri-procedure. Calibrated integrated backscatter was obtained from the parasternal long-axis view (PLAX) by subtracting pericardial cIB intensity from myocardial septal and posterior wall average cIB. Patients with poor PLAX views were excluded from the study. Measurements of cIB, expressed in decibels, were performed at end-diastole. The primary endpoint was the occurrence of major TAVI-related complications.
Results: Of 149 patients who underwent TAVI during the study period, 131 had a reasonable acoustic window for cIB measurement and were included in the study. Patient mean age was 82.1 ± 6.9 years, and 62% were female. At baseline,

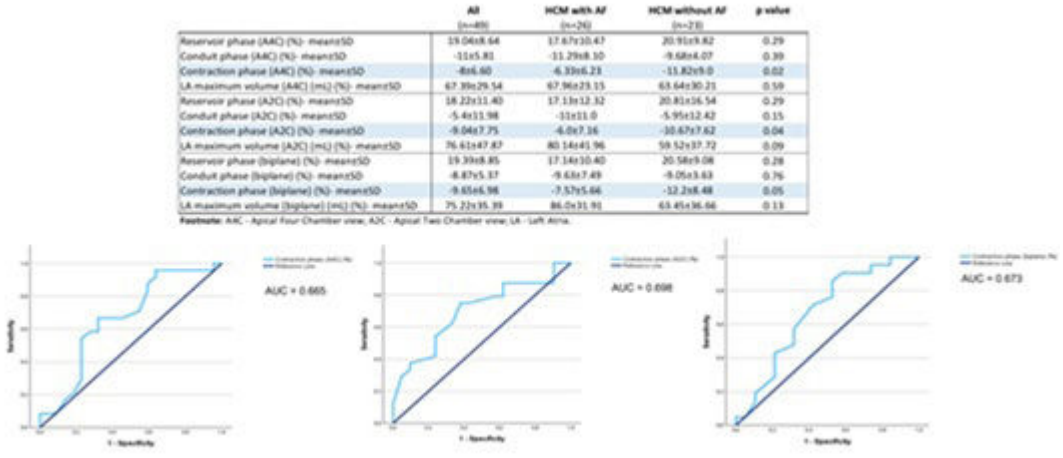


Figure PO 260

84% of patients had preserved left ventricle function, the mean aortic mean gradient was 47.3 ± 14.8 mmHg, and the mean EuroSCORE II was 5.34 ± 3.24. The global mean cIB measured was 19.74 ± 7.56 dB. No significant differences were found in the myocardial wall ultrasound reflectivity in patients with TAVI-related major complications (20.63 ± 10.8 vs. 19.6 ± 6.9 dB, p = 0.587), which were defined according to the Valve Academic Research Consortium-2 consensus. However, cIB was significantly higher in patients who had post-TAVI conduction disturbances (21.09 ± 7.72 vs. 18.11 ± 7.06 dB, p = 0.026), including left bundle branch block and atrioventricular block. There was also a negative correlation of cIB with aortic annulus area as measured by computed tomography (r(129) = -0.19, p = 0.032), and cIB was also significantly higher in patients who had a pre-TAVI estimated glomerular filtration rate of less than 30 mL/min/1.73 m² (22.42 ± 7.17 vs. 19.56 ± 6.88 dB, p = 0.043).

	Calibrated integrated backscatter	p-value
TAVI-related major complications	20.63±10.8 vs 19.6±6.9 dB	p=0.587
Post-TAVI conduction disturbances	21.09±7.72 vs 18.11±7.06 dB	p=0.026
Aortic annulus area	r(129)= -0.19	p=0.032
Estimated glomerular filtration rate	22.42±7.17 vs 19.56±6.88 dB	p=0.043

Table 1 – Primary and secondary cIB measurement endpoints

Figure 1 - Measurement of cIB

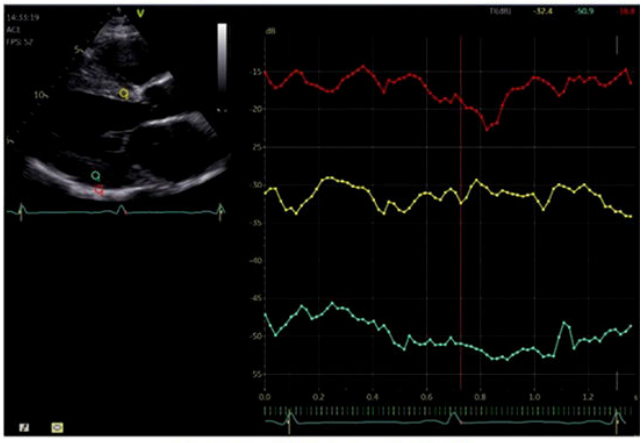


Figure 2 - Measurement of cIB

Conclusions: Our data disfavors the use of cIB as a predictor of major TAVI-related complications, but it suggests that cIB assessment could add value in identifying patients at risk of conduction disturbances in post-TAVI procedures.

PO 262. IS RELATIVE AORTIC VALVE LOAD DETERMINANT OF LEFT VENTRICULAR REMODELING IN PATIENTS WITH SEVERE AORTIC STENOSIS REFERRED FOR SURGICAL VALVE REPLACEMENT?

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

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

Introduction: Relative Valve Load (RVL) is a novel echocardiographic index based on the ratio of transaortic mean pressure gradient (MG) to the global valvuloarterial impedance (Zva) to estimate the contribution of the valvular afterload to the global left ventricular (LV) load. In patients with severe aortic stenosis (AS) referred for intervention, LV reverse remodeling (LVRR) is expected to occur following afterload relief. We aimed to evaluate whether pre-operative RVL influences LVRR in a cohort of patients with severe AS who underwent surgical aortic valve replacement (SAVR).
Methods: Single-centre prospective cohort study of 158 patients with severe symptomatic AS and no previous history of ischemic cardiomyopathy (median age 73 [68-77] years, 47% male; MG 61 ± 17 mmHg, mean indexed aortic valve area 0.4 ± 0.09 cm²/m², mean LV ejection fraction [LVEF] 59 ± 9%) referred for SAVR between 2019-2022. Both pre- and post-operative transthoracic echocardiographic (TTE) and cardiac magnetic resonance (CMR) study (at the 3rd to 6th month after SAVR) were performed. LV RR was defined when in presence of at least one of the imaging criteria: > 15% decrease in end-diastolic volume (EDV) by CMR; > 15% decrease in LV indexed mass (LVMi) by CMR; > 10% decrease in geometric remodeling (LV mass/EDV ratio) by CMR; > 10% increase in LVEF by CMR; > 50% increase on global longitudinal strain by TTE. Patients were divided into high and low RVL based on optimised cut-off values determined by Youden Index. The primary endpoint was defined as death or heart failure hospitalization.
Results: From an initial cohort of 158 patients, a total of 116 (median age 72 [68-77], 48% male) had complete pre- and post-SARV imaging study, of whom 108 had data to calculate RVL (all patients with high gradient and preserved LVEF). At baseline, patients with higher RVL (≥ 14.3 mL/m², 53%) more frequently had chronic kidney disease (p = 0.046), higher LVMi (90 ± 30 vs. 69 [55-80] g/m², p = 0.002), higher LVEF (60 ± 7 vs. 57 ± 9%, p = 0.031) and

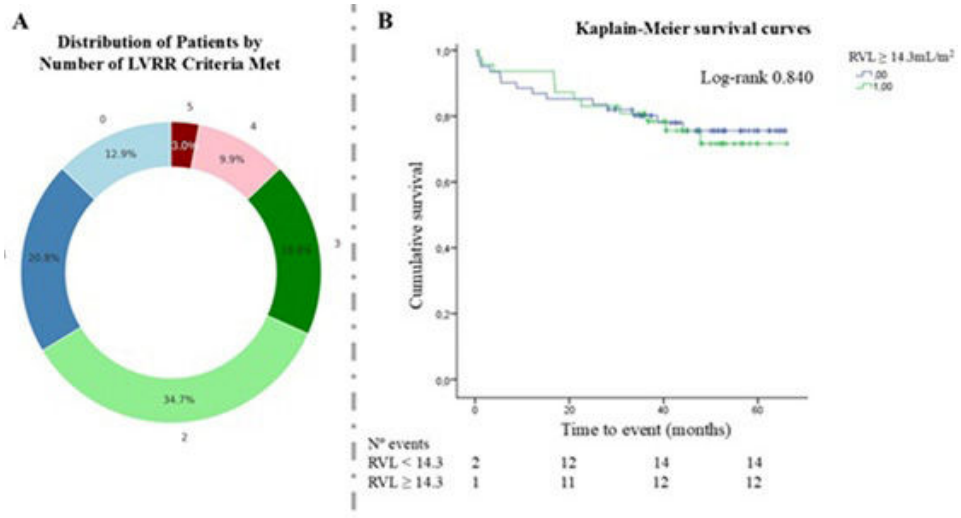


Figure PO 262

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

Vanessa Lopes, Pedro Almeida, Rafaela Fernandes, Gil Cunha, Nádia Moreira, Ana Ramalho, Rogério Teixeira, Lino Gonçalves

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

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

Ana Rita Bello[1], Kamil Stankowski[2], Débora Silva Correia[1], Pedro Lopes[1], Francisco Gama[1], Cláudia Silva[1], Pedro Freitas[1], Sara Guerreiro[1], João Abecasis[1], António Ferreira[1]

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[2]*Humanitas Hospital Milão.*

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.

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