

## Friday Abstracts and Cases

**Presentation  
Number:** 14-05

**Poster Board  
Number:**

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** EFFICACY OF MULTIMODAL IMAGING IN DETECTING EARLY  
CARDIOMYOPATHY IN MIDDLE EASTERN POPULATIONS: A 2024 UPDATE

**Author Block:** Sohaib Aftab Ahmad Chaudhry, Rida Shakeel, Muhammad Ali Makhdoom,  
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**Background:** Cardiomyopathy is an emerging public health concern in the Middle East, with prevalence increasing by 22% since 2015. Contributing factors include a high burden of metabolic syndromes, familial cardiomyopathy, and diagnostic delays. While traditional echocardiography remains the initial diagnostic tool, regional guidelines increasingly emphasize the role of advanced imaging—particularly cardiac magnetic resonance imaging (MRI) and strain echocardiography—for early detection. Access disparities and inconsistent implementation, however, limit widespread benefit.

**Abstract  
Body:** **Methods:** We analyzed 2023-2024 data from four cardiac imaging registries to evaluate the diagnostic utility of multimodal imaging. These included the Saudi National Cardiac Imaging Database (n=6,214), the Jordanian Advanced Cardiac Imaging Initiative (n=1,897), Qatar's Sidra Medicine CMR Registry (n=2,106), and interim data from Kuwait's National Cardiomyopathy Screening Program (n=3,455). Modalities assessed included late gadolinium enhancement (LGE) MRI, strain echocardiography, native T1 mapping, and high-risk screening protocols for diabetics and those with familial predisposition.

**Results:** Multimodal imaging consistently outperformed echocardiography alone in detecting early or subclinical cardiomyopathy. In Saudi Arabia, LGE-MRI identified 49% more early cases, with 31.7% asymptomatic and previously undiagnosed. Jordan's cohort saw a diagnostic delay reduction from 7.1 to 3.9 months when combining MRI and strain echo. Native T1 mapping in Qatar revealed abnormalities in 38.2% of patients with normal

ejection fraction. In Kuwait, targeted diabetic screening uncovered occult cardiomyopathy in 27.4%. MRI access remains uneven—92% of centers in Qatar vs. 41% in Yemen—and cost was the leading barrier (67% of centers).

**Conclusion:** Multimodal imaging, especially cardiac MRI and strain echocardiography, significantly improves early cardiomyopathy detection in Middle Eastern populations. Addressing financial and infrastructure barriers, expanding subsidized MRI programs, and standardizing imaging protocols are essential for broader regional impact.

**Presentation  
Number:** 14-07

**Poster Board  
Number:**

**Topic 1:** AI in Cardiology

**Publishing  
Title:** ADVANCING ASCVD RISK STRATIFICATION USING AI-DRIVEN RETINAL  
SCREENING AT GLUCARE.HEALTH

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**Abstract  
Body:**

**Background:** Traditional ASCVD risk models, such as the Pooled Cohort Equation, rely on conventional factors and may underestimate risk in women and younger adults. While CAC scoring improves prediction, its cost, radiation, and accessibility limit widespread use. Reti-CVD, an AI-driven retinal biomarker, offers a scalable, non-invasive method for detecting subclinical atherosclerosis. This study assesses its real-world integration and utility within a hybrid digital-metabolic care model at GluCare Health in Dubai.

**Methods:** Adults aged 30-70 with cardiometabolic risk factors (diabetes, obesity, hypertension, family history) but no known ASCVD were screened with Reti-CVD. Patients were stratified into low, moderate, or high risk based on retinal AI analysis, integrated with labs (lipids, Lp(a), hsCRP), digital biometrics, and clinical review. Low-risk patients received preventive counseling; moderate/high-risk individuals had treatment plans adjusted and were referred to specialists as needed.

**Results:** A total of 481 adults (mean age  $47.6 \pm 9.5$  years; 57% male) were screened and stratified into low (n=229), moderate (n=182), and high (n=70). Risk level was significantly associated with age ( $p < 0.001$ ), increasing progressively from low ( $42.2 \pm 6.8$  years) to moderate ( $50.4 \pm 7.9$ ) to high ( $57.7 \pm 9.0$ ). Male predominance was highest in the high-risk group (82.9%). Significant differences were observed across groups in weight ( $p = 0.005$ ), BMI ( $p = 0.001$ ), HbA1c ( $p < 0.001$ ), LDL ( $p < 0.001$ ), HDL ( $p = 0.007$ ), total cholesterol ( $p < 0.001$ ), and triglycerides ( $p = 0.012$ ). Hypertension increased across groups ( $p < 0.001$ ); hyperlipidemia was prevalent (~40-

46%) with high statin use, particularly in high-risk patients (88.3%). eGFR declined slightly with risk ( $p=0.069$ ). Nearly half of high-risk patients were referred or evaluated by a cardiologist.

**Conclusion:** Reti-CVD enables early, personalized ASCVD risk stratification in a real-world setting. It complements traditional tools and shifts prevention toward detecting atherosclerosis before clinical events, supporting broader implementation of non-invasive AI-driven screening.



**Presentation  
Number:** 14-09

**Poster Board  
Number:**

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** CARDIAC DIMENSIONS IN EMIRATI MALES: RETHINKING WESTERN  
REFERENCE NORMS THROUGH INDEXING

Adil Jumani, Ghada Rashwan, Hadiza Ibrahim, Shaini Mani, Jumaa

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**Background:** Echocardiography (Echo) is the cornerstone of non-invasive cardiac imaging, enabling assessment of key cardiac dimensions. Current reference ranges are derived from Western populations and do not reflect the anatomical norms of smaller-bodied ethnic groups. This study aims to compare standard Echo dimensions in healthy young Emirati males with Western normal ranges, and whether indexing to body surface area (BSA) resolves discrepancies.

**Methods:** We performed echocardiographic assessments on 60 healthy Emirati males aged 17-30 undergoing military screening, comparing their absolute and BSA-indexed left ventricular (LV), aortic, and left atrial (LA) dimensions with ASE/EACVI reference ranges.

**Abstract  
Body:**

**Results:** The results demonstrated that the mean left ventricular end-diastolic (LVED) (38-54 mm) and left ventricular end-systolic (LVES) (23-36 mm) dimensions were consistently smaller than established Western reference ranges (42-58 mm and 25-40 mm, respectively). Similarly, aortic measurements, including the annulus (17-27 mm) and ascending aorta (18-30 mm), were also below Western normative values. However, when indexed to body surface area, these measurements were comparable to Western standards. LA diameter (22-41 mm) was consistent with Western references, whereas biplane LA volumes (11-30 ml/m<sup>2</sup>) and three-dimensional LA volumes (11-28 ml/m<sup>2</sup>) were found to be lower. LV dimensions are essential in guiding the timing of surgery for valvular heart diseases, particularly aortic and mitral regurgitation. Current guidelines recommend intervention in aortic regurgitation (AR) when the LVES

dimension exceeds 50 mm. However, local observations reveal that some patients develop LV dysfunction even before reaching this threshold. As traditional cut-offs are not adjusted for body size, recent evidence indicates that an indexed LVES dimension greater than 20 mm/m<sup>2</sup> may serve as a more accurate predictor of adverse outcomes in patients with severe AR.

**Conclusion:** While absolute cardiac dimensions in young Emirati males are smaller than Western reference values, indexing to BSA resolves the discrepancies and hence should always be used in non-western populations.

**Presentation** 18-05  
**Number:**

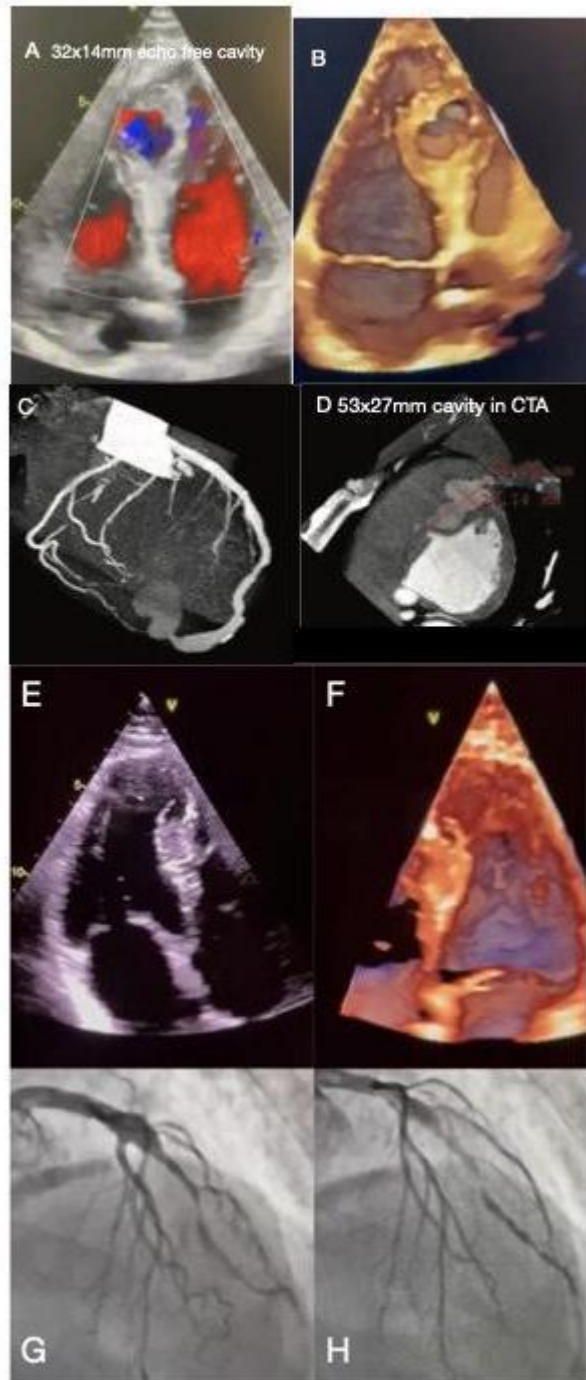
**Poster Board**  
**Number:**

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing** THE GIANT CORONARY ANEURYSM THAT VANISHED UNMASKING CRITICAL  
**Title:** LAD STENOSIS AFTER TWELVE YEARS OF SILENCE

Ege Alp Dagdeviren, Suleyman Kursad Ozel, Busra Tozlu, Kanber Karabay,  
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**Abstract**  
**Body:** **Background:** Coronary artery aneurysms (CAA) are uncommon and usually silent; spontaneous obliteration is rare.  
**Case:** A 59 year old male, former footballer, was evaluated in 2013 for an incidental murmur. TTE revealed an echo free septal cavity, mimicking a fifth chamber, with continuous, diastolic flow in the LAD. CTA confirmed the LAD cavity near the cardiac apex. Given his asymptomatic status, a conservative medical approach was adopted. For 12 years, annual TTE showed a stable pouch; the patient remained asymptomatic and event free. In April 2025, a TTE showed the septal cavity had vanished. Concerned by this anatomical “silence,” coronary angiography revealed a 90% mid LAD stenosis. Despite this, the patient remained symptom free. A collaborative decision by the patient and heart team was made for guideline directed medical therapy.



**Decision-making:** This case highlights complex decision making in asymptomatic coronary artery disease (CAD). We propose critical mid LAD stenosis drove spontaneous giant CAA obliteration. Proximal plaque progression likely created low-shear flow, favoring mural thrombosis and cavity seal off. Thus, aneurysm disappearance unmasked critical LAD

stenosis. Functional testing deferred despite critical LAD due to preserved exercise capacity.

**Conclusion:** Faced with a vanished giant aneurysm and covert severe LAD lesion, we chose vigilant medical follow-up. This case underscores managing asymptomatic CAD complexities, prompting: WOULD YOU STENT, BYPASS, OR WATCH?

**Presentation  
Number:** 18-07

**Poster Board  
Number:**

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** UNMASKING PREVIOUSLY UNDIAGNOSED OBSTRUCTIVE HYPERTROPHIC  
CARDIOMYOPATHY FOLLOWING TRANSCATHETER AORTIC VALVE  
REPLACEMENT FOR SEVERE AORTIC STENOSIS

**Author  
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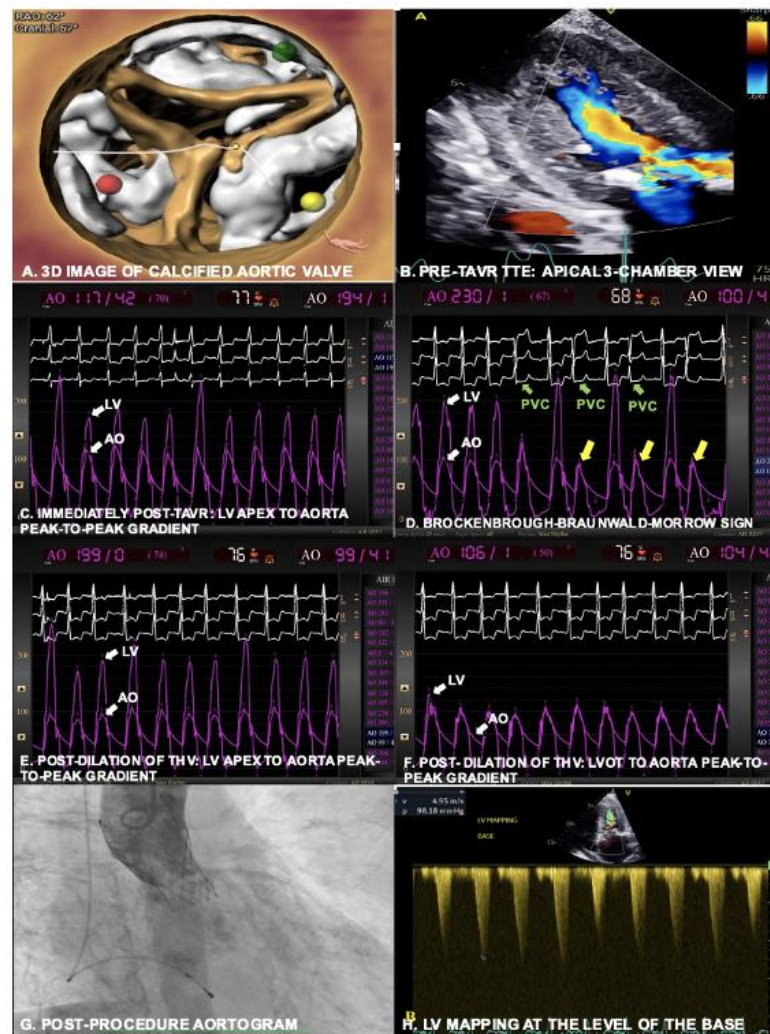
**Background:** Aortic stenosis (AS) with concomitant hypertrophic cardiomyopathy (HCM) is extremely rare. Transcatheter aortic valve replacement (TAVR) may reveal underlying HCM by relieving fixed aortic obstruction, complicating management.

**Case:** An 81-year-old woman with severe AS and progressive dyspnea had well-controlled hypertension. ECG showed LV hypertrophy with strain. TTE revealed a degenerative aortic stenosis (area 0.48 cm<sup>2</sup>), EF of 47%, asymmetric septal hypertrophy, and high-velocity turbulent flow across the LVOT. Due to high surgical risk, she was referred for TAVR.

**Abstract  
Body:** **Decision-making:** TAVR was performed with a 23 mm Evolut Pro+ valve. Pre-deployment peak-to-peak LV apex-aortic gradient was 143 mmHg. Post-implantation, a residual gradient >60 mmHg persisted, rising to 130 mmHg with ectopy. Despite post-dilation, the LV apex-aortic gradient remained elevated. Catheter pullback showed no LVOT-aorta gradient, suggesting a third-space phenomenon. Post-TAVR TTE showed trace regurgitation, aortic valve area of 1.81 cm<sup>2</sup>, systolic anterior motion of the mitral valve, and elevated LV gradients (base 98 mmHg, mid 144 mmHg, apex 176 mmHg). Initially stable, she developed congestion and pleural effusion by day 2, managed with thoracentesis and hydration. She was discharged on aspirin, clopidogrel, nebivolol, and mavacamten.

**Conclusion:** This case shows how TAVR may unmask undiagnosed obstructive HCM, which may need specific intervention to prevent

complications and optimize outcomes.



**Figure 1.** (A) 3D reconstruction of the tri-leaflet aortic valve showing the severe calcification with a calcium score of 3,217. (B) Pre-TAVR TTE apical 3-chamber view showing mosaic color flow in the LVOT consistent with high-velocity turbulent flow. (C) Immediately post-TAVR implantation showed significant LV apex and aorta peak-to-peak gradient of more than 60 mmHg. (D) Brockenbrough-Braunwald-Morrow sign (yellow arrow) was observed after premature ventricular complexes (green arrow) were induced. (E) Post-dilation of THV: the LV apex to aorta peak-to-peak gradient remained significantly elevated, whereas (F) post-dilation of THV: the LVOT to aorta peak-to-peak gradient showed no significant residual gradient, suggestive of a third space phenomenon. (G) Post-procedure aortogram showed Evolut Pro+ THV implanted at 2-3 mm depth with trivial aortic regurgitation. (H) LV mapping at the level of the base with very elevated peak gradient of 98 mmHg.

*Legend:* TAVR = transcatheter aortic valve replacement; TTE = transthoracic echocardiography; LVOT = left ventricular outflow tract; LV = left ventricle; THV = transcatheter heart valve.

**Presentation  
Number:** 50-001

**Poster Board  
Number:** 001

**Topic 1:** AI in Cardiology

**Publishing  
Title:** PRE-HOSPITAL ARTIFICIAL INTELLIGENCE-GUIDED, FOCUSED CARDIAC  
ULTRASOUND IN PATIENTS WITH ACUTE CHEST PAIN FOR DIAGNOSIS OF  
ACUTE CORONARY SYNDROME

**Author  
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**Background:** Acute chest pain is common, yet only 10-20% of cases are due to acute coronary syndrome (ACS). Pre-hospital diagnosis is challenging, especially for non-ST elevation ACS with inconclusive ECG. AI-guided focused cardiac ultrasound (FoCUS) using handheld devices offers immediate cardiac assessment. We evaluated the feasibility and diagnostic performance of pre-hospital AI-guided FoCUS for ACS detection.

**Methods:** In this single-center, prospective study, 75 patients with acute chest pain underwent FoCUS. Sonographers (72%) and paramedics (28%) used AI guidance to acquire apical 4/2/3-chamber views. Image quality and quantitative measures (left ventricular ejection fraction [LVEF] and global longitudinal strain [GLS]) were assessed. Diagnostic performance was evaluated using ROC analysis.

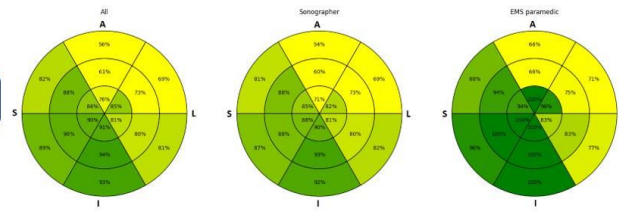
**Abstract  
Body:**

**Results:** At least one apical view was obtained in 91% of patients, with sonographers achieving 96% versus 67% by paramedics for the AP4CH view. Complete acquisition of all views occurred in 67% of cases (83% versus 24%), with median image quality scores from 83% to 100%. GLS yielded an area under the curve of 0.76 (89% sens, 56% spec) and LVEF 0.65 (75% sens, 73% spec). In patients with HEAR scores >3, lower apical four-chamber strain correlated with ACS.

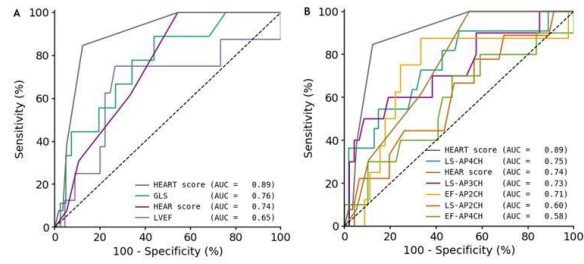
**Conclusion:** Pre-hospital AI-guided FoCUS is feasible and promising for ACS detection, although its quantitative measures do not yet surpass established clinical scores. Improved training and further AI refinement are needed before widespread use.



# IMAGE QUALITY



# DIAGNOSTIC PERFORMANCE



**Presentation  
Number:** 50-002

**Poster Board  
Number:** 002

**Topic 1:** AI in Cardiology

**Publishing  
Title:** LEVERAGING ARTIFICIAL INTELLIGENCE FOR PRECISION CARDIOLOGY: A DEEP LEARNING APPROACH TO AUTOMATED CORONARY ARTERY STENOSIS DETECTION

**Author Block:** Hossein Sadr, Mojdeh Nazari, Arsalan Salari, Faezeh Darsaraei, Shahid Beheshti University of Medical Sciences, Tehran, Iran (Islamic Republic of), Guilan University of Medical Sciences, Rasht, Iran (Islamic Republic of)

**Background:** Coronary Artery Disease (CAD), characterized by coronary artery stenosis—the narrowing of arteries supplying blood to the heart—is a leading global cause of morbidity and mortality. Timely detection and management of stenosis are crucial to preventing severe outcomes such as myocardial infarction and heart failure. Despite advancements in medical imaging, current diagnostic methods rely heavily on the manual interpretation of coronary angiograms, which is time-consuming, subjective, and prone to variability. To fill these gaps, this study proposes an automated object detection-based framework for identifying coronary artery stenosis in medical imaging.

**Abstract  
Body:** **Methods:** Two deep learning models—RetinaNet and EfficientDet D3 — were trained and evaluated using two distinct datasets. The first included 8,325 annotated images from 100 patients with single-vessel CAD, sourced from the Research Institute for Complex Issues of Cardiovascular Diseases (Kemerovo, Russia). The second dataset comprised 4,053 annotated images from 50 patients collected locally at Heshmat Hospital, Guilan, Iran. Both datasets underwent uniform preprocessing, including resizing, normalization, and data augmentation to ensure robustness across imaging conditions.

**Results:** On the Kemerovo dataset, EfficientDet D3 achieved a mean average precision (mAP) of 96.6%, outperforming RetinaNet (93.2% ). When tested on the Heshmat Hospital dataset, EfficientDet D3 maintained strong performance with an mAP of 97.8% , while RetinaNet reached 94.5% . The

models exhibited strong accuracy in detecting and localizing stenotic regions, even in low-contrast or noisy images, highlighting their potential for real-world clinical use.

**Conclusion:** This study presents a robust AI-based solution for automated stenosis detection in coronary angiograms. By integrating multi-center data and achieving consistent performance across diverse populations, our approach supports faster, more reliable diagnosis. Incorporating such AI tools could significantly enhance efficiency, reduce diagnostic variability, and improve outcomes, ushering cardiology into a new era of AI-enabled precision medicine.

**Presentation  
Number:** 50-003

**Poster Board  
Number:** 003

**Topic 1:** AI in Cardiology

**Publishing  
Title:** BRIDGING VIRTUAL AND REAL; THE ROLE OF HEALTH DIGITAL TWINS AND EXTENDED REALITY IN CARDIOVASCULAR CARE

**Author  
Block:** Madeeha Nayeem, Nisrine Liyakat Nimachwala, Zainab Saleh Sayeed Al Jabri Hazrami, Afnan Ahmed Azad, Mohammed Saleh Sayeed Al Jabery Hazrami, Akshit Valsaraj Chemmancheri, Angeline Abraham, Akshaya Srinivasan, Anugrah Pradeep, Tbilisi State Medical University, Tbilisi, Georgia, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia

**Background:** Digital twin (DT) technology leverages multimodal data and AI to build patient-specific virtual cardiac models, enhancing diagnostics, therapy, and real-time monitoring. Extended reality (XR) further enables intuitive visualization for procedural planning. This review explores DT and XR integration in cardiovascular care, highlighting predictive, preventive, and therapeutic impacts.

**Abstract  
Body:** **Methods:** A systematic review of 50 studies (PubMed, Google Scholar, Cochrane Library) was conducted. After applying inclusion/exclusion criteria, 29 studies focusing on DT use in arrhythmia management, ischemia prediction, and congenital cardiac interventions were selected.

**Results:** DTs demonstrated improved ablation precision in ventricular tachycardia by identifying reentrant circuits. Electrocardiographic imaging (ECGI)-based DTs correlated strongly with clinical ECGs, aiding ablation planning. XR-based DTs significantly altered surgical approaches in 68% of congenital cases. GPU-accelerated DTs enabled real-time pacemaker simulations. ML-integrated DTs achieved 99.9% ischemia classification accuracy. A tabulated summary highlights findings across key studies.

Study, Year	Technology Used	Key Findings	Impact on Patient Care
Virtual In-Silico Modeling Guided Catheter Ablation for Long Standing Persistent Atrial Fibrillation, 2017	In - silico modeling and V-ABL with five different ablation strategies.	V-ABL was found to be on par to empirical ablation with regards to procedural and ablation time. The V-ABL group had a lower recurrence rate of 14% compared to the empirical group (18.9%).	Precise ablation technique, minimal risk and reduced recurrence rate.
GPU accelerated digital twins of the human heart, 2023	GPU accelerated DT	Replication of physiological heart, LBBB and real time simulation of implantable pacemakers	Personalized patient treatment, cost effectiveness, enhanced surgical planning.
Integration of Digital Twins and Artificial Intelligence for Classifying Cardiac Ischemia, 2023	HCT with ANN	The accuracy rates of model training, validation and testing were 99.9% respectively. This points towards precise cardiac ischemia prediction.	Early detection of cardiac crises such as ischemia along with continuous long-term monitoring.
Cardiac anatomic digital twins: findings from a single national center, 2024	DT using technology	Surgical strategy alteration in 68% of cases, 38% on individual level. Use of AI reduced time to create 3D models (49 minutes).	Lower complication rates and 68% change in surgical strategy suggests a precise, patient centered approach leading to better outcomes.

Abbreviations: V-ABL - Virtual Ablation, GPU - Graphics processing units, MR - Mixed Reality, HCT - Hybrid Cardiac Twin, ANN- Artificial Neural Networks, VT - Ventricular Tachycardia

**Conclusion:** Health digital twins, especially when integrated with XR and AI, represent a paradigm shift in cardiovascular medicine. They support precision care, risk stratification, and surgical planning. However, clinical adoption requires ethical clarity, interoperability, and multicenter validation.

**Presentation  
Number:** 50-004

**Poster Board  
Number:** 004

**Topic 1:** AI in Cardiology

**Publishing  
Title:** PERCEPTION AND ADOPTION OF AI-BASED ECG INTERPRETATION TOOLS  
AMONG CARDIOLOGISTS IN THE MIDDLE EAST

**Author Block:** Sarah Salman Siddiqui, Rawda Ahmed Mehanna, Yusra Jamil, Dubai  
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**Background:** Artificial intelligence (AI)-based electrocardiogram (ECG) interpretation tools have shown promise in improving diagnostic accuracy and workflow efficiency in clinical cardiology. However, their adoption and perceived utility among cardiologists in the Middle East remain largely unexplored. This study aims to assess the perception, adoption rate, and barriers to use of AI-based ECG interpretation tools among practicing cardiologists in the region.

**Methods:** A cross-sectional, web-based survey was conducted between March and May 2025 targeting cardiologists across 7 Middle Eastern countries. The survey included questions on demographics, current use of AI-based ECG tools, perceived accuracy and clinical value, barriers to adoption, and attitudes toward future integration. Descriptive statistics were used to summarize the responses, and chi-square tests were applied to assess associations between adoption rates and key demographic variables.

**Abstract  
Body:**

**Results:** A total of 432 cardiologists completed the survey (response rate 62%). Overall, 38% reported current use of AI-based ECG interpretation tools in clinical practice. Among users, 76% perceived AI tools to improve diagnostic accuracy, and 69% reported enhanced efficiency. The main barriers to adoption included lack of institutional support (42%), concerns about reliability (37%), and limited training (31%). Younger cardiologists (<45 years) and those practicing in academic centers showed significantly higher adoption rates ( $p < 0.01$ ). The majority (81%) expressed a willingness to adopt AI tools if integrated with electronic health record (EHR) systems and validated in local populations.

**Conclusion:** While AI-based ECG interpretation tools are gaining traction among Middle Eastern cardiologists, adoption remains suboptimal due to infrastructural and educational barriers. Targeted interventions such as training programs, local validation studies, and seamless EHR integration may foster broader acceptance and utilization of these technologies in clinical practice.

**Presentation  
Number:** 50-005

**Poster Board  
Number:** 005

**Topic 1:** AI in Cardiology

**Publishing  
Title:** HIERARCHCAD: A HIERARCHICAL DEEP LEARNING FRAMEWORK FOR  
CORONARY ARTERY DISEASE DIAGNOSIS

**Author Block:** Tamam Alsarhan, Besan Musallam, Thuraya Oran, Aya Aya Eqailan, Sara Alaraj, Soud Al-Qasem, Abdelrahman Al-Ali, Hala Al-Zaghloul, Malik E. Juweid, University of Jordan, Amman, Jordan

**Abstract  
Body:**

**Background:** Accurate and early diagnosis of coronary artery disease (CAD) using noninvasive methods is essential for optimal patient management and outcome. Myocardial perfusion imaging (MPI) with attenuation-corrected SPECT polar maps is a common practice for functional assessment of CAD. Artificial intelligence can assist in MPI interpretation and CAD diagnosis.

**Methods:** We developed HierarchCAD, a hierarchical deep learning framework for automated CAD classification using stress and rest polar maps of attenuation-corrected SPECT MPI. A two-stage system mirroring clinical reasoning was used: the first stage detects abnormal perfusion, while the second differentiates ischemia from infarction. The model was trained and evaluated on a curated dataset of patients who underwent MPI at the National Center for Diabetes, Endocrinology and Genetics in Amman, Jordan.

**Results:** We used stress-rest polar maps generated via QPS software of 274 patients with normal, ischemic, or infarcted myocardium based on expert interpretation by two board-certified nuclear medicine physicians. We systematically explored architectural variations, analyzing how loss functions, activation functions, and fusion strategies influence diagnostic performance. Our best-performing configuration—leveraging late fusion and multiscale pooling—achieved 93% accuracy, 94% F1 score, and 95% ROC AUC on internal evaluation, outperforming conventional single-stage classifiers. Qualitative analysis using Grad-CAM and t-SNE further supported interpretability and clinical relevance.



**Conclusion:** Our findings highlight HierarchCAD's potential as an explainable AI tool for real-world CAD diagnosis and risk stratification. Further studies are ongoing to validate our findings using an external cohort.

**Presentation  
Number:** 50-008

**Poster Board  
Number:** 008

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** THE SAFETY AND EFFECTIVENESS OF WARFARIN VS APIXABAN IN PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION/ VENOUS THROMBOEMBOLISM AND END-STAGE KIDNEY DISEASE ON DIALYSIS

**Author Block:** Said Nabil, Tawam Hospital, Alain, United Arab Emirates

**Abstract  
Body:**

**Background:** Direct oral anticoagulants (DOACs), including apixaban, are used for stroke prevention in non-valvular atrial fibrillation (NVAf) and for venous thromboembolism (VTE) management. Patients with end-stage kidney disease (ESKD) on dialysis face elevated risks of thromboembolic events and bleeding. While apixaban is FDA-approved for use in this population, its safety and efficacy compared to warfarin are not well established in this vulnerable population. This retrospective observational study aims to assess the prescribing appropriateness of apixaban compared to warfarin and evaluate their safety and effectiveness in a cohort of ESKD patients undergoing dialysis.

**Methods:** This retrospective observational study included ESKD patients on dialysis receiving apixaban or warfarin at a tertiary care hospital from May 1, 2018, to January 31, 2024. Data on demographics, anticoagulant dosing, therapy duration, bleeding events, CHA<sub>2</sub>DS<sub>2</sub>-VASc score, HAS-BLED score, and thromboembolic events were collected. Safety was assessed by bleeding incidents, and effectiveness was measured by VTE and stroke events. Dose appropriateness was evaluated according to FDA guidelines for apixaban and INR targets for warfarin.

**Results:** Sixty-seven patients were included. Apixaban was associated with a lower bleeding risk (27.6%) compared to warfarin (55.3%) ( $p = 0.028$ ). VTE and stroke events occurred in 10.4% of patients, with no significant difference between groups ( $p = 0.252$  and  $0.236$ , respectively). The HAS-BLED score was a significant predictor of bleeding risk (OR 1.998; 95% CI 1.130-3.5;  $p = 0.017$ ). Mortality rates were similar between the two groups ( $p = 0.225$ ).

**Conclusion:** Apixaban is associated with lower bleeding risk compared to warfarin in ESKD patients on dialysis, with no difference in VTE or stroke rates. The HAS-BLED score is a key predictor of bleeding risk. Further research is needed to confirm these findings.

**Presentation  
Number:** 50-009

**Poster Board  
Number:** 009

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** COMPLEX PACED ECG PATTERNS IN DELAYED RV LEAD PERFORATION

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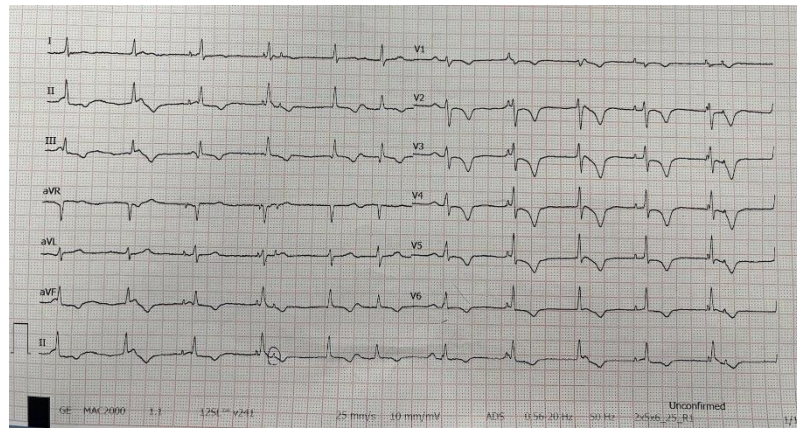
**Background:** Advanced pacemaker ECG interpretation requires analysis of both device timings and lead dysfunction.

**Case:** A 70-year-old woman with a DDD pacemaker (60 bpm) for complete heart block (CHB) presented with pleuritic chest pain one month post-implant. ECG revealed: Junctional rhythm (68 bpm) with atrial fusion complexes and Ventricular pacing spikes following native QRS complexes. Device interrogation showed ventricular threshold elevation to 2.5V (from 0.8V) with no change in impedance. Chest X-ray and CT-scan confirmed RV lead perforation.

**Abstract  
Body:** **Decision-making:** Three key electrophysiological phenomena were observed: 1. Atrial fusion beats confirmed proper atrial capture when intrinsic and paced P waves merged. 2. Ventricular functional non-capture: Post-atrial ventricular blanking (PAVB) is defined as a 50-60 millisecond period following an atrial-paced event, when the ventricular channel is intentionally blinded, explaining why intrinsic QRS complexes during this window are not sensed and followed by ventricular pacing (functional non-capture). This represents normal device operation to prevent oversensing 3. Threshold elevation (2.5V) and Chest CT-scan indicated lead perforation despite preserved sensing

**Conclusion:** This case underscores the importance of correlating ECG findings with device parameters and imaging findings to diagnose lead

perforation.



**Presentation  
Number:** 50-010

**Poster Board  
Number:** 010

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** IMPACT OF ATRIAL FIBRILLATION ON OUTCOMES OF ENDOVASCULAR THROMBECTOMY IN PATIENTS WITH ACUTE ISCHEMIC STROKE: AN UPDATED META-ANALYSIS OF 16,094 PATIENTS

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**Abstract  
Body:**

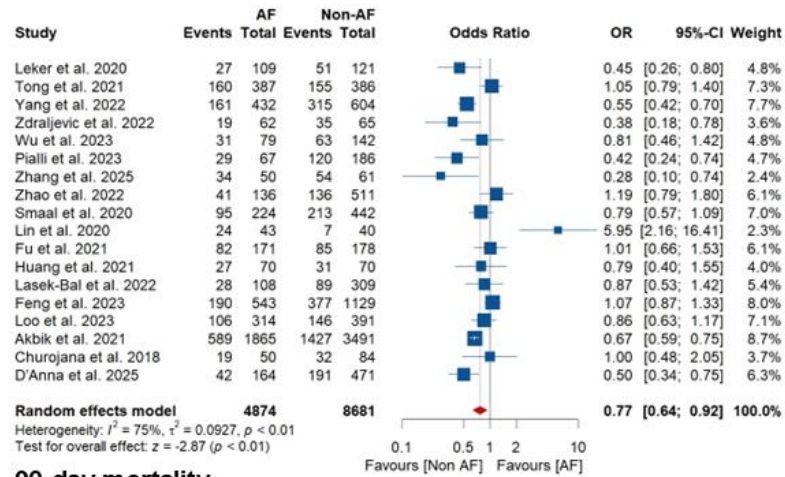
**Background:** The impact of atrial fibrillation (AF) on outcomes of endovascular thrombectomy (EVT) in patients with acute ischemic stroke (AIS) remains unclear. We conducted a meta-analysis to compare EVT outcomes in AIS patients with and without AF.

**Methods:** We searched PubMed, Scopus, and Web of Science up to March 2025 for studies comparing outcomes of EVT for AIS among patients with and without AF. Our primary outcome was the rate of modified Rankin Scale (mRS) scores of 0 to 2 at 90 days. Secondary outcomes included rates of successful reperfusion, defined as thrombolysis in cerebral infarction (TICI) scores of 2b to 3, 90-day mortality, and symptomatic intracranial hemorrhage (sICH). We used the odds ratio (OR) with 95% confidence interval (CI) and the random-effects model for all outcomes.

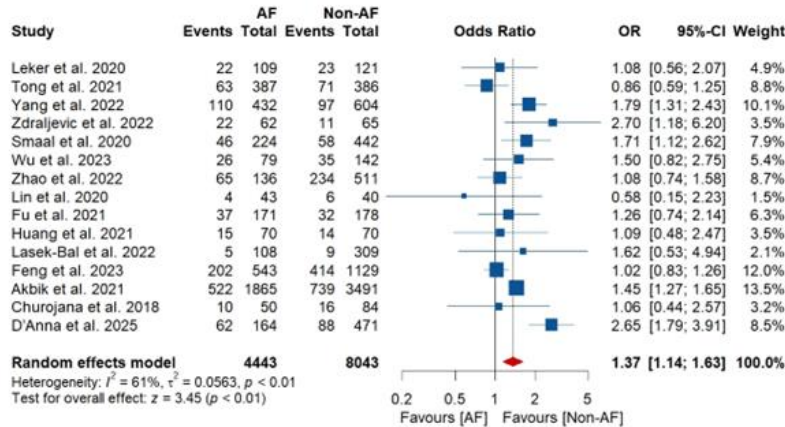
**Results:** A total of 16,094 patients (6,283 with AF versus 9,811 without AF) from 19 studies were included. The rate of 90-day mRS (0-2) was significantly lower among patients with AF (OR = 0.77, 95% CI [0.64; 0.92],  $P < 0.1$ ), with significant heterogeneity among the included studies. Mortality was significantly higher in the AF group (OR = 1.37, 95% CI [1.14, 1.63],  $P < 0.1$ ). There were comparable rates of sICH and mTICI (2b-3) between patients with and without AF (OR = 1.12, 95% CI [0.98, 1.28],  $P = 0.08$ ; OR = 1.11, 95% CI [0.89, 1.39],  $P = 0.36$ , respectively).

**Conclusion:** Patients with AF experienced worse 90-day mortality and mRS (0-2) after EVT for AIS, compared to their counterparts without AF.

## 90-day modified Rankin Scale (0-2)



## 90-day mortality



**Presentation  
Number:** 50-011

**Poster Board  
Number:** 011

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** THE PREVALENCE OF BRUGADA SYNDROME IN PATIENTS PRESENTING TO THE EMERGENCY ROOM IN RIYADH, SAUDI ARABIA

**Author  
Block:** Mudafr Alkhedr, Layan Alabbas, Wael Alqarawi, King Saud University, Riyadh, Saudi Arabia

**Background:** Brugada syndrome (BrS) is a rare inherited arrhythmia associated with an increased risk of sudden cardiac death (SCD). Significant variance in the prevalence of BrS between different countries has been well documented. However, no study has examined the prevalence of BrS in Saudi Arabia. Therefore, our aim to assess the prevalence of BrS in Saudi Arabia.

**Methods:** This retrospective study included consecutive patients who presented to the Emergency Department at King Khalid University Hospital (KKUH) and underwent for Electrocardiogram (ECG), starting in December 2023 and proceeding retrospectively. Demographics and clinical variables were collected from the records and ECGs were examined for the presence of Brugada pattern. BrS was diagnosed when type 1 Brugada pattern was observed with no secondary causes and Brugada pattern was diagnosed when non-type 1 was observed. A pre-specified sensitivity analysis excluding patients whose presentation was potentially compatible with BrS was planned (syncope, presyncope, cardiac arrest, and palpitation).

**Results:** We included 1000 patients. Prevalence of BrS was 2/1000, 0.002 (95% CI: 0.002- 0.007). Prevalence of Br pattern: 26/1000, 0.026 (95% CI: 0.0179 - 0.0390). Sensitivity analysis revealed a prevalence of BrS: 2/912 and a prevalence of Br pattern: 26/912.

**Conclusion:** This is the first Saudi Arabian study on BrS prevalence, reporting a higher prevalence compared to Western countries and a notable

**Abstract  
Body:**



proportion of Type 2/3 Brugada ECG patterns.

Variable	BrS Patient 1	BrS Patient 2
Sex	Male	Female
Nationality	Saudi	Non Saudi
Age	45	36
Presenting Symptoms	Shortness of breath with productive cough	Chest discomfort
Febrile state	Afebrile	Afebrile
Hypertension	No	No
Diabetes mellitus	No	No
Dyslipidemia	No	No
Stroke	No	No
Atrial fibrillation	No	No
Coronary Artery disease	No	No
Sodium level	Low	N
Chloride level	Low	N
Potassium level	N	N
Calcium level	N	N
Medications induce brugada pattern	No	No

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**Presentation Number:** 50-012

**Poster Board Number:** 012

**Topic 1:** Cardiac Arrhythmias

**Publishing Title:** CARDIAC ARRHYTHMIAS ASSOCIATED WITH Z-DRUGS (ZOLPIDEM, ZALEPLON, ZOPICLONE AND ESZOPICLONE): INSIGHTS FROM THE FDA ADVERSE EVENT REPORTING SYSTEM OVER TWO DECADES

**Author Block:** Layan Sufian Aldib, Ahmed Samy Badran, Ahmed S. Elgammal, Leen Alkuttob, Tala S. Aldib, School of Medicine, The University of Jordan, Amman, Jordan

**Background:** Z-drugs (Zolpidem, Zaleplon, Zopiclone and Eszopiclone) are widely prescribed for insomnia. However, emerging concerns link them to cardiovascular events, including arrhythmias. This study aims to evaluate the association between Z-drugs and arrhythmia-related events using data from the FDA Adverse Event Reporting System (FAERS).

**Methods:** We conducted a pharmacovigilance analysis of FAERS data (2004-2024), calculating reporting odds ratios (RORs) and 95% confidence intervals (CIs) for key arrhythmic events, including cardiac arrest, syncope, bradyarrhythmia and tachyarrhythmia, among reports involving Z-drugs. Analyses were stratified by age, sex, fatality, reporting period (pre- vs. post-2013 FDA safety warning) and use of concomitant QT-prolonging medications. Both overall and fatal-case RORs were calculated.

**Results:** Among 27,436 primary suspect Z-drug reports, cardiac arrest exhibited a significant disproportionality signal (overall ROR=1.98 [1.25-3.16];  $p=0.012$ ), with stronger associations in females (ROR=2.10 [1.33-3.30];  $p=0.006$ ), patients <65 years (ROR=2.46 [1.72-3.50];  $p<0.001$ ) and reports from 2014-2024 (ROR=2.28 [1.85-2.80];  $p<0.001$ ). Fatal-case RORs for cardiac arrest were notably elevated (ROR=2.36 [1.71-3.25];  $p<0.001$ ). Syncope showed a significant association in elderly patients (ROR 1.31 [1.11-1.54];  $p=0.004$ ) and in those receiving QT-prolonging drugs (ROR 1.33 [1.01-1.75];  $p=0.046$ ). A significant signal for bradyarrhythmia also emerged in the 2014-2024 period (ROR=2.87, 95% CI: 2.31-3.58).

**Conclusion:** Z-drug use is associated with disproportionate reporting of

serious cardiac adverse events, particularly cardiac arrest. Specific risks for syncope in the elderly and with QT-prolonging co-medication. These findings underscore the need for cautious use, especially in populations at cardiovascular risk, clinical vigilance, and further research to confirm causality.

**Presentation  
Number:** 50-014

**Poster Board  
Number:** 014

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** TEMPORAL TRENDS IN PEDIATRIC SUDDEN CARDIAC DEATH MORTALITY IN THE UNITED STATES, 1999-2020

**Author  
Block:** Mohammad Aamir Qayyum Sarguroh Khan, Aafreen Ali Nyaz, Hashim Mohamed Siraj, FLEN JOHN THOMAS, Sanaf Nisar Hamdulay, Ramlah Atif Khan, Nivedita Pant, Daniil Varlamov, Mujahed Dalain, Anand Balasubramanian, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia

**Background:** Sudden Cardiac Death (SCD) in children is rare but devastating, often affecting previously healthy children. Unlike adults, pediatric SCD arises from a wide spectrum of uncommon and heterogeneous conditions. Despite recent advancements in understanding and prevention strategies, national data on long-term mortality trends remains limited.

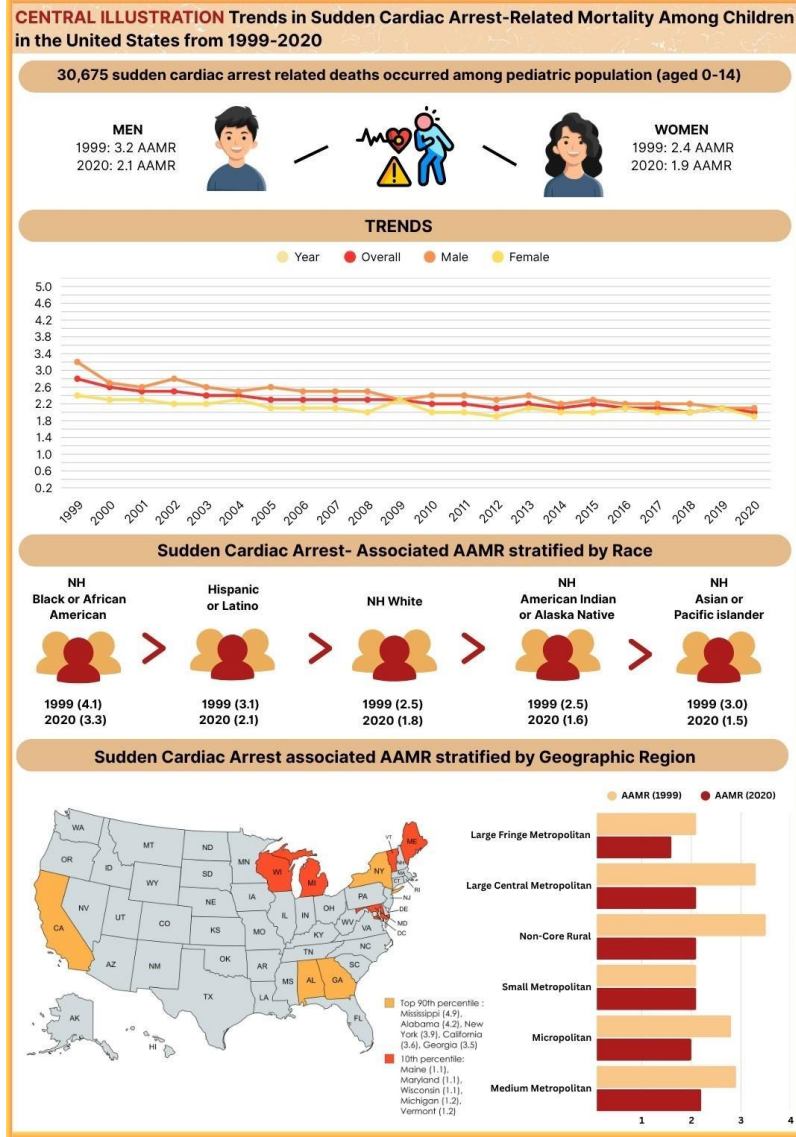
**Methods:** We analyzed Death Certificate data from the CDC WONDER database from 1999 to 2020 for SCD-related mortality in individuals aged 0 to 14. Age-adjusted Mortality Rates (AAMRs) per 100,000, with 95% Confidence Intervals (CIs) and Annual Percentage Changes (APCs) with 95% CIs, were calculated, stratified by year, sex, race, state, urbanization, and census region.

**Results:** From 1999 until 2020, 30,675 pediatric SCD-related deaths occurred. The AAMR declined from 2.8 per 100,000 population in 1999 to 2.5 (APC: -6.0%, 95% CI: -10.8 to -0.9) in 2001 and further to 2.0 in 2020 (APC: -1.0%, 95% CI: -1.2 to -0.8). AAMRs were consistently higher in males than in females (1999: 3.2 vs 2.4; 2020: 2.1 vs 2.0). When stratified by race, NH Black children had the highest AAMRs. Rates declined in all U.S. regions, highest in the Northeast (3.5 to 1.9) and lowest in the Midwest (1.7 to 1.2). State-level rate disparities were marked, ranging from 4.9 in Mississippi to as low as 1.1 in Maine, Maryland, and Wisconsin.

**Conclusion:** Despite overall declines in SCD-related mortality, significant

**Abstract  
Body:**

disparities persist across sex, race, region, and urbanization.



**Presentation  
Number:** 50-015

**Poster Board  
Number:** 015

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** SAME DAY DISCHARGE IN ELECTROPHYSIOLOGY PROCEDURES: A SAFE AND FEASIBLE OPTION FOR PEDIATRIC AND ADULT CONGENITAL HEART DISEASE PATIENTS

**Author Block:** Muaath Alfagih, Rayan Halabi, Azzam Al Qashaami, Saleh Al Ghamdi, Khaled Dagiri, Prince Sultan Cardiac Center, Riyadh, Saudi Arabia

**Background:** To evaluate the safety and feasibility of same-day discharge following electrophysiology (EP) procedures in pediatric and adult congenital heart disease (ACHD) patients performed under varying anesthesia modalities. It also explores factors associated with extended post-procedural observation.

**Methods:** A retrospective review was conducted on 96 consecutive electrophysiology (EP) procedures performed between June 2023 and December 2024 at a single tertiary cardiac center. Of these, 77 patients met the inclusion criteria for same-day discharge following either an EP study or device implantation. Data were analyzed for patient demographics, procedural complexity, anesthesia type, vascular access, duration of post-procedure observation, and clinical outcomes.

**Abstract  
Body:**

**Results:** Out of 96 identified cases, 77 met the criteria for same-day discharge and were included in the analysis; 19 cases were excluded due to prior admission under other services or the need for post-procedure hospitalization for additional interventions or flecainide initiation. Among the included patients, 65 underwent electrophysiology studies, and 12 received device implantations. Structural heart anomalies were present in 43% of EPS cases, with several involving complex congenital conditions. Most procedures (89.6%) were performed under general anesthesia (GA). Right-sided access was used in 58 cases, while 9 required left-sided mapping, including 9 transseptal punctures. Common diagnoses included concealed accessory pathways (n=23), WPW syndrome (n=14), atrial flutter (n=9), AVNRT (n=8), AT (n=5), Ventricular Arrhythmia (n=4), and two patients

had dual arrhythmic substrates. The majority (72.7%) were discharged within 4-6 hours post-procedure. Factors linked to extended observation (6-12 hours) included older age, longer procedural time, and late procedural scheduling. Importantly, no major adverse events or hospital readmissions were reported during the follow-up period.

**Conclusion:** Same-day discharge after EP procedures and device implantation is safe and feasible, even in complex congenital heart disease cases performed under GA, supporting wider adoption of this approach.

**Presentation  
Number:** 50-016

**Poster Board  
Number:** 016

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** WHEN THE QT LIES: MISDIAGNOSED SEIZURES REVEALED TO BE  
TORSADES DE POINTES FROM CONGENITAL LQTS

**Author Block:** Mohamed Nasser Elshabrawi, Port Said, Port Said, Egypt

**Abstract  
Body:**

**Background:** Congenital Long QT Syndrome (LQTS) is a rare but life-threatening condition that may present with seizure-like syncope, often leading to misdiagnosis as epilepsy. Early identification is crucial to prevent sudden cardiac death, particularly in young patients with recurrent unexplained syncope.

**Case:** A 19-year-old male was referred for evaluation of refractory epilepsy, with frequent convulsive episodes over 3 years. Neurologic workup including MRI and EEG was inconclusive. During admission, he collapsed with cardiac arrest; telemetry revealed polymorphic VT consistent with Torsades de Pointes. ECG showed QTc of 540 ms. Genetic testing confirmed type 1 congenital LQTS. Past episodes were likely arrhythmia-induced syncope misinterpreted as seizures. He received an ICD and propranolol, with no recurrence of events during 6 months of follow-up.

**Decision-making:** The misdiagnosis as epilepsy delayed appropriate treatment. Recognition of QT prolongation and correlation with ECG monitoring during collapse allowed for proper diagnosis. ICD implantation and beta-blockade were selected due to high-risk profile and documented Torsades arrest.

**Conclusion:** This case emphasizes the need to consider cardiac causes, including LQTS, in recurrent syncope with convulsive activity. Overlapping presentations with neurologic disorders can delay life-saving therapy. Early ECG review and high suspicion can prevent sudden death in young patients.



**Presentation  
Number:** 50-017

**Poster Board  
Number:** 017

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** TOO SLOW TO GO: RESTORING RHYTHM AND REHAB POTENTIAL WITH RANOLAZINE

**Author Block:** Swraj Singla, Jai Deep, Margaret O'Connor, Nouman Niaz, Abdirahman Mohammed, Tala Abdullatif, UL Hospitals Group, Newcastle West, Ireland, Ireland

**Abstract  
Body:**

**Background:** Premature ventricular contractions (PVCs) can impair cardiac output and limit rehabilitation potential in elderly patients. Beta-blockers are often first-line agents but may be contraindicated in cases of bradycardia. We present a case of PVC suppression using ranolazine in a bradycardic patient where beta-blockade was not tolerated.

**Methods:** An 88 year old male with left bundle branch block, chronic obstructive pulmonary disease, and significant smoking history was admitted for post operative rehabilitation. Initial Holter monitoring revealed a 19-27% PVC burden with symptomatic bradycardia while on bisoprolol. Due to functional decline, beta blockade was withdrawn, and ranolazine 375 milligrams twice daily was initiated and titrated up to 500 milligrams after 2 weeks. Ranolazine inhibits the late sodium current, reducing intracellular calcium and ventricular excitability.

**Results:** Following ranolazine initiation, there was improvement in symptomatic bradycardic burden pertaining to exertional fatigue with limited exercise tolerance. Resting heart rate stabilized with no further symptomatic bradycardia. A repeat Holter (mean 79 bpm) showed a dramatic reduction in PVC burden from 19-27% to 0.12%, with a mean heart rate of 79 bpm. The ectopy was predominantly isolated, with 94% of events being single PVCs. No new ventricular arrhythmias or atrial fibrillation were detected. QTc interval was monitored serially and remained within normal limits. Enhanced physiotherapy engagement followed, progressing from wheelchair-based to multidirectional ambulation.

**Conclusion:** In elderly patients with symptomatic bradycardia and high

PVC burden where beta-blockers are contraindicated, ranolazine may offer a safe and effective off-label alternative. Serial Holter monitoring confirmed sustained ectopy suppression and heart rate normalization without QT prolongation. This case highlights ranolazine's potential to suppress ventricular ectopy without negative chronotropic effects, supporting its consideration in complex geriatric patients where conventional antiarrhythmics pose risks.

**Presentation  
Number:** 50-018

**Poster Board  
Number:** 018

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** RELEVANCE OF STELLATE GANGLION BLOCKADE IN PATIENTS WITH  
REFRACTORY VENTRICULAR ARRHYTHMIAS- A SYSTEMATIC REVIEW

**Author Block:** Prachi Dawer, Sagal Pannu, hritik madan, Dhriti Sood, Gurasis Singh Sodhi,  
Pratiksha Nathani, University College of Medical Sciences, NEW DELHI,  
DELHI, India

**Background:** Despite the use of ICDs, catheter ablation, and antiarrhythmic medications, refractory ventricular arrhythmias (VT/VF) remain a serious treatment problem. Stellate Ganglion Blockade (SGB), a neuromodulatory technique that targets sympathetic cardiac innervation, has emerged as a viable supplementary treatment.

**Methods:** A comprehensive evaluation of research (2006-2024) on ultrasound-guided SGB for drug-resistant VT/VF in adults was carried out. Seven studies were considered, using observational cohorts and retrospective analyses concentrating on arrhythmia recurrence and negative outcomes.

**Results:** SGB significantly reduced VT/VF load in 377 individuals. In select groups, median arrhythmic occurrences decreased from 4.5 to 0 ( $p < 0.001$ ), with up to 74.6% remaining arrhythmia-free after 48 hours. Within 24 hours, more than 72% of patients demonstrated full suppression. SGB was generally tolerated, with the most common adverse event being temporary Horner's syndrome. No serious issues were noted.

**Conclusion:** Ultrasound-guided SGB is a safe, quick, and minimally invasive option for treating refractory VT/VF in the acute setting. Larger randomized studies are required to prove its long-term effectiveness and establish the

best methods.

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**Presentation  
Number:** 50-019

**Poster Board  
Number:** 019

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** FULMINANT VT STORM IN A YOUNG WOMAN WITH PERIMYOCARDITIS  
ASSOCIATED WITH ASCARIS LUMBRICOIDES: A CASE REPORT

**Author Block:** Tommy Daindes, Viftrya Rosady, Benny Afriansyah, Daulat Azhari, Doni  
Surya, Monica Oktariyanthy, Putri Maghfirah Bahri, Tiffany Adelina, Hauda  
El Rasyid, M Djamil General Hospital, Padang, Indonesia

**Background:** Ascaris lumbricoides is a common helminth in tropical areas, but cardiac involvement, including perimyocarditis and ventricular arrhythmia, is quite unthinkable. We describe a young female with fulminant VT storm and heart failure that resulted in sudden death due to Ascaris lumbricoides infection.

**Case:** A 24-year-old female presented with worsening dyspnea, palpitations, and fever, two months after being diagnosed with Ascaris infection. On presentation, echocardiography revealed global hypokinesia, LVEF 30%, and strain study suggested acute perimyocarditis. Serial ECGs showed monomorphic VT and QT prolongation. Laboratory tests revealed leukocytosis, electrolyte imbalances, and elevated inflammatory markers.

**Abstract  
Body:** The patient required repeated cardioversion, defibrillation, temporary pacemaker insertion, IABP, and intravenous antiarrhythmics. Despite extensive care, she remained unstable. On hospital day five, an Ascaris lumbricoides worm was expelled from her mouth during suctioning. This strongly suggests helminth-associated myocarditis. Albendazole was introduced, resulting in partial improvement. However, on day nine, she developed seizures and cardiac arrest, and resuscitation efforts failed.

**Decision-making:** Ascaris lumbricoides infection is rarely associated with cardiac complications such as myocarditis and arrhythmias. In this case, the patient's heart failure and VT storm were likely due to helminth-induced myocarditis. Despite the reintroduction of albendazole, the patient's condition deteriorated, underscoring the severity of such infections when involving the myocardium. This case emphasizes the importance of

considering parasitic infections in young patients with unexplained heart failure or arrhythmias, especially in endemic regions.

**Conclusion:** This case highlights a rare but dangerous outcome of *Ascaris lumbricoides* infection. In areas where it is common, we should consider parasitic causes in young patients with unexplained myocarditis or arrhythmias. Early identification and prompt treatment, including antiarrhythmics and antiparasitic therapy, are critical, but the prognosis remains poor in severe cases.

**Presentation  
Number:** 50-020

**Poster Board  
Number:** 020

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** EARLY OUTCOMES OF PACE AND ABLATE STRATEGY USING CONDUCTION SYSTEM PACING OR BIVENTRICULAR PACING TO TREAT PATIENTS WITH LONG-STANDING PERSISTENT ATRIAL FIBRILLATION WITH HEART FAILURE SYMPTOMS - RAFT P&A PILOT STUDY

**Author Block:** habib khan, Ahmed Mokhtar, Ahmed Moustafa, Pavel Antipervitch, Peter Leong-Sit, Jaimie Manlucu, Lorne Gula, Allan Skanes, Raymond Yee, Anthony S. L. Tang, Western University, London, Canada, London Health Sciences Center Research Institute, London, Canada

**Abstract  
Body:** **Background:** Incidence and prevalence of atrial fibrillation (AF) is increasing, with incremental healthcare utilization and associated costs. Despite rhythm control strategies with antiarrhythmic medications or ablation, many patients have AF recurrence end up with longstanding persistent AF (LSPAF). These subgroup of AF patients remained symptomatic with heart failure (HF) despite optimal rate control, and may benefit from a pace and ablate (P&A) strategy. However, P&A with right ventricular pacing (RVP) induces ventricular dyssynchrony and may impair left ventricular (LV) function. Biventricular pacing (BiVP) offers improved hemodynamic and clinical outcomes than RVP, however, BiVP is still not physiological, and many patients do not derive clinical benefit. We propose that conduction system pacing (CSP) is more physiologic by engaging the Purkinje network with His Bundle pacing (HBP) or left bundle branch area pacing (LBBAP) may improve HF outcomes compared to BiVP.

**Methods:** Patients with permanent AF with HF were screened and recruited into the RAFT P&A study and randomized to receive either BiVP or CSP followed by atrioventricular node ablation (AVNA) within 4 weeks. The patients were followed for a minimum of 6 months and had LV ejection fraction (LVEF) assessment by echocardiography, NTproBNP levels, quality of life (QoL) using the Kansas City Cardiomyopathy Questionnaire.

**Results:** Fifteen patients, mean age of 71.1(±9.3)yrs, at least NYHA class II



(female, n=12, 80%) were recruited and randomized to receive BiVP (n=4) or CSP (n=11) and had successful AVNA within one month post procedure. Baseline LVEF was  $52.9 \pm 12.6\%$ , left atrial volume ( $55.6 \pm 7.7 \text{ ml/m}^2$ ) and NTproBNP of  $1978 \pm 2418$ . Patients receiving CSP saw a reduction in NTproBNP ( $-42.6 \pm 90.2\%$  vs  $73.2 \pm 105\%$ ,  $p < 0.001$ ) and significant improvement in QoL ( $58 \pm 20\%$  vs  $32 \pm 10\%$ ,  $p < 0.01$ ) compared to BiVP at 6 months. LVEF change ( $6.4 \pm 12.8\%$  vs  $7.2 \pm 13.6\%$ ,  $p = 0.81$ ) remained similar between the two interventional arms with no reported adverse events.

**Conclusion:** The pilot study suggests that P&A strategy with CSP shows significant improvement in NTproBNP, QoL for patients with LSPAF and HF symptoms refractory to medical therapy compared to BiVP.

**Presentation  
Number:** 50-021

**Poster Board  
Number:** 021

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** PULSED-FIELD ABLATION DEMONSTRATES SUPERIOR SAFETY WITH  
COMPARABLE EFFICACY TO TRADITIONAL SYSTEMS IN ATRIAL  
FIBRILLATION: A COMPARATIVE ANALYSIS OF ABLATION MODALITIES

**Author Block:** Reekkanya Bagchi, Purvi Kaurani, Sruthi Sai Purnima Koduri, Chagam Reddy  
Sunanda, Dr Srijanya, West Bengal University of Health Sciences, KPC  
Medical College and Hospital, Kolkata, India, Ivane Javakhishvili Tbilisi  
State University, Tbilisi, Georgia, Tbilisi, USA

**Background:** Atrial fibrillation (AFib) is a common arrhythmia affecting 33% population globally. Symptoms include palpitations, fatigue, and dyspnea. Management targets rhythm control and anticoagulation to prevent thromboembolism and stroke. Rhythm control strategies, particularly catheter ablation, are central to the management of persistent AFib. With emerging technologies, evaluating the comparative efficacy and safety of ablation systems is essential.

**Abstract  
Body:** **Methods:** This study evaluates existing systematic reviews and meta-analyses of randomized controlled trials comparing the effectiveness of different ablation systems in AFib patients. Primary outcomes included arrhythmia-free survival at 12 months, procedure duration, and complication rates.

**Results:** Radiofrequency (RF) and cryoballoon (CB) ablation show comparable efficacy, with 68-78% of patients remaining arrhythmia-free at 12 months. RF ablation has 2.4% risk of vascular complications and pericardial effusion (1.5%). Pulmonary vein isolation (PVI) has shown recurrence rates of 30-50%; combining PVI with linear ablation and targeting extra-pulmonary triggers reduces recurrence risk by 25-30%. Surgical ablation, though invasive, demonstrates 70-80% efficacy. Pulsed-field ablation (PFA), a novel technique, shows 80-85% arrhythmia-free rates and 60-90% lower rates of phrenic nerve and esophageal injuries, with shorter procedure and fluoroscopy times.

**Conclusion:** PFA presents a promising alternative with superior safety and comparable efficacy. RF and CB remain effective with variable risk profiles. Ablation strategies should be opted according to AF type and patient-specific factors.

**Presentation  
Number:** 50-024

**Poster Board  
Number:** 024

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** GENDER-BASED DIFFERENCES OF C-REACTIVE PROTEIN-TRIGLYCERIDE-  
GLUCOSE INDEX AS A PREDICTOR OF CARDIOVASCULAR MORTALITY IN  
METABOLIC SYNDROME PATIENTS

**Author Block:** Mohamad Elajami, Sahil Ghay, Layla Abushamat, Priscilla Wessly, Daniela  
Urina Jassir, Christos G. Mihos, Rafle Fernandez, Esteban Escolar, Tarec  
Elajami, Mount Sinai Medical Center of Florida, Miami Beach, FL, USA,  
Hartford Hospital, Hartford, CT, USA

**Background:** C-Reactive Protein (CRP)-Triglyceride-Glucose Index (CTI) has emerged as a marker for insulin resistance and chronic inflammation which are strong risk factors for cardiovascular (CV) disease. The objective of this study was to examine gender-based differences in CTI as a predictor for CV mortality in metabolic syndrome patients.

**Methods:** The NHANES database was queried from 1999-2010, and mortality data through December 2019 were analyzed. Patients  $\geq 20$  years of age and meeting  $\geq 3$  of the 5 criteria for metabolic syndrome were included in this study. Data were stratified by gender, with females further stratified by menopausal status. CTI was calculated using the formula  $0.412 \times \ln(\text{CRP [mg/L]}) + \ln(\text{Triglycerides [mg/dL]} \times \text{Fasting Glucose [mg/dL]})/2$ .

**Abstract Body:** Kaplan-Meier survival analysis and multivariate Cox proportional hazards models assessed the relationship between CTI and CV mortality. Additionally, the incidence of coronary heart disease (CHD) was calculated.

**Results:** A total of 10,421 patients with metabolic syndrome were identified. Mean age was  $57.0 \pm 17.2$  years, of which 51.9% were females. The incidence of CHD was significantly higher in males than females (16.8% vs. 9.5%,  $p < 0.001$ ). In males, each 1-unit increase in CTI was associated with a 42% increase in CV mortality (HR = 1.42, 95% CI: 1.16-1.74,  $p = 0.001$ ). This association was not statistically significant in females (HR 1.20, 95% CI: 0.93-1.55,  $p = 0.16$ ), nor when stratified by premenopausal

(HR 1.18, 95% CI: 0.33-4.25,  $p=0.806$ ) and postmenopausal status (HR 1.23, 95% CI: 0.95-1.58,  $p=0.121$ ).

**Conclusion:** CTI significantly predicts CV mortality in males with metabolic syndrome, however, does not appear to correlate with female outcomes irrespective of menopausal status. These findings highlight gender disparities in the utility and applicability of CTI as a prognostic indicator of CV mortality. Further research is needed to understand the mechanisms driving these differences.

**Presentation  
Number:** 50-025

**Poster Board  
Number:** 025

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** RACE-BASED DIFFERENCES OF C-REACTIVE PROTEIN-TRIGLYCERIDE-  
GLUCOSE INDEX AS A PREDICTOR OF CARDIOVASCULAR MORTALITY IN  
METABOLIC SYNDROME PATIENTS

**Author Block:** Sahil Ghay, Mohamad Elajami, Priscilla Wessly, Layla A. Abushamat,  
Daniela Urina-Jassir, Rafle Fernandez, Esteban Escolar, Christos G. Mihos,  
Tarec Elajami, Mount Sinai Medical Center, Miami Beach, FL, USA

**Background:** Racial disparities in cardiovascular (CV) mortality are influenced by multiple factors including metabolic factors. The C-reactive protein (CRP)-triglyceride-glucose Index (CTI) is a validated marker of insulin resistance and systemic inflammation, both of which are established mediators of CV disease. This study aims to assess the racial differences in the predictive value of CTI for CV mortality in metabolic syndrome patients.

**Abstract  
Body:** **Methods:** The NHANES database was analyzed from 1999 to 2010, and data on mortality through December 2019 were assessed. Patients  $\geq 20$  years of age meeting  $\geq 3$  of 5 metabolic syndrome criteria were included. Data were stratified by self-reported race for comparative analysis. CTI was calculated for each patient using the formula  $0.412 \times \ln(\text{CRP} [\text{mg/L}]) + \ln(\text{Triglycerides} [\text{mg/dL}] \times \text{Fasting Glucose} [\text{mg/dL}]) / 2$ . The incidence of coronary heart disease (CHD) and CV mortality were assessed. A Kaplan-Meier survival analysis and multivariate Cox regression models were employed to examine the association between CTI and CV mortality by race.

**Results:** A total of 10,421 patients with metabolic syndrome were identified. Mean age was  $57.0 \pm 17.2$  years; 56.0% were White, 15.1% Black, 25.3% Hispanic and 3.6% other races. For each 1-unit increase in CTI, CV mortality significantly increased by 32% in White patients (HR: 1.32; 95% CI: 1.09-1.59;  $p = 0.004$ ) and 64% in Black patients (HR: 1.64; 95% CI: 1.08-2.51;  $p = 0.021$ ). In contrary, this association was not significant in Hispanics

(HR: 1.25; 95% CI: 0.80-1.95;  $p=0.328$ ) or other racial groups (HR: 2.18; 95% CI: 0.24-20.11;  $p=0.493$ ). CHD incidence was highest in White patients at 16.3%, 9.9% in Black patients, 7.6% in Hispanics, and 11.8% in the other groups ( $p<0.001$ ).

**Conclusion:** CTI is significantly associated with increased CV mortality in White and Black patients with metabolic syndrome, but not in Hispanics or other racial groups. These findings suggest that CTI's predictive value for CV mortality in metabolic syndrome patients may be influenced by underlying differences in cardiometabolic factors across different races. Further research is needed to elucidate the underlying pathophysiological mechanisms.

**Presentation  
Number:** 50-026

**Poster Board  
Number:** 026

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** A SYSTEMATIC REVIEW OF CASE REPORTS ON INTRACARDIAC THROMBI IN ANTIPHOSPHOLIPID SYNDROME

**Author Block:** Ahmed Quraish, Dareen Saleh, Zaina Giabatti, Amal Allan, Mayss Dalol, Ayham Hussein, Ali Rousan, Hadeel Al Kayed, University of Jordan, Amman, Jordan, Jordan University of Science and Technology, Irbid, Jordan

**Background:** Intracardiac thrombi (ICT) are a rare but serious manifestation of antiphospholipid syndrome (APS). This systematic review aims to explore the prevalence, presentation, risk factors, diagnostic methods, treatment, and outcomes of ICT in APS patients.

**Methods:** A systematic review was performed according to PRISMA guidelines, using PubMed and Google Scholar until June 14, 2024, focusing on "antiphospholipid syndrome" and "intracardiac thrombi." Quality was assessed with the CARE Checklist Criteria. Descriptive statistics summarized the data, and associations were analyzed with chi-square tests and odds ratios.

**Abstract  
Body:**

**Results:** Thirty-seven case series comprising 38 patients were included. The mean age was 36.5 years, and 63.2% were female. Systemic lupus erythematosus (SLE) was the most common associated condition. Right atrial thrombi were the most frequently reported (34.2%), and transthoracic echocardiography was the primary diagnostic modality in 78.9% of cases. Treatment approaches included anticoagulation alone (42.1%), surgery alone (26.3%), or a combination of both (26.3%). Thrombi resolution was observed in 60.5% of cases, indicating a moderately high rate of favorable outcome, while the mortality rate remained relatively low at 5.3%. Significant prognostic factors associated with clinical outcomes included prior thrombotic events, hypertension, diabetes, smoking, alcohol use, and longer hospitalization duration.

**Conclusion:** This review provides the first structured synthesis of ICT cases in APS, highlighting their clinical presentation, diagnostic approaches, and



outcomes. Although rare, ICT in APS poses significant clinical challenges. The moderately high rate of thrombus resolution underscores the importance of early detection and timely intervention. Cardiologists should maintain a high index of suspicion when evaluating APS patients with unexplained cardiac symptoms. Further studies are needed to standardize diagnostic protocols and optimize treatment strategies to reduce morbidity and mortality in this population.

**Presentation  
Number:** 50-027

**Poster Board  
Number:** 027

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** ASSESSMENT OF SERUM CYSTATIN C LEVEL IN CORONARY ARTERY DISEASE PATIENTS AND ITS CORRELATION WITH ANGIOGRAPHIC DISEASE SEVERITY BY SYNTAX SCORE

**Author  
Block:** Catherine Paul, Amala institute of medical sciences, Thrissur, India

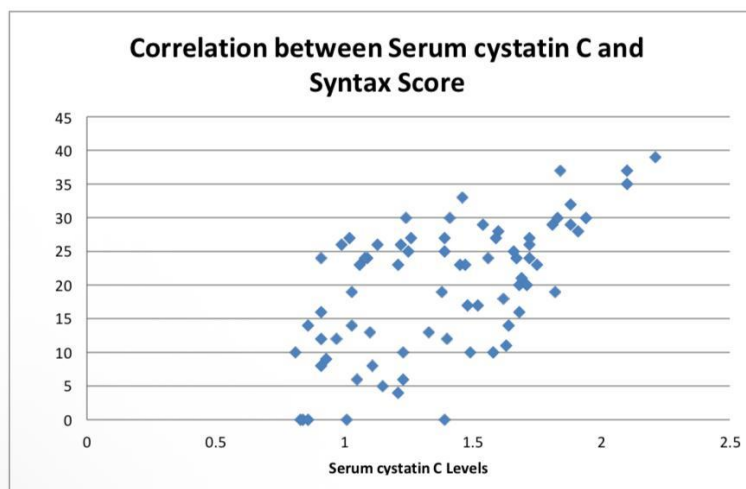
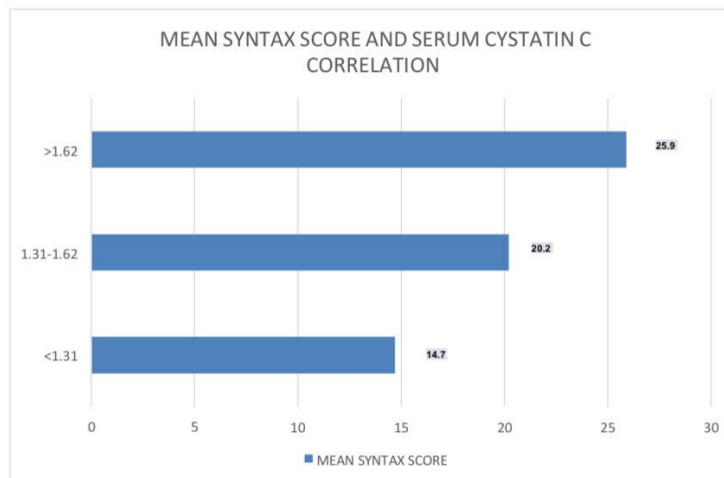
**Background:** Various biochemical tests have also been developed for early detection of severity of coronary artery disease. An emerging biomarker is Cystatin C which has proved to be an important predictor for adverse outcomes among patients with CAD. A high level of cystatin C has been linked to acute coronary syndrome, and it has emerged as a potential biomarker for cardiovascular diseases.

**Abstract  
Body:** **Methods:** To assess serum cystatin C level in coronary artery disease patients with normal eGFR and its correlation with angiographic disease severity by syntax score. A cross-sectional analytical study was conducted for a study period of one and a half years. Primary objective to assess Serum Cystatin-C levels in coronary artery disease patients and its correlation with angiographic disease severity by Syntax Score. Our study included 74 patients of coronary artery disease who had eGFR above 60 ml/min/1.73 m<sup>2</sup> by CKD-EPI formula.

**Results:** This study showed a significant correlation between serum cystatin C levels and CAD severity by Syntax score. Our study also showed that higher values of serum cystatin C were associated with higher syntax score denoting more severe atherosclerotic coronary artery disease.

**Conclusion:** There is significant correlation between Cystatin C level and coronary artery disease. The higher levels of Cystatin C are associated with more severe forms of atherosclerosis as denoted by higher Syntax Score for

angiographic severity of coronary artery disease.



**Presentation  
Number:** 50-028

**Poster Board  
Number:** 028

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** ASSOCIATION OF PRO THROMBOTIC AND THROMBOTIC GENES  
POLYMORPHISM WITH THE RISK OF OCCURRENCE AND SEVERITY OF  
ACUTE CORONARY SYNDROME

**Author Block:** SYED TASLEEM RAZA, Sanchita Srivastava, Bashir Ahmad Mir, Sharique  
Ahmad, Naseem Fatima, Farzana Mahdi, Era's Lucknow Medical College,  
Era University, Lucknow, LUCKNOW, India

**Abstract  
Body:** **Background:** Acute Coronary Syndrome (ACS) is the leading cause of mortality globally. A complicated interaction of clotting mechanisms, genetic predisposition, and environmental factors leads to thrombosis, which predominantly contributes to cardiovascular diseases. The interplay between prothrombotic/thrombotic genes with the clotting mechanism emphasizes the better personalized treatment strategies that will significantly improve the management of the disease. The present study aims to investigate the association between specific genetic variation in pro-thrombotic and thrombotic genes (ITGB3 and GP3A/FAC7) and ACS cases/controls, including the severity of disease (single vessel disease (SVD), double vessel disease (DVD), and triple vessel disease (TVD)). The correlation between biochemical parameters and cases/controls were also examined.

**Methods:** Case-control study included 300 subjects (150 ACS and 150 controls) recruited from Era's Lucknow Medical College and Hospital, India. Genomic DNA was isolated, and PCR-RFLP was employed for genotyping. Statistical analyses were performed using SPSS software.

**Results:** The study revealed that the TT & GT genotype of the FAC7 gene ( $p < 0.0001$ ,  $p = 0.001$ ), the TT & CT genotype of the ITGB3 gene ( $p < 0.0001$ ,  $p = 0.0002$ ), and the TT & CT genotype of the GP3A gene ( $p < 0.0001$ ,  $p = 0.003$ ) show a highly significant association with disease presence. In addition, the GT & TT genotype of the FAC7 gene ( $p = 0.00018$ ;  $p = 0.002$ ) and the CT genotype of the ITGB3 gene ( $p = 0.0009$ ) show a strong association with

disease severity. Moreover, no statistically significant association was observed between the biochemical parameters and cases/controls.

**Conclusion:** The present study suggests that specific genetic variations in the FAC7, ITGB3, and GP3A genes are found to be statistically linked with the development of ACS. The study might help in identifying individuals who are at risk of ACS and ensure that they receive appropriate treatment in due course of time. It may also provide clues in the development of advanced personalized treatment, ultimately improving cardiovascular health outcomes.

**Presentation  
Number:** 50-029

**Poster Board  
Number:** 029

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** ATHEROSCLEROTIC CARDIOVASCULAR DISEASE IN THE ABSENCE OF STANDARD MODIFIABLE RISK FACTORS: PREVALENCE ACROSS DIFFERENT MIDDLE EASTERN SUBGROUPS AND COMPARISON WITH WESTERN STUDIES. ANALYSIS FROM THE JORDAN SMURF-LESS STUDY

**Author  
Block:** Ayman J. Hammoudeh, Mahmoud Alkhawaldeh, Zaid Shbita, Mayar Abughosh, Zaid Al-Omush, Majd Badran, Taqwa Taleb, Mohammed Bzoor, Beesan Abu Al-Hayjaa, Lamia J. Marouf, Omar Shadeed, Nadeen I. Abu Garbia, Istishari Hospital, Amman, Jordan, American Arab University, Jenin, Palestine

**Background:** The Middle East is plagued with atherosclerotic cardiovascular disease (ASCVD) due to high prevalence of four standard modifiable risk factors (SMuRFs) (diabetes hypertension, hypercholesterolemia and cigarette smoking). This may explain the the low prevalence of SMuRF-less patients compared with other regions.

**Methods:** The study involved ASCVD patients who were enrolled in seven clinical studies and registries (2004 and 2024.) Prevalence of SMuRF-less patients was calculated in the whole cohort and in six subgroups according to sex and age.

**Abstract  
Body:** **Results:** Of 5540 patients, 214 (3.9%) patients were SMuRF-less, 3014 (54.4%) had 1-2 SMuRFs and 2312 (41.7%) had 3-4 SMuRFs. Prevalence of SMuRF-less (Table) among six subgroups (all women, young and older women, obese and overweight individuals, and according to level of education). The prevalence of SMuRF-less patients in four western countries is also shown. In western countries the rather high prevalence of SMuRF-less patients (14% to 26%) is explained by lower prevalence of the four SMuRFs compared with the Middle East. In the current study, the prevalence of SMuRF-less patients ranged between 0% in young women with ASCVD to 4.7% in highly educated ASCVD patients

**Conclusion:** Prevalence of SMuRF-less ASCVD patients in a Middle Eastern

country was lower than that reported in western countries, overall and across several subgroups. Prevention of ASCVD in this region should focus primarily on the 4 SMuRF-less, rather than other rare factors.

[\\$\\$MISSING OR BAD GRAPHIC SPECIFICATION \(FDF390DD-7D84-47D0-85A9-5B639F3E854E\) \\$\\$](#)

Cohort (N)	SMuRF-less patients (N,%)	SMuRFs patients (N,%)
<b>JoSMuRF-less Study</b>		
All ASCVD (N=5540)	214 (3.9%)	5326 (96.1%)
Obese and over-weight ASCVD (N=2807)	115 (4.1%)	2692 (95.9%)
All women with ASCVD (N=1333)	49 (3.7%)	1284 (96.3%)
Old women with ASCVD (N=1124)	49 (4.4%)	1075 (95.6%)
Young women with ASCVD (N=209)	0 (0%)	209 (100%)
ASCVD, highly educated (N=344)	16 (4.7%)	328 (95.3%)
ASCVD, low educated (N=715)	28 (3.9%)	687 (96.1%)
<b>Studies from other regions</b>		
USA (Shamaki et al, 2022) (N=434111)	115830 (26.6%)	318281 (73.4%)
Australia (Ball et al, 2024) (N=18988)	2727(14.4%)	16261 (85.6%)
Sweden (Figtree et al. 2021) (N=62048)	9228 (14.9%)	52820 (85.1%)
Greece (Myosidis et al. 2025) (N=650)	128 (19.7%)	522 (80.3%)

**Presentation  
Number:** 50-030

**Poster Board  
Number:** 030

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** REDEFINITION ABSENCE OF STANDARD MODIFIABLE RISK FACTORS  
“SMURF-LESS” IN PATIENTS WITH ATHEROSCLEROTIC CARDIOVASCULAR  
DISEASE TO INCLUDE SIX, RATHER THAN FOUR, RISK FACTORS. THE  
JORDAN SMURF-LESS STUDY

**Author Block:** Noor Saleh Bader, Ayman J. Hammoudeh, Zainab Ezzddin Bahder, Tuqa  
Yousef, Amal Alomari, Sarah H. Assaf, Mohamad S. Alsahan, Samia Aziz  
Sulaiman, Ahmad F. Alomari, Department of Cardiology, Istishari Hospital,  
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**Background:** Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of death in the Middle East. Few ASCVD patients lack any of the four standard modifiable risk factors (SMuRFs); smoking, diabetes mellitus (DM), dyslipidemia and high blood pressure. Sedentary life and obesity are common risk factors (RF) that are not included in the "SMuRF-less" definition".

**Methods:** Data from the Jordan SMuRF-less Study is used to evaluate the clinical and laboratory features in "SMuRF-less" patients who lack the six modifiable RFs compared with those who have one or more of these RFs.

**Abstract  
Body:** **Results:** Of 5540 ASCVD patients (mean age was 57.5±11.6 years), the prevalence of 4-factor “SMuRFless” was 3.9%. Dyslipidemia was present in 4053 (73.2%), high blood pressure in 3197 (57.7%), DM in 2840 (51.3%), cigarette smoking in 2350 (42.4%). Of 1120 patients with available data of physical activity and obesity, only 11 (1.0%) patients were 6-factor "SMuRF-less". SMuRF-less patients were younger than those with ≥ 1 SMuRF, more likely to be women, and less likely to have heart failure and chronic renal disease. They also had higher median LDL-C and higher HDL-C serum levels. Of the whole cohort, 460 (99.1%) patients from survived at least one year after the diagnosis of ASCVD.

**Conclusion:** In an ASCVD cohort in a Middle Eastern country, adding sedentary life and obesity to the original four RFs resulted in 74% reduction



(from 3.9% to 1.0%) in the prevalence of "SMuRF-less". Strategies to control ASCVD in regions with high prevalence of modifiable cardiovascular RFs should rely on screening and management of these six RFs.

**Presentation  
Number:** 50-031

**Poster Board  
Number:** 031

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** TEMPORAL TRENDS IN THE PREVALENCE OF FOUR MODIFIABLE  
CARDIOVASCULAR RISK FACTORS IN THE MIDDLE EAST: 2002 TO 2024

**Author  
Block:** Amal Alomari, Hammoudeh Ayman, Tuqa Yousef, Mohammad Ali Alqudah,  
Yamamah Al-Rhayyel, Dima Alrishoud, Alaa Tawalbeh, Samia Aziz Sulaiman,  
Nermeen Abuhlaweh, Faris Tawalbeh, Noor Saleh Bader, Istishari Hospital,  
Amman, Jordan, Yarmouk University, Irbid, Jordan

**Background:** Contemporary data on the trends of prevalence of the four modifiable atherosclerotic cardiovascular disease (ASCVD) risk factors and the use of secondary prevention medications in the Middle East over the past 22 years are lacking. This study aimed to assess temporal trends in ASCVD risk factors and secondary treatment in adults from 2002 through 2024.

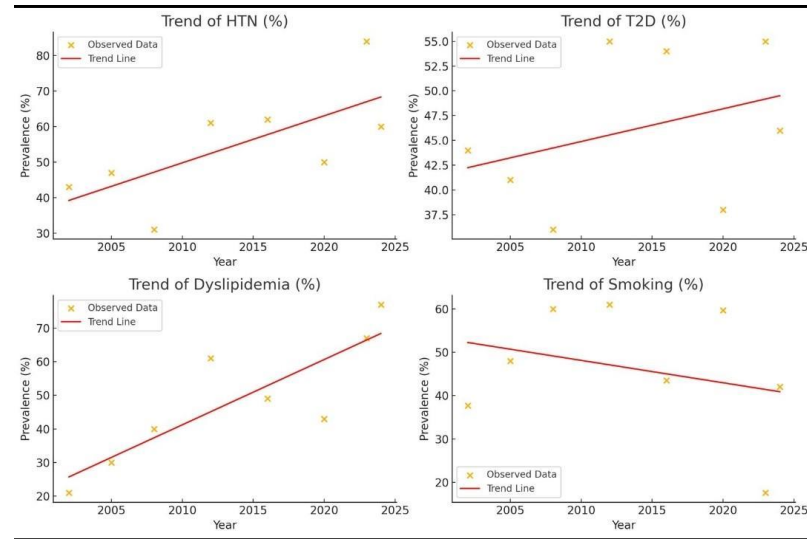
**Methods:** Data from eight published ASCVD studies from Jordan were used to examine the prevalence of hypertension, type 2 diabetes (T2D), dyslipidemia, and cigarette smoking among patients with ASCVD. Utilization of antiplatelet agents, statins, beta-blockers (BB), and renin-angiotensin blockers (RASi) over time was also described.

**Abstract  
Body:**

**Results:** A total of 8,094 adults ( $\geq 18$  years) were included (mean age  $56.2 \pm 5.2$  years; 1,780 [22.0%] women). The diagram presents trends in the four risk factors. A non-significant rise in hypertension trend was noted ( $p=0.056$ ). T2D and cigarette smoking had stable trends ( $p=0.388$  and  $0.482$ ; respectively). Dyslipidemia had a significant increase ( $p=0.007$ ). Use of antiplatelets, statins, BB, and RASi was 93.0%, 89.5%, 71.3%, and 54.2%; respectively, and remained stable over time.

**Conclusion:** None of the four modifiable risk factors declined over the past quarter century. Secondary prevention medication rates remained high. More aggressive efforts are needed to curb the ASCVD epidemic in this

region.



**Presentation  
Number:** 50-32

**Poster Board  
Number:** 032

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** EVOLVING BURDEN OF RHEUMATIC HEART DISEASE IN THE MIDDLE EAST,  
1990 - 2021: A GLOBAL BURDEN OF DISEASE ANALYSIS

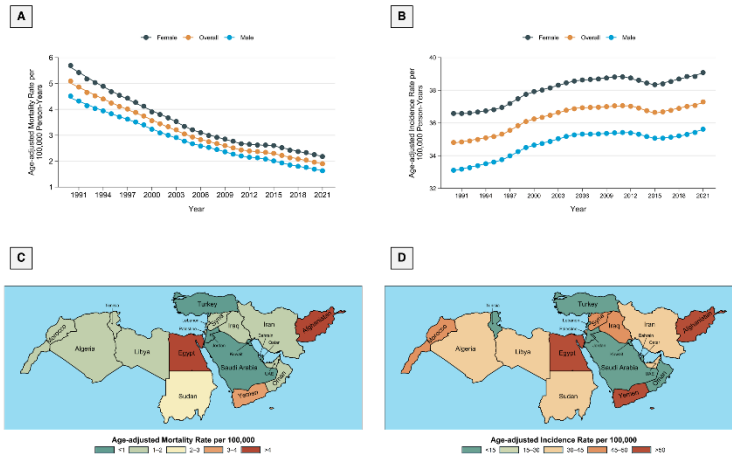
**Author** Ibrahim Hassan, Mennatullah A. Shehab, Faculty of Medicine, Suez Canal  
**Block:** University, Ismailia, Egypt, Faculty of Medicine, Cairo University, Cairo, Egypt

**Background:** Rheumatic heart disease (RHD) remains a major cause of preventable cardiovascular morbidity and mortality in low- and middle-income settings. Region-specific data for the Middle East are sparse, limiting targeted control strategies.

**Methods:** RHD mortality and incidence estimates for Middle Eastern countries were sourced from the Global Burden of Disease (GBD) database (1990-2021). Rates were age-adjusted to the GBD global standard and expressed per 100,000 person-years. Joinpoint regression analyzed average annual percent change (AAPC), with 2021 country-level rates displayed in choropleth maps.

**Abstract  
Body:** **Results:** From 1990 to 2021, age-adjusted mortality declined by 62.7%, from 5.09 to 1.90 per 100,000 (AAPC -3.08%,  $p < 0.001$ ), while incidence rose by 7.1%, from 34.81 to 37.29 per 100,000 (AAPC +0.22%,  $p < 0.001$ ). Women had higher mortality rates, with female mortality decreasing from 5.69 to 2.18 per 100,000 (AAPC -3.0%) and male mortality from 4.51 to 1.63 per 100,000 (AAPC -3.2%). Incidence rose similarly for both genders (female AAPC +0.21%, male +0.24%). In 2021, mortality hotspots were Egypt and Afghanistan, and incidence hotspots included Egypt, Afghanistan, and Yemen. The Gulf states had the lowest rates.

**Conclusion:** Over the past three decades, RHD mortality in the Middle East has decreased by nearly two-thirds. However, incidence has increased, and disparities between males and females have persisted, indicating ongoing streptococcal transmission and delayed diagnosis.



**Figure. Temporal Trends and 2021 Geographic Distribution of Rheumatic Heart Disease (RHD) in the Middle East, 1990–2021**

**Panel A** shows the decline in age-adjusted RHD mortality rates per 100,000 person-years. **Panel B** shows changes in age-adjusted incidence rates. **Panels C and D** present choropleth maps of age-adjusted mortality and incidence, respectively, for Middle Eastern countries in 2021.

All rates were standardized to the GBD global reference population. Temporal trends were assessed using Joinpoint regression (Joinpoint v5.4.0) to estimate segment-specific APCs and detect statistically significant inflection points across the study period.

**Presentation  
Number:** 50-033

**Poster Board  
Number:** 033

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** CARDIOVASCULAR RISKS OF HERBS AND SUPPLEMENT USE WITH  
ANTICOAGULANTS OR ANTIPLATELETS: A FAERS PHARMACOVIGILANCE  
SIGNAL ANALYSIS

**Author Block:** Layan Sufian Aldib, Mostafa Khalifa, Mohamed A. ELKarargy, Mirna Hussein,  
Bara Hammadeh, School of Medicine, The University of Jordan, Amman,  
Jordan, Faculty of Medicine, Cairo University, Cairo, Egypt

**Abstract  
Body:** **Background:** The co-administration of herbal and dietary supplements with  
anticoagulant or antiplatelet medications poses a significant concern due  
to potential adverse interactions leading to serious cardiovascular  
complications. This study aimed to identify and characterize  
disproportionality signals for these cardiovascular adverse events.

**Methods:** This disproportionality analysis utilized adverse event reports  
from the FDA Adverse Event Reporting System (FAERS) spanning 2019-  
2024. Analysis was performed across four discrete time blocks. The study  
examined co-exposures of 16 herbal and dietary supplements with  
selected anticoagulant or antiplatelet medications. Signal detection  
employed Proportional Reporting Ratios ( $\geq 2$ ) and Reporting Odds Ratios  
(95% CI lower bound  $> 1$ ), with a minimum of 10 exposed event cases. A  
focused sub-analysis targeted cardiovascular-related MedDRA System  
Organ Classes: Blood and lymphatic system disorders, Cardiac disorders,  
and Vascular disorders.

**Results:** From a filtered dataset comprising 59,490,363 reports, 262,962  
analyzed co-exposed event cases met disproportionality thresholds,  
revealing significant safety signals. Ginseng emerged as the most frequent  
strongest signaling supplement across numerous System Organ Classes  
(SOCs), while Ginkgo biloba showed prominent signals, notably for Cardiac,  
Ear, and Eye disorders. In a focused cardiovascular sub-analysis, Ginseng  
was associated with the strongest signals for Blood and lymphatic system  
disorders (ROR 7.79, 95% CI 4.77-12.74) and Vascular disorders (ROR

15.07, 95% CI 8.89-25.52). Ginkgo biloba demonstrated the strongest signal for Cardiac disorders (ROR 13.42, 95% CI 10.15-17.74). All identified cardiovascular signals were highly statistically significant ( $p < 0.001$ ).

**Conclusion:** This analysis revealed significant cardiovascular safety signals for various herbal and dietary supplements co-administered with anticoagulants or antiplatelets, prominently involving Ginseng and Ginkgo biloba. These findings highlight the need for increased awareness, patient counseling, and further clinical investigation into these interactions.

**Presentation  
Number:** 50-034

**Poster Board  
Number:** 034

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** SEX-SPECIFIC CARDIOVASCULAR ADVERSE EVENTS WITH  
ANTIARRHYTHMIC MEDICATIONS: A RETROSPECTIVE ANALYSIS OF FAERS  
STUDY

**Author Block:** Mostafa Khalifa, Mohammad Najm Dadam, Layan Sufian Aldib, Bara  
Hammadeh, Faculty of Medicine, Cairo University, Cairo, Egypt, Department  
of Orthopedics and Trauma Surgery, Helios Klinikum Schwelm, Schwelm,  
Germany

**Background:** Sex-specific differences in drug adverse events are increasingly recognized, yet cardiovascular adverse events (CV-AEs) associated with common antiarrhythmic medications often lack detailed sex-disaggregated analysis. This study aimed to identify sex-specific patterns of CV-AEs linked to widely used antiarrhythmic drugs using real-world pharmacovigilance data

**Methods:** We analysed FDA adverse event reports to assess sex-specific cardiovascular risks of common antiarrhythmic drugs. After cleaning, we performed pooled and sex-stratified disproportionality analyses (ROR, PRR), tested sex differences using ratio of RORs with multiple-testing correction, and calculated global female-vs-male odds ratios. A concordance analysis evaluated overlap between pooled and sex-specific signals to determine added value of stratified analysis

**Abstract  
Body:** **Results:** Out of 10,826 deduplicated reports, sex-stratified disproportionality analysis revealed multiple strong associations. In pooled analysis, sotalol-torsade de pointes and amiodarone-QT prolongation showed the highest signals. Global odds ratios indicated that torsade de pointes (OR = 1.37; 95 % CI: 1.16-1.63) and conduction block (OR = 1.18; 95 % CI: 1.04-1.35) were significantly more frequent in women, whereas ischemic events like myocardial infarction (OR = 0.72; 95 % CI: 0.58-0.89) predominated in men. Ratio-of-ROR analysis identified eight drug-event pairs with significantly different reporting strength between sexes



**Conclusion:** Significant sex-specific differences exist in CV-AEs from antiarrhythmic medications. Women face a higher risk of conduction-related pro-arrhythmic events, while men show an increased prevalence of ischemic cardiac events. These findings highlight the need for sex-conscious considerations in antiarrhythmic therapy to enhance patient safety and outcomes

**Presentation  
Number:** 50-035

**Poster Board  
Number:** 035

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** FROM STATIN ALTERNATIVE TO SIGNAL ALERT: EXPLORING THE REAL-  
WORLD SAFETY PROFILE OF BEMPEDOIC ACID THROUGH A  
PHARMACOVIGILANCE STUDY USING THE U.S. FDA FAERS DATABASE

**Author Block:** Ahmed Samy Badran, Ahmed S. Elgammal, Layan Sufian Aldib, Faculty of  
Medicine, Ain Shams University, Abbassia, Egypt, School of Medicine,  
University of Jordan, Amman

**Background:** Bempedoic acid, an ATP-citrate lyase inhibitor, is a novel lipid-lowering treatment for hypercholesterolemia. Post-marketing surveillance is critical for evaluating its real-world safety profile and potential adverse drug reactions (ADRs). We aim to investigate the safety profile of bempedoic acid using disproportionality analysis from the FDA Adverse Event Reporting System (FAERS).

**Methods:** We analyzed FAERS data from Q1 2020 to Q4 2024. We extracted all reports in which bempedoic acid was identified as the primary suspect drug. Disproportionality analyses were performed using three established measures: Reporting Odds Ratio (ROR), Proportional Reporting Ratio (PRR), and Information Component (IC).

**Abstract  
Body:**

**Results:** Out of 7,473,733 total FAERS reports, 1,232 involved bempedoic acid. Musculoskeletal and connective tissue disorders were the strongest reported ADR, with tendonopathies (ROR=56.29 [34.8-91.04], PRR=55.53, IC=5.78), myalgia (ROR=20.67 [95% CI: 17.4-24.54], PRR=18.30, IC=4.19), muscle spasms (ROR=9.89, PRR=9.29, IC=3.21), arthralgia (ROR=6.15, PRR=5.55, IC=2.47), and extremity pain (ROR=6.98, PRR: 6.49, IC: 2.70). Elevations in muscle biomarker blood creatine phosphokinase increased (ROR=17.96, PRR=17.68, IC=4.14). Other notable signals included GFR Decreased (ROR=13.17) and International Normalized Ratio Increased (ROR=9.29), suggesting potential renal effects and drug-drug interactions. Significant cardiovascular events such as arrhythmia (ROR=3.13, PRR=3.12, IC=1.64) and hypertensive crisis (ROR=7.54, PRR=7.52, IC=2.91)

were identified. Cholelithiasis (ROR=5.34) and abdominal pain (ROR=3.31) events showed positive signals, while neurological events like dizziness and lethargy were weakly positive; paraesthesia and somnolence lacked significant disproportionality.

**Conclusion:** Bempedoic acid was associated with musculoskeletal statin-like ADRs, especially tendonopathies and myalgia. Furthermore, renal dysfunction, cardiovascular, coagulation abnormalities, and cholelithiasis warrant caution and further clinical investigation.

**Presentation  
Number:** 50-036

**Poster Board  
Number:** 036

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** INCIDENCE OF CARDIOVASCULAR EVENTS OVER ONE YEAR IN PATIENTS  
WITH NORMAL CARDIAC INVESTIGATIONS: A RETROSPECTIVE STUDY

**Author Block:** Dileep Kumar, Binjo Jose Vazhappilly, Phoenix Hospital, Abu Dhabi, United  
Arab Emirates

**Background:** Cardiovascular disease remains the leading cause of death worldwide, highlighting the urgent need for effective prevention strategies. This study aims to determine the 12-month incidence of major cardiovascular events among adults with normal baseline cardiac investigations at a multi-specialty hospital in Abu Dhabi.

**Methods:** This retrospective longitudinal cohort study was conducted at Phoenix Hospital, Abu Dhabi, UAE. We included consecutive adult patients ( $\geq 18$  years) assessed between January and December 2024 who presented with atypical chest pain and had normal baseline cardiac investigations, defined as: (1) a normal 12-lead electrocardiogram, (2) a normal transthoracic echocardiogram—(3) high-sensitivity troponin T levels within the reference range and (4) Exercise stress test negative for inducible ischemia. All included patients had a documented history of hypertension, diabetes, and dyslipidemia at baseline. After excluding 37 patients due to incomplete records, the final cohort consisted of 463 individuals. The primary outcome was the 12-month incidence of a composite endpoint of major adverse cardiovascular events (MACE). Statistical analysis was performed using SPSS version 23. Cumulative incidence was calculated with 95% confidence intervals. Between-group comparisons utilized the Mann-Whitney U test for continuous variables and Fisher's exact test for categorical variables, with a significance threshold of  $p < 0.05$ .

**Results:** Among 463 patients with normal baseline cardiac investigation (median age 43 years, IQR 37-49; 95.7 % male), the 12-month cumulative incidence of major cardiovascular events was 0.43 % (95% CI: 0.05-1.56%). Both events occurred in men; the median age of those with events was 49

**Abstract  
Body:**

years (IQR 41-57) versus 43 years (IQR 37-49) for event-free patients ( $p = 0.405$  for age comparison;  $p = 0.999$  for sex comparison).

**Conclusion:** In high-risk adults with no detectable cardiac abnormalities the 12-month event rate was less than 0.5%. These findings underscore the strong short-term prognostic value of a concordantly normal cardiac work-up and support the consideration of less intensive follow-up in similar patient populations.

**Presentation  
Number:** 50-037

**Poster Board  
Number:** 037

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** OPTIMIZATION OF THE REGISTRY POTENTIAL IN UZBEKISTAN-  
STANDARDIZED DATA COLLECTION FOR ASPECTS OF THE  
CARDIOVASCULAR CONTINUUM

**Author Block:** Dilafruz Akhmedova, Raisa Trigulova, Khurshid Fozilov, Dilnoza  
Alimova, Dilshodbek Sokhibov, Nilufar Mirakhmedova, Republican  
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Uzbekistan

**Background:** To assess the prevalence of risk factors in the population of  
Uzbekistan >40 years old with the development of approaches to practical  
healthcare of innovative technologies in cooperation with health  
authorities.

**Methods:** To implement the registry program, the MedHab (DMed) and the  
UZINFOCOM integrator are used. Automated collection of primary medical  
data among the population and assessment of CVD risk stratification were  
carried out on the basis of the WHO PEN (Package of Essential  
Noncommunicable) diseases protocol.

**Abstract Body:** **Results:** A mobile application for assessing the risk stratification of CVD  
based on the WHO PEN protocol in primary health care was created and  
implemented in practice within the framework of the registry. Persons >40  
years old made up n-12,828,277 (35.2%) of the population of Uzbekistan (n-  
36,476,791). Screening was conducted for n-7,054,057 (84.6%). Currently,  
n-1,697,966 (13.3%) are registered with CVD in the Republic of Uzbekistan,  
and 963,091 (7.5%) with diabetes. During the screening period, n-150,398  
(2.1%) were identified and registered for the first time. The following  
persons were identified with cardiovascular risk - <5% n-3,630,275 (47.6%);  
5-10% n-1,839,085 (26.0%); 10-20% n-1,102,287 (15.6%); 20-30% n-  
365,573 (5.1%); >30% n-116,837 (1.6%). Based on the screening results, a  
follow-up examination was recommended in a year n-3,630,275 (50.9%);  
in-depth diagnostics n-1,467,860 (21.2%); referred for inpatient treatment

n-116,837 (1.9%).

**Conclusion:** Using standardized data collection to improve the quality of medical care, valuable information was obtained on real clinical practice in the Republic of Uzbekistan across the entire spectrum of CVD, which will allow us to develop approaches to practical healthcare for innovative technologies. Valuable information was obtained on real clinical practice with the help of standardized data collection to improve the quality of medical care in the Republic of Uzbekistan across the entire spectrum of CVD, which will allow developing approaches to practical healthcare of innovative technologies for the prevention, treatment and rehabilitation of patients.

**Presentation  
Number:** 50-038

**Poster Board  
Number:** 038

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** MIDDLE-TERM PROGNOSTIC SIGNIFICANCE OF "HIGH-RISK PLAQUES"  
IDENTIFIED ACCORDING TO VARIOUS GENERALLY ACCEPTED CRITERIA  
OF COMPUTED TOMOGRAPHY ANGIOGRAPHY IN PATIENTS WITH ACUTE  
CORONARY SYNDROME

**Author Block:** Irina Merkulova, Alina Semenova, Tatiana Sukhinina, Khava Ibragimova,  
Natalia Barysheva, Svetlana Gaman, Tatiana Veselova, Merab Shariya,  
Roman Ievlev, Elena Yarovaya, Sergey Ternovoy, Dmitry Pevsner, National  
Medical Research Center of Cardiology named after Academician E.I.  
Chazov, Moscow, Russian Federation

**Background:** There are precise and standard definitions of the term "High-risk plaque" (HRP) of coronary arteries based on the results of histological studies and intravascular imaging methods. However in computed tomographic angiography (CTA), definitions of "high-risk plaque" (HRP) vary greatly. The purpose of our study was to compare the association of HRPs identified by various CTA criteria with subsequent occurrence of Major Adverse Cardiac Events (MACE) in patients with acute coronary syndrome (ACS).

**Abstract Body:** **Methods:** The study included 249 patients with confirmed ACS (77.5% men, age  $58.2 \pm 10.7$  years). CTA was completed by 320-row scanner later than percutaneous coronary intervention (PCI). Such known CTA signs of plaque's instability (SPI) as positive remodeling of artery (PR), spotty calcifications, napkin-ring sign, the presence of low-density plots (LDP)  $<30$  Hounsfield units (HU) were determined in 609 non-calcified plaques.

**Results:** During 39.1 [18.0; 57.4] months of follow-up, 71 (28.5%) patients had MACE, which included non-fatal myocardial infarction, unstable angina, cardiac death, unplanned PCI and ischemic stroke. We identified various known HRP types that corresponded to presence of the following sets of SPI in coronary plaques of our patients: 1) LDP  $<30$  HU; 2) LDP  $<30$  HU or PR, or both; 3) any of the 4 SPI or more; 4) any 2 or more of the 4



SPI. According to Cox's models, among all HRP types we analyzed, only HRPs corresponding to the "number one SPI set" (with LDP <30HU) were significantly associated with MACE: Hazard Ratio (HR) = 2.47, 95% Confidence Interval (CI): 1.43 - 4.26,  $p < 0.002$ , Harrell's C - index (C) = 0.57; adjusted HR = 1.97, CI: 1.11 - 3.51,  $p < 0.003$ , C=0.74. But the strongest predictor of MACE was the presence of plaques with minimum density < 30 HU (HR = 2.695, CI: 1.495 - 4.859,  $p < 0.001$ , C=0.62; adjusted HR = 2.613, CI: 1.397 - 4.886,  $p < 0.003$ , C=0.75).

**Conclusion:** The results of our study demonstrated that in patients with ACS the detection of HRPs with low density areas <30 HU or HRPs with minimum density <30 HU significantly associated with middle-term risk of MACE, which probably should be taken into account when risk stratification and the application of preventive measures.

**Presentation  
Number:** 50-039

**Poster Board  
Number:** 039

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** UNRAVELING THE IMPACT OF METABOLIC AND BARIATRIC SURGERY ON  
HEART RATE VARIABILITY: A SYSTEMATIC REVIEW AND META-ANALYSIS"

Tannaz Jamialahmadi, Elaheh Mirhadi, Wael Almahmeed, Amirhossein

**Author Block:** Sahebkar, Mashhad University of Medical Sciences, Mashhad, Iran (Islamic  
Republic of)

**Background:** Obesity is linked to dysfunction of the autonomic nervous system (ANS), which is marked by heightened sympathetic activity and diminished parasympathetic tone, contributing to increased cardiovascular risk. Heart rate variability (HRV) serves as a crucial indicator of ANS function and is frequently lower in obese individuals. While metabolic and bariatric surgery (MBS) is an effective treatment for severe obesity, its effects on HRV are not well understood.

**Methods:** A systematic review and meta-analysis were conducted in accordance with PRISMA guidelines. Searches were performed across PubMed, Scopus, Embase, Google Scholar, and Web of Science. Studies evaluating HRV before and after MBS were included. The meta-analysis was carried out using Comprehensive Meta-Analysis (CMA) V4 software.

**Results:** A total of eleven studies involving 322 patients were analyzed. MBS significantly improved HRV (weighted mean difference: 12.011, 95% CI: 6.984-17.038,  $p < 0.001$ ). Meta-regression indicated a positive relationship between reductions in BMI and improvements in HRV (slope: 1.553; 95% CI: 0.203-2.903;  $p = 0.024$ ). Enhancements in HRV were noted in both short-term ( $< 6$  months) and long-term ( $\geq 6$  months) follow-ups, with Roux-en-Y gastric bypass (RYGB) showing greater improvements in HRV compared to sleeve gastrectomy (SG).

**Conclusion:** MBS significantly improves HRV, indicating a partial reversal of ANS dysfunction associated with obesity. The correlation between weight

**Abstract  
Body:**

loss and HRV enhancement underscores MBS's potential as a beneficial intervention for cardiometabolic health.

**Presentation  
Number:** 50-040

**Poster Board  
Number:** 040

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** APIXABAN VS. WARFARIN FOR VENOUS THROMBOEMBOLISM IN END-STAGE RENAL DISEASE: A META-ANALYSIS

**Author Block:** Mohamed Hamouda Elkasaby, Atef A Hassan, Mohamed Sherif Ali Ahmed, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Faculty of Medicine, Mansoura University, Mansoura, Egypt

**Abstract  
Body:**

**Background:** Patients with end-stage renal disease (ESRD) are at heightened cardiovascular risk, including a significantly increased incidence of venous thromboembolism (VTE). Anticoagulation therapy in this population poses a clinical dilemma due to altered pharmacokinetics and elevated bleeding risk. While warfarin has long been the standard, direct oral anticoagulants (DOACs), such as apixaban, offer potential advantages in terms of safety and ease of use. This meta-analysis examines cardiovascular outcomes and bleeding complications associated with apixaban versus warfarin in patients with ESRD being treated for VTE.

**Methods:** We conducted a systematic search of PubMed, Scopus, Web of Science, Embase, and Cochrane through February 2025. Eligible studies compared apixaban and warfarin in adult ESRD patients (stage 5 CKD or dialysis-dependent) receiving anticoagulation for VTE. Primary endpoints included VTE recurrence and all-cause mortality; safety endpoints included major bleeding and clinically relevant non-major bleeding (CRNMB).

**Results:** Six studies met inclusion criteria. Apixaban was associated with a non-significant reduction in VTE recurrence compared to warfarin (RR 0.65; 95% CI 0.35-1.20;  $P = 0.17$ ;  $I^2 = 84\%$ ) and comparable all-cause mortality (RR 0.99; 95% CI 0.91-1.07;  $P = 0.74$ ;  $I^2 = 0\%$ ). Notably, apixaban significantly reduced the risk of major bleeding events (RR 0.68; 95% CI 0.56-0.82;  $P < 0.0001$ ;  $I^2 = 36\%$ ), with no significant difference in CRNMB (RR 1.14; 95% CI 0.48-2.68;  $P = 0.76$ ;  $I^2 = 64\%$ ).

**Conclusion:** In patients with ESRD and VTE, apixaban offers a favorable

safety profile compared to warfarin, significantly lowering major bleeding risk without compromising thromboembolic protection.

**Presentation  
Number:** 50-041

**Poster Board  
Number:** 041

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** BARIATRIC SURGERY AND ITS POSITIVE EFFECTS ON HDL CHOLESTEROL  
EFFLUX CAPACITY IN OBESITY: A META-ANALYSIS

**Author Block:** Amirhossein Sahebkar, Tannaz Jamialahmadi, Elaheh Mirhadi, Wael Al  
Mahmeed, Mashhad University of Medical Sciences, Mashhad, Iran  
(Islamic Republic of)

**Abstract  
Body:**

**Background:** Bariatric surgery can reduce cardiovascular risk by influencing factors associated with atherosclerotic cardiovascular disease (ASCVD), including dyslipidemia, diabetes mellitus, and hypertension. It has been proposed that lipoprotein biomarkers linked to low-density lipoproteins (LDL) and high-density lipoproteins (HDL), along with their subfractions and macrophage cholesterol efflux capacity (CEC), may play a crucial role in assessing cardiovascular risk. This systematic review and meta-analysis aimed to evaluate HDL's CEC as a negative risk factor for ASCVD in obese individuals following bariatric surgery.

**Methods:** A search was conducted on PubMed, Scopus, Web of Science, and Google Scholar from their inception until May 2024. Clinical studies reporting CEC data with follow-up after bariatric surgery were included for the meta-analysis. Two independent reviewers extracted data and evaluated the risk of bias.

**Results:** Out of 55 identified articles, eight studies measuring cholesterol efflux capacity (CEC) post-bariatric surgery were analyzed. Four studies reported a nonsignificant increase in total CEC after Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG) (SMD: 0.361 mg/dl,  $p=0.256$ ). Five studies indicated a significant decrease in ABCA1-dependent CEC following surgery (SMD: -1.044 mg/dl, 95% CI: -1.916, -0.173,  $p=0.019$ ). Conversely, five studies noted a significant increase in ABCA1-independent CEC (SMD: 0.932 mg/dl, 95% CI: 0.142, 1.722,  $p=0.021$ ). Subgroup analyses revealed that total CEC varied by surgical type, showing significant increases for SG (SMD: 0.748,  $p<0.001$ ), but not for RYGB (SMD: -0.341,

p=0.650). ABCA1-dependent CEC significantly decreased after RYGB (SMD: -1.545, p=0.015), while no significant changes were found for ABCA1-independent CEC after either surgical procedure.

**Conclusion:** Bariatric surgery, especially sleeve gastrectomy, is linked to a clinically significant increase in total CEC post-surgery, which may be advantageous in reducing ASCVD risk.

**Presentation  
Number:** 50-042

**Poster Board  
Number:** 042

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** MONOCYTE-TO-HDL RATIO (MHR) AS A NOVEL BIOMARKER: REFERENCE RANGES AND ASSOCIATIONS WITH INFLAMMATORY DISEASES AND DISEASE-SPECIFIC MORTALITY

**Author Block:** Dima Nasrallah, Ahmed Arabi, Alaa Abdelhamid, Yaman Al-Haneedi, Deemah Assami, Raneem Alsheikh, Susu M. Zughaier, College of Medicine, Qatar University, Doha, Qatar

**Abstract  
Body:** **Background:** Traditional inflammatory biomarkers fail to capture the interplay between inflammation and lipid metabolism, drivers of disease progression, especially in cardiovascular-kidney-metabolic health. Monocyte-to-HDL Ratio (MHR) reflects monocyte-driven inflammation and HDL's anti-inflammatory effects. However, MHR's reference ranges and prognostic utility remain undefined. This study establishes MHR reference ranges and examines its association with inflammatory diseases and associated mortality, including cardiovascular diseases (CVD), respiratory diseases (RD), kidney diseases (KD), diabetes mellitus (DM), and cancers. **Methods:** Using NHANES data (1999-2018, 2021-2023), two sex-specific MHR reference ranges were generated based on two apparently healthy adult populations—one defined using absolute monocyte count (n = 6,757) and the other using monocyte percentage (n = 6,817). Further analyses utilized MHR by monocyte count for straightforward interpretation. To explore the clinical significance of MHR, we examined its association with inflammatory diseases (n = 49,929 adults) and investigated its prognostic utility in disease-specific mortality (n = 35,781 adults). Analyses were adjusted for key confounders, including age, race, obesity, and physical activity. **Results:** Males exhibited higher MHR limits. The 2.5<sup>th</sup>-97.5<sup>th</sup> percentiles for MHR by monocyte count were 0.175 (90% CI: 0.167-0.184) to 0.709 (90% CI: 0.690-0.727) in males and 0.135 (90% CI: 0.130-0.140) to 0.511 (90% CI: 0.503-0.520) in females, with similar trends for MHR by monocyte



percentage. Based on these sex-specific reference intervals, MHR values were categorized as low, normal, or high. High MHR by monocyte count was most strongly associated with DM (aOR = 1.76,  $p < 0.001$ ) and CVD (aOR = 1.69,  $p < 0.001$ ), while its prognostic ability for diseases-specific mortality risk was highest for KD (aHR = 3.13,  $p < 0.001$ ) and DM (aHR = 2.26,  $p < 0.001$ ).

**Conclusion:** MHR is a cost-effective biomarker of inflammation and lipid dysregulation with strong prognostic value for cardiometabolic diseases and mortality. Its clinical integration could improve risk stratification and disease management.

**Presentation  
Number:** 50-043

**Poster Board  
Number:** 043

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** REDUCTION OF SILENT MYOCARDIAL ISCHEMIA, A NEW MECHANISM TO EXPLAIN THE BENEFICIARY CARDIAC EFFECTS OF GLP1 RA IN TYPE II DIABETIC PATIENTS.

**Author Block:** Waleed Kadro, Khaled Waleed Kadro, Maya Al Turkmani, The Golden Center for Academic Cardiovascular Teaching and Research, Damascus, Syrian Arab Republic

**Abstract  
Body:** **Background:** In large cardiovascular (CV) outcome trials, Glucagon Like Peptide1 receptor agonists (GLP1RAs) improved CV outcomes in patients with type 2 diabetes (T2DM). Also, it reduced CV death or HF events in patients with (HFpEF). It is unknown whether GLP1RAs work through glucose-dependent mechanism, or it could have other effects not related to glucose on cardiovascular morbidity and mortality in T2DM patients. Its effect on Silent Holter Ambulatory Myocardial Ischemia (SHAMI) has not been reported yet. In this study we report the effect of one of GLP1RAs on (SHAMI). Treating silent myocardial ischemia has a prognostic effect and may improve long term mortality of Stable Coronary Syndromes (SCS).

**Methods:** We enrolled 44 patients with (T2DM) and proven stable coronary artery disease and at least one episode of SHAMI on ambulatory ECG monitoring. All of them were receiving optimal therapy for CIHD and T2DM. 22 patients were randomized to receive a GLP1RA (Semaglutide 1mg weekly) and the other 22 received placebo. monitoring was repeated after 4 to 6 months of therapy. The two groups were comparable with respect to baseline characteristics, BP control, number of episodes of ST-segment depression, HgbA1c level and baseline serum cholesterol levels. Holters were read by a blinded cardiologist.

**Results:** The Semaglutide group experienced a significant reduction in the number of episodes of ST-segment depression compared with the placebo group. ST segment depression completely resolved in 8/22 patients (36%) in the Semaglutide group versus 3/22 (13%) in the placebo group and the

Semaglutide group exhibited a highly significant reduction in SHAMI ( $P < .001$ ). By logistic regression, treatment with Semaglutide was an independent predictor of SAHMI improvement.

**Conclusion:** Therapy with GLP1RAs in T2DM patients results in reduction or resolution of SHAMI recorded on ambulatory ECG monitoring. A larger study is required to confirm this theory and to see the effect of SHAMI reduction on long term outcomes of SCS in T2DM. Possible mechanisms for these good effects of GLP1RAs include: Improvement in endothelial function, modulation of cardiac energy metabolism, vasodilation and reduction in glucotoxicity.

**Presentation  
Number:** 50-044

**Poster Board  
Number:** 044

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** HEALTHY IMMIGRANT EFFECT CARDIOVASCULAR RISK FACTOR  
PREVALENCE AMONG U.S. BOM AND FOREIGN-BOMADULTS BY  
DURATION OF RESIDENCE, NHANES 2011-2016

**Author Block:** Prachi Dawer, krishna moparthy, parinita aroori, University College of  
Medical Sciences, NEW DELHI, DELHI, India

**Background:** The "healthy immigrant effect" suggests that foreign-born individuals often exhibit better cardiovascular health than their US-born counterparts. However, this advantage may diminish with prolonged U.S. residence.

**Methods:** We analyzed 2011-2016 National Health and Nutrition Examination Survey (NHANES) data with a focus on cardiovascular disease risk factors like BMI, diabetes, hypertension, dyslipidemia and smoking. Participants were segmented by place of birth, US born vs foreign born and the length of their stay in the US (<15 years vs more than 15 years). Multivariable logistic regression models adjusted for age, sex, race/ethnicity, education, and poverty status were employed to estimate the prevalence of each risk factor.

**Abstract  
Body:**

**Results:** Across the 15,965 adults analyzed, 85.4% of US born and 80.1% of foreign-born individuals had at least one CVD risk factor. Foreign-born adults residing in the U.S. for 15 years exhibited lower adjusted prevalence of hypertension (38.3% vs. 48.5%), hypercholesterolemia (27.8% vs. 30.0%), and smoking (12.5% vs. 19.9%) compared to US-born adults. Conversely, foreign-born individuals with ≥15 years in the U.S. showed increased prevalence of diabetes (15.4% vs. 11.2%) and hypercholesterolemia (29.4% vs. 30.0%) compared to their US-born counterparts. Notably, foreign-born non-Hispanic Asian adults had a higher prevalence of diabetes (14.5% vs. 6.0%) and lower prevalence of smoking (8.2% vs. 12.5%) compared to U.S.-born non-Hispanic Asians.

**Conclusion:** Our findings support the presence of a "healthy immigrant

effect among recent immigrants. characterized by lower prevalence of certain CVD risk factors. However, this advantage diminishes with longer duration of U.S. residence, highlighting the need for targeted public health interventions that address the evolving cardiovascular health risks among immigrant populations.

**Presentation  
Number:** 50-045

**Poster Board  
Number:** 045

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** EXPLORING THE INFLUENCE OF STATINS ON HEART RATE VARIABILITY: A  
SYSTEMATIC REVIEW AND META-ANALYSIS

**Author Block:** Tannaz Jamialahmadi, Maryam Emadzadeh, Wael Almahmeed,  
Amirhossein Sahebkar, Mashhad University of Medical Sciences, Mashhad,  
Iran (Islamic Republic of)

**Abstract Body:** **Background:** Heart rate variability (HRV) serves as an important measure of autonomic nervous system (ANS) function, reflecting the balance between sympathetic and parasympathetic activities. A decrease in HRV has been linked to a higher risk of cardiovascular disorders. Statins, which are widely prescribed for their cholesterol-lowering properties, may also offer additional benefits, such as anti-inflammatory effects and improvements in endothelial function. Recent studies have indicated that statins might affect HRV; however, results have varied among different investigations. This systematic review and meta-analysis aimed to evaluate the impact of statin therapy on HRV by analyzing time-domain metrics, including the standard deviation of normal-to-normal intervals (SDNN), root mean square of successive differences (RMSSD), and other related measures.

**Methods:** A thorough literature search was performed using databases such as PubMed/Medline, ISI Web of Science, Scopus, and the Cochrane Library up to October 2024. Randomized controlled trials (RCTs) examining the effects of statins on HRV were included in the analysis. Data were analyzed using Comprehensive Meta-Analysis (CMA) V2 software, calculating mean differences in HRV measures between statin and control groups as the effect size.

**Results:** A total of 6 RCTs met the criteria for inclusion, involving a total of 379 participants. Statin therapy was found to significantly enhance SDNN (mean difference = 2.967, 95% CI: 1.397 to 4.538,  $p < 0.001$ ), indicating improved overall HRV. However, the effect on RMSSD was not statistically significant (mean difference = 4.863, 95% CI: -1.367 to 11.094,  $p = 0.126$ ).

Additionally, SDANN and SDNNi did not exhibit significant changes with statin treatment.

**Conclusion:** This meta-analysis indicates that statins can significantly enhance SDNN, suggesting potential benefits for autonomic function. Nevertheless, the absence of significant effects on RMSSD and other HRV metrics highlights the need for further research to better understand how statins affect autonomic function. Future studies should aim for larger and longer-term trials to assess the clinical implications of these findings.

**Presentation  
Number:** 50-046

**Poster Board  
Number:** 046

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** MENTAL HEALTH IN CORONARY ARTERY DISEASE: A POPULATION-BASED ANALYSIS USING GENERAL HEALTH QUESTIONNAIRE-28

Yeganeh Karimi, Arash Jalali, Nafiseh Farmani, Akbar Shafiee, Kaveh

**Author Block:** Hosseini, Farzad Masoudkabar, Cardiovascular Diseases Research Institute, Tehran, Iran (Islamic Republic of)

**Background:** Mental health disorders (MHD) and coronary artery disease (CAD) are bidirectionally related, with high MHD rates in CAD patients. Thus, assessing MHD in CAD patients is crucial to identify those at higher risk and adjust preventive interventions.

**Methods:** We analyzed recruitment data from the Tehran Cohort Study (TeCS), a population-based cohort in Tehran, Iran (2016-2019). Inclusion criteria included residents aged  $\geq 35$ . MHD was evaluated using the Persian version of the General Health Questionnaire-28. A score of  $\geq 2$  out of 7 for each domain and  $\geq 6$  out of 28 overall indicated an MHD. CAD was defined by a history of coronary artery bypass graft, myocardial infarction, percutaneous coronary intervention, or significant stenosis from

**Abstract Body:** angiography. We analyzed the association between MHD and CAD using inverse probability weighting (IPW).

**Results:** Among 8,296 participants, 7,795 (54.3% female) with an average age of  $53.5 \pm 12.59$  years were included. Of these, 579 (7.43%) had CAD. Among CAD patients, 273 (37.97%) experienced MHD, mainly anxiety (43.59%), followed by somatization (39.53%), depression (35.05%), and social dysfunction (10.94%). Adjusted analysis showed CAD patients had a higher prevalence of overall MHD (OR: 1.24; 95% CI: 1.04-1.47,  $p=0.017$ ) and somatization (OR: 1.62; 95% CI: 1.36-1.92,  $p<0.001$ ) compared to non-CAD individuals. No significant associations were found for depression ( $p=0.84$ ) or social dysfunction ( $p=0.14$ ). Anxiety showed a borderline association ( $p=0.103$  in complete case,  $p=0.049$  in sensitivity analysis). Sensitivity analysis was consistent.



**Conclusion:** This study indicates that the prevalence of MHD, measured by the total GHQ-28 score, and somatization differ significantly between patients with CAD and those without. However, no significant difference was found regarding the prevalence of depression, anxiety, or social dysfunction. The high prevalence of depression and anxiety in the general population may have influenced these findings.

**Presentation  
Number:** 50-047

**Poster Board  
Number:** 047

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** TRANSFORMING CARDIOVASCULAR-RENAL-METABOLIC DISEASES CARE WITH A PATIENT-CENTERED, INTERDISCIPLINARY HEALTHCARE DELIVERY MODEL INITIAL REPORT

**Author  
Block:** Ahmed Hadaoui, Chien-Ning Huang, Jun-Sing Wang, Jung-Fu Chen, Horng-Yih Ou, Yao-Hsien Tseng, Jia-Hong Lin, Ming-Nan Chien, Shih-Te Tu, Jeyakantha Ratnasingam, Kaumudi Chennamsetti, Ghosh Subhajyoti, Hussein Bagha, Delman Al-Attar, Melike Yardimci, [Hardik Vasnawala](#), AstraZeneca International, Dubai, United Arab Emirates

**Background:** Cardiovascular, renal, and metabolic (CVRM) diseases are often treated as distinct conditions, potentially creating care gaps. The CaReMe Global Alliance (CGA) care model addresses CVRM diseases, providing team-based and patient-centered holistic care.

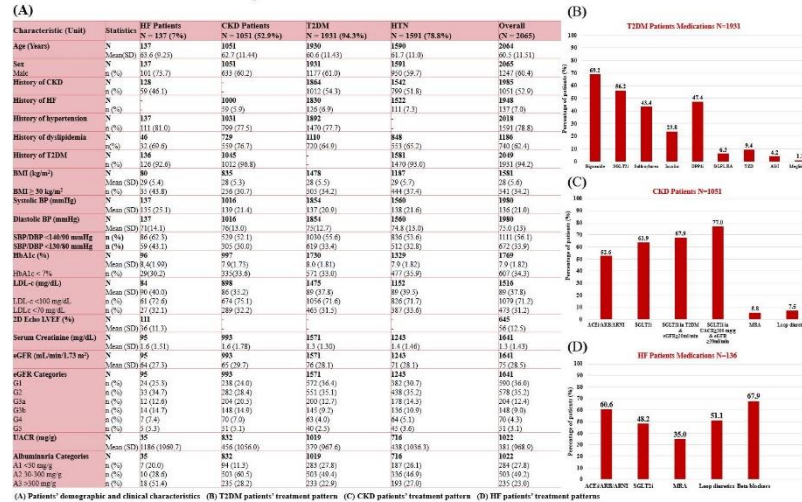
**Methods:** CGA is a network focused on transforming CVRM diseases care. It assists clinics in implementing coordinated care for comprehensive risk reduction, monitored using iCaReMe Registry (NCT03549754). From Oct 2023 to Oct 2024, 17 clinics from India, Iraq, Kenya, Malaysia and Taiwan joined. This report presents patients' (pts) baseline characteristics and treatment patterns.

**Abstract  
Body:** **Results:** 2065 pts [mean age 60.5 years; 60.4% male] were enrolled. Overall, 94.3% had T2DM [mean HbA1c 8.1 %], 78.8% had hypertension (HTN) [mean SBP/DBP 138/75 mmHg], 52.9% had CKD [mean eGFR 65 mL/min], and 7% had HF [mean LVEF 36%]. T2DM medications included biguanide in 69.2%, SGLT2i in 56.2%, DPP4i in 47.4%, SUs in 43.4%, Insulin in 23.8% and GLP1-RA in 6.3%. For CKD pts, SGLT2i were prescribed to 63.9% and RAASi to 52.6%. In HF patients, 67.9% were on beta blockers, 60.6% on RAASi, 48.2% on SGLT2i, and 35.0% of pts were on MRA. Only 34.3% of T2DM pts had an HbA1c < 7%, 32.8% of HTN pts had SBP/DBP<130/80mmHg, and 31.2% of pts overall had an LDL-c < 70 mg/dL.

**Conclusion:** There is a significant burden of CVRM multimorbidity and low

GDMT adoption, alongside gaps in HbA1c/BP/lipid control. A strong justification for implementing CGA care model to improve risk factors management.

Clinical characteristics and treatment patterns



**Presentation  
Number:** 50-048

**Poster Board  
Number:** 048

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** SAFETY AND EFFICACY OF BEDTIME VERSES MORNING TIME DOSING OF ANTIHYPERTENSIVE MEDICATION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS WITH SEQUENTIAL ANALYSIS

**Author Block:** Amna Zaheer, Asad Jamal, Suleman Khan, FNU Sawaira, Liaquat National Hospital and Medical College, Karachi, Pakistan, Khyber Medical College, Peshawar, Pakistan

**Background:** Chronotherapy, or the timing of antihypertensive medication in alignment with circadian blood pressure patterns, has been proposed to enhance cardiovascular protection. Blood pressure typically dips at night, and deviations from this pattern are linked to adverse outcomes. Whether bedtime dosing improves clinical outcomes compared to morning administration remains uncertain. This systematic review and meta-analysis evaluated the impact of bedtime versus morning antihypertensive dosing on mortality and major cardiovascular outcomes in adults with hypertension.

**Abstract  
Body:** **Methods:** A comprehensive search of PubMed, Cochrane Library, and Scopus identified randomized controlled trials (RCTs) comparing bedtime to morning antihypertensive dosing. Seven trials (n = 38,736-44,321) were included. Outcomes assessed were all-cause mortality, major adverse cardiovascular events (MACE), stroke or transient ischemic attack (TIA), heart failure, and overall cardiovascular events. A random-effects meta-analysis was used to calculate pooled risk ratios (RR) with 95% confidence intervals (CI). Heterogeneity was assessed using the  $I^2$  statistic.

**Results:** All-cause mortality did not differ between groups (RR 1.01; 95% CI 0.93-1.09;  $I^2=0\%$ ), indicating no survival benefit with either dosing schedule. MACE showed a non-significant 5% risk reduction favoring bedtime dosing (RR 0.95; 95% CI 0.87-1.03;  $I^2=0\%$ ), with large trials such as HYGIA and TIME showing a consistent trend toward benefit. Overall cardiovascular events

were significantly reduced by 20% with bedtime dosing (RR 0.80; 95% CI 0.68-0.94;  $P=0.008$ ;  $I^2=23\%$ ), suggesting improved vascular protection. Stroke or TIA risk remained unchanged between groups (RR 1.03; 95% CI 0.77-1.39;  $I^2=48\%$ ), reflecting high variability across studies. Notably, bedtime administration led to a 34% reduction in heart failure risk (RR 0.66; 95% CI 0.51-0.86;  $P=0.002$ ;  $I^2=41\%$ ), representing the most pronounced benefit among all outcomes assessed.

**Conclusion:** Bedtime antihypertensive dosing significantly reduces cardiovascular and heart failure events without affecting mortality or stroke/TIA.

**Presentation  
Number:** 50-050

**Poster Board  
Number:** 050

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** EVALUATING THE IMPACT OF MOBILE HEALTH APPS AND WEARABLE  
DEVICES ON PHYSICAL ACTIVITY AND PERCEIVED HEART HEALTH: A  
CROSS-SECTIONAL USER EXPERIENCE STUDY

**Author  
Block:** Rashed Iyad Hasan Albustanji, Malak Iyad Hasan Albustanji, Mohammad  
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Alirani, ANJU CHANDRASEKHAR, Seetha Lakshmy, Heet N. Desai,  
Prathmesh Anil Ghag, Anubhav Joshi, Ilia State University, Tbilisi, Georgia,  
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**Abstract  
Body:** **Background:** Wearable devices and health apps are increasingly becoming  
popular devices to support physical activity and heart health. There are  
many users, especially among younger adults, but limited research on how  
users feel that it supports their health and habits.

**Methods:** A self-administered Google Form was used to conduct a cross-  
sectional study. The questionnaire included items on demographics, pre-  
existing health conditions, Use and duration of health apps or wearable  
devices, perceived usability, frequency of engagement, motivation, changes  
in physical activity, general health, and beliefs on cardiovascular benefits.

**Results:** Among users of a mobile app and a wearable device (n=19), 63.2%  
viewed the app and device as somewhat effective for improving heart health,  
15.8% as very effective, 21.1% marked neutral, and none had rated as  
ineffective. Of users who rated the app or device as very easy to use, 60.7%  
felt somewhat motivated to make a change, and 17.9% felt very motivated  
Overall, 71% claimed a change in overall health and 62% increased healthy  
activity and measurable healthy behavior.

Do you personally believe that wearable devices (such as smartwatches or fitness trackers) are effective tools for improving heart health?	Neutral	Not effective at all	somewhat effective	Somewhat ineffective	Yes, very effective
No I do not use any app/device	7	3	4	1	0
Yes – Both app and wearable device	4	0	12	0	3
Yes – Only mobile app	6	0	17	0	9
Yes – Only wearable device	0	0	3	0	1

**Conclusion:** Apps and wearables positively impacted perceived cardiovascular health and health behaviors. Non-users also had a positive perspective on the apps and wearables, which demonstrated their potential for digital health innovation and future directions in cardiovascular prevention.

**Presentation  
Number:** 50-051

**Poster Board  
Number:** 051

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** TRENDS IN CARDIAC ARREST AND COPD-RELATED MORTALITY FROM 1999-2023: INSIGHTS FROM THE CDC WONDER DATABASE

**Author  
Block:** Raunak Hossain, Mohammed Usaid, Samreen Zehra Naqvi, Smrithi reddy Battu, Sheeba Shibu, Yasmin Ansari, Shadaan Ali Syed, Muhammad Sufian shahid, Catherine Andrews Ravi, Keerthana Ramdas, Faculty of Medicine, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia, Faculty of Health Sciences, University of Georgia, Tbilisi, Georgia

**Background:** Chronic obstructive pulmonary disease (COPD) causes chronic hypoxia and increased cardiac workload, ultimately leading to Cardiac Arrest (CA). This study analyzes the longitudinal trends of COPD and CA-related deaths.

**Methods:** COPD and CA-related mortality data in adults aged  $\geq 25$  were extracted from the CDC WONDER database (1999-2023). Age-adjusted mortality rate (AAMR) and annual percentage change (APC) were analyzed using Joinpoint regression program.

**Abstract  
Body:** **Results:** A total of 805,985 deaths occurred due to COPD and CA, mainly in inpatient facilities (35.69%) and at homes (30.35%). The AAMR declined from 1999 to 2006 (APC: -2.51;  $p < 0.0001$ ). A slow decline in AAMR was seen from 2006 to 2021 (APC: -0.70;  $p < 0.0001$ ), which was followed by a period of steep decline from 2021 to 2023 (APC: -6.18;  $p = 0.0308$ ). Men (18.24) had higher AAMRs than women (12.02). Non-Hispanic (NH) Whites had the highest AAMR (15.09) while NH Asians had the least (9.79). State-wise, Mississippi (33) and California (28.1) had the highest AAMRs, whereas District of Columbia had the lowest (4.15). The West (19.25) and Northeast (15.67) regions had the highest AAMRs. Rural areas (16.16) had higher AAMRs than urban (14.12). The age groups 75-84 (32.62%) and 65-74 (26.68%) reported the highest percentage of deaths.

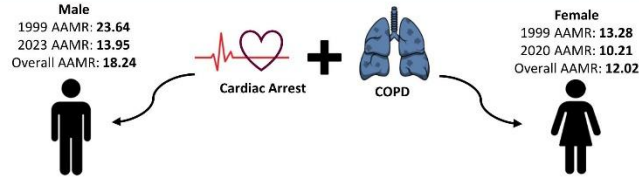
**Conclusion:** COPD and CA-related deaths have declined from 1999-2023, however, disparities in sociodemographic and geographic distributions



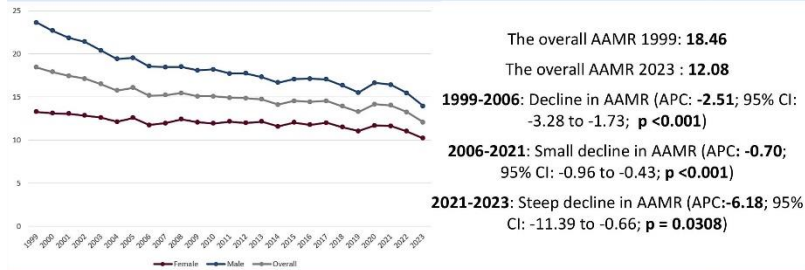
remain. Focused approaches need to be emphasized to address these findings.

**Central Illustration: Trends in Cardiac Arrest and COPD-related Mortality from 1999–2023: Insights from the CDC WONDER Database**

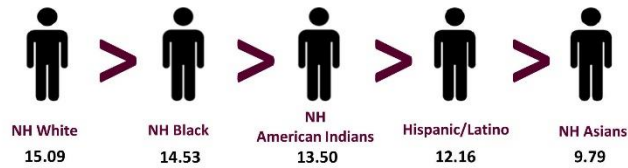
**805,985** Deaths occurred in patients with CA and COPD in Adults (Age ≥ 25)



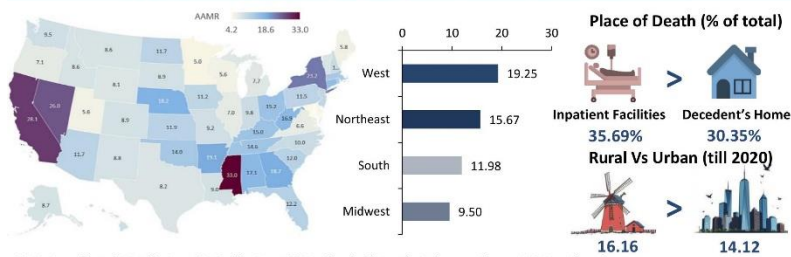
**Trends (Age-Adjusted Mortality Rate per 100,000)**



**Racial Disparities (Age-Adjusted Mortality Rate per 100,000)**



**Geographical Disparities (Age-Adjusted Mortality Rate per 100,000)**



AAMR: Age-adjusted Mortality Rate; CA: Cardiac Arrest COPD: Chronic Obstructive Pulmonary Disease; NH: Non-Hispanic

**Presentation  
Number:** 50-052

**Poster Board  
Number:** 052

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** INTEGRATED CARDIO-ONCOLOGY CARE: IMPACT ON EARLY  
CARDIOTOXICITY DETECTION AND CARDIOVASCULAR RISK MANAGEMENT  
IN BREAST CANCER PATIENTS — A SINGLE-CENTER EXPERIENCE

**Author Block:** Dahoumane Zahra Anais, Bejaia University Hospital, Bejaia, Algeria

**Background:** Cardiovascular toxicity is a major concern in breast cancer therapy, particularly with anthracyclines and anti-HER2 agents. This study conducted at Bejaia university hospital in Algeria, evaluates the impact of a dedicated cardio-oncology unit on cardiovascular screening and the early detection and management of cancer therapy-related cardiac dysfunction (CTRCD) in breast cancer patients.

**Methods:** This prospective study included 99 breast cancer patients referred from the oncology department between March 2021 and January 2022. Cardiovascular assessment included clinical exam, ECG, echocardiography (LVEF and GLS), global CV risk assessment, troponin measurements and cardiotoxicity risk stratification. Follow-up was individualized.

**Abstract  
Body:**

**Results:** Of the 99 patients, 46 were undergoing cancer therapy, 37 were treatment-naïve, and 16 had completed therapy. Eighteen patients were at moderate-to-high cardiotoxicity risk. Hypertension and diabetes were identified in 28 and 15 patients, respectively, including 8 and 7 newly diagnosed. During follow up, CTRCD occurred in 18 patients: 2 severe symptomatic (LVEF <30%, one fatality, both referred late), 2 moderate asymptomatic (LVEF 40-49% with GLS or troponin changes), and 14 mild asymptomatic (normal LVEF with isolated biomarker or GLS changes). Cardiovascular therapy was initiated or adjusted in 28 patients. A significant association was found between moderate-to-high cardiotoxicity risk and receiving therapeutic intervention in the cardio-oncology unit ( $p=0.016$ ), while baseline risk did not correlate with the occurrence of CTRCD ( $p=0.8$ ). This supports the importance of optimizing cardiovascular risk factors to

minimize the occurrence of cardiotoxicity. Notably, 14 low-risk patients developed asymptomatic CTRCD, all managed early, allowing continuation of cancer therapy.

**Conclusion:** The cardio-oncology unit, through a structured approach, improved cardiovascular stratification and enabled early detection and management of cancer therapy-related cardiac dysfunction (CTRCD), supporting the continuation of oncologic therapy. Systematic cardiac screening remains essential, even in low-risk patients.

**Presentation  
Number:** 50-053

**Poster Board  
Number:** 053

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** UNUSUAL PRESENTATION OF CONSTRICTIVE PERICARDITIS: A DIAGNOSTIC CHALLENGE IN A PATIENT WITH ABDOMINAL PAIN

**Author  
Block:** Serhat Kesriklioglu, Mustafa Celik, Muhammed Fatih Kaleli, Hasan Kan, Öznur Keskin, Emirhan Feyzullahoglu, Mertcan Gezer, Ahmet Lutfu Sertdemir, Necmettin Erbakan University School of Medicine, Konya, Turkey

**Background:** Constrictive pericarditis impairs normal diastolic filling due to fibrotic or calcific thickening of the pericardium. Clinical signs may be subtle or mimic other conditions, particularly in HFpEF, making early recognition critical for favorable outcomes.

**Case:** A 41-year-old previously healthy male was admitted with abdominal pain and diagnosed with acute pancreatitis. During follow-up, he developed hypotension and dyspnea. On the cardiovascular examination, he had hepatomegaly, jugular venous distension, Kussmaul's sign, and pulsus paradoxus. Based on clinical and echocardiographic findings, constrictive pericarditis was diagnosed, and the patient underwent surgical pericardiectomy. Pericardial thickness was 2.5 cm intraoperatively.

**Abstract  
Body:**

**Decision-making:** Abdominal symptoms initially masked the cardiac pathology. Despite minimal pericardial effusion, multimodal echocardiographic findings—septal bounce, reduced IVC variability, preserved lateral e', and respiratory variation in mitral inflow—strongly supported the diagnosis of constrictive pericarditis. However, the patient's poor clinical condition ultimately resulted in mortality.

**Conclusion:** This case underscores the need for high suspicion in patients with unexplained ascites, hepatomegaly, or signs of right heart failure. Delay in diagnosis may lead to irreversible organ damage or death, emphasizing the importance of integrating clinical, imaging, and hemodynamic findings in

the diagnostic pathway.



**Presentation  
Number:** 50-054

**Poster Board  
Number:** 054

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** PREVALENCE AND CHARACTERISTICS OF HEART FAILURE PATIENTS WITH A FAMILY HISTORY OF SUDDEN CARDIAC DEATH AT YOUNG AGE

**Author  
Block:** Mudafr Alkhedr, Alwaleed Aljohar, Osama Almogbel, Wael Alqarawi, King Saud University, Riyadh, Saudi Arabia

**Background:** Heart failure (HF) is a complex condition with multiple predictors of adverse outcomes. A family history of sudden cardiac death at a young age (FHx of SCDY) may indicate familial cardiomyopathy, and has not been widely explored in this population. This study aims to assess the prevalence and characteristics of HF patients with a FHx of SCDY and its impact on HF outcomes.

**Methods:** This is a retrospective study that included patients with HF seen between 2021 and 2022. Patients with HF with reduced ejection fraction (HFrEF) were divided according to the presence of FHx of SCDY, which was defined as SCD below the age of 50 years. The primary outcome was predicted 1-year survival, as estimated by the Seattle Heart Failure Model.

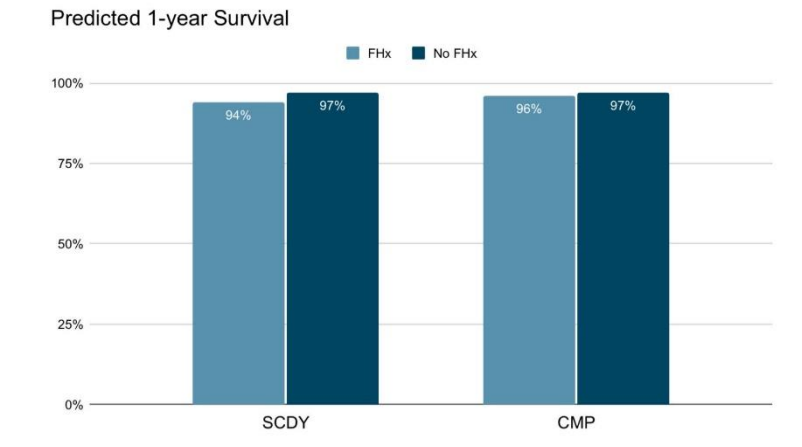
**Results:** We included 560 patients. Of those, 16 (2.9%) had FHx of SCDY. These patients exhibited a significantly higher prevalence of family history of cardiomyopathy (45.45% vs. 9.22%,  $p = 0.003$ ) and were less likely to have an ischemic etiology (13% vs 45%,  $p=0.001$ ). Furthermore, FHx of SCDY was associated with a significantly lower predicted 1-year survival using the Seattle Heart Failure Model (94% vs. 97%,  $p = 0.042$ ).

**Conclusion:** FHx of SCDY in HF patients is associated with worse predicted survival. Our data suggests that a subset of familial cardiomyopathies may constitute an important cause of this association. FHx of SCDY may help prioritize HF patients who would benefit from expedited work-up and genetic

**Abstract  
Body:**

testing.

Figure 1: Comparisons of the predicted 1 year-survival of patients with and without Family history of SCDY and CMP using the Seattle Heart Failure Model.



**Presentation  
Number:** 50-055

**Poster Board  
Number:** 055

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** STARVED BLOOD, FAILING HEARTS: NATIONAL TRENDS OF TWO DECADES  
IN NUTRITIONAL ANAEMIA-RELATED HEART FAILURE MORTALITY IN USA  
1999-2020

**Author Block:** Eshal Amir, Aijaz Zeeshan Khan Chachar, Syeda Rida Abdi, Hammas Ullah,  
Anas M Din Bashir, Muhammad Usaid, Maryam Athar, Mohammad Ahmad,  
Saqib Nazeer, Fatima Memorial Hospital College of Medicine and Dentistry,  
Lahore, Pakistan

**Background:** Heart failure (HF) remains among the leading cause of cardiovascular disease (CVD), adding the factor of nutritional related deficiency anaemia leading to heart failure add fuel to the fire and mortality increases significantly.

**Methods:** Death certificate data was retrieved from the Center for disease control and Prevention Wide-ranging Online Data for Epidemiological Research (CDC WONDER) database from 1999-2020. ICD-10 codes were used, ICD150.0, 150.1 and 150.9 for heart failure and ICD-10 coding for anaemia was D50-D53. For the trend analysis Joinpoint Regression Program was used. **Study Design:** Retrospective Cohort.

**Abstract  
Body:** **Results:** A total of 10,547 Nutritional Anaemia associated Heart Failure related deaths occurred among the adults (aged 25 and older) between 1999 to 2020. The Annual adjusted mortality rate (AAMR) per 100,000 persons for Nutritional Anaemia associated Heart Failure Related deaths was 0.34 in 1999 and 0.32 in 2020. The overall AAMR declined from 1999 to 2012, annual percent change (APC: -5.79; 95% CI: -6.90 to -4.67), followed by an increase till 2020 (APC: 10.28; 95% CI: 7.88 to 12.74). Regarding gender, The AAMRs were higher among men than women. (overall AAMR men: 0.22; 95% CI: 0.21 to 0.22; women: 0.21; 95% CI: 0.20 to 0.21). When stratified by census region, the AAMRs were highest in the Midwest region, followed by West, South and Northeast regions. Regarding Urban-Rural status, the AAMRs were higher in non-metropolitan population than the



metropolitan (overall AAMRs non-metropolitan: 0.35; 95% CI: 0.34 to 0.36; metropolitan: 0.18; 95% CI: 0.18 to 0.19). When stratified by Race/Ethnicity, the AAMRs were higher among NH Whites than NH Black or African American (overall AAMR NH White: 0.22; 95% CI: 0.22 to 0.23; NH Black or African American: 0.18; 95% CI: 0.17 to 0.19)

**Conclusion:** There is reversal of pattern in nutritional anaemia-associated HF mortality after years of improvement, signifies the importance of examining mortality trends within demographic, geographic, and systemic contexts as regional variations exist and we need to document these in literature to lay down the strong foundation for future research.

**Presentation  
Number:** 50-056

**Poster Board  
Number:** 056

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** SAUDI AMYLOIDOSIS REGISTRY: A NATIONAL MULTICENTER ROADMAP  
FOR ATTR DIAGNOSIS AND INTEGRATED CARE

**Author Block:** Fakhr Al Ayoubi, Fayez E. Elshaer, Dania Mohty, Khalid Naji, AMMAR  
CHAUDHARY, Ibrahim Jelaidan, Kamal Alghalayini, Sara Al Harbi, Ashraf  
Khodair, Islam Abdelmoneim, Ayman Morsy, Moustafa Eldeib,  
HAMEEDULLAH Mohammed ZIAUDDIN, Haleem Faisal Shamsan, Saudi  
Heart Association, Riyadh, Saudi Arabia, King Saud University, Riyadh,  
Saudi Arabia

**Abstract  
Body:**

**Background:** Cardiac amyloidosis, previously considered rare and incurable, is increasingly recognized and treatable. Yet, diagnosis remains delayed by up to two years, with symptoms often overlapping other conditions. Early suspicion and standardized diagnostic pathways are essential to improving outcomes.

**Methods:** The Saudi Amyloidosis Registry (SAMR) is a national multicenter cohort study under the Saudi Heart Association, involving 14 centers including two diagnostic excellence hubs. It collects demographic, clinical, genetic, and therapeutic data using internationally aligned Case Report Forms. Awareness campaigns and structured training were conducted to standardize practices and reduce diagnostic variability. A centralized data platform supports quality assurance and long-term follow-up.

**Results:** Fifteen patients have been enrolled to date, with 93% male and over 60 years of age. Projections, based on current trends and enhanced national awareness, estimate 200-300 patients will be enrolled over five years. This reflects expanding diagnostic capacity, broader geographic reach, and intensified clinical education.

**Conclusion:** The SAMR initiative illustrates the transformative role of national registries in advancing care for cardiac amyloidosis. By integrating clinical expertise across 14 centers and standardizing

**diagnostic and therapeutic pathways, the registry supports early disease recognition, optimal use of available resources, and appropriate administration of therapies. Its design allows for structured follow-up, enabling real-world outcome monitoring and continuous quality improvement. This collaborative framework positions SAMR as a cornerstone for national policy development and future integration with international transthyretin amyloidosis (ATTR) research networks.**

**Presentation  
Number:** 50-057

**Poster Board  
Number:** 057

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** LONGITUDINAL IMPACT OF POOR SLEEP QUALITY ON CLINICAL  
OUTCOMES IN HEART FAILURE PATIENTS: A 9 MONTH COHORT STUDY

**Author Block:** Soroush Najdaghi, Delaram Narimani Davani, Heart Failure Research  
Center, Isfahan Cardiovascular Research Institute, Isfahan, Iran (Islamic  
Republic of)

**Background:** Poor sleep quality, prevalent in heart failure (HF) patients, is linked to worse clinical outcomes and psychological distress. This study assessed its longitudinal impact over 9 months.

**Methods:** In a prospective cohort study at Chamran Heart Hospital, Isfahan, Iran (2023-2024), we followed 354 HF patients from a prior cross-sectional study. Assessments every 3 months used the Pittsburgh Sleep Quality Index (PSQI), Hospital Anxiety and Depression Scale (HADS), and clinical measures (ejection fraction [EF], systolic blood pressure, hospitalization rates). Inclusion required validated HF diagnosis and baseline PSQI data. Multivariable logistic regression and random forest (RF) modeling evaluated associations between baseline sleep quality and

**Abstract Body:** outcomes, adjusting for age, EF, New York Heart Association class, medications, and HADS scores. Hypothetical outcomes were synthesized from predictors and literature.

**Results:** At baseline, 18% of patients had poor sleep quality (PSQI >7), linked to older age (70.00±6.30 years, P<0.001), lower EF (23.75±12.79%, P<0.001), higher systolic blood pressure (140.67±12.50 mmHg, P=0.014), and elevated HADS-anxiety (4.84±1.32, P<0.001) and HADS-depression (5.36±0.70, P<0.001) scores. Over 9 months, poor sleep quality predicted a 2.1-fold increased rehospitalization risk (odds ratio: 2.10, 95% confidence interval [CI]: 1.45-3.05, P<0.001) and 1.8-fold increased risk of worsening New York Heart Association class (odds ratio: 1.80, 95% CI: 1.20-2.70, P=0.004). Persistent poor sleep quality reduced EF by 15% (P=0.002) and sustained elevated HADS-anxiety (5.10±1.40, P<0.001) and HADS-

depression ( $5.60 \pm 0.80$ ,  $P < 0.001$ ) scores. RF modeling identified age, EF, and HADS scores as top predictors ( $AUC = 0.82$ ). Interventions (e.g., cognitive behavioral therapy, optimized medications) in a subset improved PSQI scores by 30% and reduced rehospitalization by 25% ( $P = 0.01$ ).

**Conclusion:** Poor sleep quality predicts worse HF outcomes, including rehospitalization and psychological distress, supporting integrated management with RF modeling for personalized care.

**Presentation Number:** 50-059

**Poster Board Number:** 059

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing Title:** PREDICTING PROGNOSIS IN HEART FAILURE USING LEFT ATRIAL VOLUME INDEX: A MARKER BEYOND THE EJECTION FRACTION.

**Author Block:** Farrukh Malik, National institute of cardiovascular diseases, Karachi, Pakistan

**Background:** Heart failure (HF) is a progressive condition marked by structural and functional changes in heart chambers. While left ventricular ejection fraction (LVEF) remains a cornerstone of diagnosis and management, left atrial volume index (LAVI) has emerged as a robust and powerful predictor of adverse outcomes in both heart failure with preserved ejection fraction (HFpEF) and reduced ejection fraction (HFrEF). To evaluate the role of LAVI in predicting clinical outcomes in patients with heart failure and to assess its utility in risk stratification .

**Abstract Body:** **Methods:** This prospective study was carried out at the National Institute of Cardiovascular Diseases, Pakistan. Baseline echocardiographic assessments, including measurement of the left atrial volume index (LAVI), were obtained from a cohort of 200 patients diagnosed with heart failure, encompassing both HFpEF and HFrEF cases. LAVI values were adjusted for body surface area and categorized as normal (16-34 ml/m<sup>2</sup>), mildly enlarged (35-41 ml/m<sup>2</sup>), moderately enlarged (42-48 ml/m<sup>2</sup>), and severely enlarged (>48 ml/m<sup>2</sup>), according to established EACVI guidelines. Participants were followed over a one-year period for outcomes including hospital admissions, all-cause mortality, and the development of atrial fibrillation.

**Results:** Elevated LAVI was significantly associated with worse clinical outcomes, including increased rates of HF-related hospitalizations , higher burden of atrial fibrillation , reduced functional capacity (NYHA class III-IV) and elevated mortality (p < 0.01). Patients with severely enlarged LA volumes had a nearly 2-fold higher risk of adverse events compared to those with normal LAVI, independent of LVEF. In HFpEF patients, LAVI

showed a stronger predictive value than E/e' ratio .

**Conclusion:** LAVI is a powerful and underutilized marker of prognosis in heart failure, reflecting the chronicity and severity of elevated left-sided filling pressures. Its incorporation into routine echocardiographic evaluation can enhance risk stratification and guide therapeutic decisions, particularly in patients with preserved ejection fraction where traditional metrics may be insufficient.

**Presentation  
Number:** 50-060

**Poster Board  
Number:** 060

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** EVOLVING PATTERNS IN CHRONIC KIDNEY DISEASE-RELATED HEART FAILURE MORTALITY AMONG OLDER ADULTS IN THE UNITED STATES: A 1999-2020 ANALYSIS

**Author  
Block:** Muhammad Saad, Ruqiat Masooma Batool, Syed Ibad Ahsan, Zainab Siddiqua Ibrahim, Muhammad Umer Sohail, MUHAMMAD OVAIS SOHAIL, Aleeza Jawed, Mahnoor Khalil, Asma Rehman, Raja Subhash Sagar, Muhammad Mustafa Memon, Dow University of Health Sciences, Karachi, Pakistan

**Background:** Chronic kidney disease (CKD) significantly contributes to heart failure (HF) mortality in older adults. This study analyzes trends in CKD-related HF mortality from 1999 to 2020 in the United States.

**Methods:** Trends in CKD-related HF mortality in adults  $\geq 65$  years old were analyzed using the Centers for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) database. CKD was considered as the contributing cause, with HF as the underlying cause of death. Age-adjusted mortality rates (AAMRs) per 100,000 persons and annual percent change (APC) were calculated, stratified by year, gender, race, and geographic region.

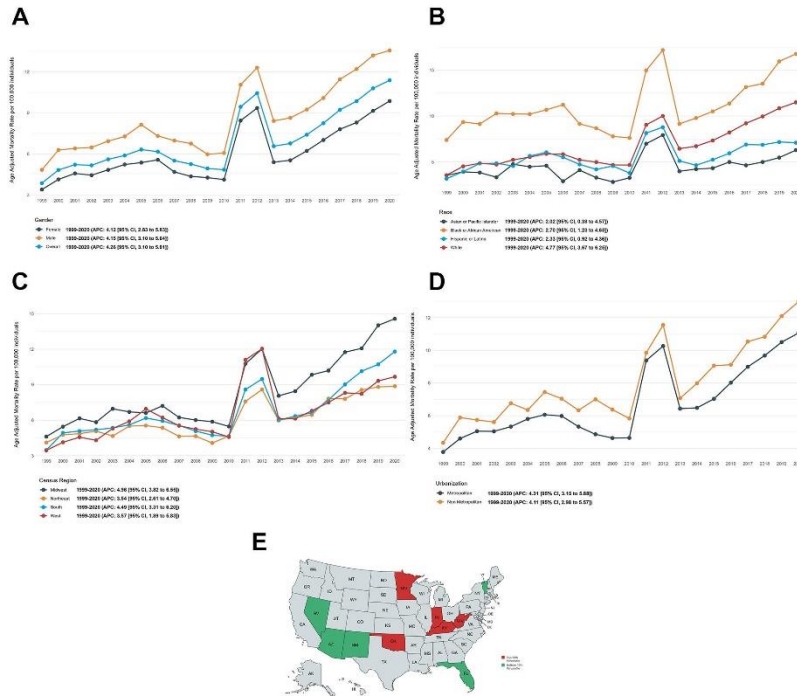
**Abstract  
Body:** **Results:** A total of 67,126 deaths were recorded. The overall AAMR increased from 3.86 in 1999 to 11.38 in 2020 (APC: 4.26 [3.10-5.81]). Males exhibited a higher AAMR (9.04) compared with females (6.18). Black populations had the highest AAMR (11.42), while Asian/Pacific Islanders had the lowest AAMR (4.74). AAMRs were elevated in nonmetropolitan areas (8.17) compared with metropolitan areas (7.04). The Midwest reported the highest AAMR (8.63) among census regions. States with the highest AAMRs, ranking in the top 90th percentile, included Oklahoma, West Virginia, Indiana, Minnesota, and Kentucky.

**Conclusion:** The significant rise in CKD-related HF mortality across various demographic and geographic groups highlights significant disparities and



necessitates targeted interventions to mitigate this growing public health concern.

**Figure 1: CKD-related HF AAMRs per 100,000 stratified by (A) Overall and Sex (B) Race (C) Census Region (D) Urbanization and (E) State in the United States, 1999 to 2020**



**Presentation  
Number:** 50-061

**Poster Board  
Number:** 061

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** COGNITIVE FRAILTY IN PATIENTS WITH HEART FAILURE AGED 65 YEARS  
AND OLDER

**Author Block:** Andrew Izyumov, Maxim Fedin, Helen Mkhitarian, Kseniia Eruslanova,  
Alexandra Luzina, Anna Shedrina, Irina Izyumova, Natalia Sharashkina,  
Yulia Kotovskaya, Olga Tkacheva, Pirogov Russian National Research  
Medical University, Moscow, Russian Federation

**Background:** In 2013, the concept of cognitive frailty was introduced in  
Toulouse, defined as the co-occurrence of mild cognitive impairment (MCI)  
and physical frailty. However, the prevalence of cognitive frailty, particularly  
among patients with chronic heart failure (CHF), remains insufficiently  
studied, and there is a lack of data on its epidemiology in Russia

**Methods:** From 2021 to 2023, 149 patients aged 65 years and older with  
CHF were enrolled during hospitalization at the Russian Gerontological  
Research and Clinical Center. All participants underwent NT-proBNP level  
assessment and echocardiography. CHF diagnosis was confirmed  
according to ESC-2021 criteria. Cognitive status was evaluated using the  
Montreal Cognitive Assessment (MoCA) and Mini-Mental State Examination

**Abstract Body:** (MMSE). Patients were categorized as follows: dementia (MMSE score  $\leq 24$ ),  
MCI (MMSE score  $> 24$  but MoCA score  $< 26$ ) and No significant cognitive  
impairment (MoCA score  $\geq 26$ ). Physical status was assessed using the  
Short Physical Performance Battery (SPPB). A score  $\leq 7$  indicated physical  
frailty. Spearman's correlation test was used for statistical analysis.

**Results:** The study included 149 participants (aged 65-98 years, mean  
 $77.68 \pm 7.43$ ; 47% male). Median left ventricular ejection fraction (LVEF)  
was 48% [39; 54], and median NT-proBNP was 1232 pg/mL [576.7; 2372].  
The prevalence of cognitive impairment was 67.8% (50.3% MCI, 17.5%  
dementia). Physical frailty was detected in 58.4% of cases. The combined  
presence of cognitive impairment and frailty was observed in 44% (n = 66):  
30.9% had cognitive frailty, while 13.4% exhibited both dementia and

physical frailty. MoCA scores correlated with SPPB ( $r = 0.25$ ,  $p = 0.002$ ) and NT-proBNP levels ( $r = -0.22$ ,  $p = 0.030$ ). A weak inverse correlation was found between NT-proBNP and SPPB ( $r = -0.22$ ,  $p = 0.029$ ). No associations were observed between LVEF and MoCA or SPPB.

**Conclusion:** In Russia, cognitive frailty affects 30.9% of CHF patients, while the overall prevalence of cognitive impairment combined with physical frailty exceeds 58%. The study demonstrates interrelations between cognitive function, physical status, and NT-proBNP levels in CHF patients aged  $\geq 65$  years.

**Presentation  
Number:** 50-062

**Poster Board  
Number:** 062

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** IDIOPATHIC HYPEREOSINOPHILIC SYNDROME WITH EOSINOPHILIC MYOCARDITIS: SUCCESSFUL TREATMENT WITH CORTICOSTEROIDS AND HYDROXYUREA.

**Author  
Block:** Sunil Roy Thottuvelil Narayanan, Gautham P. Pillai, Deepak Charles, Geetha Philips, Rajiv Chandrasekharan, Aster Medcity, Kochi, India

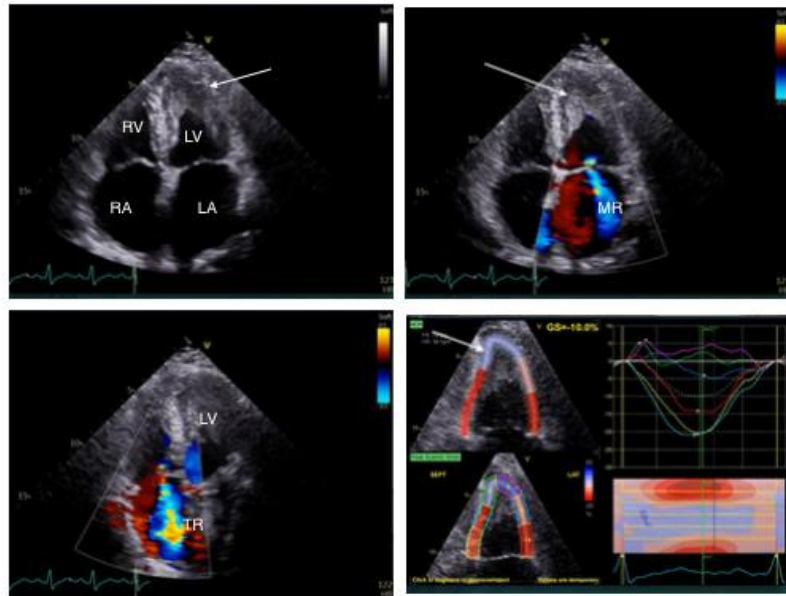
**Background:** Eosinophilic myocarditis (EM) is a rare but potentially fatal complication of idiopathic hypereosinophilic syndromes (IHES). It is often under-recognized. We describe an elderly lady with features of IHES with Eosinophilic myocarditis. She responded well to corticosteroids and hydroxyurea therapy.

**Case:** A 71-year-old lady presented with fever, chest discomfort, and shortness of breath. Laboratory investigations revealed leukocytosis with severe eosinophilia. ECG showed T-wave inversions in precordial leads along with Troponin elevation.

**Abstract  
Body:** **Decision-making:** An echocardiogram revealed eosinophilic myocarditis with infiltration of the left ventricular apex, restrictive filling, dilated atrial chambers, and AV valve regurgitation. NT pro-BNP was markedly elevated. Bone marrow examination revealed hypercellular marrow with myeloid hyperplasia and eosinophilia. The patient was diagnosed with IHES with EM and was treated with intravenous Dexamethasone, anticoagulation, and heart failure medications. The treatment regimen was adjusted to oral prednisolone and Apixaban, with the addition of Hydroxyurea. Her eosinophil count normalised over 3 months with symptom improvement.

**Conclusion:** Clinicians should maintain a high index of suspicion for eosinophilic myocarditis especially in cases of heart failure with peripheral

eosinophilia. Early administration of steroids may avert fatal outcomes.



**Presentation Number:** 50-063

**Poster Board Number:** 063

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing Title:** EFFICIENCY OF PREDICTING THE RISK OF HOSPITALIZATION IN PATIENTS WITH CORONARY ARTERY DISEASE AND TYPE 2 DIABETES MELLITUS WITH DIFFERENT PHENOTYPES OF HEART FAILURE

**Author Block:** Dilafruz Akhmedova, Raisa Trigulova, Khurshid Fozilov, Dilnoza Alimova, Dilshodbek Sokhibov, Nilufar Mirakhmedova, Republican Specialized Cardiology Scientific-Practical Medicine center, Tashkent, Uzbekistan

**Background:** A two-year analysis of possible predictors of unplanned hospitalizations in patients with coronary artery disease and type 2 diabetes mellitus with phenotypes of preserved and moderately reduced LVEF.

**Methods:** The study included 130 patients with coronary artery disease (ESC) and type 2 diabetes mellitus (WHO, 1999), aged  $63,9 \pm 8,8$  years, respectively, with heart failure with moderately reduced (group A, n=60) and preserved LVEF (group B (1), n=70).

**Results:** Patients were divided-1st, n= 90, 69,23% - without events and 2nd with hospitalizations (according to subjective signs) - n=30, 23,07%).

**Abstract Body:** Patients of group 2 took ARBs ( $p=0,01$ ), loop diuretics ( $p=0,01$ ), rosuvastatin ( $p=0,006$ ), CCBs ( $p=0,01$ ), the number of patients taking ACE inhibitors decreased by 1,9 times ( $p=0,01$ ). Patients of both groups took empagliflozin ( $p=0,108$ ), by the second year the dosage was increased ( $p=0,06$ ). Patients of group 2 took DPP-4 inhibitors before ( $p=0,01$ ) and after ( $p=0,008$ ), the prescription of metformin increased dynamically in group 1 (7%). The vector of HbA1c movement depending on the course of the disease showed that the number of patients with the achieved target HbA1c level was 1,7 and 2,7 times higher in groups 1 and 2, respectively ( $p = 0,036$ ). In patients of group 2 with  $HbA1c > 8\%$ ,  $\Delta\downarrow$  was  $-1,95 \pm 2,75\%$  versus group 1  $-0,20 \pm 1,52\%$  ( $p = 0,0002$ ),  $HbA1c < 8\%$   $\Delta\downarrow$   $0,51 \pm 0,82\%$  versus  $0,13 \pm 1,06$  ( $p = 0,565$ ), respectively. Differences in NPproBNP in the groups were not pronounced before ( $p=0,299$ ) and after ( $p=0,692$ ). Intergroup differences

were observed in CPK ( $p=0,010$ ), HOMA-B index ( $p=0,048$ ), LA volume index ( $p=0,070$ ), and LV mass index ( $p=0,003$ ). Positive dynamics are observed in both groups for E/A ( $p^1=0,000$ ;  $p^2=0,014$ ), E/e' ( $p^1=0,000$ ;  $p^2=0,036$ ).

**Conclusion:** The addition of empagliflozin to basic cardiology therapy against the background of HbA1c regulation is accompanied by an improvement in the velocity parameters of left ventricular diastolic function. A scale for predicting the risk of rehospitalization in patients with coronary artery disease, type 2 diabetes mellitus with LVEF >40% has been developed, which is an algorithm that can be used to identify this category of patients.

**Presentation  
Number:** 50-064

**Poster Board  
Number:** 064

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** VARIABLE CARDIOVASCULAR BENEFITS OF MINERALOCORTICOID  
RECEPTOR ANTAGONISTS BY CLINICAL CONTEXT: INSIGHTS FROM A  
NETWORK META-ANALYSIS

**Author  
Block:** Morvarid Taebi, Nasim Kakavand, Yasaman Daryabari, Zahra  
Mehdipournamdar, Kaveh Hosseini, Tehran Heart Center, Tehran University  
of Medical Sciences, Tehran, Iran (Islamic Republic of)

**Abstract  
Body:** **Background:** Mineralocorticoid receptor antagonists (MRAs), key agents in  
cardiovascular management, show variable efficacy across patients with  
diverse comorbidities. We evaluated the cardiovascular efficacy of individual  
MRAs on major adverse cardiovascular events across clinical contexts.

**Methods:** We searched MEDLINE, Embase, Web of Science, and Cochrane  
to 23 May 2025 for randomized controlled trials or cohort studies reporting  
hazard ratios (HRs) for major adverse cardiovascular events with MRAs  
versus placebo, another MRA, or non-MRA users. A frequentist network  
meta-analysis with subgroup analyses was done. MRAs were ranked using P-  
scores.

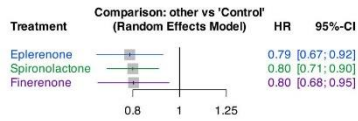
**Results:** We included 25 studies with 76,364 patients. Compared to control,  
spironolactone was most effective in patients with heart failure (HF, HR:  
0.73), without HF (HR: 0.40), and with HF with preserved ejection fraction  
(HFpEF, HR: 0.81); finerenone in HF with reduced ejection fraction (HFrEF,  
HR: 0.42); and eplerenone in chronic kidney disease (HR: 0.62). Head-to-  
head differences were significant only for eplerenone's superiority in chronic  
kidney disease and finerenone's inferiority in non-HF patients. Results were  
consistent after excluding observational studies, except in HF and HFpEF,  
where finerenone outperformed spironolactone.



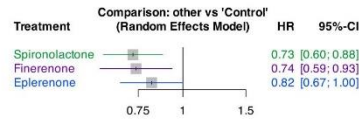
## Comparative Cardiovascular Effectiveness of Treatments in Reducing MACE Across All Studies and Comorbidity Subgroups

(Treatments ordered by P-score ranking)

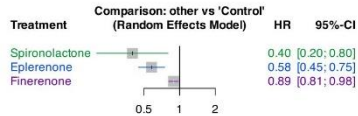
**All Studies (n=22)**



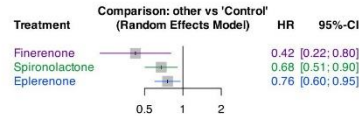
**Heart Failure (n=13)**



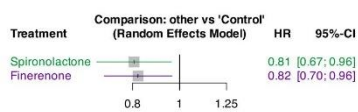
**Non Heart Failure (n=4)**



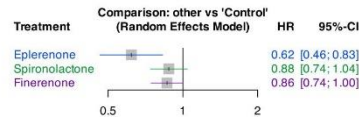
**Heart Failure with Reduced EF (n=7)**



**Heart Failure with preserved EF (n=6)**



**Chronic Kidney Disease (n=9)**



**Conclusion:** MRAs significantly reduce cardiovascular risk, though efficacy varies by clinical context. Our findings support precision in agent selection and highlight the need for head-to-head trials.

**Presentation  
Number:** 50-065

**Poster Board  
Number:** 065

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** 5-FLUOROURACIL-INDUCED TAKOTSUBO CARDIOMYOPATHY IN A BREAST  
CANCER PATIENT PRESENTING WITH STEMI MIMIC

**Author Block:** Mohamed Nasser Elshabrawi, Port Said, Port Said, Egypt

**Abstract  
Body:**

**Background:** Takotsubo cardiomyopathy (TCM) is a transient, stress-induced myocardial dysfunction that mimics acute coronary syndrome (ACS). It may be triggered by emotional, physical, or pharmacologic stress, including certain chemotherapeutic agents.

**Case:** A 62-year-old woman receiving adjuvant chemotherapy for breast cancer (5-fluorouracil-based regimen) presented with acute chest pain and anterior ST-segment elevation. Cardiac biomarkers showed mild troponin elevation. Emergent coronary angiography revealed no obstructive coronary artery disease. Transthoracic echocardiography demonstrated apical ballooning with preserved basal contractility. Cardiac MRI confirmed the diagnosis of Takotsubo cardiomyopathy. Chemotherapy was suspended, and the patient was started on beta-blockers and supportive therapy. Left ventricular function returned to normal within four weeks.

**Decision-making:** This case demonstrates 5-fluorouracil (5-FU) as a potential pharmacologic stressor precipitating TCM. Accurate diagnosis prevented unnecessary escalation of antithrombotic or revascularization strategies. Awareness of this reversible cause of myocardial injury allowed timely cessation of the inciting agent and tailored management.

**Conclusion:** Takotsubo cardiomyopathy should be considered in cancer patients on chemotherapy who present with ACS-like symptoms but have unobstructed coronaries. Early recognition facilitates supportive care, avoids unnecessary procedures, and may prevent recurrence.

**Presentation  
Number:** 50-066

**Poster Board  
Number:** 066

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** A HEAVY PRICE FOR A HEAVY LIFT: ANABOLIC STEROID-INDUCED DILATED CARDIOMYOPATHY IN A YOUNG BODYBUILDER

**Author Block:** Mohamed Nasser Elshabrawi, Asmaa Adel, Clinical Research Department, Aswan Heart Center, Magdi Yaqoup Foundation, Aswan, Egypt, Department of Pediatric Medicine, Mansoura University, Mansoura, Egypt

**Background:** Anabolic-androgenic steroids (AAS) are increasingly used for performance enhancement and can cause severe cardiac complications. Dilated cardiomyopathy (DCM) induced by AAS use is under-recognized but potentially reversible if identified early. Awareness is critical in young patients presenting with unexplained heart failure symptoms.

**Case:** A 28-year-old male bodybuilder presented with progressive exertional dyspnea and fatigue over 3 months. No prior cardiac history. Physical exam showed elevated jugular venous pressure and bilateral basal crackles. Echocardiography revealed severe left ventricular dilation (LVEDD 65 mm) with an ejection fraction of 25%. Coronary angiography was normal. Detailed history uncovered chronic anabolic steroid use for 2 years. Other causes of cardiomyopathy were excluded. Patient was started on guideline-directed medical therapy with cessation of steroids.

**Decision-making:** The diagnosis of AAS-induced DCM was made based on history, exclusion of other etiologies, and imaging. Early steroid discontinuation and heart failure therapy are essential to improve outcomes. Multidisciplinary care including cardiology and addiction support was initiated.

**Conclusion:** This case highlights the importance of considering anabolic steroid use in young patients with unexplained DCM. Early recognition can prompt timely intervention and potentially reverse myocardial damage. Increased awareness is needed among clinicians due to rising AAS abuse.

**Abstract  
Body:**



**Presentation  
Number:** 50-067

**Poster Board  
Number:** 067

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** ACUTE METHEMOGLOBINEMIA AFTER BENZOCAINE USE IN A PATIENT  
WITH CORONARY ARTERY DISEASE

**Author Block:** Mohamed Nasser Elshabrawi, Port Said, Port Said, Egypt

**Abstract  
Body:**

**Background:** Methemoglobinemia is a functional anemia caused by oxidized hemoglobin unable to bind oxygen, leading to tissue hypoxia. It can be drug-induced and is an important reversible cause of hypoxia.

**Case:** A middle-aged male with coronary artery disease on isosorbide dinitrate developed severe anxiety, dyspnea, tachycardia, and skin discoloration during upper gastrointestinal (GI) endoscopy. Local anesthesia with benzocaine was used prior to the procedure. Despite oxygen therapy, oxygen saturation remained low. Clinical signs suggested methemoglobinemia.

**Decision-making:** Certain drugs can cause methemoglobinemia by oxidizing hemoglobin: nitrates (e.g., isosorbide dinitrate), topical anesthetics (benzocaine, lidocaine at high doses), nitrofurantoin, and dapsone. Patients at higher risk include infants, individuals with anemia, G6PD deficiency, liver disease, cardiorespiratory illness, or those on multiple oxidizing agents. Clinical suspicion is critical, particularly in cases of cyanosis and hypoxia unresponsive to oxygen therapy. Diagnosis is confirmed by co-oximetry. Treatment involves discontinuation of the offending agent and administration of reducing agents such as methylene blue or vitamin C.

**Conclusion:** Clinicians should exercise caution when using topical anesthetics in patients on nitrates or with predisposing conditions. Early recognition and treatment of methemoglobinemia can prevent serious complications.

**Presentation  
Number:** 50-068

**Poster Board  
Number:** 068

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** HEART FAILURE PHENOTYPE AND FUNCTIONAL OUTCOMES AFTER  
CAROTID ARTERY STENTING: A MULTICENTER PROSPECTIVE COHORT  
STUDY

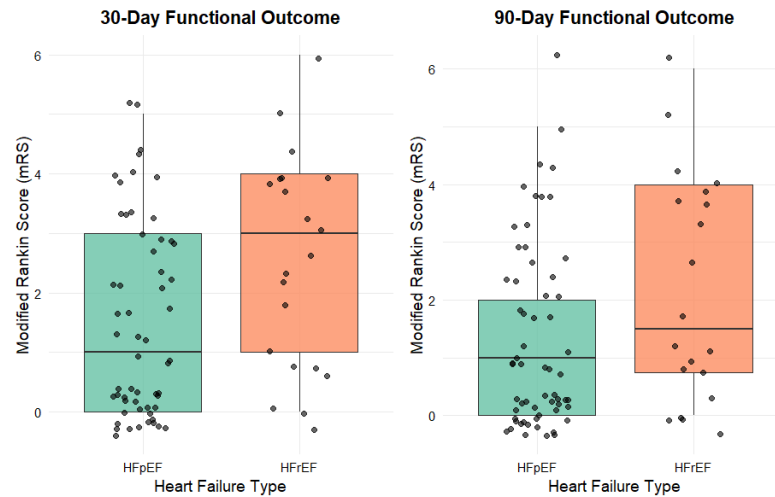
**Author  
Block:** Youssef Soliman, Rime Ezzeldin, LeighAnn Mealer, Ameer Hassan,  
Samantha Miller, Ramesh Grandhi, Faheem Sherif, Farhan Siddiq, Bains  
Navpreet, Omar Tanweer, Osama Zaidat, Ali Alaraj, Tatiana Abou-Mrad,  
Muammad Niazi, Saif Bushnaq, Darko Quispe-Orozco, Pichatorn  
Suppakitjanusant, Maria Martucci, M. Shazam Hussain, Kaiz Asif, Mussab  
Froukh, Amer Alsheklee, Daniel Vela-Duarte, Nazli Janjua, Mohamed  
Ezzeldin, Faculty of Medicine, Assiut University, Assiut, Egypt, HCA Houston  
Healthcare Kingwood, Houston, TX, USA

**Background:** The influence of heart failure (HF) phenotype on neurologic recovery following carotid artery stenting (CAS) is not well established. This study aimed to compare post-procedural outcomes between patients with HF with preserved ejection fraction (HFpEF) and those with reduced ejection fraction (HFrEF).

**Abstract  
Body:** **Methods:** We conducted a multicenter prospective cohort study of patients with HF who underwent CAS at 15 centers between 2023 and 2024. Patients were stratified by LVEF into HFpEF ( $\geq 50\%$ ) and HFrEF ( $< 40\%$ ). Those with mid-range LVEF (40-49%) were excluded to focus on pathophysiologically distinct phenotypes. Key outcomes included the modified Rankin Scale (mRS) at discharge, 30 days, and 90 days.

**Results:** Of the 105 patients included, 73 had HFpEF and 32 had HFrEF. There was no difference in baseline demographics. HFrEF was associated with worse neurologic outcomes, including higher mRS scores at discharge (2.75 vs. 1.89,  $p = 0.024$ ), at 30 days (2.57 vs. 1.46,  $p = 0.010$ ), and at 90 days (2.20 vs. 1.31,  $p = 0.043$ ). NIHSS at discharge was also higher among HFrEF patients (3.55 vs. 1.34,  $p = 0.022$ ). Rates of procedural complications did not differ between groups.

**Conclusion:** HFrEF was associated with significantly worse functional outcomes compared to HFpEF. These findings suggest that HF phenotype may be an important determinant of neurologic recovery and should be considered in preprocedural risk assessment.



**Presentation  
Number:** 50-069

**Poster Board  
Number:** 069

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** IMPROVING INFLUENZA AND PNEUMOCOCCAL VACCINATION  
COMPLIANCE IN HEART FAILURE PATIENTS: A QUALITY IMPROVEMENT  
INITIATIVE

**Author Block:** Sunil Roy Thottuvelil Narayanan, Vinay Ravikumar, Nikita Thomas, Joel Alen  
Shajen, Praveen Sreekumar, Anil Kumar Rajappan, Aster Medcity, Kochi,  
India

**Abstract  
Body:**

**Background:** Patients with heart failure (HF) are at an increased risk of adverse cardiovascular events triggered by respiratory infections. Despite strong recommendations by the NICE, ESC, AHA, and CDC for annual influenza and five-yearly pneumococcal (PCV13/PPSV23) vaccinations, baseline adherence is very low. Recent guidelines have underlined the clinical benefits of vaccination in reducing complications. Our initiative aimed to enhance vaccination rates among HF patients in an outpatient setting.

**Methods:** A baseline audit was conducted among 50 HF patients (identified via EMR “LV Dysfunction” and “heart failure” search from November 2022 to January 2023). Telephone follow-ups revealed that only 4% had received the influenza vaccine and none had received the pneumococcal vaccine. In response, a multidisciplinary team comprising cardiologists, nursing staff, clinical pharmacists, and outpatient coordinators implemented a targeted intervention. The strategies included departmental seminars, integration of pre-scheduled vaccination dates into discharge summaries, distribution of educational pamphlets, and financial counseling to address cost concerns. Follow-up adherence was audited in 50 patients with HF admitted between June and July 2024. Post-intervention compliance was reevaluated.

**Results:** Prior to the intervention, only 2 of the 50 patients (4%) received guideline-recommended vaccinations. Post-intervention, vaccination rates increased to 24 of 50 patients (48%), reflecting a substantial improvement. Key success factors included integrated teamwork, patient counseling, and



systematic documentation of discharge summaries. Challenges include financial constraints, vaccine hesitancy, and fragmented outpatient tracking.

**Conclusion:** Targeted educational and systematic interventions have significantly improved vaccine adherence among patients with HF, supporting the broader implementation of structured outpatient vaccination programs to mitigate cardiovascular risks. Future audits should assess long-term sustainability.

**Presentation  
Number:** 50-070

**Poster Board  
Number:** 070

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** CAN ISOLATED ECG ABNORMALITIES PREDICT EVOLVING APICAL HCM? A FIVE YEAR FOLLOW UP CASE SUPPORTING EARLY SCREENING

**Author  
Block:** Deepak Lal, KHALED ALFAKIH, safaa almohdar, Barkha Bai, zayed military hospital, abu dhabi, United Arab Emirates

**Background:** Early apical hypertrophic cardiomyopathy (HCM) may manifest as isolated ECG abnormalities, preceding diagnostic LV wall thickening on imaging.

**Case:** A 47-year-old male with no known comorbidities or family history of cardiomyopathy was referred due to incidental ECG abnormalities. In 2020, ECG showed T-wave inversions in leads I, II, aVL, and V4-V6. Echocardiogram was unremarkable, and cardiac MRI revealed apical wall thickness of 6 mm with preserved apical tapering. In 2024, follow-up ECG demonstrated deeper T-wave inversions extending to leads V3-V6, I, and aVF. Repeat MRI showed increased apical thickness to 11 mm and loss of apical tapering, still below the diagnostic threshold for HCM

**Abstract  
Body:**

**Decision-making:** The patient's progressive ECG changes and imaging findings suggest an evolving apical HCM phenotype. Despite not meeting classical diagnostic criteria, the case underscores the importance of longitudinal monitoring in patients with anterior T wave inversions. Genetic testing and family screening were recommended, but the patient declined.

**Conclusion:** This case highlights that deep anterior T-wave inversions on ECG may precede detectable anatomical hypertrophy in apical HCM. Serial follow-up with cardiac MRI can identify the development of apical hypertrophy over time. Owing to its superior spatial resolution, cardiac MRI is more sensitive than echocardiography for detecting early apical

changes.



**Presentation  
Number:** 50-071

**Poster Board  
Number:** 071

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** TAKOTSUBO CARDIOMYOPATHY AND LEFT VENTRICULAR THROMBUS IN  
THE CONTEXT OF SEVERE HYPOTHYROIDISM: A CLINICAL DILEMMA

**Author Block:** Amanpreet Singh Wasir, Aditi Agarwal, AMIT BAHETI, Jagroop Doad,  
Prashant Bhardwaj, Ravi Kalra, Bharati Vidyapeeth (Deemed to be)  
University Medical College, Pune, India, Department of Internal Medicine,  
Corewell Health West, Grand Rapids, MI, USA

**Background:** Takotsubo cardiomyopathy (TCMP) can present with serious, potentially life-threatening manifestations that can be challenging to recognize. Hypothyroidism, though rarely associated with TCMP, can cause drastic changes in hemodynamics and myocardial metabolism. We present a complex case of TCMP with newly diagnosed hypothyroidism, complicated by left ventricular (LV) thrombus and QT prolongation.

**Abstract  
Body:** **Case:** A 63-year-old female presented to the emergency department with 2 days of exertional dyspnea without chest pain. Vitals were notable for a heart rate 120 bpm, blood pressure 222/128 mmHg, respiratory rate 34 breaths/minute, and a SpO2 of 88% on room air. Physical examination revealed macroglossia, elevated jugular venous pressure with a prominent x-descent, and bilateral rales. Echocardiography revealed an LV ejection fraction of 25-30%, hypokinesia in the territory of the left anterior descending artery, and an apical LV thrombus (18x23 mm).

**Decision-making:** Troponin I was positive and B-type natriuretic peptide was 3,560 ng/L. A preliminary diagnosis of non-ST segment myocardial infarction with acute decompensated heart failure and LV apical clot was made. Treatment included non-invasive ventilation, nitroglycerine infusion, diuretics, antiplatelet agents, and heparin. Angiography revealed no evidence of coronary ischemia prompting a diagnosis of TCMP. Labs revealed an elevated thyroid-stimulating hormone with low T3 and T4, at which time thyroxine 75mcg/day was initiated. During hospitalization, she developed hypokalemia and QT prolongation which was corrected with

potassium and magnesium sulfate. QTc normalized the following day. The patient was continued on daily thyroxine, and guideline-directed therapy for heart failure. By day four, follow-up echocardiography demonstrated normalized LV function and resolution of the LV thrombus.

**Conclusion:** This case highlights the importance of considering TCMP in patients with unexplained cardiac dysfunction, especially when compounded by hypothyroidism, where prompt recognition is critical to avoid hemodynamic instability and complications.

**Presentation  
Number:** 50-072

**Poster Board  
Number:** 072

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** CONGESTIVE HEART FAILURE AND PNEUMONIA-RELATED MORTALITY IN  
THE UNITED STATES: A 25-YEAR NATIONWIDE ANALYSIS

**Author Block:** Rawdah Shakil, Hamza Ehtesham, Mushtaq Ahmad, Shahzaib Khan,  
Mariam Mirza, Dow International Medical College, Karachi, Pakistan,  
Ziauddin Medical College, Karachi, Pakistan

**Abstract  
Body:** **Background:** Congestive heart failure (CHF) is strongly linked to pneumonia and contributes to mortality. This study examines trends and disparities in CHF and pneumonia-related deaths and explores pneumonia-related mortality tied to other cardiovascular disease (CVD) that may lead to CHF. **Methods:** Multiple Cause of Death data from the CDC WONDER database (1999-2023) were analyzed to assess CHF and pneumonia-related mortality among adults aged  $\geq 65$  years. Pneumonia-related mortality associated with other CVD were also examined, including atrial fibrillation (AF), myocardial infarction (MI), valvular heart disease (VHD), and cardiomyopathy (CM). Age-adjusted mortality rates (AAMRs) per 100,000 (95% CIs), annual percentage change (APC), and average annual percentage change (AAPC) were calculated.

**Results:** Out of all CVD and pneumonia-related deaths (2,038,554) from 1999-2023, CHF accounted for the most deaths, followed by AF. The highest AAMR was seen in pneumonia patients with CHF (46.3), followed by AF (25.5), MI (14.3), VHD (4.8), and CM (4.3). AAMRs for CHF, MI, and CM declined with AAPCs of -4.8 (95% CI: -6.2 to -3.2), -4.5 (95% CI: -6.9 to -1.9), and -3.6 (95% CI: -6.8 to -0.3), respectively. AAMRs for VHD (AAPC: -1.4; 95% CI: -3.5 to 0.7) and AF (AAPC: 0.7; 95% CI: -1.9 to 3.4) remained stable. When CHF and pneumonia-related deaths were stratified, males (54.9; 95% CI: 54.7-55.2) had higher AAMRs than females (40.8; 95% CI: 40.7-40.9). NH White had the highest AAMR (55.5), followed by NH American Indian or Alaskan Native (45.6), NH Black or African American (38.3), Hispanic (33.4), and NH Asian or Pacific Islander (26.4). Regionally, AAMR was highest in the

Midwest (50.7), then the South (46.4), West (43.6), and Northeast (43.5). By state, West Virginia had the highest and Arizona the lowest AAMR. From 1999-2020, rural areas had 1.5 times higher AAMRs than urban areas (67.5 vs 45.3).

**Conclusion:** AAMRs for CHF and pneumonia-related deaths remain high, with CVDs predisposing to CHF, especially AF, showing persistently elevated rates from 1999 to 2023. Disparities were noted among males, NH Whites, and in the Midwest and South. Further research is needed to identify key factors and prevention strategies.

**Presentation Number:** 50-073

**Poster Board Number:** 073

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing Title:** LVAD IMPLANTATION IN THE “RIGHT” VA-ECMO PATIENT: A PARADIGM FOR CARDIOGENIC SHOCK EXIT STRATEGY

**Author Block:** Noora Alhajri, Elkhatab Mohammed, Cleveland Clinic Abu Dhabi, Abu Dhabi, United Arab Emirates

**Background:** Right heart failure (RHF) complicates more than 40% of left ventricular assisted device (LVAD) implantation in patients on extracorporeal oxygenation (VA-ECMO) increasing the risk for early mortality in critically ill patients. We herein discuss a tailored approach to optimize LVAD implantation in patients on ECMO who are deemed to have no myocardial recovery

**Abstract Body:** **Case:** A 35-years-old male with history of Afib, and newly diagnosed heart failure, presented to the ED following transient right sided weakness. On evaluation he developed cardiac arrest with Pulseless V-tach. ROSC was achieved following ACLS protocols. Echo revealed an EF of 12% with severely dilated LV and RV. He was shifted to the ICU for the management of SCAI stage E cardiogenic shock. Left heart cath was normal, and right heart cath showed: RA (CVP) 19mmHg, PCWP 27mmHg, CI 1.23 l/min/m<sup>2</sup>(FICK), CO 2.58 l/min (FICK), PAPi 0.53mmHg. He was initiated on VA- ECMO and IABP after recurrent episodes of cardiac arrests and worsening cardiogenic shock. He remained HD stable on ECMO but critically ill with INTERMACS profile 1. The option of temporary LV unloading with a micro axial flow pump vs. durable left ventricular support as exit strategies for cardiogenic shock were discussed. We proceeded to LVAD as a bridge to transplant given no recovery option.

**Decision-making:** Unfortunately, being on ECMO support does not only have potential complications but also limits the predictive power of echo and HD measurements of the right ventricle. Thus, anticipating the need for RVAD after ECMO weaning represent the most significant challenge during LVAD implantation. However, our approach relied on LV unloading by



optimizing the LVAD speed to reduce pulmonary pressure. Consequently, reducing the RV afterload, while maintaining lower RA pressure with early diuresis post LVAD. After surgical (HEARTMATE III) LVAD implantation the patient was decannulated and did not require RVAD support. He was discharged with a follow up in clinic.

**Conclusion:** Planning the needs for RVAD support in ECMO patients who are scheduled for d-LVAD is crucial. We herein present a tailored approach to minimize RHF in patients on ECMO who will be bridged to LVAD as a durable exit strategy

**Presentation  
Number:** 50-074

**Poster Board  
Number:** 074

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** LONG-TERM SURVIVAL IN AN ADULT WITH SINGLE VENTRICLE  
PHYSIOLOGY AND EISENMENGER SYNDROME COMPLICATED BY  
INFECTIVE ENDOCARDITIS

**Author Block:** Mohammad Ghannam, Al-Quds University-School of Medicine, Jerusalem,  
Palestine, Palestine Medical Complex, Ramallah, Palestine

**Background:** Pulmonary atresia with single ventricle physiology and Eisenmenger syndrome is a rare congenital pathology with high early mortality. Adult survival without home oxygen therapy is exceptionally uncommon.

**Methods:** We reviewed the clinical history, diagnostic imaging, laboratory findings, and management course of a 40-year-old male with pulmonary atresia, prior Blalock-Taussig shunt, atrial septostomy, and total Cavo pulmonary connection. Evaluation included transthoracic echocardiography, serial oxygen saturation monitoring, blood cultures, and laboratory workup. The case was managed in a multidisciplinary setting under resource-limited conditions.

**Abstract  
Body:** **Results:** Transthoracic echocardiography revealed severely dilated right heart chambers, preserved left ventricular ejection fraction (55%), moderate tricuspid regurgitation (TR), aortic regurgitation (AR), and pulmonary regurgitation (PR), along with right ventricular hypertrophy and an atrial septal defect (ASD) with right-to-left shunting. Oxygen saturation was 86% on 5L nasal cannula. Blood cultures grew methicillin-resistant *Staphylococcus aureus* (MRSA). Transesophageal echocardiography was deferred due to hemodynamic instability and limited availability. Laboratory testing showed secondary polycythemia, stage 3 chronic kidney disease, and compensated metabolic acidosis. Given the prohibitive surgical risk and lack of local cardiothoracic support, a conservative management plan was pursued. The patient responded favorably to intravenous vancomycin and supportive care, remained clinically stable, and was discharged on a

home antibiotic regimen.

**Conclusion:** This case illustrates rare adult survival in complex congenital heart disease with Eisenmenger syndrome, managed noninvasively despite infective endocarditis. Individualized multidisciplinary care in a low-resource setting enabled stability without surgical intervention.

**Presentation  
Number:** 50-075

**Poster Board  
Number:** 075

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** FROM HEART TO LIMB: A CASE OF ACUTE LIMB ISCHEMIA ORIGINATING  
FROM INTRACARDIAC THROMBUS

**Author Block:** Tommy Daindes, Benny Afriansyah, Daulat Azhari, Doni Surya, Monica  
Oktariyanthy, Putri Maghfirah Bahri, Tiffany Adelina, Viftrya Rosady, Eka  
Fithra Elfi, M Djamil General Hospital, Padang, Indonesia

**Background:** Acute lower limb ischemia is a vascular emergency characterized by a sudden decrease in blood flow to the lower extremities. If not promptly treated, it can lead to tissue necrosis and potentially result in limb loss. Rapid diagnosis and timely management are essential to improve limb salvage and reduce morbidity and mortality. This case report describes a rare but not impossible cause of ALI - an intracardiac thrombus propagation in a non-revascularized Acute Myocardial Infarction patient.

**Abstract Body:** **Case:** A 52-year-old male referred with Heart Failure due to non-revascularized MI. He also had complaints of pain, pallor, numbness, and cold sensation in both lower limbs for one day before hospital admission. Physical examination revealed typical signs and symptoms of Congestive Heart Failure with the classic signs of the 6 Ps: pain, pallor, pulselessness, paresthesia, paralysis, and poikilothermia in both legs, with intact sensory function. Echocardiography showed reduced LVEF with akinesia in wide anterior segments and swinging volatile thrombus attached in the apical LV. Doppler ultrasonography showed reduced blood flow in the femoral artery. The patient was diagnosed with acute lower limb ischemia and underwent urgent thrombectomy along with anticoagulant therapy. Post-procedural evaluation demonstrated improved perfusion in the affected limb with significant clinical improvement and no major complications. The patient was prescribed long-term anticoagulation therapy and scheduled for regular follow-up to prevent recurrence.

**Decision-making:** Although an intracardiac thrombus is a common finding in patients with reduced contractility, its propagation to both limbs is a

considerably rare event. Understanding this uncomplicated mechanism is mandatory to provide early diagnosis, and aggressive management is crucial for limb salvation.

**Conclusion:** A combination of prompt clinical evaluation, appropriate diagnostic imaging, and immediate intervention significantly improves patient outcomes and limb viability in this clinical setting.

**Presentation  
Number:** 50-076

**Poster Board  
Number:** 076

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** INVASIVE HAEMODYNAMIC EFFECT OF SACUBITRIL/VALSARTAN ON EXERCISE-INDUCED DIASTOLIC DYSFUNCTION

**Author  
Block:** Omar Al-Assaf, Mossad Abu Shabana, Sadek Tabatabai, Arif Almulla, Dubai Health, Dubai, United Arab Emirates

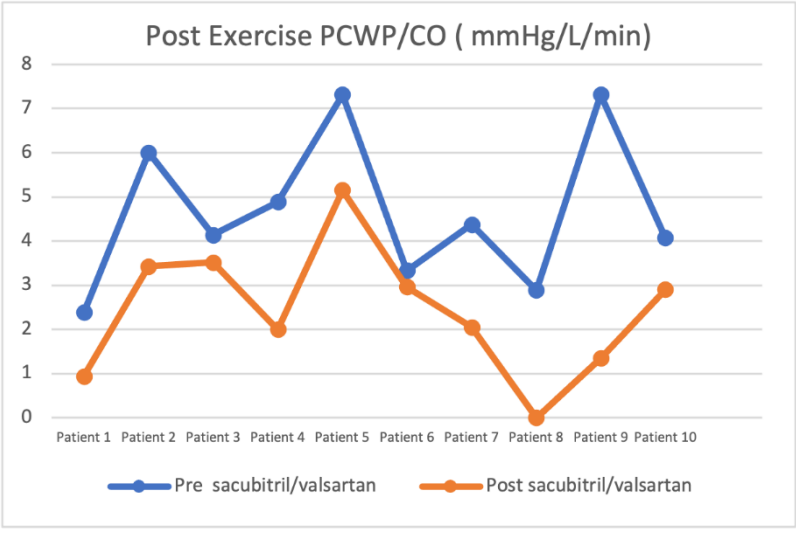
**Abstract  
Body:**

**Background:** Exercise-induced diastolic dysfunction (DD) is underdiagnosed due to the complexity of using exercise echocardiography or right heart catheterisation to measure left ventricular end diastolic pressure or pulmonary capillary wedge pressure post-exercise. Pulmonary Capillary Wedge Pressure indexed to Cardiac Output (PCWP/CO) during exercise ( $>2$  mmHg/L/min) is reported as being more sensitive in diagnosing HFpEF than a single measurement. We study the effect of sacubitril/valsartan on the invasive haemodynamic parameters in patients with exercise-induced DD.

**Methods:** A cohort study on patients diagnosed with normal echocardiography parameters, normal PCWP/CO measured by right heart catheterisation at rest but with abnormal PCWP/CO on leg rise measured invasively by right heart catheterisation were prescribed sacubitril/valsartan and tapered to the maximum tolerated dose. Measurements were repeated on follow-up and assessment of change of NYHA score.

**Results:** A total of ten female patients were studied with a 54-year average age and average time to repeat the catheterisation 6.6 months. All patients had improvement in their post-exercise PCWP/CO, with 50% of them normalising. The mean post-exercise PCWP/CO prior to starting sacubitril/valsartan was 4.67 mmHg/L/min, while the mean PCWP/CO after was 2.43 mmHg/L/min (p-value of 0.0008).

**Conclusion:** Sacubitril/valsartan in patients with exercise-induced DD improves their clinical outcome and haemodynamic parameter.



**Presentation  
Number:** 50-077

**Poster Board  
Number:** 077

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** ANALYTICAL STUDY OF THE EFFICACY OF DEXRAZOXANE IN PREVENTING ANTHRACYCLINE INDUCED CARDIOMYOPATHY IN BREAST CANCER

**Author Block:** Fariya Reza, Arub Iqbal, Jayashree Ravikumar, Srijamya ---, GMERS Medical College Gotri, Vadodara, India

**Background:** Breast cancer is a malignant tumor originating in breast tissue, commonly affecting women. It accounts for approximately 11.7% of global cancer cases. Chemotherapy, a major treatment, can cause side effects such as fatigue, nausea, hair loss, neutropenia, cardiotoxicity, and early menopause, impacting patients' physical and emotional well-being. Dexrazoxane, a cardioprotective agent, is a novel drug that has shown efficacy in reducing chemotherapy-induced cardiomyopathy.

**Methods:** The study evaluates the recent clinical trials on dexrazoxane in breast cancer patients. Echocardiography and cardiac biomarkers were analyzed to assess cardiotoxicity.

**Abstract  
Body:**

**Results:** The studies have shown that dexrazoxane reduces 13% of cardiotoxicity events with 67% of relative risk of symptomatic heart failure. Tumor response rates, progression-free survival, and overall survival were unchanged. No additional adverse effects were reported.

**Conclusion:** Dexrazoxane, when administered from the first anthracycline cycle, provides significant cardioprotection without compromising oncologic efficacy. These findings support its routine integration into chemotherapy protocols to preserve long-term cardiac function and quality of life in breast cancer patients. Future research should refine patient selection and dosing strategies.



**Presentation  
Number:** 50-078

**Poster Board  
Number:** 078

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** THE RELATIONSHIP BETWEEN COPEPTIN, GALECTIN-3 AND ACUTE CORONARY DISEASE

**Author Block:** Mohammad Borji, Hadi Khodabandehloo, Sayed Shamsaddin Athari,  
Zanjan university of medical sciences, Zanjan, Iran (Islamic Republic of)

**Background:** Acute coronary syndrome (ACS) is a critical cardiovascular emergency that demands early diagnosis and effective risk stratification. While cardiac troponins are the gold standard for diagnosis, their limitations in early-phase detection and prognostication have spurred interest in complementary biomarkers. Copeptin and galectin-3 have emerged as promising molecules reflecting different pathological aspects of ACS.

**Methods:** This review summarizes and analyzes data from recent clinical trials and observational studies evaluating copeptin and galectin-3 in patients presenting with ACS. Copeptin, the stable surrogate of vasopressin, was studied for its diagnostic utility in the early hours of myocardial ischemia. Galectin-3, a mediator of myocardial inflammation and fibrosis, was reviewed for its prognostic significance in adverse cardiac remodeling post-ACS.

**Results:** Copeptin levels rise rapidly after the onset of ischemia, providing diagnostic value particularly in combination with troponin to safely rule out myocardial infarction in early presentations. Galectin-3 levels, although not diagnostic, are associated with worse clinical outcomes, including development of heart failure and increased mortality post-ACS. The combination of these biomarkers offers a more comprehensive assessment of both acute and chronic processes in ACS.

**Conclusion:** Copeptin and galectin-3 are valuable biomarkers representing acute stress and chronic inflammation, respectively. Their combined use may enhance early diagnostic accuracy and long-term risk assessment in

**Abstract  
Body:**

ACS patients, supporting more personalized and effective treatment strategies.

**Presentation  
Number:** 50-079

**Poster Board  
Number:** 079

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** GLP-1RA AND GLP-1/GIP THERAPIES IN HEART FAILURE: A META-ANALYSIS OF SAFETY, CARDIOVASCULAR AND RENAL OUTCOMES

**Author Block:** Shayan Shojaei, Asma Mousavi, Farhad Shaker, Hossein Ghasempour, Roozbeh Narimani, Mohammad-Taha Pahlevan-Fallahy, Salma Nozhat, Hamed Bazrafshan Driss, Kaveh Hosseini, Alireza Arjangzade, Department of Cardiology, Shiraz University of Medical Sciences, Shiraz, Iran (Islamic Republic of), Tehran Heart Center, Tehran, Iran (Islamic Republic of)

**Background:** Heart failure (HF) is a major global health issue with significant residual risk despite current therapies. While Glucagon-like peptide-1 receptor agonists (GLP-1RAs) and Gastric inhibitory polypeptide (GIP) show promise for HF, evidence of their efficacy across HF phenotypes and diabetic statuses remains inclusive. This systematic review and meta-analysis evaluates the cardiovascular and extra-cardiac outcomes of GLP-1RA use in patients with HF.

**Abstract Body:** **Methods:** We searched four databases for randomized controlled trials (RCTs) comparing GLP-1Ras monotherapy and GLP-1/GIP combination therapy to placebo in individuals with HF, conducting subgroup analyses based on diabetes status and HF subtype (reduced ejection fraction (HFrEF) and preserved ejection fraction (HFpEF)). We assessed efficacy outcomes including major adverse cardiovascular events (MACE), all-cause mortality, cardiovascular mortality, myocardial infarction (MI), stroke, hospitalization for HF, and safety outcomes including serious adverse events, nausea, vomiting, diarrhea, hypoglycemia, pancreatitis, renal-related adverse events, and discontinuation related to adverse events. Incidence rate ratios (IRRs) with 95% confidence intervals (CIs) were calculated.

**Results:** Our analysis of 15 RCTs (15,332 participants; with mean age of 64.38 and male% of 61.73) found that GLP-1RAs significantly reduced the risk of MACE (IRR=0.75, 0.57; 0.99). Subgroup analyses revealed significant

reductions in cardiovascular mortality among non-diabetic population (IRR=0.76, 95% CI 0.59;0.98), and in both MI (IRR=0.69, 95% CI 0.51;0.93), and hospitalization for HF (IRR=0.55, 95% CI 0.43;0.70) for the HFpEF subgroup. Regarding safety, the case group had a significantly higher risk of nausea, vomiting, diarrhea, and treatment discontinuation due to adverse events.

**Conclusion:** Our findings support using GLP-1RAs and GIP to lower MACE risk in patients with HF, with particular benefits for those with HFpEF and without diabetes. Although effective, clinicians should remain mindful of the potential for gastrointestinal side effects with these agents.

**Presentation  
Number:** 50-080

**Poster Board  
Number:** 080

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** PREVALENCE AND PREDICTORS OF SLEEP-DISORDERED BREATHING IN  
HEART FAILURE WITH REDUCED EJECTION FRACTION: A PROSPECTIVE  
SINGLE-CENTER STUDY FROM OMAN

**Author  
Block:** Fatma Al Mahruqi, Fahad Al kindi, Mohammed Al Abri, Adil Al Riyami, Ahmed  
El Ameen, Elna piopongco, Mahmood AL Habsi, Khamis Al Hashmi, Zuhra Al  
Yarubi, Raya AL Maskari, Samir Al Adawi, Rasha Kaddoura, Sultan Qaboos  
university Hospital, Muscat, Oman, university of medical city, Muscat, Oman

**Background:** Sleep-disordered breathing (SDB) represents a significant  
comorbidity in heart failure with reduced ejection fraction (HFrEF). This study  
aimed to assess the prevalence and predictive factors of SDB, including  
obstructive (OSA) and central sleep apnea (CSA), among HFrEF patients.

**Methods:** A prospective single-center study enrolled patients with heart  
failure and reduced ejection fraction (LVEF <40%) who underwent level 3  
polysomnography (PSG), irrespective of sleep-disordered breathing  
symptoms. Participants were assessed for SDB subtypes, including OSA and  
CSA.

**Abstract  
Body:** **Results:** The study cohort Comprised 52 patients with a mean age of 58.80  
years and male predominance (73.1%). SDB prevalence was 92.3% at an  
apnea-hypopnea index (AHI) threshold of  $\geq 5$  events/hour and 85.7% at AHI  
 $\geq 15$  events/hour, with severe OSA (AHI >30 events/hour) demonstrating a  
significant association with elevated body mass index. OSA constituted the  
predominant SDB subtype (89.6% of cases). SDB questionnaires like ESS  
and STOP-BANG did not have a significant association with the occurrence  
of SDB in HF patients.

**Conclusion:** This study identified a high prevalence of SDB among patients  
with heart failure reduced ejection fraction through systematic PSG  
evaluation. These findings underscore the clinical utility of objective sleep  
assessments in HFrEF management and highlight obesity as a modifiable

risk factor for severe OSA in this population.

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**Presentation  
Number:** 50-081

**Poster Board  
Number:** 081

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** EVALUATING THE ADDED VALUE OF CARDIAC MRI OVER  
ECHOCARDIOGRAPHY IN HEART FAILURE MANAGEMENT IN YEMEN: A  
MULTICENTER RETROSPECTIVE COHORT STUDY

**Author Block:** Ahlam Mohammed Ali Al-Ghaili, Mohammed Mohammed Saleh Al-Shami,  
Karrar Ali Mohammed, Fahid Atef Alblewi, Mohamed Ahmed Abugibba, Al-  
Thawrah Modern Hospital, Sana'a, Yemen

**Background:** Heart failure remains a leading cause of morbidity and mortality worldwide, with disproportionately higher burdens in low-resource settings. In these environments, echocardiography is the cornerstone of diagnosis and management due to its accessibility and cost-effectiveness. However, in clinical practice, a subset of patients fail to respond adequately to standard therapy, prompting consideration of advanced imaging, most notably, cardiac magnetic resonance imaging (MRI).

**Abstract  
Body:** **Methods:** The study was conducted involving 2,705 patients diagnosed with heart failure between 2014 and 2023. All patients underwent initial assessment using echocardiography. Those with heart failure with reduced ejection fraction (HFrEF) and inadequate response to guideline-directed medical therapy (GDMT) were evaluated for further imaging with cardiac MRI. Data analysis was conducted using SPSS, with  $p < 0.05$  considered statistically significant.

**Results:** Out of 2,705 patients, 1,890 (69.9%) were classified as having heart failure with preserved ejection fraction (HFpEF), and 815 (30.1%) as HFrEF. Among HFrEF patients, 137 underwent cardiac MRI due to poor response to first-line treatment. Although cardiac MRI revealed additional findings in 117 patients (16.7%), such as diffuse fibrosis and structural abnormalities, these did not lead to significant changes in the management strategy compared to those who did not undergo MRI. Both groups proceeded to second-line therapy based on clinical symptoms and

comorbid conditions, with similar treatment responses and five-year mortality rates ( $p = 0.00001$ ).

**Conclusion:** Cardiac MRI provided additional diagnostic detail in a subset of patients with heart failure but did not significantly influence treatment decisions or long-term outcomes. Management was primarily dictated by clinical presentation and comorbidities rather than imaging modality. These findings support the continued reliance on echocardiography approaches as an effective, accessible, and sufficient tool for guiding heart failure management in low-resource settings.



**Presentation  
Number:** 50-082

**Poster Board  
Number:** 082

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** ASSESSMENT OF RIGHT VENTRICULAR VOLUME AND FUNCTION BY 3D-  
ECHOCARDIOGRAPHY IN PATIENTS WITH SYSTEMIC SCLEROSIS

**Author Block:** Asma Mousavi, Mandana Mirzaei, Firoozeh Abtahi, Alireza Arzhangzadeh,  
Mohammad Ali Nazarinia, Shayan Shojaei, Salma Nozhat, Shiraz University  
of Medical Sciences, Shiraz, Iran (Islamic Republic of), Tehran University of  
Medical Sciences, Tehran, Iran (Islamic Republic of)

**Background:** Systemic sclerosis is an autoimmune disease where cardiac involvement, particularly of the right ventricular (RV), significantly impacts patient outcomes. Advanced echocardiographic techniques, such as three-dimensional echocardiography (3DE), offer precise assessment of RV structure and function. This study aimed to evaluate RV volume and function in patients with systemic sclerosis using 3DE.

**Methods:** A total of 84 participants, including 42 systemic sclerosis patients and 42 age- and sex-matched healthy controls, were enrolled through simple random sampling. None of the controls had a history of cardiac disease. RV assessment was performed using a Philips EPIQ CVx 3DE system.

**Abstract  
Body:**

**Results:** The results showed that the patient group's free wall longitudinal strain significantly differed from the control group. Notably, the RV-end systolic volume and RV-end diastolic volume index in the patient group were significantly higher than the control group in both women and men, while the RV-ejection fraction and fractional area change in the patient group were significantly lower than the control group. The results also showed that the global longitudinal strain in the patient group was not significantly different from the control group. Furthermore, the RV-end diastolic volume and RV-end systolic volume index in both women and men in the patient group did not show a significant difference compared to the control group. S wave Tissue Doppler Imaging (TDI) and Tricuspid Annular Plane Systolic Excursion (TAPSE) were significantly lower in the patient

group. On the other hand, pulmonary vascular resistance and RV-myocardial performance index in the patient group were significantly higher than in the control group.

**Conclusion:** In conclusion, these findings highlight distinct alterations in RV mechanics and function among patients with systemic sclerosis, as captured by advanced 3DE assessment.

**Presentation  
Number:** 50-083

**Poster Board  
Number:** 083

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** COILING GONE WRONG

**Author Block:** Farrukh Malik, National institute of cardiovascular diseases, Karachi,  
Pakistan

**Background:** • 67 FEMALE DM HTN. • HX OF CABG 2007 LIMA PLUS 2 SVGS. • MULTIPLE EPISODES OF UNSTABLE ANGINA DESPITE GDMT. • PT STILL COMPLAINED OF CHEST PAIN DURING HOUSEHOLD ACTIVITIES. • WHAT TO DO NEXT?

**Case:** CT ANGIO SHOWED PATENT LIMA AND SVGS. MPS REVEALED A REVERSIBLE PERFUSION DEFECT IN LAD TERRITORY WHAT TO DO NEXT?

**Decision-making:** Graft study showed LIMA BRANCH SIPHONING OFF SIGNIFICANT AMOUNT OF BLOOD. PLANNED FOR COILING OF LIMA BRANCH. TURNPIKE LP MICROCATHETER USED TO CANNULATE LIMA BRANCH. • RUBY COILS USED FOR COILING But UNFORTUNATELY RUBY COILS BROKE DOWN during deployment. • COIL WAS PARTLY IN LIMA BRANCH AND PARTLY IN LIMA main stem. • PATIENT STARTED

**Abstract Body:** COMPLAINING OF CHEST PAIN. • ST STARTED TO ELEVATE. • ecg showed BRADY CARDIA WITH QRS WIDENING. • BP DROPPED TO 70/50 despite vasopressors. • INTRACORONARY ADRENALINE AND ADENOSINE GIVEN. • HEPARIN FULL DOSE GIVEN. • VASOPRESSOR STARTED. • DRUG ELUTING STENT DEPLOYED IN LIMA TO EXCLUDE THE BROKEN COIL AGAINST THE LUMEN WALL. Comments • FINAL TIMI 3 FLOW ACHIEVED IN LIMA. • SYMPTOMS SETTLED AS WELL AS ST ELEVATIONS

**Conclusion:** TAKE HOME MESSAGE • LIMA SIDE BRANCHES NOT LIGATED DURING SURGERY ARE CAPABLE OF COMPROMISING BLOOD FLOW (STEAL PHENOMENA) • THE TIMI FRAME COUNT IS A SIMPLE TOOL TO PREDICT THIS PHENOMENA • COIL EMBOLIZATION IS THE FIRST LINE TREATMENT.



**Presentation  
Number:** 50-084

**Poster Board  
Number:** 084

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EMERGENT FAT EMBOLIZATION FOR CORONARY PERFORATION:  
EXPANDING THE TOOLBOX IN COMPLEX PCI

**Author  
Block:** Giovanni Paoletta, JR, Rocio Barriga Guzman, Viktoriya Bikeyeva, Andrii Labchuk, Adib M. Chaus, Advocate Lutheran General Hospital, Park Ridge, IL, USA, Advocate Illinois Masonic Medical Center, Chicago, IL, USA

**Background:** Coronary artery perforation is a rare but life-threatening complication of percutaneous coronary intervention (PCI). Standard management includes balloon tamponade, coil embolization, or covered stent placement.

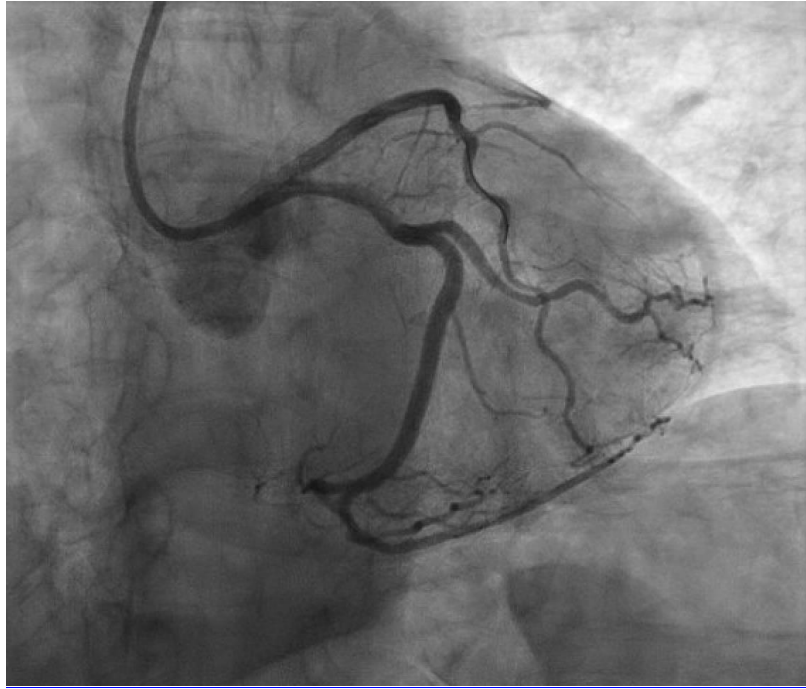
**Case:** A 61-year-old male with diabetes, hypertension, and hyperlipidemia presented with anterior ST-elevation myocardial infarction (STEMI).

Angiography showed 100% occlusion of the proximal left anterior descending (LAD) artery. After drug-eluting stent (DES) placement, plaque shift led to first diagonal branch occlusion. Balloon angioplasty caused vessel perforation and tamponade, confirmed by transthoracic echocardiogram (TTE). Emergent pericardiocentesis was performed with autotransfusion. Coil embolization failed due to catheter limitations.

**Decision-making:** Autologous fat embolization was performed by harvesting pericardial fat and injecting it into the perforated vessel, achieving temporary hemostasis. Recurrent bleeding necessitated return to the lab, where a covered stent was deployed. The patient was stabilized and discharged on indefinite dual antiplatelet therapy (DAPT).

**Conclusion:** Autologous fat embolization may serve as a novel, life-saving temporizing option for coronary perforation when conventional strategies are unsuccessful.

**Abstract  
Body:**



**Presentation  
Number:** 50-085

**Poster Board  
Number:** 085

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** MOLECULAR GENETIC PREDICTION OF THE RISK OF DEVELOPING NEW  
CARDIOVASCULAR EVENTS AFTER CORONARY ARTERY STENTING

**Author Block:** Akerke Kalimbetova, Dana Taizhanova, Roza Bodaubay, NJSC "Medical  
University Astana", Astana, Kazakhstan, NJSC "Medical University  
Karaganda", Karaganda, Kazakhstan

**Background:** Today, there are a number of diagnostic concepts aimed at studying the factors influencing the development of new cardiovascular events after coronary artery revascularization. One of the areas of interest is the study of the role of gene polymorphisms in the development of fatal cardiovascular events.

**Methods:** This study is a molecular genetic study, the study design is a cohort prospective study. The study included 254 respondents, of which 163 were included in the main group, patients with coronary heart disease who underwent percutaneous coronary intervention, the remaining 91 respondents were practically healthy, who were included in the control group. At the first stage, all patients underwent a general clinical

**Abstract Body:** examination, standard laboratory examination, and a blood test for molecular genetic markers. The second stage assessed new cardiovascular events after coronary artery stenting in the early and late periods. Statistical processing of the obtained data was carried out using the SPSS software package. Statistical analysis of genotyping data was carried out in the SNPStat program.

**Results:** Predictors of development of new cardiovascular events in the early period after percutaneous coronary intervention were statistically significant: old age, overweight, grade 1-2 obesity, increased LDL, as well as the presence of rhythm disturbance and CHF. In the late period after percutaneous coronary intervention, the heterozygous genotype of AC rs2943634 (OR - 4.007 times, 95% CI (1.502: 10.692)), related to the group of biomarkers of lipid metabolism disorders, was determined as a

prognostic criterion for development of cardiovascular complications.

**Conclusion:** To predict the risk of developing new adverse cardiovascular events in the late period, it is recommended to refer the patient for genetic testing to identify the rs2943634 genetic polymorphism responsible for late cardiac complications.



**Presentation  
Number:** 50-086

**Poster Board  
Number:** 086

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** TRENDS AND DISPARITIES IN ISCHEMIC HEART DISEASE - RELATED MORTALITY IN YOUNG ADULTS IN THE U.S. FROM 1999 TO 2023.

**Author  
Block:** Aafreen Ali Nyaz, Mohammad Aamir Qayyum Sarguroh Khan, Hashim Mohamed Siraj, Ramlah Atif Khan, FLEN JOHN THOMAS, Mohammad Alkhateeb, Sanaf Nisar Hamdulay, Mujahed Dalain, Abdulrahman Al-Dawoudi, Anand Balasubramanian, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia

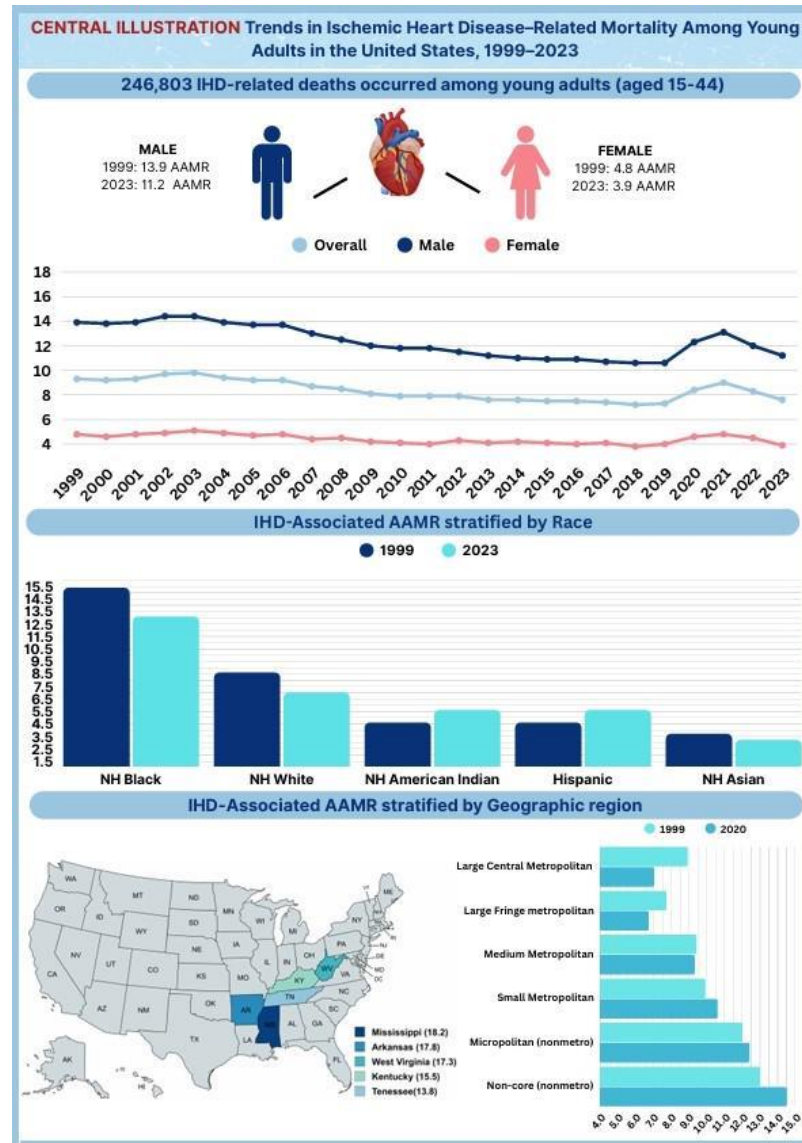
**Background:** Ischemic Heart Disease (IHD) remains a leading cause of morbidity and mortality, especially among the elderly. However, lifestyle and environmental shifts have raised IHD-related deaths in younger people. National mortality trends in this group remain underexplored.

**Methods:** We analyzed Death Certificate data from the CDC WONDER database from 1999 to 2023 for IHD-related deaths in individuals aged 15 to 44 (young adults) standardized to the U.S. population in 2000. Age-adjusted Mortality Rates (AAMRs) per 100,000 and Annual Percentage Changes (APCs) with 95% confidence intervals (CIs) were calculated and stratified by year, sex, race, state, urbanization, and census region.

**Abstract  
Body:** **Results:** Between 1999 and 2023, 246,803 IHD-related deaths occurred in young adults. Although AAMR increased from 7.2 to 9.0 between 2018 and 2021 potentially reflecting the impact of the COVID-19 pandemic, this trend was not statistically significant (APC: 7.78%, 95% CI: -4.42% to 21.5%). AAMRs were consistently higher in males than females (1999: 13.9 vs. 4.8, 2023: 11.2 vs. 3.9) and were highest among Non-Hispanic (NH) Black adults. Rates declined across all U.S. regions, highest in the South (11.4 to 8.9) and lowest in the West (6.8 to 6.2). State-level rates ranged from 5.2 in Utah to 18.1 in Mississippi.

**Conclusion:** Despite overall declines in mortality, disparities by sex and race persist, necessitating target prevention and continued monitoring in light of

recent, though statistically nonsignificant increases.



**Presentation  
Number:** 50-087

**Poster Board  
Number:** 087

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** MECHANICAL CIRCULATORY SUPPORT AND PRE-PROCEDURAL ESTIMATED GLOMERULAR FILTRATION RATE ARE INDEPENDENT PREDICTORS OF ACUTE KIDNEY INJURY IN STEMI PATIENTS WITH CARDIOGENIC SHOCK

**Author  
Block:** Musab Taha Ahmed Egaimi, Hasan Alhourri, Mohamed Dildar, Pierfrancesco Corvo, Fabrizio Clementi, Sheikh Khalifa Specialty Hospital, Ras Al-Khaimah, United Arab Emirates

**Background:** Acute kidney injury (AKI) complicates around 50% of ST-elevation myocardial infarction with cardiogenic shock (AMI-CS) and worsens early survival. AKI risk stratification that incorporates mechanical-circulatory support (MCS) is limited. This study aims to identify AKI predictors during index admission in modern AMI-CS algorithm that utilizes MCS.

**Abstract  
Body:** **Methods:** We analyzed 67 consecutive AMI-CS cases (2021-2024). AKI definition followed KDIGO criteria. 8 variables were chosen a priori for relevance adapted and modified from the Mehran score — age, systolic BP, hemoglobin, HbA1c, baseline eGFR, LVEF, contrast volume, and MCS — were entered en bloc into the full logistic model. Backward likelihood-ratio elimination (stay  $p < 0.20$ ) yielded a four-variable model, refitted with Firth bias reduction (Table). Internal validity used 5,000 bootstrap resamples.

**Results:** 63 patients were evaluable; AKI occurred in 27 (42.9 %). Independent predictors were MCS (odds ratio [OR] 13.0, 95 % CI 3.2-52.0,  $p = 0.020$ ) and lower eGFR (OR 0.95 per mL/min/1.73 m<sup>2</sup>, 0.91-0.99,  $p = 0.030$ ). Age and contrast volume were not significant. Apparent discrimination was good (area under ROC curve 0.78; Brier score 0.17) and remained acceptable after bootstrap correction (optimism-adjusted AUC 0.74; calibration slope 0.91).

**Conclusion:** In this AMI-CS cohort, older age, higher contrast volume, MCS use, and lower baseline eGFR were associated with in-hospital AKI. Only

## MCS use and low eGFR independently predicted AKI risk.

**Table:** Independent Predictors Of In-hospital Acute Kidney Injury In STEMI Patients With Cardiogenic Shock

Predictor	Odds ratio (95 % CI)	p
MCS (yes)	13.0 (3.2–52.0)	<b>0.020</b>
eGFR (per mL min <sup>-1</sup> 1.73 m <sup>2</sup> )	0.95 (0.91–0.99)	<b>0.030</b>
Age (per year)	1.04 (0.99–1.10)	0.110
Contrast volume (per mL)	0.99 (0.98–1.01)	0.330

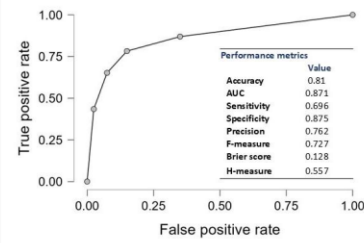
**Model:** Firth bias-reduced logistic regression; internally validated with 5,000 bootstrap resamples.

**Model performance:** AUC 0.78 (Bootstrap-adjusted 0.74); calibration slope 0.91; Brier 0.17

Odds ratios (OR) and 95 % confidence intervals (CI) from the final Firth bias-reduced logistic-regression model after backward likelihood-ratio selection (n = 63). Model performance: apparent AUC 0.78, optimism-adjusted AUC 0.74; calibration slope 0.91; Brier score 0.17 (validated with 5 000 bootstrap resamples).

**Abbreviations:** AKI = acute kidney injury; CI = confidence interval; eGFR = estimated glomerular filtration rate; MCS = mechanical circulatory support; OR = odds ratio.

**Figure:** ROC Curve of the Backward-Selected Logistic Model Predicting AKI Before Firth Correction



**Figure:** Receiver Operating Characteristic (ROC) curve of the backward likelihood-ratio logistic regression model (pre-Firth penalization) predicting in-hospital AKI in AMI-CS. Apparent AUC was 0.871 based on the initial model before Firth correction. Performance metrics reflect the raw logistic model prior to penalization and bootstrap adjustment.

**Presentation  
Number:** 50-088

**Poster Board  
Number:** 088

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** DIRECT ORAL ANTICOAGULANTS ARE EFFECTIVE TO PREVENT BUT NOT TO RESOLUTE RADIAL ARTERY OCCLUSION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

**Author Block:** Abdullah Alharran, Amal Alsubaiei, Abdullatif Alfehaid, Ali Artam, Osama Almutairi, Yaqeen Alaraibi, Mohammed Alajmi, Abdullah Alibrahim, Omar Alawadhi, Arabian Gulf University (AGU), Manama, Bahrain

**Background:** Radial artery occlusion (RAO) remains the most common complication following transradial (TRA) cardiac procedures. Direct oral anticoagulants (DOACs) emerged as a practical and safe option in various indications and are currently being investigated to prevent and treat RAO. This systematic review and meta-analysis aims to investigate the efficacy and safety of DOACs to prevent and resolve RAO following TRA.

**Abstract Body:** **Methods:** Four RCTs with 970 participants were included. DOACs significantly decreased the incidence of RAO (RR: 0.49, 95% [0.31, 0.79],  $p < 0.001$ ). However, regarding RAO resolution, there was no difference between both groups (RR: 1.22, 95% [0.80, 1.88],  $p = 0.36$ ). Also, there was no difference between both groups regarding the incidence of hematoma (RR: 0.56, 95% [0.12, 2.61],  $p = 0.46$ ), minor bleeding (RR: 1.55, 95% [0.72, 3.32],  $p = 0.26$ ), and major bleeding (RR: 2.41, 95% [0.48, 12.25],  $p = 0.36$ ). Both groups had no incidence of arteriovenous fistula, pseudoaneurysm, or compartment syndrome throughout the included trials.

**Results:** Four RCTs with 970 participants were included. DOACs significantly decreased the incidence of RAO (RR: 0.49, 95% [0.31, 0.79],  $p < 0.001$ ). However, regarding RAO resolution, there was no difference between both groups (RR: 1.22, 95% [0.80, 1.88],  $p = 0.36$ ). Also, there was no difference between both groups regarding the incidence of hematoma (RR: 0.56, 95% [0.12, 2.61],  $p = 0.46$ ), minor bleeding (RR: 1.55, 95% [0.72, 3.32],  $p = 0.26$ ), and major bleeding (RR: 2.41, 95% [0.48, 12.25],  $p = 0.36$ ). Both groups had no incidence of arteriovenous fistula, pseudoaneurysm, or

compartment syndrome throughout the included trials.

**Conclusion:** DOACs significantly prevented the incidence of RAO, although TSA indicates this finding is not yet conclusive. No significant differences were found between groups regarding RAO resolution or the incidence of hematoma, minor bleeding, or major bleeding.

**Presentation  
Number:** 50-090

**Poster Board  
Number:** 090

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** PERFORMANCE OF THE GRACE RISK SCORE FOR PREDICTING IN-HOSPITAL MORTALITY IN ACUTE CORONARY SYNDROME: A VALIDATION STUDY IN UAE RESIDENTS FROM THE NORTHERN REGION USING GWTG-CAD REGISTRY DATA

**Author Block:** Musab Taha Ahmed Egaimi, Hasan Alhourri, Sahla Omer, Lara Merghani, Hassan Badreldin, Mohamed Hamdy Serour, Alghafek Almorraweh, Heeyoung Seo, Wonsuk Choi, Osman Abdelmoneim, Diana Khadzhieva, Ibrahim Mukhtar, Hazem Al Barabndi, Adnan El Hallab, Jina An, Mohammed Al-Natour, Musab Mukhtar, Jehan Alzain, Chang Young Kim, Ji Min Chang, Fady El Dahdah, Francesco Frunzo, Claudio Di Corata, Pierfrancesco Corvo, Fabrizio clementi, Sheikh Khalifa Specialty Hospital, Ras Al-Khaimah, United Arab Emirates

**Background:** The Global Registry of Acute Coronary Events (GRACE) score is a validated tool for in-hospital mortality prediction in acute coronary syndrome (ACS), with international cohorts reporting AUCs ranging from 0.80 to 0.87. However, regional performance in Middle Eastern populations remains underexplored. This study assessed the discriminatory ability of the GRACE score in UAE residents admitted with ACS to hospitals in the Northern region of the United Arab Emirates (NR-UAE), and benchmarked performance against global datasets.

**Abstract Body:** **Methods:** We retrospectively analysed 1,422 consecutive ACS admissions between January 2023 and February 2025 using a single-centre GWTG-CAD registry. GRACE scores were calculable in 1,279 patients (1,255 survivors; 24 non-survivors); 143 cases were excluded due to incomplete data. Logistic regression modelled the association between GRACE score and in-hospital mortality, and model discrimination was evaluated using the area under the receiver-operating characteristic curve (AUC). **Results:** Non-survivors had significantly higher GRACE scores ( $148.8 \pm 43.7$ ) than survivors ( $94.3 \pm 28.7$ ), with complete score separation at the

lower bounds (minimum 73 vs. 3). Each 1-point increase in GRACE score was associated with a 4.4% increase in the odds of in-hospital death (OR 1.044; 95% CI 1.032-1.056;  $p < 0.001$ ). The model demonstrated excellent discrimination (AUC = 0.835), in line with Canadian (0.84), Gulf (0.86), Japanese (0.87), and UK (0.87) cohorts.

**Conclusion:** The GRACE risk score reliably stratified in-hospital mortality risk in a NR-UAE ACS population, confirming its cross-regional generalizability. To our knowledge, this represents the first GRACE validation in UAE residents using GWTG-CAD data, highlighting its applicability for regional risk assessment and management protocols in ACS.



**Presentation  
Number:** 50-091

**Poster Board  
Number:** 091

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** THE ASSOCIATION OF PRE-DIABETES WITH SEVERE CORONARY ARTERY DISEASE AND ISCHEMIC MITRAL REGURGITATION IN PATIENTS WITH NON-ST-SEGMENT ELEVATION ACUTE CORONARY SYNDROME

**Author Block:** Afshin Khani, Maryam Nabati, Younes Zeytounli, Mousavi Farima, Jamshid Yazdani, Mazandaran university of medical sciences, Sari, Iran (Islamic Republic of)

**Background:** Pre-diabetes is associated with an increased risk of developing cardiovascular disease (CVD) but it is not clear whether pre-diabetes alone causes CVD or it is caused by known accompanying CVD risk factors. Therefore, we tried to investigate the correlation between prediabetes and severe CAD in non-diabetic patients with the diagnosis of non ST-elevation acute coronary syndrome (NSTEMI-ACS).

**Methods:** This was a cross-sectional study on 200 non-diabetic patients including equal size of consecutive pre-diabetic and normoglycemic individuals with NSTEMI-ACS. All patients underwent an echocardiography to determine the left ventricular ejection fraction, prevalence and existence of ischemic mitral regurgitation (MR), and right ventricular size and function.

**Abstract Body:** After that, we did a coronary angiography (CAG) to determine coronary artery disease (CAD) severity and the SYNTAX score.

**Results:** Pre-diabetic patients were older and had higher prevalence of hypertension than normoglycemic group (P value <0.001 and 0.001, respectively). Also, severe CAD (86% vs. 74%, P value = 0.034), existence of ischemic MR (21% vs. 3%, P value <0.001) and severe ischemic MR (16% vs. 6%, P value = 0.024) were more prevalent in pre-diabetic patients than normoglycemic ones. The logistic regression analysis showed the association between severe CAD and pre-diabetes was independent of other variables (P value = 0.049, odds ratio [OR]: 2.402, 95% CI: 1.005-5.741).

**Conclusion:** In our study, severe CAD and ischemic MR were more

prevalent in pre-diabetic patients than normoglycemic ones that may be indicative of pre-diabetes as a high risk state in NSTEMI-ACS.

**Presentation  
Number:** 50-092

**Poster Board  
Number:** 092

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** CLINICAL CHARACTERISTICS AND OUTCOMES OF CARDIOGENIC SHOCK  
IN A TERTIARY HOSPITAL AND THE ROLE OF REVASCULARIZATION IN  
ISCHEMIC CARDIOMYOPATHY

**Author Block:** Abdulmahsen Alsalman, Mohamed Salih Aziz, III, amira hassab elrasoul  
ahmed, SR, Sultan Alenazy, Mohammed Alotaibi, Amjad M. Ahmed, Salman  
Alahmadi, mohammed Alkahtani, Amer Albaroudi, Abdulaziz Algethami,  
King Abdulaziz Cardiac center- ministry of national guard, Riyadh, Saudi  
Arabia

**Background:** Cardiogenic shock (CS) is a critical condition with high mortality, often complicated by mixed shock subtypes. Ischemic cardiomyopathy (ICM) is a leading cause, but data on outcomes and the impact of revascularization remain limited. We aim To describe the clinical characteristics, subtypes, and outcomes of CS patients admitted to a tertiary cardiac intensive care unit (CICU), and to evaluate the effect of revascularization on mortality in ICM-related CS.

**Methods:** This retrospective study included patients with CS admitted to King Abdulaziz Cardiac Center between January 2020 and December 2021. Patients were classified as isolated CS or mixed shock. Clinical data were collected, and revascularization status documented. The primary outcome was in-hospital mortality. Logistic regression was used to identify mortality predictors.

**Results:** Among 117 patients (mean age  $61 \pm 15.7$  years, 73.5% male), 68.4% had isolated CS and 31.6% had mixed shock. ICM accounted for 75% of cases; 86.7% underwent revascularization. Mortality was significantly higher in mixed shock (70%) versus isolated CS (25%). Revascularization in ICM-related CS was independently associated with lower mortality (adjusted OR 0.13, 95% CI 0.02-0.82,  $p=0.03$ ).

**Conclusion:** Mixed shock is associated with significantly higher mortality than isolated CS. Revascularization independently improves survival in

ICM-related CS, underscoring the importance of timely intervention. Future studies should validate phenotype-guided strategies and explore novel treatments for high-risk CS subtypes.

**Presentation  
Number:** 50-093

**Poster Board  
Number:** 093

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** DOUBLE WHAMMY: A TALE OF TWO CONSECUTIVE ST SEGMENT  
ELEVATION MYOCARDIAL INFARCTIONS WITH TWO DIFFERENT ETIOLOGIES

**Author** Muhammad Yousuf Daud, Ayub Medical teaching Institute, abbottabad,  
**Block:** Pakistan

**Background:** We report a rare case where coronary thromboembolism complicated the clinical course of an ST segment elevation myocardial infarction

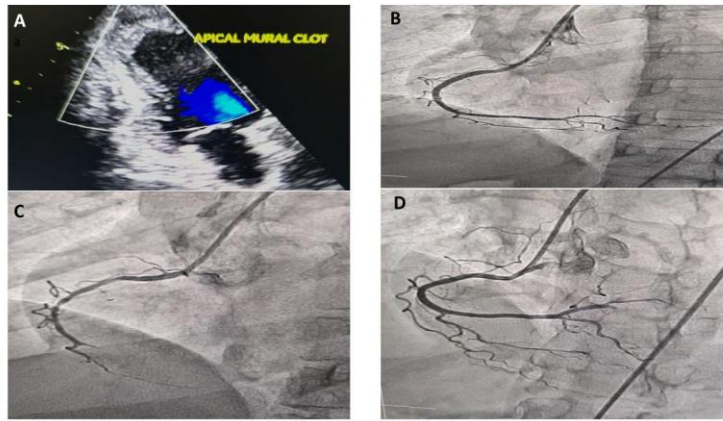
**Case:** A middle age hypertensive female had Anterior wall Myocardial infarction and underwent Primary Percutaneous coronary intervention(PCI).Her Coronary Angiogram revealed severe disease in proximal Left anterior descending(LAD) artery.Her Left circumflex and Right coronary artery(RCA) were disease free.She underwent PCI to LAD and was discharged next day in a stable condition.She presented to emergency department of our hospital two days later with Inferior wall myocardial infarction.

**Abstract**

**Body:** **Decision-making:** Her repeat Coronary angiogram revealed a patent stent in LAD and a totally occluded RCA in mid course.Her previous coronary angiogram showed a completely normal RCA.We decided to proceed with aspiration thrombectomy.After multiple runs of aspiration thrombectomy,TIMI III flow was achieved with patent RCA.Patient also became stable.A 2D echocardiogram in the Cath lab revealed Anteroapical hypokinesia with a large frail left ventricular(LV) apical mural clot.

**Conclusion:** Coronary embolism from an LV apical clot leading to acute ST elevation Myocardial infarction is a rare phenomenon. In our case,most probable cause of RCA occlusion was embolisation of clot from LV apex as RCA was disease free two days back and there was no other identifiable

source of thromboembolism.



A. A layered LV apical thrombus seen in 2D Echocardiogram done in Cath lab after aspiration thrombectomy B. Normal Right coronary artery(RCA) in first angiogram C. Totally occluded RCA in midcourse D. Patent RCA after aspiration thrombectomy

**Presentation  
Number:** 50-094

**Poster Board  
Number:** 094

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** TWISTED IN THE MIDDLE

**Author** Mahmoud Ahmad Shalaby, Mostafa Elwany, Alexandria University Hospitals,  
**Block:** Alexandria, Egypt

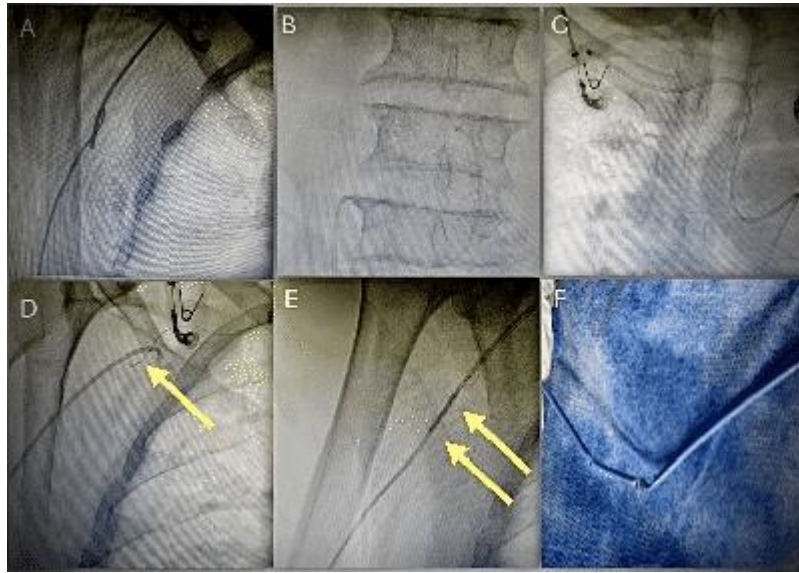
**Background:** Catheter kinking and entrapment in the radial artery have been reported. In our case, we describe a novel technique for managing this complication, *the balloon entrapment technique*.

**Abstract  
Body:** **Case:** A 68-year-old man underwent elective coronary angiography via the transradial approach due to persistent dyspnea and a large abdominal aortic aneurysm. During catheter manipulation, a JR4 catheter became twisted into a figure-of-eight shape due to right subclavian tortuosity and loss of torque control. Initial attempts to untwist the catheter and advance a guidewire were unsuccessful and caused forearm pain. Various trans-femoral retrieval attempts with a snare failed. Ultimately, a second JR4 catheter was advanced through the femoral sheath, and a PT2MS wire was used to reach the kinked segment. An NC 3.5x15 balloon succeeded to fix the proximal segment. Gentle distal traction then allowed for successful detwisting and retrieval of the catheter.

**Decision-making:** Management of catheter entrapment from kinking typically starts with gentle counter-torquing and guidewire use, escalating to techniques like femoral snaring or the "mother and child" method. In our case, after initial strategies failed, a balloon entrapment technique was successfully used to secure and detwist the catheter, allowing for safe removal.

**Conclusion:** In our case, a novel technique involving balloon trapping of the proximal end combined with gentle distal traction was used to untwist and

retrieve a kinked catheter.





**Presentation  
Number:** 50-095

**Poster Board  
Number:** 095

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** MANAGING A HIGH-RISK COMPLICATION WITH A LOW-COST TOOL:  
HANDMADE SNARE-ASSISTED RETRIEVAL OF A LOST SHEATH GUIDEWIRE"

**Author Block:** Haleem Syed Mohammad, Bolan Medical University hospital, Quetta,  
Pakistan

**Background:** Retention of a guidewire during vascular procedures is an uncommon but potentially serious complication that necessitates prompt removal. In settings where standard retrieval tools are unavailable, alternative approaches become essential. This case illustrates the effective use of a handmade snare as a simple, low-cost solution for safe guidewire retrieval.

**Case:** A 38-year-old female scheduled for elective PCI to the LAD via right femoral access experienced inadvertent guidewire migration into the descending thoracic aorta during contrast injection before sheath insertion. Without a dedicated snare device, a handmade snare was fashioned using a 6 Fr EBU 3.0 guide catheter, a 0.014" coronary guidewire, and a 4.0 × 15 mm non-compliant balloon via left femoral access. Under fluoroscopy, the snare successfully captured and retrieved the embolized guidewire without complications. PCI to the LAD was then completed as planned. The patient remained stable and had an uneventful recovery.

**Abstract  
Body:**

**Decision-making:** Teaching points: 1. Prompt imaging and localization are essential in managing wire embolization. 2. A handmade snare can be an effective and safe alternative when commercial devices are unavailable. 3. Secondary vascular access offers flexibility for retrieval procedures. 4. After resolving a complication, reassess the access site and patient stability before proceeding with intervention.

**Conclusion:** This case demonstrates that guidewire migration can be safely managed using a handmade snare when commercial tools are unavailable. Prompt action, improvisation, and good clinical judgment allowed for

successful retrieval and completion of the planned PCI, highlighting the importance of adaptability in interventional practice.

**Presentation  
Number:** 50-096

**Poster Board  
Number:** 096

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** THE ROLE OF CARDIAC MRI IN GUIDING REVASCULARIZATION STRATEGY IN PATIENTS WITH REDUCED LEFT VENTRICULAR EJECTION FRACTION: A COMPARATIVE EVALUATION OF CABG AND PCI

**Author Block:** Yasmin Rustamova, Galib Imanov, Azerbaijan Medical University, Baku, Azerbaijan

**Background:**

This study aimed to evaluate the impact of a CMR-guided revascularization strategy on the dynamics of LV function and to compare outcomes between CABG and PCI.

**Methods:**

A total of 416 patients with LVEF <35% were included. Group I (n=192) underwent CMR-based viability assessment to guide revascularization strategy. Group II (n=224) was retrospectively analyzed, with revascularization guided by angiographic complexity. Patients were further stratified by anatomical completeness of revascularization (complete vs incomplete). Serial assessments of LVEF were performed at 12, 18, and 24 months.

**Abstract  
Body:**

**Results:**

At 12 months, both groups demonstrated non-significant improvement in LVEF (Group I:  $31.18 \pm 2.58\%$  to  $34.74 \pm 3.98\%$ ,  $p=0.6533$ ; Group II:  $31.08 \pm 2.53\%$  to  $34.97 \pm 5.61\%$ ,  $p=0.1280$ ). However, by 18 months, Group I (CMR-guided) showed a significant increase in LVEF ( $34.74 \pm 3.98\%$  to  $41.91 \pm 4.16\%$ ,  $p=0.0009$ ), whereas the increase in Group II remained non-significant ( $p=0.0897$ ). This trend continued at 24 months, with Group I reaching  $46.8 \pm 2.92\%$  ( $p=0.00001$ ), compared to  $42.71 \pm 4.99\%$  in Group II ( $p=0.0727$ ). Subgroup analysis comparing CABG and PCI showed comparable improvements in LVEF at each time point (12, 18, and 24 months), with no significant differences between techniques ( $p>0.05$  at all time points). Similarly, comparisons between anatomically complete and incomplete revascularization subgroups did not reveal significant

differences, suggesting that functionally complete revascularization may be achieved despite anatomical limitations.

**Conclusion:** A revascularization strategy guided by CMR-assessed myocardial viability is associated with superior long-term improvement in LV function compared to conventional angiography-guided decision-making. Importantly, both CABG and PCI demonstrated equivalent efficacy in LVEF improvement when guided by viability, and incomplete anatomical revascularization may still be functionally adequate. These findings underscore the critical role of CMR in optimizing treatment strategy in patients with severely reduced LVEF.

**Presentation  
Number:** 50-097

**Poster Board  
Number:** 097

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** BALLOON ANGIOGRAPHY IMAGING SYSTEM: A NOVEL LOW CONTRAST METHOD FOR DETECTING STENT UNDER-EXPANSION

**Author  
Block:** Rajeev Lochan, Viveka Kumar, Rajneesh Kapoor, Narendra N. Khanna, Al Zahra Hospital, Dubai, United Arab Emirates, Max hospital, Saket, New Delhi, India

**Background:**

While stenting is essential in angioplasty, improper expansion can lead to in-stent restenosis. Though IVUS and OCT help assess stent deployment, they are costly and used in less than 20% of cases globally. A simpler, cost-effective solution is needed.

**Methods:**

The Balloon Angiography Imaging System (BAIS) uses a low-profile, compliant polyurethane balloon that conforms to the vessel lumen a-traumatically to detect stent under -expansion. Eight prototypes underwent bench testing, followed by trials in 18 patients. A diluted contrast was injected into the balloon, angiography was recorded, and the contrast was fully aspirated. Findings were compared with QCA, IVUS, and OCT in select cases.

**Results:**

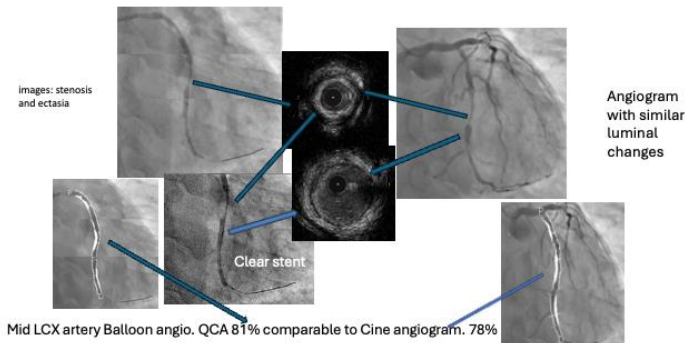
BAIS successfully visualized vessel lumen and detected under expanded stents in 4 patients, allowing timely correction. No post-procedural heart failure or acute kidney injury occurred, an important advantage in high-risk groups. The minimal contrast use makes BAIS especially suitable for patients with renal or cardiac compromise.

**Conclusion:** Balloon angiography imaging system(BAIS) is a safe, user-friendly, and cost-effective tool for detecting stent under-expansion during PCI, especially in patients, where contrast use is risky. The procedure has

**Abstract  
Body:**

recently received a **U.S. patent.**

**Validation of Balloon Angiogram Imaging System(BAIS)by other imaging modalities i.e. ClearStent/Stent Boost, IVUS, QCA and standard cine-angiogram**



**Presentation  
Number:** 50-098

**Poster Board  
Number:** 098

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** SAFE BALLOON ANGIOGRAPHY IMAGING SYSTEM TO PROTECT KIDNEYS DURING PCI

**Author** Rajeev Lochan, Viveka Kumar, Narendra N. Khanna, C. N. Makhle, Al Zahra  
**Block:** Hospital, Dubai, United Arab Emirates, Ruby Hall clinic, Pune, India

**Background:** Conventional PCI requires repeated iodinated-contrast angiograms, risking acute kidney injury (AKI) and heart-failure decompensation in patients with diabetic nephropathy and/or heart failure. Existing non-ionic contrast still causes AKI and costly. We have developed a simple Balloon Angiography Imaging System (BAIS) that needs no extra hardware or expensive consumables.

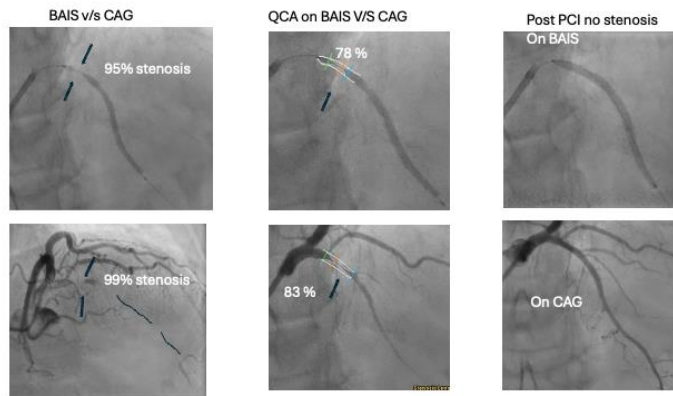
**Abstract  
Body:** **Case:** A 60-year-old woman with stable angina, total proximal-LAD occlusion on CT, diabetes (HbA1c 10.8 %) and stage-1 nephropathy (creatinine 156 µmol/L) underwent PCI. Essential angiographic views were obtained with minimal contrast, and BAIS which provided additional imaging without any contrast injection.

**Decision-making:** A soft, highly compliant polyurethane balloon is positioned across the lesion; diluted contrast is injected into the balloon, delineating the arterial lumen, then fully aspirated, eliminating systemic dye exposure. BAIS findings agreed with control angiography, QCA, StentClear and IVUS, and revealed focal stent under-expansion, corrected by post-dilatation.

**Conclusion:** BAIS(Balloon Angiography Imaging System), delivered full diagnostic detail and optimal stent deployment while preventing AKI in this high-risk patient. The inexpensive, reproducible method deserves wider use

in patients with impaired renal function or heart failure(HFrEF).

Balloon Angiography Imaging system (BAIS) comparable to Angiography & QCA





**Presentation  
Number:** 50-099

**Poster Board  
Number:** 099

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** UNMASKING A SILENT THREAT: MINOCA IN A TEENAGER WITH NEPHROTIC SYNDROME

**Author Block:** Nouhaila Wakil, Lamia Tlohi, Meryem Haboub, Salim Arous, Abdennasser Drighil, Rachida Habbal, CHU IBN ROCHD, CASABLANCA, Morocco

**Background:**

Nephrotic syndrome is a well-established risk factor for thromboembolism, predominantly venous. Arterial events such as myocardial infarction are exceedingly rare in children. Myocardial infarction with non-obstructive coronary arteries (MINOCA) represents a diagnostic and therapeutic challenge, especially in pediatric populations lacking traditional cardiovascular risk factors.

**Methods:** We report the case of a 15-year-old boy with steroid-sensitive nephrotic syndrome and a history of femoral artery thrombosis, admitted with acute dyspnea. He was hemodynamically stable, with no signs of heart failure. A comprehensive cardiologic work-up was performed, including echocardiography, coronary angiography, cardiac MRI, blood tests, and thrombophilia screening.

**Abstract  
Body:**

**Results:** Echocardiography showed ischemic cardiomyopathy with decreased anterior wall motion and reduced left ventricular ejection fraction. Cardiac enzymes were significantly elevated. Coronary angiography revealed no obstructive coronary lesions. Cardiac MRI demonstrated myocardial necrosis in the left anterior descending artery territory. Thrombophilia screening was negative, but the patient had marked hyperlipidemia. A diagnosis of MINOCA, likely secondary to coronary thromboembolism associated with nephrotic syndrome, was made.

**Conclusion:** This case highlights a rare but critical complication of nephrotic syndrome—MINOCA secondary to presumed coronary thromboembolism—in a pediatric patient. Clinicians should consider MINOCA in nephrotic children with acute cardiopulmonary symptoms, even

in the absence of traditional cardiovascular risk factors or obstructive coronary disease. Prompt recognition and multimodal imaging are essential for diagnosis and guiding management. This report advocates for increased awareness and possibly revisiting prophylactic strategies in high-risk nephrotic populations.

**Presentation  
Number:** 50-100

**Poster Board  
Number:** 100

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** SAFETY AND DIAGNOSTIC VALUE OF CORONARY PHYSIOLOGY  
PARAMETERS IN PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL  
INFARCTION AND MULTIVESSEL CORONARY ARTERY DISEASE

**Author Block:** Khava Ibragimova, Tatiana Sukhinina, Goar Arutyunyan, Dmitry Pevsner,  
Andrew Tereshchenko, Vsevolod Mironov, Irina Merkulova, Olga Stukalova,  
Evgeny Merkulov, National Medical Research Center of Cardiology named  
after Academician E.I. Chazov, Moscow, Russian Federation

**Abstract  
Body:** **Background:** Multivessel coronary artery disease is detected in 50% of  
STEMI (ST-segment elevation myocardial infarction) patients. Criteria for  
assessing non-IRA stenosis hemodynamic significance remain  
undefined. This study aims to evaluate the safety and diagnostic value of  
coronary physiology parameter measurements in non-IRAs in STEMI  
patients during the index procedure and 30-45 days after primary  
percutaneous coronary intervention (PCI).

**Methods:** Trial registration: NCT06376630 (ClinicalTrials.gov). The study  
included 25 patients with STEMI and multivessel coronary artery disease  
(20 men [80%], 5 women [20%], mean age  $61.4 \pm 11.4$  years, median 66  
years). During the index procedure, all patients underwent PCI of the  
infarct-related artery (IRA) only, along with instantaneous wave-free ratio  
(iFR) and fractional flow reserve (FFR) measurements in non-IRAs with  
intermediate stenoses (50-90%) after intracoronary papaverine  
administration. Stenoses were considered significant if  $FFR \leq 0.80$  or  $iFR \leq 0.89$ . Cardiac MRI was performed in 22 patients during the early phase of  
MI to assess microvascular obstruction (MVO). At 30-45 days, all patients  
underwent repeat coronary physiology assessments, with subsequent  
comparison of results.

**Results:** No clinically significant complications (arrhythmias, hypotension,  
allergic reactions) related to papaverine-induced hyperemia were observed.  
MVO was detected in 13 patients (52%). A comparative analysis of coronary

physiology parameters (index vs. follow-up) using the Wilcoxon signed-rank test showed no statistically significant differences in iFR and FFR values in non-IRAs ( $p=0.0927$  and  $p=0.1879$ , respectively).

**Conclusion:** Papaverine as a hyperemic agent in uncomplicated STEMI patients was not associated with complications. A high prevalence of MVO was observed in STEMI patients with multivessel disease, which may influence prognosis and treatment strategies. The results suggest no significant dynamic changes in FFR and iFR within 30-45 days after MI (myocardial infarction). Further studies with larger cohorts are needed to evaluate the longitudinal changes in coronary physiology parameters in STEMI patients.

**Presentation  
Number:** 50-101

**Poster Board  
Number:** 101

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** WHEN ALLERGY MIMICS A HEART ATTACK: TYPE I KOUNIS SYNDROME  
FOLLOWING CEFTRIAZONE EXPOSURE

**Author Block:** Mohamed Nasser Elshabrawi, Asmaa Adel, Clinical Research Department,  
Aswan Heart Center, Magdi Yaqoup Foundation, Aswan, Egypt, Department  
of Pediatric Medicine, Mansoura University, Mansoura, Egypt

**Background:** Kounis syndrome is an under-recognized cause of acute coronary syndrome (ACS), triggered by allergic reactions that lead to coronary vasospasm or plaque rupture. Various medications, including cephalosporins, have been implicated. Prompt recognition is essential due to overlapping features with typical ACS and the need for tailored management.

**Case:** A 32-year-old male with no prior cardiac history presented with acute chest tightness, facial flushing, and hypotension within minutes of receiving intravenous ceftriazone for suspected pneumonia. ECG showed ST-segment elevation in the inferior leads. High-sensitivity troponin was elevated. Emergent coronary angiography revealed normal epicardial

**Abstract Body:** coronary arteries. Serum tryptase was elevated, supporting a diagnosis of systemic allergic reaction. He improved rapidly with intravenous steroids, antihistamines, and nitrates. A diagnosis of Type I Kounis syndrome was made. He remained symptom-free with strict avoidance of  $\beta$ -lactam antibiotics and was discharged in stable condition. No recurrence was noted on follow-up.

**Decision-making:** In the presence of allergic features and absence of coronary obstruction, Kounis syndrome was considered early. A multidisciplinary approach involving cardiology and allergy teams allowed for targeted treatment. Importantly, this avoided unnecessary antiplatelet or thrombolytic therapy.

**Conclusion:** Kounis syndrome should be suspected in patients who present with concurrent allergic symptoms and chest pain, especially

following exposure to known allergens such as ceftriaxone. Early diagnosis not only prevents inappropriate interventions but also highlights the clinical overlap between immunologic and cardiac pathophysiology.

**Presentation  
Number:** 50-102

**Poster Board  
Number:** 102

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** PRETREATMENT WITH SEMAGLUTIDE GIVES BETTER CORONARY FLOW IN  
THE CULPRIT ARTERY AFTER PRIMARY PCI FOR ACUTE MI

**Author Block:** Waleed Kadro, Khaled Waleed Kadro, Maya Al Turkmani, The Golden Center  
for Academic Cardiovascular Teaching and Research, Damascus, Syrian  
Arab Republic, University of Sharjah, Sharjah, United Arab Emirates

**Background:** Primary PCI has been established as the best treatment for acute MI when it is used appropriately. It is known to give better TIMI III flow and better frame count when compared with thrombolytics. Adjunctive therapies with primary PCI are still controversial. We report the effect of pretreatment with Semaglutide (GLP1 RA) on the TIMI frame count in the infarct culprit artery after successful PCI. Restoration of “Normal” epicardial artery flow yields better outcomes. Even faster epicardial coronary blood flow is better. This is mainly due to earlier recovery of microvasculature damage.

**Abstract  
Body:** **Methods:** We calculated the TIMI frame count in the infarct culprit artery after successful primary PCI in 42 diabetic patients who presented to our center with acute MI. The mean door to balloon time was  $98 \pm 12$  minutes. All patients received 325 mg of Aspirin and 180mg loading dose of Ticagrelor. GP IIb/IIIa inhibitors were not used in any of those cases. DES usage was 100%. No thrombectomy device was used in any of these cases. TIMI III flow after stenting was achieved in all culprit arteries. 21 patients (group 1) were receiving Semaglutide (GLP1 RA) therapy before admission. The other 21 patients (group 2) were not receiving Semaglutide for their DM management.

**Results:** The mean corrected TIMI frame count in the culprit artery post PCI was  $18.34 \pm 3.16$  frames in group 1 and  $29.73 \pm 3.92$  frames in group 2 ( $p=0.02$ ).

**Conclusion:** Pretreatment with Semaglutide gives faster flow in the culprit artery after successful primary PCI in acute MI when compared with other

DM drugs. This could be explained by that GLP1 RA therapy can cause improvement in endothelial dysfunction, improvement in coronary microcirculation, Reduction in vascular and systemic inflammation, and reduction in BP and vascular smooth muscle resistance. All of those factors will facilitate coronary flow. Since this is an observational retrospective study, a larger prospective randomized study should be done.



**Presentation  
Number:** 50-103

**Poster Board  
Number:** 103

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** MIDDLE EAST CORONARY ARTERY ECTASIA REGISTRY: INCIDE NCE,  
MANAGEMENT, AND ONE-YEAR PROGNOSIS: A MULTI-CENTER  
PROSPECTIVE COHORT STUDY

**Author Block:** Rania Al-Amaireh, Rasheed Ibdah, III, Mahmoud I. Izraiq, Sara Kurdi, JoRAI  
group, King Abdullah university hospital, Irbid, Jordan, Speciality hospital,  
Amman, Jordan

**Background:** Coronary artery ectasia (CAE) is characterized by diffuse dilation of the coronary arteries, with a diameter 1.5 times greater than adjacent normal segments. The prevalence of CAE ranges from 1.2% to 4.9%, with a male-to-female ratio of 3:1, making it an uncommon but clinically significant finding.

**Methods:** MECAER is a prospective, multicenter registry conducted across 15 centers in 7 MENA countries, with follow-up at 1, 6, and 12 months. Among patients undergoing elective or urgent coronary angiography, 700 were found to have CAE. Standardized forms collected data on admission route, troponin levels, ECG findings, angiographic extent of ectasia (Markis Types 1-4), demographics, comorbidities, and cardiovascular risk factors including smoking, diabetes, hypertension, and lipid profile.

**Results:** Of the 700 patients, 85% were male, and 58% presented via the emergency department. Acute coronary syndrome (ACS) was the presenting diagnosis in 66.7%. Troponin was elevated in 37.8%, normal in 34.9%, and unavailable in 27.8%. ECG was normal in 48%, ST-elevation in 23%, and T-wave inversion in 14%. Hypertension was present in 58%, hypercholesterolemia in 47.9%, 53.6% were current smokers, 34.7% ex-smokers, and the rest reported no smoking history. At discharge, 13% were on NOACs, and 0.7% on warfarin. Markis Type 1 was present in 43.5%, Type 3 in 41.8%. The right coronary artery was most frequently involved (57.3%), followed by the LAD (56.3%), circumflex (40.0%), left main (11.1%), obtuse marginal (3.7%), and ramus (1.1%).

**Abstract  
Body:**

**Conclusion:** CAE may be more prevalent in the MENA region than previously reported, affecting a diverse population with acute presentations and multiple risk factors. Further research is warranted to optimize diagnosis and treatment

**Presentation  
Number:** 50-104

**Poster Board  
Number:** 104

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** INFLUENCE OF RACE, SEX, URBANIZATION, AND CENSUS REGION ON  
CARDIOGENIC SHOCK MORTALITY AMONG ISCHEMIC HEART DISEASE  
PATIENTS IN THE UNITED STATES, 1999-2020: A POPULATION-BASED STUDY  
USING CDC WONDER

**Author  
Block:** Amna Zaheer, Gina Singh, Fabeha Zafar, Jamuna Shrestha, Liaquat National  
Hospital and Medical College, Karachi, Pakistan, University of Missouri  
Kansas, Kansas, MO, USA

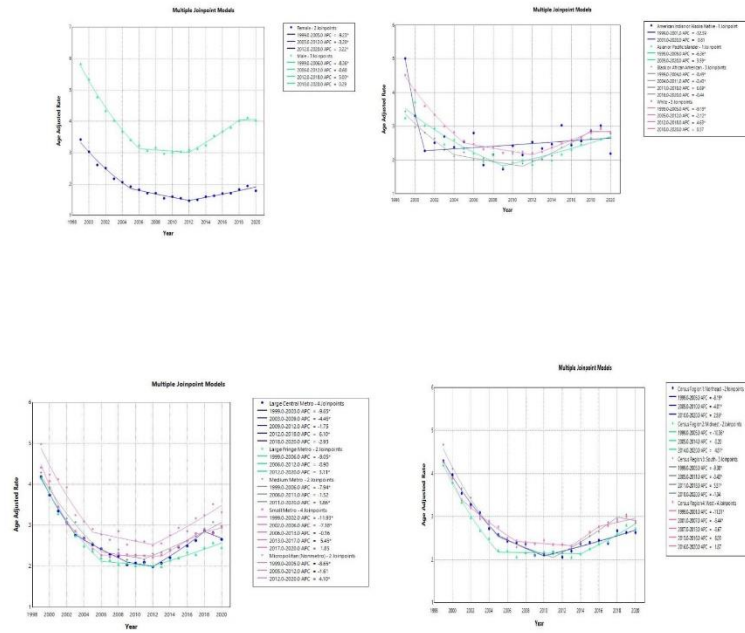
**Background:** Cardiogenic shock is a critical complication of ischemic heart  
disease (IHD) with high mortality. Recent changes in healthcare access and  
treatment may have altered mortality trends across populations.

**Methods:** We conducted joinpoint regression using CDC WONDER mortality  
data from 1999-2020. A total of 199,254 deaths were identified where IHD  
patients had cardiogenic shock listed as the underlying cause. Age-adjusted  
mortality rates were analyzed by sex, metro status, U.S. Census region, and  
race. Trend shifts and annual percentage changes (APCs) were calculated.

**Abstract  
Body:** **Results:** An initial decline in mortality was observed across most groups  
from 1999 to the mid-2000s, followed by plateauing or increasing trends  
after 2012. For females, APC shifted from -9.23% (1999-2005) to +3.22%  
(2012-2020); males showed similar reversal. Large Central Metro areas saw  
an increase post-2012 (APC +6.10%). Small Metro areas had the steepest  
early decline (-11.93%) but consistent increases after 2010. Regional data  
showed rising mortality in the Midwest and South post-2014. Black and  
White populations experienced sharp increases from 2012-2018 (APC  
+6.69%, +4.63%), while Asian/Pacific Islanders and American Indian/Alaska  
Natives showed rising or stabilizing trends.

**Conclusion:** After years of progress, mortality among IHD patients with  
cardiogenic shock is rising across subgroups. These reversals highlight the  
need for renewed focus on equity-driven interventions in the U.S. and

globally.



**Presentation  
Number:** 50-106

**Poster Board  
Number:** 106

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** IMPLEMENTATION AND OUTCOMES OF INVASIVE CORONARY ASSESSMENT  
IN THE MIDDLE EAST

**Author  
Block:** Mo'ath Bani Ali, Rami Bany Ata, Alaa Saeid, Musa'ab Alhmouz, Ashraf  
Alazzoni, Ronney S. Shantouf, Cleveland Clinic Abu Dhabi, Abu Dhabi,  
United Arab Emirates

**Abstract  
Body:**

**Background:** Microvascular dysfunction and coronary spasm data are lacking in the Middle East. We present real-world data from the first structured comprehensive physiologic coronary program in the region.

**Methods:** A quaternary center in the Middle East started a routine coronary Invasive Functional Testing (IFT) program with complete microcirculation and coronary vasospasm assessment. The program consists of patients undergoing formal IFT with initial microcirculation assessment with a pressure wire (Abbott PressureWire™ X Guidewire and CoroFlow System) in a major epicardial artery by standard IV adenosine protocol. Next patients undergo vasospastic testing with intracoronary acetylcholine at 2, 20, 100, and, as needed, 200 mcg with coronary pressure wire in place. All patients were referred for evaluation after a cardiologist deemed patients appropriate for functional testing. Vasoactive and/or antianginal medications were held prior to IFT.

**Results:** 61 consecutive patients underwent complete IFT. 28 patients received 200 mcg of Acetylcholine after lack of definitive response at 100 mcg. High prevalence of microvascular dysfunction and coronary spasm were reported. See Table for significant findings.

**Conclusion:** We present the first comprehensive coronary physiologic dataset in the Middle East. This unique data provides a glimpse into functional coronary disease in the region with a high proportion of

vasospastic epicardial and microvascular angina based on standard criteria.

Category	Value
<b>Patient Characteristics</b>	
Average Age	56.4 ± 10.9 years
Sex (Male)	36%
Average BMI	29.5
From MENA Region	83.6%
Indication: CCS w/ anginal dominance	73.7%
Symptom Duration < 1 year	85.2% (1 month to 1 year)
Symptom Trigger: Emotional Stress	16.4%
Prior PCI	31.1%
Prior MI	24.6%
<b>Risk Factors</b>	
Dyslipidemia	80%
Hypertension	59%
Diabetes	57.4%
Non-smokers	90.2%
Prior Coronary or CT Angiogram	67%
Non-Obstructive coronary artery disease	93.4%
<b>Medications</b>	
Statin Use	81%
Calcium Channel Blocker Use	36.1%
Long-acting Nitrate Use	21%
Ranolazine Use	19.7%
<b>Labs</b>	
Hemoglobin A1c	6.2 ± 1.24%
Total Cholesterol	4.18 ± 1.48 mmol/L
<b>Physiologic Parameter Findings</b>	
	Median with interquartile range Q1,Q3
Resting Pd/Pa	0.95 (0.93, 0.96)
Resting Tmn (s)	0.63 (0.43, 1.05)
BIR	59.5 (39.6, 91.08)
FFR	0.92 (0.89, 0.94)
Hyperemic Tmn (s)	0.18 (0.11, 0.22)
IMR	13 (9, 18)
CFR	3.9 (2.4, 5.3)
RRR	4.4 (2.8, 6.2)
IMRAch	21 (10, 36.5)
<b>Physiologic Category Findings</b>	
Coronary Microvascular Dysfunction (CMD)*	24.6%
Microvascular Spasm^	16.4%
Microvascular Angina (COVADIS Criteria) ^	36.1%
Epicardial Spasm†	49.2%
Mixed Disease (CMD + Epicardial Spasm)	9.8%
<b>Acetylcholine Dosing Findings</b>	
Epicardial Spasm up to 100 mcg	48.5% (16)
Epicardial Spasm @ 200 mcg	50% (14)
Additional Patients Diagnosed with Spasm @ 200 mcg	14 patients (7 male, 7 female)
<b>Other</b>	
PressureWire™ X in Left Anterior Descending Artery	91.8%
Complication Rate‡	5.6%

\* Adenosine Pathway

^ Microvascular spasm via acetylcholine pathway [angina + ischemic EKG changes without epicardial spasm]

† COVADIS criteria: IMR>25, CFR<2, RRR<2, or microvascular spasm via Ach pathway [angina + ischemic EKG changes without epicardial spasm]

‡ Epicardial Spasm: >75-90% reduction in coronary diameter following acetylcholine compared to baseline

§ two atrial fibrillation, two bradycardia, one transient asystole - no serious complications

Abbreviations: resting full-cycle ratio (RFR), fractional flow reserve (FFR), coronary flow reserve (CFR), mean transit time (Tmn), baseline resistance index (BIR), index of microcirculatory resistance (IMR) are assessed, index of microcirculatory resistance after acetylcholine (IMRAch)

**Presentation  
Number:** 50-107

**Poster Board  
Number:** 107

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** CHALLENGING CASE OF BILATERAL PULMONARY EMBOLI REQUIRING  
EMERGENT THROMBECTOMY IN A PEDIATRIC PATIENT

**Author Block:** George Michalopoulos, Viktoriya Bikeyeva, Giovanni Paoella, Joseph  
Adams, Andrii Labchuk, Nishant Patel, Advocate Lutheran General  
Hospital, Park Ridge, IL, USA

**Abstract  
Body:** **Background:** Pediatric Pulmonary Emboli (PE) are rare but have a high mortality rate. Evidence based guidelines for PE management in children are limited, and most recommendations stem from adult populations. We present a case of a 17-year-old female who was successfully treated with mechanical thrombectomy for bilateral PE after recent initiation of oral contraceptives.

**Methods:** A comprehensive review of the patient's medical records was performed. Diagnostic modalities such as Transthoracic Echocardiogram (TTE), Computed Tomography Angiography Pulmonary Embolism (CTA PE), and Right Heart Catheterization (RHC) were performed. The patient's care involved a multidisciplinary approach including specialists in Adult Interventional Cardiology, Pediatric Critical Care, and Cardiology.

**Results:** Patient presented to the ED with dyspnea. Vital signs showed tachycardia, hypoxia, and hypotension. Labs revealed significantly elevated NT-pro-BNP, Troponin, and 4.36 mg/L D-Dimer. TTE showed a severely dilated Right Ventricle (RV) with reduced systolic function, interventricular septal bowing, and tricuspid regurgitation. CTA PE revealed prominent bilateral pulmonary emboli involving all lobes of the lungs. Patient was admitted to Pediatric Intensive Care Unit on HFNC and heparin infusion. A multidisciplinary discussion amongst Pediatric Cardiology, Hematology, and Adult Interventional Cardiology determined she would benefit from thrombectomy given her severe symptoms. Patient's family elected to proceed, and emergent bilateral thrombectomy was successfully performed. Post-thrombectomy the mean Pulmonary Artery Pressure

improved from 36 to 20 mmHg, with complete resolution of tachycardia, hypotension, and hypoxia. Repeat TTE showed normal RV size and function, and resolution of tricuspid regurgitation.

**Conclusion:** This case highlights the effective use of mechanical thrombectomy as an emergent intervention for PE in a pediatric patient despite the limited data regarding its benefit. Mortality from PE is high in pediatric populations underscoring the importance of early recognition, intervention, and using a multidisciplinary approach to maximize their outcomes.



**Presentation  
Number:** 50-108

**Poster Board  
Number:** 108

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EFFICACY OF COMPUTED TOMOGRAPHY CARDIAC ANGIOGRAPHY BEFORE INVASIVE CORONARY ANGIOGRAPHY IN PATIENTS WITH PREVIOUS CORONARY ARTERY BYPASS GRAFTING: A META-ANALYSIS

**Author** Yousef Radwan Alnomani, Mohamed Elnady, Ahmed Elshahat, Ahmed  
**Block:** Abdelaziz, Faculty of Medicine, Benha University, Benha, Egypt

**Background:** CABG is effective for treating multivessel disease, but approximately 20% of patients require invasive coronary angiography (ICA) within three years due to graft failure. Coronary computed tomography angiography (CCTA) before ICA could improve outcomes, as it is considered a minimally invasive procedure.

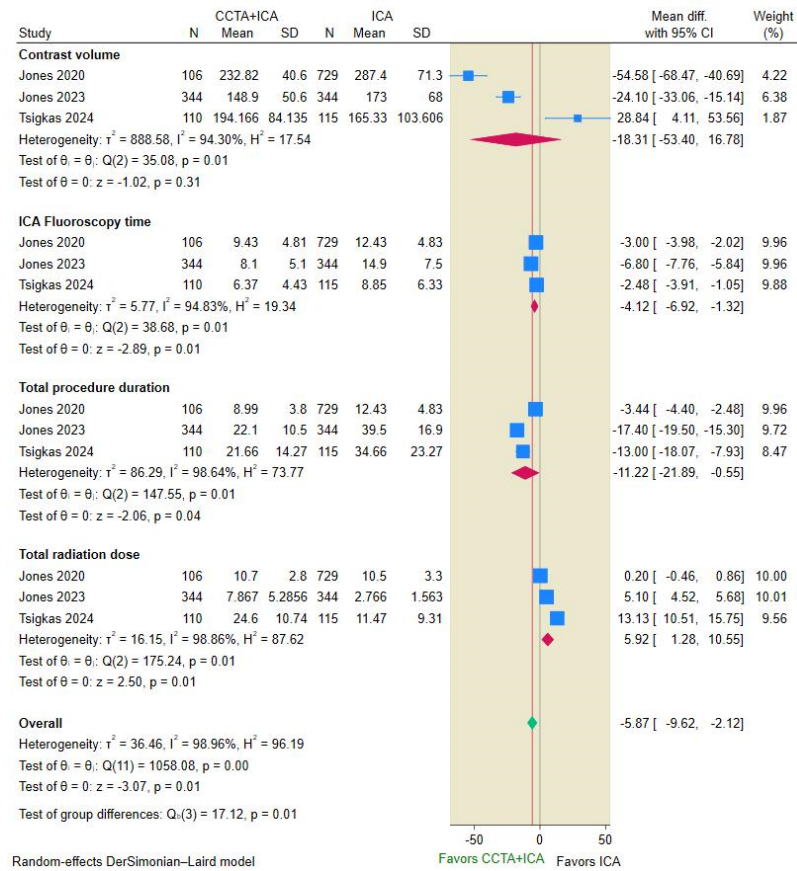
**Methods:** We conducted a systematic search on PubMed, Scopus, WOS, and Cochrane from inception to May 2025. We included studies comparing CTCA before ICA versus ICA alone, assessing contrast volume, total procedure duration, ICA fluoroscopy time, and total radiation dose in post-CABG patients. For continuous outcomes, we pooled the mean difference (MD) with 95% confidence interval (CI) using the DerSimonian-Laird random-effect model.

**Abstract  
Body:**

**Results:** Three studies comprising 1,748 patients were finally included. There was no significant difference between CTCA+ICA and ICA alone regarding total contrast volume (MD = -18.31, 95% CI [-53.40 to 16.78], p = 0.31). However, CTCA+ICA significantly reduced fluoroscopy time (MD = -4.12, 95% CI [-6.92 to -1.32], p = 0.01) and total procedure duration (MD = -11.22, 95% CI [-21.89 to -0.55], p = 0.04). In contrast, CTCA+ICA was significantly associated with a higher total radiation dose compared to ICA alone (MD = 5.92, 95% CI [1.28 to 10.55], p = 0.01).

**Conclusion:** CTCA before ICA reduces fluoroscopy time and procedure duration but increases radiation dose compared to ICA alone in post-CABG

patients, with no difference in contrast volume.



**Presentation  
Number:** 50-109

**Poster Board  
Number:** 109

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EFFICACY OF VIRTUAL REALITY IN REDUCING ANXIETY IN PATIENTS  
UNDERGOING CORONARY ANGIOGRAPHY: A META-ANALYSIS

**Author** Yousef Radwan Alnomani, Adham Elshehaby, Mohamed Ahmed Tolba  
**Block:** Abdelsalam, Faculty of Medicine Benha University, Benha, Egypt

**Background:** Many patients undergoing coronary angiography (CAG) experience anxiety. Virtual reality (VR) presents an innovative solution to alleviate this anxiety. This study aimed to evaluate the efficacy of VR in reducing anxiety in patients undergoing CAG.

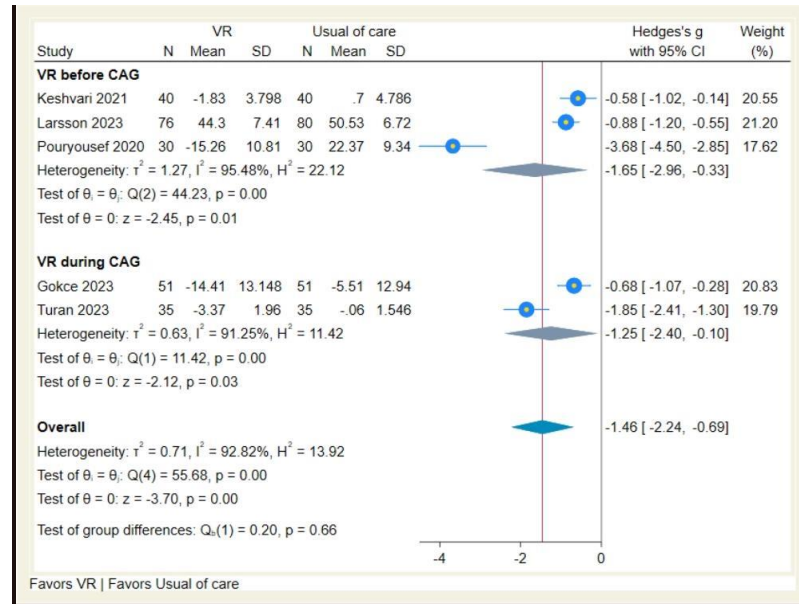
**Methods:** We searched PubMed, Cochrane Library, Scopus, and WOS from inception until February 2025. Randomized controlled trials comparing VR to standard of care (SOC) in patients undergoing CAG were included. Continuous outcomes were pooled and analysed using mean difference (MD) with 95% confidence interval (CI) via the DerSimonian-Laird random-effect model. In cases where continuous outcomes were measured using different units, Hedges' g with a 95% CI was used.

**Abstract  
Body:**

**Results:** Five RCTs comprising 451 participants were included. VR before CAG significantly reduced anxiety (Hedge's  $g = -1.65$ , 95% CI:  $(-2.96, -0.33)$ ,  $P = 0.01$ ). Additionally, VR during CAG was superior to SOC in reducing anxiety (Hedge's  $g = -1.25$ , 95% CI:  $(-2.40, -0.10)$ ,  $P = 0.03$ ). VR during the procedure was also associated significantly with lower changes in heart rate (MD =  $-6.91$ , 95% CI:  $(-9.61, -4.09)$ ,  $P < 0.001$ ), systolic blood pressure (SBP) (MD =  $-11.85$ , 95% CI:  $(-15.90, -7.79)$ ,  $P < 0.001$ ), and diastolic blood pressure (DBP) (MD =  $-9.88$ , 95% CI:  $(-13.19, -6.57)$ ,  $P < 0.00001$ )

**Conclusion:** VR effectively reduces anxiety during the CAG procedure and promotes more stable vital signs. However, it did not show efficacy when

applied before CAG.



**Presentation  
Number:** 50-112

**Poster Board  
Number:** 112

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** HIGH-RESOLUTION CORONARY COMPUTED TOMOGRAPHY  
ANGIOGRAPHY FOR CORONARY ARTERY DISEASE: A POWERFUL  
PREDICTOR OR AN INCOMPLETE GATEKEEPER?

**Author Block:** Jonathan Mokhtar, Mohammad Albaree, Virginia Battistin, Mohamed  
Asbaita, Fatemeh Akbarpoor, Jeyaseelan Lakshmanan, Hassan ElTamimi,  
College of Medicine, Mohammed Bin Rashid University of Medicine and  
Health Sciences, Dubai, United Arab Emirates, Mediclinic Parkview  
Hospital, Dubai, United Arab Emirates

**Background:** Invasive Coronary Angiography (ICA) remains as the gold standard for diagnosing significant coronary artery disease (CAD), providing direct visualization of coronary artery stenosis. However, its invasive nature, associated risks, and high costs have led to increasing interest in non-invasive imaging modalities that can reliably identify at-risk patients while minimizing unnecessary procedures. The aim of this study is to evaluate the validity of coronary computed tomography angiography (CCTA) scan as a predictive tool for assessing the presence and severity of CAD compared to ICA as the reference guide.

**Abstract  
Body:** **Methods:** This retrospective cohort study included patients aged  $\geq 18$  years who underwent CCTA followed by ICA, at a tertiary cardiac center in Dubai, UAE, between October 2018 and October 2024. A maximum interval of three months was allowed between the two procedures. Coronary stenosis severity was classified into four categories (0%, 25-49%, 50-69%,  $\geq 70\%$ ).  
**Results:** 110 patients met the inclusion criteria, with a predominance of male patients ( $n=95$ , 86.4%). The mean age was  $53 \pm 10$  years, and the average body mass index (BMI) was  $27.91 \pm 3.66 \text{ kg/m}^2$ . CCTA demonstrated a sensitivity of 89% with a positive predictive value (PPV) of 91% for detecting significant coronary stenosis; however, the specificity was 57.9% and the negative predictive value (NPV) was 52.4%, revealing a limited capacity to confidently rule out obstructive CAD in certain subsets of

patients. On vessel-level analysis, Spearman's correlation coefficients ( $\rho$ ) between CCTA and ICA ranged from 0.489-0.574 ( $p < 0.001$ ), indicating a moderate to strong correlation, particularly in cases with either no disease or severe stenosis. Discordance was most prominent in patients with mild to moderate lesions, where CCTA tended to overestimate disease severity.

**Conclusion:** CCTA offers exceptional sensitivity and strong PPV in detecting significant CAD, aligning closely with ICA in normal and severe disease. However, its reduced specificity in intermediate lesions limits its gatekeeping role, reinforcing its strength as a precision driven rule in tool with a comprehensive diagnostic strategy.

**Presentation  
Number:** 50-113

**Poster Board  
Number:** 113

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** CORONARY ARTERY CALCIUM SCORE: A HIGH-SENSITIVITY PREDICTOR  
WITH LIMITATIONS IN EXCLUDING CORONARY ARTERY DISEASE

**Author Block:** Jonathan Mokhtar, Mohammad Albaree, Virginia Battistin, Mohamed  
Asbaita, Fatemeh Akbarpoor, Jeyaseelan Lakshmanan, Hassan ElTamimi,  
College of Medicine, Mohammed Bin Rashid University of Medicine and  
Health Sciences, Dubai, United Arab Emirates, Mediclinic Parkview  
Hospital, Dubai, United Arab Emirates

**Background:** While invasive coronary angiography (ICA) remains the gold standard for assessing coronary artery stenosis, coronary artery calcium (CAC) scoring offers a non-invasive tool for evaluating atherosclerotic burden and guiding risk stratification. The aim of this study is to evaluate the validity of CAC scoring as a predictive tool for assessing the presence and severity of CAD compared to ICA as the gold standard diagnostic tool.

**Methods:** This retrospective cohort study included patients aged  $\geq 18$  years who underwent coronary computed tomography angiography (CCTA) with CAC scoring, followed by ICA, at a tertiary cardiac center, Dubai, UAE, between October 2018 and October 2024. A maximum interval of three months was allowed between the two procedures. CAC scores were stratified based on the Agatston classification system (0, 1-399, 400-999,  $\geq 1000$ ).

**Results:** The study cohort comprised 110 patients, predominantly male (n=95, 86.4%) with a mean age of  $53 \pm 10$  years and a mean body mass index (BMI) of  $27.91 \pm 3.66$  kg/m<sup>2</sup>. CAC scores were categorized into four groups: 18.2% (n=20) had a CAC score of 0; group 1, 55.5% (n=61) had a score of 1-399; group 2, 18.2% (n=20) had a score of 400-999; group 3, and 8.2% (n=9) had a score of  $\geq 1000$ ; group 4. When compared to ICA findings, coronary artery disease (defined as coronary stenosis  $>50\%$ ) was detected in 25% of patients in group 1, 56% of patients in group 2, 80% of patients in group 3, and 78% of patients in group 4. CAC scoring demonstrated a high sensitivity

of 91.2% and a strong positive predictive value (PPV) of 92.2%. However, its specificity (63.2%) and negative predictive value (NPV) (60%) were lower, highlighting its limitations in ruling out disease in certain populations.

**Conclusion:** CAC scores offer high sensitivity for CAD detection, particularly at the elevated scores. However, low to zero scores may fail to exclude significant disease, reinforcing the need for confirmatory testing to guide management.



**Presentation  
Number:** 50-114

**Poster Board  
Number:** 114

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** INVISIBLE URGENCY THE CHALLENGE OF PULMONARY  
THROMBOEMBOLISM

**Author  
Block:** Jonathan Rodríguez, Oscar Ortega, Edgar Cadena, Cleisy Galva, Clara Encarnacion, Samuel Bencosme, Jennifer Lugo, Jose Acevedo, Genesis Espinal, Jose Rivera, Johanny Bonilla, Jorge Guerrero, Maykel Tapia, Yahina Duarte, Nelson Acosta, ASOCIACION INSTITUTO DOMINICANO DE CARDIOLOGIA, SANTO DOMINGO, Dominican Republic

**Background:** PULMONARY THROMBOEMBOLISM IS A POTENTIALLY FATAL CONDITION, WITH AN ESTIMATED INCIDENCE OF 39-115 CASES PER 100,000 PERSON/YEARS.

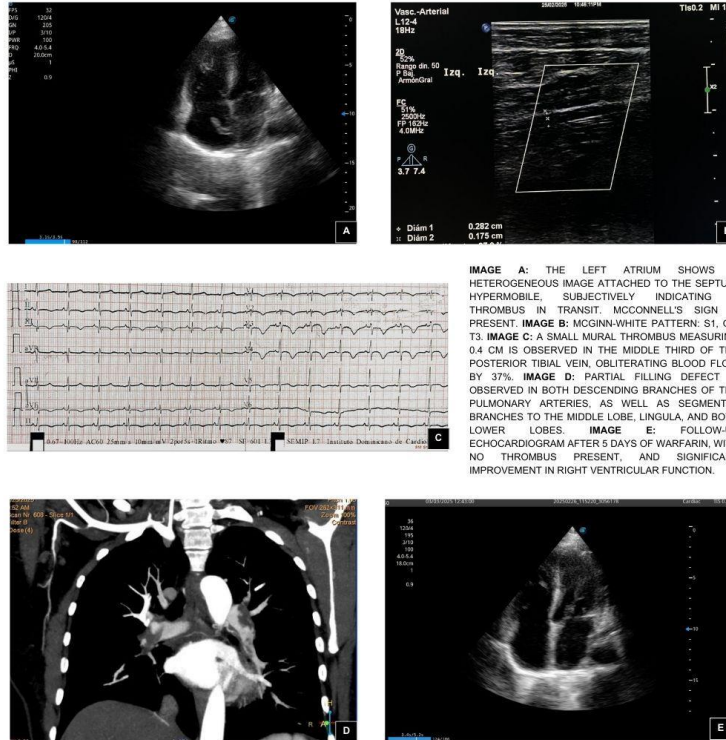
**Case:** A 54 YEAR OLD FEMALE WITH PROGRESSIVE EXERTIONAL DYSPNEA ASSOCIATED WITH MILD CALF PAIN HISTORY OF ARTERIAL HYPERTENSION WAS INITIALLY MANAGED WITH RESPIRATORY SYMPTOMS TRANSTHORACIC ECHOCARDIOGRAPHY WHICH SHOWED A HYPOMOBILE THROMBUS IN THE RIGHT ATRIUM ATTACHED TO THE INTERATRIAL SEPTUM WITH AN AREA OF 2.14 CM<sup>2</sup> AND 2.6 CM LONG THE RIGHT VENTRICLE WITH BASAL DILATION MCCONNELL SIGN SEVERE TRICUSPID REGURGITATION.

**Abstract  
Body:** ELECTROCARDIOGRAM SHOWED MCGINN WHITE PATTERN. CT ANGIOGRAM SHOWED PARTIAL FILLING DEFECTS IN BOTH DESCENDING BRANCHES OF THE PULMONARY ARTERIES SEGMENTAL BRANCHES OF THE MIDDLE LOBE THE LINGULA AND BOTH LOWER LOBES

**Decision-making:** PATIENT PRESENTED WITH A THROMBUS IN THE LOWER EXTREMITY, AND CT ANGIOGRAPHY SHOWED A SIGNIFICANT PERFUSION DEFECT LIKELY ORIGINATING FROM THE LOWER EXTREMITIES. DIAGNOSED DEFICIENCY OF PROTEIN C AN ESSENTIAL COMPONENT OF THE COAGULATION CASCADE ALTERS HEMOSTATIC BALANCE PROMOTING A PROTHROMBOTIC STATE

**Conclusion:** TRANSTHORACIC ECHOCARDIOGRAPHY IS ESSENTIAL IN THE INITIAL EVALUATION OF PATIENTS WITH DYSPNEA AND SUSPECTED

PULMONARY EMBOLISM ALLOWING FOR EARLY INITIATION OF TREATMENT. FINDING OF THROMBUS IN TRANSIT IN THE RIGHT CHAMBERS IS UNCOMMON. THESE PATIENTS SHOULD BE ASSESSED CONSISTENTLY AND PERSISTENTLY AND ABOVE ALL CLINICAL INERTIA IN THEIR TREATMENT AND FOLLOW-UP SHOULD BE AVOIDED.



**Presentation  
Number:** 50-117

**Poster Board  
Number:** 117

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** UNVEILING CARDIAC SARCOIDOSIS: A COMPREHENSIVE META ANALYSIS  
OF RADIOMICS AND TEXTURE ANALYSIS ACROSS IMAGING MODALITIES

**Author Block:** Soroush Najdaghi, Delaram Narimani Davani, Heart Failure Research  
Center, Isfahan Cardiovascular Research Institute, Isfahan, Iran (Islamic  
Republic of)

**Abstract  
Body:** **Background:** Radiomics, extracting quantitative features from medical  
imaging, transforms cardiovascular diagnostics. Advanced modalities like  
18F-FDG PET/CT and PET/MR enable precise characterization of cardiac  
sarcoidosis, yet their diagnostic performance needs further exploration to  
guide clinical use.

**Methods:** We systematically searched PubMed, Embase, and Scopus up to  
May 16, 2025, identifying six primary studies on radiomics in cardiovascular  
18F-FDG PET/CT or PET/MR, supplemented by secondary analyses of up to  
68 features. Subgroup analyses evaluated features (e.g., GLCM, GLSZM,  
PCA Components, TBRmax), meta-categories (Hybrid, Non-Spatial, Spatial  
Radiomics), and modalities. Heterogeneity was assessed with  $I^2$  and  $\tau^2$ ;  
publication bias was tested using funnel plots and Egger's test.

**Results:** Diagnostic accuracy was 0.795 (95% CI: 0.762-0.829,  $I^2=84.4\%$ ),  
sensitivity 0.789 (95% CI: 0.747-0.831,  $I^2=79.4\%$ ), specificity 0.807 (95% CI:  
0.778-0.837,  $I^2=63.9\%$ ), and AUC 0.821 (95% CI: 0.800-0.842,  $I^2=95.1\%$ ).  
Key features included PCA Components (accuracy: 0.940, 95% CI: 0.817-  
1.064), PET Signature (AUC: 0.980, 95% CI: 0.960-1.000), TBRmax (AUC:  
0.950, 95% CI: 0.920-0.980), and GLSZM: Large Area High Gray Level  
Emphasis (AUC: 1.000, 95% CI: 0.980-1.020). GLCM: Contrast performed  
moderately (AUC: 0.765, 95% CI: 0.657-0.873,  $I^2=93.1\%$ ). Hybrid Radiomics  
excelled in sensitivity (0.940, 95% CI: 0.870-1.010); Spatial Radiomics was  
robust in AUC (0.817, 95% CI: 0.795-0.839,  $I^2=93.3\%$ ). PET/MR  
outperformed PET/CT in specificity (0.871 vs. 0.782,  $p<0.001$ ), but PET/CT  
had lower heterogeneity in sensitivity ( $I^2=58.9\%$  vs. 80.3%). CT showed the

lowest AUC (0.690, 95% CI: 0.648-0.732,  $I^2=0.04\%$ ). High heterogeneity ( $I^2>63\%$ ) suggested feature extraction variability. No publication bias was found (Egger's  $p=0.12$ ).

**Conclusion:** Radiomics features like PCA Components, PET Signature, TBRmax, and GLSZM show exceptional diagnostic performance for cardiac sarcoidosis in 18F-FDG PET/CT and PET/MR. PET/MR's high specificity and Hybrid Radiomics' sensitivity highlight their clinical value.

**Presentation  
Number:** 50-119

**Poster Board  
Number:** 119

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** IMPACT OF LEFT VENTRICULAR MASS INDEX AND LEFT VENTRICULAR GEOMETRIC PATTERN ON RIGHT VENTRICULAR DIMENSIONS AND FUNCTION IN HYPERTENSIVE PATIENTS USING DUAL SOURCE CT

**Author  
Block:** Loay Soliman, Mohamed Zaki Elramly, Dr. Ahmed Shehatah, Cairo Univeristy, Cairo, Egypt

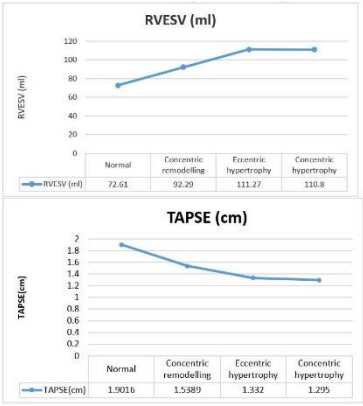
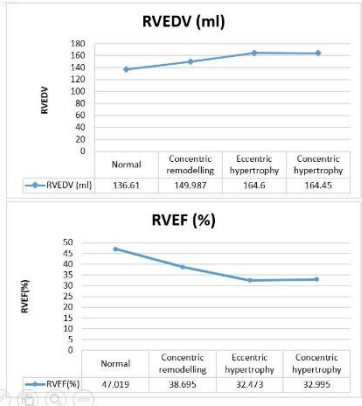
**Abstract  
Body:**

**Background:** Hypertension, a major cardiovascular risk factor, primarily affects the left ventricle (LV), while its impact on the right ventricle (RV) is often under-recognized. This study aimed to evaluate how LV mass index (LVMI) and geometric patterns influence RV size and systolic function in hypertensive patients using multi-slice CT coronary angiography.

**Methods:** 150 hypertensive patients undergoing CT angiography were enrolled. LVMI and relative wall thickness (RWT) were calculated to classify left ventricle geometry. Right ventricular end-diastolic (RVEDV) and end-systolic volumes (RVESV), Right Ventricular Ejection Fraction (RVEF), and TAPSE were assessed.

**Results:** RV dysfunction (RVEF <42%) was present in 50% of patients and correlated with higher LVMI and abnormal LV geometry. LVMI negatively correlated with RVEF ( $r = -0.635$ ) and TAPSE ( $r = -0.500$ ), and positively with RVESV and RVEDV. There were significant differences in RVEDV, RVESV, RVEF and TAPSE across LV geometry groups. LV geometric pattern and RWT were independent predictors of RV impairment ( $p < 0.001$ ).

**Conclusion:** LVMI and geometric alterations significantly affect RV size and function. LV geometry and RWT independently predict RV dysfunction in hypertensive patients.



**Presentation  
Number:** 50-120

**Poster Board  
Number:** 120

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** PREDICTING FUTURE CARDIOVASCULAR EVENTS BY LIPID CORE BURDEN INDEX.(LCBI)

**Author Block:** Farrukh Malik, National institute of cardiovascular diseases, Karachi, Pakistan

**Abstract  
Body:**

**Background:** Vulnerable coronary plaques, particularly those rich in lipid content, are key contributors to the onset of acute coronary syndromes. The Lipid Core Burden Index (LCBI) has gained attention as a promising imaging biomarker for detecting patients who may be at increased risk of experiencing future major adverse cardiovascular events (MACE). Near-infrared spectroscopy (NIRS) is a novel imaging technique that detects plaques with high lipid content, which is a critical indicator of plaque vulnerability. This study evaluates the prognostic utility of NIRS-derived LCBI in predicting MACE in patients undergoing coronary angiography.

**Methods:** We conducted a prospective study at National Institute of Cardiovascular diseases involving 100 patients undergoing NIRS-IVUS imaging during clinically indicated coronary catheterization. The primary endpoint was a composite of MACE (defined as cardiac death, myocardial infarction, or unplanned revascularization) at 12 months. Non-culprit lesions were imaged using Makoto NIRS-IVUS, and the highest LCBI was recorded for each patient. Patients were stratified into two groups based on LCBI values: high-risk ( $\geq 400$ ) and low-risk ( $< 400$ ). Event rates were compared using Kaplan-Meier analysis, and Cox proportional hazards.

**Results:** Among 100 patients (mean age  $64 \pm 9$  years; 72% male), 23 % had a non-culprit lesion with  $LCBI \geq 400$ . At 12 month follow-up, the incidence of MACE was significantly higher in the high-LCBI group compared to the low-LCBI group (11.2% vs. 4.2%,  $p < 0.001$ ). After adjusting for traditional risk factors and angiographic stenosis severity,  $LCBI \geq 400$  remained an independent predictor of MACE (adjusted HR 3.6; 95% CI 2.1-6.2;  $p < 0.001$ ). Notably, most events occurred at sites with  $< 70\%$  angiographic stenosis.

**Conclusion:** NIRS-derived LCBI is a robust and independent predictor of future MACE in patients undergoing coronary angiography. An LCBI threshold of  $\geq 400$  identifies high-risk plaques in non-culprit segments, often missed by angiography alone. Incorporating NIRS imaging into routine clinical practice may enhance risk stratification and guide targeted preventive therapies in patients with coronary artery disease.



**Presentation  
Number:** 50-121

**Poster Board  
Number:** 121

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** ONE ARTERY TO RULE THEM ALL: A CASE OF LIPTON R-III SINGLE CORONARY ARTERY WITH COLLATERALIZED LEFT SYSTEM

**Author  
Block:** Giovanni Paoletta, JR, Joseph F. Urbanik, Samer Martini, Viktoriya Bikeyeva, Katarzyna M. Mikrut, Advocate Lutheran General Hospital, Park Ridge, IL, USA

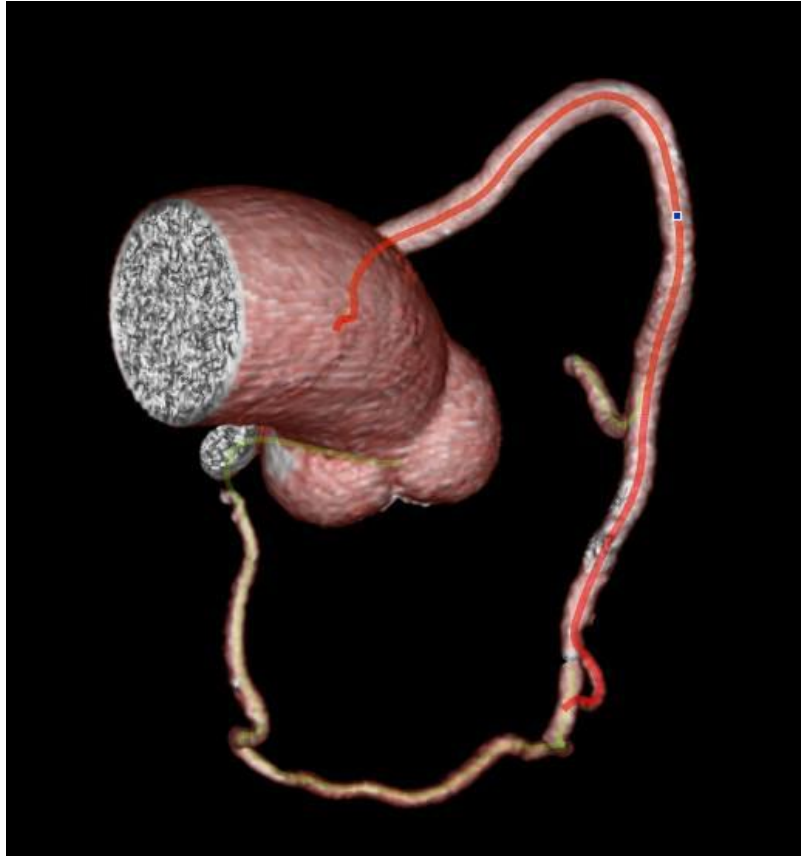
**Abstract**  
**Body:** **Background:** Single coronary artery (SCA) is a rare congenital anomaly, with certain subtypes carrying a risk of myocardial ischemia or sudden cardiac death. With the growing use of coronary computed tomography angiography (CCTA), incidental detection of SCAs has become more common.

**Methods:** A 64-year-old male presented with atypical chest pain and dizziness. Initial workup, including electrocardiogram, chest X-ray, and troponins, was unremarkable. A stress echocardiogram showed normal function without inducible ischemia. Given persistent symptoms, CCTA was performed.

**Results:** CCTA revealed a single coronary artery arising from the right coronary sinus. A dominant right coronary artery (RCA) gave rise to the left circumflex (LCx), which further bifurcated into a diminutive left anterior descending (LAD) artery and a ramus intermedius (RI), consistent with a Lipton type R-III variant. No malignant course or significant atherosclerosis was identified. The calcium score was 1.

**Conclusion:** This case highlights a rare, benign R-III variant of SCA incidentally found during CCTA. It underscores the utility of CCTA in detecting and characterizing coronary anomalies, particularly in patients

with atypical symptoms and low-to-intermediate risk.



**Presentation  
Number:** 50-122

**Poster Board  
Number:** 122

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** WHEN A PRESUMED MYXOMA CASTS A THROMBOEMBOLIC SHADOW- A  
DIAGNOSTIC ODYSSEY

**Author** Shruti Deshpande, Amanpreet Singh Wasir, Yash Goyal, Prashant Bharadwaj,  
**Block:** Ravi Kalra, Bharati Vidyapeeth Medical College, Pune, India

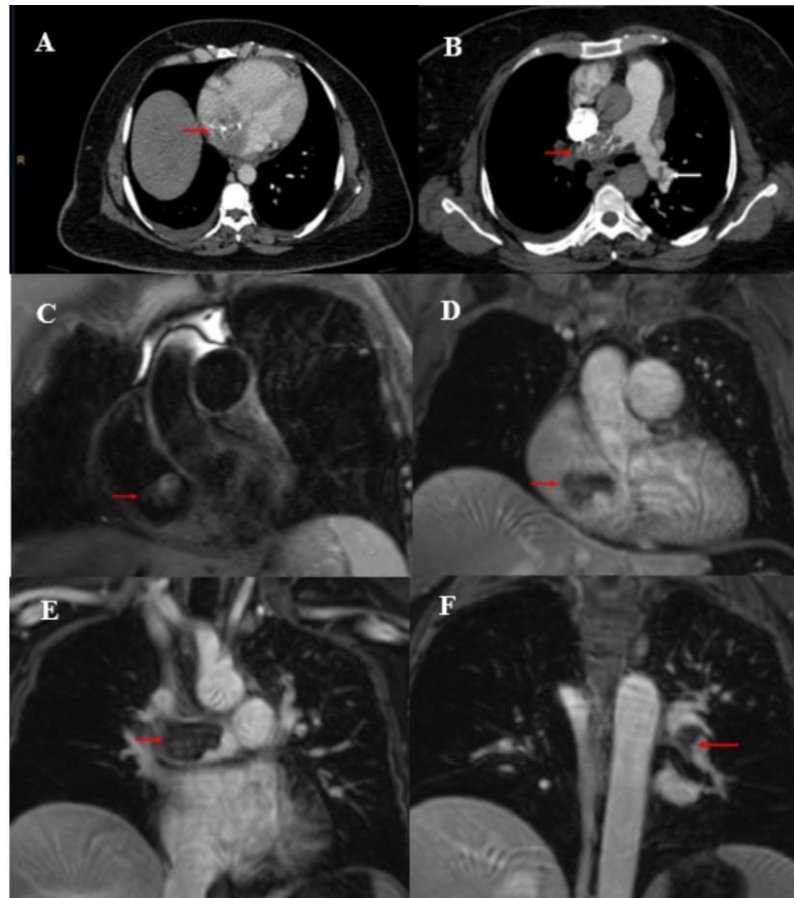
**Abstract  
Body:**

**Background:** Right atrial (RA) myxomas and thrombi pose diagnostic challenges due to overlapping presentations and imaging. Distinguishing them is crucial for as clinical approach for each differ significantly.

**Methods:** A 36-year-old woman with history of RA myxoma presented with 6 hour progressive dyspnoea. Elevated jugular venous pressure, peripheral edema, hepatomegaly and loud P2 was documented. ECG showed T-wave inversions. Cardiac magnetic resonance (CMR) imaging showed an irregular 4 cm lobulated RA lesion with post-contrast enhancement, and multiple filling defects in pulmonary arteries- consistent with pulmonary thromboembolism and hypertension. Computed tomography pulmonary angiography (CTPA) showed the mass extending from the RA into the inferior vena cava and multiple enhancing filling defects in pulmonary arterial branches. (Figure 1)

**Results:** Extensive pulmonary vascular involvement suggested thromboembolism rather than tumor emboli, which is rare in myxomas. The RA mass lacked CMR enhancement; pulmonary defects enhanced on CTPA- favoring the diagnosis of a vascularized thrombus over myxoma. Anticoagulation therapy was initiated. Routine monitoring and follow-up were recommended to monitor thrombus resolution.

**Conclusion:** This highlights role of multimodality imaging to differentiate cardiac thrombi from tumors. It also highlights the pitfalls of presumptive diagnoses and the critical need for comprehensive evaluation when findings are atypical.



**Figure 1:** Organized thrombus with extensive pulmonary emboli: **(A)** Computed tomography pulmonary angiography (CTPA) depicting heterogenous enhancement of the lesion, **(B)** CTPA depicting hypodense thrombus with coarse calcification in right main pulmonary artery and left inferior pulmonary lobar artery, **(C)** Cardiac magnetic resonance (CMR) showing an irregular, oval shaped, lobulated lesion in the RA in close relation to inter-atrial septum (without attachment), **(D)** CMR showing no enhancement of the lesion seen in the RA, **(E)** CMR showing filling defect in the right main pulmonary artery causing near total occlusion, **(F)** CMR showing filling defect in the left inferior pulmonary lobar artery.

**Presentation  
Number:** 50-123

**Poster Board  
Number:** 123

**Topic 1:** Multimodal Imaging

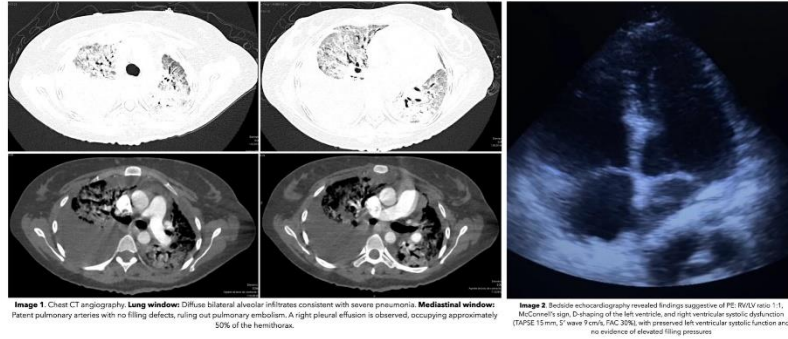
**Publishing  
Title:** NOT ALL ACUTE RIGHT VENTRICULAR COMPROMISE IS  
THROMBOEMBOLISM: A CASE THAT CHALLENGED THE ALGORITHM

**Author  
Block:** Oscar Vergara Huidor, Maria Fernanda Ruiz Gómez, Carlos Eduardo  
Sotomayor Casillas, Linda Elizabeth Monico Aceves, Cesar Adrian Guerrero  
Vega, Ximena Medina Fernandez, Sergio Morales Acosta, Jorge Eduardo  
Hernandez Del Rio, Tomas Miranda Aquino, Christian González Padilla,  
Hospital Civil de Guadalajara "Fray Antonio Alcalde", Guadalajara, Mexico

**Abstract  
Body:** **Background:** 42-year-old woman with pulmonary tuberculosis (TB)  
diagnosed 4 months ago, initially treated with first-line anti-TB therapy for 1  
month, discontinued due to drug-induced liver injury (DILI). Admitted for  
acute liver failure, later transferred to ICU for respiratory and hemodynamic  
deterioration.

**Methods:** In ICU, she presented in shock requiring dual vasopressors and  
high-flow nasal cannula with O<sub>2</sub> saturation at 78%. ECG showed sinus  
tachycardia, right axis deviation, and McGinn-White sign. Bedside echo  
revealed RV/LV ratio 1:1, McConnell's sign, D-shaped LV, and RV systolic  
dysfunction (TAPSE 15 mm, FAC 30%), with preserved LV function and  
diffuse B-lines.

**Results:** CT pulmonary angiography ruled out pulmonary embolism (PE) and  
revealed a large right pleural effusion and bilateral infiltrates compatible with  
severe pneumonia and acute respiratory distress syndrome (ARDS) due to  
TB. She was intubated and developed refractory septic shock, progressing to  
cardiac arrest and death 12 hours later.



**Conclusion:** Echo findings suggestive of PE are not specific and must be confirmed with imaging. In TB patients with RV dysfunction, differential diagnoses like ARDS, pneumonia, or effusion should be considered before fibrinolysis.

**Presentation  
Number:** 50-128

**Poster Board  
Number:** 128

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** FROM TAVR TO CABG: MANAGING DELAYED LEFT MAIN CORONARY  
ARTERY DISSECTION

**Author Block:** Giovanni Paoletta, JR, Samiuddin Syed, Viktoriya Bikeyeva, George  
Michalopoulos, Andrii Labchuk, Joseph Adams, Adib M. Chaus, Neal Narain  
Sawani, David G. Cohen, Advocate Lutheran General Hospital, Park Ridge,  
IL, USA

**Abstract  
Body:**

**Background:** Transcatheter aortic valve replacement (TAVR) is an established therapy for severe aortic stenosis in high-risk patients. While most complications occur perioperatively, delayed structural complications such as coronary dissection are rare. This case highlights a delayed left main coronary artery (LMCA) dissection following TAVR, likely due to progressive valve expansion.

**Methods:** A 79-year-old female with severe low-flow, low-gradient aortic stenosis underwent transfemoral TAVR following aspirin desensitization. Post-deployment, she developed complete heart block requiring transvenous pacing. On postoperative day 3, she developed chest pain and hypoxia. Transthoracic echocardiography revealed new anterior wall motion abnormalities and a drop in left ventricular ejection fraction (LVEF) from 76% to 20%.

**Results:** Emergent coronary angiography demonstrated a dissection extending from the aorta into the LMCA. Percutaneous coronary intervention was unsuccessful, and she underwent emergent coronary artery bypass grafting (CABG). Due to severe ventricular dysfunction and cardiogenic shock, venoarterial extracorporeal membrane oxygenation (VA ECMO) was initiated. Her course was further complicated by atrial fibrillation, acute kidney injury requiring dialysis, and respiratory failure necessitating tracheostomy. She ultimately stabilized and was discharged to a long-term acute care facility.

**Conclusion:** This case illustrates a rare, delayed complication of TAVR

resulting in LMCA dissection. Continued valve expansion may pose mechanical risk to adjacent coronary anatomy. Vigilance for postprocedural ischemia and timely, multidisciplinary intervention are critical to improving outcomes in high-risk patients.



**Presentation  
Number:** 50-129

**Poster Board  
Number:** 129

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** STOPPING HALT IN ITS TRACKS: UNRAVELING THE IMPACT OF  
ANTICOAGULATION ON TAVI PATIENTS

**Author Block:** Daniel Sherlock, Viktoriya Bikeyeva, Andrii Labchuk, Joseph Adams, Chad V. Morreale, Adib M. Chaus, Neal Narain Sawlani, Advocate Lutheran General Hospital, Park Ridge, IL, USA

**Abstract  
Body:**

**Background:** Hypoattenuated leaflet thickening (HALT) is a known complication of transcatheter aortic valve implantation (TAVI), particularly in patients with bicuspid aortic valves. HALT, characterized by leaflet thickening and reduced motion, can lead to increased transvalvular gradients, and its management remains complex, especially in patients with additional risks such as previous intracranial hemorrhage.

**Case:** An 82-year-old male with bicuspid aortic valve disease, moderate aortic stenosis, and a history of subarachnoid hemorrhage (SAH) underwent TAVI. Post-procedure, he developed diplopia and dizziness, with MRI showing a subarachnoid bleed, resulting in the discontinuation of anticoagulation. Despite no anticoagulation therapy, he experienced worsening dyspnea and increased transvalvular gradients over the next two years, with imaging showing evidence of HALT. Surveillance continued without anticoagulation due to bleeding concerns.

**Decision-making:** The role of anticoagulation in TAVI patients with HALT remains debated. Temporality must also be considered: it is reasonable to assume the patient's subclinical leaflet thrombosis would have undergone structural and compositional changes to make it more fibrinous and less likely to dissolve with initiation of anticoagulation. Given the patient's worsening symptoms and increasing gradients, the decision was made to initiate anticoagulation with apixaban after consulting with neurology, balancing the need for improved valve function against bleeding risks. Post-anticoagulation, the patient's gradient significantly decreased, and his symptoms improved.

**Conclusion:** This case highlights the complexities of managing TAVI patients, particularly in the context of HALT and neurological complications. The decision to initiate anticoagulation in the setting of a previous SAH demonstrates the delicate balance between mitigating valve dysfunction and minimizing the risk of thromboembolic events. Close multidisciplinary collaboration and vigilant monitoring are essential for optimizing outcomes in such challenging cases.

**Presentation  
Number:** 50-130

**Poster Board  
Number:** 130

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** PERCUTANEOUS CLOSURE OF PATENT FORAMEN OVALE VERSUS MEDICAL THERAPY: A META-ANALYSIS OF RECURRENT CRYPTOGENIC STROKE PREVENTION

**Author Block:** Omar Hamodat, Saif Almuzainy, Rand Yahya, Salam Koniali, College of Medicine, University of Sharjah, Sharjah, United Arab Emirates

**Background:** The effectiveness of transcatheter patent foramen ovale (PFO) closure versus medical therapy for preventing recurrent strokes in patients with cryptogenic stroke and PFO has been debated, with previous randomized controlled trials (RCTs) reporting mixed results. This meta-analysis addresses these inconsistencies and incorporates new evidence from a recently published RCT, offering updated insights into treatment efficacy and safety.

**Methods:** We systematically searched PubMed, Scopus, and Ovid through December 2024. Eligible studies were RCTs comparing PFO closure and medical therapy in patients with cryptogenic stroke. Risk ratios (RR) with 95% confidence intervals (CI) were calculated;  $p < 0.05$  was considered significant. Subgroup analysis by atrial septal aneurysm was performed. Statistical analyses used RevMan.

**Results:** Seven RCTs involving 4,539 patients were included. PFO closure significantly reduced recurrent stroke risk compared to medical therapy (RR 0.39, 95% CI: 0.21-0.72,  $P = 0.003$ ), achieving a 61% relative risk reduction. No significant differences were found for transient ischemic attack (TIA) (RR 0.84, 95% CI: 0.57-1.21,  $P = 0.35$ ), all-cause mortality (RR 0.81, 95% CI: 0.40-1.64,  $P = 0.55$ ), or bleeding (RR 0.57, 95% CI: 0.21-1.54,  $P = 0.27$ ). However, PFO closure was associated with increased risk of new-onset atrial fibrillation (RR 5.14, 95% CI: 2.93-9.01,  $P < 0.00001$ ). Subgroup analysis showed stroke reduction in patients with aneurysm (RR 0.47, 95% CI: 0.26-0.88,  $P = 0.02$ ), but not in those without (RR 0.72, 95% CI: 0.47-1.11,  $P = 0.13$ ).

**Abstract  
Body:**

**Conclusion:** Transcatheter PFO closure demonstrates superior efficacy over medical therapy in reducing recurrent cryptogenic stroke risk.

**Presentation  
Number:** 50-131

**Poster Board  
Number:** 131

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** ANTICOAGULATION KNOWLEDGE ASSESSMENT IN IRANIAN POPULATION  
WITH MECHANICAL PROSTHETIC HEART VALVE

**Author  
Block:** Yasmin Mohtasham Kia, Navid Fereidani, Kasra Mehdizadeh, Yeganeh  
Pasebani, Zahra Haghighi Fashi, Arezo Hafezi Birgani, Melody Farrashi,  
Hooman Bakhshandeh, Parham Sadeghipour, Vascular Disease and  
Thrombosis Research Center, Rajaie Cardiovascular Institute, Tehran, Iran,  
Tehran, Iran (Islamic Republic of)

**Background:** Vitamin k antagonists have a narrow therapeutic window and numerous food and drug interactions compromising their efficacy. Thus assessing patient knowledge through a cross-culturally validated questionnaire is vital in patients with mechanical prosthetic heart valves (MPV) at the clinic

**Methods:** Consented MPV patients attending anticoagulation clinic were included and the validated Persian version of the Anticoagulation Knowledge Assessment (AKA) was administered. Baseline clinical characteristics, MPV profile and prespecified clinical outcomes were collected from in-person interview and electronic database. An adequate level of patients' knowledge is defined as at least 21 correct answers in AKA. Participants completed the 8 item Morisky Medication Adherence Scale and the European Quality of Life-5 Dimensions-5 Levels (EQ-5D-5L) questionnaires.

**Results:** Baseline characteristics and clinical outcomes of all the 198 patients were summarized in Table.1, Section1. Adequate anticoagulation knowledge was observed in 7 patients. The median weighted adherence score was 7.00. Median index score of EQ-5D-5L was 0.74 (Table1. Section2). Wright map, person and Item separation index and reliability analysis are pending. Knowledge, adherence and quality of life relation to major clinical outcome will be finalize after completeness of event adjudication.

**Conclusion:** Our study showed few patients have high adherence and

**Abstract  
Body:**

adequate knowledge regarding their antithrombotic regimen.

**Table 1**

*Section 1: Baseline demographic and clinical characteristics of the study population*

Characteristics	Patients (n = 198)
Age, year	56 (47.0 – 64.0)
Female sex	123 (62.1%)
Body mass index	26.12 (23.85 – 28.88)
<b>Mechanical prosthetic valve position</b>	
Mitral	123 (62.1%)
Tricuspid	15 (7.6%)
Aortic	90 (45.5%)
Pulmonary	21 (10.6%)
Multivalvular	48 (24.2%)
<b>Comorbidities</b>	
Rheumatic heart disease	103 (52%)
Diabetes mellitus	42 (21.2%)
Hypertension	79 (39.9%)
Atrial fibrillation	65 (32.8%)
Active cancer	7 (3.5%)
<b>Previous coronary revascularization</b>	
Percutaneous coronary intervention	10 (5.1%)
Coronary artery bypass graft	20 (10.1%)
<b>Concomitant antiplatelet therapy</b>	
Single antiplatelet therapy	
Aspirin	145 (72.8%)
P2Y12 inhibitors	1 (0.5%)
Dual antiplatelet therapy	2 (1.0%)

\*Values are presented as number (%) or median (interquartile range)

Section 2: Results of investigated questionnaire in the study population	
Questionnaire	Patients (N=198)
<b>Quality of Life (EQ-5D-SL)<sup>1,2</sup></b>	
<b>Median index score</b>	0.74 (0.50- 0.91)
<i>Detailed Description of Different Domains</i>	
<b>Movement</b>	
No problems	122/196 (62.2%)
Slight problems	49/196 (25.0%)
Moderate problems	19/196 (9.7%)
Severe problems	6/196 (3.1%)
Unable	0
<b>Self-care</b>	
No problems	174/197 (88.3%)
Slight problems	16/197 (8.1%)
Moderate problems	6/197 (3.0%)
Severe problems	0
Unable	1/197 (0.5%)
<b>Usual activities</b>	
No problems	154/197 (78.2%)
Slight problems	28/197 (14.2%)
Moderate problems	11/197 (5.6%)
Severe problems	3/197 (1.5%)
Unable	1/197 (0.5%)
<b>Pain</b>	
No pain	79/196 (40.3%)
Slight pain	65/196 (33.2%)
Moderate pain	38/196 (19.4%)
Severe pain	14/196 (7.1%)
Extreme pain	0
<b>Anxiety / Depression</b>	
No problems	80/193 (41.5%)
Slight problems	64/193 (33.2%)
Moderate problems	26/193 (13.5%)
Severe problems	23/193 (11.9%)
Extreme problem	0
<b>Medication Adherence (MMAS-8)<sup>3</sup></b>	
<b>Median score</b>	7.00 (6.0 – 7.0)
<b>Level of adherence</b>	
High	6/184 (3.3%)
Medium	148/184 (80.4%)
Low	30/184 (16.3%)
<b>Anticoagulation Knowledge Assessment (AKA)<sup>4</sup></b>	
<b>Adequate knowledge</b>	7 (3.5%)

<sup>1</sup> Only patients who have fully answered all the items were included in the final analysis of each dimension/questionnaire

<sup>2</sup>EQ-5D-SL results are reported in two ways: (1) The number (%) of patients at each of the three levels for each of the five dimensions. (2) The EQ-5D-SL Index score, which summarizes each possible health state on a numerical scale ranging from -1.19 to 1. A score of one indicates full health, while scores of zero and less than zero represent states equivalent to being dead and worse than death, respectively.

<sup>3</sup>The MMAS-8 total score ranges from zero to eight. Scores of less than six indicate low adherence, scores of six to eight indicate moderate adherence and a score of eight indicates high adherence.

<sup>4</sup>The AKA consists of 29 four-option questions with only one correct answer, scored as one, while incorrect answers are scored as zero. The total score ranges from zero to 29 for all patients, except for females of childbearing age (0–31). An adequate level of patients' knowledge is defined as at least 21 correct answers.

EQ-5D-SL, European quality of life- 5 dimensions- 5 levels; MMAS-8, Morisky Medication Adherence Scale



**Presentation  
Number:** 50-132

**Poster Board  
Number:** 132

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** SAFETY AND EFFICACY OF SGLT2 INHIBITORS VERSUS STANDARD OF CARE IN ELDERLY PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Author Block:** jacinthe khater, Rima Chaddad, Bernardo Cortese, DCB academy, Milan, Italy

**Abstract  
Body:** **Background:** Although SGLT2 inhibitors have a well-documented efficacy in heart failure management, especially among the elderly population, their potential role in reducing adverse events following transcatheter aortic valve implantation (TAVI) in elderly patients has not been extensively investigated and remains to be fully demonstrated. This systematic review and meta-analysis aims to assess the efficacy and safety of SGLT2 inhibitors in elderly patients with valvular heart disease undergoing TAVI. **Methods:** PubMed, Cochrane, and EMBASE were searched. The primary endpoint was all-cause mortality. Secondary endpoints included the occurrence of major adverse cardiovascular events (MACE), hospitalization due to heart failure, and cardiovascular death. A random-effect model was used to calculate the odds ratio (OR) of binary outcomes with a 95% confidence interval.

**Results:** : A total of 3 studies met our inclusion criteria and were included in the qualitative and quantitative analysis, comprising 1,573 patients. Of the participants studied, 699 (44%) received SGLT2 inhibitors and 875 (56%) received standard care in the intention-to-treat population. After a median follow up of 12 months, the SGLT2 inhibitors group did not show significant differences compared to standard of care treatment in terms of all-cause mortality (OR=0.40 [0.05, 3.53], P=0.14), the occurrence of MACE (OR=0.39 [0.11, 1.35], P=0.14) and cardiovascular death (OR=0.36 [0.12, 1.06], P=0.06). Interestingly, the SGLT2 inhibitors group resulted in lower rates of hospitalizations due to heart failure (OR=0.39 [0.15, 0.99], P=0.05). **Conclusion:** In elderly patients with valvular disease scheduled for TAVI,



there was no significant difference between SGLT2 inhibitors and standard of care treatment in terms of all-cause mortality, the occurrence of MACE, and cardiovascular death. Patients taking SGLT2 inhibitors experienced lower rates of hospitalization due to heart failure.

**Presentation  
Number:** 50-133

**Poster Board  
Number:** 133

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** MITRAL VALVE IN VALVE WITH A SHORT HONEYMOON PERIOD.

**Author Block:** Farrukh Malik, National institute of cardiovascular diseases, Karachi,  
Pakistan

**Background:** Background Transcatheter Mitral valve-in-valve replacement (TMViVR) is a new minimally invasive alternative that has gained popularity for high-risk patients instead of a redo open-heart surgery . Delayed migration of the valve in valve is a rare phenomenon, in which a device accurately positioned during the index procedure but gets dislocated towards the left atrium, usually a couple of weeks after implantation.

**Case:** 81-year-old hypertensive patient, History of CABG plus MVR ( Carpentier Edwards 29 mm) 12 years ago, presented with complains of exertional dyspnea .Echo revealed Bioprosthetic Mitral Valve Degeneration with severe MR. Heart Team advised TMViVR. After septal puncture and septal dilation with 14mm balloon, Edward Sapien 3 Ultra was deployed at mitral position under TEE & Fluoroscopy. ASD was closed and post procedure echo showed trivial MR. Patient discharged within 24 hours.

**Decision-making:** After three weeks , patient landed again in emergency department with complaint of acute onset dyspnea and palpitations. Examination revealed severe MR. TEE revealed 4 mm displacement of the valve towards left atrium. Fluoroscopy confirmed migration of the valve towards left atrium. Percutaneous treatment offered but declined by patient's family and opted for surgical MVR at another institute

**Conclusion:** This unique case highlights exceptionally rare complication of transcatheter valve in valve procedure. This complication is commonly related to inadequate transcatheter device oversizing. It seems that in mitral ViV procedures, the amount of oversizing should be greater than in the aortic position in order to prevent delayed migration of the valve.

**Abstract  
Body:**



**Presentation  
Number:** 50-135

**Poster Board  
Number:** 135

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** TEMPORAL AND DEMOGRAPHIC TRENDS IN RHEUMATIC HEART DISEASE MORTALITY WITH ATRIAL FIBRILLATION AS A CONTRIBUTING CAUSE: A CDC WONDER-BASED ANALYSIS (1999-2023)

**Author  
Block:** Amna Zaheer, Gina Singh, Fabeha Zafar, Jamuna Shrestha, Liaquat National Hospital and Medical College, Karachi, Pakistan, University of Missouri Kansas, Kansas, MO, USA

**Background:** Rheumatic heart disease (RHD) remains a neglected yet serious cause of cardiovascular mortality, especially in underserved populations. Atrial fibrillation (AF), a common RHD complication, increases the risk of stroke and heart failure. However, U.S. trends in RHD mortality with coexisting AF are not well studied.

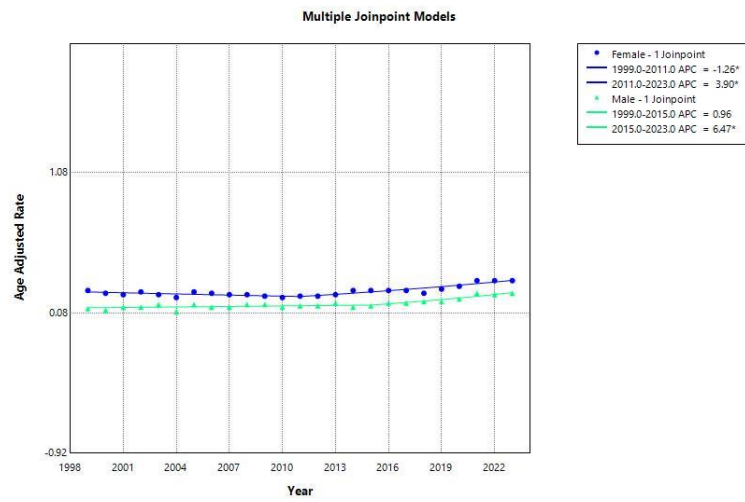
**Methods:** We analyzed CDC WONDER Multiple Cause of Death data from 1999 to 2023 to identify deaths where RHD (ICD-10: I05-I09) was the underlying cause and AF (ICD-10: I48) was listed as a contributing cause. A total of 20,326 deaths were identified across all ages. Age-adjusted mortality rates (AAMRs) per 1,000,000 population were calculated using the 2000 U.S. standard population. Temporal trends were assessed via Joinpoint regression.

**Results:** Overall, AAMRs for RHD with coexisting AF showed dynamic temporal trends and notable sex disparities. Among females, AAMRs decreased from 1999 to 2011 (annual percent change [APC] = -1.26%,  $p < 0.05$ ), then significantly increased from 2011 to 2023 (APC = 3.90%,  $p < 0.05$ ). In males, a modest increase occurred from 1999 to 2015 (APC = 0.96%), accelerating sharply from 2015 to 2023 (APC = 6.47%,  $p < 0.05$ ). While males initially exhibited lower mortality rates than females, they surpassed female rates after 2015.

**Conclusion:** RHD mortality with AF has risen, especially in males. These findings highlight the need for targeted screening, better anticoagulation, and equitable care access in the U.S. and Middle East, where RHD remains

**Abstract  
Body:**

endemic.



**Presentation  
Number:** 50-136

**Poster Board  
Number:** 136

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** DISTINCTIVE LEFT ATRIAL STRAIN PROFILES IN MITRAL REGURGITATION  
VERSUS STENOSIS: A COMPARATIVE ECHOCARDIOGRAPHIC STUDY

**Author Block:** sepideh jame bozorgi, Bayat Fariba, Nahid Mohebi Saeen, Mohammad  
Khani, Shahid Beheshti university of medical sciences, tehran, Iran (Islamic  
Republic of)

**Abstract  
Body:**

**Background:** Left atrial (LA) strain analysis is a novel echocardiographic technique for assessing atrial function and remodeling in mitral valve disease. This study aimed to compare LA strain parameters in mitral stenosis (MS) and mitral regurgitation (MR) to identify discriminators between pressure and volume overload.

**Methods:** In this cross-sectional study, 44 patients with moderate-to-severe MR and 44 with severe-to-very severe MS (all with preserved left ventricular ejection fraction) were prospectively enrolled at a tertiary center. Exclusion criteria included atrial fibrillation, ischemic MR, and left ventricular dysfunction. All participants underwent standardized transthoracic echocardiography, and LA strain analysis was performed offline using speckle-tracking software. LA reservoir (LAstrainSR), conduit (LAstrainCD), and contraction (LAstrainCT) strain values were measured. Disease severity was classified per ASE/EACVI guidelines. Statistical analysis included ANOVA for group comparisons and ROC analysis for diagnostic performance.

**Results:** LA strain parameters differed significantly between MS and MR. LAstrainSR was markedly lower in MS than MR ( $14.2 \pm 6.4\%$  vs.  $23.1 \pm 10.5\%$ ,  $p < 0.001$ ), indicating impaired reservoir function in pressure overload. LAstrainCD was substantially less negative in MS ( $-5.4 \pm 3.7\%$ ) compared to MR ( $-13.0 \pm 7.2\%$ ,  $p < 0.001$ ), and showed the highest diagnostic accuracy (AUC 0.82, 81.8%) for distinguishing MS from MR. LAstrainCT was also less negative in MS ( $-8.6 \pm 4.6\%$  vs.  $-12.0 \pm 6.2\%$ ,  $p = 0.005$ ) and best reflected MR severity. Progressive reduction in all LA strain parameters was observed

with increasing disease severity, especially in very severe MS.

**Conclusion:** LA strain analysis reveals distinct patterns of atrial dysfunction in MS and MR. LAstrainCD is a robust discriminator between pressure and volume overload, while LAstrainCT tracks MR severity. These findings support the clinical utility of LA strain for refined assessment and management of mitral valve disease.

**Presentation  
Number:** 50-137

**Poster Board  
Number:** 137

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** TRANSCATHETER AORTIC VALVE REPLACEMENT OUTCOMES IN THE MIDDLE EAST AND NORTH AFRICA REGION: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Author  
Block:** Mohammad-Mahdi Bastan, Sina Kazemian, Saba Maleki, Mandana Ebrahimzade, Sahand Siامي, Fatemeh Jodeiri, Niloofar Seighali, Nazanin Anaraki, Kaveh Hosseini, Tehran Heart Center, Cardiovascular Research Institute, Tehran University of Medical Sciences, Tehran, Iran (Islamic Republic of)

**Background:** There are limited data on transcatheter aortic valve replacement (TAVR) outcomes in the Middle East and North Africa (MENA) region. This study aimed to summarize the available evidence on the safety and efficacy of TAVR in the MENA region.

**Methods:** A systematic search of PubMed, Embase, Scopus, and ClinicalTrials.gov identified studies reporting TAVR outcomes in the MENA region up to May 2025. A random-effects model assessed outcomes, focusing on all-cause mortality, cardiovascular (CV) mortality, myocardial infarction (MI), stroke, new-onset atrial fibrillation (AF), paravalvular leak, and device success.

**Abstract  
Body:** **Results:** Fifty studies from 2016 to 2025 with 7,457 patients were included (mean age: 76.1 years; 51.7% women). Balloon-expandable valves were used in 37.4% of procedures. The pooled rates for outcomes were: CV mortality 3.8% (95% CI: 2.1-6.7%), all-cause mortality 6.8% (95% CI: 4.3-10.4%), MI 1.1% (95% CI: 0.8-1.7%), new-onset AF 5.7% (95% CI: 3.3-9.7%), stroke 1.9% (95% CI: 1.4-2.6%), paravalvular leak 3.0% (95% CI: 2.0-4.6%), and device success rate 97.8% (95% CI: 95.6-98.9%).

**Conclusion:** TAVR in the MENA region demonstrates a high device success rate and relatively low CV mortality. New-onset AF was identified as the most prevalent post-TAVR complication. Further studies are needed to optimize TAVR procedures and outcomes in the MENA region.



## Cardiovascular Mortality

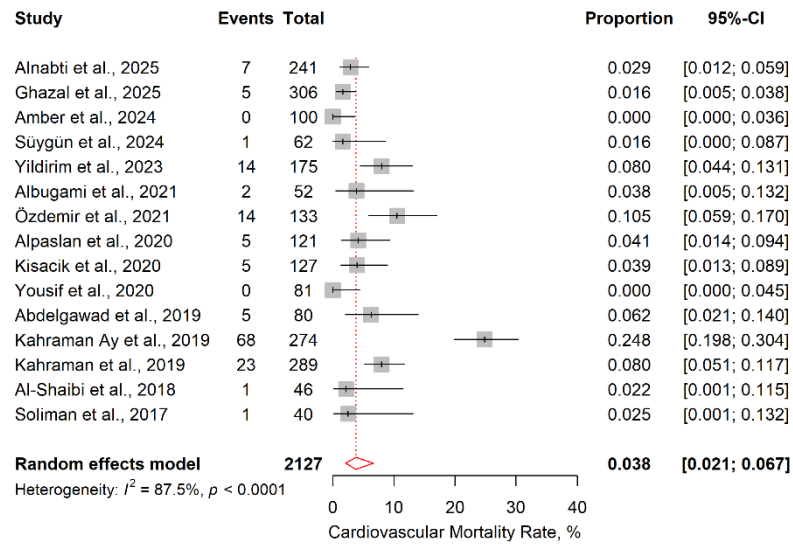


Figure Legend. Forest plot representing pooled CV mortality rates post-TAVR in the MENA region, with 95% CI for each study.

**Presentation  
Number:** 50-138

**Poster Board  
Number:** 138

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** MORTALITY TRENDS OF NON-RHEUMATIC VALVULAR DISEASE IN HEART FAILURE PATIENTS IN THE UNITED STATES FROM 1999-2023: A CDC WONDER DATABASE ANALYSIS

**Author  
Block:** Raunak Hossain, Mohammed Usaid, Catherine Andrews Ravi, Keerthana Ramdas, Shadaan Ali Syed, Smrithi reddy Battu, Yasmin Ansari, Sheeba Shibu, Samreen Zehra Naqvi, Muhammad Sufian shahid, Faculty of Medicine, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia

**Background:** Non-rheumatic valvular disease (NRVD) causes chronic volume overload states and ventricular remodeling, leading to heart failure (HF). This study analyzes the temporal trends and sociodemographic disparities in NRVD and HF-related mortalities.

**Methods:** The CDC WONDER (1999-2023) database was used to assess NRVD and HF-related deaths in patients aged  $\geq 25$ . Age-adjusted mortality rate (AAMR) and annual percentage change (APC) were calculated using Joinpoint regression.

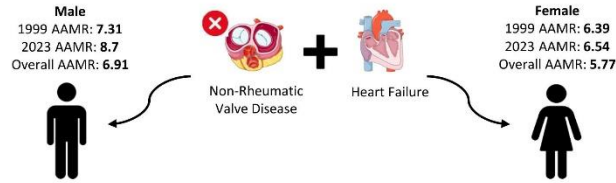
**Abstract  
Body:** **Results:** NRVD and HF led to 345,725 deaths in total, primarily in inpatient facilities (37.05%) and at homes (29.74%). The AAMR declined gradually from 1999 to 2019 (APC: -1.34;  $p = 0.0001$ ), followed by a huge increase from 2019 to 2023 (APC: 10.71;  $p = 0.0015$ ). Males had higher AAMR (6.91) compared to females (5.77). Non-Hispanic (NH) Whites had the highest AAMR (6.85), while NH Asians had the lowest (2.86). State-wise, Oregon (16.67), followed by Vermont (14.82) had the most AAMRs, whereas Georgia (3.36) had the least. The West (7.95) and Midwest (7.5) regions had the highest AAMR. Rural areas (6.57) report higher AAMR than urban (6.04). The total percentage of deaths was the highest in adults aged 85+ (59.09%), followed by adults aged 75-84 (26.41%).

**Conclusion:** This study highlights rising mortalities due to NRVD and HF, with disparities by sex, race/ethnicity, and region, disproportionately affecting the elderly. These findings necessitate better targeted strategies to

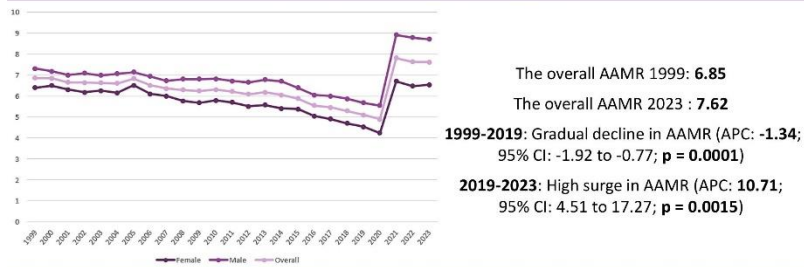
reduce mortality and improve clinical outcomes.

Central Illustration: Mortality Trends of Non-Rheumatic Valvular Disease in Heart Failure patients in the United States from 1999-2023: A CDC WONDER Database Analysis

345,725 Deaths occurred in patients with NRVD and HF in Adults (Age ≥ 25)



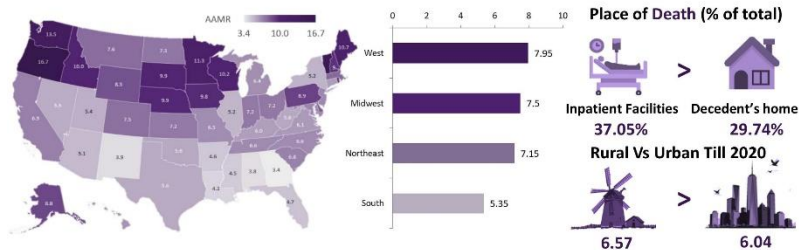
Trends (Age-Adjusted Mortality Rate per 100,000)



Racial Disparities (Age-Adjusted Mortality Rate per 100,000)



Geographical Disparities (Age-Adjusted Mortality Rate per 100,000)



AAMR: Age-adjusted Mortality Rate; NRVD: Non-rheumatic valvular disease; HF: Heart Failure; NH: Non-Hispanic

## Saturday Abstracts and Cases

**Presentation  
Number:** 24-07

**Poster Board  
Number:**

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** CARDIAC METASTASIS MIMICKING STEMI

**Author** Anna Gvozdeva, Sergey Yakovlev, Svetlana Bliznyuk, Anna Komarova, Botkin  
**Block:** Hospital, Moscow, Russian Federation

**Background:** Cardiac metastasis of malignant tumors can cause changes in the ST segment on an electrocardiogram (ECG) that mimics myocardial infarction. We report a patient with melanoma metastasizing to the heart who presented with acute coronary syndrome.

**Case:** A 51-year-old man presented to the emergency department with acute chest pain. He had a history of cutaneous melanoma, managed with surgical excision and adjuvant chemotherapy four years prior. An ECG demonstrated ST-segment elevation in leads V2-V5. The serum troponin I level was elevated. Echocardiography revealed normal left ventricular contractility without regional wall motion abnormalities. Coronary angiography revealed no significant stenosis. The patient was diagnosed with myocardial infarction with nonobstructive coronary arteries (MINOCA). Cardiac magnetic resonance (CMR) revealed multiple intramyocardial masses in both ventricles, suggestive of metastatic lesions (Fig 1A). Positron emission tomography confirmed their metastatic origin (Fig 1B).

**Abstract  
Body:**

**Decision-making:** Melanomas have a high propensity to metastasize to the heart. Chest pain and ST-segment changes may result from tumor-associated myocardial or pericardial injury. CMR is the primary imaging modality for further evaluation in patients with suspected MINOCA.

**Conclusion:** Cardiac metastasis should be considered in the differential diagnosis of patients who present with MINOCA, particularly those with a

history of cancer.

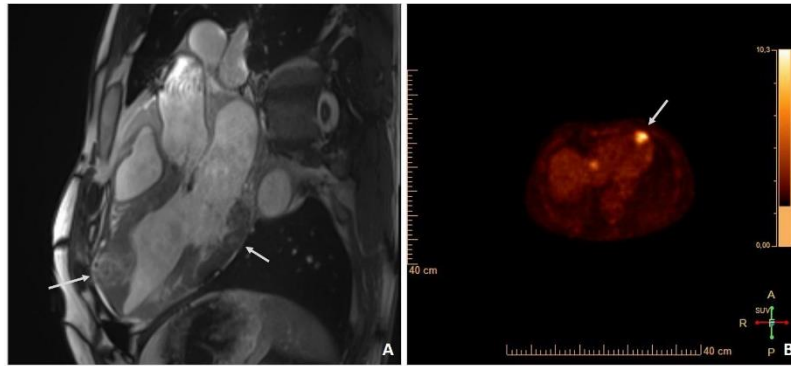


Fig 1 (A): CMR showing metastasis in the left ventricle (arrows). Fig 1(B): PET demonstrating cardiac metastasis in the apex of heart (arrow)

**Presentation  
Number:** 24-09

**Poster Board  
Number:**

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** DIAGNOSTIC VALUE OF SERIAL CARDIAC MRI AND FDG-PET IN CARDIAC SARCOIDOSIS

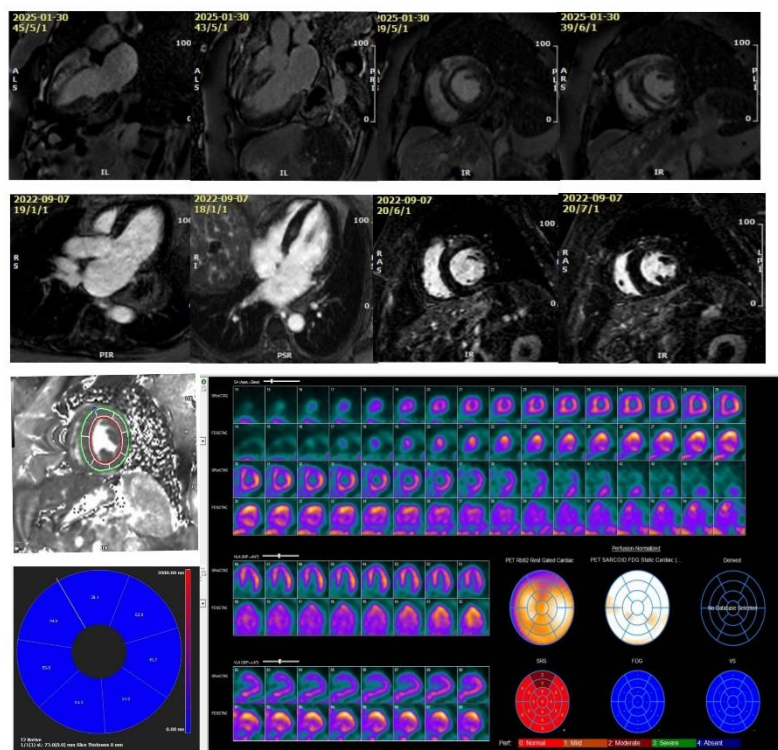
**Author** Ghazala Munawar, Zenab Laiq, Yassar Nabeel, Vasu Gupta, Cleveland Clinic  
**Block:** Akron General, Akron, OH, USA

**Background:** Cardiac sarcoidosis (CS) poses a significant diagnostic challenge due to its heterogeneous presentation and often subclinical course. Advanced imaging modalities such as cardiac magnetic resonance (CMR) and FDG-PET have improved sensitivity, but early findings can be subtle or missed.

**Abstract  
Body:** **Case:** A 63-year-old woman with autoimmune disease and prior Takotsubo cardiomyopathy presented with progressive dyspnea. Echocardiogram showed LVEF of 52% without regional wall motion abnormalities. CMR revealed mid-wall LGE in the septum and basal-mid anterior segments, extending to the RV insertion point, with elevated native T2 values, suggestive of active cardiac sarcoidosis. Retrospective comparison to a prior CMR showed progression of subtle basal LGE. FDG-PET confirmed focal myocardial uptake matching LGE, consistent with active CS.

**Decision-making:** This case highlights the role of serial multimodal imaging in detecting evolving myocardial involvement in CS. The concordant findings on CMR and PET increased diagnostic confidence in the absence of histological confirmation. The patient's autoimmune background and initially misleading Takotsubo-like presentation delayed diagnosis, reflecting the disease's protean nature.

**Conclusion:** In suspected CS, normal initial imaging should not preclude future evaluation. Serial CMR and PET are essential tools for diagnosis, risk stratification, and guiding therapy in CS, especially when biopsy is non-diagnostic or high-risk.



**Presentation  
Number:** 24-11

**Poster Board  
Number:**

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** PRIMARY CARDIAC EWING SARCOMA: DIAGNOSIS AND THE ROLE OF  
MULTIMODALITY IMAGING

**Author** Sunil Roy Thottuvelil Narayanan, Nizar Mullali Mohamed Kunhi, Vivekraj  
**Block:** Raju, Sandeep Rajasekharan, Aster Medcity, Kochi, India

**Background:** Primary cardiac Ewing sarcoma is extremely uncommon. Given its rapid progression, early recognition is crucial. This case highlights a rare presentation of ES with cardiac tamponade, emphasizing the value of a multimodal diagnostic approach.

**Case:** A 44-year-old woman presented with abdominal discomfort, nausea, and breathlessness. Clinical examination showed tachycardia, elevated JVP, and pedal edema. Echocardiography showed a large pericardial effusion with tamponade. Pericardiocentesis revealed hemorrhagic fluid cytology showed malignant cells.

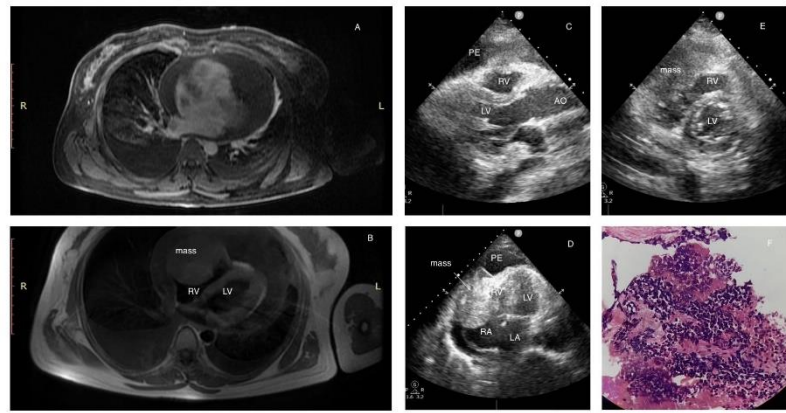
**Abstract  
Body:**

**Decision-making:** Cardiac magnetic resonance imaging (MRI) revealed a mass in the right ventricle that infiltrated the atrium. Positron emission tomography-computed tomography (PET-CT) revealed increased fluorodeoxyglucose (FDG) uptake in the right ventricle and mediastinal lymph nodes, with no primary tumor detected elsewhere. An endomyocardial biopsy confirmed the diagnosis of Ewing's sarcoma. The rapid reaccumulation of pericardial effusion necessitated repeated pericardiocentesis. An attempt to create a pericardial window was unsuccessful due to desaturation and bradycardia. The patient's condition subsequently deteriorated culminating in a fatal outcome.

**Conclusion:** Primary cardiac Ewing's sarcoma remains an extremely uncommon and aggressive malignancy. This case highlights the importance of integrating imaging, cytological analysis, and targeted biopsy for timely



## diagnosis



**Presentation  
Number:** 33-05

**Poster Board  
Number:**

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** WHEN THERE IS NO WAY IN: TWO TECHNICAL APPROACHES TO  
PACEMAKER IMPLANTATION IN BILATERAL SUBCLAVIAN VEIN OCCLUSION  
- A CASE SERIES

**Author Block:** Tommy Daindes, Doni Surya, Benny Afriansyah, Daulat Azhari, Monica  
Oktariyanthy, Putri Maghfirah Bahri, Tiffany Adelina, Viftrya Rosady, Hauda  
El Rasyid, Eka Fithra Elfi, M Djamil General Hospital, Padang, Indonesia

**Background:** Bilateral subclavian and axillary vein occlusion is a rare but significant challenge during pacemaker implantation, as it may prevent standard transvenous access. While balloon venoplasty is an established option to restore venous patency, alternative approaches, such as fluoroscopy-guided landmarking using a guidewire from a lower vein access, remain underutilized. This report presents two cases in which distinct technical strategies enabled successful device implantation despite complete bilateral venous occlusion.

**Abstract  
Body:** **Case:** **Case 1:** An 82-year-old female presented with recurrent syncope and sinus pauses. Axillary vein puncture was attempted, but J-wire advancement failed due to severe venous stenosis. Venography via the femoral vein confirmed total occlusion of both subclavian and axillary veins. A coronary guidewire was then inserted through the axillary vein and advanced into the brachial segment retrogradely. This wire served as a landmark to facilitate accurate subclavian puncture. Using this access, an active lead was placed with satisfactory parameters, the pulse generator was implanted subpectorally, and the procedure was completed uneventfully. **Case 2:** A 67-year-old male was admitted with an infected pacemaker system. After system extraction and temporary pacing placement, reimplantation was attempted on the contralateral side. Venography demonstrated total occlusion of the left subclavian vein. A wire-guided recanalization was performed via femoral access, followed by balloon venoplasty using 5×80 mm and 10×40 mm Mustang balloons. After

successful dilatation, the ventricular lead was positioned with optimal electrical parameters. The patient had an uneventful recovery.

**Decision-making:** Both wire-guided fluoroscopic landmarking and balloon venoplasty provide effective alternatives when standard transvenous access is unavailable. These techniques offer viable solutions for complex venous occlusions, enabling successful device implantation with good electrical parameters.

**Conclusion:** In complex bilateral venous occlusion, both techniques enable successful pacemaker implantation.

**Presentation  
Number:** 33-07

**Poster Board  
Number:**

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** UNMASKING BRUGADA SYNDROME POST-CARDIAC ARREST

**Author Block:** Mohamed Nasser Elshabrawi, Layan Sufian Aldib, Clinical Research  
Department, Aswan Heart Center, Magdi Yaqoup Foundation, Aswan,  
Egypt, School of Medicine, University of Jordan, Amman, Jordan

**Background:** Brugada syndrome is a sodium channelopathy that predisposes to life-threatening ventricular arrhythmias. It can mimic anterior STEMI, especially when unmasked by fever or misinterpreted ECGs. Recognition is essential to avoid misdiagnosis and enable targeted therapy.

**Abstract  
Body:** **Case:** A previously healthy young male experienced out-of-hospital cardiac arrest following acute chest pain. The initial ECG revealed ST-segment elevation in V1-V3, raising suspicion for anterior STEMI. However, emergent coronary angiography revealed angiographically normal coronary arteries. He was discharged on anti-ischemic therapy under a presumed diagnosis of myocardial infarction with non-obstructive coronary arteries (MINOCA). At outpatient follow-up, standard ECG appeared unremarkable. Upon repositioning V1-V2 to the second intercostal space, a diagnostic type 1 Brugada ECG pattern emerged. Ambulatory monitoring revealed non-sustained ventricular tachycardia. Family evaluation confirmed the pattern in a first-degree relative. The patient received an implantable cardioverter-defibrillator (ICD) but later developed recurrent shocks. After failed endocardial ablation attempts, epicardial substrate ablation targeting the arrhythmogenic zone in the right ventricular outflow tract resulted in complete arrhythmia suppression.

**Decision-making:** The initial misdiagnosis delayed appropriate management. Lead repositioning was essential for revealing the Brugada pattern. While the ICD was necessary for secondary prevention, the subsequent arrhythmia burden impaired quality of life. Epicardial ablation

proved curative by eliminating the substrate for ventricular arrhythmias.

**Conclusion:** Clinicians should consider Brugada syndrome in young patients presenting with cardiac arrest and normal coronary angiography. High-lead ECG placement is a simple but critical diagnostic maneuver. In refractory cases, epicardial ablation offers a path to rhythm control and improved patient outcomes.

**Presentation  
Number:** 33-09

**Poster Board  
Number:**

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** TEN YEARS OF MISDIAGNOSIS A CASE OF CHRONIC CONSTRICTIVE PERICARDITIS MASQUERADING AS IDIOPATHIC LIVER CIRRHOSIS

**Author Block:** YOGEESWARI VELLORE SATYANARAYANAN, PRASHANT VAIJYANATH, SARMISTHA GUPTA, ARUN THOMAS, MEDCARE ROYAL SPECIALTY HOSPITAL, DUBAI, United Arab Emirates, KOVAI MEDICAL CENTRE AND HOSPITAL, COIMBATORE, India

**Background:** Heart failure with preserved ejection fraction (HFpEF) presents significant diagnostic challenges, when caused by rare reversible conditions. This case highlights a decade-long diagnostic odyssey, misattributed to idiopathic liver cirrhosis, ultimately found to have **chronic constrictive pericarditis** (CCP) complicated by protein-losing enteropathy (PLE).

**Case:** 55 yr male reported with increasing fatiguability for last few months. His was diagnosed with **idiopathic hepatic fibrosis with cirrhosis** and **PLE since 10 yrs** extensively worked up by gastroenterologists. Autoimmune, infectious, and neoplastic etiologies were ruled out.

**Abstract Body:** He had elevated JVP and mild pitting pedal edema. ECG showed low voltage complexes, NtproBNP was elevated. Echo showed increased medial E' velocity, septal bounce, significant mitral and tricuspid inflow variation, annulus reversus, dilated IVC with expiratory diastolic hepatic vein flow reversal and bilateral pleural effusion all pointing classical signs of CCP. Extensive pericardial calcification noted on CT.

**Decision-making:** Elevated JVP in the setting of right heart failure features coupled with liver dysfunction and unexplained PLE raised the suspicion of CP / restrictive cardiomyopathy. Classical signs on echo with elevated medial E' velocity in the presence of HFpEf raised a strong suspicion of CP confirmed eventually by cardiac MRI.

Patient underwent high risk Near total pericardiectomy following which there was complete reversal of systemic effects including normalisation of

NTproBNP, liver functions and reversal of protein losing enteropathy.

**Conclusion:** The patient's symptomatic improvement and reversal of systemic effects post-pericardiectomy underscore the importance of maintaining a high index of suspicion for CCP in cases of unexplained right heart failure features, hepatic dysfunction and unexplained low hypoalbuminemia. Advanced imaging and Doppler echocardiographic markers with expert interpretation were pivotal in diagnosing and confirming constriction. Timely surgical intervention led to complete clinical and biochemical reversal, demonstrating the curability of this rare cause of HfpEF.

**Presentation  
Number:** 33-11

**Poster Board  
Number:**

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** OMALIZUMAB AS A TREATMENT OF ENDOMYOCARDIAL FIBROSIS IN  
HYPER EOSINOPHILIA MYOCARDITIS

**Author Block:** Omar Al-Assaf, Wael A. Jaber, Hind Osman, Juwairia Al Ali, Dubai Health,  
Dubai, United Arab Emirates

**Background:** Hypereosinophilia myocarditis is a rare cause of myocarditis and myocardial infarction with non-obstructive coronary arteries (MINOCA). It must be kept in mind, especially in patients with hyper-eosinophilia syndrome, asthma, or urticaria.

**Case:** A 46-year-old male, a known case of asthma, urticaria, recurrent GERD presented to our emergency department with chest pain. He reported similar symptoms two years prior and coronary angiography was done then which showed no obstructive coronary disease.

The patient's initial ECG was unremarkable, Laboratory workup showed an initial troponin level of 20 ng/dL (normal < 14 ng/dL), haemoglobin of 11.9 g/dL, eosinophil count of 28000 (normal count < 500) and echocardiogram showed ejection fraction of 55% with inferior wall hypokinesia. Troponin level was repeated three hours and was 54 ng/dL. Coronary angiography showed normal coronary arteries. The following day the patient continued to have chest pain and troponin increased to 793 ng/dL. He was started on high-dose aspirin and colchicine.

**Decision-making:** Cardiac MRI was done showing normal ejection fraction with endomyocardial fibrosis and oedema in the LAD or LCx supply regions. Infectious workup came out to be unremarkable hence the diagnosis was changed to MINOCA secondary to hyper-eosinophilia myocarditis. His symptoms improved with aspirin and colchicine; however, he could not tolerate them due to gastrointestinal upset; hence, he was discharged on clopidogrel, atorvastatin, and omalizumab for his asthma. On follow-up two weeks after discharge he was asymptomatic, Troponin level normalised , and eosinophilia count decreased to 900. The patient continued to receive

**Abstract  
Body:**



regular omalizumab and six months later his eosinophil levels normalised. A repeat echocardiography showed ejection fraction of 65% with normal wall motion. A repeat cardiac MRI was done showed improvement of the endomyocardial fibrosis and resolution of the oedema.

**Conclusion:** Monoclonal antibodies are known to decrease and control eosinophilia count. In this case the use of monoclonal antibodies also improved endomyocardial fibrosis related to hyper-eosinophilia syndrome.

**Presentation  
Number:** 37-07

**Poster Board  
Number:**

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** ASSOCIATIONS BETWEEN NON-HDL CHOLESTEROL LEVELS AND  
CARDIOVASCULAR RISK FACTORS IN MIDDLE EASTERN ASCVD PATIENTS:  
A CROSS-SECTIONAL ANALYSIS OF DEMOGRAPHIC, LIFESTYLE AND  
CLINICAL CHARACTERISTICS

**Author Block:** Osama Alkouri, Ayman J. Hammoudeh, Mohamad jarrah, Nader Alotaibi,  
Yarmouk University, Irbid, Jordan

**Background:** Despite meeting low-density lipoprotein cholesterol (LDL-C) targets, many atherosclerotic cardiovascular disease (ASCVD) patients experience recurrent events, indicating residual risk. Non-high-density lipoprotein cholesterol (non-HDL-C) and cholesterol ratios may better capture atherogenic burden, especially in regions with high metabolic disease prevalence. This study evaluates non-HDL-C and lipid ratios among Middle Eastern ASCVD patients.

**Abstract  
Body:** **Methods:** Data were drawn from the Jordan SMuRF-less Study and six Middle Eastern cardiovascular registries. Adults with ASCVD were stratified by standard modifiable risk factors (SMuRFs): hypertension, diabetes, dyslipidemia, and smoking. Demographics, clinical data, and treatments were standardized. Analyses included descriptive statistics, group comparisons, and multivariable logistic regression to identify predictors of elevated non-HDL-C.

**Results:** Among 2,763 ASCVD patients, 54% had high non-HDL-C. The desirable group was older (59.9 vs. 55.0 years,  $p < .001$ ), with fewer smokers (43.1% vs. 52.6%,  $p < .001$ ). Hypertension (64.2% vs. 51.0%) and heart failure (25.0% vs. 15.4%) were more common in the desirable group, while dyslipidemia (90.8% vs. 75.8%) and acute coronary syndrome (88.1% vs. 83.7%) were higher in the high group (all  $p < .001$ ). High non-HDL-C patients had worse LDL-C (141.3 vs. 81.1 mg/dL) and triglycerides (221.4 vs. 140.9 mg/dL,  $p < .001$ ). Age  $>60$  (OR = 0.45), hypertension (OR = 0.74), and heart failure (OR = 0.61) were inversely associated with high non-HDL-C ( $p$

< .01).

**Conclusion:** Younger Middle Eastern ASCVD patients had higher non-HDL-C, indicating early metabolic risk and residual burden. Non-HDL-C correlated strongly with smoking, dyslipidemia, and acute events. These findings support its use as a secondary lipid target and call for region-specific guidelines and early intervention strategies.

**Presentation  
Number:** 37-09

**Poster Board  
Number:**

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** TRENDS OF RHEUMATIC HEART DISEASE AND ENDOCARDITIS INCIDENCE  
IN AFRICA

**Author  
Block:** Demeke Mekonnen Mengistie, Gurbinder Singh, Papa Mouhamadou Diarra Fall, Mame Madjiguene KA, Edjimbi Johann, Hassim Bachir DIOP, Ahmed Tamer Abdelnoor, Tacko Niang, Ngoné Diaba Gaye, Elisabeth Lilian Pia Sattler, Tiffany Garry-Webb, Bamba Gaye, 1. Alliance for Medical Research in Africa (AMedRA), Dakar, Senegal

**Abstract  
Body:**

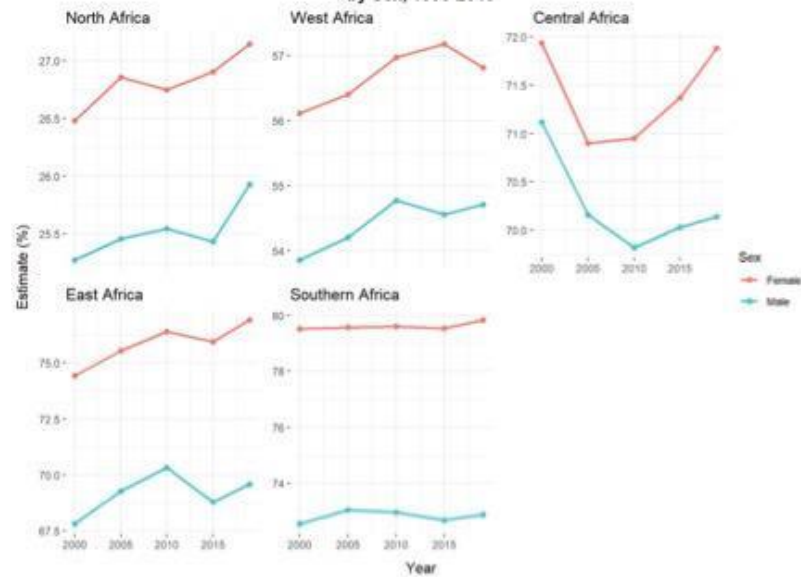
**Background:** Rheumatic heart disease and infective endocarditis remain major contributors to cardiovascular morbidity and mortality in low- and middle-income countries. While burden of these conditions is presumed high in Africa, comprehensive, sex- and region-specific data remain lacking. Objective: To estimate the incidence of RHD and infective endocarditis in 54 African countries by sex and region from 2000 to 2019.

**Methods:** Age-standardized incidence rates were obtained from the WHO Health Inequality Data Repository, using Global Burden of Disease 2019 estimates. Trends were analyzed using Joinpoint Regression (v5.3.0.0) with Monte Carlo permutation testing. Analyses were stratified by sex and UN African region. Data visualization was performed using R (v4.4.0).

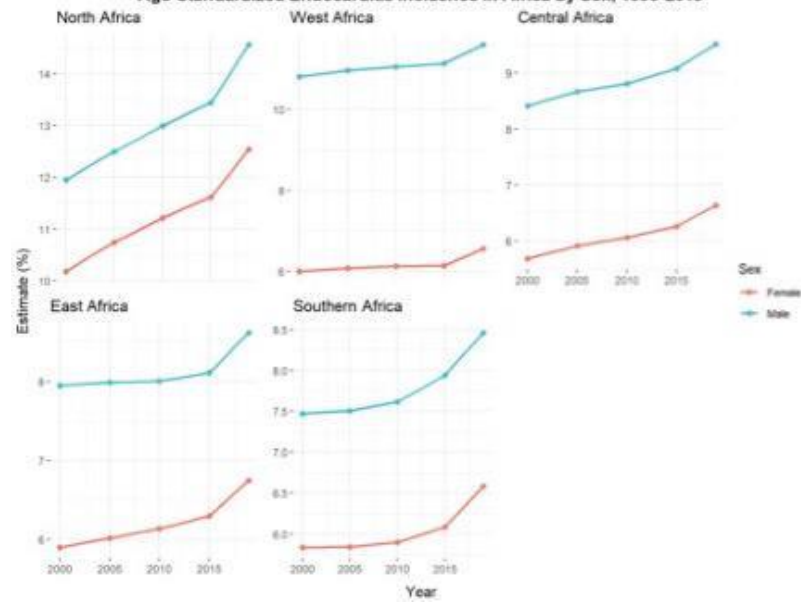
**Results:** RHD incidence increased slightly from 60-64 to 61-65 cases per 100,000 population between 2000 and 2019. Central Africa showed a marked decline between 2005 and 2010, while other regions experienced gradual increases. Infective endocarditis incidence rose from 6-9 to 7-10 per 100,000. Women had higher RHD incidence, whereas men consistently showed higher incidence of endocarditis across all regions.

**Conclusion:** Incidence of RHD and infective endocarditis has risen steadily across Africa over the past two decades, with clear sex and regional disparities. These findings underscore the urgent need for strengthened surveillance systems and tailored prevention strategies to address this growing cardiovascular burden.

**Age-Standardized Rheumatic heart disease Incidence among Adults in Africa by Sex, 1990-2019**



**Age-Standardized Endocarditis Incidence in Africa by Sex, 1990-2019**



**Presentation  
Number:** 37-11

**Poster Board  
Number:**

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** LEFT VENTRICULAR OUTFLOW TRACT GEOMETRY AS A PREDICTOR OF PERMANENT PACEMAKER IMPLANTATION AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION USING THE EVOLUT SERIES

**Author  
Block:** Mahmoud Abdelshafy, Angela McInerney, Ahmed Ahmed Elmeanawy, Osama Soliman, Darren Mylotte, Mohammad Abdelghani, Department of Cardiology, Al-Azhar University, Cairo, Egypt, Department of Cardiology, Galway University Hospitals and University of Galway, Galway, Ireland

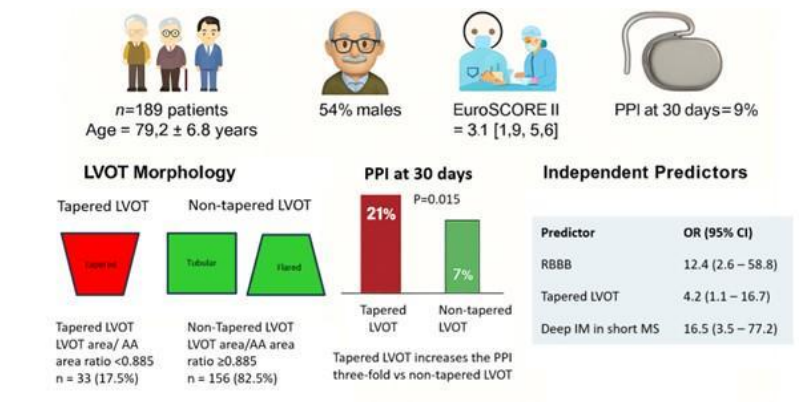
**Background:** Predicting the need for permanent pacemaker implantation (PPI) after transcatheter aortic valve implantation (TAVI) is crucial for procedural planning and patient counselling. We aimed to evaluate whether left ventricular outflow tract (LVOT) morphology, specifically a tapered configuration, predicts conduction disturbances requiring PPI after TAVI using the Evolut self-expanding valve.

**Methods:** This retrospective multicentre study included patients undergoing TAVI with the self-expanding Evolut series. Pre-TAVI MSCT analysis included LVOT shape, membranous septum (MS) length, and landing-zone calcification. Implantation depth (ID) was measured on final aortography.

**Abstract  
Body:** **Results:** A total of 189 patients were included (age, 79.2±6.8 years, 46% female, EuroSCORE II, 3.1[1.9, 5.6]). Seventeen patients (9%) required PPI at 30 days. Patients with a tapered LVOT had a three-fold higher PPI rate compared with those with a non-tapered configuration (21% vs. 7%, p = 0.015). PPI was significantly associated with pre-existing right bundle branch block (RBBB) (OR: 12.4, p = 0.001), tapered LVOT (OR: 4.2, p = 0.041), and deep valve implantation with a short MS (OR: 16.4, p < 0.001).

**Conclusion:** Tapered LVOT configuration, pre-existing RBBB, and deep implantation in the context of a short MS are independent predictors of PPI following TAVI with the Evolut TAVI platform. Integrating LVOT configuration into pre-procedural planning may improve patient selection and prediction

of PPI.



**Presentation  
Number:** 51-001

**Poster Board  
Number:** 001

**Topic 1:** AI in Cardiology

**Publishing  
Title:** APPLIED MACHINE LEARNING TO PREDICT 1-YEAR MAJOR ADVERSE CARDIOVASCULAR EVENTS IN THE ELDERLY AFTER PERCUTANEOUS CORONARY INTERVENTION

**Author  
Block:** Amir Nasrollahizadeh, Amir Ghaffari Jolfayi, Ali Nasrollahizadeh, Homayoun Pishraft-Sabet, Amir Azimi, Yaser Jenab, mehdi mehrani, Kaveh Hosseini, Hamidreza Soleimani, Tehran Heart Center, Tehran, Iran (Islamic Republic of)

**Background:** Ischemic heart disease remains the leading cause of mortality, particularly among the elderly. Previous risk stratifications struggle to accurately predict 1-year Major Adverse Cardiac Events (MACE) after percutaneous coronary intervention (PCI) in elderly patients due to the complex comorbidities and age-related physiological changes.

**Methods:** This retrospective cohort study analyzed data from 1,358 patients aged  $\geq 65$  years who underwent PCI, using demographic, clinical, and laboratory features to predict 1-year MACE. Machine learning models, including XGradient Boosting (XGB) and Random Forest (RF) were evaluated for predictive accuracy, with data preprocessing involved feature selection, normalization, and Synthetic Minority Oversampling Technique to address class imbalance. Shapley Additive Explanations (SHAP) analysis was conducted to interpret model predictions

**Abstract  
Body:**

**Results:** XGB and RF were the top-performing models, with AUCs of 95.19% and 95.36%, respectively; RF showed higher sensitivity (77.59%) and specificity (96.34%). Significant predictors included pre-PCI ejection fraction, age, creatinine, fasting blood sugar, and LDL/HDL ratio, with SHAP analysis confirming their significance.

**Conclusion:** Machine learning models, particularly XGB and RF, outperform traditional risk stratification tools in predicting 1-year MACE in elderly post-PCI patients. The study underscores the value of ML-driven approaches for tailored cardiovascular risk assessment.



# Applied Machine Learning to Predict 1-Year Major Adverse Cardiovascular Events in the Elderly After Percutaneous Coronary Intervention

## Study Population and Design



This retrospective cohort study analyzed data from 1,358 patients aged  $\geq 65$  who underwent PCI

## Outcome and MACE definition

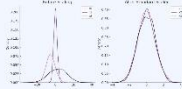


152 patients (11.2%) experienced MACE during the 1-year follow-up period after PCI

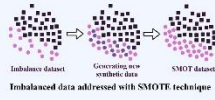
## Data Preparation



Feature extraction with identifying significant variables between MACE and Non-MACE groups, followed by elimination of highly correlated variables

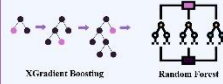


Data was normalized with StandardScaler



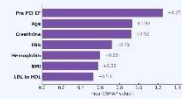
Imbalanced dataset  $\Rightarrow$  Generating new synthetic data  $\Rightarrow$  SMOTE dataset  
Imbalanced data addressed with SMOTE technique

## Models Performance



XGB and RF demonstrate superior discriminative ability with AUC values of 95.1% and 95.3% respectively

## Feature Importance



SHAP analysis revealed the most influential predictors of MACE

**Presentation  
Number:** 51-002

**Poster Board  
Number:** 002

**Topic 1:** AI in Cardiology

**Publishing  
Title:** MACHINE LEARNING PERFORMANCE FOR CEREBROVASCULAR RISK  
PREDICTION IN ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-  
ANALYSIS

**Author Block:** Morvarid Taebi, Alireza Arvin, Alireza Azarboo, Amir Hossein Behnoush,  
Mahsa Momenzadeh, Parisa Fallahtafti, ZAINAB HUMAYUN, Masih Tajdini,  
Tehran Heart Center Research Institute, Tehran, Iran (Islamic Republic of)

**Background:** Atrial fibrillation (AF), a major risk factor for cerebrovascular accidents (CVA), requires individualized risk stratification. The CHA<sub>2</sub>DS<sub>2</sub>-VASc score, though practical, is based on limited clinical variables and may not capture the multifactorial nature of thromboembolism. Machine learning (ML) offers a data-driven approach to improve CVA prediction by integrating clinical, biomarker, and genetic data. This study evaluated the predictive performance and clinical readiness of ML-based models for CVA risk in AF.

**Abstract  
Body:** **Methods:** A systematic search of PubMed, Embase, and Web of Science was done in February 2025 for studies applying ML algorithms to predict CVA in AF. A random-effects meta-analysis with Hartung-Knapp adjustment pooled area under the curve (AUC) values from ML- and CHA<sub>2</sub>DS<sub>2</sub>-VASc-based models. Subgroup analyses compared algorithm types, and meta-regression examined factors influencing model performance.

**Results:** Seventeen studies were included in the systematic review; 12 that utilized comparable registry-based datasets were eligible for meta-analysis, encompassing 46 ML-based and 12 CHA<sub>2</sub>DS<sub>2</sub>-VASc-based models. ML models achieved a pooled area under the curve (AUC) of 0.654 (95% confidence interval [CI]: 0.632-0.675), comparable to that of traditional models (AUC = 0.637, 95% CI: 0.618-0.656; p = 0.1249). Although most individual studies reported at least one ML model that outperformed CHA<sub>2</sub>DS<sub>2</sub>-VASc, pooled performance did not significantly differ by algorithm family: AUCs were 0.665 for tree-based models, 0.680

for support vector machines, 0.653 for logistic regressions, and 0.606 for neural networks. Higher CVA prevalence was significantly associated with improved model performance ( $\beta = 0.0688$ ,  $p < 0.0001$ ). Notably, only two studies conducted external validation—a key requirement for evaluating generalizability and clinical applicability.

**Conclusion:** ML models show promise in improving CVA risk prediction in AF, with some outperforming traditional scores. However, variability in performance and limited external validation highlight the need for algorithm-specific evaluation and standardization before clinical implementation.

**Presentation  
Number:** 51-003

**Poster Board  
Number:** 003

**Topic 1:** AI in Cardiology

**Publishing  
Title:** MACHINE LEARNING-BASED DECONVOLUTION OF IMMUNE INFILTRATES  
IN CARDIAC FIBROSIS

**Author Block:** Husna Irfan Thalib, Sariya Khan, Ayesha Jamal, Dr. Nadeem Ikram, Ridha Umar, Memona Ahmad, Mahnoor Hayat, Fathma Islam, Kausar Mahaboob Khan Pathan, Batterjee Medical College, Jeddah, Saudi Arabia, University of Sharjah, College of Medicine, Sharjah, United Arab Emirates

**Background:** Heart failure with preserved ejection fraction (HFpEF) characterized by myocardial fibrosis and diastolic dysfunction has limited effective therapies. Immune-mediated mechanisms are increasingly recognized as key contributors to HFpEF pathogenesis. This study focuses on using machine learning (ML)-based immune deconvolution to identify specific immune cell populations in fibrotic pathways to provide important insights regarding HFpEF mechanisms and therapeutic targets.

**Abstract Body:** **Methods:** RNA sequencing datasets from myocardial tissues of HFpEF patients and healthy controls were analyzed using machine learning deconvolution algorithms (CIBERSORTx and xCell). Immune cell proportions were correlated with fibrotic gene expression, including collagen I, fibronectin, and TGF- $\beta$ 1. Clustering identified immune-fibrotic phenotypes. Predictive models assessed the role of specific immune infiltrates in fibrosis severity and clinical outcomes.

**Results:** Machine learning analysis revealed increased infiltration of M2 macrophages and regulatory T cells (Tregs) in fibrotic myocardial regions of HFpEF patients, with reduced cytotoxic NK cell activity. M2 macrophage abundance strongly correlated with collagen I and fibronectin expression ( $r = 0.89$ ,  $p < 0.01$ ), highlighting their role in myocardial fibrosis. Tregs were linked to elevated TGF- $\beta$ 1 signaling, contributing to fibrotic remodeling. Clustering identified two immune-fibrotic subtypes. The inflammatory-dominant subtype showed high pro-inflammatory cytokines (IL-6, TNF- $\alpha$ ) with moderate fibrosis, associated with early-stage HFpEF. The fibrosis-

dominant subtype exhibited extensive ECM deposition, greater myocardial stiffness, and impaired diastolic function, correlating with worse outcomes.

**Conclusion:** This study highlights the role of M2 macrophages, Tregs, and TGF- $\beta$ 1 signaling in HFpEF-associated myocardial fibrosis, identifying distinct immune-fibrotic phenotypes with potential diagnostic and therapeutic relevance. Targeting macrophage polarization and fibrotic signaling pathways could potentially be identified as a new treatment strategy to prevent HFpEF progression.

**Presentation  
Number:** 51-004

**Poster Board  
Number:** 004

**Topic 1:** AI in Cardiology

**Publishing  
Title:** MACHINE LEARNING APPLICATIONS IN THE DIAGNOSIS AND  
PROGNOSTIC ADVANCES IN CARDIAC SARCOIDOSIS: A SYSTEMATIC  
REVIEW AND META-ANALYSIS

**Author Block:** Beyzanur Güney, Omar Alomari, Muhammed Edib Mokresh, Neslihan Betül  
Kandilcik, Rumeysa Yegin, Cihangir Kaymaz, Rana Al Juhmani, Kosuyolu  
Training and Research Hospital Dept. of Cardiology, Istanbul, Turkey,  
Hamidiye International School of Medicine, University of Health Sciences,  
Istanbul, Turkey

**Background:** Cardiac sarcoidosis (CS) is a serious condition characterized by granulomatous infiltration of heart tissue, resulting in arrhythmias, conduction issues, and heart failure. While imaging techniques like FDG-PET and cardiac magnetic resonance (CMR) have improved diagnostic capabilities, their interpretation is still subjective. Recent advancements in machine learning (ML) and deep learning (DL) show potential for enhancing diagnostic accuracy through automated image analysis. This study evaluates the diagnostic performance and clinical utility of ML and DL approaches for diagnosing CS.

**Abstract  
Body:** **Methods:** We conducted a systematic review and meta-analysis in accordance with PRISMA guidelines. Databases including PubMed, Embase, Scopus, Cochrane Library, and Web of Science were searched for studies evaluating ML and DL applications in the diagnosis of CS. Data extraction focused on the ML/DL models implemented and their diagnostic performance metrics. Meta-analysis was performed using R (version 4.3.3), and heterogeneity was assessed using  $\tau^2$ ,  $I^2$ , and Q-tests.

**Results:** 14 studies encompassing data from 1,009 patients were included. Among these studies, 11 focused on the diagnosis of CS, while 3 were designed to predict the prognosis or mortality. The diagnostic strategies employed varied across studies, including PET/CT or PET-MRI in 7 studies, echocardiography in 1 study, deep learning applied to electrocardiogram

(ECG) signals in 1 study, CMR with T1 and T2 mapping in 1 study, PET-CMR hybrid imaging in 2 studies, and a signal-based polar map classification approach in 1 study. Meta-analysis of model performance showed a pooled accuracy of 86.2% (95% CI: 80.5-91.8) and a pooled AUC of 88.3% (95% CI: 82.8-93.8), with high heterogeneity observed. Random forest models demonstrated the highest performance, with accuracy and AUC exceeding 94% and 97%, respectively.

**Conclusion:** ML and DL methods demonstrate high diagnostic accuracy and prognostic value in CS. These techniques facilitate automated, objective interpretation of complex imaging data and may enhance clinical decision-making through early and reliable detection of cardiac involvement.

**Presentation  
Number:** 51-005

**Poster Board  
Number:** 005

**Topic 1:** AI in Cardiology

**Publishing  
Title:** DEFINING LEFT BUNDLE BRANCH BLOCK WITH NOVEL CINEECG

**Author Block:** habib khan, Bryan F. Stringer, Peter van Dam, Western University, London, Canada

**Background:** Multiple diagnostic criteria to define left bundle branch block (LBBB) exist using standard 12-lead ECGs. Recently, new criteria have been proposed to differentiate true LBBB from distal conduction disease in the setting of complications following transcatheter aortic valve implantation (TAVI). This distinction carries clinical significance for physiologic pacing strategies. CineECG is a novel software that generates vectorcardiograms projected onto a reference 3D model. Prior studies have demonstrated its utility in evaluating conduction disease and pathological conditions such as Brugada syndrome. This study aims to apply CineECG to characterize new LBBB in patients following TAVI and to help establish a more precise definition in this population.

**Abstract  
Body:** **Methods:** This retrospective study was conducted at a single academic center in Canada. Patients who underwent TAVI between April 2020 and September 2024 were included if their pre- and post-TAVI ECGs demonstrated new wide QRS rhythms. Patients with pre-existing pacing or right bundle branch block were excluded. CineECG Virtual Mapper was used to generate vectorcardiograms, compute temporospatial activation trajectories, and project them onto a 3D model. Parameters such as QRS duration, QRS area, myocardial depolarization timing, and septal blush velocity were analyzed.

**Results:** Of 114 patients who developed LBBB following TAVI, the QRS duration was  $147.6 \pm 12.4$  ms, and the mean QRS area was  $125.1 \pm 38.3$   $\mu$ Vs. Mean time to 50% depolarization of the left ventricle, septum, and right ventricle was  $85.7 \pm 7.4$  ms,  $72.9 \pm 5.6$  ms, and  $44.5 \pm 6.1$  ms, respectively. Septal blush velocity ranged from -0.64 to 0.57, averaging  $-0.31 \pm 0.14$ ,



indicating a global depolarization pattern from right to left. All indices differed significantly from baseline ECGs ( $p < 0.05$ ).

**Conclusion:** This study highlights the distinct characteristics of new-onset LBBB post-TAVI using vectorcardiographic analysis. These findings potentially support a non-invasive approach to more accurately diagnose true LBBB and differentiate it from diffuse conduction disease, aiding in the selection of patients for cardiac resynchronization or left bundle area pacing.

**Presentation  
Number:** 51-006

**Poster Board  
Number:** 006

**Topic 1:** AI in Cardiology

**Publishing  
Title:** THE SILENT STETHOSCOPE: A CHEST-WORN AI PATCH FOR CONTINUOUS  
CARDIAC SURVEILLANCE

**Author Block:** Umid Huseynzada, Ondokuz Mayıs University, Samsun, Turkey

**Abstract  
Body:**

**Background:** Cardiac murmurs are often the first audible signs of valvular or structural heart disease, yet they are frequently missed in routine care due to limited auscultation frequency, time constraints, and interobserver variability. In underserved regions, access to skilled clinicians or diagnostic tools is limited, delaying intervention. We present “The Silent Stethoscope,” a wearable chest patch designed to enable continuous, autonomous heart sound monitoring using embedded artificial intelligence.

**Methods:** The device comprises a flexible digital acoustic sensor array coupled with an edge-optimized convolutional neural network (CNN). Heart sound recordings from the PhysioNet dataset were processed into mel spectrograms and used to train the model to detect abnormal sounds, including murmurs, gallops, and pericardial rubs. The CNN was designed for real-time, low-power inference on embedded processors (e.g., ARM Cortex-M4). Simulated output included timestamped abnormal events and brief audio segments, securely transmitted to a physician dashboard.

**Results:** On a test dataset of 3,000 labeled heart sound segments, the model achieved 91.3% accuracy, 88.5% sensitivity, and 93.0% specificity. Average inference time per segment was under 300 milliseconds on a simulated embedded chip. System workflow simulations demonstrated reliable event triggering, minimal data load, and timely physician notifications suitable for outpatient or remote environments.

**Conclusion:** The Silent Stethoscope offers a novel, low-cost solution for real-time, passive cardiac surveillance. Its potential to democratize early detection of valvular disease, particularly in remote or resource-limited

settings, may transform how clinicians monitor, diagnose, and manage cardiovascular conditions across the globe.

**Presentation  
Number:** 51-007

**Poster Board  
Number:** 007

**Topic 1:** AI in Cardiology

**Publishing  
Title:** META-ANALYSIS OF MACHINE LEARNING MODELS USING WEARABLE  
SENSORS FOR EARLY CARDIOVASCULAR EVENT PREDICTION

**Author Block:** Ahmed Elsayed, Sara Elsenary, Ahmed Elmetwally, Ola N. Moustafa,  
Hasnaa Elshazly, Yara Hamdi, Mariam Mohamed, Mahmoud M. Elsayed,  
MME Foundation, Mansoura, Egypt

**Abstract  
Body:**

**Background:** Wearable sensors and machine learning (ML) are transforming preventive cardiology by enabling early detection of cardiovascular events. However, the performance and clinical utility of ML models across wearable platforms remain variable. We conducted a meta-analysis to evaluate the predictive accuracy, feature importance, and clinical relevance of ML-based wearable systems for early cardiovascular event detection.

**Methods:** A systematic review of studies from 2015 to 2024 was conducted using PubMed, Scopus, and IEEE Xplore. Inclusion criteria: use of wearable sensors (e.g., ECG, PPG, accelerometers), ML-based prediction of cardiovascular events (e.g., MI, AF, stroke), and reported performance metrics (AUC, sensitivity, specificity). Meta-analysis was performed using R (meta, metafor packages). Subgroup analysis examined sensor type, algorithm class (e.g., random forest, deep learning), and validation method.

**Results:** From 1,324 records, 39 studies met inclusion. Across pooled data, the mean AUC for ML models was 0.86 (95% CI: 0.83-0.89), with sensitivity and specificity of 84% and 81%, respectively. Deep learning models outperformed traditional ML (AUC 0.89 vs 0.83,  $p=0.02$ ). ECG-based wearables showed higher accuracy than PPG-only devices. SHAP-based analyses revealed heart rate variability and nocturnal ECG patterns as key predictors across models. Studies using prospective validation had better generalizability scores.

**Conclusion:** ML models leveraging wearable data demonstrate strong potential for early cardiovascular event prediction, particularly when using

ECG-rich features and explainable AI. Standardized validation and integration with clinical workflows will be critical to realizing their preventive promise.

**Presentation  
Number:** 51-008

**Poster Board  
Number:** 008

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** EFFICACY OF PULSED FIELD ABLATION VERSUS THERMAL ABLATION FOR THE TREATMENT OF ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Author Block:** Abdelaziz Awad, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Cairo, Egypt

**Abstract  
Body:**

**Background:** Pulsed-field ablation (PFA) is a notable alternative to thermal ablation for pulmonary vein isolation (PVI) in atrial fibrillation (AF) patients. This review examines the efficacy and safety of PFA compared to thermal ablation for first-time PVI in AF patients.

**Methods:** We searched PubMed, Scopus, Web of Science, and the Cochrane Library for articles from inception to February 2025. We estimated hazard ratios (HR) with 95% confidence intervals (CI) using a Cox regression model to compare freedom from atrial tachyarrhythmia between PFA and thermal ablation. A random-effects model compared AF recurrence, durable PVI, redo procedures, phrenic nerve palsy (PNP), cardiac tamponade, esophageal injury, complications from groin and vascular access (VAC), thromboembolic events, and procedural metrics between the groups.

**Results:** Twenty-seven studies with 8,546 patients were analyzed. PFA significantly reduced the risk of atrial tachyarrhythmia recurrence compared to thermal ablation (HR: 1.28, 95% CI [1.10, 1.48],  $P = 0.001$ ). It also outperformed thermal ablation in AF recurrence (RR = 0.72, 95% CI [0.58, 0.89],  $P < 0.001$ ) and transient PNP (OR = 0.23, 95% CI [0.11, 0.49],  $P < 0.001$ ). No significant differences were found between the two groups in durable PVI, redo procedures, persistent PNP, cardiac tamponade, esophageal injury, groin complications, vascular access complications, or thromboembolic events.

**Conclusion:** PFA was associated with lower rates of tachyarrhythmia recurrence, AF recurrence, and transient PNP rates compared to thermal

ablation in AF patients undergoing first-time PVI. There was no significant difference between the two groups in other clinical outcomes.

**Presentation  
Number:** 51-009

**Poster Board  
Number:** 009

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** DIAGNOSTIC ACCURACY OF DIGITAL WEARABLE DEVICES FOR DETECTING  
ATRIAL FIBRILLATION AFTER CARDIAC SURGICAL PROCEDURES:  
SYSTEMATIC REVIEW AND META-ANALYSIS

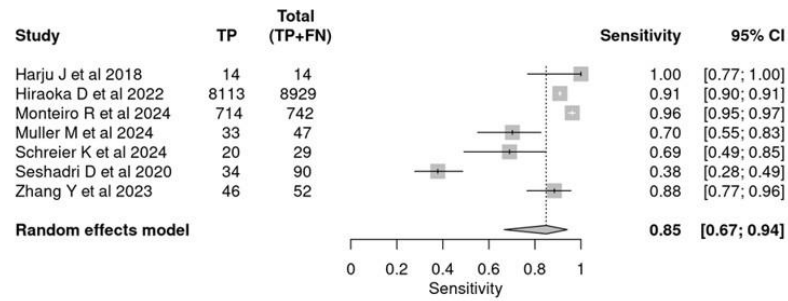
**Author  
Block:** Abdelaziz Awad, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Cairo,  
Egypt

**Abstract  
Body:** **Background:** Atrial fibrillation (AF) is a common complication after cardiac surgery, with conventional monitoring limited by short duration. This meta-analysis evaluates digital wearable devices for postoperative AF detection. **Methods:** A systematic search of PubMed, Embase, and Web of Science (until February 25, 2025) identified seven studies (674 participants). **Results:** Wearable devices demonstrated pooled sensitivity of 0.85 (95% CI: 0.67-0.94) and specificity of 0.97 (95% CI: 0.90-0.99). The summary receiver operating characteristic (SROC) curve showed an area under the curve (AUC) of 0.97. Subgroup analysis revealed higher sensitivity (0.90, 95% CI: 0.79-0.95) and specificity (0.95, 95% CI: 0.82-0.99) with 12-lead ECG as the reference, while 5-lead ECG had lower sensitivity (0.52, 95% CI: 0.30-0.73) but high specificity (0.99, 95% CI: 0.96-1.00). **Conclusion:** Wearable devices offer accurate, continuous AF monitoring

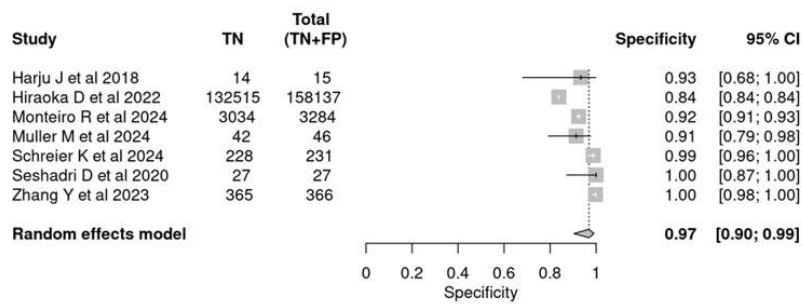


post-cardiac surgery, aiding early detection and management.

A) Sensitivity



B) Specificity



**Presentation  
Number:** 51-010

**Poster Board  
Number:** 010

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** GENETICS OF SINOATRIAL NODE FUNCTION

**Author Block:** Elena Badykova, Marat Badykov, Naufal Zagidullin, Bashkir State Medical University, Ufa, Russian Federation

**Background:** Sick sinus syndrome (SSS) manifests on electrocardiogram, the frequency increases with age, it causes sudden mortality and leads to the installation of pacemakers. It has both fibrous and genetic nature and characterizes by different syndrome types. **Goal:** To investigate gene-biomarkers of fibrous tissue and ion channels in different variants of SSS.

**Abstract  
Body:** **Methods:** Molecular-genetic analysis was performed from venous leucocytes in 11 polymorphic loci of 11 DNA genes-candidates of ion channels and connective tissue (HCN4 rs7164883, SCN10Ars6795970, CHRM2 rs2350782, KCNE1 rs1805127, SYT10 rs7980799, MYH6 rs365990, CLCNKArs10927887, FNDC3BrS9647379, MIR146Ars2910164, KCNN3 rs13376333, MIR196A2 rs11614913) in 3 groups: 300 patients with SSS, 300 - healthy individuals and 300 - with coronary heart disease (CHD).

**Results:** Was shown that with SSS could be associated with gene KCNE1 (coding voltage-gated potassium channels)rs1805127 loci (OR=1.46) via heterozygote genotype C/T in sinus bradycardia and homozygote C/C - in SA arrest; with gene KCNN3 (coding potassium intermediate/small conductance calcium-activated channel) rs13376333 (OR=1.61) via heterozygote genotype C/T in sinus bradycardia and in SA arrest. Polymorphic loci of MIR146Ars2910164 и MIR196A2 rs11614913 genes (OR=1.66), coding fibrous tissues, was also shown to be evident in bradycardia and SA arrest.

**Conclusion:** Among investigated 11 genes of ion channels and fibrous tissue SSS variants sinus bradycardia and SA arrest could be associated

with ion channels genes KCNE1 and KCNN3 and fibrous tissue genes  
MIR146Ars2910164 and *MIR196A2* rs11614913.

**Presentation  
Number:** 51-011

**Poster Board  
Number:** 011

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** PRIMERY ENDPOINTS OF PATIENTS WITH SINUS NODE DYSFUNCTION IN FOLLOW-UP STUDY

**Author** Elena Badykova, Marat Badykov, Irina Lakman, Naufal Zagidullin, Bashkir  
**Block:** State Medical University, Ufa, Russian Federation

**Abstract  
Body:**

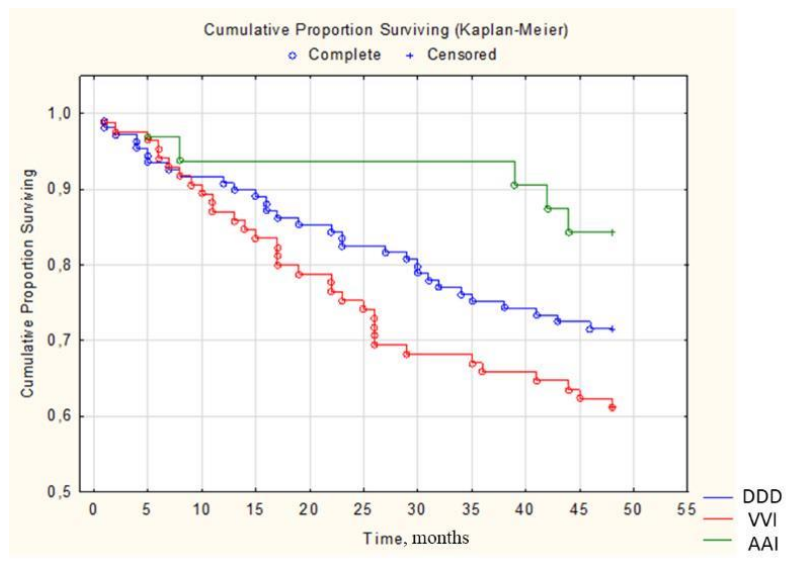
**Background:** Sinus node dysfunction (SND) morbidity increases with age, it is associated with coronary heart disease, may cause sudden deaths, and leads to pacemaker implantation. It was shown that different types of pacemakers may unequally impact on the mortality rate in SSS patients. **The aim** of the study was survival analyze in Follow-up (FU) analysis in patients with SND with implanted pacemaker.

**Methods:** A register of patients with SND (n=610) has been set and analyzed for general mortality depending upon SND variant, type of electric pacemaker and rhythm after implantation in the FU period (39,7±0,8 months).

**Results:** Most unfavorable SND variant was sinoatrial node block of II grade (19.7 % of deaths) and favorable - bradycardia (11.4 %). Maximal number of deaths were observed in ventricular pacemakers VVI group (24,6%, Fig. 1), less - in dual-chamber pacemakers DDD (11.7 %) and minimal - in atrial AAI (5.5 %). Sinus rhythm after pacemaker's implantation was most favorable (9.2 %), mortality increased in electric pacemaker rhythm (13.2 %) and most unfavorable was in atrial fibrillation (20 %).

**Conclusion:** Long term FU general mortality analysis showed most unfavorable sinoatrial node arrest SND variant; patients with AAI pacemakers implantation showed better life expectancy then with DDD and especially VVI; after pacemaker implantation sinus rhythm was superior to

pacemaker rhythm and atrial fibrillation.



**Presentation  
Number:** 51-012

**Poster Board  
Number:** 012

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** DEMOGRAPHIC AND ANTHROPOMETRIC DETERMINANTS OF CARDIAC  
ARRHYTHMIAS: FINDINGS FROM A LARGE-SCALE MASHAD STUDY

Reza Khademi, Sara Saffar Soflaei, Niloofar Shabani, Majid Ghayour-

**Author Block:** Mobarhan, Mashhad University of Medical Sciences, Mashhad, Iran  
(Islamic Republic of)

**Background:** Given the rising prevalence of cardiac arrhythmias and their association with adverse cardiovascular outcomes such as stroke and heart failure (HF) and the potential links to demographic and anthropometric factors, we aimed to investigate these associations within a general population sample in northeastern Iran.

**Methods:** We evaluated data from 9,035 participants of the Mashhad Stroke and Heart Atherosclerotic Disorder (MASHAD) study. Demographic, lifestyle, and anthropometric variables were collected via structured questionnaires, and resting electrocardiograms were classified as normal, minor, or major arrhythmias using the Minnesota coding system as major arrhythmias included atrial fibrillation (AF) or flutter, artificial pacemaker, nonspecific intraventricular block, right bundle branch block, complete or intermittent left bundle branch block, second-degree and third-degree atrioventricular block, Wolff-Parkinson-White pattern, and ventricular or supraventricular tachycardias (VT, SVT) and minor arrhythmias included short or prolonged PR interval, premature supraventricular, ventricular or junctional beats, sinus tachycardia, and sinus bradycardia.

**Abstract Body:** **Results:** Normal electrocardiograms were seen in 64.3% (5,804) of participants, while 20.7% (1868) had minor and 15.1% (1363) had major arrhythmias. Being over 45 years of age was strongly associated with both minor (OR = 1.54, 95% CI [1.26-1.87],  $p < 0.001$ ) and major (OR = 1.80, CI [1.45-2.24],  $p < 0.001$ ) arrhythmias, even after adjustment. Men were more likely to experience arrhythmias, with elevated odds for both minor (OR = 1.37, 95% CI [1.17-1.61],  $p < 0.001$ ) and major (OR = 1.25, 95% CI: 1.04-1.50,

p<0.05) arrhythmias. Among various body measures, only demi-span remained significantly associated with major arrhythmias after adjustment (OR = 0.98, 95% CI [0.96-0.99], p<0.05).

**Conclusion:** The current study underscores the notable influence of age, sex, and specific body measurements on arrhythmia risk and suggests the value of tailored screening and prevention strategies in older adults as well as other high-risk groups.

**Presentation Number:** 51-013

**Poster Board Number:** 013

**Topic 1:** Cardiac Arrhythmias

**Publishing Title:** ASSOCIATION BETWEEN AIR POLLUTION AND ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Author Block:** Amal A. Alsubaiei, Abdulla S. Alghatam, Kuwait Institute for Medical Specializations, Kuwait City, Kuwait, Kuwait

**Background:** Atrial fibrillation (AF) is the most prevalent sustained cardiac arrhythmia worldwide, significantly increasing the risk of stroke, heart failure, and mortality. Traditional risk factors are well-known; however, emerging evidence implicates environmental factors, particularly air pollution, in AF development and progression. Fine particulate matter (PM<sub>2.5</sub>) and other air pollutants have been associated with cardiovascular diseases through mechanisms such as oxidative stress and inflammation, but their relationship with AF remains inconclusive.

**Abstract Body:** **Methods:** A systematic review and meta-analysis were conducted following PRISMA guidelines. We searched PubMed, Scopus, Embase, and Web of Science up to June 2025 for studies assessing the association between air pollutants and AF risk. Eligible studies reporting quantitative data were included. Data extraction and quality assessment using the NIH tool were independently performed by two reviewers. Pooled odds ratios (ORs) with 95% confidence intervals (CIs) were calculated using a random-effects model.

**Results:** Twenty-six studies involving over 41 million participants were included. Exposure to PM<sub>2.5</sub> (OR 1.03; 95% CI 1.02-1.04) and PM<sub>10</sub> (OR 1.03; 95% CI 1.01-1.05) was significantly associated with increased AF risk. NO<sub>2</sub> exposure showed a significant association with long-term AF risk (OR 1.02; 95% CI 1.01-1.04), but short-term exposure was not significant. No significant associations were found for ozone (O<sub>3</sub>) or carbon monoxide (CO).

**Conclusion:** Both short- and long-term exposure to particulate matter and long-term NO<sub>2</sub> exposure are associated with increased AF risk, highlighting



air pollution as a modifiable risk factor for AF. Further research is needed to clarify mechanisms and regional differences.

**Presentation  
Number:** 51-014

**Poster Board  
Number:** 014

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** EPICARDIAL VT ABLATION VIA CORONARY VENOUS EXIT IN TRANSPLANT CANDIDATE WITH LATERAL EPICARDIAL SCAR

**Author** Ali Mahmoud Alzammam, Faisal AlAnazi, Mohammad Alotaibi, Ahmed  
**Block:** Alsalem, King Abdulaziz cardiac center, Riyadh, Saudi Arabia

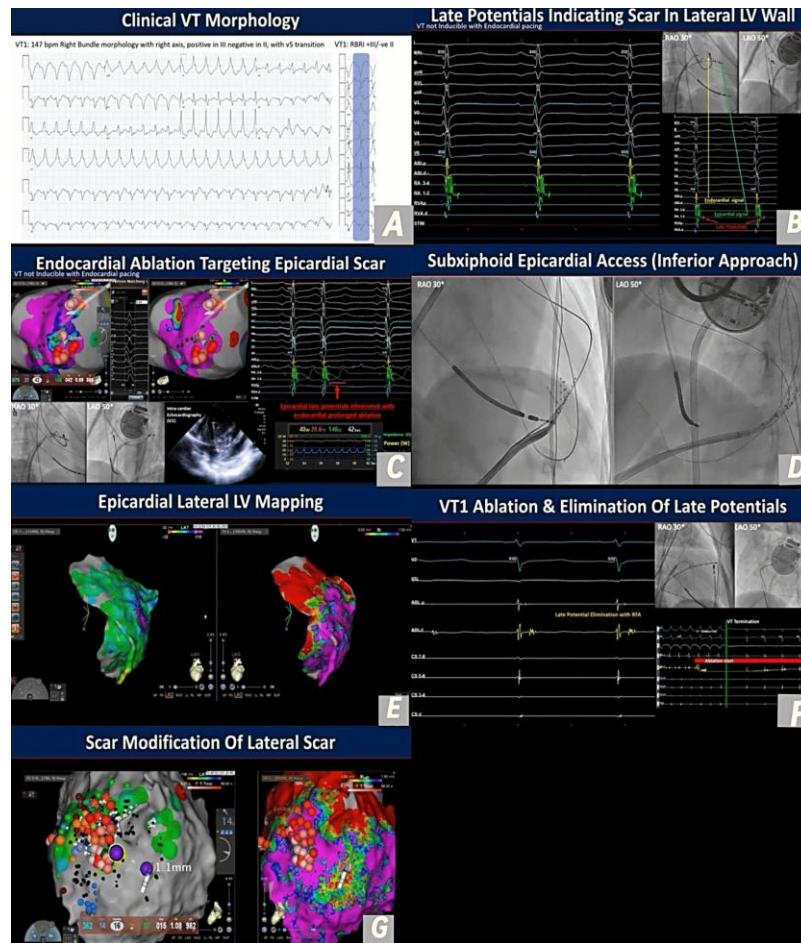
**Background:** In nonischemic dilated cardiomyopathy (DCM), VT often arises from epicardial scars, especially in the lateral wall. Cardiac MRI showing subepicardial enhancement suggests an epicardial source, where endocardial ablation alone may be inadequate. Traditional subxiphoid access risks RV injury. CO<sub>2</sub>-assisted access via intentional coronary venous exit provides a safer alternative by expanding and visualizing the pericardial space.

**Abstract  
Body:**

**Case:** A 20-year-old female with NICM (EF 20%) on GDMT and AICD, listed for transplant, presented with recurrent VT storm. Stabilized on Amiodarone and Lidocaine, cardiac MRI showed lateral subepicardial fibrosis. Endocardial ablation failed. Epicardial access was achieved via intentional perforation of a posterolateral coronary vein, followed by insufflation of 150 mL CO<sub>2</sub>, safely expanding the pericardial space for subxiphoid entry. Mapping revealed a low-voltage lateral scar with late potentials. RF ablation rendered VT non-inducible.

**Decision-making:** Epicardial ablation was guided by MRI and endocardial failure. CO<sub>2</sub> minimized access risk. Coronary venous exit aligned with lateral substrate and transplant candidacy.

**Conclusion:** CO<sub>2</sub>-facilitated epicardial access via coronary venous exit can enable VT ablation in high-risk patients and act as a safe, effective bridge to transplant when standard approaches fail.



**Presentation  
Number:** 51-015

**Poster Board  
Number:** 015

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** TRENDS IN ATRIAL FIBRILLATION AND FLUTTER INCIDENCE IN AFRICA: A  
REGIONAL AND SEX-SPECIFIC ANALYSIS (2000-2019)

**Author Block:** Papa Mouhamadou Diarra Fall, Madan I, Ka MM, Gaye ND, Mekonnen D,  
Diop HB, AbdelNoor AT, Johan E, Garry-Webb T, Gaye B, Alliance for Medical  
Research in Africa, Dakar, Senegal, Hospital General of Idrissa Pouye,  
Dakar, Senegal

**Background:** Atrial fibrillation (AF) and atrial flutter contribute to up to 30% of ischemic strokes globally. Despite rising cardiovascular burden in Africa, data on AF/flutter incidence remain scarce, particularly regarding regional and sex-specific trends. This study evaluates incidence patterns across African countries from 2000 to 2019.

**Methods:** We extracted age-standardized AF/flutter incidence data (per 100,000) from the Global Burden of Disease 2019 database for all 54 African countries, using UN regional classification and WHO standard populations. Temporal trends were assessed using Joinpoint regression; regional and sex differences were evaluated using Chow tests. Analyses were conducted in R.

**Abstract  
Body:**

**Results:** AF/flutter incidence remained relatively stable continent-wide (range: 20-40/100,000), peaking in 2010 (37/100,000) and declining to 29/100,000 in 2019. Males consistently exhibited higher incidence (37 vs. 29/100,000). North Africa displayed a reversed sex pattern (female > male: 45 vs. 38). West Africa showed elevated male incidence (41 vs. 30), with minimal fluctuation. Central Africa had the largest sex gap (40 vs. 29) without notable change. In East Africa, male incidence increased modestly (+0.5%/year), while female rates remained stable. Southern Africa showed a slight overall increase (+1.2/100,000 over 20 years), with persistent male predominance (35 vs. 24).

**Conclusion:** AF/flutter incidence in Africa shows marked regional and sex disparities. Rising male incidence in several regions and reversed patterns

in North Africa underscore the need for context-specific surveillance, prevention, and treatment strategies.

**Presentation  
Number:** 51-016

**Poster Board  
Number:** 016

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** NATIONAL TRENDS OF ATRIAL FIBRILLATION/FLUTTER IN GULF COOPERATION COUNCIL COUNTRIES (1990-2021): INSIGHTS FROM GLOBAL BURDEN OF DISEASE DATABASE

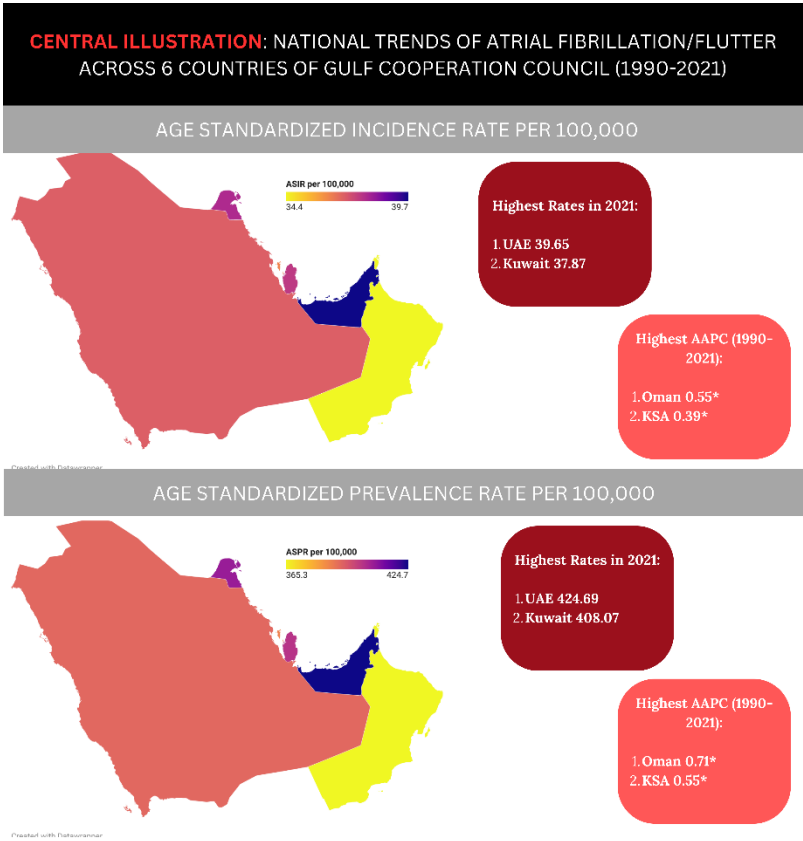
**Author  
Block:** Talha Qadeer, Tehmasp Rehman Mirza, Husnain Ahmad, Areehah Zafar Masood, Yusra Junaid, Shiraz Aslam, Muhammad Abdullah, Muhammad Faizan, Muhammad Shees Hunain, Zoraez Mirza, Inshal Khalid, Shalamar Medical and Dental College, Lahore, Pakistan

**Background:** Atrial fibrillation (AF) imposes a growing health burden worldwide, but data for Gulf Cooperation Council nations remain sparse. This study quantifies long-term trends in AF-related incidence and prevalence across GCC countries.

**Methods:** Global Burden of Disease database was utilized to analyze the Age Standardized Incidence Rate (ASIR) and Prevalence Rate (ASPR) per 100,000 individuals from 1990 to 2021. The Average Annual Percent Change (AAPC) of the extracted rates was determined using Joinpoint Regression, p-values assessed significance.

**Abstract  
Body:** **Results:** In 2021, the UAE registered the highest AF-related ASIR (39.6), followed by Kuwait (37.8). The lowest rates were seen in Oman (34.4). All countries showed a significant increase in AAPC, Oman (AAPC: 0.55,  $p < 0.01$ ) and Saudi Arabia (AAPC: 0.39,  $p < 0.01$ ) had the highest. No countries showed a decline. Similarly for ASPR, UAE recorded the highest rate (424.7), followed by Kuwait (408.1); the lowest rates were observed in Oman (365.3). Oman registered the steepest increase (AAPC = +0.71,  $p < 0.01$ ), followed by Saudi Arabia (AAPC: +0.55,  $p < 0.01$ ). Bahrain recorded the smallest yet still significant rise (AAPC: +0.21,  $p < 0.01$ ). No countries showed a decline. **Conclusion:** Atrial-fibrillation burden is climbing across the Gulf, with the UAE now posting the region's highest incidence and prevalence, while Oman shows the greatest increase in rates. These trends highlight an urgent need

for prevention and strategies.



**Presentation  
Number:** 51-018

**Poster Board  
Number:** 018

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** FEASIBILITY, SAFETY AND EFFICACY OF TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION FOR REDUCING POST-CABG ATRIAL FIBRILLATION, A PILOT RANDOMIZED TRIAL (TAVNS-POAF STUDY)

**Author Block:** Muhammadhosein Moradi, Danesh Soltani, Bayan Azizi, Amirhossein Heidari, Parisa Firoozbakhsh, Abdol-hosseini Vahabie, Kaveh Akbarzadeh-sherbaf, Amirali Mohammadi, Soheil Mansourian, Ali Vasheghani-Farahani, Cardiac Primary Prevention Research Center, Tehran Heart Center, Tehran, Iran (Islamic Republic of)

**Abstract  
Body:**

**Background:** Postoperative atrial fibrillation (POAF) is linked to adverse outcomes. Transcutaneous auricular low-level vagus nerve stimulation (ta-LLVNS) is a novel non-invasive technique that has demonstrated promise in suppressing AF and reversing atrial remodeling. This study aims to assess the feasibility, safety, and efficacy of ta-LLVNS in suppressing POAF.

**Methods:** Eighteen post-coronary artery bypass grafting (CABG) patients with sinus rhythm were enrolled. Electrodes were applied to the left tragus of the ear. The active group received twice-daily 40-minute ta-LLVNS sessions, with 20 minutes of rest between them, while the sham group received identical procedures without sustained stimulation. Heart rhythm was monitored continuously during the observation period. Key clinical and biochemical outcomes were recorded.

**Results:** Adverse effects included local irritation (n=2) and headache (n=1) in the active group. AT/AF runs occurred in 7 patients, with recurrence and time to onset being similar between groups. Regarding POAF, each treatment group exhibited one initial case. The active group demonstrated a delayed POAF onset (50.60 vs. 14.50 hours), shorter first-episode duration (28 vs. 54 minutes), and longer cumulative POAF duration (184 vs. 54.5 minutes), though overall outcomes remained comparable between groups. Comparing autonomic findings, heart rate variability indices including low frequency (LF) and very low frequency (VLF) findings demonstrated



significantly greater reductions in the active group. Overall clinical, and inflammatory outcomes were comparable.

**Conclusion:** This study supports the feasibility and ta-LLVNS in post-CABG patients. Although anti-inflammatory and clinical outcomes were not significantly different, the observed autonomic improvements suggest a potential therapeutic role for ta-LLVNS in POAF prevention.

**Presentation  
Number:** 51-019

**Poster Board  
Number:** 019

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** GENETIC MUTATIONS IN LVNC PATIENTS INCREASE THE NEED FOR AN ICD.  
IS GENETIC TESTING BEING UNDERUTILIZED?

**Author** habib khan, Mehak Behal, Megan Smith, Ahmed Moustafa, Western  
**Block:** University, London, Canada

**Background:** The left ventricle (LV) is the most important chamber of the heart, pumping oxygenated blood throughout the body. In patients with LV non-compaction (LVNC), the LV myocardium is hypertrabeculated, impairing its contractile activity. Although rare, some patients with LVNC may have genetic mutations that may influence the severity of LVNC and thus the necessity of an implantable cardioverter-defibrillator (ICD).

**Methods:** Following ethics approval, records of patients with a definitive LVNC diagnosis were accessed. Genetic testing results, if available, and the presence or absence of ICDs were recorded.

**Abstract  
Body:**

**Results:** Seventy-six patients with a confirmed diagnosis of LVNC were identified. Of these, 19 had positive genetic testing results, of which 5 had an ICD, and 14 did not. (46 patients had no genetic testing, of which 13 had an ICD and 44 did not, and 1 patient had negative results). The aggregate results of genetic testing are shown in Table 1, with 5 patients having mutations in more than one gene. Fischer's test revealed  $p = 0.762$ .

**Conclusion:** Despite no statistical significance, these results indicate that the frequency of genetic testing must increase for LVNC patients to ensure that any mutations, if present, are identified and used to modify risk stratification for these patients and to ensure that interventions like ICDs are

implemented in a timely manner.

**Table 1.** Genetic testing results from n=19 LVNC patients.

LVNC with Genetic Testing		
Gene Name	Number of Patients	Implantable Cardioverter-Defibrillator Incidence
Titin (TTN)	8	1 patient
Desmoplakin (DSP)	2	N/A
Filamin-C (FLNC)	3	1 patient
Myosin Heavy Chain 7 (MYH7)	3	1 patient
Duchenne Muscular Dystrophy (DMD)	2	2 patients
SON DNA and RNA Binding Protein (SON)	1	N/A
NAC Transcription Factor (NST1)	1	N/A
Fibrillin-1 (FBNS)	1	N/A
RNA Binding Motif Protein 20 (RBM20)	1	N/A
Myosin Binding Protein C3 (MYBPC3)	1	N/A
Lamin A (LMNA)	1	N/A
Catenin alpha-3 (CTNNA3)	1	1 patient

**Presentation  
Number:** 51-020

**Poster Board  
Number:** 020

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** TRENDS AND DISPARITIES OF PREVALENCE AND INCIDENCE OF ATRIAL FIBRILLATION/FLUTTER IN GULF COOPERATION COUNCIL COUNTRIES (1990-2021): INSIGHTS FROM GLOBAL BURDEN OF DISEASE DATABASE

**Author  
Block:** Talha Qadeer, Tehmasp Rehman Mirza, Husnain Ahmad, Areehah Zafar Masood, Yusra Junaid, Muhammad Abdullah, Shiraz Aslam, Muhammad Shees Hunain, Muhammad Faizan, Zoraez Mirza, Shalamar Medical and Dental College, Lahore, Pakistan

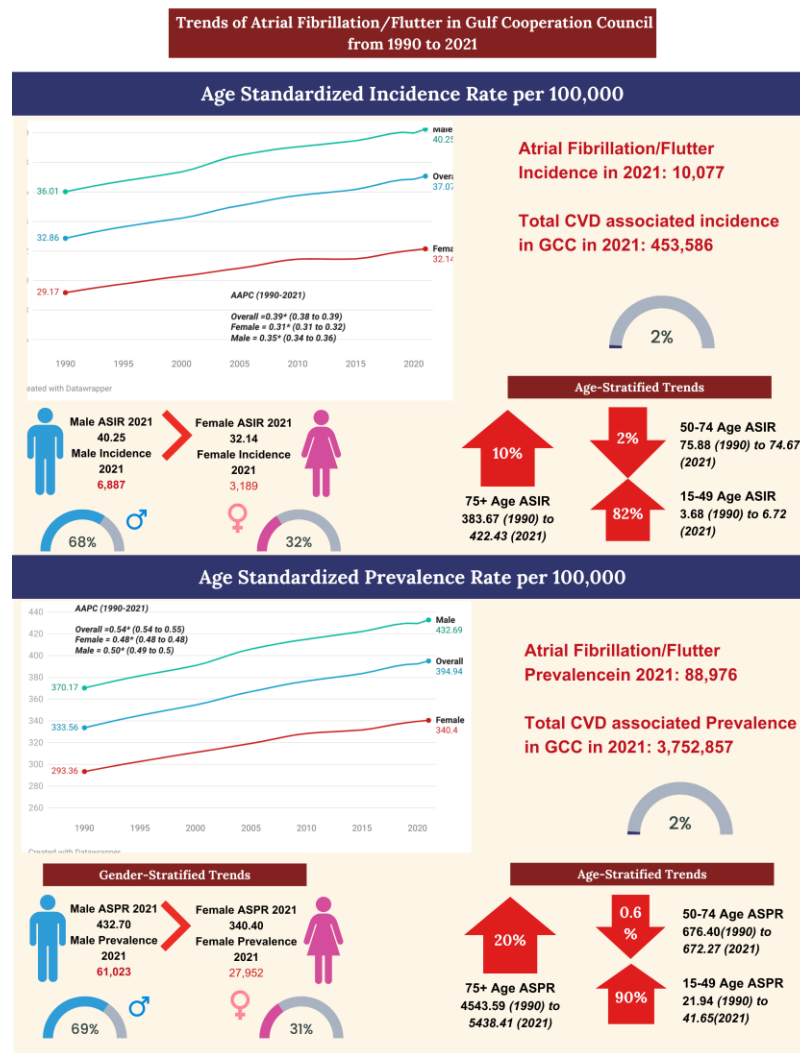
**Background:** Atrial fibrillation (AF) imposes a growing health burden worldwide, but data for Gulf Cooperation Council nations remain sparse. This study quantifies long-term trends in AF-related disability and mortality across GCC countries.

**Methods:** Global Burden of Disease database was utilized to analyse Age-Standardized Incidence Rate (ASIR) and Prevalence Rate (ASPR) per 100,000 individuals from 1990 to 2021. The Average Annual Percent Change (AAPC) of the extracted rates was determined using Joinpoint Regression, p-values assessed significance.

**Abstract  
Body:** **Results:** From 1990 to 2021, AF-related ASIR increased from 32.9 to 37.1 per 100,000 individuals in 2021 (AAPC: 0.39,  $p < 0.01$ ). A slight incline was seen in females (29.2 to 32.1; AAPC: 0.31,  $p < 0.01$ ), as well as in males (36.0 to 40.3; AAPC: 0.35,  $p < 0.01$ ). Age-wise distribution had steeper increase in adolescents/young adults (15-49, AAPC: 1.68,  $p < 0.01$ ) than middle-aged and elderly adults. Similarly, the ASPR showed an incline from 333.6 in 1990 to 394.9 in 2021 (AAPC: 0.54,  $p < 0.01$ ). Both females (293.5 to 340.4; AAPC: 0.48,  $p < 0.01$ ) and males had a slight increase (370.2 to 432.7; AAPC: 0.50,  $p < 0.01$ ) in ASPR. According to age, young adults had the higher increase (15-49, AAPC: 1.68,  $p < 0.01$ )

**Conclusion:** The burden is greatest in  $\geq 75$  y but the incidence and prevalence are rising fastest in 15-49 y, plateauing in 50-74 y, and remain consistently higher in males than females, pointing to a need for age- and

gender specific action.



**Presentation  
Number:** 51-022

**Poster Board  
Number:** 022

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** MORTALITY TRENDS IN CARDIAC ARRHYTHMIAS AND HYPERLIPIDEMIA IN THE UNITED STATES FROM 2002-2023: A CDC WONDER DATABASE STUDY

**Author  
Block:** Mohammed ?Usaid, Raunak Hossain, Yasmin Ansari, Sheeba Shibu, Muhammad Sufian shahid, Keerthana Ramdas, Samreen Zehra Naqvi, Catherine Andrews Ravi, Smrithi reddy Battu, Shadaan Ali Syed, Faculty of Medicine, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia, Faculty of Health Sciences, University of Georgia, Tbilisi, Georgia

**Background:** Hyperlipidemia (HLD) leads to Cardiac Arrhythmias (CA) by altering membrane fluidity, ion channels and receptors, beyond its role in atherosclerosis. This study shows the trends and disparities in mortality due to HLD and CA.

**Methods:** The mortality data for adults aged  $\geq 25$  was taken from the CDC WONDER database (2002-2023). Age-adjusted mortality rate (AAMR) and annual percentage change (APC) were calculated using the Joinpoint regression program.

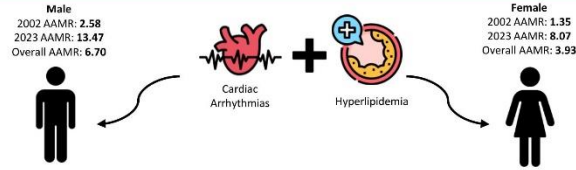
**Abstract  
Body:** **Results:** HLD and CA led to a death toll of 272,957, mainly at homes (35.48%) and inpatient facilities (24.68%). AAMRs rose notably during 2002-2011 (APC: 8.89;  $p < 0.0001$ ). It grew steadily from 2011-2018 (APC: 5.20;  $p < 0.0001$ ), followed by a huge rise from 2018-2021 (APC: 18.10;  $p < 0.0001$ ). A small increase in AAMR from 2021-2023 (APC: 1.79;  $p = 0.2969$ ) was seen. Men had higher AAMRs (6.70) than women (3.93). Non-Hispanic (NH) Whites had the highest AAMR (5.57) and NH Asians had the lowest (2.98). State-wise, Vermont (13.6) and Wyoming (12.81) had the most AAMRs and Georgia (2.87) had the least. The West (7.65) and Midwest (7.63) regions had the highest AAMRs. Rural areas (5.16) had higher AAMRs than urban (4.61). The highest deaths were observed in adults aged 85+ (40.36%) and in adults aged 75-84 (31.28%).

**Conclusion:** HLD and CA-related mortality have seen significant rise, especially in recent years. With clear variations in sociodemographic and

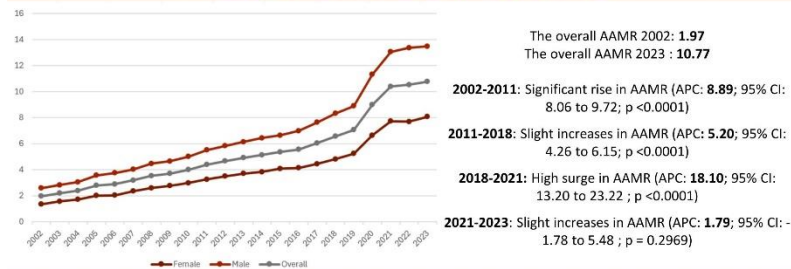
geographic distribution, this data shows the need for effective and targeted public health interventions.

Central Illustration: Mortality Trends in Cardiac Arrhythmias and Hyperlipidemia in the United States from 2002–2023: A CDC WONDER Database Study

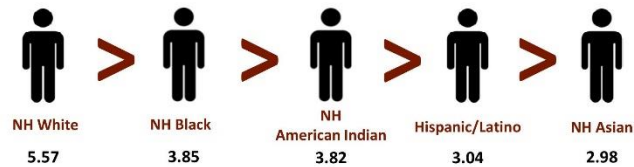
272,957 Deaths occurred in patients with CA and Hyperlipidemia in Adults (Age ≥ 25)



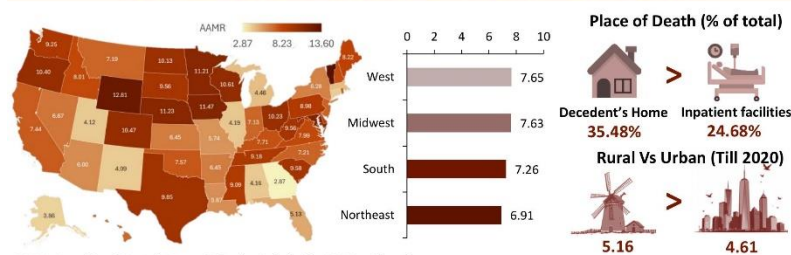
Trends (Age-Adjusted Mortality Rate per 100,000)



Racial Disparities (Age-Adjusted Mortality Rate per 100,000)



Geographical Disparities (Age-Adjusted Mortality Rate per 100,000)



**Presentation  
Number:** 51-024

**Poster Board  
Number:** 024

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** TRENDS IN ATRIAL FIBRILLATION AND COPD-RELATED MORTALITY IN THE UNITED STATES FROM 1999-2023: INSIGHTS FROM THE CDC WONDER DATABASE

**Author  
Block:** Mohammed ?Usaid, Raunak Hossain, Muhammad Sufian shahid, Smrithi reddy Battu, Samreen Zehra Naqvi, Shadaan Ali Syed, Keerthana Ramdas, Catherine Andrews Ravi, Sheeba Shibu, Yasmin Ansari, Faculty of Medicine, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia, Faculty of Health Sciences, University of Georgia, Tbilisi, Georgia

**Background:** Atrial fibrillation (AF) and Chronic obstructive pulmonary disease (COPD) may coexist and contribute to increased mortality risks and poorer prognoses. This study is a comprehensive analysis of long-term mortality patterns involving both conditions.

**Methods:** The CDC WONDER database (1999-2023) was used to analyze AF and COPD-related mortality in U.S. adults aged  $\geq 25$ . Age-adjusted mortality rates (AAMR) and annual percent changes (APC) were stratified to examine sociodemographic disparities.

**Abstract  
Body:** **Results:** A total of 513,134 deaths occurred due to AF and COPD, primarily in inpatient facilities (34%) and decedent homes (29.64%). The AAMR rose steadily from 1999-2018 (APC: 4.06; 95% CI: 3.86 to 4.26;  $p < 0.0001$ ). A moderate surge occurred from 2018-2021 (APC: 8.51; 95% CI: 3.98 to 13.24;  $p = 0.0009$ ). AAMRs decreased slightly from 2021-2023 (APC: -1.90; 95% CI: -5.89 to 2.25;  $p = 0.3423$ ). Men had higher AAMRs (11.59) than women (7.25). Non-Hispanic (NH) Whites had the most AAMR (10.18), and NH Asians had the least (2.47). State-wise, Kentucky (17.8) and Colorado (17.5) had the highest AAMRs, while Utah had the least (4.5). Rural areas (10.5) had higher AAMRs than urban (8.45). Adults in age-groups 75-84 (37.98%) and 85+ (35.38%) had the highest share of deaths.

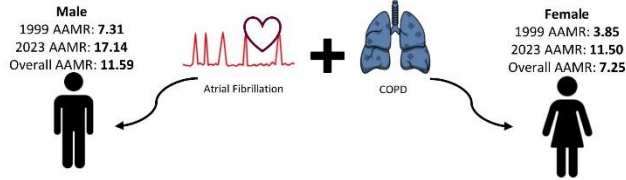
**Conclusion:** A rising mortality trend is seen from 1999-2023 due to AF and COPD. The deaths were highest in men, NH Whites, elderly, and in rural



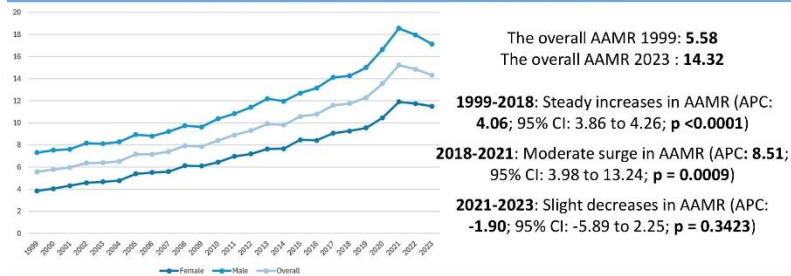
areas. The heterogeneity in mortality mandates the need for focused interventions to improve prognoses.

Central Illustration: Trends in Atrial Fibrillation and COPD-related Mortality in the United States from 1999–2023: Insights from the CDC WONDER Database

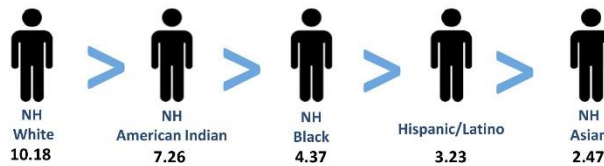
513,134 Deaths occurred in patients with AF and COPD in Adults (Age ≥ 25)



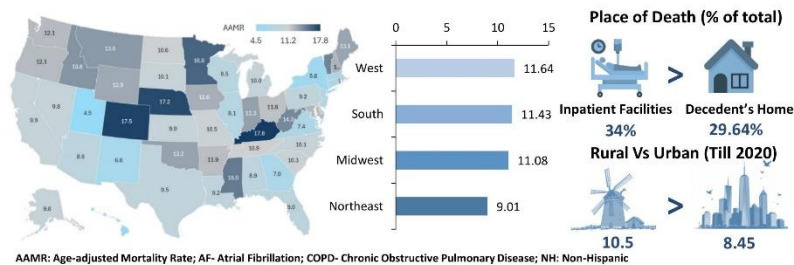
Trends (Age-Adjusted Mortality Rate per 100,000)



Racial Disparities (Age-Adjusted Mortality Rate per 100,000)



Geographical Disparities (Age-Adjusted Mortality Rate per 100,000)



**Presentation  
Number:** 51-025

**Poster Board  
Number:** 025

**Topic 1:** AI in Cardiology

**Publishing  
Title:** USE OF CINEECG TO PREDICT RESPONSE OF LEFT BUNDLE BRANCH  
PACING

**Author Block:** habib khan, Bryan F. Stringer, Peter van Dam, Western University, London,  
Canada

**Abstract  
Body:**

**Background:** Cardiac resynchronization therapy (CRT) plays a crucial role in managing patients with heart failure with a lack of response in all patients. Left bundle branch block (LBBB) defined by the Strauss criteria has the best response to CRT. With the increasing adoption of left bundle branch pacing (LBBP) as a primary or rescue CRT strategy, identifying patients with recruitable left bundle conduction is crucial to improving outcomes. We aimed to characterize the ventricular depolarization patterns of patients with LBBB using a novel, non-invasive electrocardiographic tool, to identify predictors of favorable response to LBBP.

**Methods:** We conducted a single-center retrospective study of patients undergone LBBP between February 2020 and August 2023. The inclusion criteria were the presence of a Strauss criteria LBBB pattern on the pre-procedural ECG. The response to LBBP was defined as narrowing of the paced QRS with right bundle branch block morphology post-implant. Pre-procedural ECGs were analyzed using CineECG, a software that constructs vectorcardiograms and temporospatial activation trajectories on a 3D cardiac model. Quantitative indices included QRS duration, myocardial depolarization times, and septal blush velocity. Predictors of response were identified using univariate and multivariable logistic regression models.

**Results:** Among 190 patients who underwent LBBP, pre-procedure typical LBBB was seen in 29 patients. Twenty-one (72%) demonstrated a positive ECG response post-LBBAP, while 8 (28%) did not. In responders, mean QRS duration was  $144.3 \pm 3.3$  ms vs.  $156.8 \pm 5.7$  ms in non-responders ( $p < 0.01$ ). The timing of the latest posterior left ventricular (LV) activation signal with a

threshold value  $<148$  ms was independently associated with a favorable response to LBBAP ( $p = 0.02$ ).

**Conclusion:** This study demonstrates the potential of CineECG-derived depolarization metrics to identify LBBB patients most likely to benefit from LBBP. Earlier activation of the posterior LV segment may suggest an intact Purkinje system and serve as a key predictor of resynchronization. Larger, prospective studies are needed to validate these findings and refine patient selection strategies.

**Presentation  
Number:** 51-026

**Poster Board  
Number:** 026

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** LDL-CHOLESTEROL PARADOX: DOES IT APPLY TO ALL PATIENTS?

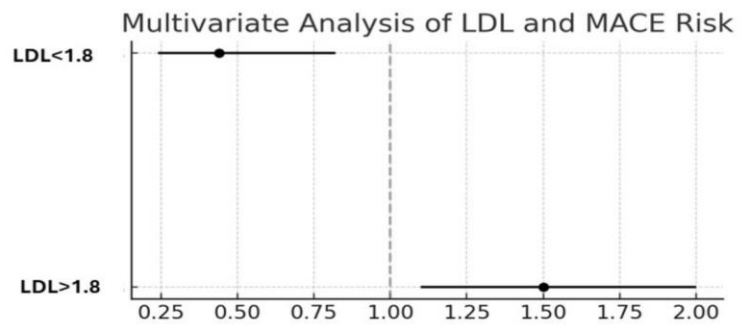
**Author  
Block:** Faisal AlAnazi, Mohammad Alotaibi, Ali Mahmoud Alzammam, Sultan Mahja Alanazi, Ahmed A. Alsaileek, Ahmed Hamad Aljizeeri, King Abdulaziz Cardiac Center, Riyadh, Saudi Arabia

**Background:** In recent years, few papers have shown that lower LDL cholesterol at presentation with acute coronary syndrome is associated with a higher risk of major adverse clinical events, a phenomenon named the LDL-C paradox. It is unclear whether the LDL paradox is a universal phenomenon or applies to a particular population.

**Methods:** This retrospective study analyzed adults experiencing their first acute coronary syndrome (ACS) who had low LDL-C levels measured within three months before the event. Multivariate logistic regression was used to evaluate how LDL levels influenced outcomes, adjusting for other factors.

**Abstract  
Body:** **Results:** 393 patients (age:  $64.3 \pm 12.1$ , 65% males) were included in the analysis. Diabetes and hypertension were prevalent in the cohort. Patients with LDL  $<1.8$  mmol/L were older ( $70.1 \pm 10.7$  vs.  $62.2 \pm 12$  years,  $p < 0.001$ ) and had a lower incidence of STEMI (8.4% vs. 17.5%,  $p = 0.048$ ). MACE occurred less frequently in the LDL  $<1.8$  mmol/L group (16.8% vs. 26.9%,  $p = 0.037$ ). In multivariate analysis, LDL  $>1.8$  mmol/L was independently associated with higher MACE risk (OR 1.5, 95% CI 1.1-2.0,  $p = 0.009$ ). Conversely, LDL  $<1.8$  mmol/L was associated with lower risk of outcome (OR 0.44, 95% CI 0.24-0.82,  $p = 0.009$ ).

**Conclusion:** The findings of our analysis challenge the notion that the LDL paradox applies to all patients. Lower LDL levels were associated with improved outcomes in this ACS cohort, reinforcing the importance of LDL reduction strategies in secondary prevention.



**Presentation  
Number:** 51-027

**Poster Board  
Number:** 027

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** TRENDS IN STROKE-RELATED MORTALITY AMONG OLDER ADULTS WITH HYPERTENSION AND ATHEROSCLEROSIS IN THE UNITED STATES, 1999-2020

**Author  
Block:** Hafsa Khalid, Hamama Waseem, Marhaba Fatima, Faseeha Fareed, Qazi Muhammad Amad, Khadija Sharafat Ali, United Medical and Dental College, Karachi, Pakistan

**Background:** Stroke remains a leading cause of death in the US. However, stroke-related mortality trends with hypertension (HTN) and atherosclerosis among adults  $\geq 65$  years remain understudied.

**Methods:** We analyzed CDC WONDER mortality data (1999-2020) using ICD-10 codes for stroke (I61, I63, and I64), HTN (I10-I15), and atherosclerosis (I70.0, I70.1, I70.2, I70.8, and I70.9). AAMRs per 100,000 population were calculated and stratified by race, sex, urbanization, and region. Joinpoint regression was used to analyze annual percent changes (APC) with 95% confidence intervals.

**Abstract  
Body:** **Results:** From 1999 to 2020, 999,300 stroke-related deaths occurred with HTN and atherosclerosis (Female: 623,524 and Male: 375,776). Joinpoint analysis identified a 2001 inflection point. The AAMR increased from 32.9 in 1999 to 154.6 in 2001 (APC: 42), then decreased significantly to 98.8 in 2020 (APC: -3.4\*). Black adults had the highest AAMR (165.9) and experienced the greatest decline from 2001 to 2020 (APC: -4.2\*), whereas Asian/Pacific showed an overall significant decline (AAPC: -3.84\*). Geographically, the West had the highest AAMR (121.9) while the Northeast had the lowest (86.3). Non-metropolitan areas showed higher AAMRs (124.1) than metropolitan areas (104.9).

**Conclusion:** Although stroke-related mortality among older adults with HTN and atherosclerosis has declined since 2001, persistently high rates in key

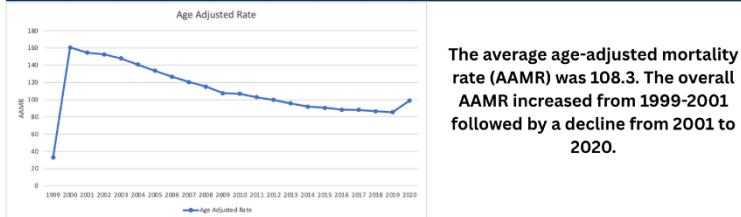
subgroups underscore the need for targeted prevention strategies.

**CENTRAL ILLUSTRATION: Trends in Stroke-Related Mortality Among Older Adults With Hypertension and Atherosclerosis in the United States, 1999–2020**

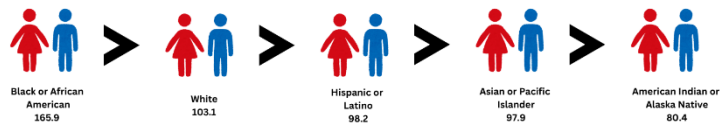
**999,300 Stroke Related Deaths in Older Adults (Age ≥ 65) Between 1999-2020**



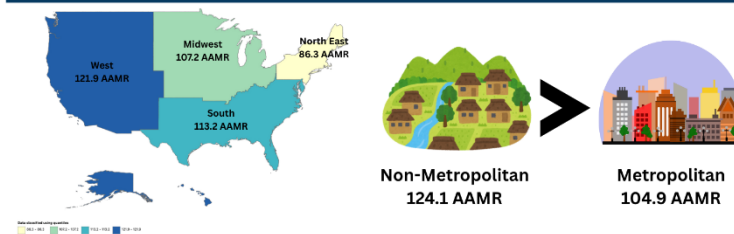
**Annual AAMR Trend (1999-2020)**



**Racial Disparities (AAMR per 100,000 population)**



**Graphical Disparity (AAMR per 100,000 population)**



AAMR=age adjusted mortality rate

**Presentation  
Number:** 51-028

**Poster Board  
Number:** 028

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** ASSOCIATION OF COMBINED REMNANT CHOLESTEROL AND LDL-C LEVELS  
WITH CARDIOVASCULAR OUTCOMES: A META-ANALYSIS

**Author  
Block:** Ashkan Bahrami, Reza Eshraghi, Hamidreza Soleimani, Ali Riahi,  
Pirmoradian Pedram, Elaheh Karimi, Mohammadsepehr Yazdani, Reza  
Amani Beni, Bahar Darouei, Parisa Fallah Tafti, Masoud Ghasemi, Isfahan  
University of Medical Science, Isfahan, Iran (Islamic Republic of)

**Background:** Remnant cholesterol (RC) is an emerging residual risk factor beyond LDL-C in atherosclerotic cardiovascular disease (ASCVD). The combined impact of RC and LDL-C on long-term cardiovascular outcomes remains unclear. This meta-analysis assessed hazard ratios (HRs) for adverse outcomes across RC and LDL-C combinations.

**Methods:** We searched PubMed, Web of Science, Embase, and Scopus for studies reporting ASCVD outcomes stratified by RC and LDL-C levels. Patients were grouped into: Low RC + Low LDL-C (reference), Low RC + High LDL-C (LH), High RC + Low LDL-C (HL) and High RC + High LDL-C (HH). Random-effects meta-analyses were performed for ASCVD, CVD mortality, and ischemic stroke.

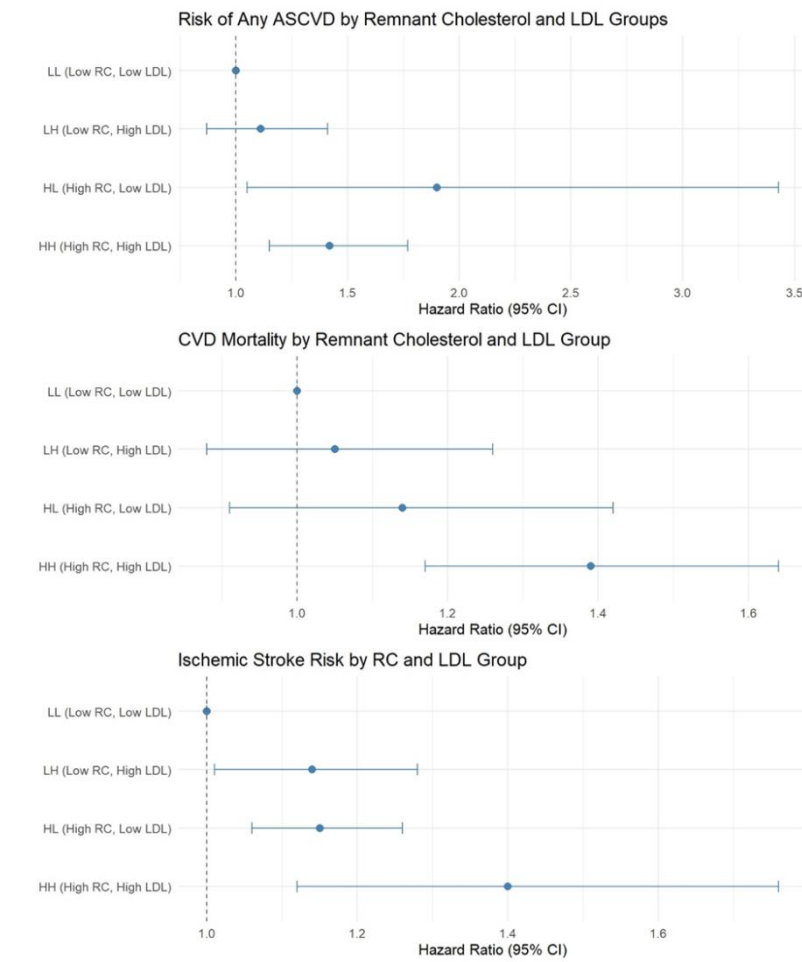
**Abstract  
Body:**

**Results:** Seven studies (837,556 patients; mean follow-up  $106 \pm 96.6$  months) were included. Compared to the reference group (low RC + low LDL-C), the high RC + high LDL-C (HH) group showed the highest risk across outcomes. For ASCVD, HRs were: HH 1.42 (95% CI: 1.15-1.77), HL 1.90 (1.05-3.43), LH 1.11 (0.87-1.41). For CVD mortality: HH 1.39 (1.17-1.64), HL 1.14 (0.91-1.42), LH 1.05 (0.88-1.26). For stroke: HH 1.40 (1.12-1.76), HL 1.15 (1.06-1.26), LH 1.14 (1.01-1.28). Heterogeneity was low to moderate, indicating robust findings.

**Conclusion:** High RC, especially when combined with elevated LDL-C is linked to increased risk of ASCVD, CVD death, and stroke. RC contributes independent and additive prognostic value beyond LDL-C, supporting a dual-lipid target strategy to enhance cardiovascular risk prediction and



prevention.



**Presentation  
Number:** 51-029

**Poster Board  
Number:** 029

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** LESSONS FROM THE U.S. HYPERTENSION CRISIS FOR MITIGATING THE MIDDLE EAST'S HEART FAILURE EPIDEMIC: A NHANES-CDC WONDER ANALYSIS WITH REGIONAL POLICY IMPLICATIONS

**Author  
Block:** Rida Shakeel, Sohaib Aftab Ahmad Chaudhry, Muhammad Abdullah, Muhammad Ali Makhdoom, Javed Iqbal, Department of Medicine, Dow Medical College, Karachi, Pakistan

**Background:** Hypertension causes 45% of global HF cases. In the Middle East, high sodium (9-12 g/day), GSTM1 deletions, and poor primary care increase burden. U.S. tools (NHANES, CDC WONDER) offer data, unlike scarce regional systems. Study analyzes U.S. trends (2017-2022) for policy.

**Methods:** Data from CDC WONDER (HF mortality, ICD-10 I50, 2017-2022), NHANES (hypertension prevalence/control, 2017-2020), and CDC PLACES (county-level control) merged. Compared with Gulf CARE (56% Saudi HF tied to hypertension) and Jordan Ministry (>60% uncontrolled hypertension in diabetics). Assessed trends and gaps.

**Abstract  
Body:**

**Results:** In the U.S., only 22.7% of hypertensive adults met <130/80 mmHg targets in 2020. HF incidence rose 2.1% annually, peaking in the South (16.8 per 100,000), where 58.1% had uncontrolled hypertension (OR: 2.8).

Diabetics had the poorest control (71.2% uncontrolled, HF OR: 3.9). Similar patterns exist in the Middle East: Gulf sodium intake (~5,000 mg/day) mirrors U.S. South, while hypertension control is lower in Jordanian diabetics. Yemen shows systemic screening collapse post-2015, a gap absent in U.S. data.

**Conclusion:** Policy recommendations include: (1) Expand sodium-reduction efforts (e.g., UAE 2023 mandate) across the Gulf; (2) Adapt integrated care models like Kaiser Permanente's for platforms such as Sehhaty; and (3) Deploy mobile screening units in post-conflict areas, building on Iraq's 2022 pilot. These U.S.-informed strategies could address the Middle East's rising

## HF epidemic.

Indicator	United States (NHANES/CDC WONDER)	Middle East (Regional Registries / Estimates)	Notes / Source
Hypertension prevalence (adults ≥18 years)	46.6%	39–48%	WHO EMRO; Jordan MOH (2022); Gulf RISK study
Controlled BP (<130/80 mmHg)	22.7%	15–25%	NHANES (2020); Jordan MOH; Saudi NCD Survey
Uncontrolled HTN in diabetics	71.2%	>60%	NHANES (2020); Jordan MOH (2022); UAE Diabetes Registry
HF incidence (per 100,000)	14.2 (↑ 2.1%/yr)	12–16 (estimated)	CDC WONDER (2022); Gulf CARE (Saudi Arabia)
HF cases linked to HTN	~50–55%	56%	NHANES; Gulf CARE Registry (Saudi Arabia)
Sodium intake (mg/day)	~3,400 mg	~5,000 mg	NHANES; WHO EMRO average for Gulf countries
Conflict-related care gaps	None	Yes (Yemen, Syria, Iraq)	UNHCR (2023); WHO Humanitarian Health Reports
National salt reduction policy	Voluntary (some states)	UAE (mandatory, 2023); others pending	UAE MOHAP 2023; WHO EMRO
Telemedicine HTN programs	Widespread (e.g., Kaiser Permanente)	Expanding (e.g., Sehhaty in Saudi Arabia)	Saudi MOH Digital Health Strategy (2024)

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**Presentation  
Number:** 51-030

**Poster Board  
Number:** 030

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** A LIFELONG CONNECTION: UNRAVELING A CASE OF PATENT DUCTUS  
ARTERIOSUS IN A 71 YEAR-OLD PATIENT

**Author** Rashed Al-Marmouri, Mohammad Sadaqa, Rana Omeish, Jude Rihani,  
**Block:** Hanna K. Al-Makhamreh, University of Jordan, Amman, Jordan

**Background:** Patent ductus arteriosus (PDA) is a congenital heart disease (CHD) occurring due to a persistent connection between the aorta and the pulmonary artery. It is a rare condition in adults, with a mere prevalence of 0.05%, making diagnosis and treatment challenging

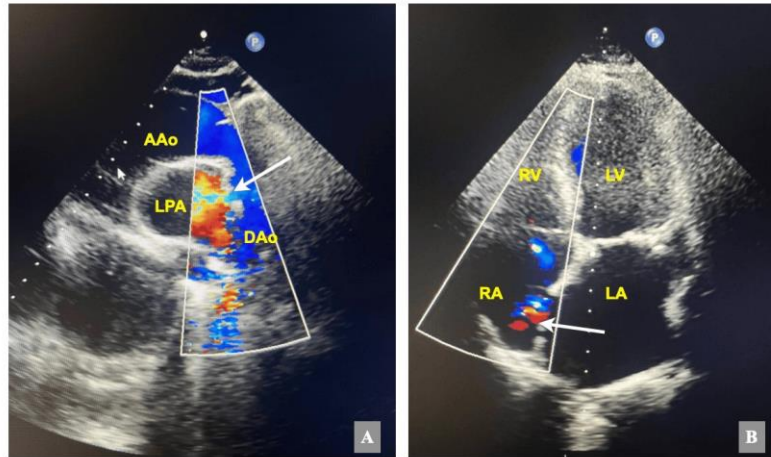
**Case:** We present a case of a 71-year-old female who came to the clinic complaining of exertional dyspnea. She has a history of asthma, atrial fibrillation and hypertension with a blood pressure reading of 164/77 mmHg

**Decision-making:** Comprehensive investigations were conducted.

**Abstract  
Body:** Echocardiograms showed an ejection fraction of 55%, bi-atrial enlargement, mild left ventricular hypertrophy, severe (grade 3) mitral regurgitation, a PDA (Fig. A) and a small (1.0 cm) atrial septal defect (ASD) (Fig. B). A CT coronary angiogram (CTCA) revealed normal coronary arteries. High-resolution chest CT demonstrated cardiomegaly and dilated pulmonary arteries. Cardiac catheterization was performed which confirmed a significant left-to-right shunt (QP/QS ratio of 1.6), pulmonary vascular resistance of 4 Wood units and a mean pulmonary artery pressure of 29 mmHg, indicating pre-capillary pulmonary hypertension. Based on these findings, the patient is scheduled to undergo a transcatheter PDA closure

**Conclusion:** This case serves as a reminder to maintain a low threshold for suspecting CHDs in cases of unexplained exertional dyspnea, emphasizing

the importance of early diagnosis to prevent potential complications.



Color Doppler transthoracic echocardiogram showing **A** a PDA and **B** an ASD as shown by the white arrows.

AAo: ascending aorta; DAo: descending aorta; LPA: left pulmonary artery; RV: right ventricle; RA: right atrium; LV: left ventricle; LA: left atrium.

**Presentation  
Number:** 51-031

**Poster Board  
Number:** 031

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** LONG-TERM CARDIOVASCULAR MORTALITY IN CHILDHOOD CANCER  
SURVIVORS EXPOSED TO RADIOTHERAPY, 1990-2021 (GBD 2021 DATA)

**Author Block:** Rida Shakeel, Sohaib Aftab Ahmad Chaudhry, Raghabendra Kumar Mahato,  
Muhammad Abdullah, Muhammad Ali Makhdoom, Javed Iqbal, Department  
of Medicine, Dow Medical College, Karachi, Pakistan

**Background:** Childhood exposure to radiotherapy for malignancies such as leukemia and Hodgkin lymphoma is linked to increased long-term cardiovascular mortality, including outcomes like stroke and arrhythmias. These effects have broader implications for brain health. This study estimates the global burden of radiotherapy-associated cardiovascular complications in childhood cancer survivors.

**Methods:** Global Burden of Disease (GBD) 2021 data were analyzed for age-standardized cardiovascular mortality and disability-adjusted life years (DALYs) among survivors of childhood cancer (<15 years) who received chest radiotherapy across 204 countries (1990-2021). Arrhythmia burden was assessed via cause-of-death ensemble modeling. Trends were evaluated by region, sex, age group (30-50 years), and Socio-demographic Index (SDI).

**Abstract  
Body:**

**Results:** Cardiovascular mortality in childhood cancer survivors rose from 8 per 100,000 in 1990 to 12 per 100,000 in 2021. Radiotherapy contributed to 25% of these deaths, representing 50,000 deaths in 2021. DALYs rose from 200 to 300 per 100,000 during the study period. High-SDI regions (e.g., North America) reached 400 per 100,000, compared to 150 per 100,000 in low-SDI areas (e.g., Sub-Saharan Africa). Arrhythmias accounted for 10% of cardiovascular deaths (20,000 deaths), and stroke-related years lived with disability (YLDs) rose 15% globally. Female survivors had higher cardiovascular mortality (13.0 per 100,000) than males (11.0 per 100,000), possibly due to breast cancer-related radiotherapy exposure.

**Conclusion:** While childhood cancer survival has improved, long-term

cardiovascular mortality continues to rise due to radiotherapy-related late effects. Disparities persist by sex and region. Targeted cardio-oncology follow-up, including echocardiography and ECG monitoring, is critical to improving outcomes in this vulnerable population.

**Presentation  
Number:** 51-032

**Poster Board  
Number:** 032

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** TRENDS, DISPARITIES AND BURDEN OF CARDIOVASCULAR DISEASE  
ATTRIBUTABLE TO DIABETES IN SOUTH ASIA FROM 1990 TO 2021: INSIGHTS  
FROM THE GLOBAL BURDEN OF DISEASE DATABASE

**Author  
Block:** Muhammad Shees Hunain, Muhammad Faizan, Shiraz Aslam, Tehmasp  
Rehman Mirza, Muhammad Abdullah, Husnain Ahmad, Talha Qadeer,  
Muhammad Usman Arshad, Shalamar Medical and Dental College, Lahore,  
Pakistan

**Background:** Diabetes and Its rising Cardiovascular Impact in South Asia remains overlooked. This study analyses CVD burden trends attributable to High Fasting Plasma Glucose (HFBPG).

**Methods:** Global Burden of Disease database was utilized to analyse Age-Standardized Disability Adjusted Life Years Rate (ASDR) and Mortality Rate (ASMR) per 100,000 individuals from 1990 to 2021. The Average Annual Percent Change (AAPC) of the extracted rates was determined using Joinpoint Regression, p-values assessed significance.

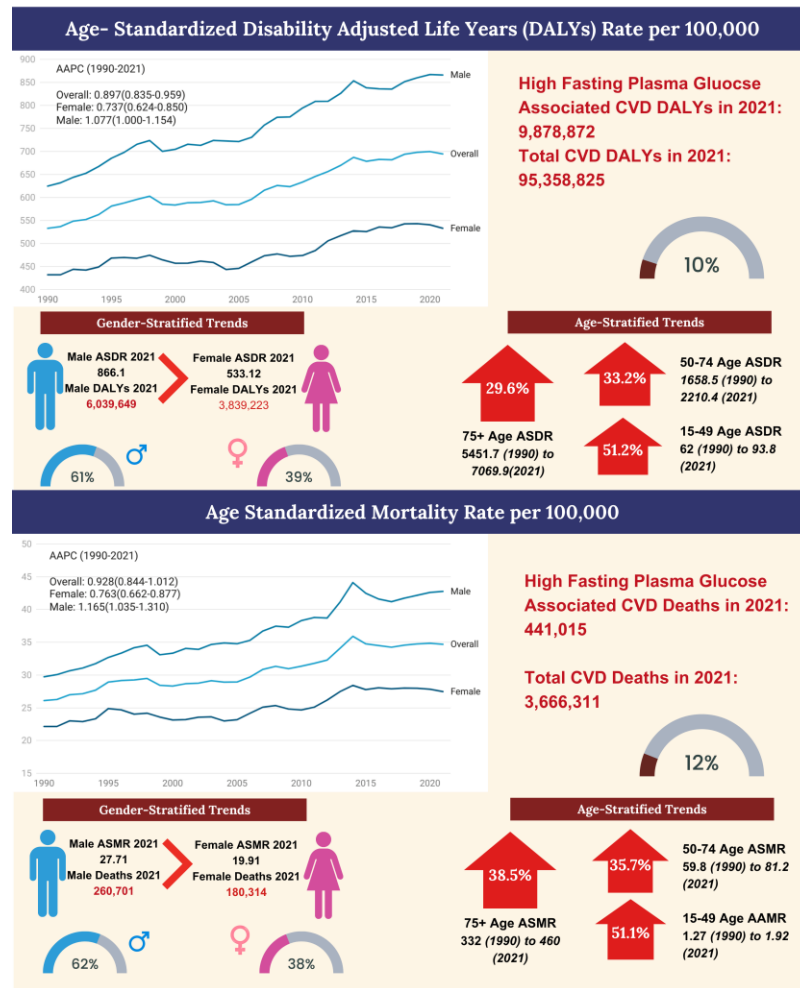
**Abstract  
Body:** **Results:** From 1990 to 2021, CVD-related ASDR due to Diabetes increased from 533 to 694.6 per 100,000 individuals in 2021 (AAPC: 0.89,  $p < 0.01$ ). A similar increase was seen in females (432 to 533.1; AAPC: 0.73,  $p < 0.01$ ), while males had sharper increase (624.6 to 866.1; AAPC: 1.07,  $p < 0.01$ ). Age-wise distribution shows steeper increase in young adults (15-49, AAPC: 1.32,  $p < 0.01$ ) followed by middle-aged adults (50-74, AAPC: 1.02,  $p < 0.01$ ) than elderly (75+, AAPC: 0.98,  $p < 0.01$ ). ASMR showed an incline from 26 in 1990 to 34.7 in 2021 (AAPC: 0.92,  $p < 0.01$ ). Females had mild increase (22.14 to 27.47; AAPC: 0.76,  $p < 0.01$ ) whereas males had significant increase (29.7 to 42.7; AAPC: 1.16,  $p < 0.01$ ) in ASMR. According to age, young adults had the highest increase (15-49, AAPC: 1.33,  $p < 0.01$ ).

**Conclusion:** Diabetes attributable CVD burden rose in all demographics, especially males and young adults. Rising burden in young adults is



concerning, emphasizing the need for targeted public health interventions.

### High Fasting Plasma Glucose Attributable Cardiovascular Disease in South Asia



**Presentation  
Number:** 51-033

**Poster Board  
Number:** 033

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** TEMPORAL TRENDS AND DEMOGRAPHIC DISPARITIES IN AORTIC ANEURYSM BURDEN ACROSS NORTH AFRICA AND MIDDLE EAST REGION (1990-2021): A GLOBAL BURDEN OF DISEASE-BASED ANALYSIS

**Author  
Block:** Yusra Junaid, Talha Qadeer, Muhammad Faizan, Husnain Ahmad, Shiraz Aslam, Tehmasp Rehman Mirza, Zoraez Mirza, Areehah Zafar Masood, Muhammad Shees Hunain, Muhammad Abdullah, Alizah Mirza, Dow University of Health and Sciences, karachi, Pakistan, Shalamaar Medical and Dental College, Lahore, Pakistan

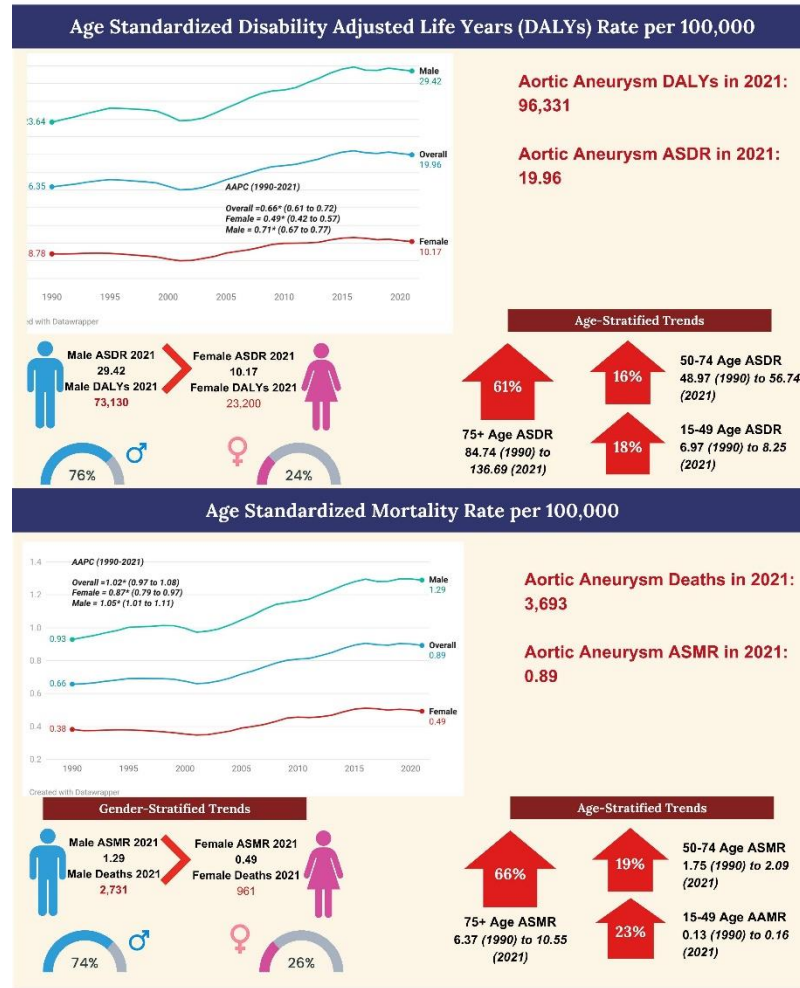
**Background:** Aortic aneurysm is a significant public health challenge in North Africa and the Middle East (NAME). This study analyzes the trends in age-standardized disability-adjusted life year rates (ASDR) and mortality rates (ASMR) from 1990 to 2021.

**Methods:** Global Burden of Disease database was used to analyze the ASDR and ASMR per 100,000 individuals from 1990 to 2021. The Average Annual Percent Change (AAPC) was calculated using Joinpoint Regression, and p-values assessed significance.

**Abstract  
Body:** **Results:** Between 1990 and 2021, the ASDR rate for aortic aneurysm rose from 16.35 to 19.96 (AAPC: 0.66,  $p < 0.01$ ). Females showed a slight uptick from 8.78 to 10.17 (AAPC: 0.49,  $p < 0.01$ ), while males experienced a more significant increase from 23.64 to 29.42 (AAPC: 0.71,  $p < 0.01$ ). Among different age groups, the elderly (75+) faced the steepest rise (AAPC: 1.69,  $p < 0.01$ ), followed by young adults/adolescents (15-49, AAPC: 0.57,  $p < 0.01$ ). In a similar trend, ASMR for aortic aneurysm increased from 0.66 to 0.89 (AAPC: 1.02,  $p < 0.01$ ). Females experienced a moderate rise from 0.38 to 0.49 (AAPC: 0.87,  $p < 0.01$ ), while males had a more substantial increase from 0.93 to 1.29 (AAPC: 1.05,  $p < 0.01$ ). According to age, the elderly (75+) showed a significant increase (AAPC: 1.80,  $p < 0.01$ ).

**Conclusion:** Rising aortic aneurysm burden, especially among men and the elderly, signals a pressing public health issue in NAME. Enhanced screening,

risk factor management, and research are urgently needed to address this trend.



**Presentation  
Number:** 51-034

**Poster Board  
Number:** 034

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** NATIONAL AND SUBNATIONAL TRENDS OF CARDIOVASCULAR DISEASE  
ATTRIBUTABLE TO DIABETES IN SOUTH ASIA FROM 1990 TO 2021: INSIGHTS  
FROM THE GLOBAL BURDEN OF DISEASE

**Author  
Block:** Muhammad Shees Hunain, Muhammad Usman Arshad, Husnain Ahmad,  
Muhammad Abdullah, Talha Qadeer, Tehmasp Rehman Mirza, Muhammad  
Faizan, Shiraz Aslam, Shalamar Medical and Dental College, lahore,  
Pakistan

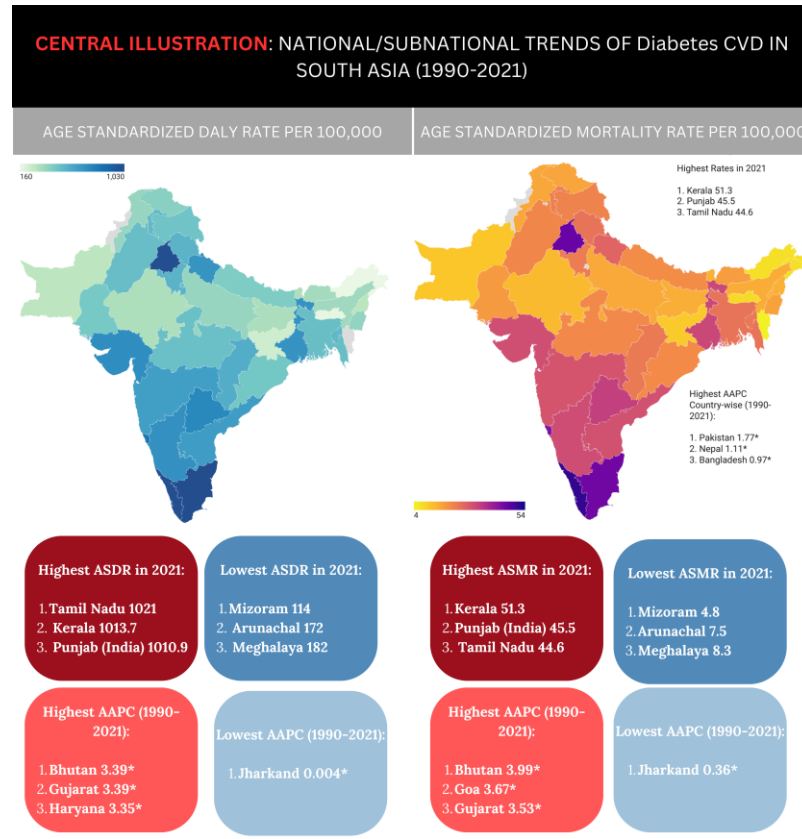
**Background:** Diabetes and Its rising Cardiovascular Impact in South Asia  
remains overlooked. This study analyses CVD burden trends attributable to  
High Fasting Plasma Glucose (HFBPG) across all Provincial Regions in South  
Asia.

**Methods:** Global Burden of Disease database was utilized to analyze Age-  
Standardized Disability Adjusted Life Years Rate (ASDR) and Mortality Rate  
(ASMR) per 100,000 individuals from 1990 to 2021. The Average Annual  
Percent Change (AAPC) of the extracted rates was determined using  
Joinpoint Regression, p-values assessed significance.

**Abstract  
Body:** **Results:** In 2021, Tamil Nadu had the highest CVD burden due to Diabetes-  
related ASDR (1021), followed by Kerala (1013.7) and Punjab (1010.9). The  
lowest rates were in Mizoram (114) and Arunachal Pradesh (172.2). Bhutan  
(AAPC: 3.394,  $p < 0.01$ ) and Gujarat (AAPC: 3.392,  $p < 0.01$ ) saw the largest  
AAPC increase, while Jharkand had the least (AAPC: 0.0046,  $p < 0.01$ ). In  
2021, Kerala had the highest CVD burden due to Diabetes-related ASMR  
(51.3), followed by Punjab (45.5) and Tamil Nadu (44.6). The lowest rates  
were in Mizoram (4.8) and Arunachal Pradesh (7.5). Bhutan (AAPC: 3.92,  
 $p < 0.01$ ) and Goa (AAPC: 3.53,  $p < 0.01$ ) saw the largest AAPC increase, while  
Jharkand had the least (AAPC: 0.36,  $p < 0.01$ ).

**Conclusion:** CVD Burden Attributable to Diabetes increased in all regions  
shows urgent need for obesity interventions in high-burden South Asian

nations.



**Presentation  
Number:** 51-035

**Poster Board  
Number:** 035

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** RESIDENTIAL PROXIMITY TO FARMLAND AND PERSONAL PESTICIDE  
EXPOSURE IN RELATION TO PREVALENT CARDIOVASCULAR DISEASE:  
RESULTS FROM THE TABARI COHORT STUDY

**Author Block:** Amirhossein Hessami, Mahmood Moosazadeh, Maryam Nabati,  
Mazandaran University of Medical Sciences, Sari, Iran (Islamic Republic of)

**Abstract  
Body:** **Background:** Chronic pesticide exposure—even at low environmental levels—has been proposed as a cardiometabolic hazard, yet robust evidence linking specific exposure patterns to clinically verified cardiovascular disease (CVD) is sparse, particularly in Middle-Eastern settings dominated by small-scale farming. We therefore investigated whether residential proximity to farmland and detailed pesticide-use metrics, including periods without personal protective equipment (PPE), are associated with prevalent CVD.

**Methods:** We conducted a cross-sectional analysis of 9 939 adults aged 35-70 years enrolled in the population-based Tabari Cohort Study (Mazandaran, Iran). Baseline CVD was defined as self-reported or physician-confirmed myocardial infarction, ischemic heart disease, hypertension, or heart failure. Pesticide exposure was characterized by (i) residential distance to farmland ( $\leq 100$  m vs  $> 100$  m) and (ii) quartiles of cumulative exposure, both overall and PPE-free (duration in months and number of application episodes). Odds ratios (ORs) for CVD were estimated with logistic regression—first unadjusted, then adjusted for age, sex, socioeconomic status, smoking, body-mass index, education, employment, diabetes, and hypertension.

**Results:** Living in proximity to farmlands (18.4 % of participants) was associated with higher CVD odds in the unadjusted model (OR = 1.27, 95 % CI 1.08-1.51); the association attenuated and lost significance after full adjustment (OR = 1.09, 0.89-1.34). In multivariable analyses, the highest categories of PPE-free exposure ( $\geq 60$  months) and total exposure ( $\geq 87$

months) showed elevated but non-significant point estimates—OR = 1.21 (0.87-1.68) and OR = 1.15 (0.89-1.48), respectively.

**Conclusion:** After controlling for major cardiometabolic confounders, neither residential proximity to farmland nor extensive, PPE-free pesticide use was independently associated with prevalent CVD. The consistently modest, non-significant elevations in risk suggest that any true effect of chronic pesticide exposure on cardiovascular health is likely small and may be obscured by exposure misclassification or residual confounding.

**Presentation  
Number:** 51-036

**Poster Board  
Number:** 036

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** ASSOCIATION BETWEEN TRIGLYCERIDE-GLUCOSE INDEX AND  
PREVALENT CARDIOVASCULAR DISEASE: FINDINGS FROM THE TABARI  
COHORT STUDY

**Author Block:** Amirhossein Hessami, Mahmood Moosazadeh, Maryam Nabati,  
Mazandaran University of Medical Sciences, Sari, Iran (Islamic Republic of)

**Background:** The triglyceride-glucose (TyG) index is a practical surrogate marker for insulin resistance. However, its independent association with cardiovascular disease (CVD) in Middle Eastern populations remains unclear. This study aimed to evaluate the relationship between the TyG index and CVD within the Tabari Cohort Study.

**Methods:** In this cross-sectional analysis, data were drawn from the enrollment phase of the population-based Tabari Cohort Study, comprising 9,939 adults aged 35-70 years from Mazandaran, Iran. CVD—defined as self-reported or physician-confirmed myocardial infarction, ischemic heart disease, hypertension, or heart failure—was assessed at baseline. The TyG index was calculated as  $\text{Ln} [\text{fasting triglycerides} \times \text{fasting glucose} / 2]$ . Mean

**Abstract Body:** differences were compared using independent-samples t-tests. Logistic regression was used to estimate odds ratios (ORs) for CVD per 1-unit increase in TyG, both unadjusted and fully adjusted for age, sex, socioeconomic and lifestyle factors, adiposity, diabetes, and hypertension. Discriminatory power was evaluated using receiver operating characteristic (ROC) curves.

**Results:** The prevalence of CVD was 8.9% (884/9,939). Individuals with CVD had a significantly higher mean TyG index than those without ( $8.999 \pm 0.618$  vs.  $8.889 \pm 0.607$ ;  $p < 0.001$ ). In the unadjusted model, each 1-unit increase in TyG was associated with 33% higher odds of CVD (OR = 1.33; 95% CI: 1.20-1.49;  $p < 0.001$ ). However, this association attenuated and became statistically non-significant after full adjustment (OR = 0.93; 95% CI: 0.82-1.07;  $p = 0.319$ ). The TyG index alone demonstrated limited



discriminatory ability for CVD (AUC = 0.55).

**Conclusion:** While the TyG index is positively associated with CVD in unadjusted analyses, its predictive value is substantially diminished after accounting for established cardiometabolic risk factors. These findings suggest that TyG primarily reflects underlying risk conditions and should be interpreted within the broader context of an individual's cardiometabolic profile, rather than used as an independent screening tool.

**Presentation  
Number:** 51-037

**Poster Board  
Number:** 037

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** SURVIVAL INTO ADULTHOOD IN HOMOZYGOUS FAMILIAL  
HYPERCHOLESTEROLEMIA WITH MULTISYSTEM CARDIOVASCULAR  
INVOLVEMENT A THERAPEUTIC CHALLENGE

**Author Block:** Mohamed Abdelbagi Hamed Alnile Ahmed, King Khaled Hospital, Najran,  
Saudi Arabia

**Background:** Familial hypercholesterolemia (FH) is a rare autosomal dominant disorder characterized by markedly elevated total cholesterol and LDL-C levels. Homozygous FH (HoFH), the most severe form, often leads to death before age 30 unless treated with aggressive measures such as liver transplantation, LDL apheresis, or ileal bypass.

**Case:** A 35-year-old male referred for cardiology evaluation after presenting with dizziness and markedly elevated total cholesterol level. He reports exertional dyspnea and syncope. Physical examination revealed multiple xanthomas, xanthelasma, and corneal arcus. Diagnostic criteria confirmed HoFH with devastatingly premature and complex cardiovascular sequelae: extensive coronary artery disease (CAD), severe aortic stenosis, moderate mitral regurgitation and peripheral vascular disease.

**Abstract  
Body:**

**Decision-making:** The patient was managed with lifestyle counseling, high intensity statin, ezetimibe and evolocumab, with lipid monitoring. a multidisciplinary discussion was held with the cardiac surgery regarding potential interventions involving the coronary arteries, valves replacement and possible Bentall procedure. Despite these efforts, the patient LDL-C remained extremely high (18.1 mmol/L), and the patient declined high risk multi valve surgery and CABG due to procedural complexity. PCI to LM-LAD was performed as a palliative measure. Remote cascade screening of family members confirmed FH prompting initiation of lipid lowering therapy. The patient need referral to a specialized facility for comprehensive lipid management, which may include LDL apheresis, treatment with MTP inhibitors and the possibility of gene therapy. Valves intervention remain

pending.

**Conclusion:** This case illustrated survival into the third decade with untreated HoFH and highlights the importance of early diagnosis, comprehensive lipid management, complex therapeutic challenges and multidisciplinary care. Additionally, it reinforces the vital role of family screening in identifying affected relatives early, allowing for timely intervention and prevention of premature cardiovascular diseases.

**Presentation  
Number:** 51-041

**Poster Board  
Number:** 041

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** RURAL VS URBAN DISPARITIES IN CARDIOVASCULAR DISEASE OUTCOMES  
IN THE MIDDLE EAST GBD 2021 INSIGHTS FOR EQUITABLE HEALTH POLICY

**Author Block:** Sohaib Aftab Ahmad Chaudhry, Rida Shakeel, Raghabendra Kumar Mahato,  
Muhammad Abdullah, Muhammad Ali Makhdoom, Dow Medical College,  
Karachi, Pakistan

**Background:** Urbanization in the Middle East has significantly influenced cardiovascular disease (CVD) trends. However, disparities in CVD outcomes between rural and urban populations remain underexplored. We aimed to estimate and compare the prevalence, mortality, and risk factor burdens between rural and urban populations across Middle Eastern countries.

**Abstract  
Body:** **Methods:** Using Global Burden of Disease (GBD) 2021 analytical tools, we calculated age-standardized incidence, prevalence, mortality, and disability-adjusted life years (DALYs) for CVD. Key metabolic risk factors included high low-density lipoprotein cholesterol (LDL-C) and physical inactivity. Bayesian models were applied, using data from national health surveys and the Global Health Data Exchange (GHDx). Subgroup analyses focused on Lebanon, Oman, and Egypt to reflect diverse urbanization levels.

**Results:** In 2021, Urban areas had higher CVD prevalence (8.7%, 95% uncertainty interval UI: 7.9-9.6) than rural areas (6.4%, 95% UI: 5.8-7.1). However, rural mortality was higher (162.3 per 100,000, 95% UI: 145.2-180.1) than urban (134.6 per 100,000, 95% UI: 120.3-149.8). High LDL-C accounted for 54.2% of urban DALYs but only 41.7% in rural areas, while physical inactivity contributed more to rural DALYs (12.1% vs. 9.8% urban). Lebanon showed the widest urban-rural mortality gap (28.4%), driven by healthcare access differences. Between 1990 and 2021, rural DALYs declined by only 6.3%, compared to 14.1% in urban areas.

**Conclusion:** Rural populations in the Middle East face elevated CVD

mortality despite lower prevalence, due to healthcare access disparities and differential risk factor exposures. Targeted interventions such as rural lipid screening and physical activity programs are essential, particularly in high-gap countries like Lebanon.

**Presentation  
Number:** 51-043

**Poster Board  
Number:** 043

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** EFFICACY AND SAFETY OF ALDOSTERONE SYNTHASE INHIBITORS FOR  
HYPERTENSION: SYSTEMATIC REVIEW AND META- ANALYSIS

**Author** Hemeesh Tandel, Krish Patel, Manav Limbachiya, Amanpreet Singh Wasir, C  
**Block:** U Shah Meidcal College, Surendranagar, India

**Background:** Aldosterone synthase inhibitors (ASIs) represent a novel therapeutic class targeting aldosterone biosynthesis, distinct from mineralocorticoid receptor antagonists.

**Methods:** We conducted a systematic search of databases including PubMed, Google Scholar, Cochrane Library, PLOS ONE, ClinicalTrials.gov and ScienceDirect up to 1st June 2025. We identified Randomised Controlled Trials (RCTs) that compared ASI with a Control group. Meta-analysis was performed using RevMan 5.4. The primary endpoint was change in the Systolic and Diastolic Blood Pressure, and secondary endpoints were Hyperkalemia and adverse events.

**Abstract  
Body:** **Results:** A total of 1,725 patients were included across eight RCTs selected for this review. The pooled analysis revealed that ASIs led to a statistically significant reduction in systolic blood pressure by 4.32 mm Hg (95% CI, -8.78 to -0.14; P = 0.03). Diastolic blood pressure was reduced by 1.96 mm Hg; however, this change was not statistically significant (95% CI, -4.02 to -0.10; P = 0.78). The overall risk ratio (RR) for adverse events was 1.03 (95% CI, 0.91-1.17; P = 0.3), indicating no significant increase compared to controls. However, the use of ASIs was associated with a significantly increased risk of hyperkalemia (RR, 3.38; 95% CI, 1.66-6.87; P < 0.0008).

**Conclusion:** ASIs significantly reduced systolic and diastolic blood pressure compared to placebo, with an acceptable safety profile. However, adverse events such as hyperkalemia warrant the use of ASI.

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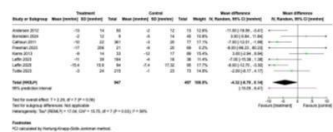


Figure A

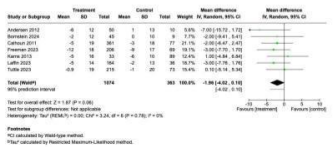


Figure B

Figure A: Pooled treatment effect estimates of aldosterone synthase inhibitors (ASIs) compared with placebo on systolic blood pressure (SBP) in patients with hypertension. Figure B: Pooled treatment effect estimates of aldosterone synthase inhibitors (ASIs) compared with placebo on Diastolic blood pressure (DBP) in patients with hypertension. Figure C: Pooled analysis of ASI treatment compared with placebo on adverse events. Figure D: Pooled treatment effect estimates of ASIs compared with placebo on Hyperkalemia.

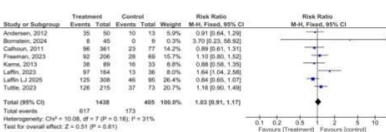


Figure C

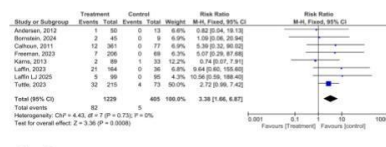


Figure D

**Presentation  
Number:** 51-044

**Poster Board  
Number:** 044

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** AI-AUGMENTED ECG ENABLES SILENT LEFT VENTRICULAR DYSFUNCTION  
DETECTION AND PREVENTIVE INTERVENTION IN A HYPERTENSIVE  
PATIENT

**Author Block:** Mohamed Nasser Elshabrawi, Port Said, Port Said, Egypt

**Abstract  
Body:**

**Background:** Artificial intelligence-enhanced electrocardiography (AI-ECG) models have demonstrated the ability to detect asymptomatic left ventricular systolic dysfunction (LVSD) in routine ECGs, with sensitivity rivalling echocardiography. Early detection enables timely initiation of life-saving therapies like ACE inhibitors or beta-blockers even before symptoms emerge.

**Case:** A 55-year-old man with longstanding, untreated hypertension presented for a routine check-up. He was asymptomatic, with BP 148/92 mmHg, normal BMI, and no history of cardiovascular disease. Resting ECG was interpreted as normal by standard criteria. However, a concurrently run AI-ECG algorithm flagged a high probability (92%) of LV ejection fraction (LVEF) <40%. Echocardiogram was performed and confirmed LVEF of 38%, with mild LV dilation and no regional wall motion abnormalities. There were no clinical symptoms. NT-proBNP was mildly elevated. The patient was started on guideline-directed medical therapy (GDMT): ACE inhibitor, beta-blocker, and SGLT2 inhibitor. At 6-month follow-up, LVEF improved to 45%, and BP normalized.

**Decision-making:** The patient had subclinical heart failure not evident on symptoms or routine ECG. Standard care would have missed early diagnosis. AI-ECG allowed for proactive screening, leading to timely intervention and prevention of progression to overt heart failure.

**Conclusion:** AI-enhanced ECG algorithms can act as a digital stethoscope for the myocardium, detecting subclinical LV dysfunction in asymptomatic patients. This case supports their use in hypertensive or high-risk



populations for preventive cardiology bridging the gap between screening and early intervention.

**Presentation  
Number:** 51-045

**Poster Board  
Number:** 045

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** UNCOVERING THE BURDEN OF AORTIC STENOSIS IN THE MIDDLE EAST A  
GBD 2021 PERSPECTIVE

**Author Block:** Sohaib Aftab Ahmad Chaudhry, Rida Shakeel, Raghabendra Kumar Mahato,  
Muhammad Abdullah, Muhammad Ali Makhdoom, Dow Medical College,  
Karachi, Pakistan

**Background:** Aortic stenosis (AS), one of the most prevalent and clinically significant valvular heart diseases, has become an increasingly important cause of cardiovascular mortality worldwide. However, its burden remains underreported in the Middle East due to limited epidemiological data. This study evaluates AS-related mortality and disability-adjusted life years (DALYs) across Middle Eastern countries using Global Burden of Disease (GBD) 2021 data.

**Abstract  
Body:** **Methods:** GBD 2021 data for 21 Middle Eastern countries were extracted, focusing on age-standardized mortality rates (ASMR) and DALYs attributable to AS from 1990 to 2021. Data sources included national registries and the Global Health Data Exchange (GHDx). Trends in AS rates were analyzed using estimated annual percentage change (EAPC) and Bayesian regression analysis. Subgroup comparisons were conducted for Saudi Arabia, Bahrain, and Lebanon.

**Results:** In 2021, the AS ASMR in the Middle East was 5.6 per 100,000 (95% uncertainty interval [UI]: 4.8-6.5), with Saudi Arabia reporting a higher rate of 6.2 (5.3-7.2). DALYs due to AS were highest in Saudi Arabia (245 per 100,000; 210-280), followed by Bahrain (212; 180-250) and Lebanon (198; 165-230). Between 1990 and 2021, AS-related mortality increased by 11.3% in Saudi Arabia, with smaller increases in Bahrain (+2.1%) and Lebanon (+3.8%). The highest burden was observed in individuals aged 80 and older, though pediatric cases should not be overlooked. No significant sex differences in ASMR were identified (male: 5.7; female: 5.5 per 100,000).

**Conclusion:** Aortic stenosis represents a growing public health burden in

the Middle East, particularly in Saudi Arabia. While transcatheter aortic valve replacement (TAVR) offers promise, region-specific registry data are crucial to evaluate its impact. Effective strategies focusing on surveillance, early diagnosis, and access to treatment are needed to mitigate the burden of AS.

**Presentation  
Number:** 51-047

**Poster Board  
Number:** 047

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** PREVALENCE OF VERY HIGH LDL-C IN ASYMPTOMATIC UAE MILITARY  
RECRUITS: ACROSS-SECTIONAL STUDY

**Author Block:** Ghada Rashwan, Hadiza Ibrahim, Adil Jumani, Rima Y. Alseyari, Majdi  
Alnajjar, Khalid M. Alfakih, Zayed Military Hospital, Abu Dhabi, United Arab  
Emirates

**Background:** Markedly elevated low-density lipoprotein cholesterol (LDL-C) is characteristic of familial hypercholesterolemia (FH), a common genetic disorder associated with early-onset atherosclerotic cardiovascular disease (ASCVD). Early identification enables timely lipid-lowering therapy and long-term prevention.

**Methods:** This cross-sectional study was conducted at Zayed Military Hospital, Abu Dhabi, between August 2023 and July 2024. A total of 30,000 asymptomatic Emirati military recruits aged 17-40 years underwent routine lipid screening. An LDL-C cutoff of  $\geq 4.9$  mmol/L was selected based on internationally accepted clinical criteria for probable FH.

**Abstract  
Body:** **Results:** LDL-C  $\geq 4.9$  mmol/L was identified in 596 participants (1.98%). The mean age of those affected was 25 years, with levels up to 9.57 mmol/L. Prevalence was 1.9% in those under 20 years, 1.95% in the 21-30 age group, and 2.0% among 31-40 year-olds—demonstrating a consistent pattern across age groups. The cohort was predominantly male, which was reflected in the distribution of elevated levels.

**Conclusion:** These results demonstrate a high prevalence of markedly elevated LDL-C in a young, asymptomatic population, with strong likelihood of undiagnosed FH. This exceeds the estimated global prevalence of FH ( $\sim 0.3\%$ ) and reported Gulf prevalence ( $\sim 0.9\%$ ). Identifying these individuals is important to initiate early lipid-lowering treatment and to facilitate cascade screening of family members using clinical criteria (e.g., Simon Broome or Dutch Lipid Clinic Network) or genetic testing.



**Presentation  
Number:** 51-048

**Poster Board  
Number:** 048

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** HYPERTENSIVE HEART DISEASE MORTALITY IN THE MIDDLE EAST AND  
NORTH AFRICA A GBD 2019 ANALYSIS OF SODIUM BURDEN AND  
STAGNANT TRENDS

**Author Block:** Sohaib Aftab Ahmad Chaudhry, Rida Shakeel, Raghabendra Kumar Mahato,  
Muhammad Abdullah, Muhammad Ali Makhdoom, Dow Medical College,  
Karachi, Pakistan

**Background:** Hypertensive heart disease (HHD) remains a major contributor to cardiovascular mortality, with a particularly high burden in the Middle East and North Africa (MENA). This study quantifies HHD mortality in MENA and evaluates the contribution of high sodium intake to these outcomes.

**Methods:** Hypertensive heart disease (HHD) remains a major contributor to cardiovascular mortality, with a particularly high burden in the Middle East and North Africa (MENA). This study quantifies HHD mortality in MENA and evaluates the contribution of high sodium intake to these outcomes.

**Abstract  
Body:** **Results:** In 2019, there were approximately 1.07 million global HHD deaths, representing 13.8% of cardiovascular mortality. The MENA region had a higher ASMR (25.6 per 100,000) than the global average (15.2). Men were more affected than women (27.8 vs. 23.4 per 100,000). Egypt and Saudi Arabia had the highest ASMRs in the region (30.1 and 28.3 per 100,000, respectively). In MENA, 44.6% of HHD mortality was attributable to high sodium intake and 19.8% to obesity. Globally, HHD mortality declined (APC -0.9%;  $p < 0.05$ ), but the MENA region showed no significant change (APC +0.2%;  $p = 0.71$ ), consistent with low hypertension control rates (22%).  
**Conclusion:** Despite global progress, HHD mortality in MENA remains stagnant. Nearly half of regional deaths are linked to high sodium intake, underscoring an urgent need for public health strategies. National

interventions focused on sodium reduction and improved access to antihypertensive therapy are essential to address this growing burden.

**Presentation  
Number:** 51-050

**Poster Board  
Number:** 050

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** COMBATING HYPERTENSION DRIVEN CARDIOVASCULAR DISEASE IN THE  
MIDDLE EAST POLICY GAPS AND PROVEN INTERVENTIONS

Sohaib Aftab Ahmad Chaudhry, Rida Shakeel, Muhammad

**Author Block:** Abdullah, Muhammad Ali Makhdoom, Dow Medical College, Karachi,  
Pakistan

**Background:** Hypertension is a leading contributor to cardiovascular disease (CVD) in the Middle East. High-burden countries such as Oman, Egypt, and the United Arab Emirates (UAE) report prevalence rates exceeding 25%, highlighting a significant public health concern. Despite growing recognition, preventive strategies and their implementation vary widely across the region. This review evaluates the effectiveness of recent hypertension control programs and identifies key policy gaps.

**Methods:** We reviewed data from national health surveys and regional studies on hypertension prevalence and control initiatives. Sources included the WHO STEPS Survey (Oman, 2017), the UAE National Health Survey (2018), and the Egypt Demographic and Health Survey (EDHS, 2021). Additional peer-reviewed literature and public health reports were analyzed to assess program outcomes and population impact.

**Results:** Oman's 2017 WHO STEPS survey reported a hypertension prevalence of 33.2%, with awareness among affected adults at only 38.5%. Hypertension accounted for nearly 40% of CVD mortality according to Oman's Ministry of Health (2021), revealing critical gaps in education and screening. In Egypt, national prevalence reached 25.6% (EDHS 2021). The Egypt Heart Health Project—a community-based initiative reduced stroke risk by 20% among participants. In the UAE, Dubai Health Authority-led workplace wellness programs reduced uncontrolled hypertension by 10%, though national adherence to antihypertensive medication remained near 50%.

**Conclusion:** Egypt's success with community screening and the UAE's

**Abstract  
Body:**



workplace-based programs demonstrate the potential of decentralized interventions. In contrast, Oman's high mortality and low awareness call for urgent action. Region-specific, culturally sensitive policies and investment in public health infrastructure are essential to curb the growing burden of hypertension-related CVD in the Middle East.

**Presentation  
Number:** 51-051

**Poster Board  
Number:** 051

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** FROM US TRENDS TO MIDDLE EASTERN SOLUTIONS TACKLING  
HYPERTENSION DRIVEN ATRIAL FIBRILLATION MORTALITY 2017 TO 2022

**Author  
Block:** Sohaib Aftab Ahmad Chaudhry, Rida Shakeel, Javed Iqbal, Muhammad  
Abdullah, Wajih Ul Hassan, Muhammad Ali Makhdoom, Javed Iqbal, Mona  
Hassan Ali Al Farhan, Brijesh Sathian, Dow Medical College, Karachi,  
Pakistan, Hamad Medical Corporation, Doha, Qatar

**Background:** Atrial fibrillation (AF) drives global cardiovascular mortality. In the U.S., AF deaths rose 3.2% yearly (2017-2022), with hypertension (HTN) in 65% of cases. In the Middle East, HTN affects 35%+ of adults, driving 72% of Saudi Arabia's AF cases. Regional AF mortality data are scarce. This study uses U.S. HTN-driven AF data to propose Middle Eastern healthcare strategies.

**Methods:** We analyzed U.S. datasets, including 45,182 AF-related deaths (ICD-10 I48) from CDC WONDER (2017-2022), NHANES 2017-2020 hypertension data, and CDC PLACES regional disparities. Findings were compared with Middle Eastern data from the Gulf SAFE Registry, Egyptian Hypertension Initiative, and Saudi Arabia/UAE national reports.

**Abstract  
Body:** **Results:** In the U.S. hypertension was in 65.2% of AF-related deaths, highest in Black adults (72.4%). Uncontrolled HTN doubled AF mortality risk (OR: 1.9; 95% CI: 1.6-2.3). Rural areas had 10% higher AF mortality, with 40.3% uncontrolled HTN. In the Middle East, only 18% of Saudi Arabian hypertensive AF patients had controlled BP; Egypt showed a 30% rural-urban HTN control gap; 42% of UAE South Asian migrant workers had hypertension. **Conclusion:** Hypertension drives AF mortality in the U.S. and Middle East. We propose three Middle East policy strategies: (1) Expand integrated HTN-AF screening, per Kuwait's 2023 guidelines; (2) Scale telemedicine for rural care, following UAE's initiative; (3) Implement targeted HTN clinics, like Saudi Arabia's 2024 program.

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**Supplementary Table S1. Hypertension-Driven Atrial Fibrillation  
Mortality: U.S. vs. Middle East Comparison (2017–2022)**

Variable	U.S. (NHANES, CDC WONDER)	Saudi Arabia (Gulf SAFE)	Egypt (HTN Initiative)	UAE (DHA Reports)
AF Mortality Trend (2017– 2022)	↑ 3.2% annually	Not available	Not available	Not available
HTN in AF Deaths / Cases	65.2%	72%	Estimated 68%	Estimated 66%
Uncontrolled HTN in AF Population	58.1% (South)	82%	≈70% (rural)	≈55% (migrant population)
Rural-Urban Care Gap	Rural AF mortality 10% ↑	N/A	30% less HTN control in rural areas	Minimal disparity
High-Risk Population	Older adults, Black patients	Older adults	Rural poor	South Asian migrants
National Screening Strategy	NHANES/CDC PLACES	Planned 2024 HTN clinics	Partial (urban only)	Kuwait- inspired AF screening 2023

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**Presentation  
Number:** 51-052

**Poster Board  
Number:** 052

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** HYPERKALAEMIA PREVALENCE AND RISK FACTORS IN HEART FAILURE:  
REAL-WORLD INSIGHTS FROM ICAREME REGISTRY MIDDLE EAST AND  
AFRICA COHORT

**Author  
Block:** Ahmed Hadaoui, Bassem Zarif, Yuksel Cavusoglu, Amam C. Mbakwem,  
Constantine Akwanalo, Elliot Koranteng Tannor, Ossama Louis, Sola Aoun,  
Hiba Barghouthi, Sedeshan Govender, Sonia Citlali Juarez, Hardik  
Vasnawala, AstraZeneca International, Dubai, United Arab Emirates

**Background:** Hyperkalaemia (HK; serum potassium [K<sup>+</sup>] level >5.0 mmol/L) is common in heart failure (HF). We examined HK burden in patients (pts) with HF in the Middle East and Africa

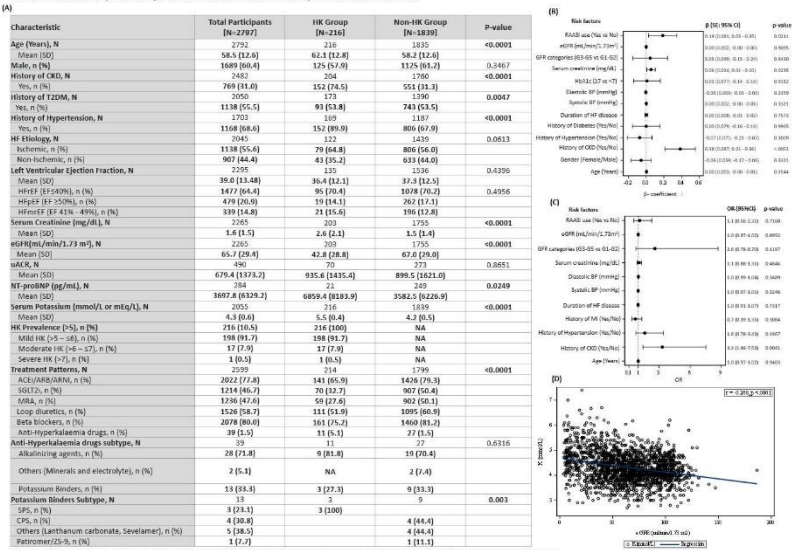
**Methods:** Cross-sectional analysis of iCaReMe Registry (NCT03549754) data. HF pts enrolled in 11 countries (Egypt, Ethiopia, Ghana, Iraq, Jordan, Kenya, Lebanon, Nigeria, South Africa, Türkiye, United Arab Emirates) from May 2019 to April 2024. Descriptive analysis for HK prevalence, pts' characteristics and regression for risk factors

**Abstract  
Body:** **Results:** 2797 participants with HF (mean age 58.5 years; 60.4% male; 64.4% HFrEF, 14.8% HFmrEF, 20.9% HFpEF) were included, with a mean LVEF of 39.0%. Comorbidities included: HTN (68.6%), T2DM (55.5%), and CKD (31%). The mean serum K<sup>+</sup> was 4.3±0.6 mmol/L (n=2055; 73.5%) with HK prevalence of 10.5%. Treatments included β-blockers (80.0%), RAASi/ARNI (77.8%), loop diuretics (58.7%), mineralocorticoid receptor antagonists (47.6%), and SGLT2i (46.7%). Pts with HK (mean K<sup>+</sup>=5.5 mmol/L) exhibited lower kidney function, high and severe CKD comorbidity along with reduced RAASi use than non-HK pts (mean K<sup>+</sup>=4.2 mmol/L). Only 11 pts with HK were on anti-HK therapy, with 3 receiving K<sup>+</sup> binders. Logistic regression revealed that HK was independently associated with comorbid CKD (odds ratio, 3.3; 95% CI, 1.46-7.53; p<0.0041)

**Conclusion:** Our study demonstrates a substantial burden of HK alongside a suboptimal GDMT adoption. It highlights also inadequate HK management,

notably the limited use of K<sup>+</sup> binders

Patients' characteristics, treatment patterns and the association of serum potassium with risk factors



(A) Patients' demographic, clinical characteristics and treatments (B) Multivariate linear regression analysis of factors associated with increased serum potassium levels (C) Multivariate logistic regression analysis of factors associated with hyperkalaemia (D) The relationship between serum potassium level and age

Unknown and missing data were excluded from the percentage calculations. Where indicated, 'N' represents the number of patients with available data.

ACE, Angiotensin-Converting Enzyme Inhibitor; ARB, Angiotensin II Receptor Blocker; ARNI, Angiotensin Receptor-Neutrophin Inhibitor; BP, Blood Pressure; CK, Chronic Kidney Disease; eGFR, Estimated Glomerular Filtration Rate; HFrEF, Heart Failure with reduced ejection fraction; HFpEF, Heart Failure with preserved ejection fraction; HK, Hyperkalaemia; MRA, Mineralocorticoid Receptor Antagonist; NT-proBNP, N-terminal pro-B-type natriuretic peptide; SGLT2, Sodium Glucocorticoid Cotransporter 2; SPS, Sodium Polystyrene Sulfonate; T2DM, Type 2 Diabetes Mellitus; TC, Treatment; UNaV, Urinary Sodium Excretion Rate; UNaV, Urinary Sodium Excretion Rate.

**Presentation  
Number:** 51-053

**Poster Board  
Number:** 053

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** THE EFFICACY OF FINERENONE IN HEART FAILURE WITH MILDLY  
REDUCED EJECTION FRACTION AND HEART FAILURE WITH PRESERVED  
EJECTION FRACTION : COMPREHENSIVE STUDY

**Author Block:** LEELA SAI PARNAM, AYESHA ABID KHAN NA, SAI SRAVIKA KAMBHAM,  
ANWAR SYED, ANOOP SRINIVAS, ANOUD SALIM FODKAR, PARVIN  
MOZAFARI, SRIJAMYA NA, Ivane Javakhishvili Tbilisi state university, TBILISI,  
Georgia

**Background:** Heart failure with mildly reduced (HFmrEF) or preserved ejection fraction (HFpEF) holds 50% of heart failure cases globally, with prevalence increasing among elderly patients. Finerenone, a selective nonsteroidal mineralocorticoid receptor antagonist, is a promising drug with dual cardiorenal benefits in patients with type 2 diabetes mellitus (T2DM) and chronic kidney disease (CKD).

**Methods:** The study has analysed the recent clinical trials and has evaluated the efficacy and safety of Finerenone by risk strata (PREDICT-HFpEF model), age, and sex

**Abstract  
Body:** **Results:** The studies showed that finerenone reduces the composite endpoint of cardiovascular death events by **18** in patients with Left Ventricular ejection fraction  $\geq 40\%$ . Benefits were consistent across sex, age, and risk categories. 12.6% patients suffered hyperkalaemia as a side effect which was manageable with protocol-guided monitoring. Patients with T2DM and CKD, were benefitted in one of study, reinforcing its broad therapeutic applicability

**Conclusion:** Finerenone is a novel drug with significant efficacy in reducing HF hospitalizations and cardiovascular mortality in HFmrEF/HFpEF populations. Its tolerable safety profile and consistent benefit across comorbidity patients enhances the therapeutic advantage.



**Presentation  
Number:** 51-054

**Poster Board  
Number:** 054

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** BURDEN OF PERIPARTUM CARDIOMYOPATHY IN MIDDLE EASTERN  
WOMEN: GBD 2021 INSIGHTS WITH REGIONAL VALIDATION

**Author Block:** Rida Shakeel, Sohaib Aftab Ahmad Chaudhry, Raghabendra Kumar Mahato, Muhammad Abdullah, Muhammad Ali Makhdoom, Javed Iqbal, Mona Hassan Ali Al Farhan, Brijesh Sathian, Department of Medicine, Dow Medical College, Karachi, Pakistan, Hamad Medical Corporation, Doha, Qatar

**Abstract  
Body:**

**Background:** Peripartum cardiomyopathy (PPCM) is an underrecognized yet serious cause of maternal morbidity and mortality in the Middle East.

This study integrates Global Burden of Disease (GBD) 2021 data with national registries to estimate PPCM burden among women in the region

**Methods:** GBD 2021 data were analyzed for cardiomyopathy in women aged 15-49 years using ICD code O90.3. Where GBD lacked PPCM-specific data (e.g., Iraq, Yemen), national sources such as the Jordan Ministry of Health (2022) and UAE Heart Failure Registry (2020) were used. Estimates of prevalence, mortality, and disability-adjusted life years (DALYs) were generated using standard GBD methodology, including Cause of Death Ensemble Models for mortality and Bayesian Meta-Regression for non-fatal outcomes.

**Results:** The estimated PPCM prevalence in the Middle East was 0.015% (95% UI: 0.012-0.018), matching Jordanian estimates (0.016%) but lower than Iraqi reports (1:1,200 births), likely due to underreporting. Iraq showed the highest mortality (1.2 per 100,000; 95% UI: 0.9-1.5), while the UAE reported the lowest (0.4 per 100,000), attributed to proactive screening. Jordan had the highest DALYs (45 per 100,000; 95% UI: 35-55), influenced by anemia-linked risk.

**Conclusion:** PPCM burden in the Middle East is underestimated and under-addressed in maternal health programs. Regional disparities highlight the need for improved PPCM-specific diagnosis, early intervention, and



postnatal care. National strategies should prioritize maternal cardiovascular health to reduce mortality and disability.

**Presentation Number:** 51-055

**Poster Board Number:** 055

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing Title:** EPIDEMIOLOGIC AND CLINICAL CHARACTERISTICS OF HEART TRANSPLANT RECIPIENTS: INSIGHTS FROM THE UNITED ARAB EMIRATES

**Author Block:** Noora Alhajri, Alaa Saeid, Moa'th Bani Ali, Musa'ab Alhmouz, Rami Bany Ata, Firas Albadarin, Nadya Almatrooshi, Cleveland Clinic Abu Dhabi, Abu Dhabi, United Arab Emirates

**Background:** Heart Transplant (HTx) is the gold-standard therapy for patients with end-stage heart failure (HF) offering a promising prognosis and an improved quality of life. In the UAE, the first successful HTx was performed in 2017. Although the number of HTx within the region is limited, it became evident that establishing a heart transplant registry is crucial.

**Methods:** This was a single-center retrospective cohort study. All patients who received a heart transplant between 2017 and 2025 were enrolled in the analysis. Descriptive statistics were used to describe the recipient's clinical characteristic and HTx outcome.

**Results:** During the period of 2017 to 2025, 30 patients underwent successful HTx in the UAE. The patient population was predominantly

**Abstract Body:** younger than the ISHLT transplant recipient populations with mean recipient age in the UAE was  $37.7 \pm 13.0$  years vs.  $52 \pm 16.0$  and characterized by male preponderance where females accounted for only 23.3%. Non-ischemic cardiomyopathy accounted for 80% of the indications for HTx while ischemic causes for only 10% of the cases. Majority of the recipients were non-diabetic, however, 63.3% had HTN and 56.7% had dyslipidemia. Thirty-six percent of the recipients had LVAD and 3.3% had BiVAD prior to Tx. Post-operative complications included infection 30%, and arrhythmia 10%. Thirty-day outcomes included: rehospitalization 23.3%, and mortality 10 % compared to 4.5% among ISHLT data patients population. Mortality causes included sepsis 6.7%, STEMI/cardiac arrest 3.3% and massive multi-organ bleeding 3.3%. None of the patients are lost to follow up and 100% of the patients are compliant

with their medications.

**Conclusion:** The heart transplant recipient population demonstrated a predominance of younger males with coexisting cardiovascular risk factors, notably hypertension and dyslipidemia. Although the overall number of transplant recipients remains limited, our findings highlight significant distinctions in the HF population within the Middle Eastern region when compared to Western cohorts. These differences underscore a pressing need for region-specific data and tailored healthcare strategies.

**Presentation  
Number:** 51-056

**Poster Board  
Number:** 056

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** THE ROLE OF GENETIC MUTATIONS IN DILATED CARDIOMYOPATHY:  
INSIGHTS INTO PATHOGENESIS AND CLINICAL IMPLICATIONS

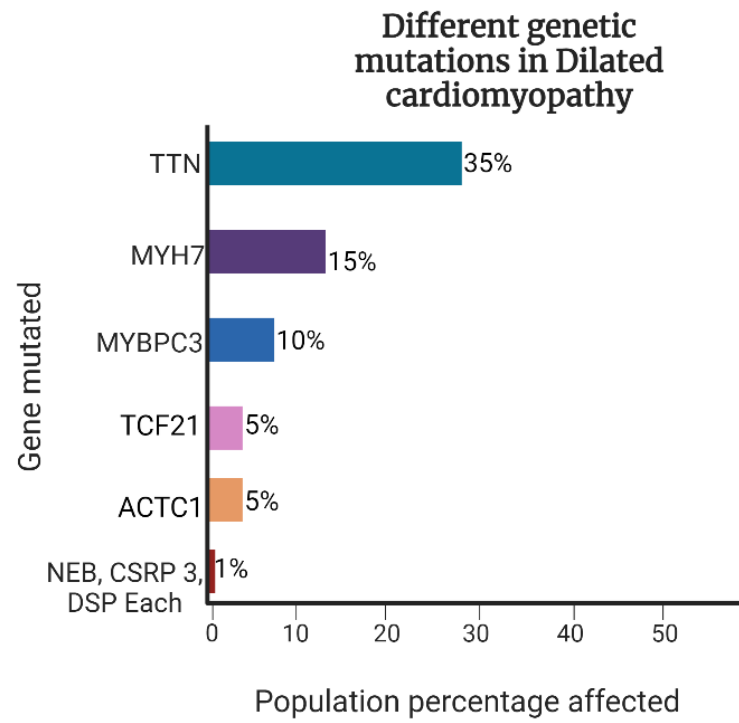
**Author  
Block:** Muhammad Muzammil, Haseeb Faiz, Sheeza Nawaz, Hafsah Maliha  
Hussain, FNU Fariha, Daniyal Abbasi, Abdul Rehman Shah Syed, Zaid Kofahi,  
Hashim AlHammouri, Toleen Haddad, Dow University of Health Sciences,  
Karachi, Pakistan, University of Jordan, Amman, Jordan

**Background:** Dilated Cardiomyopathy (DCM), a cause of progressive ventricular dysfunction, is a primary indication for cardiac transplantation. Genetic etiology is identified in up to 50% of idiopathic cases, making molecular diagnosis a clinical imperative for prognostic stratification and management.

**Methods:** A comprehensive literature review was conducted to synthesize current evidence on DCM's genetic basis, molecular pathogenesis, genotype-phenotype correlations, and clinical utility.

**Abstract  
Body:** **Results:** The genetic architecture of DCM is profoundly heterogeneous. While *TTN* truncating variants are most common, *LMNA* variants confer a malignant arrhythmic phenotype with high SCD risk, driving new nomenclature like 'LMNA-cardiomyopathy'. Other key genes impact the sarcomere (*MYH7*, *TNNT2*), ion channels (*SCN5A*), and RNA splicing (*RBM20*). Next-Generation Sequencing is pivotal, identifying causal variants that directly guide management, such as prioritizing implantable cardioverter-defibrillator (ICD) therapy for high-risk genotypes  
**Conclusion:** Genomic integration is driving a paradigm shift to proactive, personalized DCM care. This genotype-informed strategy is essential for optimizing outcomes and is foundational for developing novel, gene-specific therapies, including targeted molecular agents and future gene-editing

technologies.



**Presentation  
Number:** 51-057

**Poster Board  
Number:** 057

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** CARDIOVASCULAR AND ECHOCARDIOGRAPHIC EFFECTS OF GLUCAGON-  
LIKE PEPTIDE-1 RECEPTOR AGONISTS IN PATIENTS WITH HEART FAILURE: A  
META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS

**Author Block:** Bahar Darouei, Reza Amani-Beni, Reza Eshraghi, Ashkan Bahrami, Massoud  
Ghasemi, Amirhossein Hessami, Saba Maleki, Keyvan Salehi, Shiva Armani,  
Pouya Ebrahimi, Isfahan Cardiovascular Research Institute, Isfahan, Iran  
(Islamic Republic of)

**Abstract  
Body:**

**Background:** Glucagon-like peptide-1 receptor agonists (GLP-1 RAs), used primarily for glycemic control in type 2 diabetes, have shown promise for cardiovascular risk reduction. However, their role in patients with heart failure (HF) remains unclear. In this study, we aimed to evaluate the impact of GLP-1 RAs on cardiovascular outcomes and cardiac function in patients with HF using evidence from randomized controlled trials (RCTs).

**Methods:** We systematically searched PubMed, Embase, Scopus, Web of Science, ClinicalTrials.gov, and CENTRAL until May 2025 for RCTs evaluating GLP-1 RAs in HF. Google Scholar and manual reference screening were used to identify potentially eligible studies. Pooled hazard ratios (HRs) with corresponding 95% confidence intervals (CIs) were calculated for cardiovascular outcomes, and standardized and weighted mean differences (SMDs/WMDs) were used to measure echocardiographic outcomes. Random-effect models with Knapp-Hartung adjustment were applied, and SMDs were calculated using Cohen's *d* method.

**Results:** Eleven RCTs comprising 13,267 patients with HF were included. GLP-1 RAs significantly reduced the risk of major adverse cardiovascular events (MACE) (Pooled HR: 0.83, 95% CI: 0.69-0.98,  $I^2$ : 42.11%; 6 studies). However, there were no significant differences compared to placebo in cardiovascular death, all-cause mortality, or the composite of cardiovascular death and HF hospitalization. Among echocardiographic measures, only left ventricular end-systolic volume (LVESV) showed a

significant increase (WMD: 2.78, 95% CI: 0.07-5.50,  $I^2$ : 0%; 3 studies) compared to placebo; Other measures, including LV ejection fraction (LVEF) and LV end-diastolic volume (LVEDV), showed no significant differences in both WMD and SMD analyses.

**Conclusion:** GLP-1 receptor agonists may reduce the risk of MACE in HF, but their effects on mortality and overall cardiac function remain uncertain. The observed increase in LVESV suggests no clear structural benefit. Future trials should further evaluate their role across HF phenotypes and long-term cardiac remodeling.

**Presentation  
Number:** 51-058

**Poster Board  
Number:** 058

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** SGLT2 INHIBITORS AND REVERSE CARDIAC REMODELING IN HFPEF: A  
SYSTEMATIC REVIEW AND META-ANALYSIS OF CARDIAC MRI STUDIES

**Author Block:** Husna Irfan Thalib, Sariya Khan, Ayesha Jamal, Dr. Nadeem Ikram, Ridha Umar, Myarah Imran, Taqiyah Zaheerullah Sheriff, Sumayyah Khan, Ameena Manzoor, Batterjee Medical College, Jeddah, Saudi Arabia, University of Sharjah, College of Medicine, Sharjah, United Arab Emirates

**Background:** Sodium-glucose cotransporter 2 (SGLT2) inhibitors have demonstrated significant clinical benefits in heart failure with preserved ejection fraction (HFpEF), yet their direct effects on myocardial structure remain unclear. This systematic review and meta-analysis investigates the impact of SGLT2 inhibitors on reverse cardiac remodeling in HFpEF patients using cardiac magnetic resonance imaging (CMR).

**Abstract  
Body:** **Methods:** A systematic search of PubMed, Embase, Cochrane CENTRAL, and Scopus was performed through May 2025. Eligible studies included randomized controlled trials (RCTs) or prospective cohorts assessing CMR-derived parameters (left ventricular mass index [LVMI], extracellular volume fraction [ECV], left atrial volume index [LAVI]) in HFpEF patients treated with SGLT2 inhibitors. Effect sizes were pooled using a random-effects model. Risk of bias was assessed using the Cochrane ROB 2 tool.

**Results:** Nine studies involving 1,243 HFpEF patients (mean LVEF  $\geq 50\%$ ) were included. SGLT2 inhibitors significantly reduced LVMI (mean difference  $-6.3 \text{ g/m}^2$ ; 95% CI:  $-8.7$  to  $-3.8$ ;  $p < 0.001$ ) and LAVI ( $-5.1 \text{ mL/m}^2$ ; 95% CI:  $-7.4$  to  $-2.9$ ;  $p < 0.01$ ), while ECV declined modestly but significantly ( $-1.2\%$ ; 95% CI:  $-2.1$  to  $-0.3$ ;  $p = 0.02$ ), suggesting reduced diffuse myocardial fibrosis. Heterogeneity was low to moderate across outcomes ( $I^2 = 25\text{-}42\%$ ).

**Conclusion:** SGLT2 inhibitors promote reverse cardiac remodeling in HFpEF, evidenced by reductions in LV mass, atrial volume, and fibrosis markers on CMR. These findings provide mechanistic support for the



clinical benefits observed in HFpEF and underscore the role of CMR as a sensitive endpoint in future trials.

**Presentation  
Number:** 51-059

**Poster Board  
Number:** 059

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** IMPACT OF SACUBITRIL/VALSARTAN ON COGNITIVE FUNCTION AND DEMENTIA RISK IN HEART FAILURE: A COMPREHENSIVE SYSTEMATIC REVIEW AND META-ANALYSIS

**Author Block:** Rana Al Juhmani, Omar Alomari, Muhammed Edib Mokresh, Beyzanur Güney, Asude Ukba Teker, Habiba Eyvazova, Elif Nur ARI, Cihangir Kaymaz, University of Health Sciences Kosuyolu Training and Research Hospital, Istanbul, Turkey, baskent university, Ankara, Turkey

**Background:** Sacubitril/valsartan (S/V), a first-in-class angiotensin receptor-neprilysin inhibitor, has demonstrated clinical benefits in heart failure (HF) treatment. However, concerns have emerged regarding its cognitive safety, as neprilysin also degrades amyloid- $\beta$  peptides which is a key pathological feature of Alzheimer's disease. To date, evidence assessing the long-term cognitive outcomes associated with S/V remains limited. This study aims to evaluate clinical and real-world evidence on S/V's impact on cognitive function and dementia risk.

**Abstract  
Body:** **Methods:** We conducted a systematic review and meta-analysis in accordance with PRISMA guidelines. Databases including PubMed, Embase, Scopus, Cochrane Library, and Web of Science were searched for studies evaluating cognitive function in HF patients treated with S/V. Data extraction focused on changes in cognitive scores (MMSE), hazard ratios for dementia, and adverse event reports. Meta-analysis was performed using R (version 4.3.3), and heterogeneity was assessed using  $\tau^2$ ,  $I^2$ , and Q-tests. **Results:** 14 studies encompassing over 5000 patients were included. MMSE showed no significant change from baseline. MMSE scores between S/V and control group revealed no significant difference. Three large-scale studies assessing overall dementia incidence reported a non-significant trend toward reduced risk with S/V (OR: 0.7099; 95% CI: 0.5018 to 1.0044;  $p = 0.0530$ ;  $I^2 = 84.7\%$ ). For Alzheimer's-type dementia, the odds ratio also favored S/V but was not significant (OR: 0.6035; 95% CI: 0.3230 to 1.1275;  $p$

= 0.1133;  $I^2 = 86.2\%$ ). In contrast, vascular dementia risk was significantly lower in the S/V group (OR: 0.6074; 95% CI: 0.4650 to 0.7935;  $p = 0.0003$ ;  $I^2 = 0\%$ ). Analysis of SMQ adverse event reports found no significant link between S/V and cognitive disorders, using either broad or narrow definitions.

**Conclusion:** Current evidence does not support an increased risk of cognitive decline or dementia in HF patients treated with S/V. While preclinical concerns remain biologically plausible, available clinical and real-world data suggest cognitive safety in the short to mid-term. further long-term studies are required to confirm these findings.

**Presentation  
Number:** 51-060

**Poster Board  
Number:** 060

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** NATIONAL TRENDS IN CARDIAC RESYNCHRONIZATION THERAPY  
UTILIZATION AND OUTCOMES FROM 2016 TO 2022

**Author Block:** Rawdah Shakil, Muhammad Sohaib, Dow International Medical College,  
Karachi, Pakistan, Rollins School of Public Health, Emory University,  
Atlanta, GA, USA

**Background:** Cardiac resynchronization therapy with defibrillator (CRT-D) and pacemaker (CRT-P) devices is widely used in managing cardiac conditions. This study examined national trends, demographics, and clinical factors driving CRT-D and CRT-P use in the U.S from 2016-22.

**Methods:** A retrospective analysis of the National Inpatient Sample (NIS 2016-22) identified adult hospitalizations (age  $\geq 18$ ) for initial CRT implantation using ICD-10 codes. The NIS allows national estimates. Temporal trends and predictors of CRT-D vs CRT-P were evaluated using survey-weighted logistic regression.

**Abstract  
Body:**

**Results:** An estimated 181,575 HF admissions occurred from 2016-22, with 67.6% (95% CI, 66.98-68.16) receiving CRT-D. Use declined from 64.6% in 2016 to 55.4% in 2022, with adjusted odds falling by 32%. CRT-D patients were younger (69.3 vs 75.6 years) and higher cost (\$261,219 vs \$191,950) (all  $p < 0.001$ ). CRT-P recipients were mainly White (81.7%) with Medicare use (80.4%), while CRT-D had more Black patients (15.1%) and private insurance use (17.9%). Blacks, Hispanics, and Asians had higher odds of CRT-D compared to Whites: OR 1.79 (95% CI 1.63-1.95), 1.42 (1.28-1.58), and 1.29 (1.05-1.59), respectively (all  $p < 0.05$ ). Medicaid and private insurance had 15% lower odds of CRT-D than Medicare. CRT-D recipients were younger (OR=0.95 per year, 95% CI: 0.95-0.95) and less likely female (OR=0.63, 95% CI: 0.59-0.66) (both  $p < 0.001$ ). CRT-D use was 1.47 (OR 95% CI: 1.2-1.8) times in urban teaching and 27% higher in urban non-teaching hospitals (OR=1.27,  $p < 0.05$ ) than rural, and 27% lower in the Midwest (OR=0.73,  $p < 0.001$ ) and 11% lower in the South (OR=0.89,  $p < 0.05$ ) than the

Northeast. CRT-D was most with ventricular arrhythmia (VA) (OR=4.33), followed by ischemic heart disease (IHD) (OR=1.99), nonischemic cardiomyopathy (OR=1.58), and LBBB (OR=1.58), while Afib (OR=0.76) and AV block (OR=0.35) favored CRT-P (all  $p<0.001$ ).

**Conclusion:** CRT-D use declined but remained prevalent, especially among younger, male, privately insured patients in urban teaching hospitals, with higher rates in Black patients. Strongest links were with VA and IHD, highlighting evolving patterns and disparities in CRT allocation.

**Presentation  
Number:** 51-061

**Poster Board  
Number:** 061

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** COMPARATIVE EFFECTIVENESS OF SGLT2 INHIBITORS AND ARNI IN ELDERLY HFPEF PATIENTS: A SYSTEMATIC REVIEW IN PROGRESS

**Author Block:** Hala AlSalem, Dalaa AlSalem, Mohamed Hassan-Ahmed, Alfie Joseph, Awj Raed, Nour Khalil, University of Buckingham, Buckingham, United Kingdom, Milton Keynes University Hospital, Milton Keynes, United Kingdom

**Abstract  
Body:**

**Background:** Sodium-glucose cotransporter-2 inhibitors (SGLT2i) and angiotensin receptor-neprilysin inhibitors (ARNI) are guideline-endorsed therapies for heart failure with preserved ejection fraction (HFpEF). However, high-risk HFpEF patients such as older adults with diabetes, kidney disease, obesity, or frailty are underrepresented in major trials. These patients face unique therapeutic challenges, including polypharmacy, hemodynamic instability, and multimorbidity. This review aims to evaluate the comparative effectiveness of these therapies in such subgroups to guide individualized treatment.

**Methods:** We are conducting a systematic review in accordance with PRISMA guidelines. A comprehensive search of PubMed, Embase, and Scopus is identifying studies from January 2016 to May 2024 evaluating SGLT2i or ARNI in HFpEF (LVEF  $\geq 50\%$ ). Eligible studies include randomized controlled trials and observational studies that focus on or report outcomes in high-risk populations defined as patients aged  $\geq 65$  and/or with comorbid diabetes, kidney disease, or frailty. Primary outcomes include HF hospitalization and all-cause mortality; secondary outcomes include renal function, NYHA class, QoL, and adverse events. Risk of bias is assessed using Cochrane and ROBINS-I tools. Pooled estimates and p-values will be presented; heterogeneity via  $I^2$ .

**Results:** Preliminary screening identified over 1,500 citations, with title and abstract screening underway. Early trends suggest greater real world tolerability and renal protection with SGLT2i in high-risk HFpEF patients. While no head to head trials exist, indirect comparisons from EMPEROR-

Preserved, PARAGON-HF, and real world data suggest both classes offer clinical benefit, with SGLT2i showing promise in older, diabetic, and renally impaired patients. Data extraction is ongoing.

**Conclusion:** This systematic review in progress aims to synthesize the comparative effectiveness of SGLT2i and ARNI in high-risk HFpEF elderly patients. By focusing on underrepresented and clinically complex populations, this work addresses a key evidence gap and highlights the need for head to head trials tailored to geriatric and comorbid populations.

**Presentation  
Number:** 51-062

**Poster Board  
Number:** 062

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** PSEUDO-NONRESPONDER CRT-D DUE TO INAPPROPRIATE PVAB: A  
HIDDEN TRAP IN ATRIAL TRACKING

**Author  
Block:** Yakup Yunus Yamantürk, Artvin State Hospital Cardiology Clinic, Artvin,  
Turkey

**Abstract  
Body:**

**Background:** Cardiac resynchronization therapy (CRT) can fail due to pacing-related technical issues, even when lead placement and programming appear optimal.

**Case:** An 85-year-old man with ischemic cardiomyopathy and LBBB received CRT-D in 2016. Despite correct LV lead positioning and modest LVEF improvement (35% → 40%), he remained symptomatic. Device interrogation revealed a suboptimal BiV pacing rate (74%), and surface ECG showed a typical paced QRS. During testing, pacing failure was noted following PACs and PVCs. Analysis revealed atrial events falling within the post-ventricular atrial blanking period (PVAB), preventing effective atrial tracking.

**Decision-making:** Sinus activity was insufficiently suppressed, resulting in functional atrial undersensing. Beta-blocker dose was optimized, leading to improved BiV pacing (95%) and LVEF (50%). Paroxysmal AF was later detected, and cardioversion was planned.

**Conclusion:** Atrial events sensed within PVAB can reduce CRT efficacy and mimic nonresponse. Identifying and correcting such timing-related issues is



key to optimizing CRT outcomes.



**Presentation  
Number:** 51-063

**Poster Board  
Number:** 063

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** TRENDS, DISPARITIES AND BURDEN OF HEART FAILURE LINKED TO ISCHEMIC HEART DISEASE IN NORTH AFRICA AND MIDDLE EAST REGION (1990-2021): INSIGHTS FROM GLOBAL BURDEN OF DISEASE DATABASE

**Author  
Block:** Talha Qadeer, Tehmasp Rehman Mirza, Husnain Ahmad, Shiraz Aslam, Muhammad Abdullah, Muhammad Faizan, Muhammad Shees Hunain, Zoraez Mirza, Shalamar Medical and Dental College, Lahore, Pakistan

**Background:** Ischemic heart disease (IHD) is a leading contributor to disease burden in North Africa and Middle East but its effect on inducing Heart Failure (HF) that remains understudied. This study examines the trends in HF linked to IHD.

**Methods:** Global Burden of Disease database was utilized to analyse Age-Standardized Prevalence Rate (ASPR) and YLD Rate (ASYR) per 100,000 individuals from 1990 to 2021. The Average Annual Percent Change (AAPC) of the extracted rates was determined using Joinpoint Regression, p-values assessed significance.

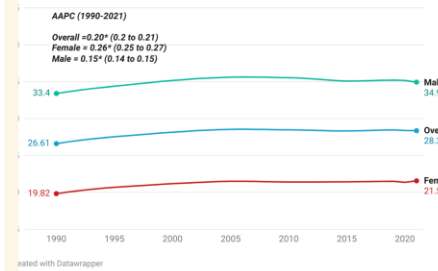
**Abstract  
Body:** **Results:** From 1990 to 2021, IHD leading to HF-related ASPR increased from 298.4 to 316.6 per 100,000 individuals in 2021 (AAPC: 0.19,  $p < 0.01$ ). An increase was seen in females (223.1 to 241.5; AAPC: 0.24,  $p < 0.01$ ) as well as males (373.9 to 389.5; AAPC: 0.13,  $p < 0.01$ ). Age-wise distribution had steeper increases in adolescents/young adults (15-49, AAPC: 0.64,  $p < 0.01$ ) and elderly (75+, AAPC: 0.36,  $p < 0.01$ ). Similarly, the ASYR showed an incline from 26.6 in 1990 to 28.4 in 2021 (AAPC: 0.20,  $p < 0.01$ ). Both females (19.8 to 21.6; AAPC: 0.26,  $p < 0.01$ ) and males (33.4 to 34.9; AAPC: 0.15,  $p < 0.01$ ) had slight increases in ASYR. Age-wise, adolescents/young adults had the highest increase (15-49, AAPC: 0.64,  $p < 0.01$ ).

**Conclusion:** HF linked to IHD burden rose in all demographics, especially adolescents/young adults. Increases were slightly higher in females as compared to males. Rising burden in young adults is concerning,

emphasizing the need for targeted health interventions.

### Trends of IHD leading to Heart Failure in North Africa and Middle East

#### Age Standardized Years Lived with Disability (YLDs) Rate per 100,000

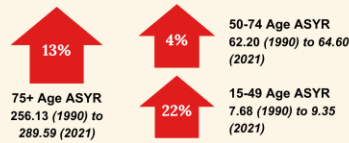
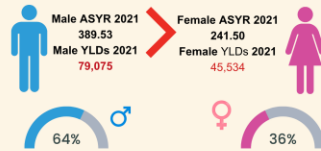


IHD leading to HF associated YLDs in 2021: 124,610

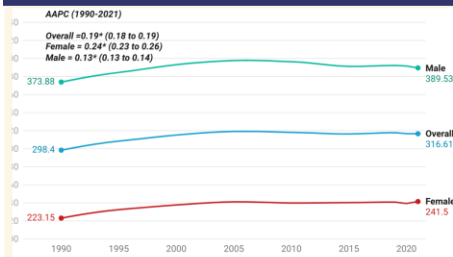
Total HF associated YLDs in 2021: 336,856



#### Age-Stratified Trends



#### Age Standardized Prevalence Rate per 100,000

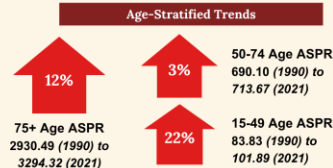
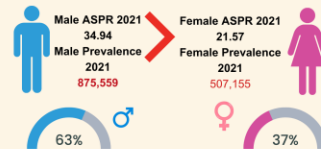


IHD leading to HF associated Prevalence in 2021: 1,382,714

Total HF associated Prevalence in 2021: 3,572,394



#### Gender-Stratified Trends



**Presentation  
Number:** 51-064

**Poster Board  
Number:** 064

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** UTILITY OF CARDIAC MAGNETIC RESONANCE IMAGING TO IMPROVE  
DIAGNOSIS OF LEFT VENTRICULAR NON COMPACTION - A RETROSPECTIVE  
EVALUATION IN MISDIAGNOSIS OF IDIOPATHIC DILATED  
CARDIOMYOPATHY

**Author** habib khan, Mehak Behal, Megan Smith, Ahmed Moustafa, Western  
**Block:** University, London, Canada

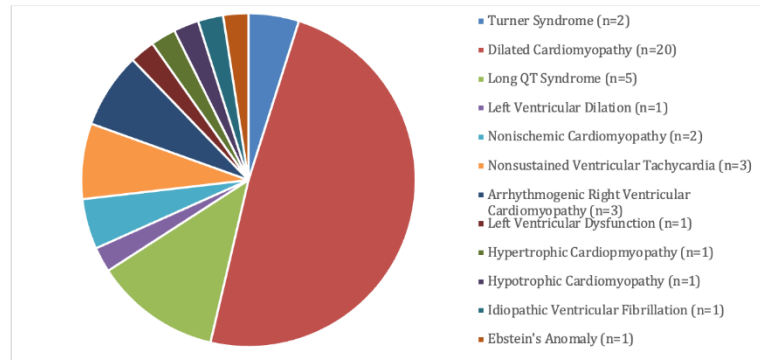
**Background:** In patients with LV non-compaction (LVNC), the LV myocardium is hypertrabeculated, impairing its contractility. Severe forms of LVNC are often diagnosed using echocardiography, given its cost-effectiveness. However, in less severe forms of LVNC, its poor resolution often leads to misdiagnosis as idiopathic dilated cardiomyopathy (DCM). Cardiac magnetic resonance imaging (CMR) enables a more accurate differential diagnosis for LVNC, along with estimation of ventricular scar. This study aims to identify confirmed LVNC cases on CMR and compare the initial diagnosis on echocardiography.

**Abstract  
Body:** **Methods:** Patients with a final diagnosis of LVNC, based on published criteria using echocardiography or CMR, had their records accessed to determine their initial diagnosis and the imaging modality used, as well as their final diagnosis of LVNC using CMR.

**Results:** Seventy-six LVNC patients have been identified, of which 41 were initially misdiagnosed, as shown in Figure 1. Of these patients, 40 received their diagnosis corrected to LVNC using cMRI and one patient maintained their initial diagnosis of LVNC using echocardiography ( $p < 0.001$ ).

**Conclusion:** LVNC is most often misdiagnosed as DCM, which could result in inadequate and delayed treatment plans for these patients. Since cMRI accurately diagnosed many cases of initially misdiagnosed LVNC, it shows that cMRI should be used as the gold standard in DCM diagnosis for further

reclassification.



**Figure 1. Visual representation of the initial misdiagnosis of 41 LVNC patients.**

**Presentation  
Number:** 51-065

**Poster Board  
Number:** 065

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** EFFICACY OF CARVEDILOL IN HEART FAILURE: A SYSTEMIC REVIEW AND  
META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

**Author Block:** Eshal Amir, Aijaz Zeeshan Khan Chachar, Manahil Ahmed, Muhammad  
Uzair, Ubaid Ahmed, Ruqaiyya Raza, Maryam Athar, Javeria Nawaz, Ayman  
Irshad, Fatima Memorial Hospital College of Medicine and Dentistry,  
Lahore, Pakistan

**Background:** Heart failure (HF) remains a significant cause of morbidity and mortality worldwide, affecting over 64 million people globally and carries a huge burden to choke the health care system of a country. A traditionally used non selective beta blocker is Carvedilol, along with alpha-1 adrenergic receptor blocking activity, has been shown to demonstrate great outcomes in regard to improving left ventricular function and clinical outcomes in HF patients. This systematic review and meta-analysis aims to assess the efficacy of carvedilol in heart failure with different doses and making an impact as depicted and extracted from randomized controlled trials (RCTs).

**Abstract  
Body:** **Methods:** A search of PubMed and Cochrane was conducted to identify randomized controlled trials (RCTs). A random effect method was used to pool risk ratios (RRs) with 95% confidence interval (CI). Subgroup and Sensitivity analysis was performed to identify heterogeneity cause.  
**Results:** A total of 22 RCTs were identified. The primary outcome, mortality, was significantly reduced with carvedilol compared to control [RR: 0.59 (0.49, 0.72),  $P<0.00001$ ,  $I^2=23\%$ ] and left ventricular ejection fraction (LVEF) was increased significantly, mean difference: 6.43(3.20, 9.67)  $p<0.0001$ . Among the secondary outcomes, hospitalization was significantly reduced in the carvedilol group [RR: 0.64 (0.54, 0.76),  $p<0.00001$ ]. Whereas, no significant effect was observed for improvement in NYHA class [RR: 1.11 (0.73, 1.68),  $p=0.62$ ] and the risk of overall adverse effects (including Cardiac failure, dizziness, fatigue, nausea, weight gain, dyspnea and chest

pain, divided in subgroups) [RR: 1.10 (0.93, 1.31),  $p=0.27$ ] showed a non-significant increase. Subgrouping for LVEF and hospitalization was done on the basis of dose given.

**Conclusion:** Carvedilol has important role in reducing mortality and frequent hospitalizations in patients with heart failure, with a relatively minuscule amount of heterogeneity; while increasing LVEF. Regarding improvement in symptoms, as depicted by functional class, turned out to be statistically insignificant, very same trend towards enhanced adverse effects.

**Presentation  
Number:** 51-066

**Poster Board  
Number:** 066

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** RISING HEART FAILURE MORTALITY AMONG THE YOUNG IN THE US: A 26-YEAR POPULATION-BASED ANALYSIS

**Author  
Block:** Ibrahim Hassan, Mennatullah A. Shehab, Faculty of Medicine, Suez Canal University, Ismailia, Egypt, Faculty of Medicine, Cairo University, Cairo, Egypt

**Background:** Heart failure (HF) in young adults is often under-recognized as a public health concern. While overall HF mortality trends have shown an increase in recent years, data on HF-related deaths in younger individuals remain limited.

**Methods:** We used the CDC WONDER database to identify heart failure deaths (ICD-10 code I50) from 1999 to 2024 in individuals aged 44 or younger. Age-adjusted mortality rates (AAMR) per 100,000 person-years were calculated with the 2000 U.S. standard population. Trends were analyzed with Joinpoint regression to estimate annual percent changes (APC) and average annual percent change (AAPC).

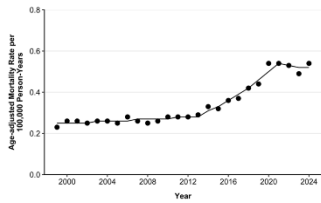
**Abstract  
Body:**

**Results:** Between 1999 and 2024, young individuals experienced 15,974 HF-related deaths, with AAMR rising from 0.23 (95% CI: 0.20-0.25) in 1999 to 0.54 (95% CI: 0.51-0.57) in 2024, representing more than a twofold increase. A significant rise began around 2013, peaking at an annual percentage change (APC) of +8.48% through 2021. The average APC for the entire period was +3.01%. Males displayed higher AAMRs with a sharp increase of +11.0% from 2015 to 2021, while females exhibited a similar upward trend at +9.25%.

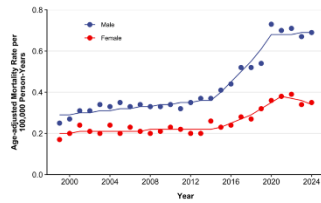
**Conclusion:** HF mortality in U.S. young adults has more than doubled in the last 20 years, peaking between the mid-2010s and 2020. This trend reveals an increasing burden of cardiovascular disease in younger populations, emphasizing the urgent need for proactive prevention strategies, better access to care, and enhanced research into underlying causes and risk factors.



A



B



C

	Deaths	Population	AAMR [95% CI]		Segments (APC [95%CI])			AAPC (95% CI)
			1999	2024	1999-2013	2013-2021	2021-2024	
Overall	15,874	4,896,045,514	0.23 (0.2 to 0.26)	0.54 (0.51 to 0.57)	1 (-0.05 to 1.91)	8.48 (6.95 to 13.8)	-1.62 (-8.42 to 2.73)	3.01 (2.53 to 3.44)
Sex								
Female	5,827	2,412,859,336	0.17 (0.14 to 0.2)	0.35 (0.31 to 0.39)	0.65 (-0.88 to 1.97)	9.25 (1.57 to 18.54)	-3.74 (-13.1 to 4.69)	2.1 (1.37 to 2.83)
Male	10,147	2,483,386,178	0.25 (0.22 to 0.29)	0.69 (0.63 to 0.74)	1.52 (0.53 to 2.39)	11 (6.42 to 17.99)	0.21 (-4.55 to 3.33)	3.51 (3.1 to 3.92)

Figure: Trends in Heart Failure Mortality Among Young Adults (≤44 Years) in the United States, 1999–2024.

This figure illustrates national trends in age-adjusted mortality rates (AAMR) per 100,000 person-years due to heart failure (HF) among young adults (aged ≤44 years) in the United States over a 26-year period.

**Panel A:** Overall AAMR from 1999 to 2024. **Panel B:** Sex-stratified AAMR trends. **Panel C:** Table summary of HF-related deaths, total population, AAMRs for 1999 and 2024 with 95% confidence intervals, and segmented trends calculated using annual percent change (APC), and average annual percent change (AAPC) for the overall cohort and by sex.

Data were extracted from the Centers for Disease Control and Prevention's Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) Multiple Cause of Death database using the International Classification of Diseases, 10th Revision (ICD-10) code I50 to identify HF as the underlying cause of death.

Temporal trends were assessed using Joinpoint regression (Joinpoint v5.4.0) to estimate segment-specific APCs and detect statistically significant inflection points across the study period. Age-adjusted rates were standardized to the 2000 U.S. population.

**Presentation  
Number:** 51-067

**Poster Board  
Number:** 067

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** NATIONAL TRENDS IN HEART FAILURE LINKED TO ISCHEMIC HEART DISEASE IN NORTH AFRICA AND MIDDLE EAST REGION (1990-2021): INSIGHTS FROM GLOBAL BURDEN OF DISEASE DATABASE

**Author  
Block:** Talha Qadeer, Tehmasp Rehman Mirza, Husnain Ahmad, Shiraz Aslam, Muhammad Abdullah, Muhammad Faizan, Muhammad Shees Hunain, Zoraez Mirza, Inshal Khalid, Shalamar Medical and Dental College, Lahore, Pakistan

**Background:** Ischemic heart disease (IHD) is a leading contributor to disease burden in North Africa and Middle East (NAME) but its effect on inducing Heart Failure (HF) that remains understudied. This study examines the trends in HF linked to IHD in 21 countries of NAME.

**Methods:** Global Burden of Disease database was utilized to analyse Age-Standardized Prevalence Rate (ASPR) and YLD Rate (ASYR) per 100,000 individuals from 1990 to 2021. The Average Annual Percent Change (AAPC) of the extracted rates was determined using Joinpoint Regression, p-values assessed significance.

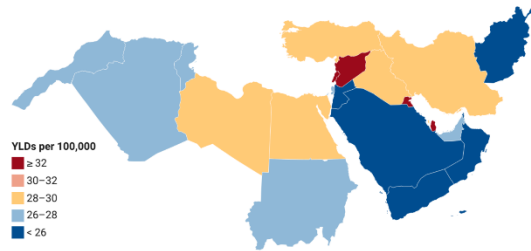
**Abstract  
Body:** **Results:** In 2021, Syria had the highest HF linked to IHD-related ASPR (397.7), followed by Kuwait (397.5). The lowest rates were in Lebanon (259.5) and Afghanistan (214.9). Egypt (AAPC: 0.69,  $p < 0.01$ ) and Saudi Arabia (AAPC: 0.41,  $p < 0.01$ ) saw the largest AAPC increases, while Bahrain (AAPC: -0.31,  $p < 0.01$ ), had the greatest decline. Furthermore, in 2021, Kuwait had the highest ASYR (35.8), followed by Syria (35.6). The lowest rates were in Yemen (23.1) and Afghanistan (19.1). Similarly, Egypt (AAPC: 0.71,  $p < 0.01$ ) and Saudi Arabia (AAPC: 0.44,  $p < 0.01$ ) saw the largest AAPC increases, while Bahrain (AAPC: -0.31,  $p < 0.01$ ), had the greatest decline.

**Conclusion:** Kuwait and Syria had highest HF burden from IHD in 2021, while Egypt and Saudi Arabia showed sharpest rises. Bahrain had a decline in burden. Targeted health interventions are needed in high-burden NAME

nations.

**CENTRAL ILLUSTRATION:** NATIONAL TRENDS OF IHD LEADING TO HEART FAILURE  
ACROSS 21 COUNTRIES OF NORTH AFRICA AND MIDDLE EAST (1990-2021)

AGE STANDARDIZED YLD RATE PER 100,000



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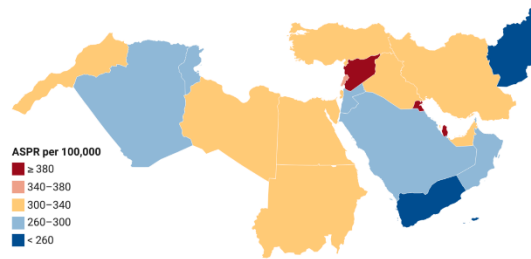
Highest Rates in 2021:

1. Kuwait 35.78
2. Syria 35.63
3. Qatar 34.99

Highest AAPC (1990-2021):

1. Egypt 0.71\*
2. KSA 0.44\*
3. Iraq 0.36\*

AGE STANDARDIZED PREVALENCE RATE PER 100,000



Created with Datawrapper

Highest Rates in 2021:

1. Syria 397.69
2. Kuwait 397.54
3. Qatar 389.83

Highest AAPC (1990-2021):

1. Egypt 0.69\*
2. KSA 0.41\*
3. Iraq 0.34\*

**Presentation  
Number:** 51-068

**Poster Board  
Number:** 068

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** SAFETY AND EFFICACY OF APIXABAN VS. WARFARIN IN HEARTMATE 3  
LVAD RECIPIENTS: A SYSTEMATIC REVIEW OF RCTS AND OBSERVATIONAL  
STUDIES

**Author Block:** Ammar Yasser Mohamed Hassan, Ibrahim Shaheen, Ahmed Aboaleil, Magdi  
Yacoub, Abdelrahman Albadi, Misr University for science and technology,  
Giza, Egypt

**Abstract  
Body:** **Background:** Anticoagulation remains essential for patients with HeartMate 3 left ventricular assist devices (LVADs) to prevent thromboembolic events. While warfarin is the current standard, direct oral anticoagulants like apixaban have emerged as potential alternatives with more predictable pharmacokinetics and lower monitoring requirements. However, their safety and efficacy in this population remain unclear.

**Methods:** This systematic review and meta-analysis followed PRISMA guidelines. A comprehensive search of PubMed, Embase, and Web of Science was conducted through May 2025. Studies comparing apixaban and warfarin in HeartMate 3 LVAD recipients were included. Primary outcomes were mortality, stroke, gastrointestinal (GI) bleeding, major bleeding, and overall bleeding. Risk ratios (RR) with 95% confidence intervals (CI) were calculated using a random-effects model. Heterogeneity was assessed with the  $I^2$  statistic. Statistical analyses were performed using Comprehensive Meta-Analysis software (version 3).

**Results:** Apixaban was associated with a significantly lower risk of overall bleeding compared to warfarin (RR 0.353; 95% CI: 0.192-0.649;  $p = 0.001$ ;  $I^2 = 0\%$ ). Although reductions in gastrointestinal bleeding (RR 0.172; 95% CI: 0.023-1.296;  $p = 0.088$ ;  $I^2 = 0\%$ ) and major bleeding (RR 0.574; 95% CI: 0.123-2.665;  $p = 0.478$ ;  $I^2 = 12\%$ ) were not statistically significant, both showed favorable trends toward apixaban. No significant differences were observed in all-cause mortality (RR 1.872; 95% CI: 0.420-8.348;  $p = 0.411$ ;  $I^2 = 20\%$ ) or stroke incidence (RR 1.043; 95% CI: 0.268-4.065;  $p = 0.952$ ;  $I^2 =$

19%). Heterogeneity across outcomes ranged from none to low, indicating consistency among studies.

**Conclusion:** In HeartMate 3 LVAD patients, apixaban is associated with a significantly lower risk of overall bleeding and comparable rates of mortality and stroke when compared to warfarin. These findings support apixaban as a promising alternative, though further large-scale randomized trials are needed to confirm safety and efficacy.

**Presentation  
Number:** 51-069

**Poster Board  
Number:** 069

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** PREDICTORS OF REVERSE VENTRICULAR REMODELING IN ARAB PATIENTS  
UNDERGOING CARDIAC RESYNCHRONIZATION THERAPY DIFFER  
COMPARED TO A NORTH AMERICAN COHORT

**Author Block:** Fatemeh Mohammad, Firas Al Badarin, Fereidoon Shafei, Mohamed Al  
Jaabari, Arshcneel Kochar, Niraj Varma, WH Wilson Tang, John Rickard,  
Cleveland Clinic Abudhabi, Abudhabi, United Arab Emirates, Cleveland  
Clinic Ohio, Cleveland Ohio, FL, USA

**Background:** Data on outcomes of Middle Eastern heart failure patients  
undergoing cardiac resynchronization therapy (CRT) is limited. Whether  
traditionally recognized predictors of reverse remodeling in a well-studied  
North American population apply to a minimally studied Middle Eastern  
population is unknown.

**Methods:** We collected baseline demographic and echocardiographic data  
from 804 patients with an LVEF  $\leq 35\%$  at the Cleveland Clinic in Cleveland  
(CC), Ohio, USA representing a North American cohort and 104 Middle  
Eastern patients from Cleveland Clinic Abu Dhabi (CCAD) in Abudhabi,  
UAE. Stepwise multivariate regression models were constructed to assess  
response to CRT defined as an absolute increase in LVEF  $\geq 5\%$  in the two  
populations.

**Abstract  
Body:**

**Results:** Middle Eastern patients were younger ( $62.8 \pm 12.9$  vs  $66.3 \pm 12.0$ ,  
 $p < 0.001$ ) more often male ( $73.3\%$  vs  $65.6\%$ ,  $p < 0.001$ ), had less atrial  
fibrillation ( $39.6\%$  vs.  $52.4\%$   $p = 0.02$ ), more diabetes ( $67.6\%$  vs.  $37.8\%$ ,  
 $p < 0.001$ ) and a trend towards more ischemic cardiomyopathy ( $57.1\%$  vs.  
 $50.0\%$   $p < 0.18$ ) compared to North American patients, respectively. The  
incidence of echocardiographic response was similar between Middle  
Eastern and North American patients, respectively ( $65.4\%$  vs.  $64.4\%$ ,  
 $p = 0.9$ ). In separate forward stepwise multivariate regression models  
controlling for the same a priori determined variables, LBBB and diabetes  
mellitus predicted response in the Arab cohort whereas ICM, LBBB, male

gender, and QRSd (the 4 most well-established predictors of response in the medical literature) were predictors in the North American cohort.

**Conclusion:** Predictors of response to CRT in an Arab heart failure cohort undergoing CRT are different than those in a traditionally studied North American cohort. Diabetes mellitus plays a larger role in predicting response in an Arab population compared to North American patients.

**Presentation  
Number:** 51-070

**Poster Board  
Number:** 070

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** PERCUTANEOUS VERSUS SURGICAL CANNULATION FOR  
EXTRACORPOREAL LIFE SUPPORT: A SYSTEMATIC REVIEW AND META-  
ANALYSIS

**Author  
Block:** Muhammad Ahmed, Syeda Zuha Sami, Ariba Nazir, Muzna Murtaza, Zainab  
Muhammad Hanif, Laiba Khurram, Aghna Iman, Shaheed Mohtarman Benazir  
Bhutto Medical College Lyari, Karachi, Pakistan

**Background:** Extracorporeal life support (ECLS) is vital for treating severe cardiac and respiratory failure, with percutaneous cannulation (PC) and surgical cannulation (SC) being two key techniques.

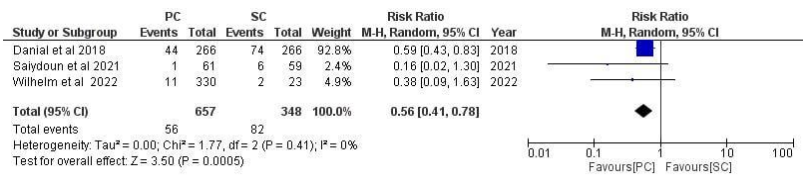
**Methods:** A systematic literature search was conducted in PubMed, Google Scholar, and the Cochrane Library to identify studies comparing PC and SC in ECLS patients. Data extraction and analysis were performed using RevMan. Risk ratios (RRs) were calculated for dichotomous outcomes and mean differences (MDs) for continuous outcomes, both with 95% confidence intervals (CIs) using a random-effects model. Statistical significance was defined as  $p < 0.05$ . Primary outcomes were cannulation site infections and vascular complications; secondary outcomes included in-hospital mortality, ECLS duration, renal replacement therapy, weaning success, limb ischemia, fasciotomy, and amputation.

**Abstract  
Body:** **Results:** Six studies comprising 13,744 patients (9,962 in PC and 3,782 in the SC) were included. Our primary outcomes involved cannulation site infections and vascular complications. PC was associated with a significantly lower risk of cannulation site infections (RR: 0.56, 95% CI: 0.41-0.78,  $p = 0.0005$ ). However, vascular complications (RR: 0.48, 95% CI: 0.23-1.00,  $p = 0.05$ ) did not reach statistical significance. All the secondary outcomes were found to be insignificant.

**Conclusion:** PC is associated with a lower risk of site infections but shows



no significant advantage over SC in other ECLS outcomes.



**Presentation  
Number:** 51-071

**Poster Board  
Number:** 071

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** GLUCAGON-LIKE PEPTIDE-1 RECEPTOR AGONISTS FOR IMPROVING  
QUALITY OF LIFE AND MORTALITY IN ADULTS WITH HEART FAILURE WITH  
PRESERVED EJECTION FRACTION: A SYSTEMATIC REVIEW AND META-  
ANALYSIS OF EFFICACY AND SAFETY

**Author Block:** Sumaiyya Saeed Syeda, Bilal Ahmad, Ruchi Shah, Muhammad Saeed,  
Shahd E. Amer, Muhammad Hammad Arif, Anika Goel, Muhammad  
Mukhlis, Ahmad Omar Saleh, D.G Khan Medical College, Dera Ghazi Khan,  
Pakistan, Georgian National University (SEU), Tbilisi, Georgia

**Background:** GLP-1 receptor agonists may play a role in improving quality of life in patients suffering from heart failure with preserved ejection fraction (HFpEF). We conducted a systematic review and meta-analysis evaluating the safety and efficacy of GLP-1 receptor agonists in patients with HFpEF.

**Abstract  
Body:** **Methods:** Databases namely PubMed, Embase, Cochrane, and Clinicaltrials.gov were meticulously scoured using a systematized search strategy from inception to February 2025. We incorporated studies that had interpreted the use of GLP-1 receptors agonists in patients with HFpEF (LVEF  $\geq 45\%$ ), aged 18 years or older. The primary outcomes analyzed were quality of life parameters (Kansas City Cardiomyopathy Questionnaire Clinical Summary Score [KCCQ-CSS]), 6-minute walk distance (6MWD), NT-proBNP levels, body weight changes, and cardiovascular mortality. RevMen 5.4.1 was employed for the statistical analysis of the outcomes.

**Results:** We involved six randomized controlled trials (RCTs) and two observational studies in our meta-analysis, with a total of 94,076 patients. We found a significant improvement with GLP-1 receptor agonists therapy in KCCQ-CSS scores (MD -6.80, 95% CI: -6.98 to -6.62;  $P < 0.00001$ ) and 6MWD (MD -15.0, 95% CI: -16.46 to -15.35;  $P < 0.00001$ ). A significant meaningful weight reduction with MD -7.94 (95% CI: -12.08 to -3.81) and reduced NT-proBNP levels with RR of 0.84 (95% CI: 0.78 to 0.91;  $P < 0.0001$ )

was observed in the patients. Hospitalization due to heart failure reduced notably by 34%, with an HR of 0.66 (95% CI: 0.55 to 0.80). There was a non-significant progression in the trend of cardiovascular mortality (RR 0.85, 95% CI: 0.70 to 1.04; P=0.12). Regarding safety outcomes, patients revealed a significant increase in gastrointestinal side effects with RR of 1.56 (95% CI: 1.39-1.75; P<0.00001), and a lower risk of arrhythmias was noted (RR 0.60, 95% CI: 0.39-0.93; P=0.02).

**Conclusion:** GLP-1 receptor agonists yield significant advantages in HFpEF patients, like enhanced quality of life, valuable weight loss, amplified functional capacity, minimized heart biomarkers, reduced heart failure hospitalization.

**Presentation  
Number:** 51-072

**Poster Board  
Number:** 072

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** OUTCOMES OF MIDDLE EASTERN PATIENTS WITH CHRONIC SYSTOLIC  
HEART FAILURE UNDERGOING CARDIAC RESYNCHRONIZATION THERAPY  
COMPARED TO A NORTH AMERICAN COHORT

**Author Block:** Fatemeh Mohammad, WH Wilson Tang, Fereidoon Shafei, Mohamed Al  
Jaabari, Niraj Varma, Mohammad El Khashab, Hussam Ghalib, Nadya  
Almatrooshi, Feras Bader, John Rickard, Cleveland Clinic abudhabi,  
Abudhabi, United Arab Emirates, Cleveland Clinic Cleveland Ohio, Ohio, FL,  
USA

**Abstract  
Body:** **Background:** Data on outcomes of Middle Eastern heart failure patients  
undergoing cardiac resynchronization therapy (CRT) is extremely limited  
**Methods:** We collected baseline demographic and echocardiographic data  
from 804 patients with an LVEF  $\leq 35\%$  at the Cleveland Clinic in  
Cleveland(CC), Ohio, USA representing a North American cohort and 104  
Middle Eastern patients from Cleveland Clinic Abu Dhabi (CCAD) in Abu  
Dhabi, UAE. Survival free of LVAD and heart transplant was assessed via  
chart review and local obituary search where applicable. Multivariate  
regression models were constructed to assess response to CRT defined as  
an increase in LVEF  $\geq 5\%$  and survival free of heart transplant and Left  
ventricular assist device (LVAD)  
**Results:** Middle Eastern patients were younger ( $62.8 \pm 12.9$  vs  $66.3 \pm 12.0$ ,  
 $p < 0.001$ ) more often male ( $73.3\%$  vs  $65.6\%$ ,  $p < 0.001$ ), had less atrial  
fibrillation ( $39.6\%$  vs  $52.4\%$   $p = 0.02$ ), more diabetes ( $67.6\%$  vs  $37.8\%$ ,  
 $p < 0.001$ ) and a trend towards more ischemic cardiomyopathy ( $57.1\%$  vs.  
 $50.0\%$   $p < 0.18$ ) compared to North American patients, respectively. The  
incidence of echocardiographic response was similar between Middle  
Eastern and North American patients, respectively ( $65.4\%$  vs  $64.4\%$ ,  
 $p = 0.9$ ). Over a mean of  $5.6 \pm 2.7$  years 420 patients met the endpoint with no  
difference in survival between the two groups (log rank  $p = 0.78$ ) (Figure 1). In  
multivariate regression, there was no difference in survival between the two

cohorts ( $p=0.63$ )

**Conclusion:** Despite several notable differences in baseline demographics and comorbidities, Middle Eastern patients with heart failure undergoing CRT have similar incidences of reverse remodeling and survival free of LVAD and heart transplant compared to a North American population

**Presentation  
Number:** 51-073

**Poster Board  
Number:** 073

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** SACUBITRIL/VALSARTAN VERSUS VALSARTAN IN THE ELDERLY WITH  
HEART FAILURE: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

**Author Block:** Hadeel Aboueisha, Faculty of Medicine, SCU, Ismailia, Egypt

**Abstract  
Body:**

**Background:** Sacubitril/valsartan, a combination angiotensin receptor-neprilysin inhibitor (ARNI), has been established as a cornerstone in heart failure (HF) management. However, elderly patients (aged  $\geq 75$  years) are frequently underrepresented in clinical trials, leaving uncertainty around age-specific efficacy and safety.

**Methods:** We conducted a meta-analysis of randomized controlled trials (RCTs) comparing sacubitril/valsartan with valsartan in elderly HF patients. Literature searches were performed in PubMed, Embase, Scopus, Web of Science, and the Cochrane Library till January 2025. Primary outcomes included HF hospitalizations, all-cause mortality, and N-terminal pro-B-type natriuretic peptide (NT-proBNP) levels. Secondary outcomes were adverse events such as symptomatic hypotension, renal impairment, and hyperkalemia. Data were pooled using a random-effects model.

**Results:** Four RCTs comprising 2,467 patients aged 75 years or older were included. Sacubitril/valsartan was associated with a significant reduction in HF-related hospitalizations (risk ratio 0.86; 95% confidence interval 0.76-0.98;  $p = 0.02$ ) and NT-proBNP levels (mean difference -395 pg/mL; 95% CI: -553 to -237;  $p < 0.001$ ). A trend toward reduced all-cause mortality was observed (RR 0.92; 95% CI: 0.78-1.09), although not statistically significant. Patients receiving ARNI therapy experienced higher rates of symptomatic hypotension (RR 1.25; 95% CI: 1.04-1.50), but rates of renal dysfunction and hyperkalemia did not differ significantly.

**Conclusion:** In elderly HF patients, sacubitril/valsartan demonstrates superiority over valsartan in reducing hospitalizations and cardiac biomarkers, with an acceptable safety profile. Despite a higher incidence of

hypotension, these findings support its expanded role in older adults, warranting appropriate clinical monitoring.

**Presentation  
Number:** 51-074

**Poster Board  
Number:** 074

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** TRENDS, PREDICTORS, AND IN-HOSPITAL OUTCOMES OF PERIPARTUM  
CARDIOMYOPATHY HOSPITALIZATIONS IN THE UNITED STATES, 2016-2022

**Author Block:** Rawdah Shakil, Muhammad Sohaib, Awais Nasir, Dow International  
Medical College, Karachi, Pakistan, Rollins School of Public Health, Emory  
University, Atlanta, GA, USA

**Abstract  
Body:**

**Background:** Peripartum cardiomyopathy (PPCM) is a rare, serious heart failure near childbirth. National data on its prevalence, hospitalization factors, and critical outcomes like mechanical cardiac support (MCS) and arrest remain limited.

**Methods:** We conducted a retrospective analysis of the National Inpatient Sample (NIS) from 2016-22 to identify PPCM hospitalizations in women aged 15-54 using ICD-10-CM code. Multivariable regression models evaluated predictors of key outcomes while adjusting for demographics, comorbidities, and hospital characteristics.

**Results:** Between 2016-22, 31,610 PPCM hospitalizations occurred, with declines in 2020 (OR 0.90; 95% CI 0.80-1.00) and 2021 (OR 0.88; 95% CI 0.79-0.98) compared to 2016. PPCM patients were younger (32.1 vs 34.1 years), stayed longer (+2.2 days), and incurred higher charges (\$93,240 vs \$40,265). Patients aged 36-54 had 75% lower odds than  $\leq 35$ . For races the odds were: Black (OR 2.65; 95% CI 2.49-2.83), Native Americans (OR 1.59; 95% CI 1.25-2.02), and Asians (OR 1.42; 95% CI 1.20-1.67; all  $p < 0.001$ ). Medicaid was most common (53.3%), then private insurance (32.8%). Native Americans had \$38k lower charges ( $p = 0.045$ ), Hispanics trended \$14.1k higher ( $p = 0.050$ ). Compared to Northeast, South had highest odds (OR 1.52; 95% CI 1.39-1.67), then Midwest (OR 1.21; 95% CI 1.09-1.34); Midwest hospitals charged \$19k less ( $p < 0.05$ ). Compared to rural, odds were more at urban teaching (OR 1.88; 95% CI 1.64-2.15) and urban non-teaching (OR 1.40; 95% CI 1.21-1.63), with stays 1.14 days longer at urban teaching ( $p < 0.001$ ). Compared to small hospitals, odds were higher at



medium (OR 1.24; 95% CI 1.14-1.36) and large (OR 1.58; 95% CI 1.45-1.71), with stays 0.46 and 0.93 days longer (both  $p < 0.05$ ). Rural dwellers had 39% higher risk. Each Elixhauser point raised odds 50% and LOS 0.41 days ( $p < 0.001$ ); each day added \$20.7k ( $p < 0.001$ ). Charges rose \$19.2k-\$34.2k from 2019-22. Highest-income quartile admissions cost \$21k more ( $p < 0.05$ ). PPCM patients had 27× MCS and 4.3× arrest odds.

**Conclusion:** PPCM rose, impacting younger, sicker women. Blacks had highest MCS and arrest risk and Hispanics highest mortality. Large urban teaching hospitals lowered arrest odds.

**Presentation  
Number:** 51-075

**Poster Board  
Number:** 075

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** CHANGING LANDSCAPE OF END-OF-LIFE CARE FOR HEART FAILURE IN THE UNITED STATES: A 26-YEAR ANALYSIS OF PLACE OF DEATH TRENDS

**Author** Mennatullah Shehab, Ibrahim Hassan, Faculty of Medicine, Cairo University,  
**Block:** Cairo, Egypt, Faculty of Medicine, Suez Canal University, Ismailia, Egypt

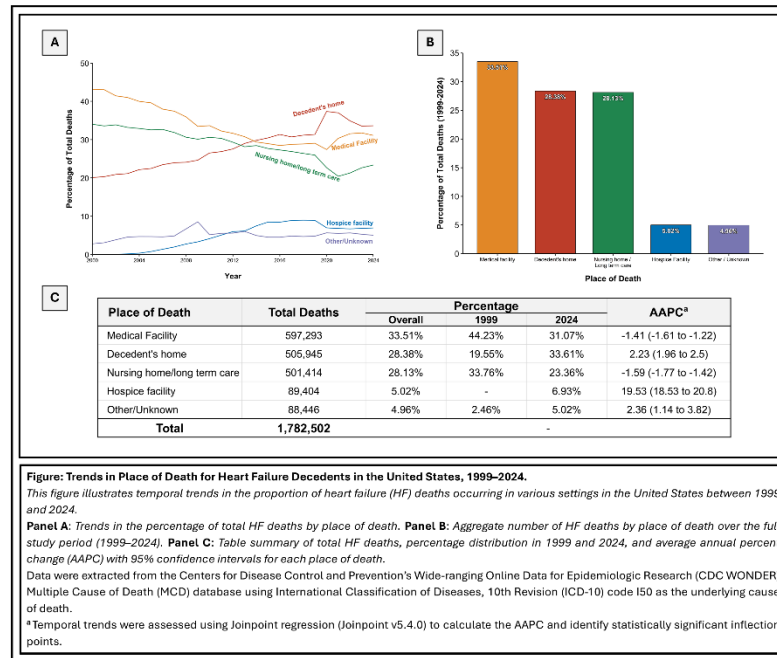
**Background:** Heart failure (HF) is a major cause of mortality in the United States. In recent decades, care has shifted toward honoring patient preferences and expanding palliative and home-based services. but national trends in place of death for HF decedents remain underexplored.

**Methods:** We used the CDC WONDER database to identify deaths from 1999 to 2024 with HF using ICD-10 (I50) as the underlying cause. We analyzed the percentage of deaths in five settings: medical facilities, home, nursing homes, hospice facilities, and other. We used Joinpoint regression to assess trends and estimate average annual percent change (AAPC).

**Abstract  
Body:** **Results:** Among 1,782,502 HF deaths nationwide, medical facilities were most common (33.51%), followed by home (28.38%) and nursing homes (28.13%). From 1999 to 2024, home deaths increased from 19.55% to 33.61% (AAPC: +2.23%), surpassing medical facility deaths around 2018. Medical facility deaths declined from 44.23% to 31.07% (AAPC: -1.41%), while nursing home deaths decreased from 33.76% to 23.36% (AAPC: -1.59%). Hospice care deaths rose from nearly absent to 6.93% (AAPC: +19.53%), and all trends were statistically significant.

**Conclusion:** The place of death for HF patients has undergone a significant shift, with home deaths surpassing hospital deaths. These findings reflect growing palliative infrastructure, changing patient preferences, and improved

access to home-based end-of-life care.



**Presentation  
Number:** 51-077

**Poster Board  
Number:** 077

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** ARTIFICIAL INTELLIGENCE-ENABLED ECHOCARDIOGRAPHY UNMASKS  
CARDIAC AMYLOIDOSIS IN A HIGH-RISK PATIENT

**Author Block:** Mohamed Nasser Elshabrawi, Port Said, Port Said, Egypt

**Abstract  
Body:**

**Background:** Cardiac amyloidosis, especially transthyretin (ATTR-CM), is frequently underdiagnosed due to nonspecific clinical signs and subtle imaging findings. Recent advances in artificial intelligence (AI) offer promising tools to augment echocardiographic screening and early diagnosis, particularly in high-risk but undifferentiated populations.

**Case:** A 71-year-old male with a history of bilateral carpal tunnel syndrome and lumbar spinal stenosis presented with exertional dyspnea. ECG showed low voltage and pseudo-infarct pattern. Echocardiography showed increased wall thickness (IVS 15 mm), biatrial enlargement, and preserved LVEF. Given suspicion for ATTR-CM, a novel FDA-cleared AI-assisted echo platform (based on deep-learning video interpretation) was applied. The algorithm flagged high probability for cardiac amyloidosis based on morphological and strain pattern features. Cardiac MRI showed diffuse subendocardial late gadolinium enhancement and elevated native T1. Tc-99m-PYP scan revealed Grade 3 myocardial uptake. Genetic testing ruled out hereditary mutations—consistent with wild-type ATTR. Tafamidis was initiated.

**Decision-making:** The AI tool was instrumental in flagging cardiac amyloidosis earlier in the diagnostic pathway, prompting confirmatory imaging and avoiding delay. Use of AI in echo acquisition and interpretation has been shown to achieve expert-level accuracy (C-statistic up to 0.97) and guide non-specialist operators to diagnostic-quality image capture.

**Conclusion:** AI-augmented echocardiography enables earlier identification of cardiac amyloidosis in patients with subtle signs and comorbid red flags. Integration of AI into echo workflows can enhance diagnostic precision,

democratize access to expert-level imaging, and support timely initiation of disease-modifying therapies.

**Presentation  
Number:** 51-078

**Poster Board  
Number:** 078

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** UNCOVERING YAMAGUCHI SYNDROME: A COMPREHENSIVE  
MANAGEMENT

**Author Block:** Tommy Daindes, Daulat Azhari, Benny Afriansyah, Doni Surya, Monica Oktariyanthy, Putri Maghfirah Bahri, Tiffany Adelina, Viftrya Rosady, Hauda El Rasyid, M Djamil General Hospital, Padang, Indonesia

**Abstract  
Body:**

**Background:** Yamaguchi syndrome, also known as apical hypertrophic cardiomyopathy (ApHCM), is a distinct variant of HCM characterized by localized hypertrophy at the left ventricular apex, often presenting with deep T-wave inversions on ECG. Although traditionally considered benign, emerging evidence suggests that ApHCM can be complicated by serious arrhythmias leading to sudden cardiac death.

**Case:** A 55-year-old male presented to the outpatient clinic with complaints of palpitation followed by near syncope, and a sensation of heaviness in the chest. The symptoms had been present for 2 years and worsened in the past 3 months. Physical examination was unremarkable. An electrocardiogram showed giant negative T-waves in the anterior precordial leads. Coronary angiography performed at a local hospital revealed normal coronary arteries. NT-proBNP was measured at 924 pg/mL.

Echocardiography showed a left ventricular ejection fraction of 59%, with concentric hypertrophy, and apical hypertrophic cardiomyopathy was confirmed with a gradient of 15-16 mmHg. During the electrophysiology study, non-sustained ventricular tachycardia (NSVT) was observed originating from the posteromedial wall of the left ventricle. Left ventriculography revealed a typical "spade-like" left ventricular cavity, characteristic of Yamaguchi syndrome. An implantable cardioverter-defibrillator (ICD) implantation then performed for a secondary prevention of sudden cardiac death.

**Decision-making:** The diagnosis of Yamaguchi Syndrome is clinically challenging. The presence of peculiar ECG features, such as giant T-wave

inversions, can raise initial suspicion for the condition. Implantable cardioverter-defibrillator (ICD) implantation is the first-line recommendation for sudden cardiac death prevention.

**Conclusion:** Yamaguchi syndrome requires a comprehensive diagnostic approach due to its subtle clinical features and similarity to other heart conditions and this is will allow us to guide the patient's comprehensive management, including the use of ICD for preventing sudden cardiac death.

**Presentation  
Number:** 51-079

**Poster Board  
Number:** 079

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** EFFECTS OF SACUBITRIL-VALSARTAN ON SLEEP APNEA SEVERITY AND CARDIAC FUNCTION IN HFREF: A PROSPECTIVE SINGLE CENTRE STUDY.

**Author Block:** Fatma Al Mahruqi, Fahad Abdullah Rashed Al Kindi, Mohammed Al Abri, Adil Al Riyami, Ahmed El Ameen, Mahmood AL Habsi, Elna piopongco, Khamis Al Hashmi, Raya Al Maskari, Zuhra Al Yarubi, Samir Al Adawi, Rasha Kaddoura, Sultan Qaboos university Hospital, Muscat, Oman

**Background:** Heart failure with reduced ejection fraction (HFrEF) is a global health challenge marked by high morbidity, mortality, and frequent hospitalizations. Sleep-disordered breathing (SDB), affecting 50-75% of HFrEF patients, exacerbates disease progression through sympathetic overactivation, hypoxia, and cardiac remodeling. Sacubitril-Valsartan (SV), a guideline-recommended therapy for HFrEF, improves ventricular function and survival, but its effects on SDB remain underexplored. This study aimed to evaluate the impact of SV on sleep apnea severity, echocardiographic indices, and clinical outcomes in HFrEF patients.

**Abstract Body:** **Methods:** This prospective open-label study enrolled symptomatic HFrEF patients (LVEF  $\leq 40\%$ ) from Sultan Qaboos University Hospital, Oman (May 2024-May 2025). Eligible patients initiating SV underwent baseline and 3 month follow-up assessments, including echocardiography (LVEF, left ventricular end-diastolic Dimension [LVEDD]), serum NT-proBNP levels, and home sleep apnea testing to quantify apnea-hypopnea index (AHI) and nocturnal hypoxemia.

**Results:** Among 52 analyzed patients, mean age was 58.81 years and 73.1% were male. Echocardiography revealed improvements in LVEF (30.07% to 34.76%, 95% CI: 1.89-7.48,  $p=0.002$ ) and LVEDD (56.69 to 54.83 mm, 95% CI: -3.57 to -0.15,  $p=0.034$ ), with a trend toward reduced systolic pulmonary artery pressure (34.58 to 25.21 mmHg, 95% CI: -1.99- 20.73,  $p=0.10$ ). Renal function (eGFR: 69.38 to 69.05 mL/min/1.73m<sup>2</sup>, 95% CI: - 2.24- 2.90,  $p=0.795$ ) and serum potassium (4.48 to 4.54 mmol/L, 95% CI: -



0.21-0.09,  $p=0.435$ ) remained stable. Sleep studies showed reduced average nocturnal desaturation (4.57% to 3.80%, 95% CI: -1.43 to -0.10,  $p=0.025$ ), while apnea-hypopnea indices (41.91 to 38.88 events/h, 95% CI: -04.92- 10.98,  $p=0.44$ ) persisted unchanged. NT-proBNP levels declined from 1323.41 to 1151.27 pg/mL (95% CI: -128.83-473.10,  $p=0.254$ ).

**Conclusion:** SV improved cardiac function and nocturnal oxygenation with stable renal and metabolic profiles. its limited impact on sleep apnea severity highlights the necessity of combining SV with targeted interventions such as CPAP for comprehensive SDB management in HFrEF.

**Presentation  
Number:** 51-080

**Poster Board  
Number:** 080

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** TEACH BACK EDUCATION METHOD FOR REMOTE MANAGEMENT OF HEART FAILURE PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

**Author  
Block:** Abdelaziz Awad, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Cairo, Egypt

**Abstract  
Body:** **Background:** Heart failure management requires a multifactorial approach, including patient education to increase patients' awareness of their condition. In this study, we aim to assess the safety of using these medications in hypertensive patients without end-organ damage.

**Methods:** Following the PRISMA guidelines, we searched four databases (PubMed, Scopus, and Web of Science). We pooled the dichotomous data as risk ratios (RRs) and continuous data as mean difference (MD) with their 95% confidence interval (95% CI). A p-value more than 0.05 is considered statistically insignificant.

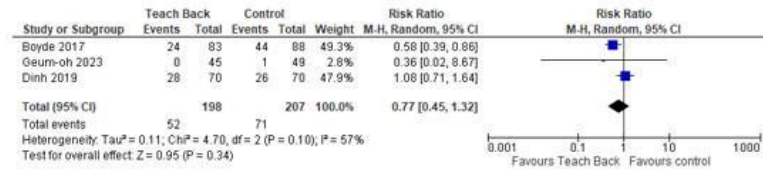
**Results:** Eight trials were included. Teach-back education significantly increased the self-care maintenance score, while there was no statistically significant difference in the total score or the management score alone. Additionally, there was no statistically significant difference in the incidence of overall admission and 1-year admission rates (RR: 0.77, 95% CI [0.45, 1.32]) and (RR: 0.88, 95% CI [0.45, 1.75]), respectively.

**Conclusion:** The teach-back education method may increase patient adherence to heart failure medications, while the admission rates were

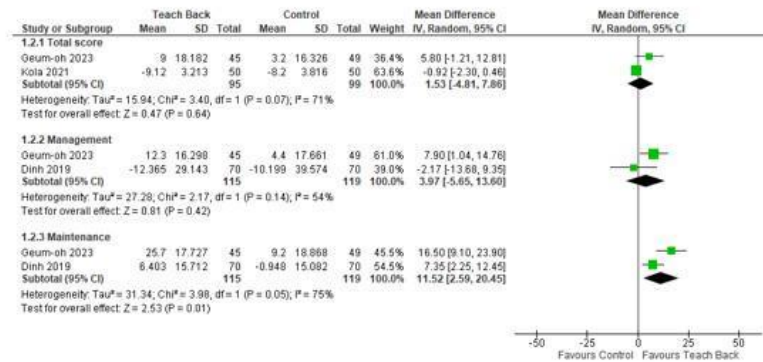
comparable between the two groups.



### 1-month readmission



### Overall readmission



### Self-care scores

**Presentation  
Number:** 51-081

**Poster Board  
Number:** 081

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** LUNG ULTRASOUND-GUIDED MANAGEMENT OF HEART FAILURE: A  
SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED  
CONTROLLED TRIALS.

**Author Block:** Abdelaziz Awad, Faculty of Medicine, Al-Azhar University, Cairo, Egypt,  
Cairo, Egypt

**Background:** Lung Ultrasound (LUS) has emerged as a simple, bedside, non-invasive, and semi-quantitative tool for detecting pulmonary congestion. In this systematic review and meta-analysis, we aim to assess the efficacy and safety of lung ultrasound-guided management of heart failure, focusing solely on randomized controlled trials.

**Methods:** Following the PRISMA guidelines, we searched four databases (PubMed, Scopus, and Web of Science). We pooled the dichotomous data as risk ratios (RRs) and continuous data as mean difference (MD) with their 95% confidence interval (95% CI). A p-value more than 0.05 is considered statistically insignificant.

**Abstract Body:** **Results:** The pooled RR of seven RCTs demonstrated a significant reduction in 90-day ACUTE DECOMPENSATED HEART FAILURE readmissions with LUS-guided management compared to the control group (RR=0.59; 95% CI, 0.44-0.80), and the results were significant. Analysis of four RCTs demonstrates a significant decrease in urgent visits (RR = 0.33; 95% CI [0.19; 0.57],  $p < 0.0001$ ) and absence of heterogeneity. Pooled analysis of 5 RCTs demonstrated that there is no increased risk of Acute Kidney injury with LUS-guided management compared to standard one (RR=1.03; 95% CI [0.66; 1.61];  $p = 0.90$ ). There is an absence of heterogeneity ( $I^2 = 0.0\%$ ) and tight Confidence intervals.

**Conclusion:** LUS-guided management of heart failure significantly reduced the readmission rates with a comparable safety profile.



**Presentation  
Number:** 51-082

**Poster Board  
Number:** 082

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** A CASE OF ZOSTER MYOCARDITIS MIMICKING ACUTE CORONARY  
SYNDROME

**Author Block:** Mohamed Nasser Elshabrawi, Ahmed Ali, Zeyad Essam, Ebraheem  
Ahmed, Layan Sufian Aldib, Clinical Research Department, Aswan Heart  
Center, Magdi Yaqoup Foundation, Aswan, Egypt, School of Medicine,  
University of Jordan, Amman, Jordan

**Background:** Acute chest pain with ST-elevation on ECG typically mandates emergent reperfusion strategies. However, rare non-ischemic etiologies, such as viral myocarditis, can mimic ST-elevation myocardial infarction (STEMI), presenting a diagnostic challenge.

**Case:** A 54-year-old hypertensive man presented with 4 hours of retrosternal pain radiating to the left arm, associated with sweating and weakness. ECG showed anterior ST-segment elevation. Immediate thrombolysis was initiated but failed to alleviate symptoms or normalize the ECG. Emergency coronary angiography revealed patent coronary arteries. Transthoracic echocardiography demonstrated mild left ventricular systolic dysfunction (LVEF ~45%). Twenty-four hours later, vesicular rash appeared over the left hemithorax in a dermatomal distribution, accompanied by worsening chest pain. Cardiac MRI confirmed myocarditis. The final diagnosis was herpes zoster-associated myocarditis.

**Abstract Body:**

**Decision-making:** This case highlights the diagnostic overlap between STEMI and myocarditis, particularly when viral prodromes or dermatologic manifestations are initially absent. Zoster virus, though primarily neurocutaneous, may rarely involve the myocardium, leading to ST-elevation and mimicking ACS. MRI plays a pivotal role in distinguishing ischemic from inflammatory causes when coronary angiography is non-diagnostic.

**Conclusion:** Not all ST-elevations are infarctions. When thrombolysis fails and coronary anatomy is normal, clinicians should broaden their

differential to include myocarditis. Herpes zoster should be considered, especially with evolving dermatomal rash. Early recognition can prevent unnecessary interventions and guide appropriate antiviral and supportive therapy.

**Presentation  
Number:** 51-083

**Poster Board  
Number:** 083

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** IN-HOSPITAL, SHORT-TERM AND LONG-TERM OUTCOMES OF ACUTE MYOCARDIAL INFARCTION COMPLICATED BY OUT-OF-HOSPITAL CARDIAC ARREST: A SYSTEMATIC REVIEW AND META-ANALYSIS OF OVER A MILLION PATIENTS

**Author  
Block:** Ahmed Emara, Mohamed Ayman, Ahmed Mostafa Zazo Hassan, Mohamed S. Elgendy, Basel Abdelazeem, Michael Megaly, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Ascension St John Heart and Vascular Center, Tulsa, OK, USA, Tulsa, OK, USA

**Background:** Acute myocardial infarction (AMI) complicated by out-of-hospital cardiac arrest (OHCA) is a critical emergency with high morbidity and mortality. Despite advances in care, prognosis remains variable. This meta-analysis evaluated in-hospital, short-term ( $\leq 30$  days), and long-term ( $> 30$  days) outcomes in patients with AMI and OHCA.

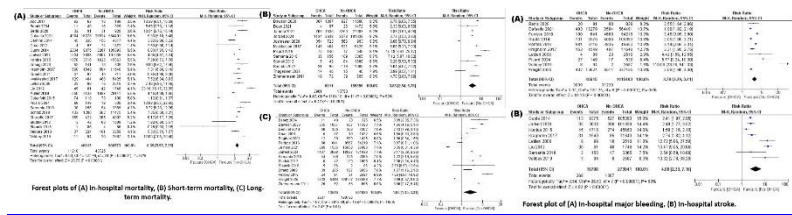
**Methods:** A systematic search of PubMed, Scopus, and Web of Science (through February 2025) identified studies reporting outcomes in AMI with OHCA. Pooled mortality estimates were calculated for in-hospital, short-term, and long-term periods using risk ratios (RR) and 95% confidence intervals (CI).

**Abstract  
Body:** **Results:** Thirty-six studies including 1,718,600 patients were analyzed. OHCA was associated with significantly increased in-hospital mortality (RR 6.39, 95% CI 5.55-7.35,  $P < 0.00001$ ), short-term mortality (RR 3.83, 95% CI 2.54-5.75,  $P < 0.00001$ ), and long-term mortality (RR 1.95, 95% CI 1.15-3.31,  $P = 0.01$ ). OHCA was also linked to higher in-hospital major bleeding (RR 2.79, 95% CI 2.29-3.41,  $P < 0.00001$ ) and stroke (RR 4.09, 95% CI 2.33-7.16,  $P < 0.00001$ ).

**Conclusion:** AMI with OHCA is strongly associated with elevated in-hospital, short-term, and long-term mortality, as well as increased risk of stroke and bleeding. Prompt identification, early revascularization, and optimized post-resuscitation care are essential. Further research is needed to improve risk



stratification and guide tailored interventions in this high-risk group.



**Presentation  
Number:** 51-084

**Poster Board  
Number:** 084

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** DRUG-COATED BALLOON VERSUS DRUG-ELUTING STENT IN ACUTE CORONARY SYNDROME: A SYSTEMATIC REVIEW AND META-ANALYSIS

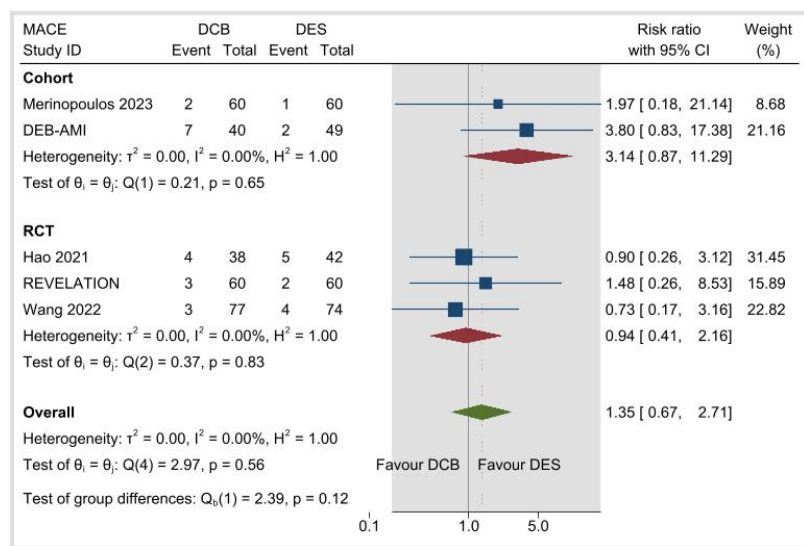
**Author  
Block:** Mohamed Hamouda Elkasaby, Ahmed Mansour, Ahmed Hassan, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Department of Cardiology, Suez Medical Complex, Ministry of Health and Population, Suez, Egypt

**Background:** Drug-coated balloon (DCB) angioplasty is a stent-less strategy gaining attention in acute coronary syndrome (ACS), especially STEMI. This meta-analysis compared DCB and drug-eluting stents (DES) in ACS.

**Methods:** PubMed, Cochrane, Scopus, Embase, and Web of Science were searched through May 2025. Randomized trials (RCTs) and cohort studies comparing DCB vs. DES in ACS were included. Data were pooled using random-effects models.

**Abstract  
Body:** **Results:** Five studies (three RCTs, two cohorts) with 419 patients (205 DCB, 214 DES) were included. Follow-up ranged from 6 to 12 months (mean 8.4 months). DCB was associated with lower late lumen loss (MD: -0.27 mm; 95% CI: -0.35 to -0.19;  $p < 0.00001$ ) and less diameter stenosis at follow-up (MD: -0.31%; 95% CI: -0.43 to -0.19;  $p < 0.00001$ ). DES showed greater post-procedural lumen gain (MD: 0.28 mm; 95% CI: 0.07 to 0.49;  $p = 0.009$ ) and acute gain (MD: 0.24 mm; 95% CI: 0.10 to 0.39;  $p = 0.001$ ), though follow-up MLD was similar (MD: -0.03 mm;  $p = 0.48$ ). No significant differences were observed in target lesion revascularization (RR: 2.26), MACE (RR: 1.35), all-cause death (RR: 1.03), cardiac death (RR: 0.62), myocardial infarction (RR: 1.00), or bleeding (RR: 0.66); all  $p > 0.05$ . Findings were consistent across study designs.

**Conclusion:** In ACS, DCB provides non-inferior clinical outcomes to DES with less late lumen loss. While DES yields greater acute gain, DCB promotes favorable vessel healing, supporting its use in selected ACS patients.



**Presentation  
Number:** 51-085

**Poster Board  
Number:** 085

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** RECURRENT CHYLOPERICARDIUM PRESENTING ASCARDIAC TAMPONADE:  
A DIAGNOSTIC AND THERAPEUTIC CHALLENGE

**Author  
Block:** Faisal AlAnazi, Mohammad Alotaibi, Ali Mahmoud Alzammam, Mousa  
Aljohani, Abdulmohsen Rashed Alyousef, SR, Sultan Mahja Alanazi, Fawaz  
Qabel Almutairi, King Abdulaziz Cardiac Center, Riyadh, Saudi Arabia

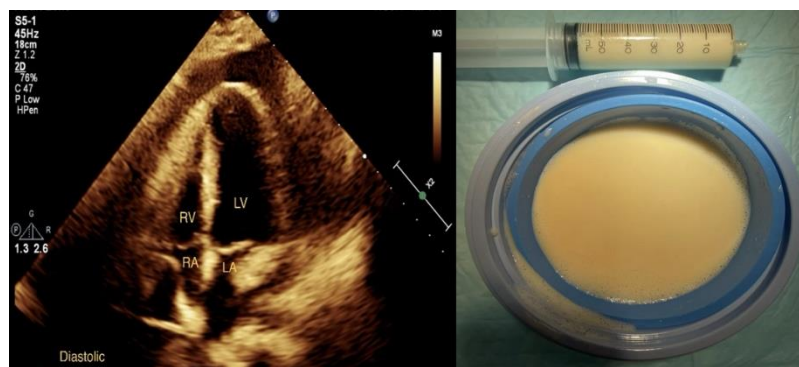
**Background:** Chylopericardium is a rare etiology of pericardial effusion caused by lymphatic disruption. Recurrent tamponade from chylous effusion poses significant diagnostic and therapeutic challenges

**Case:** A 22-year-old healthy female presented with progressive dyspnea (NYHA III), facial swelling, orthopnea, and chest vein engorgement. CT revealed a large anterior mediastinal mass with massive pericardial effusion. Pericardiocentesis drained 800 mL of milky fluid. Two weeks later, she re-presented with tamponade signs: muffled heart sounds, elevated JVP, absent breath sounds at the right lung base, low-voltage QRS, anemia, and elevated LDH. CT angiography showed mediastinal mass compressing SVC with recurrent pericardial and pleural effusions. Echocardiography confirmed tamponade physiology. Repeat pericardiocentesis drained 790 mL of chylous fluid (triglycerides 21.29 mmol/L, cholesterol/triglyceride ratio <1). Biopsy confirmed Primary Mediastinal Large B-cell Lymphoma; DA-R-EPOCH chemotherapy was initiated.

**Abstract  
Body:**

**Decision-making:** Recurrent chylous tamponade requires prompt diagnosis. High pericardial triglycerides indicate lymphatic leak. While drainage relieves tamponade, definitive treatment of the underlying malignancy is key

**Conclusion:** Recurrent chylopericardium represents a life-threatening emergency requiring rapid stabilization, thorough evaluation of lymphatic causes, and early definitive therapy to prevent recurrence and improve outcomes



**Presentation  
Number:** 51-086

**Poster Board  
Number:** 086

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EXTENSIVE BIATRIAL THROMBOSIS IN TRANSIT IN A PATIENT WITH PATENT FORAMEN OVALE

**Author Block:** Parisa Fallahtafti, Maryam Mehrpooya, Mohammadreza Eftekhari, Maryam faramarzpour, Mehrzad Rhamanian, Tehran University of Medical Sciences, Tehran, Iran (Islamic Republic of)

**Abstract  
Body:**

**Background:** Thrombus in transit (TIT), a rare and life-threatening condition, poses risks of pulmonary and paradoxical embolism which needs prompt diagnosis. Our case report highlights the significance of utilizing advanced imaging techniques for accurate and timely diagnosis of TIT and the potential life-saving role of surgical thrombectomy.

**Case:** This case report discusses a rare instance of biatrial thrombus associated with venous thromboembolism (VTE) and patent foramen ovale (PFO). A 66-year-old female with multiple comorbidities presented with dyspnea and fatigue. Imaging revealed large thrombi in both atria, extending via PFO.

**Decision-making:** Concurrent acute deep vein thrombosis (DVT) and pulmonary thromboembolism (PTE) were identified. Emergency cardiac surgery successfully removed the thrombi, emphasizing the diagnostic and management challenges associated with biatrial thrombus and PFO.

**Conclusion:** Point-of-care ultrasound (POCUS) plays a critical role in rapidly identifying TIT across a PFO. The time-sensitive and multidisciplinary medical management of TIT is crucial, requiring individualized strategies.

**Presentation  
Number:** 51-087

**Poster Board  
Number:** 087

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** THE HIDDEN RUPTURE: A CASE OF EARLY STEMI COMPLICATED BY  
TAMPONADE AND SALVAGED THROUGH MULTIMODAL IMAGING

**Author Block:** Alaa Shakhlab, Alexandria University, Alexandria, Egypt

**Abstract  
Body:**

**Background:** Mechanical complications of acute myocardial infarction (MI), such as free wall rupture, are rare but life-threatening. Early rupture can occur within hours and present with tamponade. Prompt diagnosis using multimodal imaging is critical, especially when hybrid imaging is unavailable.

**Case:** A 65-year-old hypertensive smoker presented with chest pain of 2 hours' duration, followed by sudden collapse. On arrival, he was hemodynamically unstable. ECG showed lateral ST-segment elevation myocardial infarction (STEMI). Bedside echocardiography revealed a large hemorrhagic pericardial effusion causing tamponade, but no visible myocardial rupture. CT Angiography of the Aorta was performed to exclude aortic dissection and was negative.

**Decision-making:** The patient was taken urgently to surgery. Evacuation of the effusion revealed a sealed free wall rupture at the anterolateral wall, which was surgically repaired. Due to lack of hybrid imaging, intra-operative bidirectional Doppler ultrasound was used to assess LAD patency and pressure gradient. A saphenous vein graft was successfully anastomosed to a viable distal left anterior descending artery (LAD) segment. Postoperatively, coronary angiography showed mid LAD total occlusion with good distal flow through the graft. Post-op echocardiography showed normal LV function and no residual effusion.

**Conclusion:** This case highlights an early and concealed free wall rupture presenting with tamponade, successfully managed through sequential bedside echo, CT, intra-operative Doppler, and angiography. A flexible,

imaging-driven approach allowed timely diagnosis and intervention, even in a resource-limited setting.



**Presentation  
Number:** 51-089

**Poster Board  
Number:** 089

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** TIME-DEPENDENT EFFECTS OF RENAL DENERVATION ON RESISTANT OR UNCONTROLLED HYPERTENSION: A META-ANALYSIS OF SHAM-CONTROLLED TRIALS

**Author Block:** Reza Eshraghi, Ashkan Bahrami, Pouya Ebrahimi, Reza Amani, Bahar Darouei, Masoud Ghasemi, Isfahan University of Medical Science, Isfahan, Iran (Islamic Republic of)

**Background:** Renal denervation (RDN) is a promising therapy for resistant hypertension, but the durability of its effect on 24-hour ambulatory blood pressure (BP) over time remains unclear. This meta-analysis evaluated how follow-up duration influences reductions in systolic (SBP) and diastolic blood pressure (DBP), using data from sham randomized controlled studies

**Methods:** A systematic search of PubMed, Scopus, Web of Science, Google Scholar, Cochrane Library, and Embase from inception to May 30, 2025, identified sham-controlled trials reporting 24-hour ambulatory BP changes. Eighteen study arms with 872 patients were included. Follow-up durations ranged from 2 to 36 months. Meta-regression assessed the association between follow-up time and mean difference (MD) in SBP and DBP from baseline, adjusting for study-level clustering. Subgroup analyses were conducted for follow-up  $\leq 6$  months and  $> 6$  months.

**Results:** Meta-regression showed a significant linear association between longer follow-up and greater BP reductions. SBP decreased by  $-0.53$  mmHg/month (95% CI:  $-0.67$  to  $-0.39$ ;  $p < 0.001$ ) and DBP by  $-0.28$  mmHg/month (95% CI:  $-0.42$  to  $-0.14$ ;  $p < 0.001$ ). The intercepts were  $-6.51$  mmHg for SBP and  $-3.97$  mmHg for DBP. At  $\leq 6$  months, pooled MD was  $-8.75$  mmHg (SBP) and  $-4.83$  mmHg (DBP); at  $> 6$  months,  $-14.00$  mmHg (SBP) and  $-10.47$  mmHg (DBP). Results were consistent across studies, with low to moderate heterogeneity, indicating robustness.

**Conclusion:** RDN leads to sustained, progressive reductions in 24-hour ambulatory SBP and DBP over time. These findings support its long-term

therapeutic benefit for resistant hypertension and reinforce the importance of extended follow-up in both clinical trials and real-world practice to capture its full efficacy

**Presentation  
Number:** 51-090

**Poster Board  
Number:** 090

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** THE UNUSUAL SUSPECTS; A CURIOUS CASE OF BILATERAL RENAL ARTERY STENOSIS PRESENTING AS RESISTANT HYPERTENSION IN A YOUNG FEMALE

**Author  
Block:** Ismail Ahmed Khan, Sohail Aziz, Muhammad Wajahat Alam Lodhi, Muhammad Waleed Hassan, Fauji Foundation Hospital Rawalpindi, Rawalpindi, Pakistan

**Background:** Renal artery stenosis (RAS) is an important cause of secondary hypertension. Early management can prevent target organ damage

**Case:** A 18 years old lady known case of celiac disease presented with headache and hypertensive spikes. She was pale, and her BP was 200/110 mmHg . Her Hb was 9.5 g/dl, ECG showed sinus rhythm and Echo showed EF=60% with concentric LVH. USG doppler was suggestive of Bilateral RAS with tardus parvus wave pattern. This was followed by CTA that confirmed the diagnosis.

**Abstract  
Body:** **Decision-making:** She underwent invasive catheterization via Right Femoral approach. Coronary, carotid and subclavian vascular beds were normal, Renal Angiogram and DSA revealed bilateral subtotal occlusion of renal arteries from proximal course. The Left renal artery was engaged with 6Fr IM Guide, lesion was crossed with Pilot 50 with help of Microcatheter. Following pre dilatation, a 4.0 x 18 mm DES was deployed followed by IVUS guided post dilatation. Similarly using 6Fr IM guide and Pilot 50 with microcatheter the right renal artery lesion was crossed, followed by predilatation and then 4.0 x 28mm DES was deployed followed by IVUS guided post dilatation. Good flow was achieved bilaterally with no residual stenosis. Post op patient remained polyuric for 48 hours which was monitored and replaced and blood pressures improved to 130/80 mmHg within 24 hours.

**Conclusion:** RAS is an important cause of secondary hypertension. Timely Intervention can help control blood pressures and prevent target organ

damage



**Presentation  
Number:** 51-091

**Poster Board  
Number:** 091

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** HURRY MAKES WORRY: AN ENTRAPPED TEMPORARY PACING LEAD AND ITS SURGICAL RETRIEVAL VIA FEMORAL VEIN DISSECTION

**Author  
Block:** Ghazala Munawar, Saad Nasir Mohmand, Hamid Mahmood, Northwest General Hospital and Research Centre, Peshawar, Pakistan

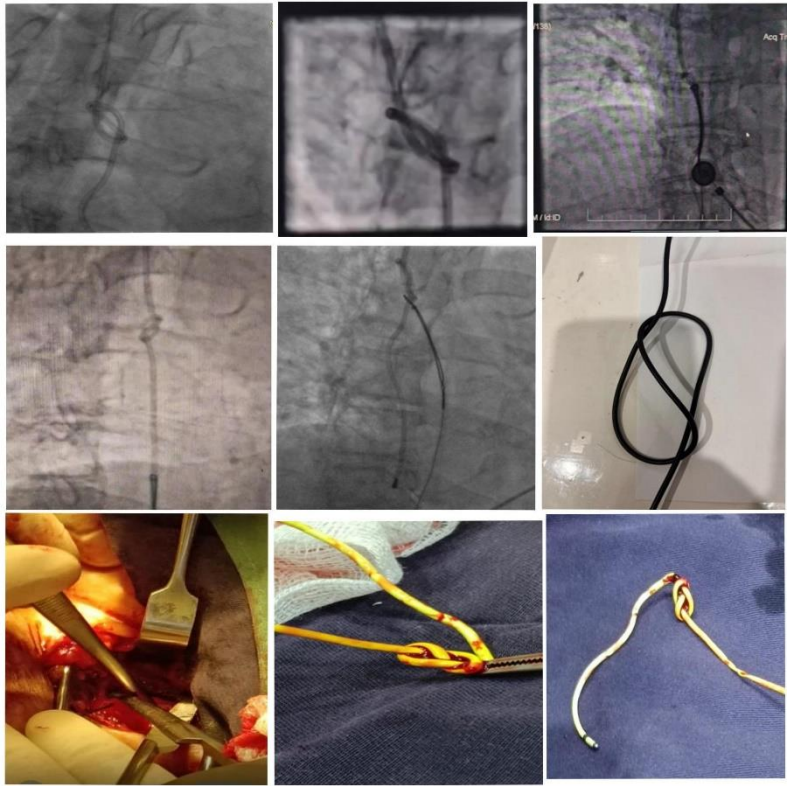
**Background:** Temporary transvenous pacing (TPM) is a life-saving intervention in the management of bradyarrhythmias. Although mechanical complications such as lead knotting are rare, they can be clinically significant, particularly in emergent settings or when imaging guidance is unavailable.

**Case:** A 75-year-old woman with diabetes, CKD and COPD presented with symptomatic bradycardia and hemodynamic instability. Temporary transvenous pacing (TPM) was initiated via the right internal jugular vein. Subsequent fluoroscopic imaging revealed a tightly knotted pacing lead within the superior vena cava, impeding pacing function. A second TPM lead was inserted via the femoral vein to restore rhythm stability. Attempts to extract the jugular lead using standard traction were unsuccessful.

**Decision-making:** A multidisciplinary team reviewed the case and pursued a minimally invasive strategy. Under fluoroscopic guidance, the knotted lead was maneuvered distally toward the groin. Surgical exposure of the femoral vein was performed under local anesthesia, and the lead was successfully extracted without complication. In-vitro simulation of the knotting mechanism using an identical lead was conducted to replicate and understand the entrapment.

**Conclusion:** This case highlights a rare TPM complication and emphasizes the importance of fluoroscopic guidance, multidisciplinary planning, and minimally invasive surgical retrieval in pacing lead entrapment.

**Abstract  
Body:**



**Presentation  
Number:** 51-092

**Poster Board  
Number:** 092

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** DRUG-COATED BALLOONS VERSUS DRUG-ELUTING STENTS IN TREATING DE NOVO LESIONS IN LARGE CORONARY ARTERIES: A SYSTEMATIC REVIEW AND META-ANALYSIS OF ANGIOGRAPHIC AND CLINICAL OUTCOMES

**Author Block:** Ahmed Seddik, Ahmed Mansour, Mohamed Hamouda Elkasaby, Shrouk Ramadan, Ahmed Nabil, Mohammad Abdelghani, Department of Cardiology, Suez Medical Complex, Egypt HealthCare Authority, Suez, Egypt

**Background:** Drug-coated balloons (DCBs) have shown effectiveness in managing in-stent restenosis and small-vessel coronary disease, while their role in de novo lesions of large coronary arteries remains controversial. This study evaluates both angiographic and clinical outcomes following treatment of de novo lesions of large coronary arteries with DCB vs. drug-eluting stent (DES).

**Methods:** We systematically searched electronic databases through March 2025 for relevant studies. Outcomes were compared using random effects modeling for summary estimates. We performed subgroup analyses by study design.

**Abstract  
Body:** **Results:** Our analysis included 16 studies (eight randomized controlled trials and eight observational) with 9,745 patients. Follow-up duration was 17±8 months for DCB and 16±4 months for DES. While acute gain was significantly lower with DCB (MD = -0.45, 95% CI: -0.63 to -0.26; p<0.00001; I<sup>2</sup> = 74%), no significant differences were observed in late lumen loss (MD = -0.03, 95% CI: -0.09 to 0.04; p=0.47; I<sup>2</sup> = 47%) or binary restenosis (RR = 2.22, 95% CI: 0.94 to 5.24; p=0.07; I<sup>2</sup> = 13%). Clinically, there was no significant difference between DCB and DES in target lesion failure and overall major adverse cardiac events, and this was consistent regardless of the study design (randomized vs. observational).

**Conclusion:** Compared with DES, DCB treatment demonstrates suboptimal acute angiographic results while maintaining equivalent clinical

outcomes in patients presenting with de novo lesions in large coronary vessels.



**Presentation  
Number:** 51-093

**Poster Board  
Number:** 093

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** PATIENT-SPECIFIC CFD-FSI MODELING TO EVALUATE POST-PCI  
HEMODYNAMIC RISK AND OPTIMIZE STENT STRATEGY

**Author Block:** NARI KIM, Ayeon Hwang, Department of Physiology, College of Medicine,  
Inje University, Busan, South Korea

**Background:** Atherosclerosis remains asymptomatic until luminal narrowing exceeds ~70%, posing a significant health risk. Percutaneous coronary intervention (PCI) is the standard of care, yet it carries the risk of recurrent stenosis due to changes in vessel mechanics and blood flow. This study addresses this challenge by employing hemodynamic simulations to analyze the impact of stents on coronary arteries and aims to establish predictive system for post-PCI side effects.

**Methods:** Coronary arteries with ischemic heart disease were segmented from CT images based on Hounsfield units. A 3D stent was designed, virtually inserted into the vessel and its resulting strain on the blood vessel was calculated. Subsequently, blood flow simulation was performed. Key hemodynamic parameters were analyzed using computational fluid dynamics (CFD) and fluid-structure interaction (FSI). Specifically, various wall shear stress (WSS)-based parameters were obtained and evaluated.

**Results:** Key hemodynamic indices such as time average wall shear stress (TAWSS), vibration shear index (OSI), and relative residence time (RRT) were derived from the simulations. These parameters are well-established indicators associated with plaque formation and rupture and play a crucial role in atherosclerosis progression. A comprehensive analysis of these hemodynamic parameters before and after PCI, derived from CFD and FSI simulations, revealed significant differences, demonstrating that stent implantation alters local blood flow and WSS distribution. These findings underscore the potential of hemodynamic simulations to effectively evaluate the impact of stents on blood vessels and predict adverse outcomes.

**Abstract  
Body:**

**Conclusion:** In conclusion, our study successfully leveraged CFD and FSI simulations to evaluate the prognosis of PCI. These simulations are expected to enable the non-invasive prediction of stent-related side effects and facilitate the design of optimal stent procedures. Furthermore, this approach holds promise as a diagnostic technique for quantifying complex vascular physiology and predicting an effective patient prognosis.

**Presentation  
Number:** 51-094

**Poster Board  
Number:** 094

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** CORONARY HEART DISEASE COMORBIDITY: 4 YEARS FOLLOW-UP AND BIOMARKERS ANALYSIS PATIENTS WITH PSORIASIS

**Author Block:** Elena Badykova, Alla Amineva, Irina Lakman, Zarema Khismatullina, Naufal Zagidullin, Bashkir State Medical University, Ufa, Russian Federation

**Background:** Psoriasis is only dermatological problem, but in comorbidity with coronary heart diseases (CHD) it increases systemic inflammation, atherosclerosis progression and uprise of rate of unfavorable cardiovascular (CV) endpoints. The **goal** was in 2 -year follow-up to assess cardiovascular burden of psoriasis alone, with CHD and in combination on CV events rate together with serum biomarkers.

**Methods:** In the pilot single center prospective study 3 groups of patients: 1) with CHD (n=30), 2) with psoriasis of moderate/severe degree (n=32), and 3) CHD + psoriasis (n=28) were followed for 2 years to estimate mortality and combined endpoint «CV death + stroke + myocardial infarction + CV hospitalizations + psoriasis hospitalization». Also, biomarkers ST2, IL-17, NT-proBNP and TNF-alpha were estimated in blood serum. To compare the mortality rate and combined endpoint the Chi-square with Yates correction criteria and one-way dispersion analysis was used. With the help of ANOVA analysis, the impact of patient group distribution depending on biomarkers was estimated.

**Abstract  
Body:**

**Results:** The difference between cardiovascular mortality between 1<sup>st</sup> and 2<sup>nd</sup> group was shown (9 against 1 death,  $p=0,012$ ). Also, groups differed in 2<sup>nd</sup> (combined) endpoint ( $p=0.005$ ). In dispersion analysis difference between the groups for the biomarkers: ST2 ( $p<0.001$ ), IL-17 ( $p=0.041$ ), NT-proBNP ( $p=0.002$ ), and TNF-alpha ( $p=0,006$ ) was also shown. The group type had the impact on all investigated biomarkers ( $p<0.01$ ), and IL-17 interacted both with rate of combined endpoints and group type ( $p=0.022$ ).

**Conclusion:** Psoriasis in combination with CHD increased cardiovascular

mortality and combined CV endpoint, and serum biomarkers interacted with group type and CV events rate.

**Presentation  
Number:** 51-095

**Poster Board  
Number:** 095

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** WHEN MEDICAL MANAGEMENT FAILS: IVUS-GUIDED PCI IN SPONTANEOUS LAD DISSECTION

**Author  
Block:** Serhat Kesriklioglu, Yakup Alsancak, Yunus Emre Yavuz, Enes Ali Aslan, Busra Ozyesil, Necmettin Erbakan University School of Medicine, Konya, Turkey

**Background:** SCAD is a rare and challenging cause of acute coronary syndrome. Early risk assessment and intravascular imaging are key to management.

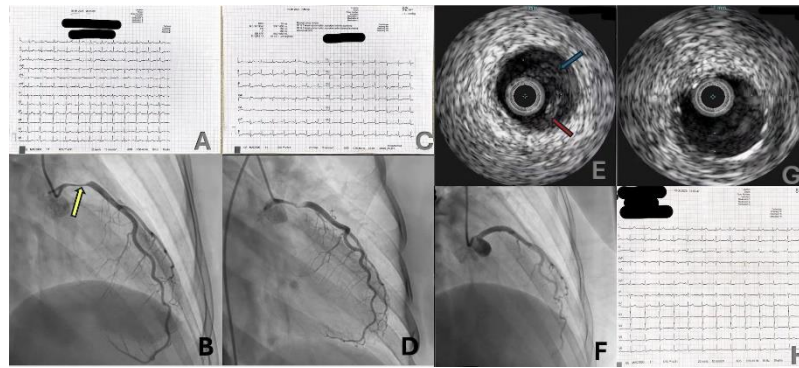
**Case:** A 39-year-old woman with no risk factors presented with left arm pain following emotional stress. Initial ECG was unremarkable, but high-sensitivity troponin was elevated, consistent with NSTEMI. Coronary angiography(CAG) revealed a normal RCA. The CX artery originated from a separate ostium and appeared normal. The LAD showed diffuse narrowing from the ostium despite nitrates, with proximal haziness, raising suspicion of SCAD.

**Abstract  
Body:**

**Decision-making:** As the patient was stable without ongoing chest pain or ischemic ECG changes, medical therapy was initiated and the patient was taken to the coronary ICU for close follow-up. On day 3, she experienced chest pain. ECG revealed ST elevation in aVR and diffuse ST depression. Repeat CAG showed persistent proximal LAD haziness. IVUS confirmed intramural hematoma compressing the true lumen. Due to ostial location, large myocardial territory, recurrent ischemia, and lack of response to medical therapy, DES implantation performed. The patient remained asymptomatic and was discharged with optimal medical therapy.

**Conclusion:** This case highlights the importance of close monitoring in high-risk SCAD patients. Intravascular imaging was critical in confirming

diagnosis and guiding revascularization when medical therapy failed.



**Presentation  
Number:** 51-097

**Poster Board  
Number:** 097

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** ROTATRIPSY IN HIGH-RISK PCI: OCT-GUIDED MANAGEMENT OF DISTAL LM-LAD CALCIUM AND PERFORATION RESCUE

**Author  
Block:** Habibullah Moghal, SHUNMUGA SUNDARAM PONNUSAMY, VELAMMAL MEDICAL COLLEGE, MADURAI, India

**Background:** Severe coronary calcification in distal left main and LAD presents a major challenge for PCI, often necessitating advanced plaque modification strategies.

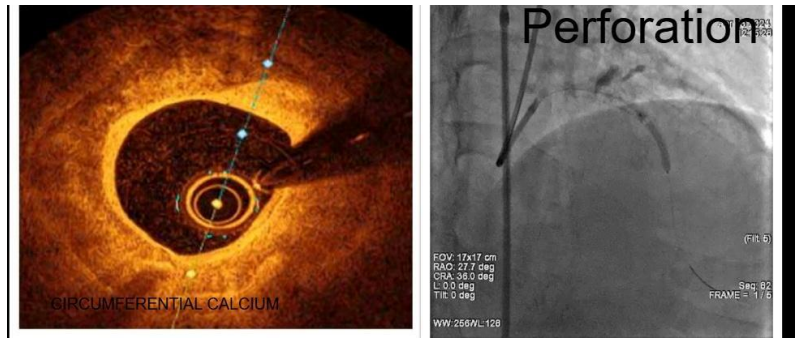
**Case:** A 70-year-old male with longstanding hypertension and diabetes presented with exertional dyspnea and palpitations for four months. Pre-procedural evaluation showed normal labs, negative troponin I, sinus bradycardia, preserved LVEF. Angiography revealed 70% stenosis in distal LM, 90% proximal to mid LAD stenosis with tandem 99% distal LAD lesions, non-dominant LCX with moderate OM disease, and dominant RCA with 90% proximal calcific stenosis. Despite surgical recommendation for CABG, the patient opted for high-risk PCI.

**Abstract  
Body:**

**Decision-making:** Using a 7Fr EBU 3.5 guide, rotablation was performed with a 1.5mm burr for LAD calcium. OCT confirmed deep and superficial calcium. Pre-dilation with a Scoreflex balloon was followed by IVL in the ostio-proximal LAD. A Grade II perforation occurred post-IVL, managed with balloon tamponade and sealing using a 3.25 × 26mm GraftMaster covered stent. Mid LAD and LM-LAD lesions were stented with Promus and SYNERGY DES respectively, followed by high-pressure NC balloon dilatation.

**Conclusion:** ROTAtripsy and IVL enabled successful PCI of calcified LM-LAD disease. Timely covered stent deployment and OCT-guided optimization ensured excellent outcome despite perforation, underscoring the value of

imaging and preparation in high-risk PCI.





**Presentation  
Number:** 51-101

**Poster Board  
Number:** 101

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** PAPILLARY MUSCLE STRAIN AS A NONINVASIVE PREDICTOR OF PROXIMAL LAD STENOSIS: AN ECHOCARDIOGRAPHIC STRAIN ANALYSIS STUDY

**Author Block:** sepideh jame bozorgi, Abdoulhamid Bagheri, Mohammad Khani, Fariba Bayat, Mehrdad Jafari, ELHAM FARAHANI, Shahid Beheshti university of medical sciences, tehran, Iran (Islamic Republic of)

**Background:** Left ventricular (LV) papillary muscle strain is a novel echocardiographic parameter that may correlate with coronary artery disease (CAD), especially involving the left anterior descending (LAD) artery. This study aimed to investigate the association between anterolateral papillary muscle (ALPM) strain and significant LAD stenosis in patients undergoing elective angiography.

**Methods:** We prospectively studied 130 patients at a tertiary hospital who underwent transthoracic echocardiography with speckle tracking imaging (STI) and elective coronary angiography. ALPM longitudinal strain was measured using the free strain method. Patients were categorized into those with significant proximal LAD stenosis (>70%) and those with normal epicardial coronary arteries. Logistic regression models were used to evaluate associations.

**Results:** ALPM strain was significantly lower in the LAD stenosis group (mean -25.23%) compared to controls (mean -28.40%). A significant crude association was found between reduced ALPM strain and LAD lesions (OR: 1.07, 95% CI: 1.02-1.12; p=0.015). After adjusting for wall motion abnormalities, the association remained significant (OR: 1.06; p=0.038). However, this significance diminished when adjusted for ejection fraction, E/e' ratio, and global longitudinal strain (GLS).

**Conclusion:** Reduced ALPM strain may serve as an early noninvasive indicator of significant LAD stenosis. While promising, its diagnostic value diminishes when adjusted for conventional echocardiographic parameters,

suggesting it may be best used as an adjunctive marker rather than a standalone predictor.

**Presentation  
Number:** 51-102

**Poster Board  
Number:** 102

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** CHALLENGING CASE OF RECURRENT SADDLE PULMONARY EMBOLI  
FROM EXTENSIVE LOWER EXTREMITY DEEP VEIN THROMBOSIS

**Author Block:** George Michalopoulos, Viktoriya Bikeyeva, Giovanni Paoella, Matthew Hanewich, Joseph Adams, Andrii Labchuk, Muhyaldeem Dia, Advocate Lutheran General Hospital, Park Ridge, IL, USA, Advocate Christ Medical Center, Oak Lawn, IL, USA

**Background:** Deep vein thrombosis (DVT) is a common cause of Pulmonary Embolism (PE) and is often managed medically independent of size. We present a case of recurrent saddle PE requiring two thrombectomies in twenty-four hours, despite being on anticoagulation, due to extensive lower extremity DVT.

**Methods:** A comprehensive review of the patient's medical records was performed. Diagnostic modalities such as Transthoracic Echocardiogram (TTE), Computed Tomography Angiography Pulmonary Embolism (CTA PE), Pulmonary Angiogram, and Venous Doppler Ultrasound (US) were performed. The patient's care involved specialists in Interventional Radiology and Cardiology.

**Abstract Body:** **Results:** Patient is a 59-year-old male with a history of provoked lower extremity DVT and thymoma presenting with acute dyspnea. Vitals showed tachycardia, hypoxia, and hypotension. Labs revealed NT-pro-BNP of 17,596, Troponin of 1,171, and Lactic Acid of 3.9. TTE showed a dilated right ventricle with McConnell's sign. CTA PE revealed bilateral saddle PE. Patient was taken for emergent thrombectomy. Clots were extracted from three branches of the right and two branches of the left pulmonary arteries. His dyspnea and hemodynamic instability resolved and anticoagulation was initiated. US showed DVT extending from the left femoral to peroneal veins. Twenty-four hours later he developed tachycardia, hypotension, and hypoxia. CTA PE revealed recurrent PE involving the bilateral pulmonary arteries with worsened right heart strain. He was again taken for

thrombectomy with emboli removed from three branches of the right and one branch of the left pulmonary arteries. His hemodynamic instability and hypoxia resolved. Repeat US showed persistent thrombus in the left lower extremity.

**Conclusion:** Our patient developed recurrent saddle PE from the DVT despite being on therapeutic anticoagulation. A multidisciplinary discussion was had regarding performing peripheral thrombectomy of the DVT given its size and PE recurrence. The decision was made to forgo intervention because of the limited available evidence in these unique instances. Further evaluation is needed to assess its potential benefit in patients with recurrent PE from extensive DVT.

**Presentation  
Number:** 51-103

**Poster Board  
Number:** 103

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EFFECT OF DAPAGLIFLOZIN ON MYCARDIAL STRUCTURE IN PATIENTS  
WITH ACS BASED ON CONTRAST-ENHANCED MRI

**Author Block:** Julia Shalaginova, Olga Stukalova, Roman Shakhnovich, Sergey Ternovoy,  
Dmitriy Pevzner, Cardiology Research Chazov Center, Moscow, Russian  
Federation

**Background:** Purpose: To study the effect of dapagliflozin on functional status and features of myocardial lesions according to MRI with contrast at baseline and after 6 months in patients with STEMI.

**Methods:** The CVI-42 program (Circle cardiovascular imaging, version 5.13, Calgary, Canada) was used for tissue analysis of images. Myocardial infarction (MI) size, infarct and heterogeneous zones, presence of microvascular obstruction, edema zone in the acute period of MI were assessed, extracellular volume was calculated, quantitatively reflecting diffuse fibrosis or edema in the case of acute MI.

**Abstract  
Body:** **Results:** In the dapagliflozin group, there was an increase in LVEF after six months of observation from  $50 \pm 9\%$  to  $52 \pm 10\%$ ,  $p=0.047$ . In the dapagliflozin group, there was an increase in LVEF by an average of  $3.39 [-1.35; 7.09]\%$ , while in the control group there was a decrease in LVEF by  $2.03 [-5.09; 1.91]\%$ ,  $p=0.005$ . There was a decrease in ESV by  $6 \pm 15$  ml in the treatment group and an increase in ESV by  $4 \pm 17$  ml in the control group,  $p=0.005$ . No significant change in EDV was found. No significant change in infarction zone mass was found in the treatment group,  $p=0.258$  ( $n=50$  after pseudorandomization, of which 16 patients had diabetes). A statistically significant decrease in the heterogeneous mass was found in both the treatment group ( $p=0.025$ ) and the control group ( $p=0.011$ ), while no difference in the heterogeneous zone mass was observed between the groups at repeat examination,  $p=0.815$ . In the control group, a significant increase in extracellular volume was observed in the control group from 51% to 60% after 6 months ( $p=0.029$ ), with no change in extracellular

volume in the infarct zone in the dapagliflozin group ( $p=0.99$ ). No significant differences in extracellular volume values in intact myocardium were found after 6 months in the treatment group,  $p=0.819$ .

**Conclusion:** Dapagliflozin administration in patients with acute MI after 6 months resulted in improvement of LV systolic function, but did not affect myocardial remodeling. Improvement of LV function was not accompanied by reduction of infarct size, heterogeneous zone and diffuse fibrosis severity both in patients with MI and DM and in patients with MI without DM.

**Presentation  
Number:** 51-104

**Poster Board  
Number:** 104

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** LORUNDROSTAT FOR RESISTANT HYPERTENSION: A SYSTEMATIC REVIEW  
OF PHARMACOLOGICAL PROFILE, SAFETY AND EFFICACY

**Author Block:** Prachi Dawer, Sukul Khanna, Shrey Chopra, Rishit Gupta, Hritik Madan,  
Amanpreet Singh Wasir, University College of Medical Sciences, New Delhi,  
India

**Abstract  
Body:**

**Background:** Resistant hypertension is a clinical challenge, often driven by excess aldosterone activity. Lorundrostat, a selective aldosterone synthase inhibitor, represents the first new class of antihypertensive agents introduced over two decades. By directly targeting aldosterone synthesis, it provides a targeted approach to blood pressure reduction, and is currently under investigation for its role in resistant hypertension.

**Methods:** We included two pivotal clinical trials: a first-in-human (FIH) study evaluating lorundrostat's safety and pharmacological profile, and the Phase 2b Advance-HTN trial assessing its efficacy in uncontrolled hypertension. The FIH study administered single (5-800mg) and multiple (40-360mg daily) doses to volunteers, monitoring pharmacokinetics and safety. The Advance-HTN trial randomized 285 patients with uncontrolled hypertension, to receive either lorundrostat (50mg daily or 50-100mg with dose adjustment) or placebo over 12 weeks. The primary endpoint was change in 24-hour systolic blood pressure (SBP) from baseline.

**Results:** Lorundrostat demonstrated dose-proportional pharmacokinetics and high selectivity for aldosterone synthase over 11 $\beta$ -hydroxylase, minimizing off-target effects. In Advance-HTN, it led to significant placebo-adjusted reductions in 24-hour SBP: -7.9 mmHg (97.5% CI: -13.3 to -2.6) in fixed-dose group and -6.5 mmHg (97.5% CI: -11.8 to -1.2) in titrated-dose group. When data from both groups were combined, the overall placebo-adjusted SBP reduction was -5.3 mm Hg (95% CI, -8.4 to -2.3). The antihypertensive effect was consistent across age, sex, race, and body weight subgroups. Adverse events were more common at higher doses,

with hyperkalemia and hyponatremia being the most notable, but the overall safety profile was acceptable.

**Conclusion:** Lorundrostat exhibits favorable pharmacological, safety, and efficacy profile in patients with resistant hypertension, particularly in those with elevated aldosterone activity. Larger and long-term randomized controlled trials are warranted to confirm its role in managing resistant hypertension.



**Presentation  
Number:** 51-105

**Poster Board  
Number:** 105

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EFFICACY OF TOPICAL TRANEXAMIC ACID IN BLOOD COSERVATION  
DURING CORONARY ARTERY BYPASS GRAFTING: A SINGLE CENTER  
EXPERIENCE

**Author Block:** Muhammad Mohsin Mahmood, Attaullah Khan Niazi, yasir ali khan, aqeel  
ahmad, arshad mahmood, sheikh zayed hospital; Lahore, LAHORE,  
Pakistan

**Abstract  
Body:**

**Background:** Postoperative bleeding after coronary artery bypass grafting (CABG) contributes to increased transfusion needs and complications. Topical tranexamic acid (TXA) may offer targeted hemostasis without systemic risks. This study assesses the efficacy of topical TXA in reducing postoperative blood loss in CABG patients

**Methods:** Seventy patients undergoing elective isolated CABG were randomized into two groups. Group A (n=35) received 1 g of TXA in 100 mL normal saline applied to the pericardial cavity before sternal closure. Group B (n=35) received 100 mL normal saline as placebo. Efficacy was defined as total blood loss <500 mL within 72 hours postoperatively. Data were analyzed using SPSS v23.0. The Chi-square test was used for categorical comparisons, and the independent samples t-test for continuous variables. A p-value  $\leq 0.05$  was considered statistically significant

**Results:** Among 70 patients, Group A had 30 males (85.7%) and 5 females (14.3%), while Group B had 28 males (80.0%) and 7 females (20.0%). Mean age was  $52.4 \pm 9.9$  years in Group A and  $53.6 \pm 10.1$  years in Group B. In Group A, 22 patients (62.9%) had blood loss <500 mL, compared to 9 patients (25.7%) in Group B ( $p=0.002$ ), demonstrating significant efficacy of TXA

**Conclusion:** Topical application of tranexamic acid during CABG significantly reduces postoperative blood loss. It is a safe, effective, and

low-cost strategy that may enhance perioperative blood management in cardiac surgery.

**Presentation  
Number:** 51-106

**Poster Board  
Number:** 106

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** CONTRAST-INDUCED PANCREATITIS FOLLOWING CORONARY  
ANGIOPLASTY: A CASE REPORT

**Author Block:** jacinthe khater, Mohamad Darwish, Mahmoud Atwi, Anis SFAXI, Simon Elhadad, Rima Chaddad, Department of Cardiology, Grand Hopital de l'Est Francilien, France, Jossigny, France

**Background:** Contrast-induced pancreatitis is a rare but serious complication of coronary angiography. It results from inflammation triggered by iodinated contrast agents, with few cases reported despite widespread use of contrast media.

**Abstract  
Body:** **Case:** A 41-year-old female patient, an active smoker with dyslipidemia and a previously identified 50% stenosis in the LAD, was admitted for elective coronary angiography following episodes of stable angina. The coronary angiography identified a mildly calcified mid-LAD lesion with an FFR of 0.74, confirming hemodynamic significance. The lesion was successfully treated with PCI, including balloon pre-dilation and deployment of a drug-eluting stent. Six hours after the procedure, the patient reported epigastric and diffuse abdominal pain radiating to the back, accompanied by nausea and vomiting. Laboratory investigations showed negative troponin and CK-MB, CRP of 8 mg/L, normal liver function tests, and elevated lipase at 417 U/L. Gastroenterology consultation suspected acute pancreatitis and recommended CT imaging, fasting, hydration, pain management, and transfer to the gastrointestinal ward. An abdominal and pelvic CT scan demonstrated a globally enlarged pancreas with homogeneous enhancement and no focal lesions, consistent with acute pancreatitis, Balthazar Stage B

**Decision-making:** The patient was transferred to the care of the gastroenterology team for conservative management, including bowel rest, intravenous hydration with Ringer's lactate, and analgesia. She was discharged home several days later with a follow-up consultation in the

outpatient department.

**Conclusion:** This case report aims to raise awareness about contrast-induced pancreatitis as a rare but serious complication of coronary angiography. By highlighting its clinical presentation, diagnostic workup, and management, the report underscores the importance of maintaining a high index of suspicion for abdominal symptoms following contrast exposure and advocates for a multidisciplinary approach to ensure prompt diagnosis and appropriate treatment.

**Presentation  
Number:** 51-108

**Poster Board  
Number:** 108

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** TICAGRELOR VS. CLOPIDOGREL IN ELDERLY PATIENTS FOLLOWING  
ACUTE MYOCARDIAL INFARCTION: A MULTICENTER INTERNATIONAL  
ANALYSIS

**Author Block:** Ramzi Ibrahim, Robert Seby, Abdullah Shaik, Mahmoud Abdelnabi, Hoang Nhat Pham, Nada Said, Juan Maria Farina, Mayurkumar Bhakta, Eric Yang, John Sweeney, F. David Fortuin, Chadi Ayoub, Kwan S. Lee, Reza Arsanjani, Mayo Clinic, Scottsdale, AZ, USA

**Background:** Dual antiplatelet therapy (DAPT) in elderly patients with acute myocardial infarction (AMI) poses challenges due to heightened bleeding and ischemic risks. Comparative data between ticagrelor and clopidogrel in this population are limited. We sought to evaluate cardiovascular and safety outcomes of aspirin (ASA) plus ticagrelor versus ASA plus clopidogrel among patients aged  $\geq 75$  years following AMI and percutaneous coronary intervention (PCI).

**Methods:** We conducted a retrospective cohort study using the TriNetX global research platform. Patients aged  $\geq 75$  years with AMI who underwent PCI and initiated DAPT without concurrent anticoagulation were included.

**Abstract Body:** Patient were stratified by use of ASA plus ticagrelor versus ASA plus clopidogrel. Propensity score matching balanced baseline characteristics. Outcomes included major bleeding, repeat coronary revascularization, all-cause mortality, all-cause hospitalizations, stroke, atrial fibrillation, and pacemaker implantation. Logistic regression models were completed to estimate adjusted odds ratios.

**Results:** After matching, 19,746 patients per group were included (mean age 82.2 years). Ticagrelor was associated with higher rates of major bleeding (4.5% vs. 3.8%; aOR 1.19;  $p=0.001$ ) and pacemaker implantation (3.1% vs. 2.7%; aOR 1.14;  $p=0.026$ ). No significant differences were observed in all-cause mortality (7.3% vs. 7.0%; aOR 1.03;  $p=0.401$ ), all-cause hospitalizations (38.0% vs. 37.8%; aOR 1.01;  $p=0.724$ ), repeat

coronary revascularization (6.9% vs. 7.2%; aOR 0.95; p=0.223), atrial fibrillation (18.0% vs. 17.7%; aOR 1.03; p=0.331), or stroke (4.2% vs. 4.4%; aOR 0.95; p=0.264).

**Conclusion:** In elderly patients with AMI, ASA + ticagrelor was linked to increased bleeding and pacemaker use without mortality benefit, supporting cautious DAPT selection.

**Presentation  
Number:** 51-109

**Poster Board  
Number:** 109

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** CLINICAL CHARACTERISTICS OF MYOCARDIAL INFARCTION IN PATIENTS  
WITH TYPE 2 DIABETES MELLITUS: ROLE OF SST2 (PILOT STUDY)

**Author Block:** Ivan Bokovikov, Konstantin Protasov, Evgeniya Chuiko, Elena Batunova,  
Irkutsk State Medical Academy of Postgraduate Education, Irkutsk, Russian  
Federation, Irkutsk City Clinical Hospital No. 1, Irkutsk, Russian Federation

**Background:** Currently, the subject of active research is the assessment of the clinical and prognostic value of the circulating biomarker of cardiovascular risk soluble ST2 (sST2) in patients with circulatory system diseases. The role of sST2 in assessing the severity and prognosis of myocardial infarction (MI) in combination with type 2 diabetes mellitus (DM2) has not been definitively established. **Objective:** in patients with ST-segment elevation MI (STEMI) and DM2, to limit the serum concentration of sST2 in the blood and assess its associations with indicators that characterize the severity of MI.

**Abstract  
Body:** **Methods:** This was a cross-sectional study that included patients with STEMI and DM2 (n=24) and patients with STEMI without DM2 (n=20). In the formed subgroups the frequency of detection of anterior localization of MI, damage to the anterior descending artery (ADA), absence of coronary blood flow according to TIMI, and multiplevascular lesions of the coronary arteries were calculated and compared. The mean values of sST2 in the subgroups for left ventricular ejection fraction (LVEF) < 40% and >40% were also compared.

**Results:** the concentration of sST2 on the first day was 0,29 (0,19; 0,44) ng/ml and significantly decreased on the third day to 0,12 (0,07;0,21) ng/ml; p<0,001. In the subgroup with high and low sST2 values, anterior MI (66,7% vs 8,3%; p=0,047), ADA lesion (66,7% vs 16,7%; p=0,018), and complete occlusion of the infarct-related coronary artery (66,7% vs 25,0%; p=0,049). The frequency of multiplevascular lesions of the coronary bed in the studied subgroups did not differ statistically significantly (58,3% vs 66,7%;

p=0.5). The mean sST2 concentrations in patients with LVEF <40% (n=18) was higher than in those with LVEF >40% (n=6) (0,49(0,33;0,67) ng/ml vs 0,27 (0,13;0,37) ng/ml; p=0,023).

**Conclusion:** the results of this pilot study showed that in patients with DM2, indicators that characterize the severity of MI (anterior localization of MI, ADA damage, the presence of left ventricular systolic dysfunction in LV EF <40% and the absence of blood flow in the infarct-associated coronary artery) are associated with elevated levels of sST2 in the first 72 hours of the course STEMI.



**Presentation  
Number:** 51-110

**Poster Board  
Number:** 110

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** EARLY INITIATION OF MINERALOCORTICOID RECEPTOR ANTAGONISTS AFTER MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF ECHOCARDIOGRAPHIC AND CLINICAL OUTCOMES

**Author  
Block:** Nazanin Anaraki, Sara Eghbali, Soroush Nematollahi, Arghavan Alipoor, Zahra Mehdipournamdar, Tushar Bhadra, Azin Teymourzadeh, Mashood Ahmad Farooqi, Namvar Movahedi, Kaveh Hosseini, Cardiovascular Diseases Research Institute, Tehran University of Medical Sciences, Tehran, Iran (Islamic Republic of)

**Background:** After myocardial infarction (MI), patients are at risk of adverse cardiac remodeling and complications. This study evaluates early mineralocorticoid receptor antagonist (MRA) therapy effects on cardiac function and clinical outcomes.

**Methods:** We systematically searched PubMed, Scopus, Embase, and Cochrane Library for studies published until May 2025. Pooled hazard ratios (HRs) for clinical endpoints and mean differences (MDs) for echocardiographic outcomes were estimated. Heterogeneity was assessed via  $I^2$  and Cochran's Q; random- or fixed-effects models were applied accordingly.

**Abstract  
Body:** **Results:** Twenty-eight studies with 110,506 patients were included. MRA therapy was associated with reduced all-cause mortality (HR: 0.94; 95% CI: 0.90-0.98;  $p=0.004$ ), major adverse cardiovascular events (HR: 0.87; 95% CI: 0.79-0.95;  $p=0.002$ ), and heart failure readmission (HR: 0.86; 95% CI: 0.77-0.97;  $p=0.012$ ). Cardiovascular death showed a reduction in fixed-effect analysis (HR: 0.82; 95% CI: 0.72-0.94;  $p=0.005$ ), but not under random-effects due to heterogeneity. MRAs improved left ventricular ejection fraction (MD: +2.86%; 95% CI: 0.79-4.93;  $p=0.011$ ), and reduced left ventricular end-diastolic volume (MD: -9.13 mL; 95% CI: -15.72 to -2.54;  $p=0.013$ ) and end-systolic volume (MD: -8.37 mL; 95% CI: -14.03 to -2.71;  $p=0.011$ ).

**Conclusion:** Early MRA use after MI is associated with improved cardiac

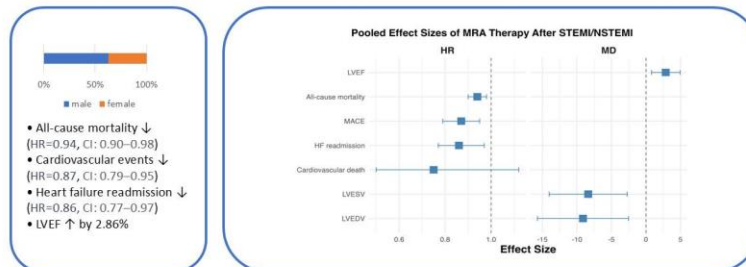
function and reduced mortality and cardiovascular events, supporting its role in post-MI management.

Early Initiation of Mineralocorticoid Receptor Antagonists After Myocardial Infarction: A Systematic Review and Meta-analysis of Echocardiographic and Clinical Outcomes

Systematically searched PubMed, Scopus, Cochrane, and Embase up to may 2025

28 studies included  
Analysis based on fixed/random effects models (depending on P)

110,506 patients  
Mean age: 64.2 ±10.2



Conclusion: Early initiation of MRAs post-MI is associated with improved outcomes and supports their timely use in clinical practice

**Presentation  
Number:** 51-111

**Poster Board  
Number:** 111

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** WHEN PAIN PERSISTS DESPITE PATENT STENTS: A CASE OF SEVERE CORONARY SPASM REVEALED BY CORONARY FUNCTIONAL TESTING

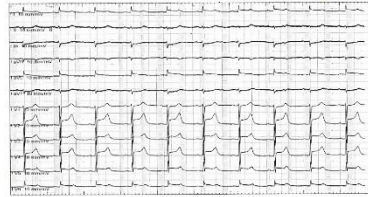
**Author** Mo'ath Bani Ali, Ashraf Alazzoni, Ronney S. Shantouf, Cleveland Clinic Abu  
**Block:** Dhabi, Abu Dhabi, United Arab Emirates

**Background:** Coronary spasm is an underrecognized anginal cause. Coronary function testing guides diagnosis and impacts treatment.

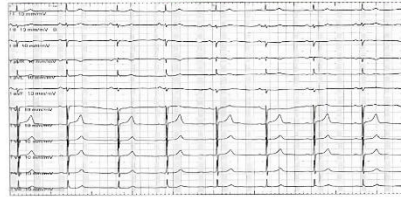
**Case:** A 63-year-old male with diabetes, hypertension, dyslipidemia and atrial fibrillation reported recurrent nocturnal chest pain. He had prior stents in the LAD, LCx and RCA. Despite optimal therapy (antiplatelets, Apixaban, statins, PCSK-9 inhibitor, beta-blocker, ACE inhibitor, nitrates), he continued to report chest pain with 10 ED visits over 2 years. ECGs and troponins were always unremarkable. Echocardiogram showed preserved EF with mild inferior hypokinesia. Repeated coronary angiograms demonstrated patent stents.

**Abstract  
Body:** **Decision-making:** Complete coronary function testing was performed with a pressure wire in LAD. Adenosine study noted no microvascular dysfunction. Acetylcholine study at 20 mcg evoked severe chest pain and anterolateral ST elevation. Angiography revealed critical spasm with complete shutdown of the left coronary system beyond the left main. Proximal intracatheter and sublingual nitrates failed to relieve the spasm. Distal LAD nitroglycerin via a microcatheter restored flow.

**Conclusion:** Epicardial spasm was diagnosed. Beta-blocker was stopped and diltiazem started. The patient had 90% symptom improvement on regular two-month follow-ups with only one ED visit in the year post-diagnosis. This case underscores the diagnostic value of coronary function testing and need for procedural preparedness despite its perceived safety.



**Angiogram and ECG After 20 mcg of acetylcholine:** Severe epicardial spasm; contrast reaches the left main but fails to opacify the LAD and LCx, with associated anterolateral ST elevation.



**Angiogram and ECG Following intracoronary nitroglycerin:** flow in the left system and ECG normalized.

**Presentation  
Number:** 51-112

**Poster Board  
Number:** 112

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** MULTIMODAL IMAGING FOR EARLY DETECTION OF ISCHEMIC HEART  
DISEASE IN MIDDLE EASTERN YOUTH: GBD 2021 EVIDENCE

**Author Block:** Rida Shakeel, Sohaib Aftab Ahmad Chaudhry, Raghabendra Kumar Mahato,  
Muhammad Abdullah, Muhammad Ali Makhdoom, Javed Iqbal, Mona  
Hassan Ali Al Farhan, Brijesh Sathian, Department of Medicine , Dow  
Medical College, karachi, Pakistan, Hamad Medical Corporation, Doha,  
Qatar

**Abstract  
Body:** **Background:** Ischemic heart disease (IHD) remains a leading cause of  
mortality and morbidity among young populations in the Middle East. The  
growing burden in youth necessitates timely detection strategies, where  
multimodal imaging may offer critical advantages. This study quantifies IHD  
burden among youth and evaluates imaging's potential impact.

**Methods:** GBD 2021 data were analyzed for age-standardized death rates  
(ASDR), disability-adjusted life years (DALYs), and prevalence of IHD in  
individuals aged 15-39 across 21 Middle Eastern countries. National  
registries and the IHME Global Health Data Exchange (GHDx)  
supplemented data. Bayesian models evaluated temporal burden patterns.  
Iran, Oman, and Bahrain were emphasized, incorporating proxy data on  
imaging adoption.

**Results:** In 2021, IHD prevalence among 15-39-year-olds in the Middle East  
was 1.2% (95% UI: 1.0-1.4), with Iran at 1.4% (95% UI: 1.2-1.6). Mortality  
was 12.3 per 100,000 (95% UI: 10.5-14.2), with the highest increase in  
Oman (14.8 per 100,000). DALYs linked to hypertension and obesity-related  
IHD rose by 7.9% since 1990. Bahrain reported a 15.2% increase in early  
IHD cases, where multimodal imaging (e.g., CT angiography) detected  
28.4% more cases than conventional diagnostics.

**Conclusion:** IHD burden is rising among youth in the Middle East,  
particularly in Iran, Oman, and Bahrain. Early detection strategies

incorporating multimodal imaging may reduce disease progression and DALYs, especially in high-risk settings like Bahrain.

**Presentation  
Number:** 51-113

**Poster Board  
Number:** 113

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** INCIDENTAL FINDING OF A PERSISTENT LEFT SUPERIOR VENA CAVA  
DURING PACEMAKER PLACEMENT: A CASE REPORT

**Author Block:** Marco Antonio Muñoz Pérez, Evaldo Zoé Rivas Hernández, Julio César Rivera  
Hermosillo, ISSSTE Hospital Regional Primero de Octubre, México, Mexico

**Background:** The incidence of persistent left superior vena cava (PLSVC) in the general population is estimated at 0.3% to 0.5%.

**Methods:** A 67-year-old male with a history of symptomatic bradycardia presented with episodes of severe bradycardia at 40 bpm, sinus pauses up to 2.9 seconds documented on a 2-month Holter monitor. He was admitted to the hospital following a nocturnal syncopal episode. During initial management, difficulty was encountered in obtaining venous access and placing a temporary pacemaker lead via the jugular vein. Consequently, a temporary pacemaker was implanted via the right femoral vein, and the patient was evaluated for permanent pacemaker implantation.

**Abstract  
Body:**

**Results:** During the procedure in the cardiac catheterization laboratory, difficulty was noted in advancing the guidewire toward the subclavian vein. As a result, bilateral subclavian vein angiography was performed, revealing PLSVC with anomalous drainage into the coronary sinus. Consequently, the procedure was deferred. A cardiac CT angiography confirmed the diagnosis. Subsequently, the cardiothoracic surgery team was consulted, and an epicardial pacemaker was successfully implanted in DDDR mode.

**Conclusion:** Persistent left superior vena cava is a rare venous anomaly that can present significant technical challenges during pacemaker implantation. Thorough preprocedural venous anatomical assessment is crucial to selecting the most appropriate implantation strategy and

minimizing procedural risks.





**Presentation  
Number:** 51-114

**Poster Board  
Number:** 114

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** ECHOCARDIOGRAPHY FOR EARLY HEART FAILURE DETECTION IN MIDDLE  
EASTERN DIABETICS

**Author Block:** Rida Shakeel, Sohaib Aftab Ahmad Chaudhry, Muhammad  
Abdullah, Muhammad Ali Makhdoom, Javed Iqbal, Mona Hassan Ali Al  
Farhan, Brijesh Sathian, Department of Medicine, Dow Medical College,  
Karachi, Pakistan, Hamad Medical Corporation, Doha, Qatar

**Abstract  
Body:** **Background:** Diabetes mellitus is a growing public health crisis in the Middle East, with the International Diabetes Federation Atlas (2023) reporting a 28.3% prevalence in Gulf Cooperation Council states. The Qatar STEPwise Survey (2023) indicates that up to 42% of cases remain undiagnosed, contributing to the region's rising heart failure (HF) burden. Diabetics have a 3.2-fold higher HF risk, per the Journal of Saudi Heart Association (2024). Access barriers hinder early detection: only 23% of Egypt's governorates have advanced echocardiography, and 61% of Saudi women delay cardiac evaluation due to sociocultural norms.

**Methods:** This narrative review analysed data from regional studies between 2020 and 2024, including the Bahrain Cardiac Society Registry (2023, n=2,114), Qatar Echocardiography Database (2023, n=3,887), Aswan HF Screening Trial (2022, n=1,502), and the Saudi Echo-Diabetes Multicenter Study (2023, n=5,672). Studies assessed echocardiographic detection of left ventricular (LV) dysfunction in diabetic adults. WHO and IDF data on imaging infrastructure and workforce capacity were also reviewed, with outcomes focused on diagnostic yield, delays, hospitalization rates, and cost-effectiveness.

**Results:** Echocardiography detected early LV dysfunction in 22.7% (Bahrain), 19.2% (Egypt), and 25.4% (Qatar) of diabetic patients. Diagnostic delays were reduced by 3.1 months (Egypt), 4.3 months (Bahrain), and 5.8 months (Qatar). Corresponding reductions in HF-related hospitalizations were 14% in Egypt, 18% in Bahrain, and 22% in Qatar. Strain imaging

improved detection by 31% over traditional methods. Gender disparities persisted, with women experiencing 17% lower detection due to delayed access. Cost per QALY was \$1,850 in Qatar and \$4,120 in Egypt, supporting echocardiography's cost-effectiveness.

**Conclusion:** Echocardiography plays a vital role in early HF detection among diabetics in the Middle East. Success in Qatar and Bahrain demonstrates the benefits of timely diagnosis and hospitalization reduction. Expanding access, addressing gender disparities, and incorporating tele-echocardiography may enhance regional outcomes.

**Presentation  
Number:** 51-115

**Poster Board  
Number:** 115

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** BEYOND THE CARDIAC TAMPONADE, SUBACUTE RIGHT ATRIAL  
PERFORATION FOLLOWING PERMANENT PACEMAKER IMPLANTATION

**Author Block:** Syeda Bibi, Nehrish Patel, Ghazala irfan, National institute of  
cardiovascular disease, KARACHI, Pakistan

**Background:** In this case, despite clinical suspicion, multimodal imaging was not helpful in establishing the diagnosis, highlighting the limitations of anatomical imaging alone in certain post-device scenarios.

**Case:** The patient is a 51 year-old-male with a known history of CAD, previously treated with PCI to LAD in 2020. . He was admitted to our hospital with ACS complicated by Complete heart block. He underwent successful PCI to RCA and a DDDR was implanted due to persistent complete heart block. No initial post-procedural complications. However, 15 days later, he presented with progressive shortness of breath in the ED. ECG showed pacing rhythm with no significant abnormality. Chest Xray showed increase cardiac contour, the device interrogation revealed high threshold for right atrial lead, the parameters were normal for the right ventricular lead. Bedside echocardiography demonstrated that the patient was having large pericardial effusion accompanied by early sign of cardiac tamponade. Emergent pericardiocentesis revealed , he had a hemopericardium. Despite a strong clinical suspicion of a pacemaker-related complication, CT imaging was inconclusive, although initially clinically stable , patient deteriorated with signs of hypotension and worsening perfusion, requiring initiation of inotropic support.

**Abstract  
Body:**

**Decision-making:** Given the patient's hemodynamic instability and inconclusive findings on CT, the clinical team faced a critical decision. While further confirmatory imaging—such as TEE or cardiac MRI—but might further compromise the patient's condition. After thorough multidisciplinary discussion and involvement of the cardiothoracic surgery team, the decision was made to proceed with exploratory sternotomy.

Intraoperatively, the right atrial lead was found to have perforated the RA appendage and was protruding into the pericardial space, confirming the clinical suspicion. The perforation was repaired, and the patient was stabilized and eventually recovered well postoperatively.

**Conclusion:** It highlights the need for a high level of clinical vigilance in patients with recent device implantation who present with unexplained symptoms.

**Presentation  
Number:** 51-116

**Poster Board  
Number:** 116

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** MIMICKER OF COARCTATION OF AORTA IN A 48 YEAR OLD ADULT:  
INTERRUPTED AORTIC ARCH

**Author  
Block:** [kanika kukreja](#), Barun Kumar, Kishan Mavani, ALL INDIA INSTITUTE OF  
MEDICAL SCIENCES AND RESEARCH, Rishikesh, India

**Background:** Interrupted aortic arch (IAA) diagnosed in adult life is rare congenital anomaly. It often mimics or is misdiagnosed as coarctation of aorta.

**Case:** A 60-year-old male with a known history of hypertension with history of cerebrovascular accident presented with complaints of dull, intermittent chest discomfort for past 2 months. He denied exertional dyspnea or syncope. On examination, there was a marked discrepancy in upper limb BPs (190/120 mmHg right arm vs 120/100 mmHg left arm), diminished femoral pulses, and an ejection systolic murmur in the suprasternal area radiating to the back. ECG showed LVH with strain and left axis deviation.

**Abstract  
Body:** **Decision-making:** Echocardiography showed severe concentric LVH y with LVEF 65% with poor visualization of the aortic arch in suprasternal view. CT aortogram showed complete interruption of the aortic arch distal to the origin of the left subclavian artery (suggestive of Type B IAA) with no continuity between the ascending and descending aorta with Extensive collateral formation with Aneurysmal dilatation of the right subclavian artery. He was managed conservatively and referred for cardiovascular surgical evaluation.

**Conclusion:** Adult presentation of interrupted aortic arch with extensive collaterals and subclavian aneurysm is rare. It reinforces the importance of considering congenital aortic anomalies in the differential diagnosis of adult hypertension, especially when clinical signs such as BP discrepancies or

murmurs are present



**Presentation  
Number:** 51-117

**Poster Board  
Number:** 117

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** DIAGNOSTIC PERFORMANCE OF FLURPIRIDAZ F 18 PET VERSUS SPECT MYOCARDIAL PERFUSION IMAGING IN CORONARY ARTERY DISEASE: A META-ANALYSIS OF DIAGNOSTIC ACCURACY

**Author Block:** Beyzanur Güney, Muhammed Edib Mokresh, Sena Mokresh, Omar Alomari, Cihangir Kaymaz, Rana Al Juhmani, Kosuyolu Training and Research Hospital Dept. of Cardiology, Istanbul, Turkey, Hamidiye International School of Medicine, University of Health Sciences, Istanbul, Turkey

**Background:** Coronary artery disease (CAD) remains the leading cause of morbidity and mortality globally. Flurpiridaz F 18 (Flyrcado), a novel PET myocardial perfusion imaging (MPI) agent, has been approved for evaluating myocardial ischemia and infarction in adults with known or suspected CAD. This study aims to assess the diagnostic accuracy of Flurpiridaz F 18 PET MPI for detecting significant CAD, using invasive coronary angiography (ICA) as the reference standard.

**Abstract  
Body:** **Methods:** We conducted a meta-analysis of diagnostic accuracy based on prospective, multicenter clinical studies evaluating Flurpiridaz F 18 PET MPI in adult patients with known or suspected CAD. Summary estimates of sensitivity, specificity, likelihood ratios (LR+ and LR-), and diagnostic odds ratio (DOR) were calculated using a bivariate random-effects model. Results were directly compared with those from SPECT MPI. Heterogeneity and threshold effects were examined. Safety data were synthesized from reported adverse events.

**Results:** Flurpiridaz F 18 PET MPI demonstrated higher sensitivity than SPECT (0.762 [95% CI: 0.616-0.847] vs. 0.609 [95% CI: 0.424-0.757]), while specificity was comparable (0.711 [95% CI: 0.509-0.837] for PET vs. 0.744 [95% CI: 0.464-0.891] for SPECT). The positive likelihood ratio was slightly higher with PET (2.611 vs. 2.367), and the negative likelihood ratio was notably lower (0.340 vs. 0.530), indicating better ability to rule out disease. PET also showed a superior diagnostic odds ratio (7.878 [95% CI: 2.731-

17.934] vs. 4.575 [95% CI: 1.216-13.582]). Adverse events were reported in 49% of patients across the included studies; however, only two studies identified events as related to the drug, yielding a pooled rate of related adverse events of 3%.

**Conclusion:** Flurpiridaz F 18 PET MPI demonstrates superior diagnostic performance compared to SPECT MPI, particularly in terms of sensitivity and overall diagnostic accuracy. While general adverse events were common, the low rate of radiotracer-related events supports a favorable safety profile for clinical use.



**Presentation  
Number:** 51-118

**Poster Board  
Number:** 118

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** AN ATYPICAL CAUSE OF TYPICAL CHEST PAIN; TALE OF A HEART IN THE  
WRONG PLACE AT THE RIGHT TIME

**Author  
Block:** Ismail Ahmed Khan, Fauji Foundation Hospital Rawalpindi, Rawalpindi,  
Pakistan

**Abstract  
Body:** **Background:** Coronary artery to Pulmonary artery fistula is a rare cause of angina, which should be evaluated and appropriately managed  
**Case:** A 65 years old Diabetic Hypertensive lady with history of Pulmonary tuberculosis and lung fibrosis presented with angina CCS-II of 1 year duration that worsened to CCS-III in last 1 week. ECG showed ST depressions in inferior leads. Echo showed EF=60% with rightward shift of the heart  
**Decision-making:** Because of worsening chest pain, ischemic ECG changes, and high probability of CAD, the patient underwent peripheral and coronary angiogram that showed collaterals and fistulas arising from Right subclavian artery, rightward shift of the heart, unobstructive coronaries and a large fistula from Proximal RCA draining into Pulmonary artery. The patient was advised MPI scan for ischemia in RCA territory,  
**Conclusion:** Coronary artery to Pulmonary artery fistula is a rare yet important cause of cardiac chest pain and warrants invasive and non

invasive assessment and treatment.



**Presentation  
Number:** 51-119

**Poster Board  
Number:** 119

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** INTRINSIC FEATURES OF MYOCARDIUM TO ESTIMATE EXTRACELLULAR VOLUME IN HYPERTROPHIC CARDIOMYOPATHY: STRAIN-DERIVED STIFFNESS COMBINED WITH MYOCARDIAL REMODELING TRAITS FROM RADIOMICS OF T1 MAPPING ON CARDIAC MAGNETIC RESONANCE IMAGING

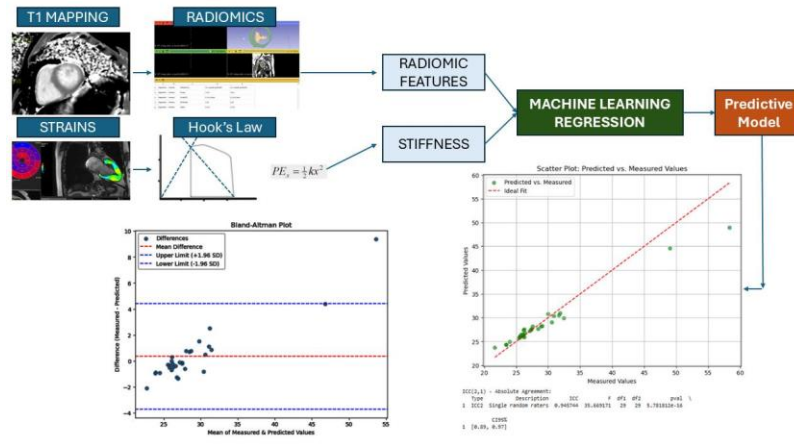
**Author  
Block:** Pham Cao Minh Nguyen, Tâm Anh General Hospital, Ho Chi Minh, Viet Nam

**Abstract  
Body:** **Background:** Hypertrophic cardiomyopathy (HCM) is the most prevalent non-ischemic cardiomyopathy. Fibrosis and extracellular volume (ECV), quantified by cardiac magnetic resonance (CMR), are promising biomarkers of myocardial remodeling. This study evaluates intrinsic myocardial properties using CMR, like stiffness and component alternation by radiomics of T1 mapping, aiming to validate a non-contrast ECV estimation  
**Methods:** This study included 15 HCM patients and 15 controls. ECV was assessed per guideline protocols, while stiffness was derived from CMR strain and arterial pressure, applying Hooke's Law. Radiomic features covered about 200 indices extracted from left ventricular short-axis T1 mapping images. Regression models were optimized using machine learning in Python 3.12

**Results:** HCM patients showed significantly greater stiffness (5483 vs. 2470 N/m,  $p < 0.001$ ), while ECV differences were 4.73% ( $p = 0.08$ ). Predictive models in HCM valued alterations in myocardial texture, including mean value and gray-level uniformity. Integrating stiffness enhanced predictive accuracy, yielding a high intraclass correlation coefficient (ICC 0.95, CI 95% 0.89-0.97,  $p < 0.001$ ), confirmed by Bland-Altman analysis demonstrating trivial mean differences

**Conclusion:** This study proposes a contrast-free CMR-based ECV estimation model utilizing myocardial intrinsic properties with radiomic and machine learning, potentially improving HCM management while minimizing

## contrast-related risks



**Presentation  
Number:** 51-120

**Poster Board  
Number:** 120

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** ANOMALOUS RIGHT CORONARY ARTERY FROM LEFT CORONARY CUSP  
WITH MALIGNANT COURSE: CASE REPORT AND LITERATURE REVIEW

**Author  
Block:** Nazanin Rafiei, Pouya Ebrahimi, ayham Al-shatanawi, Yi Lung Gan, Farhan  
Shahid, Queen Elizabeth Hospital, Birmingham, United Kingdom

**Background:** Anomalous right coronary artery (RCA) from the left coronary cusp (LCC) is rare (0.026%-0.250%) and associated with myocardial ischemia and sudden cardiac death (SCD) when coursing interarterially. Multimodal imaging is crucial for risk stratification.

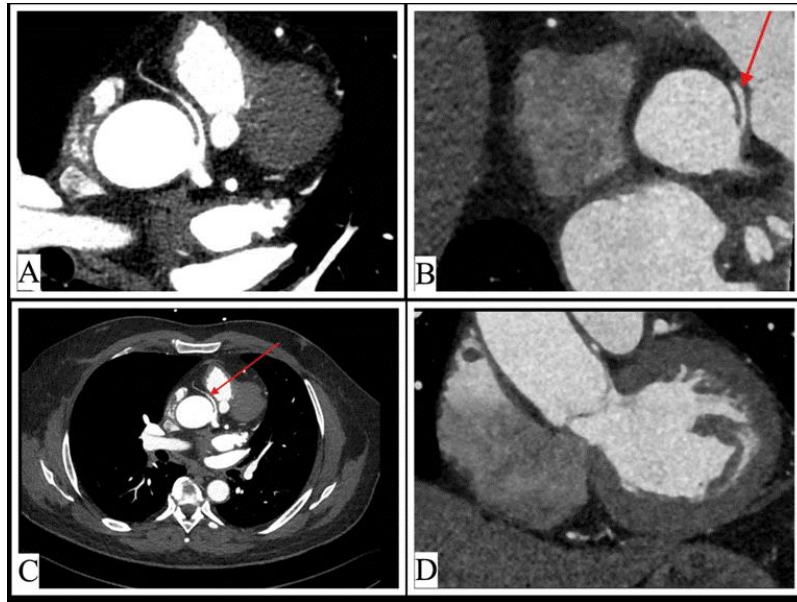
**Case:** A 65-year-old male with hypertension, right bundle branch block, and suspected hypertrophic cardiomyopathy presented with central chest pain radiating to the left arm and jaw. ECG showed right bundle branch block and left ventricular hypertrophy. Troponin was mildly elevated. Coronary angiography and coronary computed tomography angiography (CCTA) revealed an anomalous RCA from the LCC coursing between the aorta and pulmonary artery. Intravascular ultrasound and optical coherence tomography showed dynamic systolic compression and a slit-like ostium. Resting fractional flow reserve (FFR) was 0.91.

**Abstract  
Body:**

**Decision-making:** Despite malignant anatomical features, the lack of flow-limiting ischemia, and preserved viability led the multidisciplinary team to favor conservative management. The integration of anatomical and physiological data was central to the informed decision-making.

**Conclusion:** In anomalous RCA with a malignant course, individualized multidisciplinary team-based decisions, guided by multimodal imaging, are

vital, especially in older patients with comorbidities.



**Presentation  
Number:** 51-121

**Poster Board  
Number:** 121

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** LEFT ATRIAL STRAIN AS A PREDICTOR OF READMISSION IN HEART FAILURE  
WITH PRESERVED EJECTION FRACTION (HFPEF)

**Author Block:** Mohamed Salama, New Jahra Hospital, Aljahra, Kuwait

**Abstract  
Body:**

**Background:** Impairment of left atrial (LA) function appears to have diagnostic and prognostic value in HFpEF patients , left atrial reservoir strain (LASr) is a new method that can measure LA mechanics . The aim of this research is to study the role of Left atrial strain assessed by 2 D Echocardiography in predicting post discharge readmission ( within 12 months) in patients previously admitted with HFpEF .

**Methods:** This was a retrospective study of patients who had admitted with HFpEF from May 2022 to April 2024. Echocardiography performed within 48 hours of admission. Patients with Atrial fibrillation, Severe valvular lesions and poor echocardiographic View were excluded from our study. Echocardiographic data were digitally stored and measurements were performed offline using TOMTEC quantification tool in Syngodynamic workstation .

**Results:** 417 patients were included. 118 patients (28.3%) were readmitted within 12 months. Mean age was  $68.3 \pm 7.6$  years, 41.2% (n = 172) were male, mean LV ejection fraction (LVEF) was  $58 \pm 6.1\%$  , mean LV global longitudinal strain (GLS) was  $12.1 \pm 6.2\%$  . and mean left atrial reservoir strain (LASr) was  $17.2 \pm 6.7$  . HFpEF Patients with readmissions had significantly lower LASr ( $15.6 \pm 7.2$  vs  $17.6 \pm 6.8$  p < 0.01 ) , higher E/e'ratio ( $18.3 \pm 8.2$  vs  $16.9 \pm 6.9$  p > 0.05) and a larger left atrium volume index (  $38.1 \pm 8.3$  ml/m<sup>2</sup> vs  $36.5 \pm 7.9$  ml/m<sup>2</sup> > 0.05 ) and higher LV GLS (  $-12.9 \pm 6.3$  vs  $-14.6 \pm 8.1$  p < 0.05). In ROC curve analysis , LASr was a strong predictor for hospital readmission (area under the curve = 0.72 , CI(0.61- 0.84).

**Conclusion:** Our study demonstrated that LASr might have additional utility in assessment and stratification of patients admitted with HFpEF .





**Presentation Number:** 51-122

**Poster Board Number:** 122

**Topic 1:** Multimodal Imaging

**Publishing Title:** THE LUCK FACTOR: PENETRATING THORACIC TRAUMA WITHOUT CARDIOPULMONARY INJURY

**Author Block:** Oscar Vergara Huidor, Maria Fernanda Ruiz Gómez, Carlos Eduardo Sotomayor Casillas, Cesar Adrian Guerrero Vega, Linda Elizabeth Monico Aceves, Ximena Medina Fernandez, Christian González Padilla, Jorge Eduardo Hernandez Del Rio, Hospital Civil de Guadalajara "Fray Antonio Alcalde", Guadalajara, Mexico

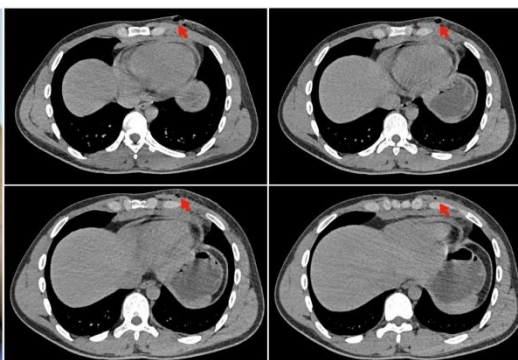
**Background:** Thoracic penetrating trauma carries a high risk of pleuropulmonary or cardiovascular injury, even in clinically stable patients. Advanced imaging is essential for accurate assessment and decision making

**Methods:** A 26 year old previously healthy male sustained an accidental penetrating chest injury from a high velocity wooden fragment while operating machinery. The object lodged in the left fourth intercostal space, 3 cm from the parasternal border. On arrival, he was hemodynamically stable, with no respiratory distress or active bleeding. Chest CT and transthoracic echocardiography ruled out pleural, pulmonary, or pericardial injury; the object remained confined to the anterior thoracic soft tissues

**Abstract Body:**



**Figure 1.** Initial presentation: Wooden fragment embedded in the anterior region of the left hemithorax, at the level of the fourth intercostal space, with no visible signs of active bleeding or subcutaneous emphysema.



**Figure 2.** Axial chest computed tomography in mediastinal window. The trajectory of the foreign body is seen penetrating the soft tissues of the left hemithorax, with no evidence of pleural or pericardial injury; the distal tip lies just a few centimeters from the heart. ARROW = Foreign body trajectory

**Results:** Based on imaging, the diagnosis was established as penetrating thoracic trauma without intrathoracic involvement. The fragment was

removed under sedation and aseptic technique without complications. No chest tube or surgery was required. The patient remained stable during 24 hour observation and was discharged without sequelae. We reviewed antibiotic use in such injuries, favoring short empirical coverage (1-3 days) with amoxicillin-clavulanate or clindamycin for vegetative material

**Conclusion:** This case highlights the importance of systematic evaluation in chest trauma, regardless of initial stability. Conservative management was guided by imaging and avoided unnecessary invasive procedures, illustrating a rational, evidence based approach

**Presentation  
Number:** 51-123

**Poster Board  
Number:** 123

**Topic 1:** Multimodal Imaging

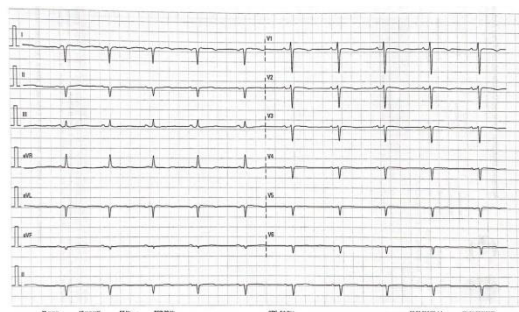
**Publishing  
Title:** UNUSUAL ELECTROCARDIOGRAPHIC FINDINGS: AN INVERTED DIAGNOSIS

**Author  
Block:** Oscar Vergara Huidor, Maria Fernanda Ruiz Gómez, Carlos Eduardo Sotomayor Casillas, Linda Elizabeth Monico Aceves, Cesar Adrian Guerrero Vega, Ximena Medina Fernandez, Christian González Padilla, Jorge Eduardo Hernandez Del Rio, Hospital Civil de Guadalajara "Fray Antonio Alcalde", Guadalajara, Mexico

**Background:** Atypical electrocardiographic findings can be the first clue to congenital cardiac anomalies, particularly in anatomically complex conditions such as situs inversus totalis

**Methods:** A 52 year old woman with hypertension and end-stage renal disease on hemodialysis presented with progressive dyspnea and unusual ECG features: positive P wave in aVR, extreme axis deviation, and discordant precordial leads. Physical exam revealed absent heart sounds on the left. Echocardiography revealed dextrocardia with dextroapex, consistent with situs inversus totalis. The left ventricle was moderately dilated with preserved LVEF and diastolic dysfunction grade I. Moderate mitral and tricuspid regurgitation were noted

**Abstract  
Body:**



**Figure 1.** 12-lead electrocardiogram showing sinus rhythm, extreme axis deviation, positive P wave in aVR, progressively decreasing R waves in precordial leads (discordance), and poor R wave progression in V6; findings consistent with dextrocardia.



**Figure 2.** Coronal view of thoracoabdominal CT. Evidence of situs inversus totalis: dextrocardia with rightward-oriented cardiac apex and displacement of the liver toward the left hypochondrium.

**Results:** Hemodynamic overload due to interrupted dialysis was resolved with two sessions, resulting in clinical improvement. Antihypertensive

therapy and dialysis frequency were optimized. The ECG abnormalities prompted further investigation, highlighting the importance of correlating clinical, electrical, and imaging data. Situs inversus totalis, characterized by mirror image transposition of thoracoabdominal organs including dextrocardia, can mimic ECG misplacement if not recognized

**Conclusion:** This case emphasizes the diagnostic value of ECG anomalies in detecting anatomical variants like situs inversus totalis, the importance of echocardiography for structural assessment, and the need to exclude associated congenital defects even in adulthood

**Presentation  
Number:** 51-124

**Poster Board  
Number:** 124

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** NOT ALL THAT EMBOLIZES IS A PE: INFECTIVE ENDOCARDITIS  
PRESENTING WITH MULTISYSTEM EMBOLI IN A YOUNG WOMAN

**Author Block:** Mohamed Nasser Elshabrawi, Layan Sufian Aldib, Clinical Research  
Department, Aswan Heart Center, Magdi Yaqoup Foundation, Aswan,  
Egypt, School of Medicine, University of Jordan, Amman, Jordan

**Background:** Infective endocarditis (IE) can present atypically in young patients, especially without underlying heart disease. Misleading symptoms often result in diagnostic delays until embolic phenomena reveal the true pathology.

**Case:**

A 29-year-old woman presented with pleuritic chest pain, dyspnea, and palpitations. She was febrile (38.9°C), tachycardic (HR 130), hypotensive (BP 90/55), and hypoxic (SpO<sub>2</sub> 88%). ECG showed sinus tachycardia. Elevated D-dimer and hypoxic ABG led to a presumptive diagnosis of pulmonary embolism, and she was started on therapeutic enoxaparin. Within hours, she developed acute confusion. Brain MRI revealed multiple cortical infarcts. Physical exam revealed splinter hemorrhages. Family history revealed recent dental extraction for an infected tooth. Blood cultures grew *Streptococcus viridans*. ESR and CRP were elevated. Transesophageal echocardiography confirmed a 1.2 cm mitral valve vegetation. She was diagnosed with IE with embolic events to the brain and lungs. IV ceftriaxone and gentamicin were initiated in the ICU. Over the following weeks, her condition improved significantly.

**Abstract  
Body:**

**Decision-making:** This case highlights the importance of reconsidering the diagnosis when clinical status worsens despite appropriate initial treatment. Classic signs—fever, splinter hemorrhages, neurologic emboli—prompted a shift in diagnostic focus from PE to IE. Cardiac imaging and blood cultures confirmed the diagnosis.

**Conclusion:** IE can mimic PE in febrile patients with embolic signs. Clinicians should maintain a broad differential, especially in young patients with subtle risk factors such as recent dental procedures. Early diagnosis and targeted therapy are essential to reduce morbidity and mortality.

**Presentation  
Number:** 51-125

**Poster Board  
Number:** 125

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** REAL-WORLD APPLICATION OF CCTA IN A HIGH-CAD PREVALENCE  
POPULATION: A RETROSPECTIVE STUDY FROM A UAE TERTIARY CENTER

**Author Block:** Adil Jumani, Ghada A. Rashwan, Hadiza Ibrahim, Jumaa Aldhaheeri, Hassan Hassan, Safaa Almohdar, khaled Alfakih, Zayed Military Hospital, Abu Dhabi, United Arab Emirates

**Abstract  
Body:**

**Background:** Coronary artery disease (CAD) is the leading global cause of mortality, with stable chest pain being the most frequent clinical presentation. Coronary computed tomography angiography (CCTA) has emerged as an accurate noninvasive diagnostic modality for the assessment of the presence CAD with an excellent negative predictive value and good positive predictive value. We aimed to assess clinical use of CCTA at Zayed Military Hospital (ZMH).

**Methods:** A retrospective study conducted at ZMH between January and December 2024 evaluated 417 consecutive patients who presented to cardiology outpatient department with typical or atypical chest pain and intermediate clinical likelihood of CAD. Data on CCTA findings, comorbid conditions, subsequent use of invasive coronary angiography, and initiation of prevention medications were collected and analyzed.

**Results:** 77% of the cohort had normal coronary arteries, with 23% having some degree of CAD. Of those with CAD, 58% had mild CAD and 42% had Moderate to severe CAD (40 individuals). Of these, 33 were deemed to need invasive coronary angiography, and 21 received percutaneous coronary intervention (PCI). Our results demonstrate that CCTA effectively ruled out CAD in the majority of patients, while accurately identifying significant CAD in the remainder. One key advantage of CCTA is its ability to detect both mild and moderate CAD, allowing early initiation of preventive medications. In our cohort Statins were initiated to 85.7% of patients with mild CAD and to 100% of those with more moderate to severe disease. Approximately 75% of patients with moderate to severe CAD had coexisting, treated

diabetes and hypertension. Aspirin prescription was limited in patients with mild CAD but was prescribed to all higher-risk individuals and to all those with moderate to severe CAD, in accordance with current guidelines.

**Conclusion:** CCTA is a highly effective diagnostic test that can rule out CAD in most patients presenting with stable chest pain, even in a country with a high prevalence of CAD. It also accurately diagnoses the presence of various degrees of CAD, guiding both invasive and medical therapy.



**Presentation  
Number:** 51-126

**Poster Board  
Number:** 126

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** INTRACARDIAC MASS IN A CANCER SURVIVOR: NAVIGATING THE GREY  
ZONE BETWEEN BENIGN AND MALIGNANT

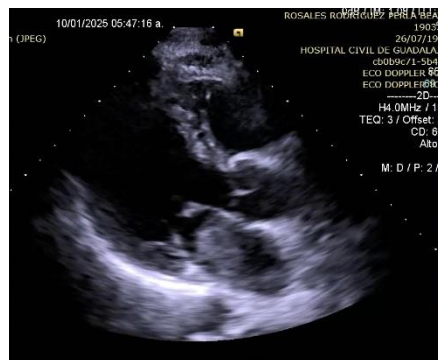
**Author  
Block:** Fernanda Ruiz Gomez, Oscar Vergara Huidor, Francisco Javier Davalos Contreras, Carlos Eduardo Sotomayor Casillas, Linda Elizabeth Monico Aceves, Ximena Medina Fernandez, Cesar Adrian Guerrero Vega, Dayana Estefania Orozco Sepúlveda, Tomas Miranda Aquino, Jorge Eduardo Hernandez Del Rio, Christian González Padilla, Hospital Civil de Guadalajara "Fray Antonio Alcalde", guadalajara, Mexico

**Background:** A 34-year-old female with a remote history of thoracic wall leiomyosarcoma resected in 2019, with no evidence of clinical recurrence, presented with progressive functional decline, reaching NYHA Class IV symptoms.

**Methods:** Transthoracic echocardiography revealed a partially mobile, irregular left atrial mass with Doppler signs of mitral inflow obstruction and heterogeneous echogenicity, suggestive of malignancy.

**Abstract  
Body:** **Results:** PET-CT showed increased FDG uptake, supporting suspicion of cardiac metastasis. Surgical resection was performed, and histopathology unexpectedly confirmed an atrial myxoma with no evidence of malignancy. **Conclusion:** Metastatic cardiac tumors are far more frequent than primary ones, accounting for up to 96% of all malignant cardiac masses. In patients with a history of leiomyosarcoma, hematogenous spread to the heart—although rare—typically involves the myocardium or pericardium. FDG-PET/CT is highly sensitive (approaching 100% in some series) for detecting metabolically active metastatic lesions; however, its specificity is limited by potential FDG uptake in benign tumors or inflammatory processes, as has

been documented in some cases of cardiac myxoma.



· PEL: "Left atrial mass attached to the interatrial septum, measuring 46 x 30 mm with a calculated area of 10.3 cm<sup>2</sup>. The mass presents irregular borders and causes hemodynamic findings consistent with moderate mitral stenosis physiology."

**Presentation  
Number:** 51-127

**Poster Board  
Number:** 127

**Topic 1:** Multimodal Imaging

**Publishing  
Title:** BEYOND THE HEARTBURN: THORACIC EPENDYMOMA MASQUERADING  
AS CHEST PAIN

**Author Block:** Mohamed Nasser Elshabrawi, Ahmed Ali, Ebraheem Ahmed, Zeyad  
Essam, Asmaa Adel, Clinical Research Department, Aswan Heart Center,  
Magdi Yaqoup Foundation, Aswan, Egypt, Department of Pediatric  
Medicine, Mansoura University, Mansoura, Egypt

**Background:** Chest pain is a frequent clinical complaint typically attributed to cardiac, musculoskeletal, or gastrointestinal causes. However, spinal cord pathologies can present with referred thoracic pain, often leading to delayed or missed diagnoses due to misleading initial workups.

**Case:** A 50-year-old woman presented with persistent mid-thoracic chest pain for several weeks, exacerbated by lying down and unrelated to exertion. ECG, serial troponins, and echocardiography were unremarkable. Gastrointestinal evaluations including endoscopy and abdominal imaging were also negative. Despite symptomatic therapy, her pain persisted. She subsequently developed bilateral lower limb weakness and hyperreflexia.

**Abstract  
Body:** MRI of the spine revealed an intramedullary lesion at T4-T6, consistent with a spinal cord ependymoma compressing the dorsal columns. Neurosurgical excision was performed, and neurological symptoms gradually improved.

**Decision-making:** This case underscores the importance of considering neurological causes of atypical chest pain. The initial absence of focal deficits delayed the diagnosis. Progressive neurological symptoms prompted spinal imaging, revealing the true etiology. High clinical suspicion is essential in persistent, non-exertional chest pain when conventional workups are unrevealing.

**Conclusion:** Thoracic spinal cord tumors can mimic non-cardiac chest pain. In cases of persistent, unexplained symptoms with negative cardiac and gastrointestinal evaluations, clinicians should consider spinal

pathology and pursue neurological assessment and imaging to avoid irreversible complications.

**Presentation  
Number:** 51-128

**Poster Board  
Number:** 128

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** CEREBRAL EMBOLIC PROTECTION DEVICES (CEPDS) DURING  
TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI): A META-ANALYSIS  
OF 11,589 PATIENTS FROM RANDOMIZED CONTROLLED TRIALS

**Author  
Block:** Mohamed Ibrahim Gbreel, Ahmed Samy Badran, Marwa Hassan, Mahmoud  
Balata, October 6 University, Faculty of Medicine and Surgery, Giza, Egypt,  
Department of Cardiology, Egyptian Railway Medical Education Center,  
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**Background:** Transcatheter aortic valve implantation (TAVI) is associated with procedure-related stroke. Cerebral embolic protection devices (CEPDs) are designed to reduce the risk of embolic debris reaching the brain. We aim to evaluate the efficacy and safety of CEPDs in TAVI patients.

**Methods:** Six databases were systematically searched up to April 2025. Only randomized controlled trials (RCTs) were included and critically appraised using the Cochrane Risk of Bias 2 tool. Statistical analyses were performed using R software to calculate risk ratios (RRs) with 95% confidence intervals.

**Abstract  
Body:** **Results:** Eight RCTs (11,589 patients) were analyzed. No significant difference was observed in overall stroke incidence between CEPD and controls (RR 0.93; 95% CI: 0.74-1.16; P=0.49), including disabling and non-disabling strokes. Device-specific analyses showed a non-significant trend toward reduced disabling stroke with the Sentinel device, while the Triguard device was associated with increased major vascular complications (RR 2.18; 95% CI: 1.04-4.59). All-cause mortality, transient ischemic attacks, bleeding, acute kidney injury, delirium, and pacemaker implantation rates were similar between groups. CEPD use was associated with a transient improvement in cognitive function at 2-5 days post-TAVI, but this effect was not sustained at later follow-ups.

**Conclusion:** CEPDs show no significant reduction in overall, disabling, or non-disabling stroke, nor in all-cause mortality post-TAVI.



# Cerebral Embolic Protection devices (CEPDs) During TAVI



## Stroke Risk in TAVI

- ✓ CEPDs aim to + risk of Embolic Stroke.
- ✓ Clinical impact remains controversial.

## Study Design & Methods

- ✓ 8 RCTs (n = 11,589)
- ✓ 6 Databases (up to April 2025)
- ✓ Risk of bias (ROB-2)
- ✓ Trial Sequential analysis (TSA)
- ✓ R-software



## Main Outcomes

- ✓ overall stroke (disabling & non-disabling)
- ✓ Major vascular complications.
- ✓ Mortality, TIA, bleeding, AKI, or delirium.

TAVI with CEPDs (n = 5943) Vs without CEPDs (n = 5646)

- ✗ No stroke risk difference (disabling or non-disabling)
- ✗ No mortality benefits
- ✗ No difference in TIA, AKI, bleeding or Delirium.
- ✗ TSA: Evidence remains inconclusive.



**CONCLUSION**

CEPDs do **not** significantly reduce disabling, non-disabling stroke or mortality post-TAVI.

**Presentation  
Number:** 51-129

**Poster Board  
Number:** 129

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** SURGICAL AORTIC VALVE REPLACEMENT VERSUS TRANSCATHETER AORTIC VALVE REPLACEMENT IN PATIENTS WITH HEART FAILURE: A SYSTEMATIC REVIEW AND META ANALYSIS

**Author  
Block:** Zina Otmani, Ahmed Emara, Mazen Negmeldin Aly Yassin, Basma Badrawy Khalefa, Mohamed Emara, Faculty of Medicine, Mouloud Mammeri University, Tizi Ouzou, Algeria

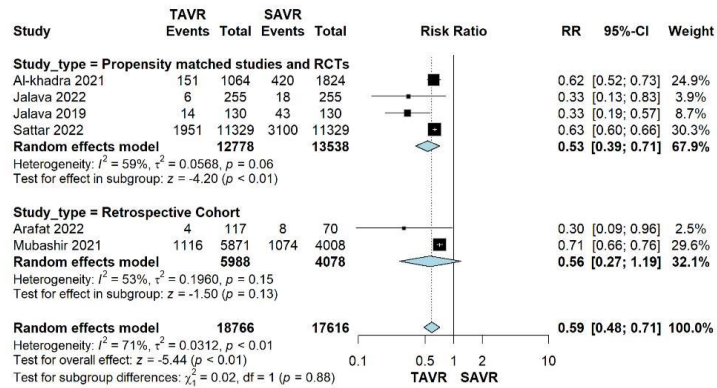
**Background:** Heart failure (HF) significantly impacts outcomes after aortic valve replacement. While transcatheter aortic valve replacement (TAVR) is less invasive than surgical aortic valve replacement (SAVR), comparative outcomes in HF patients remain unclear. In this meta-analysis, we aimed to compare between TAVR versus SAVR in HF patients.

**Methods:** We searched Scopus, Web of Science, PubMed, Embase, and Cochrane for relevant studies comparing TAVR to SAVR in HF patients. Mean difference (MD) and risk ratio (RR) with 95% CI were used for pooling continuous and dichotomous data, respectively. We analyzed data using (R version 4.3).

**Abstract  
Body:** **Results:** Eleven studies with a total of 62753 patients were included in our meta analysis. TAVR demonstrated lower Acute kidney injury (RR= 0.59; 95% CI: 0.48-0.71), cardiogenic shock (RR= 0.48; 95% CI: 0.43-0.54), major bleeding (RR= 0.39; 95% CI: 0.07-2.06), Myocardial infarction (MI) (RR= 0.57; 95% CI: 0.47-0.69), and shorter hospital stay (MD= -4.79 days; 95% CI: -6.11 - -3.47) compared to SAVR. Furthermore, there is no significant difference in long-term, one-year, or short-term mortality, or stroke between the two groups. However, TAVR had higher pacemaker implantation.

**Conclusion:** Our meta analysis demonstrated that for HF patients, TAVR is associated with lower risk for some short term outcomes such as AKI, major bleeding, cardiogenic shock. While there's no difference between TAVR and SAVR in short or long term mortality.

# Figure 1: Forest plot of AKI





**Presentation  
Number:** 51-130

**Poster Board  
Number:** 130

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** OUTCOMES OF SURGICAL, TRANSCATHETER, AND MEDICAL TREATMENT MODALITIES FOR ISOLATED TRICUSPID REGURGITATION: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

**Author  
Block:** Basma Ehab Amer, Ahmed Mohamed Abozaid, Eslam Afifi, Ahmed Mostafa Amin, Shrouk Ramadan, Faculty of Medicine, Benha University, Benha, Egypt, Medical Research Group of Egypt (MRGE), Negida Academy, Arlington, MA, USA

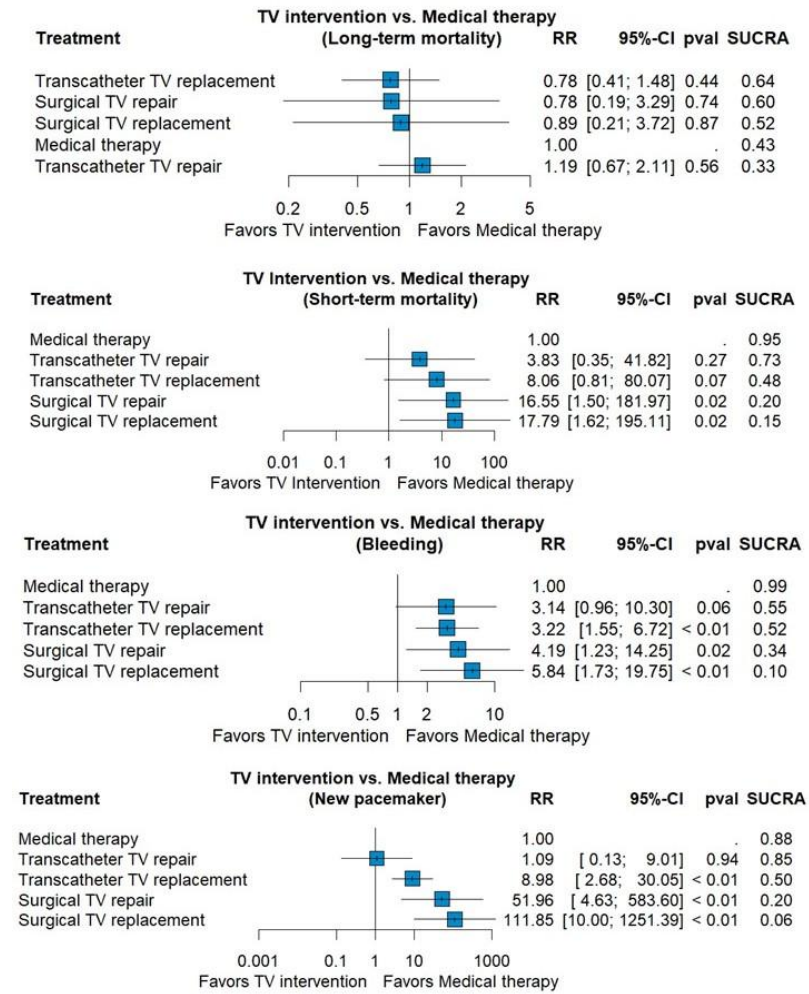
**Background:** Optimal treatment for isolated tricuspid regurgitation (TR) remains debated. We compared different treatment modalities for isolated TR.

**Methods:** We searched PubMed, Web of Science, and Scopus up to March 2025. We included studies comparing at least two of the following: surgical repair/replacement, transcatheter repair/replacement, or medical therapy (MT). Our primary outcome was long-term mortality ( $\geq 1$  year). Secondary outcomes included short-term mortality and periprocedural complications such as bleeding and pacemaker implantation. We performed a frequentist network meta-analysis using the random-effect model.

**Abstract  
Body:** **Results:** A total of 27,727 patients from 24 studies were included. All interventions were comparable to MT in terms of long-term mortality. Transcatheter interventions were comparable to MT in terms of short-term mortality. In contrast, both surgical repair and replacement were associated with higher short-term mortality compared to MT (RR = 16.55, 95% CI [1.50, 181.97],  $P = 0.02$ ; RR = 17.79, 95% CI [1.62, 195.11],  $P = 0.02$ , respectively). Transcatheter repair was comparable to MT in terms of periprocedural complications. However, all other interventions showed higher complications compared to MT.

**Conclusion:** No intervention improved long-term survival over medical therapy, but surgery increased short-term mortality. While transcatheter repair showed comparable safety to MT, other analyzed interventions

presented higher periprocedural complications.



**Presentation  
Number:** 51-131

**Poster Board  
Number:** 131

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** IRON MAN HEART: COMPLEX TRANSCATHETER VALVE REPAIR IN A MULTI IMPLANT CARDIAC PATIENT

**Author  
Block:** Öznur Keskin, Mustafa Çelik, Yakup Alsancak, Yunus Emre Yavuz, Serhat Kesriklioglu, Necmettin Erbakan University Faculty of Medicine, Konya, Turkey

**Abstract  
Body:**

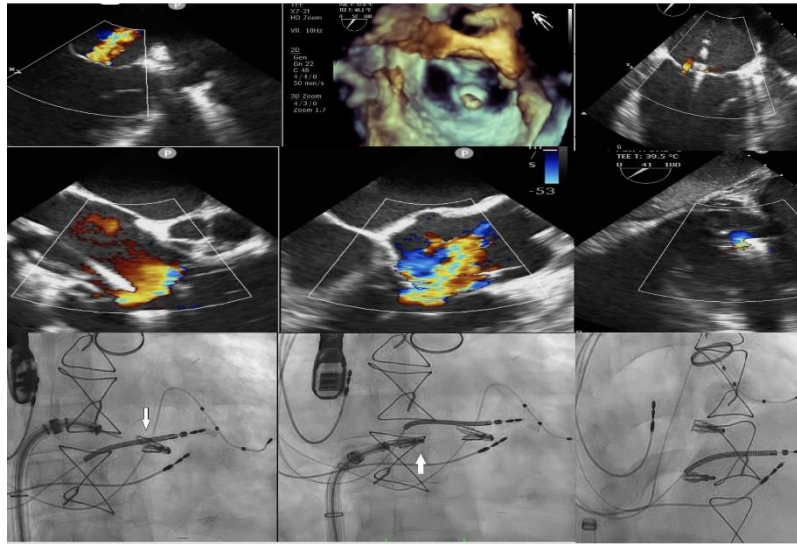
**Background:** Transcatheter valve interventions remain a viable alternative for patients with high surgical risk. We present our TriClip and MitraClip experience in a patient with prior cardiac surgery and advanced heart failure, in whom the clip system became entangled with the LOT-CRT-D lead.

**Case:** A 42 year old male with ischemic cardiomyopathy, prior CABG, mechanical pulmonary valve replacement (SJM 21 mm), and tricuspid annuloplasty developed severe functional MR and torrential TR despite LOT-CRT-D therapy. Deemed inoperable (TRI Score 9; 65% mortality), combined MitraClip and TriClip interventions were planned. Abbot XTW MitraClip was implanted at the A1-P1 segments, reducing MR to trace. During TriClip advancement, the system became entrapped in the RV lead. After repeated maneuvers, it was released and deployed on the anterolateral leaflets. TR was reduced to mild. No pacemaker dysfunction was observed. NT-proBNP decreased from 7072 to 3040 ng/L. No hospitalizations occurred over 3 months.

**Decision-making:** Due to severe functional MR and torrential TR despite CRT-D therapy, and high surgical risk (TRI Score: 9), the patient was deemed inoperable. The Heart Team planned combined transcatheter mitral and tricuspid valve repair.

**Conclusion:** Transcatheter mitral and tricuspid interventions are valuable alternatives in high risk surgical patients. This case highlights potential challenges of TriClip implantation in patients with implanted cardiac

devices.



**Presentation  
Number:** 51-133

**Poster Board  
Number:** 133

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** [?] EXPLANT VS REDO-TAVI AFTER TRANSCATHETER VALVE FAILURE: A  
SYSTEMATIC REVIEW AND META-ANALYSIS

**Author Block:** Amir Nasrollahizadeh, Peyman Saberian, Samad Azari, Ali  
Nasrollahizadeh, Amirreza Shahmohamady, Mohammad Farahmand, negar  
omidi, Seyed Hossein Aalaei-Andabili, Mohammad Keykhaei, Sepide  
Javankiani, Masih Tajdini, Tehran Heart Center, Tehran, Iran (Islamic  
Republic of)

**Background:** Treatment strategies after transcatheter aortic valve  
implantation (TAVI) failure have become increasingly challenging and  
crucial today. This study aims to compare redo-TAVI and TAVI explant  
procedures in terms of clinical outcomes and adverse events in cases of  
transcatheter valve failure.

**Methods:** A systematic review and meta-analysis was performed following  
PRISMA guidelines to compare the outcomes of redo-TAVI and TAVI explant  
procedures in patients with transcatheter valve failure. Quality  
assessments were investigated using the Newcastle-Ottawa Scale. Relative  
Risk (RR) was used to compare binary variables and Mean Difference (MD)  
to compare continuous outcomes. The meta-analysis was performed using  
R version 4.3.2.

**Abstract  
Body:**

**Results:** After removing duplicates and screening for eligible articles, 4  
studies with 905 patients were deemed for meta-analysis. The pooled mean  
age was  $77.6 \pm 8.4$  and  $73.2 \pm 8.6$  years with the male prevalence of 56.1%  
and 63.0% for the redo-TAVI and TAVI explant groups, respectively. Diabetes  
mellitus and hypertension were prevalent in both groups (41.2% and 80.8%  
for redo-TAVI vs. 37.8% and 80.4% for TAVI explant). The pooled length of  
stay was similar for the redo-TAVI and TAVI Explant procedures (MD: -0.25,  
95%CI: -0.55, 0.04). However, the pooled ICU stay was significantly higher  
in the TAVI explant group (MD: -0.37, 95%CI: -0.44, -.030). Although redo-  
TAVI resulted in lower short-term mortality (RR: 0.36, 95% CI: 0.22, 0.59),

long-term mortality rates were comparable between groups (RR: 0.78, 95% CI: 0.46, 1.33). Adverse events, including pacemaker implantation, bleeding, and stroke, showed no significant differences, while renal failure was more frequent after TAVI explant (RR: 0.50, 95%CI: 0.33, 0.77).

**Conclusion:** Redo-TAVI offers better short-term outcomes and comparable long-term results when compared to TAVI explant. The etiology of TAVI failure must be carefully evaluated as it dictates the optimal management strategy. Further research is essential to confirm these findings.

**Presentation  
Number:** 51-134

**Poster Board  
Number:** 134

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** EMBOLIC PROTECTION DEVICE IMPLANTATION IN A PATIENT WITH  
OBSTRUCTIVE PROSTHETIC MITRAL VALVE THROMBOSIS TREATED WITH  
THROMBOLYTIC THERAPY: A CASE REPORT

**Author  
Block:** Damirbek Osmonov, Zhazgul Imamalieva, Aziz Temirlanov, Bicard Clinic,  
Bishkek, Kyrgyzstan

**Background:** Prosthetic valve thrombosis is serious complication of mechanical valve implant. The risk of cerebral thromboembolism limits the use of thrombolytic therapy for left-sided mechanical valve thrombosis

**Methods:** We report a patient with prosthetic mitral valve thrombosis, which had been implanted 8 months earlier. Echocardiography revealed large thrombus with a high transmitral gradient (maximum 20 mmHg, mean 13 mmHg) (FigA). Embolic protection devices were implanted in both carotid arteries, followed by thrombolytic therapy using 25 mg of alteplase over 2 h. Embolized thrombi were successfully captured (FigB). TEE showed a reduction in thrombus size with restoration of valve function (FigC).

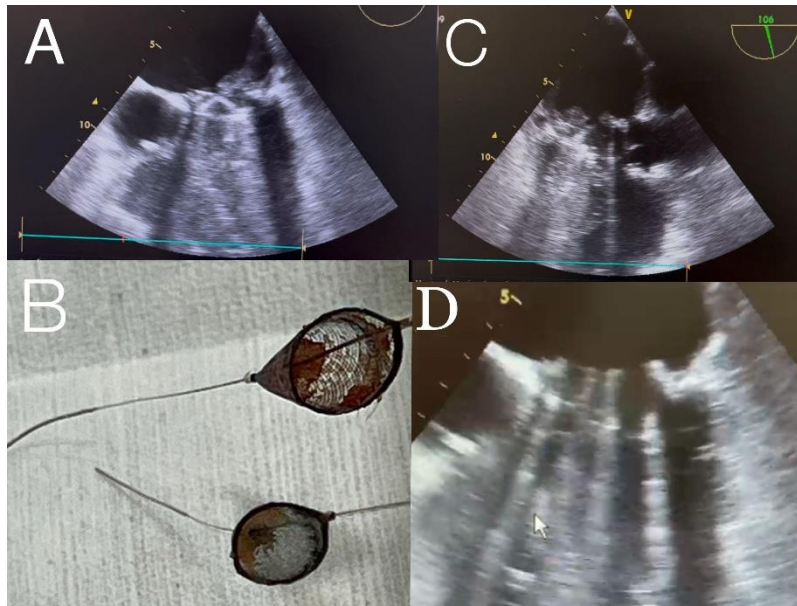
**Abstract  
Body:** Subsequently, an additional 25 mg of alteplase was administered via ultra-slow infusion over 25 h. Final TEE revealed complete thrombus resolution and normal valve function (FigD)

**Results:** In this case, we combined thrombolytic therapy with embolic protection devices to reduce the risk of cerebral embolic events. This approach may benefit high-risk patients with large thrombi. Following initial thrombus reduction, a low-dose, ultra-slow alteplase infusion successfully resolved the remaining thrombus.

**Conclusion:** Our report demonstrates the successful use of embolic protection devices during thrombolytic therapy for obstructive PVT. This strategy may reduce the incidence of TIA and strokes. TEE proved to be a valuable tool for assessing valve status before and after therapy.

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**Presentation  
Number:** 51-135

**Poster Board  
Number:** 135

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** TOTAL PERCUTANEOUS STRATEGY FOR DUAL-VALVE RHEUMATIC HEART DISEASE: ADDRESSING MITRAL STENOSIS AND TRICUSPID REGURGITATION IN A HIGH-RISK PATIENT

**Author  
Block:** Nuraiym Moloshova, yakup alsancak, Ahmet Seyfeddin Gurbuz, Öznur Keskin, Muhammed Fatih Kaleli, Necmettin Erbakan University, Konya, Turkey

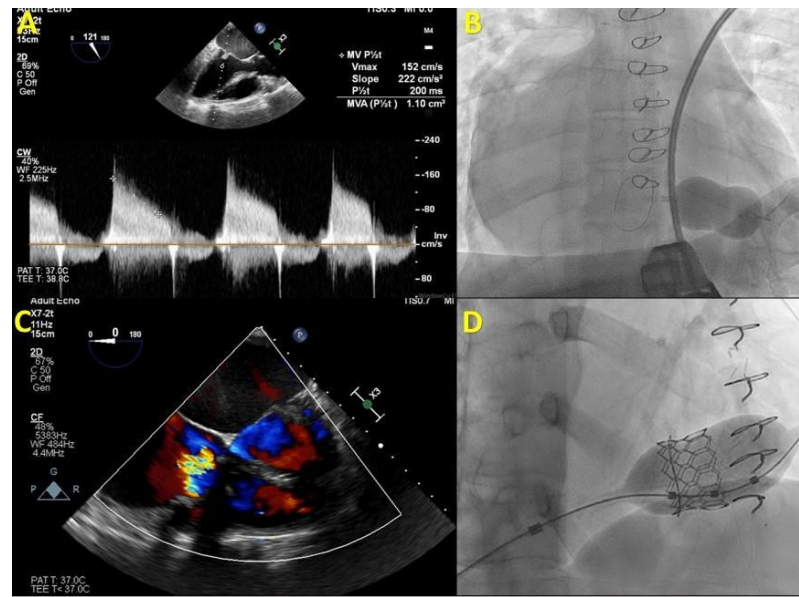
**Background:** Rheumatic heart disease is the most common cause of valvular disorders and is associated with high postoperative mortality, especially in redo cases.

**Case:** A 47-year-old female with a history of unknown thoracic surgery in 2008 and a diagnosis of rheumatic heart disease four years ago underwent right femoral-femoral bypass grafting and surgical tricuspid valve ring annuloplasty due to severe tricuspid regurgitation (TR). She presented with exertional dyspnoea and peripheral oedema. Echocardiography revealed severe mitral stenosis (MS) with a mean gradient of 13 mmHg and a Wilkins score of 8, and severe TR with vena contracta width of 8mm.

**Abstract  
Body:** **Decision-making:** Despite optimal medical therapy, the patient remained symptomatic with NYHA class III status. She was deemed high-risk for redo surgery (TRI-SCORE: 6 points, 22% predicted in-hospital mortality). Therefore, the heart team opted for a percutaneous approach, starting with balloon mitral valvuloplasty (PBMV), followed by transcatheter tricuspid valve-in-ring (TVIR) replacement. PBMV was performed using a 28 mm balloon, resulting in a post-procedural mitral gradient of 13/5 mmHg. Two months later, the patient underwent TVIR using a 29 mm Myval valve, with only trivial residual TR. At three-month follow-up, the patient demonstrated significant symptomatic improvement.

**Conclusion:** The application of combined percutaneous strategies in patients with prior open-heart surgery is associated with reduced post-

procedural mortality.



**Figure 1.** Baseline and post-procedural images of a patient with severe mitral stenosis (MS) and severe tricuspid regurgitation (TR) following surgical tricuspid valve annuloplasty. (A) Transesophageal echocardiogram (TEE) showing severe MS (mitral valve area [MVA] =  $1.1 \text{ cm}^2$ ). (B) Percutaneous balloon mitral valvuloplasty (PBMV) performed using a 28 mm balloon. (C) Pre-procedural TEE showing severe TR in the previously repaired tricuspid valve. (D) Balloon sizing of the tricuspid valve annulus using a 29 mm balloon.

**Presentation  
Number:** 51-136

**Poster Board  
Number:** 136

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** COMPARATIVE OUTCOMES OF TRANSCATHETER VERSUS SURGICAL AORTIC VALVE REPLACEMENT IN HEART FAILURE PATIENTS: A PROPENSITY SCORE-MATCHED NATIONWIDE ANALYSIS

**Author  
Block:** Ahmed Emara, Mohamed S. Elgendy, Mohamed R. Murad, Ahmed Farid Gadelmawla, Abdalhakim Shubietah, Mohamed Emara, Basel Abdelazeem, Michael Megaly, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Ascension St John Heart and Vascular Center, Tulsa, OK, USA, Tulsa, OK, USA

**Background:** Patients with heart failure (HF) undergoing aortic valve replacement represent a high-risk group. Transcatheter aortic valve replacement (TAVR) offers a less invasive alternative to surgical aortic valve replacement (SAVR), though large-scale data comparing outcomes in HF patients remain limited.

**Methods:** We conducted a retrospective cohort study using the National Inpatient Sample (2016-2022) to identify adult HF patients who underwent TAVR or SAVR. ICD-10-CM codes were used for identification, and propensity score matching was applied. Primary outcomes included in-hospital mortality, acute kidney injury (AKI), and hospital length of stay. Secondary outcomes included stroke, major bleeding, and HF hospitalization.

**Results:** A total of 11,306 patients (5,653 TAVR; 5,653 SAVR) were matched. TAVR was associated with significantly lower in-hospital mortality (1.8% vs. 2.7%,  $P=0.001$ ), AKI (14.1% vs. 26%,  $P<0.001$ ), and median length of stay (2 vs. 8 days,  $P<0.001$ ). TAVR also had lower rates of major bleeding (14.1% vs. 26%,  $P<0.001$ ) and mechanical circulatory support (1.6% vs. 4.2%,  $P<0.001$ ). Stroke rates were similar (0.5% vs. 0.6%,  $P=0.53$ ). TAVR was linked to a slightly higher HF hospitalization rate (46.1% vs. 44.3%,  $P=0.05$ ).

**Conclusion:** In this national cohort of HF patients, TAVR was associated with better in-hospital outcomes than SAVR. These findings support its use in select HF patients and highlight the need for individualized treatment

**Abstract  
Body:**

decisions.

Outcome	TAVR (n= 5,653)	SAVR (n= 5,653)	P value
In-hospital mortality	99(1.8)	151(2.7)	0.001
length of hospital stays, median (Q1-Q3)	2 (1 - 6)	8 (5–12)	<0.001
AKI (Acute kidney injury)	795(14.1)	1467 (26.0)	<0.001
Mechanical circulatory support	92 (1.6)	235 (4.2)	<0.001
Stroke	30 (0.5)	36 (0.6)	0.537
Heart failure hospitalization	2608(46.1)	2504 (44.3)	0.05

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**Presentation  
Number:** 51-137

**Poster Board  
Number:** 137

**Topic 1:** Valvular Diseases and Structural Interventions

**Publishing  
Title:** PROPHYLACTIC LEFT ATRIAL APPENDAGE OCCLUSION DURING MITRAL VALVE REPAIR IN PATIENTS WITHOUT ATRIAL FIBRILLATION: A META-ANALYSIS WITH RECONSTRUCTED TIME-TO-EVENT DATA

**Author  
Block:** Ahmed Emara, Mohamed S. Elgendy, Mohamed R. Murad, Mohamed Emara, Michael Megaly, Vinayak N. Bapat, Faculty of Medicine, Al-Azhar University, Cairo, Egypt, Minneapolis Heart Institute, Abbott Northwestern Hospital, Minneapolis, MN, USA, Minneapolis, MN, USA

**Background:** Mitral valve repair (MVR) is standard for degenerative mitral regurgitation, but postoperative AF and thromboembolic events remain concerns, even without prior AF. We assessed whether prophylactic left atrial appendage occlusion (LAAO) during MVR reduces stroke risk in this population.

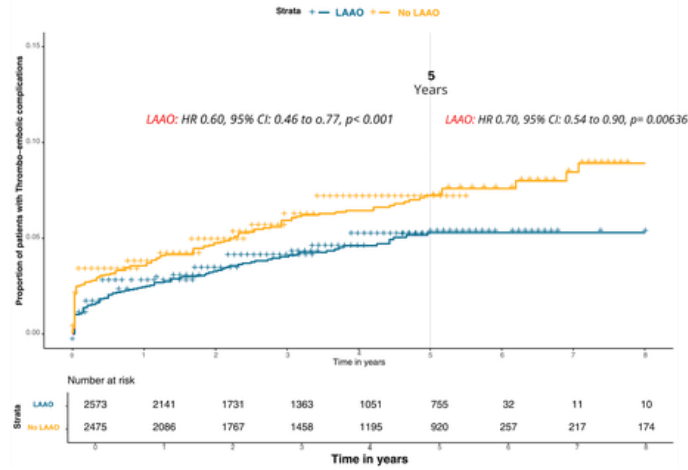
**Methods:** A systematic search of PubMed, Scopus, and Web of Science through March 2025 identified studies comparing prophylactic LAAO with no-LAAO in MVR patients without prior AF. The primary outcome was thromboembolic events. IPD were reconstructed from Kaplan-Meier curves and analyzed via Cox regression.

**Abstract  
Body:** **Results:** Three retrospective cohort studies ( $n = 5,048$ ; mean age  $68 \pm 10.3$  years; mean follow-up 6 years) were included, with 2,573 patients receiving LAAO during MVR. Pooled IPD analysis showed lower thromboembolic risk at 5 years (HR 0.60, 95% CI 0.46-0.77,  $P < 0.001$ ) and 8 years (HR 0.70, 95% CI 0.54-0.90,  $P = 0.006$ ). LAAO was associated with reduced in-hospital stroke (RR 0.43, 95% CI 0.25-0.72), with no significant difference in 30-day mortality (RR 0.56, 95% CI 0.07-4.33) or length of hospital stay (MD -0.16 days, 95% CI -0.48-0.16). However, postoperative AF was more frequent with LAAO (RR 1.17, 95% CI 1.09-1.26).

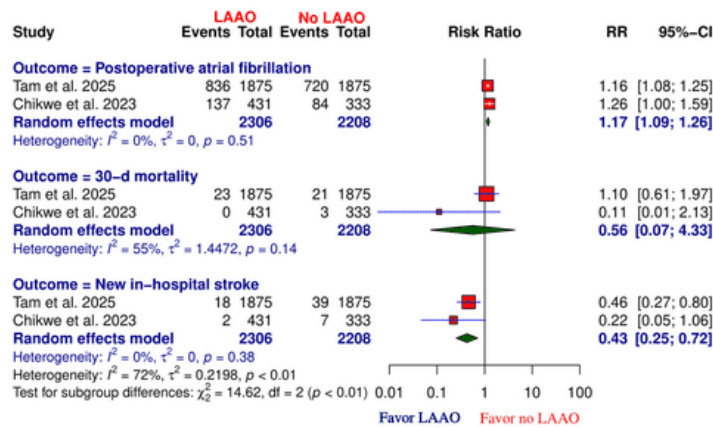
**Conclusion:** In patients without prior AF undergoing MVR, prophylactic LAAO reduces long-term thromboembolic events and in-hospital stroke without increasing early mortality or length of stay. However, the higher rate of

postoperative AF highlights the need for careful patient selection.

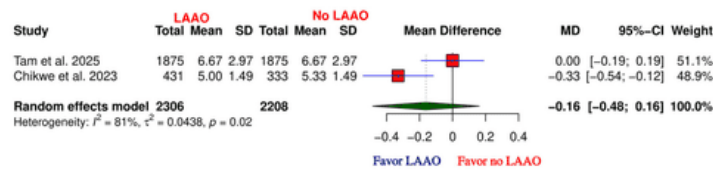
### (a) Meta-analysis for the cumulative risk of thromboembolic events



### (b) Forest plot of post-operative complications



### (c) Forest plot of length of hospital stay



**Presentation  
Number:** 51-138

**Poster Board  
Number:** 138

**Topic 1:** Interventions and Ischemic Heart Diseases

**Publishing  
Title:** A 22-YEAR TEMPORAL TREND ANALYSIS OF THE PREVALENCE OF  
MODIFIABLE RISK FACTORS AMONG PATIENTS WITH ATHEROSCLEROTIC  
CARDIOVASCULAR DISEASE IN A MIDDLE EASTERN COUNTRY

**Author  
Block:** Mahmoud Alkhawaldeh, Elham A. Smadi, Alaa Tawalbeh, Dima Alrishoud,  
Yamameh Al-Rhayyel, Samia Aziz Sulaiman, Sajjad Al-Nuaimi, Eman Al-  
Refai, Hammoudeh Ayman, Jordan University of Science and Technology,  
Irbid, Jordan

**Background:** Despite the growing global burden of atherosclerotic cardiovascular disease (ASCVD), data on temporal trends of modifiable risk factors in the Middle East over the past two decades remain limited. This hinders regional efforts to tailor effective prevention and treatment strategies. We aimed to analyze changes in ASCVD risk factor prevalence and secondary prevention treatment use among adults in the Middle East from 2002 to 2024.

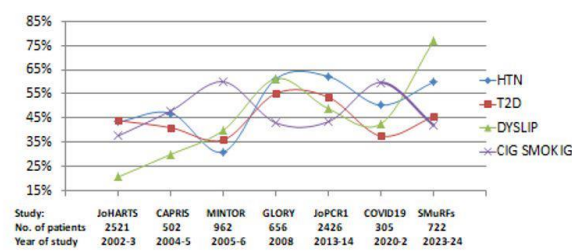
**Methods:** Eight ASCVD registries from Jordan were analyzed to assess the prevalence of hypertension, type 2 diabetes (T2D), dyslipidemia, smoking, and use of antiplatelet agents, statins, beta blockers (BB), and renin-angiotensin system inhibitors (RASi) over the 22-year period.

**Results:** The study included 8,094 adults (mean age 56.2±5.2 years; 22.0% women). The diagram illustrates trends in the four risk factors. Hypertension showed a non-significant upward trend ( $p=0.056$ ), while T2D and smoking remained stable ( $p=0.388$  and  $p=0.482$ ). Dyslipidemia increased significantly ( $p=0.007$ ). Among patients, 93.0% used antiplatelets, 89.5% statins, 71.3% BB, and 54.2% RASi, with stable usage trends over time.

**Conclusion:** Over two decades, no meaningful reduction occurred in the prevalence of modifiable ASCVD risk factors in Middle Eastern patients, underscoring the urgent need for more effective intervention strategies.

**Abstract  
Body:**

Temporal trends in the prevalence of 4 risk factors in Jordan CVD studies from 2002 to 2024





## Sunday Abstracts and Cases

**Presentation  
Number:** 42-05

**Poster Board  
Number:**

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** EPIDEMIOLOGICAL TRANSITIONS OF CARDIOVASCULAR DISEASE BURDEN IN THE NORTH AFRICA AND MIDDLE EAST REGION: TRENDS FROM 1990 TO 2021

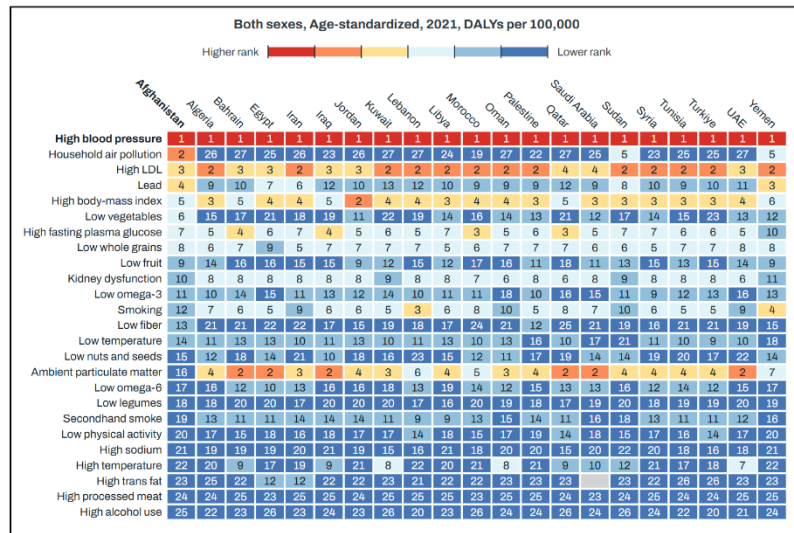
**Author  
Block:** Hardik Dineshbhai Desai, Independent Clinical Researcher, Ahmedabad, India

**Background:** Cardiovascular diseases (CVDs) are the leading cause of mortality in the North Africa and Middle East region, reflecting complex interactions of demographic shifts, lifestyle transitions, and regional disparities.

**Methods:** Utilizing the global burden of disease 2021 study framework, we calculated age-standardized rates of CVD-related Incidence, prevalence, deaths, DALYs, and YLDs across NAME countries. Annualized percentage change (AAPC) was computed using Joinpoint regression to evaluate temporal patterns.

**Abstract  
Body:** **Results:** Mortality declined (AAPC: -0.89%), incidence slightly decreased (AAPC: -0.08%), and prevalence increased (AAPC: +0.45%). DALYs fell (AAPC: -0.92%), while YLDs rose (AAPC: +0.75%). Among males: mortality AAPC -0.96%, DALYs -0.98%, YLDs +0.83%. Among females: mortality AAPC -0.79%, DALYs -0.85%, YLDs +0.68%. By age, the highest decline in mortality was in the 50-69 age group (AAPC: -1.02%), followed by 70+ (-0.88%); YLDs increased most in 70+ (AAPC: +1.01%). Iran and Saudi Arabia had the highest mortality declines (-1.21%, -1.08%); Syria and Yemen showed minimal change. Ischemic heart disease showed the largest increase in absolute burden. In 2021, behavioral risks contributed to 51.4% of CVD DALYs, metabolic risks 42.6%, and environmental risks 6.0%.  
**Conclusion:** While mortality and DALY declined, increasing prevalence and YLD signal a growing chronic burden. Targeted prevention and long-term care

strategies are needed to reduce disability and sustain progress.



**Presentation  
Number:** 42-07

**Poster Board  
Number:**

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** ASSOCIATION BETWEEN CLONAL HEMATOPOIESIS OF INDETERMINATE POTENTIAL AND RISK OF VENOUS THROMBOEMBOLISM: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Author  
Block:** Amir Nasrollahizadeh, Muhammadhosein Moradi, Sepide Javankiani, Sarah Ravankhah, Parisa Firoozbakhsh, Parham Dastjerdi, Seyedeh Zahra Seyedi, Hamidreza Soleimani, Pooria Ahmadi, Tehran University of Medical Sciences, Tehran, Iran (Islamic Republic of)

**Background:** Clonal hematopoiesis of indeterminate potential (CHIP), marked by age-related somatic mutations in hematopoietic cells, has been linked to cardiovascular disease. Given its shared risk profile with venous thromboembolism (VTE), we evaluated the association between CHIP and VTE.

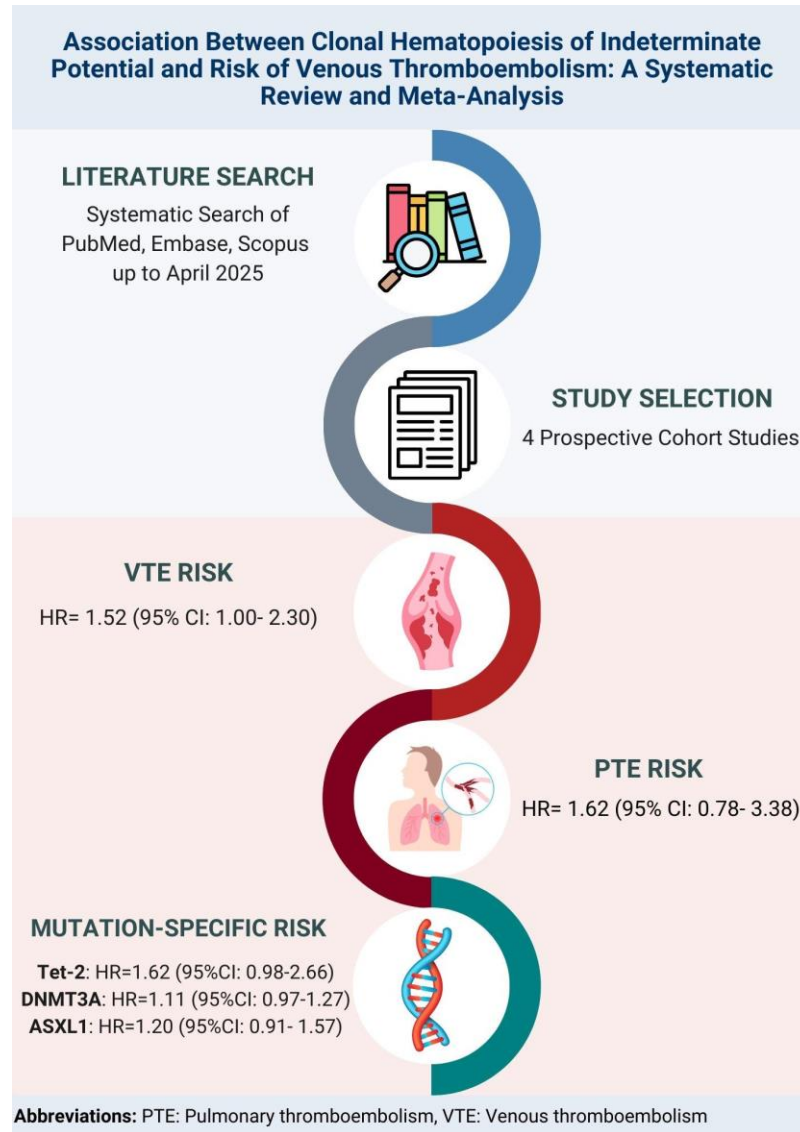
**Methods:** Following PRISMA guidelines and registered in PROSPERO (CRD420251051168), we systematically searched PubMed, Embase, and Scopus for observational studies reporting quantitative associations between CHIP and VTE through April 2025. Adjusted hazard ratios (HRs) were pooled using a random-effects meta-analysis, and heterogeneity was assessed via the  $I^2$  statistic. Sensitivity (leave-one-out) and subgroup analyses by mutation type and thrombotic phenotype were conducted.

**Results:** Four studies met the inclusion criteria. The pooled HR for VTE in CHIP carriers was 1.52 (95% CI: 1.00-2.30;  $p = 0.05$ ) with moderate-to-high heterogeneity ( $I^2 = 75\%$ ). Subgroup analyses showed non-significant elevated risks for TET2 (HR 1.62), DNMT3A (HR 1.11), and ASXL1 (HR 1.20) mutations. For pulmonary embolism, the pooled HR was 1.62 (95% CI: 0.78-3.38;  $I^2 = 85\%$ ).

**Conclusion:** CHIP is associated with increased VTE risk, suggesting it may be a novel risk factor. However, heterogeneity and study design limitations

**Abstract  
Body:**

underscore the need for prospective studies.



**Presentation  
Number:** 42-09

**Poster Board  
Number:**

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** GLYCEMIC VARIABILITY AND RISK OF MAJOR ADVERSE CARDIOVASCULAR  
EVENTS IN PATIENTS WITH CARDIOVASCULAR DISEASE: A SYSTEMATIC  
REVIEW AND META-ANALYSIS

**Author Block:** Reza Amani-Beni, Bahar Darouei, Arsham Seifnezhad, Nasim Kakavand,  
Sadegh Mazaheri-Tehrani, Reza Eshraghi, Ashkan Bahrami, Ehsan Amini-  
Salehi, Seyyed Mohammad Hashemi, Pouya Ebrahimi, Isfahan  
Cardiovascular Research Institute, Isfahan, Iran (Islamic Republic of)

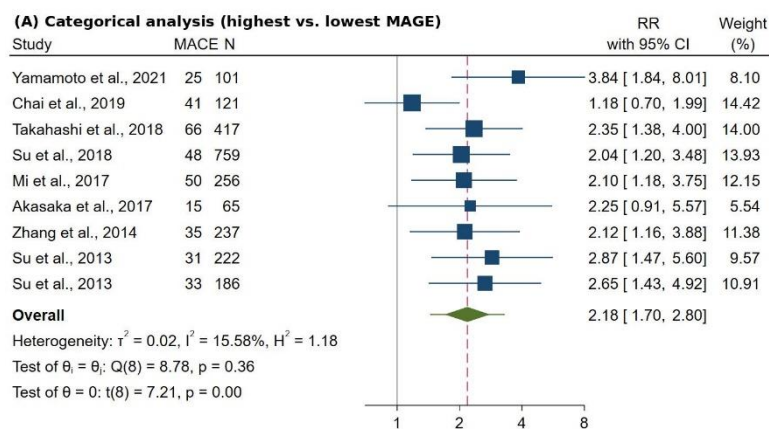
**Background:** Glycemic variability (GV), indicating fluctuations in blood glucose, is a rising cardiovascular risk factor, but its significance in patients with established cardiovascular diseases (CVD) is unclear.

**Methods:** We systematically reviewed PubMed, Embase, Scopus, and Web of Science studies up to May 3, 2025, hand-searched Google Scholar, and included study references. Pooled risk ratios (RRs) and 95% confidence intervals were calculated using random-effects models.

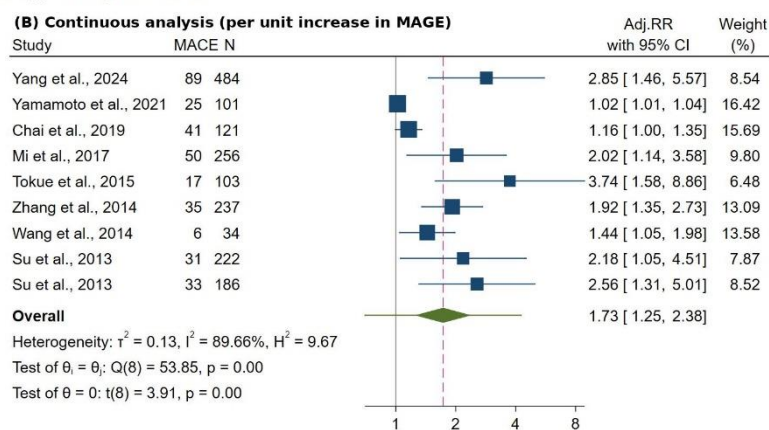
**Abstract  
Body:** **Results:** Nineteen studies (6,616 patients) were included. GV by mean amplitude of glycemic excursions (MAGE) predicted MACE: categorical (RR = 2.18 [1.70-2.80];  $I^2 = 15.6\%$ , 9 studies) and continuous (RR = 1.73 [1.25-2.38];  $I^2 = 89.7\%$ , 9 studies). GV measured by the standard deviation (SD) showed elevated MACE risk in categorical (RR = 1.94 [1.32-2.87];  $I^2 = 55.9\%$ , 7 studies), while the continuous association was non-significant (RR = 1.03 [0.98-1.07];  $I^2 = 61.8\%$ , 5 studies). Meta-regression identified GV cut-off thresholds as significant moderators (MAGE:  $R^2 = 100\%$ ; SD:  $R^2 = 89.3\%$ ). Sensitivity analyses for MAGE confirmed the robustness of the results: categorical (adjusted RR = 2.43 [1.29-4.61];  $I^2 = 15.58\%$ , 4 studies) and continuous (adjusted hazard ratios = 2.78 [1.95-3.98];  $I^2 = 0\%$ , 5 studies). No significant small-study effects were detected.

**Conclusion:** GV is a predictor of MACE in CVD, potentially enhancing risk stratification. Future research should explore dose-response relationships and GV thresholds.

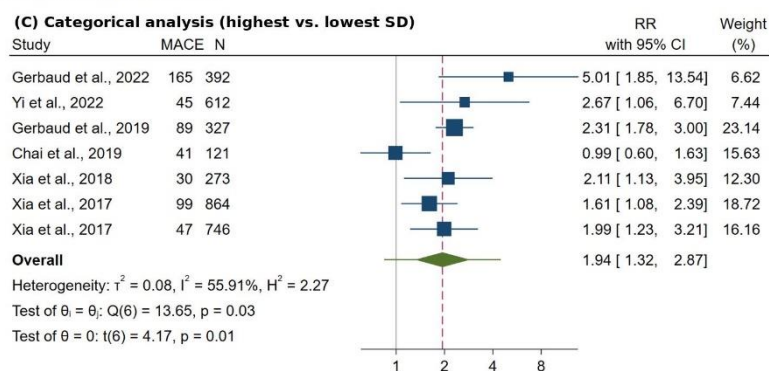




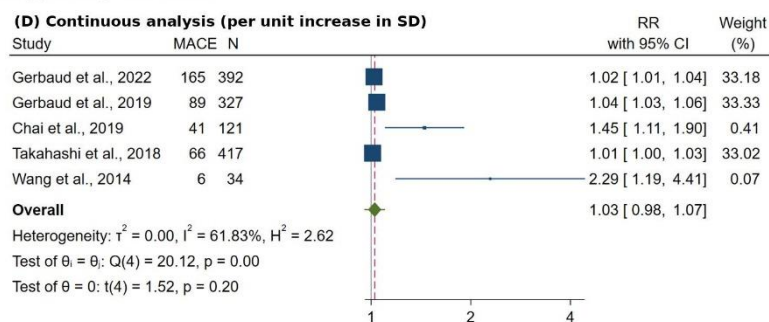
Random-effects REML model  
Knapp-Hartung standard errors



Random-effects REML model  
Knapp-Hartung standard errors



Random-effects REML model  
Knapp-Hartung standard errors



Random-effects REML model  
Knapp-Hartung standard errors





**Presentation  
Number:** 42-11

**Poster Board  
Number:**

**Topic 1:** Cardiovascular Disease Prevention

**Publishing  
Title:** CLINICAL AND ANGIOGRAPHIC CORRELATION OF CHRONOLOGICAL AGE AND VASCULAR AGE WITH SEVERITY OF CORONARY ARTERY DISEASE IN PATIENTS PRESENTING WITH FIRST ACUTE MYOCARDIAL INFARCTION

**Author** Sunil Roy Thottuvelil Narayanan, Manas Chacko, Glen Loui Raphy, Swetha  
**Block:** Maria Mathews, Anil Kumar Rajappan, Aster Medcity, Kochi, India

**Background:** Vascular age (VA), determined by the Systematic Coronary Risk Evaluation (SCORE) project algorithm, has proven to effectively convey cardiovascular risk. This study aimed to evaluate the vascular age of patients presenting with first acute myocardial infarction (AMI) and correlate with the severity and extent of coronary artery disease (CAD).

**Methods:** We recruited 512 consecutive patients who presented with AMI. Vascular age was calculated using the SCORE algorithm and compared to chronological age (CA). We analyzed clinical features, CV risk factors, and patterns of coronary artery involvement based on chronological and vascular age.

**Abstract  
Body:**

**Results:** The mean chronological age was  $59.9 \pm 9.4$  years, and mean vascular age  $68.1 \pm 11.8$  years with a mean difference of  $8.2 \pm 4.7$  years. The young CAD group had a mean CA of  $50.7 \pm 6.5$  years and a mean VA of  $57.1 \pm 9.2$  years, with a difference of  $6.4 \pm 4.4$  years. The older CAD group showed a larger discrepancy, with a mean CA of  $63.6 \pm 6$  years and a mean VA of  $74.5 \pm 7.3$  years, with a difference of  $9.2 \pm 4.5$  years. Patients exhibiting a greater difference between vascular and chronological age had severe CAD.

**Conclusion:** Vascular age demonstrated greater predictive value for the severity of CAD compared to chronological age. The vascular age may be a more accurate indicator of cardiovascular risk than chronological age in AMI patients, underscoring the need for comprehensive risk assessment and

personalized prevention strategies.

**Table 1: Clinical and demographic characteristics, chronological age, vascular age, and age difference and coronary angiography findings in old and young CAD patients**

	Old CAD 324 (63.3%)	Young CAD 188 (36.7%)	P value	Total N=512
Men, n (%)	269 (83)	123 (65.4)	<0.001	392 (76.6)
Dyslipidaemia, n (%)	110 (34)	73 (38.8)	0.267	183 (35.7)
Total cholesterol, mean (SD)	167.2 (42.3)	183.2 (42.7)	<0.001	173.1 (43.1)
LDL, mean (SD)	111.2 (39.9)	126.7 (43.9)	<0.001	116.9 (42)
TG, mean (SD)	133 (64.2)	149.4 (71.8)	0.008	139 (67.5)
HDL, mean (SD)	40.4 (10.8)	40.8 (9.9)	0.719	40.5 (10.5)
Chronological age, mean (SD)	65.3 (6)	50.7 (6.5)	<0.001	59.9 (9.4)
Vascular age, mean (SD)	74.5 (7.7)	57.1 (9.2)	<0.001	68.1 (11.8)
Age difference, mean (SD)	9.2 (4.5)	6.4 (4.4)	<0.001	8.2 (4.7)
Diabetes, n (%)	207 (63.9)	85 (45.2)	<0.001	292 (57)
Hypertension, n (%)	218 (67.3)	91 (48.4)	<0.001	309 (60.4)
Smoker, n (%)	39 (12)	16 (8.5)	0.214	55 (10.7)
Family history of CAD, n (%)	14 (4.3)	28 (14.9)	<0.001	42 (8.2)
Coronary Angiography Findings				
LMCA	29 (9)	16 (8.5)	0.865	45 (8.8)
LAD	189 (58.3)	101 (53.7)	0.31	290 (56.6)
LCX	155 (47.8)	63 (33.5)	0.002	218 (42.6)
RCA	152 (46.9)	65 (34.6)	0.006	217 (42.4)
Normal or mild coronaries	63 (19.4)	51 (27.1)	0.003	114 (22.3)
CAD Single vessel disease	100 (30.9)	75 (39.9)		175 (34.2)
CAD Two vessel disease	87 (26.9)	32 (17)		119 (23.2)
CAD Triple vessel disease	74 (22.8)	30 (16)		104 (20.3)

CAD: Coronary artery disease, LMCA: Left main coronary artery, LAD: Left anterior descending coronary artery, LCX: Left circumflex coronary artery, RCA: Right coronary artery

**Presentation  
Number:** 46-05

**Poster Board  
Number:**

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** SMARTPASS 2.0 IN SUBCUTANEOUS IMPLANTABLE CARDIOVERTER  
DEFIBRILLATOR: T-WAVE OVERSENSING NO LONGER THE PRIMARY CAUSE  
OF INAPPROPRIATE SHOCKS

**Author  
Block:** Christopher Monkhouse, Edward Maclean, Christine Kamalraj, Amy  
Williams, Sundas Rashid, Ross J. Hunter, Pier Lambiase, Syed Ahsan, Barts  
Heart Centre, London, United Kingdom, Queen Mary University of London,  
London, United Kingdom

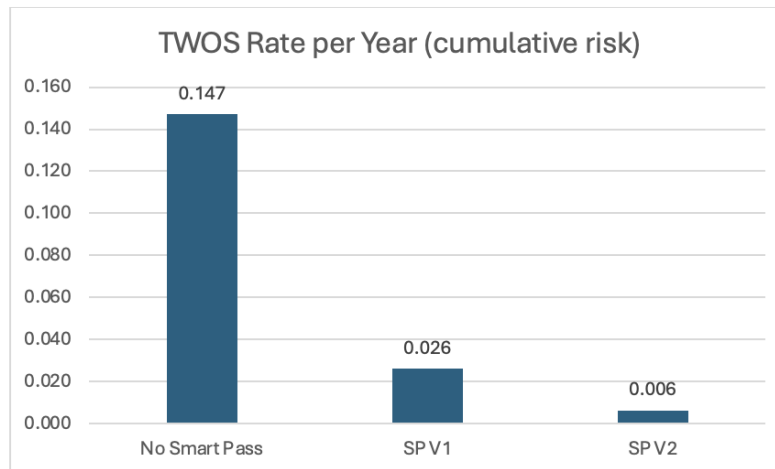
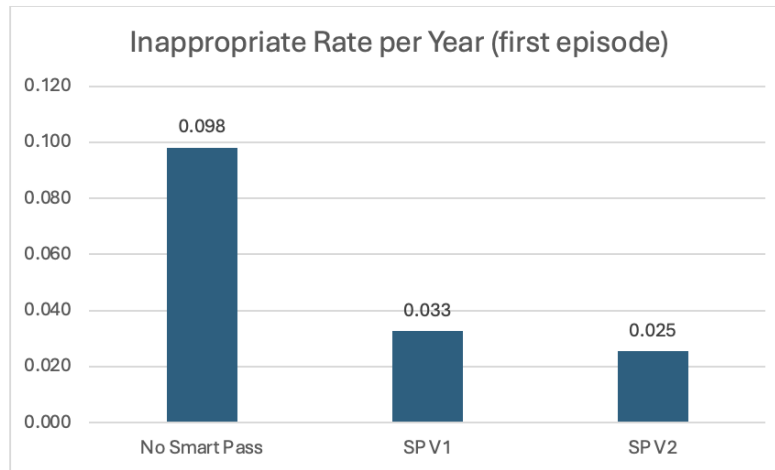
**Background:** The SMART Pass (SP) algorithm is a high-pass filter designed to reduce inappropriate therapies (IT) in subcutaneous implantable defibrillators (SICDs), predominantly by minimizing T-wave oversensing (TWOS). However, SP can automatically deactivate itself, significantly increasing the risk of IT. In July 2022, the “SP 2.0” update raised the threshold for SP deactivation and implemented a new alert system. We investigated the updated “SP 2.0” to see if it reduces the burden of inappropriate therapies, particularly TWOS-related IT.

**Abstract  
Body:** **Methods:** A retrospective study conducted at a tertiary cardiac centre, analysing all episodes recorded in SICD patients via the LATITUDE remote monitoring system. Therapy episodes were classified as IT if they occurred in the absence of ventricular tachycardia or ventricular fibrillation. Device software versions were identified through LATITUDE transmission logs. Patients were categorized in three groups: No SP, SP V1, and SP V2. The primary endpoint was the rate of IT per patient-year, with a sub-analysis categorizing the causes of IT.

**Results:** A total of 661 SICD patients (mean age:  $43.4 \pm 14.5$  years) were observed, with 467 recorded episodes, of which 269 were treated events. IT and TWOS-driven IT declined with each SP iteration (Figure 1). Other causes of IT, e.g. myopotentials and Sense Node B, remained consistent.

**Conclusion:** SP 2.0 reduces the burden of IT, particularly TWOS-related IT,

further aligning SCD IT rates with modern transvenous ICDs.



**Presentation  
Number:** 46-07

**Poster Board  
Number:**

**Topic 1:** Cardiac Arrhythmias

**Publishing  
Title:** RAMADAN FASTING AND HEART RATE VARIABILITY: A WINDOW INTO  
AUTONOMIC ADAPTATION

**Author** Malak Benabdellah, Bendoudouch Houssam, El Boussaadani badre, Zainab  
**Block:** Raissouni, Cardiology Department, University Hospital Mohammed VI,  
Tanger, Morocco, Faculty of Medicine and Pharmacy of Tangier, Abdelmalek  
Essadi University

**Background:** Ramadan fasting is one of the five fundamental rituals of Islam. It entails complete abstinence from food and fluids from dawn to sunset for 30 days. During Ramadan, alterations in the daily sleep patterns, activities and food timing might contribute to heart rate and blood pressure changes.

**Methods:** We aimed to assess the variation on the autonomic nervous system ANS throughout a Ramadan fasting day, to demonstrate if there is any adaptation or response to long-term fasting. Healthy young adult doctors were enrolled in this study, in good health with no notable medical history. Two series of ANS exploration for each participant were done; the first series during fasting and the second series after the end of Ramadan

**Abstract  
Body:**

**Results:** Our study included 50 residents, an average age of around 27 yo. ECGs during and after Ramadan were similar. If we analyze the data collected by comparing the two samples, It was found that heart rate decreased statistically significantly during Ramadan ( $p < 0,00$ ). There was a significant relationship between Ramadan and improvement in the parasympathetic ( $p < 0,00$ ) and central and peripheral beta-sympathetic ( $p < 0,002$ ,  $p < 0,004$  respectively) nervous systems.

**Conclusion:** These findings may indicate a beneficial effect of fasting on heart rate variability, increasing the vagal tone of the heart and leading to relaxation in response to changes in diet, which may predict a lower risk of

developing clinical cardiovascular incidences.

Characteristics	During Ramadan N= 50	After Ramadan N= 50	P	Average difference	IC 95%
Deep Breathing %	52 [25,005]	42 [18,7880]	<0,000	10,04	4,65-15,42
Hand grip%: $\beta$ sympathetic	21 [15,7826]	16 [11,5674]	<0,004	4,56	1,48-7,63
Hand grip%: $\alpha$ sympathetic	9 [4,1814]	10 [3,7564]	0,76	-0,16	-1,24-0,92
Mental Stress%: $\alpha$ sympathetic	9 [8,0171]	9 [3,0905]	0,51	0,67	-1,39-2,73
Mental Stress%: $\beta$ sympathetic	22 [18,189]	16 [10,2285]	<0,002	6,38	2,51-10,24
Systolic blood pressure mmHg	107 [7,087]	107 [7,3569]	0,47	-0,6	-2,27-1,07
Diastolic blood pressure mmHg	65 [6,527]	65 [6,4910]	0,46	0,54	-0,94-2,02
Heart rate	62 [7,961]	65 [8,5076]	<0,000	-3,66	-5,12--2,19
Oxygen saturation %	98 [1,3223]	97 [12,5145]	0,40	1,52	-2,08-5,12

*Expressed in \*: Mean [Standard deviation].*

*Tested by Pearson's  $\chi^2$  test, ANOVA for quantitative variables; p : p-value*

**Table 4: Comparison of variables studied between the two periods before and after the month of Ramadan**

**Presentation  
Number:** 46-09

**Poster Board  
Number:**

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** GLP1-RAS VERSUS BARIATRIC SURGERY IN PATIENTS WITH OBESITY AND  
HEART FAILURE WITH PRESERVED EJECTION FRACTION

**Author  
Block:** Ramzi Ibrahim, Will Han, Winston Wang, Ethan Kau, Nada Said, Beani Forst,  
Hoang Nhat Pham, Mahmoud Abdelnabi, Nima Baba Ali, Juan Maria Farina,  
Steven J. Lester, Kwan S. Lee, Chadi Ayoub, Reza Arsanjani, Mayo Clinic,  
Phoenix, AZ, USA, University of Arizona, Tucson, AZ, USA

**Background:** To compare the effectiveness of glucagon-like peptide-1  
receptor agonists (GLP1-RAs) versus bariatric surgery on cardiovascular  
outcomes in patients with heart failure with preserved ejection fraction  
(HFpEF) and obesity.

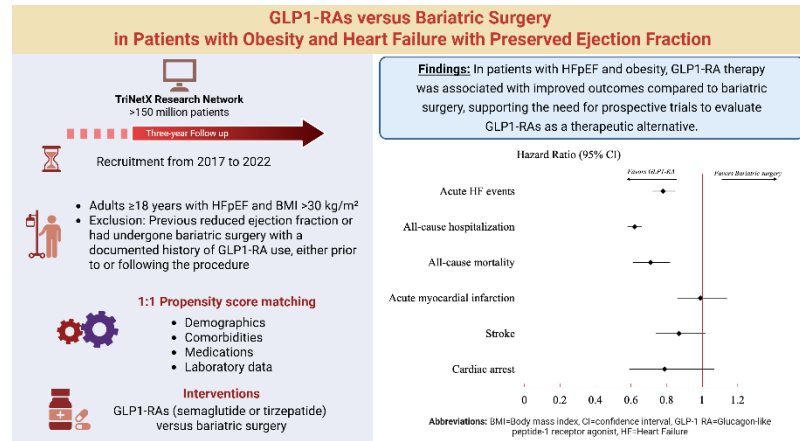
**Methods:** Using the TriNetX research network, we conducted a retrospective  
cohort study of adults ( $\geq 18$  years) with HFpEF and obesity ( $\text{BMI} > 30 \text{ kg/m}^2$ )  
from 2017 to 2022. Patients were categorized into two cohorts: use of GLP1-  
RAs (semaglutide or tirzepatide) versus bariatric surgery. Propensity score  
matching was used to balance baseline characteristics. Outcomes included  
heart failure (HF) events, all-cause hospitalizations and mortality,  
myocardial infarction (MI), and stroke. Cox proportional hazard models were  
used to estimate hazard ratios (HR).

**Abstract  
Body:**

**Results:** 2,747 patients were included per cohort (mean age 68 years).  
GLP1-RA therapy was associated with lower incidence of HF events (38.9%  
vs. 44.6%; HR 0.78 [0.72-0.85]), all-cause mortality (11.1% vs. 14.8%; HR  
0.71 [0.61-0.82]), and all-cause hospitalizations (66.4% vs. 77.3%; HR 0.62  
[0.58-0.66]). Rates of MI (13.8% vs. 13.4%; OR 1.04 [0.89-1.21]) and stroke  
(9.7% vs. 10.7%; OR 0.99 [0.75-1.07]) were similar between groups. Mean  
BMI at follow-up was 38.0 in the GLP1-RA cohort vs. 37.7 in the bariatric  
surgery cohort ( $p=0.34$ ).

**Conclusion:** In patients with HFpEF and obesity, GLP1-RA therapy was  
associated with improved outcomes compared to bariatric surgery,

supporting the need for prospective trials.





**Presentation  
Number:** 46-11

**Poster Board  
Number:**

**Topic 1:** Heart Failure and Cardiomyopathies

**Publishing  
Title:** ASSOCIATION BETWEEN SACUBITRIL/VALSARTAN AND RISK OF DEMENTIA  
IN HEART FAILURE PATIENTS. A SYSTEMIC REVIEW AND META-ANALYSIS.

**Author Block:** Rashad G. Mohamed, Mohamed Ahmed Zanaty, Amir Hegazi, Moaz Elsayed  
Abouelmagd, Muataz Kashbour, Moheb Wadie, Intern doctor, Mansoura  
University Hospitals, Mansoura, Egypt

**Abstract  
Body:**

**Background:** Sacubitril/valsartan improves clinical outcomes in patients with heart failure and reduced ejection by inhibiting neprilysin, thereby enhancing natriuresis and vasodilation. However, since neprilysin plays a role in clearing amyloid- $\beta$  from the brain, there are concerns that it may increase the risk of dementia. This study investigates the potential association between sacubitril/valsartan use and dementia risk compared to treatment with ACE inhibitors (ACEIs) or angiotensin receptor blockers (ARBs) in heart failure patients.

**Methods:** A systematic search of PubMed, Scopus, Web of Science, and Embase was conducted to identify studies comparing dementia risk in heart failure patients treated with Sacubitril/valsartan versus ACEIs or ARBs. Both randomized controlled trials and cohort studies were included. The primary outcome was the incidence of all cause dementia, Alzheimer's disease, vascular dementia, and other dementias. Data was synthesized using RevMan software, and the GRADE system was applied to evaluate evidence quality.

**Results:** Seven studies, involving 129,265 participants, were included in our analysis. The Sacubitril/valsartan group showed significantly lower odds of developing overall dementia and vascular dementia compared to those receiving ACEIs or ARBs (OR = 0.78; 95% CI: 0.70-0.87;  $P < 0.00001$ ;  $I^2 = 39\%$  and OR = 0.70; 95% CI: 0.56-0.86;  $P = 0.0007$ ;  $I^2 = 0\%$ , respectively). Additionally, Sacubitril/valsartan was associated with reduced incidence of Alzheimer's disease (OR = 0.76; 95% CI: 0.56-1.00;  $P = 0.08$ ;  $I^2 = 74\%$ ) and other dementias (OR = 0.72; 95% CI: 0.53-0.99;  $P = 0.04$ ;  $I^2 = 59\%$ ).

**Conclusion:** This meta-analysis suggests that sacubitril/valsartan is associated with a lower risk of developing overall dementia, including Alzheimer's disease, vascular dementia, and other dementias, compared to ACEIs or ARBs in heart failure patients. These findings support the cognitive safety of sacubitril/valsartan, though further high-quality studies are needed to confirm its long-term neurological effects.

