Research Day Proceedings 2026

Published by the Internal Medicine Residency Program,
St Mary's General Hospital and St Clare's Health

May 2026

Some abstracts included in these proceedings have been previously presented, accepted, or submitted in part to other conferences. They are reproduced here for educational and scholarly showcase purposes as part of the Internal Medicine Residency Research Day.

Research Day Proceedings 2026

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May 2026

Message from Program Director

Research Day reflects the broader direction of our residency program—one that emphasizes not only academic engagement, but the development of physicians who approach patient care with insight, adaptability, and purpose. It highlights how scholarly activity is integrated into training as a means of strengthening clinical judgment and advancing the standard of care.

The work presented this year demonstrates a growing ability to navigate complex clinical and systems-based challenges with clarity and perspective. This progression speaks to the strength of our program's foundation and its commitment to preparing physicians for the evolving demands of modern medicine.

I would like to recognize the efforts of our residents, faculty, and program leadership in shaping an environment where learning is continuous and expectations remain high.

As we look ahead, we remain committed to fostering a program defined not only by knowledge, but by thoughtful application, integrity, and sustained professional growth.

Sincerely,
Pramil Cheriyath, MD, MS, FACP
Program Director, Internal Medicine Residency Program
New York Medical College, St. Mary's and St. Clare's Hospital

"The strength of a program lies not only in what it teaches, but in how its trainees learn to think."

Message from Research Leadership

Research is the foundation of progress in medicine, and it is inspiring to see our residents actively engaging in meaningful scholarly work. Research Day serves as a platform to showcase innovation, critical thinking, and collaboration across our institution.
The breadth and quality of work presented this year reflect a strong commitment to improving patient outcomes and advancing clinical knowledge. I am proud of our trainees and grateful to the faculty who continue to mentor and support them.
My congratulations to all participants, and I look forward to seeing these projects evolve into impactful contributions to the medical community.

Sincerely,
Atul Prakash, MD, FRCP, FACC, FHRS
Research Director

It is inspiring to see our residents actively participate in research and quality improvement initiatives that enhance both patient care and clinical practice. Research Day serves as an important platform to share ideas, collaborate, and build a strong academic foundation within our program.
The diversity and quality of projects reflect a culture of curiosity, mentorship, and continuous learning. I am proud of our residents and grateful to the faculty who guide them through this journey.
Congratulations to all participants, and I look forward to the continued growth of scholarly activity within our institution.

Sincerely,
Venkatesh Gondhi, MD, CHCQM
Associate Program Director – Internal Medicine Residency Program
Research Leadership

Research Day provides a moment to consider how our programme continues to evolve - not only in its academic output, but in the manner in which inquiry informs everyday clinical practice. The work presented this year reflects an increasing ability to engage with complexity, moving beyond immediate clinical questions towards a more integrated understanding of patient care and systems of delivery.
Considerable emphasis was placed on nurturing an environment that values dialogue, reflection, and intellectual generosity. In doing so, residents were encouraged not simply to present their work, but to engage with it critically and collaboratively. The outcome is a collection of work that reflects both depth of thought and a growing confidence in scholarly expression.

I extend my sincere appreciation to our faculty and organising team for their continued guidance, and also acknowledge Dr. Glen Abdo for his contribution to strengthening the academic foundations of our programme.
It is immensely rewarding to witness this progression, and I look forward to the continued maturation of scholarly activity within our institution.

Sincerely,
Swetha Balaji, MD
Internal Medicine Research Chief Resident

"Sustained academic growth is less defined by individual achievement than by the collective standard we choose to uphold."

Acknowledgements

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P1-08: Global Burden and Trend of Atrial Fibrillation and Flutter in the 27 European Union Countries from 1990-2021: A Systematic Analysis for the Global Burden of Disease Study 2021

Lalitkumar Patel, Siri Vummaneni, Paritaben Bhalodia, Rutvij Patel, Simranpreet Singh Daid, Dhruvi Modi, Jobby John, Urvashi Rathod, Akhilesh Sharma, Gunjan Kochhar, Hardik Desai

Background: Atrial fibrillation (AF) and atrial flutter are major contributors to cardiovascular morbidity and mortality. This study evaluates the burden and trends of AF and flutter across the 27 European Union (EU) countries from 1990 to 2021, including the early COVID-19 pandemic period.
Methods: Using the Global Burden of Disease (GBD) 2021 meta-tool, we analyzed prevalence,
incidence, deaths, disability-adjusted life years (DALYs), and years lived with disability (YLDs) by age,
sex, year, and country.
Results: AF and flutter prevalence increased from 5.0 million (95% UI: 3.9–6.4) in 1990 to 8.6 million (7.2–10.3) in 2021. Deaths rose by 130% (110–143%), and YLDs increased by 69% (56–84%).
Austria showed the greatest rise in age-standardized incidence rates (ASIR, +83%), followed by Czechia (+50%). Sweden had the largest increase in age-standardized mortality rates (ASMR, +93%),
while Austria led YLD rate increases (+90%). Individuals ≥55 years bore the highest burden. Males
experienced increasing trends in ASIR (+5%), ASMR (+7%), and ASYLDR (+7%), whereas females
showed declining trends.
Conclusion: AF and flutter account for a growing share of cardiovascular disease burden in the EU, driven by population aging and rising incidence. Targeted prevention, early detection, and optimized management strategies are essential to mitigate future impact.

P1-10: Diagnostic Yield and Resource Utilization in Syncope Among Patients with Permanent Pacemakers

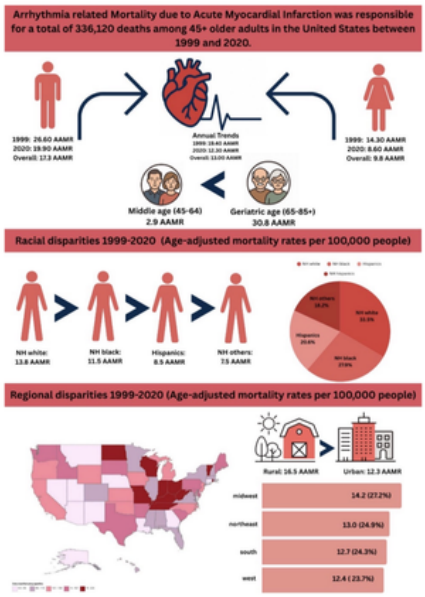
Sudipta Rao MD, Nithin Kumar Konanur Srinivasa MD , Stacy Galgocy MD, Atul Prakash MD

Background: Syncope is a common cause of hospitalization in patients with Permanent pacemaker despite continuous rhythm monitoring. Extensive inpatient testing is frequently performed, but no standardized evaluation strategy exists.
Objective: To evaluate diagnostic yield, healthcare utilization, and outcomes in PPM patients admitted with syncope.
Methods: A retrospective study of 103 adults (2021–2025) with PPMs admitted for syncope was conducted. Data included clinical characteristics, device interrogation, and diagnostic testing. Yield was defined as identification of syncope etiology.
Results: Median age was 77±11 years; 56% were female. Orthostatic vitals were obtained in 55%, identifying hypotension in 38.6%. Pacemaker interrogation (52.4%) detected malfunction in 16.7%. Echocardiography (61.2%) had modest yield (9.5%). Neuroimaging was frequently used (55.3%) but rarely diagnostic (1.8%). Carotid ultrasound showed no yield; tilt testing was infrequently performed but occasionally positive. The most common etiologies were orthostatic hypotension and device malfunction.
Conclusion: Low-yield testing, particularly neuroimaging, is overutilized, while higher-yield strategies remain underused. A standardized, device-focused approach may reduce unnecessary testing and improve diagnostic efficiency.

P1-14: Trends in Arrhythmia mortality among adults (≥45 years) with Acute Myocardial Infarction in the U.S. from 1999 to 2023

Sriphani Alekya Vanteru MD, Nayanika Tummala MD, Sweetyben Patel MD, Prateek Gopigari MD, Praneeth Jasti MD, Venkatesh Gondhi MD

Background: Arrhythmias are a major cause of morbidity and mortality after Acute myocardial infarction, driven by ischemia-induced electrical instability. Long-term national trends remain incompletely characterized.
Objective: To evaluate national trends in arrhythmia-related mortality after AMI among U.S. adults ≥45 years (1999–2023).
Methods: We analyzed age-adjusted mortality rates (AAMRs) and temporal trends using Joinpoint regression (APC/AAPC), stratified by sex, race/ethnicity, geography, urbanization, and age.
Results: From 1999–2020, 336,120 deaths occurred, with AAMR declining from 19.4 to 12.3 per 100,000 (AAPC −2.84%, p<0.001), followed by plateauing. Males had higher mortality than females (17.3 vs 9.8). Whites had the highest AAMR (13.8), with disparities across racial groups. The Midwest had the highest regional burden, and rural areas exceeded urban (16.5 vs 12.3). Older adults (≥65) had markedly higher mortality (30.8 vs 2.9). From 2020–2023, AAMR declined modestly (12.3 to 11.4; AAPC −2.94%, p=0.42), with improvement across subgroups, greatest among Hispanics.
Conclusion: Arrhythmia-related mortality after AMI has declined over 25 years but remains uneven. Persistent disparities highlight the need for targeted, equity-focused post-AMI arrhythmia prevention strategies.



P1-21: Incidence of Ischemic Stroke After Left Atrial Appendage Occlusion Versus Oral Anticoagulation in Atrial Fibrillation: A Meta-Analysis with Subgroup Analysis by Follow-Up Duration

Nikhila Chelikam MD, MSCR, Viraj Panchal MD, Rutva Jani, MD, Swetha Balaji, MD, Vinod Nookala, MD

Background: Left atrial appendage occlusion is increasingly used as an alternative to Direct oral anticoagulants for stroke prevention in atrial fibrillation, but comparative ischemic stroke risk remains uncertain.
Methods: We conducted a systematic review and meta-analysis of randomized and observational studies comparing LAAO and DOACs reporting ischemic stroke outcomes. Separate analyses were performed for odds ratios (OR) and hazard ratios (HR) using random-effects models. A predefined subgroup analysis evaluated ~2-year follow-up outcomes.
Results: Eight studies were included (3 OR, 5 HR analyses). LAAO showed no significant difference in ischemic stroke compared with DOACs (OR 0.73, 95% CI 0.61–0.87). Similarly, HR analysis demonstrated comparable time-to-event outcomes (HR 0.95, 95% CI 0.80–1.13). In the 2-year subgroup (3 studies), results remained consistent (HR 0.98, 95% CI 0.69–1.40).
Conclusion: LAAO provides comparable effectiveness to DOACs for ischemic stroke prevention in atrial fibrillation and represents a reasonable alternative in selected patients unable to tolerate long-term anticoagulation.

P1-16: The Impact of Tranexamic Acid on Postoperative Bleeding in Cardiac Surgery with Cardiopulmonary Bypass: A Systematic Review and Meta-Analysis

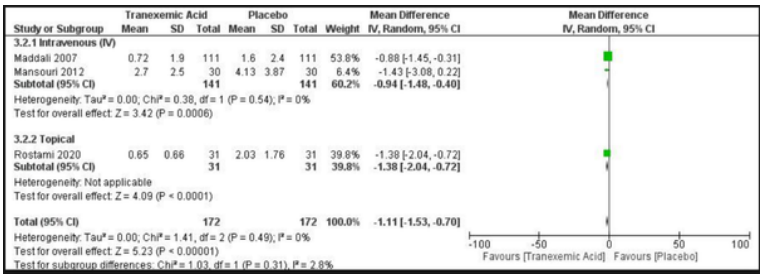
Sriphani Alekya Vanteru MD, Nayanika Tummala MD, Sweetyben Patel MD, Vinod Nookala MD

Background: Tranexamic acid (TXA) reduces perioperative bleeding in cardiac surgery. This meta-analysis evaluates its effect on postoperative blood loss and transfusion requirements in patients undergoing cardiopulmonary bypass (CPB).

Methods: We systematically searched PubMed, EMBASE, and Cochrane through September 2025 for randomized controlled trials in adults undergoing CPB, comparing TXA with placebo/standard care. Primary outcomes included postoperative blood loss and transfusion requirements. Data were pooled using random-effects models, reporting mean differences (MD) with 95% confidence intervals.

Results: Twenty-one trials (n=2,021) were included. TXA significantly reduced 24-hour blood loss (MD −403.9 mL; p<0.00001), with consistent findings after sensitivity analysis (I^2 63%). TXA decreased PRBC transfusion requirements (MD –1.30 units; p<0.0001). Both intravenous and topical routes were effective, with greater reductions observed in topical administration.

Conclusion: TXA significantly reduces postoperative blood loss and transfusion needs in CPB surgery, regardless of administration route. Its use may improve surgical outcomes and reduce complications.



P1-23: Impact of SGLT2 Inhibitors on Clinical Outcomes in Amyloidosis Patients: A Real-World Evidence Study

A.Ottun, MD , E.Okorigba MD , A.Akinmeji MD, C.Chinnatambi MD, L. Sakowski MD , A.Ajiboye MD , O.Ilonze MD

Background: Amyloidosis (AL and ATTR) commonly affects cardiac and renal function. SGLT2 inhibitors have established cardio-renal benefits in heart failure and diabetes, but their role in amyloidosis is unclear.

Methods: We conducted a retrospective cohort study using the TriNetX US Collaborative Network (2014–2023). Adults with AL or ATTR amyloidosis were identified. Propensity score matching (1:1) yielded 651 patients on SGLT2 inhibitors and 651 controls. Outcomes included mortality, hospitalization, major adverse cardiovascular events (3P MACE), and atrial fibrillation over 365 days, analyzed using Kaplan-Meier and Cox regression.

Results: SGLT2 inhibitor use was associated with reduced mortality (HR 0.284, 95% CI 0.207–0.390, p<0.001), hospitalizations (HR 0.614, 95% CI 0.513–0.734, p<0.001), and MACE (HR 0.312, 95% CI 0.217–0.448, p<0.001). Atrial fibrillation risk was also lower (HR 0.565, 95% CI 0.345–0.925, p=0.021).

Conclusion: SGLT2 inhibitors were associated with significant reductions in mortality and cardiovascular outcomes in amyloidosis, suggesting potential cardio-renal benefit. Prospective studies are needed to confirm these findings.

P1-24: Comparative Efficacy of SGLT2 inhibitor + GLP-1 VS SGLT2 inhibitor in patients with Heart Failure with Preserved Ejection Fraction: Analysis of Real-World Studies

A.Ottun,MD, E.Okorigba MD, A.Akinmeji MD, C.Chinnatambi MD, L. Sakowski MD, A.Ajiboye MD, O.Ilonze MD

Background: Heart failure with preserved ejection fraction accounts for ~50% of heart failure cases with limited effective therapies. SGLT2 inhibitors improve outcomes, but the added benefit of GLP-1 receptor agonists remains unclear.
Methods: A retrospective cohort study using the TriNetX US Collaborative Network (2014–2023) identified adults with HFpEF. Patients receiving dual SGLT2/GLP-1 therapy were compared to SGLT2 monotherapy. Propensity score matching yielded 5,216 patients per group. Primary outcomes included mortality, all-cause hospitalization, and 3-point major adverse cardiovascular events (MACE). Secondary outcomes included coronary revascularization, acute kidney injury, and cardiogenic shock.
Results: Dual therapy was associated with reduced mortality (HR 0.433, p<0.001), hospitalization (HR 0.621, p<0.001), and MACE (HR 0.565, p<0.001). Secondary outcomes also favored dual therapy, including lower risks of revascularization (HR 0.518, p=0.002), acute kidney injury (HR 0.618, p<0.001), and cardiogenic shock (HR 0.663, p=0.028).
Conclusion: Dual SGLT2/GLP-1 therapy was associated with superior cardiovascular outcomes compared to monotherapy in HFpEF. Prospective randomized trials are needed to confirm these findings.

P1-27: Beyond Atherosclerosis: Early Imaging as a Lifesaving Imperative

Darshan Gandhi, MD, Gopikrishna Venkatesvaran, MD, Swetha Balaji, MD, Alekhya Mamillapalli MD, George Freg MD

Cardiac imaging plays a key role in detecting congenital cardiovascular abnormalities beyond atherosclerosis. Anomalous right coronary artery from the left coronary sinus is a rare condition (0.06–1.5%) that may be asymptomatic or present with angina, arrhythmias, syncope, or sudden cardiac death, particularly with exertion.
Case Presentation: A 50-year-old man with hypertension and hyperlipidemia presented with exertional chest pain and dizziness. Initial evaluation, including labs, chest X-ray, and ECG, was unremarkable. Echocardiography showed preserved LVEF (60–65%) with mild diastolic dysfunction. Nuclear stress testing demonstrated reversible perfusion defects.Coronary angiography(Figure 1) revealed an anomalous RCA originating from the left coronary sinus with an interarterial course. CT coronary angiography confirmed these findings. After shared decision-making, the patient underwent successful RIMA-to-RCA bypass surgery.
Conclusion: Coronary artery anomalies may present subtly yet carry risk of ischemia and sudden cardiac death due to compression between the aorta and pulmonary artery. Early recognition through imaging is critical. Symptomatic patients warrant prompt surgical intervention, while further research is needed to refine risk stratification and management strategies.

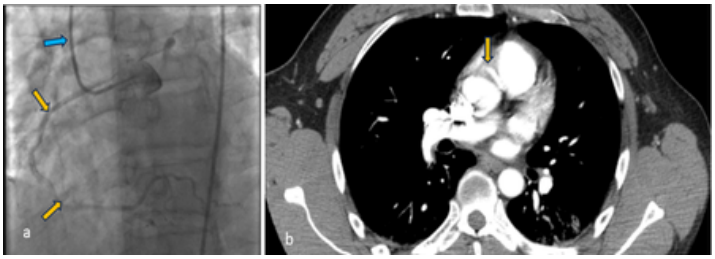


Figure 1: Left side: (a) shows anomalous origin of right coronary artery - yellow arrows. Right side: (b) shows right coronary artery.

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P2-01: Unveiling Familial Sitosterolemia: A Silent Culprit Behind Hyperlipidemia in an Asymptomatic 28-Year-Old Male

Komal Arora MD, Amara Sofia MD, Ajitha V Ganesan MD, Toufiq Imtiaz MD, Anoshi Raza MD

Background: Familial sitosterolemia is a rare autosomal recessive condition caused by mutations in ABCG5/ABCG8, leading to accumulation of plant sterols and premature coronary artery disease. Clinical presentation is variable and may be asymptomatic.
Case Presentation: A 28-year-old active male was referred for severe dyslipidemia (LDL 719 mg/dL) discovered on routine screening. He was asymptomatic with minimal comorbidities. Despite lifestyle changes, LDL remained elevated (485 mg/dL). Statin therapy was limited by myalgias; ezetimibe was discontinued due to noncompliance. A trial of evolocumab showed no improvement (LDL 455 mg/dL). Genetic testing confirmed familial sitosterolemia. Ezetimibe was reintroduced with dietary phytosterol restriction. At 12 weeks, LDL improved significantly to 153 mg/dL. Coronary artery calcium score was 5.
Conclusion: Familial sitosterolemia should be considered in young patients with refractory hyperlipidemia. Genetic diagnosis and targeted therapy with ezetimibe and dietary modification can achieve significant lipid reduction and help prevent early cardiovascular disease.

Table 1 Diagnostic Criteria

Clinical Manifestation	Cutaneous or tendon xanthomas Premature coronary artery disease(male<45yr,/female <55yr)
Laboratory testing	Serum sitosterol >=1mg/dL(10microg/ml)
Differential Diagnosis	Exclude familial hypercholesterolemia and cerebrotendinous xanthomatosis
Genetic Analysis	Pathologic mutations in ABCG5 or ABCG8 gene

P2-04: Left Atrial Appendage Closure vs Oral Anticoagulants in Older Adults with Atrial Fibrillation: A Meta-Analysis of Composite Clinical Outcomes

Lizeth Nathalia Arenas, Swetha Balaji, Muzamil khan, Nikhila Chelikam, Sudipta Rao, Maneesh Avula, Atul Prakash

background: Left atrial appendage closure (LAAC) is an emerging alternative for patients with increased bleeding risk who are on oral anticoagulants (OAC). This meta-analysis compares LAAC with OAC for adverse clinical outcomes.
Methods: Studies comparing LAAC with OAC in patients ≥55 years were identified in PubMed, Google Scholar, and Cochrane Library. Eligible studies reported a composite outcome of all-cause mortality, ischemic stroke, and major bleeding with 1–3 years of follow-up. Reviews, single-arm studies, and those lacking outcome data were excluded. Pooled risk ratios (RRs) with 95% confidence intervals (CIs) were calculated using a random-effects model.
Results: Five observational studies, including 5,710 patients (2,502 LAAC; 3,208 OAC) were analyzed. Composite events occurred in 640 LAAC patients and 1,062 OAC patients. Pooled analysis showed a nonsignificant 29% relative risk reduction favoring LAAC (RR 0.71; 95% CI 0.51–1.01). Four of five studies favored LAAC, while one showed no difference. Study weights ranged from 17.2% to 22.2%. Substantial heterogeneity was observed (I^2 = 90.1%, τ^2 = 0.0676, $p < 0.0001$), likely due to population, event rate, and follow-up differences.
Conclusion: Most included studies favored LAAC, but pooled results did not show a statistically significant difference. These findings suggest potential benefit and support the need for large trials to guide therapy decisions in older adults with atrial fibrillation.

P2-05: Rapid Progression Of A Biventricular Thrombi In Severe Ischemic Dilated Cardiomyopathy

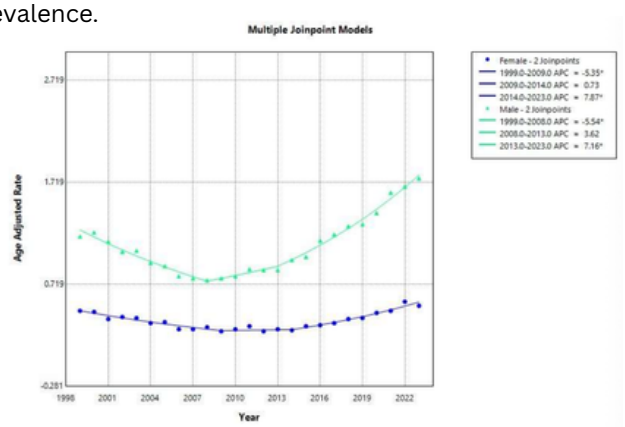
Lizeth N Arenas-Munoz, MD; Oluwatoba Akinleye, MD; Nithin Kumar Konanur Srinivasa, MD, Laura Hernandez Perez, MD; Hussein Shaqra, MD

Background: Biventricular thrombi are rare but can occur in prothrombotic states with stasis and endocardial injury, such as in Dilated cardiomyopathy and severe left ventricular dysfunction. We report rapid progression of biventricular thrombi despite anticoagulation.
Case Presentation: A 72-year-old man with ischemic dilated cardiomyopathy (EF 35%), coronary artery disease, and stage 4 chronic kidney disease presented with worsening dyspnea and edema. He had known left ventricular apical thrombi and was on apixaban. Repeat echocardiography revealed enlargement of the LV thrombus, new right ventricular thrombus, and reduced EF (21%). Venous Doppler was negative for DVT. He was treated with diuretics and continued anticoagulation; guideline-directed therapy was limited by cardiorenal syndrome and hyperkalemia. He was discharged with cardiology follow-up.
Conclusion: Progressive biventricular thrombi despite anticoagulation are uncommon and highlight the need for close monitoring in high-risk patients. Serial imaging is essential to assess response and detect progression. Clearer management strategies are needed for patients with ventricular thrombi and severe cardiomyopathy.

P2-17: Rising Mortality from Concurrent Heart Failure and Ventricular Tachycardia: A 25-Year Trend Analysis

Hriday Shah MD, Komal Arora MD, Kaushal Patel MD, Nirmit Patel MD, Raam Mannam MD, Nithin Kumar MD, Sunil Bogati MD, Aditya Patel MD ,Venkatesh Gondhi MD, Vinod Nookala MD, Pramil Cheriyath MD

Background: The intersection of heart failure and ventricular tachycardia represents a critical clinical challenge with potentially fatal consequences. Understanding temporal trends in mortality from these concurrent conditions is essential for public health planning and clinical intervention strategies
Methods: We analyzed mortality data from the CDC Multiple Cause of Death database (1999-2023) for adults aged 25+ years with concurrent heart failure (ICD-10: I50.0, I50.1, I50.9) and ventricular tachycardia (I47.2). Age-adjusted mortality rates per 100,000 population were calculated using the 2000 U.S. standard population, stratified by sex. Joinpoint regression analysis identified significant trend changes across three distinct periods.
Results: Males consistently exhibited higher age-adjusted mortality rates than females throughout the study period. Male mortality demonstrated a U-shaped pattern with an initial decline (1999-2008: APC - 5.54*), stability (2008-2013: APC 3.62), followed by sharp increases (2013-2023: APC 7.16*). Female mortality showed relative stability in early periods (1999 2009: APC -5.33*; 2009-2014: APC 0.73) before rising significantly (2014-2023: APC 7.87*). By 2023, male rates reached approximately 1.72 per 100,000, while female rates approached 0.63 per 100,000.
Conclusions: After initial declines, mortality from concurrent heart failure and ventricular tachycardia has increased substantially since 2013-2014, with females experiencing steeper recent increases. These trends warrant investigation into contributing factors, including aging populations and cardiovascular risk factor prevalence.



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P2-09: “More Than Just a Stroke Maker”: Atypical Presentation of Presumed Coronary Thromboembolism Causing Myocardial Infarction in a Patient with Atrial Fibrillation

Praneeth Jasti, MD; John Devereux, BS; Yashas Prasad Mylarappa, MD; Sri Harsha Narayana, MD; Nayanika Tummala, MD

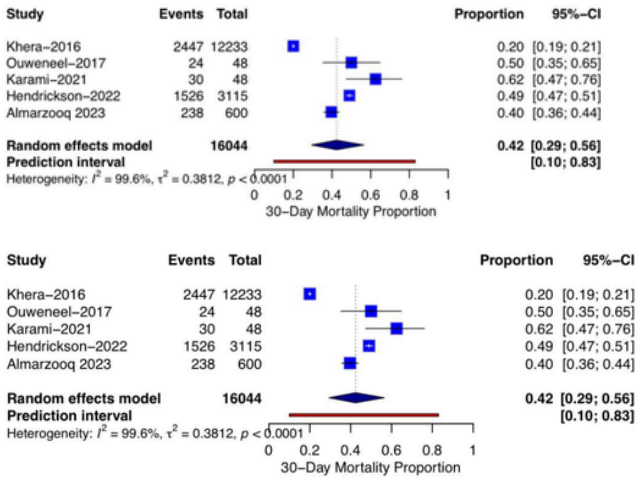
Introduction: Coronary thromboembolism is an uncommon but increasingly recognized cause of myocardial infarction, particularly in Atrial fibrillation. Diagnosis may be delayed in older adults with atypical presentations.
Case Presentation: An 84-year-old woman with permanent AF and recent interruption of rivaroxaban for hematuria presented with bilateral arm tingling, nocturnal dyspnea, and left subcostal pain. She was hemodynamically stable with AF on ECG and no ischemic changes. Initial troponin was normal but later rose to 3,825 ng/L. CT pulmonary angiography and abdominal imaging were unremarkable. Prior coronary angiography showed normal arteries, and echocardiography demonstrated preserved function. Given acute troponin elevation, recent anticoagulation interruption, and absence of atherosclerotic disease, coronary thromboembolism was suspected. Repeat coronary angiography and echocardiography were planned.
Conclusion: Coronary embolism should be considered in AF patients presenting with atypical symptoms and acute troponinemia, especially after interruption of anticoagulation. Early recognition is critical, as management differs from atherothrombotic MI and emphasizes anticoagulation optimization and embolic risk reduction strategies.

P2-16: Thirty-Day Mortality With Impella Versus Intra-Aortic Balloon Pump in STEMI-Related Cardiogenic Shock: A Systematic Review

Hriday Shah MD, Kaushal Patel MD, Komal Arora MD, Mohammed Amaanullah, MBBS, Shankar Biswas, MD, Rahil Patel, MBBS, Venkatesh Gondhi MD, Vinod Nookala MD, Pramil Cheriyath MD

Background: The optimal mechanical circulatory support strategy for acute ST-elevation myocardial infarction (STEMI) complicated by cardiogenic shock remains uncertain. While intra-aortic balloon pumps (IABP) and Impella devices are widely used, Short-term outcomes vary across studies. This Systematic Review aims to evaluate the impact of IABP versus Impella CP on 30-day mortality in STEMI related Cardiogenic Shock.
Methods: A systematic search of PubMed, Embase, Cochrane Central, ClinicalTrials.gov, & Scopus identified studies reporting 30 day mortality in patients with STEMI complicated by cardiogenic shock treated with Impella / IABP support. Pooled Mortality was analysed in both IABP and Impella using Random-effects model.
Results: Records identified: 1,099 (PubMed: 270 | Scopus: 829). After duplicate removal: 1,040 screened. 10 Studies were included finally. All 10 studies were included in quantitative meta-analysis. The meta-analysis included a total of 41,526 patients across both device groups. Of these, 16,044 patients received Impella support, while 25,482 patients were managed with an intra-aortic balloon pump (IABP).

Conclusion: No statistically significant difference in 30-day mortality between Impella (42%) and IABP (47%) in STEMI-complicated cardiogenic shock across 41,526 patients. Pooled 30-day mortality: 42% (Impella) vs. 47% (IABP) Substantial heterogeneity limited interpretation. Impella may benefit carefully selected,high-risk patients. Large-scale RCTs with standardized protocols are needed



Study
Events
Total
Proportion
95%−CI
Khera−2016 2447 12233 0.20 [0.19; 0.21]
Ouweneel−2017 24 48 0.50 [0.35; 0.65]
Karami−2021 30 48 0.62 [0.47; 0.76]
Hendrickson−2022 1526 3115 0.49 [0.47; 0.51]
Almarzooq 2023 238 600 0.40 [0.36; 0.44]
Random effects model 16044 0.42 [0.29; 0.56]
Prediction interval [0.10; 0.83]
Heterogeneity: I^2 = 99.6%, τ^2 = 0.3812, p < 0.0001
0 0.2 0.4 0.6 0.8 1
30−Day Mortality Proportion

P2-18: Radiofrequency Catheter Ablation vs Medical Therapy for the treatment of Ventricular Tachycardia in Ischemic and non-ischemic cardiomyopathy with implanted defibrillators. A meta-analysis of observational and randomized controlled trials

Hriday Ronak Shah, MD, Ajitha Ganesan, MD, Sunil Bogati, MD , Haider Kashif, MBBS, Nithin Kumar, MD, Bishoy Fahim, MBBS, Praveen Bharath Saravanan MBBS, Priyansha Singh, MBBS, Atul Prakash, MD

Introduction: Ventricular tachycardia (VT) is a major contributor to morbidity and mortality in patients with ischemic and non-ischemic cardiomyopathy, particularly those with Implantable cardioverter-defibrillator (ICDs). Catheter ablation (CA) is increasingly used as adjunctive therapy for patients refractory to medical treatment. This meta-analysis compares outcomes of CA versus medical therapy in this population.

Methods: A systematic search of PubMed, Cochrane, ClinicalTrials.gov, and Google Scholar through June 2025 identified randomized and observational studies reporting prespecified outcomes. Pooled risk ratios (RR) with 95% confidence intervals (CI) were calculated using a Mantel–Haenszel random-effects model.

Results: Seventeen studies including 2,795 patients (1,060 CA; 1,735 controls) were analyzed. There was no significant difference in all-cause mortality between groups (RR 0.80; 95% CI 0.60–1.07; p=0.13). However, CA significantly reduced ICD shocks (RR 0.65; 95% CI 0.49–0.86; p=0.003), VT storms (RR 0.74; 95% CI 0.57–0.97; p=0.03), and VT recurrence (RR 0.75; 95% CI 0.65–0.86; p<0.0001). No significant difference was observed in cardiac hospitalization (RR 0.80; 95% CI 0.61–1.06; p=0.12).

Conclusions: CA does not significantly reduce mortality compared to medical therapy but significantly lowers arrhythmic burden, including ICD shocks and VT recurrence, supporting its role in symptom control and quality of life improvement.

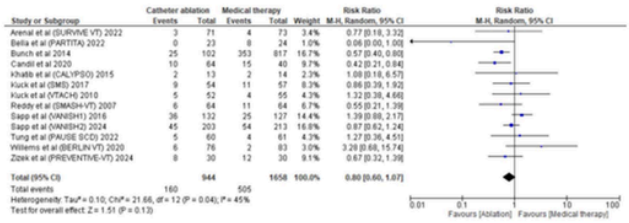
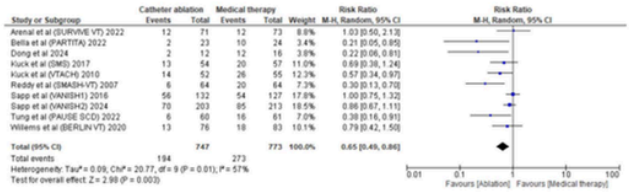


Figure 1: Forest plot comparing all-cause mortality between catheter ablation and medical therapy across included studies. Pooled risk ratio (RR = 0.80, 95% CI 0.60–1.07) indicates no significant difference.



P2-06: When Radial And Femoral Fail: Role Of Imaging-Guided Transbrachial Access For Coronary Angiography In A Young Woman With Severe Peripheral Vascular Disease

Lizeth Nathalia Arenas MD, Swetha Balaji MD, Ali Elfandi MD

Background: Patients with extensive peripheral arterial disease (PAD) and prior interventions present significant challenges for coronary access. Alternative vascular strategies may be required when conventional access fails.

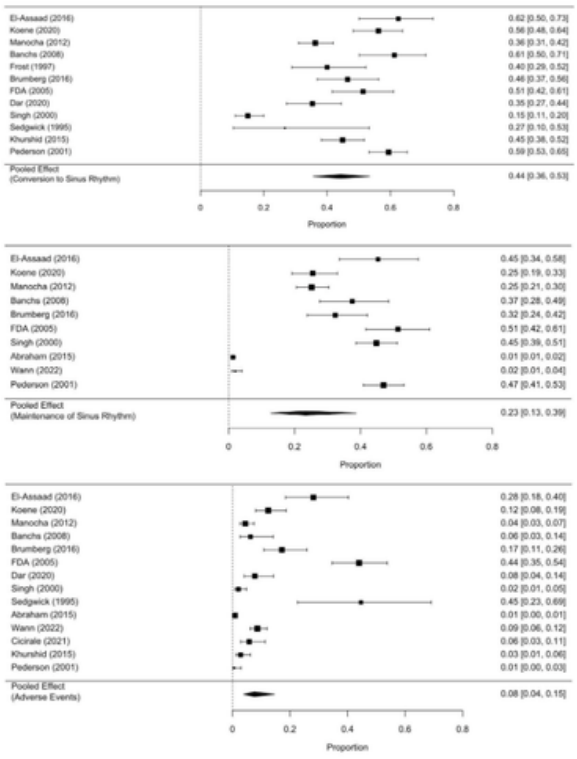
Case Presentation: A 47-year-old woman with coronary artery disease, prior stents, PAD with femoral and iliac stents, diabetes, and HFpEF presented with refractory angina. Initial catheterization attempts failed due to occluded right radial artery and bilateral femoral artery occlusions. The left radial approach was limited by proximal subclavian occlusion. CT angiography revealed diffuse vascular disease, including severe femoral disease, left subclavian occlusion, and right subclavian and brachial stenosis. A second catheterization was successfully performed via the right proximal brachial artery despite technical difficulty. Prior coronary stents were patent. Left subclavian stenting was recommended for future access.

Conclusion: Severe PAD may necessitate unconventional access for coronary angiography. Imaging-guided vascular planning is critical in complex cases to ensure procedural success and minimize complications. Early recognition of vascular limitations and aggressive secondary prevention are essential in high-risk patients.

P2-28: Safety and efficacy of Dofetilide for Rhythm Control in Atrial Fibrillation: A Systematic Review and Meta-Analysis

Komal Arora MD, Bhavik Bansal, Gaurav Patel MD, Atul Prakash MD

Background: Dofetilide is used for rhythm control in Atrial fibrillation, but reported efficacy and safety vary across studies.
Objective: To evaluate rates of (1) conversion to sinus rhythm, (2) maintenance of sinus rhythm, and (3) adverse events including QTc prolongation and torsades de pointes.
Methods: A systematic review of PubMed, Embase, Scopus, and Cochrane Library (through December 2025) included studies of adults with AF treated with dofetilide. Outcomes were pooled using random-effects models with logit transformation. Heterogeneity was assessed using I^2. Study quality was evaluated using NHLBI tools.
Results: Twelve studies (n=2,553) were included. The pooled conversion rate to sinus rhythm was 44% (95% CI 36–53%; I^2=91.8%). Maintenance of sinus rhythm was 23% (95% CI 13–39%; I^2=97.6%). The pooled incidence of adverse events, including significant QTc prolongation or torsades de pointes, was 8% (95% CI 4–15%; I^2=95.1%). Most studies were of good quality.
Conclusions: Dofetilide shows moderate efficacy for AF conversion but lower long-term maintenance rates, with a notable risk of proarrhythmic events. These findings support its use in carefully selected patients with appropriate inpatient monitoring during initiation.



P2-31: Safety of Anticoagulation Discontinuation After Ablation in High Risk Atrial Fibrillation Patients: A Systematic Review and Meta-Analysis

Sulochana Gnanasekaran MD, Sunil Bogati MD, Sri Anjali Gorle MBBS, Nirmit Patel MD, Atul Prakash MD

Background: Atrial fibrillation ablation reduces arrhythmia burden, yet optimal duration of Oral anticoagulation remains uncertain due to concerns about thromboembolism despite maintenance of sinus rhythm.
Objective: To evaluate outcomes of OAC discontinuation after successful AF ablation.
Methods: A systematic review and meta-analysis (PRISMA 2020) included studies comparing continued versus discontinued OAC ≥3 months post-ablation. Databases searched included PubMed, Embase, Scopus, and CINAHL (2000–2025). Primary outcome was ischemic stroke or transient ischemic attack; secondary outcomes included major bleeding and AF recurrence. Random-effects models generated pooled odds ratios (ORs)

Results: Eight studies (n=19,973; 57.5% discontinued OAC) were included. OAC discontinuation was not associated with increased stroke or TIA risk (OR 0.66; 95% CI 0.32–1.36), including in patients with CHA_2DS_2-VASc ≥2 (OR 1.22; 95% CI 0.57–2.61). Discontinuation significantly reduced major bleeding (OR 0.31; 95% CI 0.17–0.59). Continued OAC was associated with lower AF recurrence (OR 0.65; 95% CI 0.45–0.94), with moderate heterogeneity.
Conclusions: OAC discontinuation after AF ablation was not associated with increased thromboembolic risk but reduced major bleeding. Individualized decision-making based on risk profiles remains essential.

P2-32: Transradial Versus Transfemoral Access for Percutaneous Coronary Intervention in Coronary Arteries of Anomalous Origin

Sulochana Gnanasekaran MD, Kaushal Patel MD, Ittehad Ul Muk MBBS

Background: Coronary artery anomalies are rare (<1%) but clinically significant, particularly when associated with ischemia or sudden cardiac death. Percutaneous coronary intervention (PCI) is increasingly used in non-malignant variants, though optimal access strategies remain unclear.
Methods: A systematic review of PubMed, Embase, and Scopus (2000–2024) identified studies evaluating PCI in coronary anomalies. Of 4,144 records, 10 observational studies (n=143 patients) met inclusion criteria.
Results: The most common anomaly was right coronary artery origin from the opposite sinus. The transfemoral approach was most frequently used due to higher success in cannulating anomalous vessels, particularly in cases with complex anatomy such as high take-off or retroaortic course. The transradial approach was used selectively, especially in left circumflex anomalies, with some studies favoring left radial access for improved catheter alignment. Adjunctive techniques, including catheter modification and guidewire manipulation, improved procedural success. In acute settings such as STEMI, transradial PCI using smaller catheters was feasible.
Conclusions: Both transfemoral and transradial approaches are effective for PCI in coronary anomalies. Transfemoral access remains preferred in complex anatomy, while transradial access offers a safe alternative in selected cases. Operator experience and individualized anatomical assessment are key to optimizing outcomes.

P2-33: Melatonin's Role in Cardiometabolic Health: Insights from Animal Models and Human Trials in Diabetes

Sulochana Gnanasekaran MD, Siddharth Gandhi MD, Sunil Bogati MD

Background: Melatonin, widely used as an over-the-counter sleep aid, has emerging cardiometabolic effects beyond circadian regulation. It influences oxidative stress, vascular function, and inflammation and directly modulates pancreatic β-cell insulin secretion, potentially affecting glucose homeostasis. While experimental and clinical studies suggest cardioprotective and metabolic benefits, concerns remain regarding its impact on glycemic control in diabetic populations. This systematic review evaluates the cardiovascular and metabolic effects of melatonin in diabetic and postoperative settings.
Methods: A systematic search of PubMed, Embase, and Scopus was conducted to identify experimental and clinical studies evaluating melatonin's cardiometabolic effects in diabetes or cardiovascular disease. Animal studies, randomized clinical trials, and mechanistic human studies reporting cardiac, metabolic, or inflammatory outcomes were included. Data were extracted on study design, population, intervention, and cardiometabolic outcomes.
Results: Five studies met inclusion criteria, including two animal experiments, two randomized clinical trials, and one mechanistic human study. Melatonin improved cardiac injury markers, antioxidant capacity, and vascular integrity in diabetic animal models (p<0.05). In CABG patients, melatonin improved left ventricular ejection fraction and reduced inflammatory and oxidative markers (p<0.05). In type 2 diabetes, melatonin improved anthropometric indices and blood pressure but showed no benefit in atherogenic index of plasma. MTNR1B risk-allele carriers exhibited reduced insulin secretion with melatonin.

P2-35: Slow and steady wins the MACE: A case of coronary artery ectasia

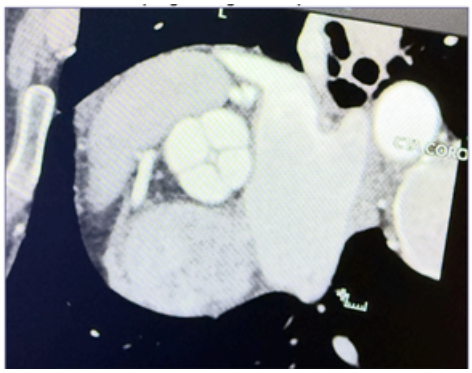
Jaideep Singh MD, Noreen Mirza MD, Kaushal Patel MD, Raam Mannam MD, Hriday Shah MD, Stanley A. Szwed MD

Introduction: Coronary artery ectasia with coronary slow-flow is an underrecognized cause of myocardial ischemia in the absence of obstructive Coronary artery disease. This combination promotes blood stasis and thrombosis, potentially leading to acute coronary syndromes.
Case Presentation: A 40-year-old man with smoking history, dyslipidemia, and family history of CAD presented with acute chest pain. ECG showed inferior ST depressions, and high-sensitivity troponin rose significantly, confirming Non-ST-elevation myocardial infarction. Echocardiography demonstrated preserved LVEF without wall motion abnormalities. Coronary angiography revealed diffuse multivessel CAE involving the LAD, RCA, and circumflex arteries without obstructive lesions, but with sluggish TIMI 2 flow and contrast stasis. Findings were consistent with Markis type I CAE.
Discussion: NSTEMI was attributed to impaired coronary perfusion and probable microthrombus formation within ectatic vessels. Pathophysiologic mechanisms include endothelial dysfunction, altered shear stress, and prothrombotic stasis. In the absence of obstructive disease, management focused on antithrombotic therapy.
Conclusion: CAE with slow-flow can cause NSTEMI despite non-obstructive coronaries. Recognition of this entity is critical, as management differs from typical CAD. Long-term antithrombotic therapy and aggressive risk factor modification are essential, though standardized guidelines remain limited.

P2-37: A Case Report on Quadricuspid Aortic Valve – An Incidental Finding

Praneeth Jasti MD, John Devereux, Chirag Rana MD, Lizeth Nathalia Arenas MD, Raam Mannam MD, Komal Arora MD, Nayanika Tummala MD

Background: Quadricuspid aortic valve (QAV) is a rare congenital cardiac anomaly with an incidence of 0.005–0.05%, with some echocardiographic association with aortic regurgitation and aortopathy, manifesting as ascending aortic dilatation or aneurysm, often associated with bicuspid aortic valve (BAV).
Case Presentation: A 56-year-old male with a history of hypertension presented for a screening cardiac/coronary CTA. Physical exam findings were unremarkable. Coronary anomalies were excluded and the patient was incidentally found to have a Hurwitz & Roberts Type A and Nakamura classification quadricuspid aortic valve.
Decision-Making: The rarity of QAV leads to inadequate surveillance guidelines; therefore, following general valvular disease principles, it was decided to establish a case-specific surveillance strategy. The established goal involved adequate blood pressure control and periodic surveillance with symptom onset or imaging findings suggestive of aortopathy and/or valvular dysfunction.
Conclusion: Unlike bicuspid aortic valve, no established surveillance guidelines or strategies exist for the management of QAV. Emphasis is placed on echocardiography, often supplemented with transesophageal echocardiography (TEE), which allows opportunity for establishing disease-specific guidelines, especially in patients with progressive valve dysfunction.



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P2-44: Risk of Ischemic Stroke After Left Atrial Appendage Closure: A Systematic Review and Meta-Analysis with Emphasis on Device-Related Complications

Inban Pugazhendi MD, Ajitha Ganesan MD, Darshan Gandhi MD, Gaurav Patel MD, Kaushal Patel MD, Sulochana Gnanasekaran MD, Atul Prakash MD

Background: Left atrial appendage closure is used to reduce thromboembolic risk in Atrial fibrillation patients who cannot tolerate long-term anticoagulation. However, ischemic stroke can still occur post-procedure.
Objectives: To determine the incidence of ischemic stroke after LAAC and evaluate associated risk factors.
Methods: A systematic review of PubMed, Embase, and Cochrane Library through May 2025 identified studies reporting stroke outcomes after LAAC. Random-effects meta-analysis was performed to estimate pooled incidence and odds ratios (ORs) for risk factors.
Results: Nineteen studies (n=14,982) were included. The pooled incidence of ischemic stroke was 2.4% over a mean follow-up of 18 months. Device-related thrombus (DRT) was strongly associated with stroke (OR 5.08; 95% CI 3.47–7.44), as was peri-device leak (PDL) (OR 1.63; 95% CI 1.06–2.52). Higher CHA_2DS_2-VASc scores (≥4) and reduced left ventricular ejection fraction (<50%) were also associated with increased risk. Extended anticoagulation appeared beneficial in select patients.
Conclusions: Ischemic stroke remains an important complication after LAAC. DRT and PDL are key predictors, alongside patient-level risk factors. Routine imaging surveillance and individualized anticoagulation strategies may improve long-term outcomes.

P2-46: Comparative Outcomes of Left Ventricular Unloading Strategies in Cardiogenic Shock Patients on VA-ECMO: A Systematic Review and Meta-Analysis

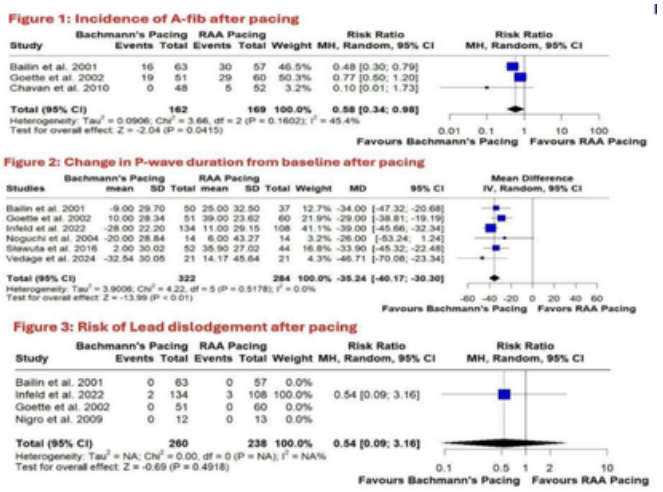
Inban Pugazhendi MD, Ajitha Ganesan MD, Bolivia Fernandez MD, Warren Fernandez MD, Ashita Agrawal MD, Ali Elfandi MD

Background: Cardiogenic shock patients on veno-arterial extracorporeal membrane oxygenation (VA-ECMO) often require left ventricular unloading (LVU) to mitigate increased afterload. Adjunctive strategies include Impella (ECPELLA) and Intra-aortic balloon pump, but comparative outcomes remain unclear.
Objective: To compare outcomes of ECPELLA versus IABP + VA-ECMO in cardiogenic shock.
Methods: A systematic review of PubMed, EMBASE, and Cochrane Library (2015–2025) identified studies comparing ECPELLA and IABP + VA-ECMO. Pooled risk ratios (RR) were calculated using random-effects models.
Results: Nine retrospective studies (n=8,538) were included. ECPELLA was more commonly used in acute myocardial infarction–related shock (RR 1.33, p=0.002). It showed higher ECMO weaning rates (RR 1.69, p=0.111) but increased in-hospital mortality (RR 1.26, p=0.049). Thirty-day survival was similar between groups. ECPELLA was associated with higher risks of major bleeding (RR 2.24, p<0.001), hemolysis (RR 2.42, p=0.001), and acute kidney injury requiring dialysis (RR 1.30, p=0.003), with no differences in stroke or infection.
Conclusions: ECPELLA enhances LV unloading but is associated with higher mortality and complications. Device selection should be individualized based on etiology and patient risk. Prospective trials are needed to define optimal strategies.

P2-47: Optimising Atrial Pacing: Bachmann's Bundle Versus Right Atrial Appendage For Atrial Fibrillation Prevention: A Systematic Review And Meta-Analysis

R. Mannam, RVS Krishna Medarametla, K. Patel, N. Patel, H. Shah, K. Arora, NK Konanur Srinivasa, G. Patel, A. Runkana, A. Prakash, D. Jha

Introduction: Atrial fibrillation is the most common sustained arrhythmia. Right atrial appendage (RAA) pacing may increase AF risk through interatrial dyssynchrony, whereas Bachmann's bundle pacing engages physiologic conduction pathways and may preserve atrial synchrony.
Aim: To compare BB versus RAA pacing for new-onset AF, P-wave duration, and lead dislodgement risk.
Methods: A systematic review of PubMed, Embase, and Cochrane databases identified studies comparing BB and RAA pacing. Eleven studies (n=805) were included. Outcomes were pooled using a random-effects model with inverse variance weighting. Heterogeneity was assessed using I^2 statistics.
Results: BB pacing significantly reduced AF incidence (RR 0.58; 95% CI 0.34–0.98; p=0.04; I^2=45.4%), representing a 42% relative reduction. P-wave duration was significantly shorter with BB pacing (MD −35.24 ms; 95% CI −40.17 to −30.30; p<0.01; I^2=0%). There was no significant difference in lead dislodgement risk (RR 0.54; p=0.49).
Conclusions: BB pacing improves atrial conduction and reduces AF incidence without increasing procedural risk. These findings support BB as a preferred pacing strategy in patients at risk for AF. Prospective studies are ongoing to validate these results.



P2-56: Immediate Intraoperative Thrombus Formation During Watchman FLX Pro Left Atrial Appendage Closure: A Two-Case Series

Kaushal Patel MD, Komal Arora MD, Raam Mannam MD, Hriday Shah MD, Ajitha V Ganesan MD, Gaurav Patel MD, Darshan Gandhi MD, Aditya Patel MD

Background: Left atrial appendage occlusion is an alternative to anticoagulation for stroke prevention in Atrial fibrillation. The Watchman FLX Pro device is designed to reduce thrombosis risk; however, intraoperative thrombus formation remains poorly characterized.
Case Summary: Two patients with persistent atrial fibrillation and contraindications to long-term anticoagulation underwent elective LAAO with the Watchman FLX Pro device. Preprocedural imaging showed no thrombus, and both were therapeutically anticoagulated. Intraprocedural heparin achieved target activated clotting time. In both cases, thrombus developed immediately after deployment at sites remote from the device, including the interatrial septum and inferior vena ava–right atrial junction. Procedures were completed without interruption, and intensified anticoagulation was initiated. Follow-up imaging confirmed stable device positioning without device-related thrombosis; one patient had a peri-device leak requiring continued anticoagulation.
Discussion: These cases highlight intraoperative thrombus as a distinct complication of LAAO despite adequate anticoagulation. Potential mechanisms include sheath-related stasis, endothelial injury from transseptal puncture, and procedural manipulation. Management requires prompt recognition and individualized anticoagulation.
Conclusion: Intraoperative thrombus during Watchman FLX Pro implantation is rare but clinically significant. Vigilant imaging, meticulous technique, and tailored anticoagulation strategies are essential to minimize embolic risk.

P2-57: Racial Disparities in Resource Utilization Among Patients Hospitalized for HFpEF and Obstructive Sleep Apnea: An NIS 2022 Analysis

Kaushal Patel MD, Komal Arora MD, Raam Mannam MD, Hriday Shah MD, Ajitha V Ganesan MD, Gaurav Patel MD, Darshan Gandhi MD, Aditya Patel MD

Introduction: Heart failure with preserved ejection fraction and Obstructive sleep apnea are associated with increased morbidity, mortality, and healthcare costs. We evaluated whether hospital teaching status modifies racial disparities in outcomes among this high-risk population.
Methods: Using the 2022 National Inpatient Sample (weighted n≈370,000 HFpEF+OSA admissions), we performed survey-weighted logistic regression comparing Black/Hispanic patients to other races. Models adjusted for age, sex, income, region, and comorbidities. Outcomes included in-hospital mortality, discharge to home, and total hospital charges.
Results: Black/Hispanic patients had higher mortality risk (adjusted OR 1.27, p=0.053) and significantly higher charges. Mortality disparities were attenuated in teaching hospitals (3.34% vs 3.26%, p=0.66) compared to non-teaching hospitals (Δ+0.75 pp, p=0.07). Cost disparities were more pronounced: in non-teaching hospitals, Black/Hispanic patients incurred 13.4% higher charges (p<0.001), versus 4.4% higher in teaching hospitals (p=0.009). The interaction between race and teaching status was significant (p=0.0097). Discharge disposition showed no differences.
Conclusion: Racial disparities in healthcare costs for HFpEF and OSA are greater in non-teaching hospitals. Teaching hospitals may mitigate these inequities, potentially reflecting differences in resource allocation and guideline implementation.

P2-58: Lipid-Lowering Therapy Is Underutilized Across LDL-C Levels in Autoimmune Disease Compared to Diabetes: A Nationwide Analysis

Kaushal Patel MD, Komal Arora MD, Raam Mannam MD, Hriday Shah MD, Ajitha V Ganesan MD, Gaurav Patel MD, Darshan Gandhi MD, Aditya Patel MD

Background: Autoimmune diseases such as rheumatoid arthritis and systemic lupus erythematosus accelerate atherosclerosis through chronic inflammation. Despite elevated cardiovascular risk, these conditions are considered risk-enhancing rather than risk-equivalent to diabetes, and lipid management remains primarily LDL-C–driven.
Methods: We conducted a retrospective cohort study using the TriNetX network, including 41,805 patients with autoimmune disease and 427,909 with diabetes, all with ≥1 LDL-C measurement and no prior ASCVD. Patients were stratified by LDL-C levels. The primary outcome was major adverse cardiovascular events (MACE). Secondary outcomes included initiation of lipid-lowering therapy.
Results: Lower LDL-C levels in autoimmune disease were paradoxically associated with higher cardiovascular risk. Patients with LDL-C <70 mg/dL had the highest MACE risk (OR 1.81; HR 1.79), followed by LDL-C 70–99 mg/dL, while intermediate LDL ranges showed no significant risk reduction. Lipid-lowering therapy was consistently underutilized in autoimmune patients compared to diabetic patients across all LDL strata. Higher CRP levels were observed in lower LDL-C categories, suggesting inflammation-mediated lipid suppression.
Conclusions: Autoimmune disease demonstrates a distinct lipid paradox, with increased cardiovascular risk at lower LDL-C levels and underuse of lipid-lowering therapy. These findings support incorporating inflammatory burden into cardiovascular risk assessment and lipid management strategies.

P2-59: Comparable Efficacy of Intracardiac and Transesophageal Echocardiography in Left Atrial Appendage Closure: Findings from an Umbrella Review

Nirmit Patel MD, Kaushal Patel MD, Nithin Konanur Srinivasa MD, Ram Mannam MD, Gaurav Patel MD, Atul Prakash MD

Background: As left atrial appendage closure (LAAC) becomes increasingly utilized for stroke prevention in patients with atrial fibrillation, optimizing peri-procedural imaging is essential. While transesophageal echocardiography (TEE) remains the standard modality, intracardiac echocardiography (ICE) has emerged as a potential alternative. This umbrella review evaluates the comparative efficacy and safety of ICE versus TEE in LAAC procedures.

Methods: A comprehensive literature search was conducted across PubMed, Cochrane Library, and Google Scholar to identify relevant systematic reviews and meta-analyses. The quality and certainty of evidence were assessed using GRADE methodology, along with AMSTAR 2 and the Newcastle-Ottawa Scale.

Results: Seven systematic reviews and meta-analyses were included. There was no significant difference in procedural success between ICE and TEE (RR 1.01, 95% CI 1.00–1.02; p=0.21). ICE was associated with a significantly lower risk of peri-procedural complications compared to TEE (RR 0.79, 95% CI 0.67–0.94; p=0.008). However, ICE demonstrated a higher risk of residual interatrial septal defects (IASDs) (RR 1.97, 95% CI 1.45–2.68; p<0.0001).

Conclusion: ICE is a promising alternative to TEE for LAAC, offering reduced peri-procedural complications with comparable procedural success. However, the increased risk of residual IASDs highlights the need for further high-quality studies to better define the relative advantages of each imaging modality.

P2-60: Effectiveness and Safety of Direct Oral Anticoagulation vs. Warfarin for Primary Prevention of Stroke and Bleeding Risk Among Patients with Atrial Fibrillation

Nirmit Patel MD, Vikash Jaiswal, Nishat Shama, Akash Jaiswal, Kripa Rajak, Kriti Kalra, Song Peng Ang, Aanchal Sawhney, FNU Danisha, Abhigan Babu Shrestha, Muhammad Hanif

Background: Atrial fibrillation (AF) is associated with a high risk of stroke and treatment-related bleeding complications. Evidence regarding the safety and efficacy of anticoagulation remains limited and conflicting.

Objective: To evaluate the effectiveness and safety of direct oral anticoagulants (DOACs) compared with warfarin in patients with atrial fibrillation.

Methods: A systematic literature search was conducted using PubMed, EMBASE, and ClinicalTrials.gov for randomized controlled trials (RCTs) up to July 30, 2024, without language restrictions. Odds ratios (OR) with 95% confidence intervals (CI) were pooled using a random-effects model, with statistical significance defined as $p < 0.05$.

Results: Seven RCTs comprising 79,001 patients (46,069 DOAC; 32,932 warfarin) were included. Mean age was similar between groups (72.8 vs. 72.9 years). DOACs significantly reduced the risk of stroke or systemic embolism (OR 0.82, 95% CI 0.75–0.91), stroke (OR 0.81, 95% CI 0.68–0.97), and hemorrhagic stroke (OR 0.43, 95% CI 0.33–0.56). There were no significant differences in ischemic stroke (OR 0.96, 95% CI 0.78–1.18), major bleeding (OR 0.84, 95% CI 0.67–1.06), or myocardial infarction (OR 1.07, 95% CI 0.89–1.28). DOACs were associated with lower all-cause mortality (OR 0.91, 95% CI 0.85–0.97).

Conclusion: In patients with atrial fibrillation, DOACs are associated with reduced risk of stroke or systemic embolism, hemorrhagic stroke, and all-cause mortality compared with warfarin, with comparable major bleeding risk.

P2-61: Pulsed Field Ablation for Atrial Fibrillation: A Comprehensive Systematic Review, Meta-Analysis, and Advanced Statistical Synthesis

Nirmit Patel MD, Kaushal Patel MD, Komal Arora MD, Raam Mannam MD, Hriday Shah MD, Parth Patel MD, Gaurav Patel MD, Atul Prakash MD

Background: Pulsed field ablation (PFA) is a novel non-thermal technique for the treatment of atrial fibrillation (AF), offering myocardial selectivity with minimal collateral damage. Despite its growing adoption, comprehensive evidence regarding its efficacy and safety remains limited.
Methods: A systematic review and meta-analysis of six studies (N = 30,835) through May 2025 was conducted. The primary endpoint was 12-month arrhythmia-free survival. Meta-regression analyses were performed based on follow-up duration, AF type, and sample size. Safety outcomes included major complications, tamponade, stroke/transient ischemic attack (TIA), phrenic nerve injury, and esophageal injury. Procedural time was compared with conventional thermal ablation.
Results: The pooled 12-month arrhythmia-free survival rate was 74.7% (95% CI 70.8–78.3%; prediction interval 64.1–83.0%). Excluding the MANIFEST-17K study yielded similar esults (75.3%, 95% CI 70.9–79.2%). Individual study success rates ranged from 66.2% to 80.2%. Meta-regression demonstrated a positive correlation between longer follow-up and success (r = 0.83). The overall major complication rate was low at 0.35% (95% CI 0.25–0.45%), with no reported esophageal injury. Rates of tamponade (~0.3%), stroke/TIA (<0.2%), and transient phrenic nerve injury (<1%) were minimal. Procedural time was significantly shorter with PFA (mean difference −21.7 minutes; 95% CI −32.8 to −10.5; p < 0.001). Heterogeneity was moderate for efficacy (I^2 = 46%) and procedural efficiency (I^2 = 52%), and negligible for safety (I^2 = 0%).
Conclusion: PFA demonstrates favorable efficacy with approximately 75% arrhythmia-free survival at 12 months, alongside an excellent safety profile and shorter procedural times compared to conventional thermal ablation. While results are consistent, moderate heterogeneity and limited long-term data highlight the need for further randomized trials to confirm durability and establish PFA as a standard therapy for AF.

P2-48: Incidence and Predictors of Pacemaker-Induced Cardiomyopathy in a Large Contemporary Pacemaker Cohort

Raam Mannam MD, Kaushal Patel MD, Sunil Bogati MD , Makarand Madine MD , Sumanth Gundraju MD , Gaurav Patel MD , Atul Prakash MD

Background: Pacemaker-induced cardiomyopathy is a recognized complication of chronic right ventricular pacing. The influence of pacing site and baseline characteristics on PICM risk remains unclear.
Objective: To determine PICM incidence and identify demographic, echocardiographic, and pacing-site predictors.
Methods: Among 840 pacemaker recipients, 210 had baseline and follow-up echocardiograms; after exclusions, 150 patients were analyzed. PICM was defined as ≥10-point decline in left ventricular ejection fraction (LVEF) or LVEF <40%. Outcomes were compared across pacing sites (RV apex, septum, RVOT). Multivariable logistic regression identified independent predictors.
Results: The cohort (mean age 79.2±8.9 years; 55.3% male) had a mean follow-up of 22.3±16.4 months. PICM occurred in 28.0% (n=42). Mean LVEF declined from 55.6% to 50.6% (p<0.001). Patients with PICM had lower baseline LVEF (53.2% vs 56.6%; p=0.013) and greater EF decline (13.98 vs 1.55 points; p<0.001). Male sex was associated with higher PICM prevalence (34.9% vs 19.4%; p=0.035). Although most cases occurred with RV apical pacing, differences across pacing sites were not significant (p=0.93). On multivariable analysis, lower baseline LVEF independently predicted PICM (OR 0.94; p=0.016).
Conclusions: PICM occurred in 28% of patients with adequate follow-up. Lower baseline LVEF was the strongest predictor, while pacing site was not associated with risk. These findings highlight the importance of baseline cardiac function in risk stratification.

P2-49: Branch or septum: A meta analysis of ventricular synchrony in Left bundle branch pacing vs left ventricular septal pacing

Raam Mannam MD, Ravi Venkata Sai Krishna Medarametla , Sunil Bogati MD , Gaurav Patel MD, Sandeep Kumar Reddy Bandakadi MD , Atul Prakash MD

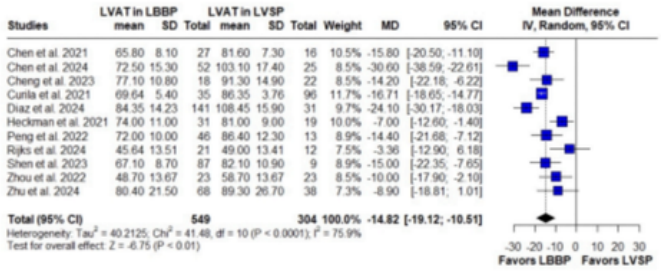
Introduction: Novel pacing strategies, including Left bundle branch pacing and left ventricular septal pacing (LVSP), aim to improve ventricular synchrony in patients requiring permanent pacing. LBBP directly stimulates the conduction system, whereas LVSP targets the septal myocardium. Key electrophysiologic markers include left ventricular activation time (LVAT), paced QRS duration (pQRS), and ΔQRS.

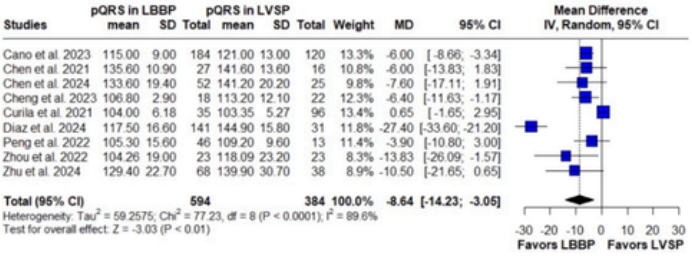
Objective: To compare LVAT, pQRS, and ΔQRS between LBBP and LVSP.

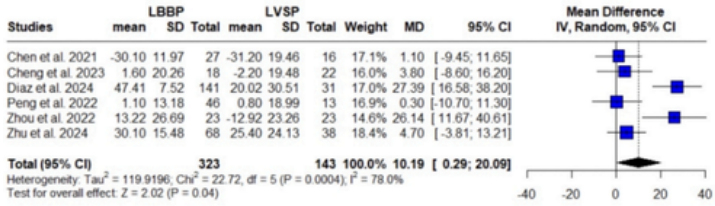
Methods: A systematic search of PubMed and Embase identified studies reporting relevant outcomes. Eleven studies (n=853; 549 LBBP, 304 LVSP) were included. Data were pooled using a random-effects model with inverse variance methods. Heterogeneity was assessed, and forest plots were generated.

Results: LBBP significantly improved electrical synchrony compared to LVSP. LBBP was associated with shorter LVAT (MD −14.82 ms; 95% CI −19.12 to −10.51), reduced pQRS duration (MD −8.64 ms; 95% CI −14.23 to −3.05), and greater QRS narrowing (ΔQRS; MD −10.19 ms; 95% CI −20.11 to −0.27). Moderate heterogeneity was observed, likely reflecting baseline conduction differences and procedural variability.

Conclusion: LBBP provides superior electrical synchrony compared to LVSP, supporting its role as a preferred physiological pacing strategy. Further studies are needed to optimize lead positioning and long-term outcomes.







P3-01: New-onset atrial fibrillation following coronary artery bypass graft surgery: A systematic review

Darshan Gandhi, MD, Atul Prakash, MD, Gaurav Patel, MD, Clint Vaz, MD, Ariadna Garcia Risk, MD, and Ashish Guragain, MD

Background: Post–coronary artery bypass grafting (CABG) atrial fibrillation (AF) occurs in 10–40% of patients and is associated with increased risk of stroke and mortality. This systematic review evaluated the incidence and adverse outcomes of post-CABG AF.

Methods: A literature search of PubMed was conducted for English-language, peer-reviewed studies published between January 1, 2010, and September 30, 2023. Observational and experimental studies including patients undergoing CABG who developed new-onset AF were included. Outcomes assessed were incidence of AF, 30-day mortality, and cerebrovascular events.

tify effective prevention and management strategies.

Results: Thirty-two studies, including two randomized controlled trials, comprising 150,788 patients were included. Of these, 39,327 (26%) developed new-onset AF. The median age was 67.5 years (IQR 66–69), with 52.5% males. The incidence of cerebrovascular accidents was higher in patients with AF (6.26% vs. 3.38%; RR 1.92, 95% CI 1.69–2.18). Thirty-day mortality was also increased (3.05% vs. 1.46%; RR 2.08, 95% CI 1.77–2.45).

Conclusion: Post-CABG AF is common and associated with significantly increased risks of stroke and short-term mortality. Further studies are needed to iden

P3-07: Low-voltage area–guided substrate modification in addition to pulmonary vein isolation for atrial fibrillation: a systematic review and meta-analysis of randomized and prospective studie

Sunil Bogati MD, Raam Mannam MD, Hriday Shah MD, Atul Prakash MD

Background: Low voltage areas (LVAs) on left atrial voltage mapping represent atrial fibrosis and have been proposed as targets for substrate modification in atrial fibrillation (AF) ablation. However, outcomes comparing LVA-guided ablation with conventional pulmonary vein isolation (PVI) remain inconsistent.

Methods: A systematic review and meta-analysis of studies comparing LVA-guided ablation versus conventional AF ablation was performed. Outcomes included arrhythmia recurrence, repeat ablation, complications, procedure time, and fluoroscopy time. Pooled risk ratios (RR) and mean differences (MD) were calculated using random-effects models.

Results: Multiple studies including over 1,500 patients were analyzed. LVA-guided ablation significantly reduced arrhythmia recurrence (RR 0.63, 95% CI 0.49–0.81; I^2=61.7%) and repeat ablation (RR 0.51, 95% CI 0.37–0.70; I^2=0%). There was no significant difference in complications (RR 0.68, 95% CI 0.38–1.22; I^2=1.9%). Procedure time was longer with LVA ablation (MD 13.53 minutes, 95% CI 3.96–23.11; I^2=65.2%), with no difference in fluoroscopy time.

Conclusions: LVA-guided ablation reduces recurrence and repeat procedures without increasing complications, though at the cost of longer procedure time. It represents an effective strategy to improve AF ablation outcomes.

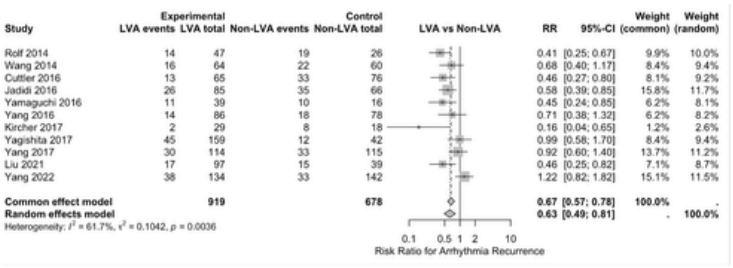


Figure 1: Forest plot showing comparison of Atrial arrhythmia recurrence post LVA ablation vs PVI alone

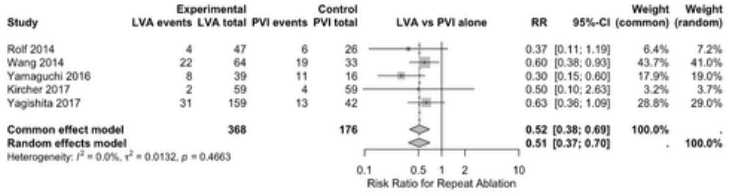


Figure 2: Forest plot showing comparison of the need for repeat ablation among the patients post LVA ablation vs PVI alone

P3-23: High-Sensitivity vs Conventional Cardiac Troponin T in Non-ACS Hospitalized Patients Impact on Resource Use and Outcomes

Nithin Kumar Konanur Srinivasa, MD, Sulochana Gnanasekaran, MD, Canan Dilay Dirican, MD, Dilesha Kumanayaka, MD, Nirmit Patel, MD, Raam Mannam, MD, Hriday Shah, MD, Saloni Brahmbhatt, MD, Kunal Brahmbhatt, MD

Background: High-sensitivity cardiac troponin T (hs-cTnT) allows earlier and more sensitive detection of myocardial injury compared with conventional assays. While its utility is well established in acute coronary syndrome, its role in non-ACS hospitalized patients remains less defined.

Objective: To evaluate the real-world impact of hs-cTnT use on clinical outcomes and resource utilization in hospitalized patients without ACS.

Methods: A retrospective study was conducted among 520 hospitalized patients at St. Mary's General Hospital (January–May 2023). Propensity score–matched cohorts (260 hs-cTnT vs 260 conventional troponin T) were compared. Outcomes included length of stay, diagnostic testing, procedural utilization, and mortality.

Results: Use of hs-cTnT was associated with significantly shorter length of stay (7.3 vs 10.9 days, p<0.01), reduced utilization of echocardiography (76.9% vs 88.8%, p=0.005), and fewer electrophysiology procedures (2.3% vs 6.5%, p=0.033). There was no significant difference in mortality between groups.

Conclusions: In non-ACS hospitalized patients, hs-cTnT use is associated with improved efficiency, reduced resource utilization, and comparable safety outcomes. These findings support broader adoption of hs-cTnT beyond traditional ACS settings.

P3-24: Enhanced Detection of Atrial Fibrillation and Tachyarrhythmia Differentiation Using Atrial Electrograms in Single-chamber Implantable Cardioverter-defibrillators: A Retrospective Analysis

Nithin Kumar Konanur Srinivasa MD, Canan Dilay Dirican MD, Atul Prakash MD

Background: Atrial fibrillation (AF) is common in patients with implantable cardioverter-defibrillators (ICDs) and is associated with increased morbidity and mortality. Newer single-chamber ICDs with atrial electrogram (AEGM) sensing via a floating atrial dipole may improve AF detection and arrhythmia discrimination.
Methods: A retrospective analysis of 128 patients who received single-chamber ICDs (2015–2024) was performed. Patients were grouped as (1) AEGM-enabled ICDs (n=69), (2) ICDs without AEGM (n=34), and (3) subcutaneous ICDs (n=25). Outcomes included detection of new and prior AF, tachyarrhythmia classification, anticoagulation initiation, and clinical interventions.
Results: AEGM-enabled ICDs detected AF in 42% (n=29), including 13% (n=9) with newly diagnosed asymptomatic AF. ICDs without AEGM detected AF only in patients with prior history (n=11), while subcutaneous ICDs detected one new case. Detection of new-onset AF was significantly higher in the AEGM group ($p<0.05$). Among newly diagnosed patients, anticoagulation and antiarrhythmic therapy were initiated in four patients each, two underwent ablation, and one required cardioversion. There was no significant difference in ventricular tachycardia management across groups.
Conclusions: AEGM-enabled single-chamber ICDs significantly improve detection of asymptomatic AF and enhance arrhythmia discrimination without affecting ventricular tachycardia management. These findings have important implications for early intervention and prevention of AF-related complications.

P3-25: Serratia Marcescens Aortic Valve Endocarditis in Drug Use Disorder: A Case of Catastrophic Embolic Stroke and Hemorrhagic Transformation

Shirley Perez MD, Ranjan Gupta MD, Dhaval Shah MD, Pierre- Louis MD, John Depetrillo MD

Background: Infective endocarditis has re-emerged in association with drug use disorder, often presenting with severe complications including septic embolization and stroke.
Case Report: A 36-year-old woman with drug use disorder was found unresponsive with fentanyl exposure. On presentation, she was febrile (101°F), hypotensive (70/43 mmHg), and obtunded. A chronic right leg ulcer was identified. Laboratory studies revealed marked leukocytosis, elevated inflammatory markers, and lactic acidosis. Imaging demonstrated multifocal cerebral infarcts suggestive of a cardioembolic source. Echocardiography revealed a 23 mm mobile vegetation on the aortic valve with severe regurgitation. Blood cultures grew Serratia marcescens. Despite appropriate antimicrobial therapy, her course was complicated by hemorrhagic transformation of a left middle cerebral artery infarct.
Discussion: This case highlights an atypical source of bacteremia from a chronic wound leading to endocarditis. Although large vegetation, severe valvular dysfunction, and embolization warranted urgent surgery, hemorrhagic stroke precluded safe intervention. Multidisciplinary care was essential for management and decision-making.
Conclusions: Infective endocarditis in drug use disorder presents complex clinical challenges. Early recognition, coordinated care, and integration of addiction treatment are critical to improving outcomes in this high-risk population.

P3-26: Evaluating the Efficacy and Safety of Impella Devices for Left Ventricular Unloading in Patients with Cardiogenic Shock on VA ECMO: A Systematic Review and Meta-Analysis

Ajitha V Ganesan MD, Bolivia Fernandes MD, Viraj Panchal MD, Noreen Mirza MD, Atul Prakash, MD

Background:The Impella device decompresses the left ventricle (LV) and facilitates LV unloading in cardiogenic shock (CS) patients on venoarterial extracorporeal membrane oxygenation(VA-ECMO) support. As ECPELLA (Impella with VA-ECMO) adoption increases, we aim to compare clinical outcomes between ECPELLA and VA-ECMO in CS patients.

Methods: We systematically searched PubMed, EMBASE, and Cochrane Library (2015–2025) for studies including ECPELLA and VA-ECMO arms. Data on baseline characteristics, CS etiology, mortality trends, and complications, were analyzed using RevMan 5.3.

Results: 10 studies involving 3255 patients (1153 with ECPELLA, 2102 with VA-ECMO) were analyzed. ECPELLA patients had higher rates of out-of-hospital cardiac arrest (OHCA)[RR: 1.85; 95% CI (1.35, 2.52); p<0.01]. ECPELLA was associated with higher odds of treating etiologies like acute MI (RR: 1.05), heart failure (RR:1.16), myocarditis (RR:2) and post-cardiotomy shock (RR: 19.7), though statistically insignificant. ECPELLA showed lower in-hospital mortality (RR: 0.96) and higher 30-day survival (RR: 1.67), though statistically insignificant. ECPELLA was linked to higher hemolysis risk [RR: 1.85;95% CI (1.14, 3.01); p<0.01] and increased LVAD bridging to recovery [RR: 3.30; 95% CI (1.39, 8.25); p<0.007]. Other complications, including bleeding, stroke, renal injury needing hemodialysis, and sepsis, showed no significant differences.

Conclusions: ECPELLA emerges as a promising approach for managing CS patients. It offers comparable safety to VA-ECMO, though with an elevated risk of hemolysis. Larger RCTs are essential to validate these findings.

P3-27: Transesophageal Echocardiography-Guided Management of Device-Related Thrombosis Post-LAAC: A Case Highlighting Imaging-Driven Decision Making

Ajitha V Ganesan MD, Gaurav Patel MD, Warren Fernandes MD, Bolivia Fernandes MD, Atul Prakash MD.

Introduction: Left atrial appendage closure is an alternative for stroke prevention in Atrial fibrillation patients with contraindications to anticoagulation. Device-related thrombosis (DRT) is an uncommon but serious complication, particularly in hypercoagulable states such as Essential thrombocytosis (ET).

Case Presentation: A 72-year-old woman with CALR-mutated ET and persistent AF (CHA_2DS_2-VASc 5) underwent LAAC due to recurrent gastrointestinal bleeding. Anticoagulation was limited to six weeks. Surveillance Transesophageal echocardiography revealed a 1.8 cm device-related thrombus. Anticoagulation with heparin was initiated, followed by apixaban, clopidogrel, and hydroxyurea. Serial TEE demonstrated progressive reduction at one week and complete resolution at six months, after which anticoagulation was discontinued.

Role of Imaging: TEE enabled accurate differentiation of thrombus from artifact, guided initiation of therapy, and monitored resolution. Given persistent prothrombotic risk, ongoing surveillance was planned.

Discussion: DRT risk is increased by factors including prior stroke, persistent AF, enlarged left atrium, and hypercoagulable states. ET further amplifies thrombotic risk, complicating management when bleeding limits anticoagulation. DRT is associated with a 2–4-fold increase in embolic events, necessitating prompt yet cautious treatment.

Conclusion: This case underscores the importance of TEE-guided management of DRT in high-risk patients. Individualized anticoagulation strategies and continued surveillance are essential in prothrombotic conditions.

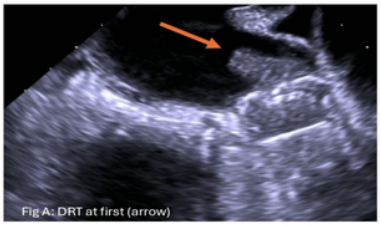


Fig A: DRT at first (arrow)


Fig B: DRT after 1 week (arrow)

P3-30: Breaking the cycle: interleukin-1 inhibitor transforms refractory recurrent pericarditis in a young woman

Hayat Lakluk, MD, Ali Elfandi, MD FACC

Background: Recurrent pericarditis presents with repeated inflammatory episodes and chest pain. Standard management includes NSAIDs and colchicine, with corticosteroids or biologic agents such as Rilonacept reserved for refractory cases.
Case Presentation: A 29-year-old woman with no prior medical history presented with persistent chest pain and was diagnosed with acute pericarditis. Initial evaluation revealed elevated inflammatory markers (ESR 48 mm/hr, CRP 8.9 mg/dL) and positive ANA and SCL-70, suggesting possible undifferentiated connective tissue disease. She was treated with indomethacin and colchicine but experienced recurrence after taper. Subsequent therapy included high-dose ibuprofen, colchicine, prednisone, and hydroxychloroquine, with repeated relapses following steroid taper. Due to steroid dependence and persistent symptoms, weekly rilonacept therapy was initiated. Within one week, she experienced complete resolution of chest pain.
Conclusion: This case highlights the challenges of managing refractory recurrent pericarditis. Despite standard therapy, some patients remain steroid-dependent with frequent relapses. Interleukin-1 inhibition with rilonacept offers an effective treatment option, leading to rapid symptom resolution and improved disease control. Early consideration of biologic therapy may reduce recurrence and corticosteroid exposure in high-risk patients.

P3-09: Abdominal Pain as a Presentation of CRT Lead Dislodgment Causing Diaphragmatic Pacing

Sunil Bogati MD, Sulochana Gnanasekaran MD, Gaurav Patel MD, Atul Prakash MD

Background: Cardiac resynchronization therapy (CRT) improves outcomes in Heart failure with reduced ejection fraction (HFrEF) with conduction delay. Rarely, lead dislodgment can trigger phrenic nerve stimulation mimicking gastrointestinal pathology.
Case presentation: A 96-year-old man with HFrEF (EF 38%), prior CABG ×3, moderate aortic stenosis, abdominal aortic aneurysm, and recent CRT implantation (4 months ago) presented with nocturnal chest/abdominal palpitations. Labs showed troponin 77.8 ng/L and creatinine 2.3 mg/dL. Abdominal CT revealed aneurysmal infrarenal aortic dilatation, without dissection. Clinical exam noted rhythmic diaphragmatic contractions temporally associated with QRS complexes. Compared to prior ECGs, QRS morphology had changed, suggesting LV lead dislodgment. Chest imaging and device interrogation confirmed LV lead migration with phrenic nerve stimulation. LV lead deactivation resolved symptoms immediately. The patient was discharged on optimized heart failure therapy; invasive lead repositioning was deferred given age and comorbidities.
Discussion: This case illustrates a rare CRT complication where LV lead dislodgment caused abdominal/chest discomfort. Recognition prevented unnecessary interventions, and device reprogramming provided rapid relief. In elderly patients, conservative management may be preferable to invasive correction.
Conclusion: In patients with CRT placement presenting with abdominal or chest pain, diaphragmatic pacing from lead dislodgment should be considered; prompt recognition and non- invasive reprogramming can rapidly resolve symptoms and prevent unnecessary interventions.

Figure 1: EKG: V-paced QRS with negative I, aVL → LV lead pacing from CRT (left lateral)

Figure 2: EKG: V-paced QRS with positive I, aVL→ RV pacing; LV lead displaced into SVC (right lateral)

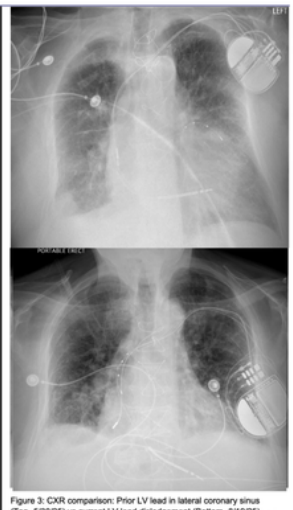


Figure 3: CXR comparison: Prior LV lead in lateral coronary sinus (Top- 5/30/25) vs current LV lead dislodgement (Bottom- 8/19/25)

P3-08: Systematic Review And Meta-Analysis Of The Studies Comparing The Left Ventricular Ejection Fraction (Lvef) And Global Longitudinal Strain (Gls)-Guided Approach To Detect Cancer Therapy-Related Cardiac Dysfunction During Chemotherapy In Cancer Patients

Sunil Bogati MD,Sulochana Gnanasekaran MD, Aakash Acharya MD, Lizeth Nathalia Arenas MD, Manil Bogati, Atul Prakash MD

Background: Like left ventricular ejection fraction (LVEF), global longitudinal strain (GLS) has
emerged as a promising tool for earlier detection of cancer therapy-related cardiac dysfunction (CTRCD).
Methods: From eligible studies in PubMed, Embase, Cochrane, and Scopus (Jan 2010-May
2025) we compared GLS and LVEF for CTRCD detection or guided cardioprotective therapy (CPT).
Results: Several prospective studies confirmed that GLS decline precedes LVEF reduction. In
study by Laufer-Perl et al, 19% of patients had ≥10% GLS reduction despite normal EF, and in study by Mahjoob et al, GLS abnormalities (15.4%) appeared earlier than LVEF decline (7.7%) within 4 weeks of chemotherapy. A pooled analysis of 2 RCTs showed GLS-guided CPT preserved LVEF better than LVEF-guided care, with a mean absolute difference of 2% at 1 year (p<0.001). In lymphoma patients, GLS decreased significantly despite preserved EF, with values of -17.6%±3.1% (low normal EF) and -19.7%±3.2% (high normal EF). GLS also predicted subsequent EF decline, but not vice versa. Pooled analysis showed a slightly greater percentage change in GLS than EF during therapy, though not statistically significant.
Conclusion: GLS is more sensitive than LVEF for early CTRCD detection and predicts long-term dysfunction earlier, often by weeks to months. GLS-guided management reduces EF decline, but further large-scale RCTs are needed to establish standardised GLS-guided strategies.

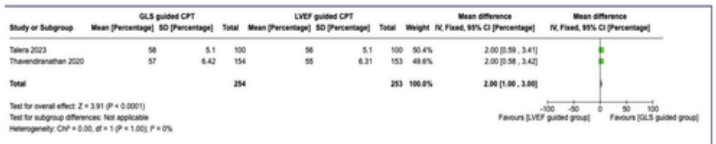


Figure 1: Forest plot of pooled analysis comparison of EF at 1 year time between GLS and EF-guided groups

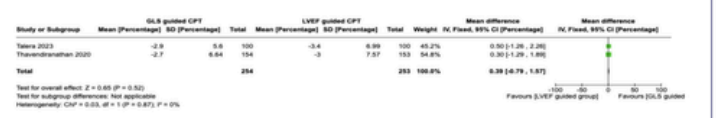


Figure 2: Forest plot of pooled analysis comparison of EF difference at 1 year time between GLS and EF-guided groups

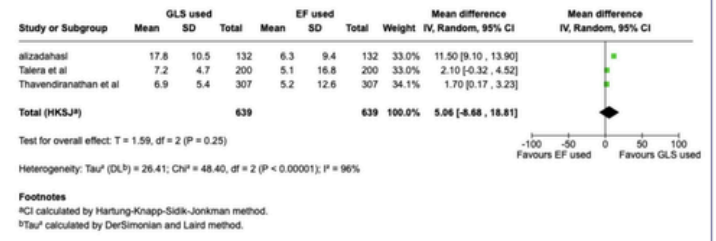


Figure 3: Forest plot of the percentage change in GLS and EF on follow-up after being on chemotherapy agents for cancer

P2-66: Inflammatory Biomarkers and Left Atrial Scar Burden in Patients Undergoing AF Ablation: A Retrospective Analysis

Kaushal Patel, MD., Ajitha Virinchipuram Ganesan, MD., Gaurav Patel, MD., Darshan Gandhi., MD., Atul Prakash, MD, FACC, FHRS

Background

Atrial fibrillation (AF) is increasingly conceptualized as a manifestation of atrial cardiomyopathy characterized by progressive fibrosis and structural remodeling. Systemic inflammation contributes to AF pathogenesis, with elevated inflammatory biomarkers frequently observed in AF patients. Left atrial (LA) scar burden serves as a surrogate for atrial fibrosis; however, its association with inflammatory markers is less well established.

Objectives

1. To evaluate the association between LA scar burden and inflammatory markers.
2. To identify additional markers correlated with higher scar burden.

Methods

We retrospectively analyzed patients undergoing first-time AF ablation to explore the association between systemic inflammatory markers and LA scar burden. Biomarkers included hsCRP, neutrophil-to-lymphocyte ratio (NLR), NT-proBNP, and epicardial fat pad thickness. Demographics, comorbidities, and CHA_2DS_2-VASc score were recorded. LA scar was quantified during electroanatomic voltage mapping using the BioSense Webster Oct array catheter D1609.

Results

A total of 220 patients with AF were included in the final analysis; 104 (47.3%) demonstrated significant atrial scar burden. Patients with scar had significantly higher BMI, hsCRP, NT-proBNP, and CHA_2DS_2-VASc score.. AF type distribution differed significantly (p=0.003), with LS-persistent AF more prevalent in scar-present patients (56.7% vs 35.3%), and Cuzick's trend test confirmed a significant monotonic increase in scar with advancing AF chronicity. CHF, dyslipidemia, OSA, and hypothyroidism were all significantly more prevalent in scar-present patients. On univariable regression, log(hsCRP), log(NT-proBNP), BMI, hypothyroidism, LS-persistent AF, and OSA were all significant predictors. On multivariable regression after multiple imputation (n=220), two variables independently predicted scar: LS-persistent AF (OR 3.17; 95%CI 1.28–7.86; p=0.013) and hypothyroidism (OR 2.87; 95%CI 1.12–7.34; p=0.028). Hscrp and ntprobnp independently predicted scar but did not reach statistical significance

Conclusions

These findings underscore the importance of comprehensive risk factor management in AF. The association between systemic inflammation and atrial scar burden supports further investigation of anti-inflammatory and antifibrotic strategies in patients with atrial remodelling. A more individualized approach targeting AF triggers and underlying atrial substrate may enhance ablation efficacy and improve long-term outcomes.

Dermatology

P3-21: A Rare Case of Erythema Dyschromicum Perstans (Ashy Dermatosis)

Grishma Jalemu MD, Neelima Sinha MD, Amit Banerjee MD, Michael J.Akerman MD

Introduction: Erythema dyschromicum perstans (EDP), or ashy dermatosis, is a rare acquired pigmentary disorder characterized by progressive, slate-gray macules on the trunk and extremities, predominantly in darker skin types. Its etiology remains unclear, with proposed autoimmune, environmental, and infectious triggers. Histology typically shows basal vacuolar degeneration and dermal melanophages.

Case Presentation: A 46-year-old Hispanic woman presented with a one-year history of asymptomatic, progressive gray macules starting on the inner thighs and spreading to the trunk and upper extremities. She denied systemic symptoms or exposures. Laboratory workup was unremarkable except for low-titer ANA positivity. Skin biopsy confirmed EDP. The patient failed topical corticosteroids and tacrolimus, including a split-body trial, with no clinical improvement.

Discussion: EDP presents diagnostic and therapeutic challenges due to overlapping features with other pigmentary disorders and unclear pathogenesis. Autoimmune involvement is suggested by ANA positivity in some cases. Standard treatments, including topical steroids and calcineurin inhibitors, often show limited efficacy. Systemic agents such as hydroxychloroquine or azathioprine may be considered in refractory cases.

Conclusion: EDP is a chronic, treatment-resistant condition with significant psychosocial impact. Management focuses on sun protection, supportive care, and consideration of systemic therapy. Further research is needed to establish effective treatment strategies.

Endocrinology

P1-06: Secondary adrenal insufficiency; adrenal crisis; pituitary surgery; loss to follow-up; endocrine care; glucocorticoid replacement

Navdeep Saini MD, MD, Makarand Madine, MD, Pramil Cheriyath, MD, Vinod Nookala, MD

Background: Secondary adrenal insufficiency (SAI) is a life-threatening condition due to inadequate ACTH secretion, commonly following pituitary surgery. Loss to endocrinology follow-up (15–30%) increases the risk of adrenal crisis.
Case Presentation: A 45-year-old man with prior pituitary adenectomy presented with progressive fatigue, nausea, vomiting, and dizziness, acutely worsening after gastroenteritis. He had not followed up due to limited awareness and financial constraints. On admission, he was hypotensive (85/46 mmHg) with hyponatremia (Na 129 mmol/L) and hyperkalemia (K 5.4 mmol/L). TSH was suppressed, and both morning cortisol and ACTH were low, consistent with SAI. Intravenous fluids provided minimal improvement; administration of IV hydrocortisone led to rapid hemodynamic stabilization. He was discharged on hydrocortisone, fludrocortisone, and levothyroxine with endocrinology follow-up.
Conclusion: SAI often presents with nonspecific symptoms and may remain undiagnosed until stress precipitates crisis. Poor follow-up due to systemic and socioeconomic barriers increases morbidity. Early recognition, patient education, structured discharge planning, and timely glucocorticoid replacement are essential to prevent life-threatening complications.

P1-22: Hypertriglyceridemia-Induced Acute Pancreatitis With New-Onset Diabetic Ketoacidosis in a 55-Year-Old Female With an Incidental Multicystic Pancreatic Mass

Ayodeji Akinmeji MD, Indu Meena MD, Neeharika John Madhavaram MBBS, Matthew Martinucci, Nayanika Tunmala MD , Vinod Nookala MD

Background: Hypertriglyceridemia is a recognized but uncommon cause of acute pancreatitis and may coexist with Diabetic ketoacidosis, creating a complex metabolic emergency. Early recognition is essential to prevent complications.
Case Presentation: A 55-year-old woman with no prior history of diabetes presented with acute abdominal pain and was found to have severe hyperglycemia (glucose 308 mg/dL), metabolic acidosis (pH <7.20, bicarbonate <10 mmol/L), and marked ketonuria (4+), consistent with DKA. Abdominal CT revealed a multicystic pancreatic head mass with peripancreatic fat stranding, suggestive of acute pancreatitis. Serum lipase was mildly elevated (183 U/L), and triglycerides were markedly elevated at 3,700 mg/dL, confirming hypertriglyceridemia-induced pancreatitis. She was treated with intravenous fluids, insulin infusion, and electrolyte replacement, resulting in rapid metabolic correction and triglyceride reduction.
Conclusion: This case highlights the rare overlap of new-onset DKA, hypertriglyceridemia-induced pancreatitis, and an incidental pancreatic mass. Early metabolic resuscitation and evaluation of lipid disorders are critical to prevent clinical deterioration.

P1-31: Euglycemic Diabetic Ketoacidosis in an Elderly Patient on SGLT2 Inhibitor: A Diagnostic Pitfall

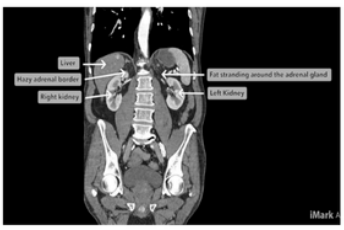
Kinjal M Solanki, Yash Solanki, Deep Solanki, Vinod Nookala, Pramil Cheriyath, Sujata Sukhavasi, Pradeep Balasubramanian

Background: Euglycemic diabetic ketoacidosis (EDKA) is an underrecognized complication of SGLT2 inhibitors and can be easily missed due to the absence of significant hyperglycemia.
Case Presentation: We present an 83-year-old male with type 2 diabetes on dapagliflozin who was admitted with altered mental status and poor oral intake. Initial labs showed a high anion gap metabolic acidosis with glucose levels within the normal range, making the diagnosis less obvious at presentation. Given persistent acidosis without a clear cause, serum β-hydroxybutyrate was obtained and found to be markedly elevated, confirming EDKA. Contributing factors likely included reduced oral intake and continued SGLT2 inhibitor use during acute illness. The medication was discontinued, and the patient was treated with insulin infusion along with early dextrose-containing fluids, leading to gradual resolution of the acidosis.
Conclusion: This case highlights a common diagnostic pitfall—normal glucose levels delaying recognition of ketoacidosis. In patients taking SGLT2 inhibitors, especially the elderly or those with decreased intake, EDKA should be considered early. Prompt identification and management can significantly impact outcomes.

P2-30: Adrenal haemorrhage: A rare end-organ damage in hypertensive emergency

Yashas Prasad Mylarappa MD, Hima Makonahally Pratap, Ajitha V Ganesan MD

Introduction: Hypertensive emergency is a severe elevation in blood pressure (BP) exceeding 180/120 mm Hg, accompanied by evidence of new or worsening target organ damage. While common complications include ischemic stroke, pulmonary edema, and acute coronary syndrome, adrenal hemorrhage is a rare and underrecognized manifestation. This case report describes a 67-year-old man who presented with severe abdominal pain as a result of bilateral adrenal hemorrhage during a hypertensive emergency.
Case description: A 67-year-old man with a history of hypertension presented to the emergency department with acute-onset left upper quadrant abdominal pain. Initial vital signs revealed a blood pressure of 202/95 mmHg. Laboratory investigations showed leukocytosis, elevated serum lactate, and metabolic acidosis. CT angiography revealed bilateral adrenal hemorrhages, left greater than right. The patient was diagnosed with a hypertensive emergency and managed with intravenous antihypertensive medications, fluids, and analgesia. Conservative management of the adrenal hemorrhages was recommended, with close monitoring in the ICU.
Discussion: This case highlights adrenal hemorrhage as a rare complication of hypertensive emergency. The adrenal glands' unique vascular structure makes them susceptible to hemorrhage during acute surges in blood pressure or catecholamine levels. While adrenal hemorrhage is typically associated with sepsis, anticoagulation, or trauma, emerging reports indicate it can also complicate COVID-19 infection and hypertensive crises. Early imaging and multidisciplinary management are crucial for optimal outcomes. Clinicians should maintain a high index of suspicion for adrenal involvement in hypertensive emergencies, particularly when patients present with abdominal or flank pain. This case broadens the spectrum of recognized hypertensive end-organ damage to include the adrenal glands.



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P2-34: Lipemia vs Laboratory: A Serum Saga Starring DKA and Pancreatitis

Jaideep Singh MD, Manu Balusu MD, Chidinma Chijioke MD, Anas Al Mardini MD, Aarti Kumar MD

Introduction: The triad of Diabetic ketoacidosis, hypertriglyceridemia, and Acute pancreatitis is associated with significantly increased mortality. Severe lipemia can interfere with laboratory assays, complicating diagnosis and management.
Case Presentation: A 35-year-old man presented with DKA and hypertriglyceridemia-induced pancreatitis (triglycerides >8921 mg/dL). Initial labs showed glucose 529 mg/dL, bicarbonate 15 mmol/L, and multiple unreliable values, including implausible liver enzymes and inconsistent calcium and phosphate levels due to lipemic interference. He was managed with intravenous fluids, insulin infusion, analgesia, and fibrates. Given unreliable laboratory data, clinical assessment—including vital signs, intake/output, and resolution of Kussmaul respirations—guided management. Electrolytes were replaced cautiously, with close clinical and ECG monitoring. Laboratory accuracy improved after ultracentrifugation and triglyceride reduction. By day 6, triglycerides decreased to <1000 mg/dL, metabolic parameters normalized, and the patient was transitioned to subcutaneous insulin.
Discussion: Severe lipemia can significantly impair laboratory interpretation, necessitating reliance on clinical judgment and physiologic assessment. Conservative electrolyte management and close monitoring are essential to avoid overtreatment based on spurious values.
Conclusion: In hypertriglyceridemia-associated DKA and pancreatitis, clinical evaluation remains critical when laboratory data are unreliable. Integrating bedside assessment with shared decision-making can optimize outcomes in complex cases.

P2-41: GLP-1 Receptor Agonist Use Is Associated with Lower Femoral Neck Bone Density in Obese U.S. Adults: A NHANES 2013–2020 Analysis

Ashita Agrawal MD, Inban Pugazhendi MD, Cheryl R. Rosenfeld MD

Objective: To evaluate the association between GLP-1 receptor agonists and bone mineral density (BMD) in obese adults, and to assess differences by age and sex using NHANES data.
Methods: Adults ≥40 years with BMI ≥30 kg/m² from NHANES 2013–2020 with DXA and medication data were included. GLP-1 use was identified from prescriptions. After 1:2 propensity score matching, BMD at the femoral neck and lumbar spine was compared. Multivariable linear regression adjusted for demographic and clinical factors. Interaction terms assessed age and sex effects.
Results: Among 1,283 participants, 124 reported GLP-1 use; 112 users were matched to 224 non-users. Femoral neck BMD was lower in GLP-1 users (0.78 vs 0.82 g/cm²; p=0.03), with a non-significant trend at the lumbar spine (p=0.08). Lean mass was also reduced (49.2 vs 52.1 kg; p=0.01). GLP-1 use remained independently associated with lower femoral neck BMD (β = −0.034 g/cm²; p=0.02). The effect was more pronounced in individuals ≥65 years, particularly postmenopausal women. Fracture rates were similar, though falls were numerically higher among users.
Conclusions: GLP-1 receptor agonist use is associated with lower femoral neck BMD, especially in older adults. Monitoring bone health may be warranted, and prospective studies are needed to assess long-term fracture risk.

P2-42: Sex and Region-Stratified Meta-analysis of Cardiovascular Outcomes in Lean NAFLD Patients

Ashita Agrawal MD, Inban Pugazhendi MD , Cheryl R. Rosenfeld MD

Introduction: Nonalcoholic fatty liver disease affects up to one-third of adults globally. Although lean individuals (BMI <25 kg/m²) may appear metabolically healthy, lean NAFLD is increasingly recognized as a high-risk phenotype. We performed a sex- and region-stratified meta-analysis to assess cardiovascular risk in this population.
Methods: A systematic review (2000–2025) identified studies evaluating cardiovascular outcomes in lean NAFLD compared with lean controls or obese NAFLD. Random-effects meta-analysis was performed. Subgroup analyses examined sex (male vs female) and region (Asia vs Western countries). Heterogeneity and publication bias were assessed using I^2 statistics and funnel plots.
Results: Fourteen cohort studies including over 3.2 million individuals (lean NAFLD n=118,457) were analyzed. Lean NAFLD was associated with a 48% increased cardiovascular risk versus lean controls (HR 1.48; 95% CI 1.31–1.66). Risk was higher in women (HR 1.61) than men (HR 1.32). Asian populations demonstrated greater risk (HR 1.55) compared to Western cohorts (HR 1.29). Heterogeneity was moderate (I^2=44%) with no evidence of publication bias.
Conclusions: Lean NAFLD is associated with significantly increased cardiovascular risk despite lower BMI. Sex- and region-specific differences highlight the need for targeted risk stratification. BMI alone is insufficient; early cardiovascular screening and metabolic evaluation are warranted in this population.

P2-43: Euglycemic Diabetic Ketoacidosis Induced by Empagliflozin in an Elderly Male with Hematuria: A Rare Case and Novel Potential Trigger

Ashita Agrawal MD, Inban Pugazhendi MD, Cheryl R. Rosenfeld MD

Introduction: SGLT2 inhibitors are widely used for cardiovascular and renal protection but can rarely cause Euglycemic diabetic ketoacidosis, characterized by ketoacidosis with near-normal glucose levels.
Case Presentation: An 82-year-old man with coronary artery disease, heart failure, and benign prostatic hyperplasia presented with gross hematuria. He was hemodynamically stable except for mild tachycardia. Laboratory evaluation revealed high anion gap metabolic acidosis with glucose 199 mg/dL and positive serum and urine ketones, consistent with EDKA. He was taking empagliflozin and had no evidence of infection, infarction, or other common precipitants. Imaging showed bladder clot retention and a small renal calculus. Empagliflozin was discontinued, and he was treated with insulin infusion and dextrose-containing fluids, resulting in resolution of acidosis. Hematuria improved with bladder irrigation.
Discussion: EDKA occurs due to increased glucagon-to-insulin ratio, promoting lipolysis and ketogenesis. While typical triggers include infection, fasting, or dehydration, this case suggests hematuria with clot retention as a potential stressor contributing to EDKA.
Conclusion: Clinicians should maintain a high index of suspicion for EDKA in patients on SGLT2 inhibitors presenting with unexplained metabolic acidosis, even without classic triggers.

P2-55: From Hyperglycemia to Hypervirulence: Disseminated Klebsiella pneumoniae in Uncontrolled Diabetes

Sandhya Viswanathan MD, Anas Mardini MD, Canan Dirican MD, Husein Abu-Rumman MD, Manu Balusu MD

Background: Hypervirulent Klebsiella pneumoniae is a distinct pathotype capable of causing severe, community-acquired infections with metastatic spread, particularly in patients with diabetes.
Case Presentation: A 44-year-old Hispanic man with uncontrolled type 2 diabetes presented with hyperglycemic crisis (glucose 800 mg/dL) and progressive weakness. His course was complicated by fever, altered mental status, and seizures. Lumbar puncture confirmed bacterial meningitis (WBC 2700 cells/mm³, elevated protein). Imaging revealed a hepatic abscess and bilateral pneumonia. Cultures from cerebrospinal fluid, urine, and abscess fluid grew Klebsiella pneumoniae, consistent with disseminated infection. Blood cultures were negative. He was treated with ceftriaxone, metronidazole, and levofloxacin, with source control including thoracic surgery for empyema. His course was further complicated by acute kidney injury, thrombocytopenia, and respiratory failure. After prolonged hospitalization, he recovered fully and was discharged on oral antibiotics.
Discussion: hvKp is associated with invasive syndromes including hepatic abscess, meningitis, and metastatic infections, with mortality up to 30%. Diabetes is a major risk factor. Early recognition, targeted antimicrobial therapy, and prompt source control are essential. Rising multidrug resistance further complicates management.
Conclusion: Disseminated hvKp infection should be considered in diabetic patients with multi-organ involvement. Early diagnosis and aggressive management are critical to improving outcomes.

P2-65: Hyperlactatemia as a Diagnostic Clue for Adrenal Insufficiency Secondary to Bilateral Adrenal Metastases from Occult Pancreaticobiliary Adenocarcinoma: A Case Report

Namratha Vaghdevi Cherukuru, MD, Sandhya Viswanathan, MD, Cheryl Rosenfeld, MD

Background: Adrenal insufficiency secondary to bilateral adrenal metastases is uncommon despite the high prevalence of adrenal metastatic involvement in cancer. Hyperlactatemia as a feature of adrenal crisis is rarely emphasized in clinical literature.
Case Presentation: We describe a 74-year-old woman with bilateral adrenal metastases who developed acute decompensation characterized by refractory hypotension and persistent hyperlactatemia (lactate 4.3 mmol/L, subsequently 3.6 mmol/L) despite adequate fluid resuscitation. The concurrence of hyperlactatemia, vasopressor-refractory hypotension, and large bilateral adrenal masses prompted evaluation for adrenal insufficiency. Cosyntropin stimulation testing confirmed adrenal insufficiency with a baseline cortisol of 6.8 µg/dL and a 60-minute post- stimulation cortisol of 14 µg/dL. Following initiation of stress-dose hydrocortisone, the patient showed rapid clinical improvement with normalization of blood pressure and lactate levels. Despite extensive diagnostic workup, including liver biopsy, the primary malignancy remained occult. Histopathology revealed a well to moderately differentiated adenocarcinoma of unknown primary, with immunohistochemistry favoring a pancreaticobiliary origin (CDX2+, CK19+, CK7− CK20−, GATA-3−, TTF-1−, WT-1−). This case represents a rare instance of adrenal metastases from an unidentified primary tumor.
Conclusion: This case underscores three key points: (1) persistent hyperlactatemia may serve as a diagnostic clue for occult adrenal insufficiency in patients with bilateral adrenal metastases; (2) high clinical suspicion and empiric corticosteroid therapy are warranted in critically ill patients with bilateral adrenal masses before confirmatory testing; and (3) adenocarcinoma of unknown primary presenting predominantly with adrenal involvement represents an exceptionally rare and diagnostically challenging entity.

P3-10: Beyond Aesthetics: Granulomatous Hypercalcemia After PMMA Gluteal Augmentation

P. Racha MD, B. Fernandes MD, A. Shabnam MD, A. Bokka, C. Rosenfeld MD

Background: Silicone injections and dermal fillers, including hyaluronic acid, poly-L-lactic acid (PLLA), polymethylmethacrylate (PMMA), and calcium hydroxylapatite (CaHA), are increasingly used for cosmetic enhancement. While biostimulatory fillers such as PMMA are considered relatively safe for facial applications, complications are more frequently reported with non–FDA-approved, large-volume injections for body contouring. One serious but underrecognized complication is hypercalcemia resulting from chronic granulomatous inflammation. Although this phenomenon is well described with silicone, reports associated with PMMA remain limited.
Case Presentation: We present a case of severe hypercalcemia in a patient with a history of off-label PMMA injections for buttock augmentation. The clinical presentation and evaluation were consistent with a granulomatous process secondary to foreign body reaction from dermal filler material.
Discussion: This case highlights the importance of considering foreign body–induced granulomatous disease in the differential diagnosis of unexplained hypercalcemia, particularly in patients with a history of cosmetic procedures. With the rising prevalence of dermal fillers, clinicians should maintain awareness of rare but potentially severe metabolic complications associated with these agents.

P3-17: A Crisis Within A Crisis: Hypoglycemia And Thyroid Storm

Akhila Reddy Devi Reddy MD, Archana Ramalingam MD, Vinod Nookala MD

Introduction: Thyroid storm is a severe manifestation of hyperthyroidism with high mortality. While hyperglycemia is more common, hypoglycemia is a rare but serious complication. We report a case of profound hypoglycemia in thyroid storm.
Case Presentation: A 45-year-old Haitian woman with no prior medical history presented with fever, malaise, vomiting, and lower extremity swelling. She was febrile (102.2°F), tachycardic (130 bpm), and ill-appearing with goiter and edema. Labs showed suppressed TSH, markedly elevated free T4 and T3, leukocytosis, and positive thyroid-stimulating immunoglobulin. Echocardiography revealed reduced ejection fraction (25–30%) with pulmonary hypertension. Thyroid storm was diagnosed (Burch–Wartofsky score 80). She was treated with propranolol, propylthiouracil, hydrocortisone, and cholestyramine. On ICU admission, she developed severe hypoglycemia (glucose 8 mg/dL), requiring repeated dextrose boluses and continuous infusion. Her course was complicated by lactic acidosis and hypoxia requiring diuresis. Glycemic status and thyroid function gradually improved, and she was discharged on methimazole.
Discussion: Hypoglycemia in thyroid storm may result from increased metabolic demand, glycogen depletion, impaired gluconeogenesis, and heightened insulin sensitivity, compounded by organ dysfunction. In this case, sepsis and cardiac failure likely contributed.
Conclusion: Hypoglycemia is a rare but critical complication of thyroid storm. Early recognition and prompt management are essential to improve outcomes.

Gastroenterology

P1-13: Modulation of the Gut Microbiome in Resistant and Refractory Hypertension

Prathima Guntipalli MD, Umar

Background: Resistant hypertension (RHTN) and refractory hypertension (RfHTN) remain major clinical challenges despite multidrug therapy. RHTN is defined as uncontrolled blood pressure on ≥3 agents, while RfHTN persists despite ≥5 agents. Beyond traditional mechanisms such as renin–angiotensin–aldosterone system activation and sympathetic overactivity, emerging evidence implicates the gut microbiome in blood pressure regulation.
Key Insights: Gut microbial metabolites influence vascular function and inflammation. Short-chain fatty acids (SCFAs) exert anti-inflammatory and vasoprotective effects, whereas elevated trimethylamine N-oxide (TMAO) is associated with endothelial dysfunction and hypertension progression. Lifestyle factors—including diet, physical activity, and sleep—modulate microbiome composition and may impact blood pressure control.
Conclusion: Targeting the gut microbiome represents a promising therapeutic avenue in RHTN and RfHTN. Interventions such as probiotics, dietary modification, fecal microbiota transplantation (FMT), and other gut-directed therapies may complement conventional antihypertensive strategies. Further clinical studies are needed to define their efficacy and role in management.

P2-07: Procedural Efficiency and Safety of Traction-assisted Versus Conventional Endoscopic Submucosal Dissection for Gastric Tumors: A Meta-analysis of Randomized Controlled Trials

Anas Al Mardini, MD , Marwan Desouky, MBBCh , Loubna Fadeli, MD , Abdelwahap Elghezewi, MBBC, Wesam Frandah MD, Ahmed Sherif MD, Muhammed Elhadi MBBCh, MSc

Background: Endoscopic submucosal dissection is an effective minimally invasive technique for superficial gastric tumors but is limited by technical complexity and prolonged procedure time. Traction-assisted ESD (TA-ESD) may improve efficiency, though its impact remains uncertain.
Methods: A PRISMA-guided systematic review was conducted (November 8, 2025) across PubMed, Scopus, Web of Science, Cochrane, and ClinicalTrials.gov. Randomized controlled trials comparing TA-ESD versus conventional ESD (C-ESD) with intention-to-treat analyses were included. Outcomes included procedure duration, resection quality, and complications.
Results: Five RCTs (n=463; 228 TA-ESD, 235 C-ESD) were included. TA-ESD significantly reduced procedure time (MD –12.45 min, p=0.003), with consistent benefits by tumor location (U/M: –21.21 min; L: –10.71 min). En bloc and R0 resection rates were similar (RR ~1.0), as were perforation and delayed bleeding rates. Traction-related specimen damage was rare (1.3%).
Conclusion: TA-ESD shortens procedure time while maintaining comparable safety and efficacy to conventional ESD. Larger multicenter studies with standardized techniques are needed to validate these findings.

P2-10: Impact of Gastroesophageal Junction Tumor Classification on Stage Distribution and Survival: Evidence of Boundary-Driven Stage Migration

Harika Dadigiri MD, Canan Dirican MD, Jeril Lasington MD, Anas Mardini MD, Pramil Cheriyath MD

Background: Classification of gastroesophageal junction (GEJ) tumors as esophageal (C15.2/C15.5) versus gastric cardia (C16.0) varies across institutions and may lead to stage migration, affecting trial eligibility and survival comparisons.
Methods: Using SEER (17 registries, 2000–2022), we identified 23,892 patients with GEJ adenocarcinoma (esophagus-coded vs stomach-coded). Outcomes included stage distribution (chi-square) and overall survival. Kaplan–Meier and Cox regression analyses were performed overall and by AJCC stage, with log-rank tests assessing within-stage survival differences.
Results: Stage distribution differed significantly ($p=2.1\times10^{-37}$). Stomach-coded tumors had higher stage IV prevalence (43.0% vs 37.0%) and lower stage III (22.1% vs 26.5%); advanced disease was more common (65.1% vs 63.5%, p=0.01). Median survival was similar (13 vs 12 months, p=0.62). However, within-stage survival differed in stages II–IV (p=0.0003, 0.01, 0.004), but not stage I. Findings persisted in sensitivity analyses (n=19,030).
Conclusion: Coding variability in GEJ tumors leads to stage migration and biased survival comparisons. Standardized classification or a GEJ-specific staging system is needed to improve consistency across studies and guide clinical decision-making.

P2-15: Liver Abscess and ARDS in a Healthy Young Male Following Routine Dental Cleaning: An Uncommon Sequelae of Group G Streptococcal bacteremia

Puneet Gupta, MD; Aarti Kumar, MD; Nilay Soni, MD; Zia U Deen, MD; Theodore Markou, MD

Introduction: Pyogenic liver abscess (PLA) is uncommon in immunocompetent individuals and is typically associated with underlying comorbidities. Group G Streptococcus (GGS), part of normal oral flora, is a rare cause. We report a case of GGS-induced PLA complicated by Acute respiratory distress syndrome following routine dental cleaning.
Case Presentation: A 19-year-old previously healthy male presented with 5 days of fever, chills, and right upper quadrant pain. He had no comorbidities; the only notable history was dental cleaning two weeks prior. Labs showed transaminitis and elevated lactate. CT imaging revealed a 6 cm hepatic abscess with bilateral infiltrates. Blood cultures grew gram-positive cocci. He was started on broad-spectrum antibiotics and underwent image-guided drainage. Within 24 hours, he developed respiratory failure requiring intubation, consistent with ARDS. Antibiotics were narrowed after cultures confirmed GGS. Despite complications including pleural effusion requiring drainage, he improved with targeted therapy and was discharged.
Discussion: PLA in healthy hosts is rare. Transient bacteremia from mucosal disruption likely led to hepatic seeding. Rapid progression to ARDS highlights the systemic inflammatory response associated with invasive GGS infection.
Conclusion: GGS can cause severe PLA even in immunocompetent individuals. Early recognition, thorough history, and multidisciplinary management are essential to prevent life-threatening complications.

P2-19: Efficacy of Infliximab Versus Vedolizumab in Immune Checkpoint Inhibitors-Associated Colitis: A Systematic Review and Meta-analysis

Sabah Kulsum MD, Sri Harsha Narayana MD, Yashas Prasad Mylarappa MD, Anas Al Mardini MD, Hamza Ansari MD

Background: Immune checkpoint inhibitor colitis is a common immune-related toxicity requiring biologic therapy when corticosteroids fail. Infliximab and Vedolizumab are widely used, but comparative evidence on remission and recurrence is limited. This meta-analysis evaluates their relative efficacy.
Methods: A systematic review identified studies comparing infliximab and vedolizumab for ICI-associated colitis. Studies reporting clinical remission and recurrence were included. Pooled odds ratios (ORs) with 95% confidence intervals (CIs) were calculated using a fixed-effect model. Heterogeneity and publication bias were assessed using I^2 statistics, χ^2 testing, and funnel plots.
Results: Four studies including 263 patients reported remission outcomes. Clinical remission occurred in 89.6% of vedolizumab-treated patients versus 85.5% with infliximab. Vedolizumab showed higher odds of remission, though not statistically significant (OR 1.92, 95% CI 0.96–3.85; p=0.07). Recurrence was evaluated in four studies including 335 patients. Recurrence occurred in 12.0% of vedolizumab-treated patients compared to 30.3% with infliximab. Vedolizumab significantly reduced recurrence risk (OR 0.28, 95% CI 0.15–0.51; p<0.0001) with no observed heterogeneity (I^2=0%).
Conclusions: Both agents achieve comparable remission; however, vedolizumab significantly reduces recurrence, supporting its role in long-term disease control in ICI-associated colitis.

P2-20: Impact of GLP-1 Analogue Therapy on Gastrointestinal Outcomes in Patients with Irritable Bowel Syndrome: A Real-World TriNetX Analysis

Sri Harsha Narayana MD, Yashas Prasad Mylarappa MD, Anas Al Mardini MD, Hamza Ansari MD

Background/Aim: Irritable bowel syndrome (IBS) is a chronic condition characterized by abdominal pain, altered bowel habits, and bloating. GLP-1 receptor agonists, widely used for diabetes and obesity, exert gastrointestinal effects that may influence IBS symptoms. However, real-world evidence evaluating their impact on IBS outcomes remains limited. We aimed to compare gastrointestinal outcomes in IBS patients treated with GLP-1 analogues versus non-users.
Methods: We conducted a retrospective cohort study using the TriNetX global network. Adults (≥18 years) with IBS were stratified into GLP-1 analogue users (semaglutide, liraglutide, dulaglutide, exenatide, tirzepatide) and non-users. Propensity score matching (1:1) balanced demographics, comorbidities, and medication use. Outcomes included chronic diarrhea, constipation, abdominal pain, malabsorption, and bloating, identified via ICD-10 codes. Risk ratios (RR), Kaplan–Meier analyses, and event frequency comparisons were performed.
Results: After matching, 86,533 patients were included per cohort. GLP-1 analogue use was associated with significantly reduced risk of chronic diarrhea (RR 0.71), constipation (RR 0.79), abdominal pain (RR 0.77), malabsorption (RR 0.77), and bloating (RR 0.60) (all p<0.001). Symptom-free survival probability and episode frequency were also improved.
Conclusions: GLP-1 analogue therapy was associated with a reduced IBS symptom burden in this large real-world study, supporting a potential therapeutic role and warranting prospective validation.

P2-21: Outcomes of GLP-1 Receptor Agonists in Patients with Metabolic-Associated Steatohepatitis: A Propensity Matched Analysis

Sri Harsha Narayana MD, Yashas Prasad Mylarappa MD, Anas Al Mardini MD, Hamza Ansari MD

Background: Metabolic dysfunction-associated steatohepatitis is associated with progressive liver disease, hepatic decompensation, and increased mortality. GLP-1 receptor agonists have demonstrated metabolic and histologic benefits, but real-world data on clinically meaningful hepatic outcomes remain limited.
Methods: We conducted a retrospective cohort study using a large multicenter database. Adults with MASH were stratified into GLP-1 receptor agonist users and non-users. Propensity score matching (1:1) balanced demographics, comorbidities, and medication use. Primary outcomes included ascites, Hepatocellular carcinoma (HCC), and all-cause mortality. Risk differences (RD) with 95% confidence intervals (CIs) were calculated.
Results: Among 1,434,086 patients with MASH, 168,740 were GLP-1 RA users. After matching, 168,733 patients remained in each cohort with well-balanced characteristics. GLP-1 RA use was associated with a significantly lower risk of ascites (RD −0.013; 95% CI −0.014 to −0.012; P<0.001) and reduced all-cause mortality (RD −0.022; 95% CI −0.023 to −0.021; P<0.001). HCC incidence was slightly higher among GLP-1 RA users, but the absolute risk difference was negligible (RD 0.000; 95% CI 0.000–0.001; P=0.025).
Conclusions: GLP-1 receptor agonists were associated with reduced hepatic decompensation and improved survival in MASH, with no clinically meaningful increase in HCC risk, supporting their safety and potential therapeutic role.

P2-22: Catastrophic Multiterritorial Arterial Embolization Causing Near-Total Bowel Necrosisin New-Onset Atrial Fibrillation With Thyrotoxicosis

Arshiya Shabnam MD, Jeril Lasington MD, Puneet Gupta MD, Manvi Gupta MD, Aatman Shah MD, Nayanika Tummala MD

Introduction: Acute mesenteric ischemia (AMI) is a life-threatening condition with high mortality, particularly after progression to transmural necrosis. Cardioembolic occlusion of the superior mesenteric artery (SMA), most commonly from Atrial fibrillation (AF), is a leading cause. Hyperthyroidism can precipitate AF and promote hypercoagulability, though multiterritorial arterial embolization is rare.
Case Presentation: A 77-year-old woman with hypertension, coronary artery disease, and hyperthyroidism on methimazole presented with acute abdominal pain. She was found to have new-onset AF with rapid ventricular response and biochemical thyrotoxicosis. Laboratory evaluation revealed leukocytosis and lactic acidosis. Examination showed diffuse abdominal tenderness and peripheral ischemia with cold, cyanotic lower extremities. CT angiography demonstrated complete SMA occlusion and concurrent left superficial femoral artery occlusion. Despite resuscitation and anticoagulation, emergent laparotomy revealed near-total small bowel necrosis with patchy colonic ischemia, precluding salvage. The patient developed progressive multiorgan failure and expired.
Discussion: Thyrotoxicosis promotes arrhythmogenesis and a prothrombotic state, predisposing to systemic embolization. Concurrent SMA and peripheral arterial occlusions suggest widespread embolic disease. Early AMI may present with pain disproportionate to examination, delaying diagnosis.
Conclusion: Multiterritorial embolization in thyrotoxicosis-associated AF can cause rapidly fatal ischemia. Early recognition and imaging are critical, though prognosis remains poor once extensive necrosis occurs.

P2-23: When Crohn's Isn't Crohn's: Cryptosporidiosis Masquerading as Inflammatory Bowel Disease on Cross-Sectional Imaging

Arshiya Shabnam, MD,Jeril Lasington, MD,Puneet Gupta, MD, Aatman Shah, MD

Introduction: Cryptosporidiosis is an enteric infection transmitted via the fecal–oral route, typically causing self-limited diarrhea in immunocompetent hosts. However, it can produce significant intestinal inflammation that mimics Crohn's disease on imaging, risking misdiagnosis and inappropriate immunosuppression.
Case Presentation: A 38-year-old immunocompetent woman presented with four days of abdominal pain, nausea, vomiting, and non-bloody diarrhea. Laboratory studies were unremarkable except for mildly elevated ESR. CT abdomen demonstrated moderate-to-severe ileocolitis suggestive of Crohn's disease, prompting initiation of intravenous corticosteroids and antibiotics. Gastrointestinal pathogen panel subsequently returned positive for Cryptosporidium, leading to discontinuation of immunosuppression. With supportive care alone, her symptoms resolved within 48 hours, and she was discharged in stable condition.
Discussion: Cryptosporidiosis can closely mimic inflammatory bowel disease radiographically, with findings such as bowel wall thickening and mucosal enhancement. Discordance between significant imaging abnormalities and minimal laboratory inflammation should prompt evaluation for infectious etiologies. Premature corticosteroid use in undiagnosed infections may worsen outcomes.
Conclusion: Cryptosporidiosis should be considered in acute ileocolitis prior to initiating immunosuppressive therapy. Routine stool pathogen testing is essential to avoid misdiagnosis and prevent potentially harmful treatment decisions.

P2-24: Coexistence of Gastric Antral Vascular Ectasia and Hemosuccus Pancreaticus in a Patient With Metastatic Cholangiocarcinoma

Arshiya Shabnam, MD, Jeril Lasington, MD,Puneet Gupta, MD, Aatman Shah, MD

Introduction: Gastric antral vascular ectasia and Hemosuccus pancreaticus are rare causes of gastrointestinal bleeding. Their coexistence is exceedingly uncommon and poses diagnostic challenges, particularly in patients with advanced malignancy.
Case Presentation: An 83-year-old man with gastroesophageal reflux disease and prior colon polyps was diagnosed with Cholangiocarcinoma involving the liver and biliary tree, later progressing to metastatic disease. He received multiple chemotherapy regimens, including gemcitabine-based therapy and FOLFOX. In 2024, he developed progressive anemia with intermittent melena. Initial esophagogastroduodenoscopy demonstrated vascular ectasias consistent with GAVE without active bleeding, suggesting chronic blood loss. Despite this, he remained transfusion-dependent. Repeat endoscopy was inconclusive. Further evaluation ultimately identified hemosuccus pancreaticus, indicating intermittent bleeding from the pancreatic duct.
Discussion: This case illustrates multifactorial gastrointestinal bleeding with both chronic (GAVE) and intermittent (hemosuccus pancreaticus) components. Standard endoscopic evaluation may fail to identify all bleeding sources. In patients with persistent anemia and negative findings, rare etiologies should be considered, especially in the setting of hepatopancreatobiliary malignancy.
Conclusion: Concurrent GAVE and hemosuccus pancreaticus represent a rare but important cause of refractory gastrointestinal bleeding. Multimodal evaluation and multidisciplinary management are essential for accurate diagnosis and optimal care.

P2-38: Mortality and 30-day Readmissions Among Hepatocellular Carcinoma Patients Admitted for Portal Vein Thrombosis in the United States

Aishwarya Ramesh MD, Renuka Verma, Kamleshun Ramphul, Rahul Singla

Background: Portal vein thrombosis is a serious complication in Hepatocellular carcinoma, associated with poor outcomes. We evaluated mortality, predictors, and readmission patterns in this population.
Methods: Adults (≥18 years) with HCC hospitalized with PVT were identified from the Nationwide Readmissions Database
(2016–2022). COVID-19 cases were excluded. Multivariable regression identified predictors of index mortality. Thirty-day readmission rates, causes, and associated mortality were analyzed.
Results: Among 1,556 index admissions, in-hospital mortality was 6.4%. Patients were predominantly male (74.5%) with a mean age of 64.3 years. Independent predictors of mortality included cachexia, metastasis, acute liver failure, encephalopathy, acute kidney injury, myocardial infarction, and palliative care use (all p<0.01). Demographics and common comorbidities were not associated with mortality. Among survivors, 32.6% were readmitted within 30 days. Sepsis (9.2%) and recurrent PVT (4.2%) were the most common causes. Mortality during readmission was high (18.6%).
Conclusions: HCC patients with PVT have substantial in-hospital and post-discharge mortality. Acute complications and advanced disease drive mortality risk, while sepsis is a leading cause of readmission. These findings highlight the need for closer monitoring, early complication management, and targeted strategies to reduce readmissions and improve outcomes.

P2-39: Evaluating the Trends, Demographics, Comorbidities, and Healthcare Burden of Inflammatory Bowel Disease Patients With Small Bowel Cancer

Aishwarya Ramesh MD , Renuka Verma, Rahul Singla, Kamleshun Ramphul

Background: Small bowel cancer is rare, accounting for ~3% of gastrointestinal cancers. Inflammatory bowel disease is a known risk factor, but its prevalence and impact among SBC patients remain incompletely characterized.
Methods: Using the National Inpatient Sample (2016–2022), we identified adults with SBC and stratified them by IBD status using ICD-10 codes. Trends, demographics, comorbidities, and healthcare outcomes were compared with weighted analyses.
Results: Among 67,345 SBC patients, 3.5% (n=2,360) had IBD, predominantly Crohn's disease (83.5%). Annual prevalence peaked in 2019 (4.21%) and declined in 2021 (2.9%) without significant trend (p=0.229). IBD patients were younger (62.4 vs 66.8 years, p<0.01) and had fewer comorbidities, including hypertension, diabetes, dyslipidemia, and heart failure (all p<0.05). However, thromboembolic events were more common (12.3% vs 8.1%, p<0.01). IBD patients had longer hospital stays (9.83 vs 8.63 days, p=0.016) but similar hospital charges and in-hospital mortality. Rates of metastasis and palliative care utilization were comparable. Socioeconomic differences were observed, with non-IBD patients more frequently in lower income groups.
Conclusions: IBD-associated SBC occurs in younger patients with fewer comorbidities but higher thromboembolic risk and longer hospitalization. Socioeconomic disparities warrant further investigation, and targeted surveillance strategies may improve outcomes.

Table 1. Prevalence of IBD among Small Bowel Cancer Admissions

Year	2016	2017	2018	2019	2020	2021	2022
Prevalence of IBD cases(%)	3.56	2.93	4.14	4.21	3.35	2.90	3.47

P2-53: From Triad of Trouble to Recovery: Plasmapheresis as Lifeline in G6PD-Mediated Crisis and AKI Triggered by Viral Hepatitis

Shalin S. Rawal, MBBS*, Masum S. Patel, MBBS, Shubham Patel, MBBS, Nirmit Patel, MBBS, Kaushal Patel, MBBS, MD, Kavit Shastri, MBBS, MD, Sahil Patel, MBBS, MD

Introduction: Hepatitis A can rarely cause acalculous cholecystitis. Concurrent Glucose-6-phosphate dehydrogenase deficiency may precipitate hemolysis, leading to severe hyperbilirubinemia and acute kidney injury. We report a case managed successfully with plasmapheresis.

Case Presentation: A 23-year-old man presented with fever, epigastric pain, vomiting, and progressive jaundice. Initial evaluation showed markedly elevated bilirubin (68.5 mg/dL), transaminitis, and renal dysfunction. Serology confirmed acute hepatitis A. Imaging demonstrated acalculous cholecystitis. The clinical course worsened with severe anemia (Hb 5.1 g/dL), elevated LDH, reticulocytosis, and low G6PD activity, consistent with hemolysis. Renal function deteriorated (creatinine 3.4 mg/dL), and the patient developed altered mental status suggestive of bilirubin encephalopathy. Supportive care and antibiotics were discontinued. Three sessions of Plasmapheresis were performed, resulting in rapid improvement in mental status and laboratory parameters, with bilirubin decreasing to 15 mg/dL and normalization of renal function.

Discussion: Hemolysis in G6PD deficiency combined with hepatitis A can lead to severe hyperbilirubinemia, increasing the risk of bile-cast nephropathy and neurologic complications. Plasmapheresis may accelerate bilirubin clearance and serve as a bridge to recovery in refractory cases.

Conclusion: This case highlights the role of plasmapheresis in managing severe hyperbilirubinemia and multiorgan dysfunction due to hepatitis A with G6PD deficiency.

P3-06: Efficacy of Claudin 18.2–Targeted Therapies in Advanced Gastric and Gastroesophageal Cancer: A Systematic Review and Meta-Analysis

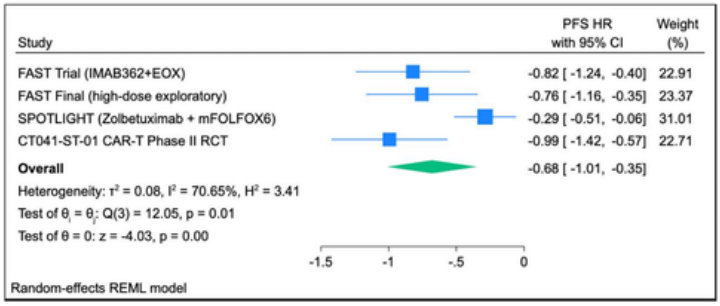
Sri Harsha Narayana MD, Yashas Prasad Mylarappa MD, Praneeth Jasti, Kaushal Patel

Background: Claudin 18.2 (CLDN18.2)–targeted therapies, including monoclonal antibodies and CAR-T approaches, have emerged as promising treatments in advanced gastric and gastroesophageal cancers. However, the consistency of progression-free survival (PFS) benefit remains uncertain. We performed a meta-analysis to evaluate their efficacy.

Methods: A systematic meta-analysis of randomized and prospective trials evaluating CLDN18.2-targeted therapies was conducted, including the FAST trial, FAST high-dose cohort, SPOTLIGHT trial, and a phase II CAR-T trial (CT041). The primary outcome was PFS. A random-effects model using restricted maximum likelihood (REML) was applied. Heterogeneity was assessed using I^2 and Cochran's Q test.

Results: Four studies were included. CLDN18.2-targeted therapies significantly improved PFS (pooled HR 0.51, 95% CI 0.36–0.70; p<0.001), corresponding to a 49% reduction in progression or death risk. Moderate-to-high heterogeneity was observed (I^2=70.65%; Q=12.05, p=0.01), likely due to differences in therapeutic modality, dosing, and chemotherapy backbones. The SPOTLIGHT trial contributed the largest weight (31.01%).

Conclusions: CLDN18.2-targeted therapies significantly improve PFS in advanced gastric and gastroesophageal cancers despite heterogeneity. These findings support CLDN18.2 as a promising therapeutic target and warrant further phase III trials and biomarker-driven patient selection.



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P3-15: Digital Clubbing and Chronic Laxative Use: A Case Report

Chidinma Chijioke MD, Siddharth Gandhi MD, Ikehukwu Okereke MD, Bassel Noumi MD

Background: Digital clubbing is characterized by bulbous enlargement of the fingertips and is classically associated with pulmonary, cardiac, and neoplastic conditions. Although its pathophysiology remains unclear, rare associations with chronic laxative use have been reported. We present a case highlighting this unusual correlation.
Case Presentation: A 73-year-old woman with GERD, IBS-C, and hypercholesterolemia on long-term Lubiprostone was referred for digital clubbing. She denied respiratory or constitutional symptoms and had no smoking or exposure history. Physical examination was notable only for clubbing. Extensive evaluation, including laboratory testing, pulmonary function tests, chest CT, abdominal imaging, and cardiology workup, was unrevealing. A transient pulmonary nodule resolved on follow-up. With no identifiable cardiopulmonary or malignant cause, her clubbing was attributed to chronic laxative use in the setting of IBS-C.
Discussion: Digital clubbing may occur in diverse conditions and is part of hypertrophic osteoarthropathy. Rarely, it has been linked to laxative use, particularly senna. Proposed mechanisms include megakaryocyte bypass of pulmonary circulation with release of platelet-derived growth factors, leading to vascular and connective tissue changes. This case adds to limited evidence associating chronic laxative therapy with clubbing and underscores the importance of thorough medication history to avoid unnecessary investigations.

P3-20: You're Not my Buddy, Pal — A Case Report on Acute Portal Vein Thrombosis Mimicking Budd Chiari Syndrome

Robert Farrell MD, Marc Lafonte MD, Juan Lujan MD, Christopher Soriano MD

Introduction:
This case report describes acute portal vein thrombosis (PVT) with small bowel infarction that initially mimicked Budd-Chiari syndrome (BCS) due to caudate lobe hypertrophy on imaging. Although caudate lobe hypertrophy is a hallmark of BCS, it occurs due to direct venous drainage into the inferior vena cava and may be misleading in the absence of hepatic vein thrombosis.
Case Presentation:
A previously healthy middle-aged Caucasian female presented obtunded with severe hyperammonemia, large-volume ascites, and small bowel obstruction. Initial LFTs were normal, but she rapidly developed multi-organ failure. CT imaging demonstrated caudate lobe hypertrophy, raising concern for BCS. However, Doppler ultrasonography revealed patent hepatic veins with isolated acute PVT. Exploratory laparotomy confirmed extensive PVT with necrotic small bowel requiring resection.
Outcome and Conclusion:
Following surgery, heparin infusion, and rectal lactulose, the patient improved with normalization of ammonia, LFTs, and renal function, and was discharged on enoxaparin. This case highlights that caudate lobe hypertrophy requires confirmation of hepatic vein obstruction for BCS diagnosis. Acute PVT with mesenteric involvement can mimic BCS, underscoring the need for comprehensive vascular imaging to guide timely, life-saving management.

Hematology / Oncology

P1-07: Twenty-Two Years of Multiple Myeloma Mortality in the United States: Disparities by State, Sex, and Race (1999–2020)

Akhilesh Sharma MD, Adara Collu, MD

Background: Multiple myeloma (MM) remains a significant contributor to cancer-related mortality in the United States, with disparities influenced by demographic and geographic factors.
Objective: To evaluate state-, sex-, and race-based disparities in MM mortality from 1999 to 2020.
Methods: We conducted a cross-sectional analysis of the CDC WONDER Multiple Cause of Death database for individuals aged 15–84 years. Deaths with MM as the underlying cause (ICD-10 C90.0) were aggregated by state, sex, and race. Crude mortality rates and population-weighted age-adjusted mortality rates (AAMRs) per 100,000 were calculated. Cells with fewer than 10 deaths were suppressed.
Results: From 1999 to 2020, at least 204,708 MM-related deaths were identified. The overall crude mortality rate was 3.9 per 100,000, and the AAMR was 3.8. Men had a 48% higher AAMR than women (4.6 vs 3.1). Black/African American individuals had the highest AAMR (7.0), more than twice that of White individuals (3.4) and nearly four times that of Asian/Pacific Islanders (1.8). Mortality was highest in the Southeast and Appalachia and lowest in Western states.
Conclusions: MM mortality demonstrates persistent demographic and geographic disparities, underscoring the need for targeted public health strategies and equitable healthcare access.

P1-09: Impact of Disease-Modifying Therapies on the Incidence and Severity of Acute Chest Syndrome in Sickle Cell Disease: A Systematic Review and Meta-Analysis

Akilesh Sharma MD, Karan Chouhan MD, Nayana Bhandari MD, Aditya Mansabdar MD

Background: Acute chest syndrome (ACS) is a major cause of morbidity and mortality in sickle cell disease (SCD). Hydroxyurea (HU) reduces vaso-occlusive crises and ACS, but the pulmonary effects of newer agents such as crizanlizumab and voxelotor remain uncertain.
Methods: We performed a systematic review of PubMed, Embase, and Cochrane CENTRAL (January 2015–August 2024) following PRISMA 2020 guidelines. Eligible studies included randomized trials and observational cohorts evaluating HU, crizanlizumab, or voxelotor versus standard care. The primary outcome was ACS incidence; secondary outcomes included recurrence, ICU admission, mechanical ventilation, transfusion, and mortality. Random-effects meta-analysis generated pooled odds ratios (ORs) with 95% confidence intervals (CI).
Results: Fourteen studies (n=2,042; HU 1,216; crizanlizumab 492; voxelotor 334) were included. Median follow-up was 20 months. HU reduced ACS risk by 48% (OR 0.52; 95% CI 0.40–0.68; p<0.001). Crizanlizumab showed a non-significant reduction (OR 0.82; 95% CI 0.54–1.25; p=0.36), and voxelotor showed no effect (OR 0.94; 95% CI 0.68–1.31; p=0.72). Combination therapy demonstrated a non-significant trend toward fewer recurrent ACS events (OR 0.74; 95% CI 0.41–1.32).
Conclusions: HU remains the only therapy with consistent ACS risk reduction. Evidence for newer agents is limited, and dedicated trials powered for pulmonary outcomes are needed.

P1-15: Oral Factor Xa Inhibition versus Parenteral Anticoagulation for Cancer-Associated Thrombosis: A Meta-Analysis Comparing Rivaroxaban and LMWH

Sriphani Alekya Vanteru MD, Nayanika Tummala MD, Sweetyben Patel MD, Prateek Gopigari MD, Vinod Nookala MD

Background: The optimal anticoagulant for cancer-associated thrombosis (CAT) remains uncertain. Low molecular weight heparin is the traditional standard, while Rivaroxaban is a potential oral alternative. This meta-analysis compares their efficacy and safety.
Methods: We systematically searched PubMed, EMBASE, and Cochrane for randomized controlled trials. Data were pooled using a random-effects model, reporting risk ratios (RR) with 95% confidence intervals. Heterogeneity was assessed using I^2.
Results: Four RCTs (n=1,195) were included. No significant differences were observed between rivaroxaban and LMWH for recurrent VTE (RR 0.59, p=0.07), DVT (RR 0.70, p=0.13), or major bleeding (RR 1.47, p=0.16). Minor bleeding was higher with rivaroxaban (RR 1.90, p=0.05). Heterogeneity was low across outcomes.
Conclusion: Rivaroxaban showed no significant advantage over LMWH in efficacy or major safety outcomes, with a signal toward increased minor bleeding. Further studies are needed to guide optimal anticoagulation in CAT.

P1-20: Chronic Back Pain in an Elderly Female: A Missed Clue to Retroperitoneal Diffuse Large B-Cell Lymphoma

Nikhila Chelikam MD, MSCR, Swetha Balaji MD, Rutva Jani MD, Rushali Lohia MBBS, Vinod Nookala, MD

Background: Diffuse large B-cell lymphoma is the most common subtype of non-Hodgkin lymphoma, accounting for ~25% of cases. While extranodal disease occurs in up to 40%, primary retroperitoneal involvement is rare and often presents with nonspecific symptoms, leading to delayed diagnosis.
Case Presentation: A 79-year-old woman with heart failure, stage 5 chronic kidney disease, and coronary artery disease presented with abdominal pain, nausea, orthopnea, and chronic worsening back pain previously attributed to musculoskeletal causes. Examination showed abdominal and lumbar tenderness with volume overload. CT imaging revealed a large retroperitoneal mass (10 × 8.5 × 12 cm) involving adjacent structures with lymphadenopathy. Biopsy confirmed aggressive DLBCL (CD10+, CD20+, Ki-67 80%). Tumor markers were elevated. She was initiated on R-CHOP chemotherapy.
Conclusion: Retroperitoneal DLBCL can mimic benign conditions such as chronic back pain, delaying diagnosis. Persistent or atypical pain in older adults warrants early imaging. Multidisciplinary evaluation is essential for timely diagnosis and management of aggressive malignancies.

P2-02: Seasonal variation in US Malignant cancer mortality: A 22 year analysis of National registry Data (1999-2020)

Raj Nandan Chennuri MD, Makarand Madine MD, Reshmanth Prathipati MD, Vedant Shah MD

Background: Cancer remains a leading cause of mortality in the United States. Seasonal variation in cancer mortality has not been well characterized using contemporary national data.
Methods: We conducted a retrospective observational study using the CDC WONDER database. U.S. resident deaths from malignant neoplasms (ICD-10 C00–C97) from 1999–2020 were analyzed. Monthly mortality counts were summarized, and seasons were defined as winter (December–February), spring (March–May), summer (June–August), and fall (September–November). Mean monthly deaths were calculated.
Results: A total of 12,644,869 deaths were identified (mean 47,866/month). Mortality ranged from 45,269 in February to 49,938 in January. Although February had the lowest monthly mortality, winter showed slightly higher average deaths than summer, driven by December and January. Seasonal differences were modest, with spring and fall intermediate.
Conclusion: U.S. cancer mortality shows mild seasonal variation, with slightly higher deaths in winter and overall stability throughout the year. Further studies may clarify patterns within specific cancer subtypes.

Month	Mean Deaths
Winter	48,236
Spring	47,563
Summer	47,563
Fall	48,026

P2-29: Early myocarditis during adjuvant pembrolizumab for advanced RCC: a cardio-oncology alert

Yashasprasad Mylarappa MD, Sri Harsha Narayana MD, Fazal Bari MD

Introduction: Pembrolizumab is increasingly used as adjuvant therapy for high-risk Renal cell carcinoma. Although effective, it may cause immune-related adverse events, including rare but potentially fatal myocarditis.
Case Presentation: An 84-year-old woman with multiple comorbidities underwent nephrectomy for pT3 renal cell carcinoma and received two cycles of pembrolizumab. Nine days after the second dose, she presented with dyspnea and fatigue. Laboratory studies showed markedly elevated troponin (4,147 ng/L), creatine kinase, and transaminases. Imaging revealed bilateral infiltrates and a small pericardial effusion. Echocardiography demonstrated new left ventricular systolic dysfunction (LVEF 45–50%) with regional wall-motion abnormalities. The constellation of findings raised concern for immune-mediated myocarditis with concurrent myositis and hepatitis. Infectious workup was performed while immune-related toxicity remained a leading diagnosis.
Discussion: Immune checkpoint inhibitor–associated myocarditis can present early and overlap with infection or heart failure, particularly in older patients. Current guidelines recommend prompt drug discontinuation, early corticosteroid initiation, and multidisciplinary management. Early cardiac monitoring may aid detection in high-risk populations.
Conclusion: This case highlights the need for early recognition of immune-related cardiotoxicity in patients receiving pembrolizumab. A low threshold for cardiac evaluation and timely intervention is critical to improving outcomes.

P2-03: The Late cytoreductive dilemma: Recurrent epistaxis years after iatrogenic splenectomy in an elderly woman

Raj Nandan Chennuri MD, Jaswinder Chilana MD, Canan Dirican MD, Makarand Madine MD, Reshmanath Prathipati MD

Background: Thrombocytosis is common after splenectomy and typically resolves within months. Persistent extreme thrombocytosis years later is unusual and may indicate an underlying disorder. While thrombocytosis is associated with thrombosis, it can paradoxically cause bleeding due to Acquired von Willebrand syndrome, creating management challenges, especially with aspirin use.

Case Presentation: An 83-year-old woman with a remote splenectomy (18 years prior) presented with recurrent spontaneous epistaxis while on low-dose aspirin. Platelet counts were markedly elevated (1.69–1.83 $\times 10^6/\mu L$), with prior records showing persistent thrombocytosis >1.5 $\times 10^6/\mu L$ for two years. Peripheral smear showed elevated platelets without atypia. Symptoms required nasal packing and desmopressin. Aspirin was discontinued. Hematology recommended mutation testing for a myeloproliferative disorder. von Willebrand testing was not performed during admission. She remained stable and was discharged with follow-up.

Conclusion: Extreme thrombocytosis can present with bleeding due to AVWS. Aspirin may worsen bleeding and should be used cautiously. Persistent thrombocytosis after splenectomy warrants evaluation for clonal disorders. Early recognition is essential to balance bleeding and thrombotic risks and guide appropriate management.

Table 1. Selected Longitudinal Laboratory Values Demonstrating Chronic Extreme Thrombocytosis and Pseudohyperkalemia

Date	Platelets ($\times 10^3/\mu L$)	Hemoglobin (g/dL)	WBC ($\times 10^3/\mu L$)	Potassium (mmol/L)
2023 (Outpatient)	1549	11.8	16.2	4.4
2024 (Outpatient)	1876	12.8	16.4	6.5
2025 (Outpatient)	1818	13.4	11.9	6.4
Admission	1812	13.3	13.4	6.0
Discharge	1693	11.8	13.7	5.6

P2-40: Association between specific cancer types and polyarteritis nodosa among hospitalized patients in the United States

Aishwarya Ramesh MD, Kamlesh Ramphul, Ramya Thota, Midhun Malla, Poornima Ramadas, Michael Maroules MD

Background: Polyarteritis nodosa has become less associated with hepatitis B following widespread immunization, shifting attention toward malignancy-related triggers. However, specific cancer associations with PAN remain poorly defined.

Methods: We analyzed adults hospitalized between 2016–2022 using the National Inpatient Sample, excluding COVID-19 cases. Multiple hematologic and solid malignancies were evaluated. Multivariable logistic regression assessed associations between cancers and PAN, adjusted for demographics, comorbidities, and hospital factors.

Results: Among over 199 million hospitalizations, Angioimmunoblastic T-cell lymphoma showed the strongest association with PAN (aOR 8.15; 95% CI 2.47–26.86; p=0.001), followed by chronic myelomonocytic leukemia (aOR 2.65; p=0.033). Other hematologic malignancies demonstrated non-significant trends toward increased risk. In contrast, lung cancer was inversely associated with PAN (aOR 0.63; p=0.011). Solid tumors, including gastric, colon, renal, and cholangiocarcinoma, showed no significant associations.

Conclusions: Hematologic malignancies, particularly angioimmunoblastic T-cell lymphoma and chronic myelomonocytic leukemia, are strongly associated with PAN, supporting an immune dysregulation–driven pathogenesis. In contrast, solid tumors show weaker or inverse associations. These findings highlight heterogeneity in cancer-related immune mechanisms and underscore the need for further studies to clarify the malignancy–PAN relationship.

P2-36: Geographic Variation in Guideline-Concordant Management of Early-Stage Genitourinary Cancers in the United States, 2010–2022

Canan Dirician MD, Samer Jumean , Anas Al Mardini MD, Michael Maroules MD

Background: National Comprehensive Cancer Network provides standardized pathways for early-stage genitourinary (GU) cancers. However, equitable implementation across rural and urban settings remains uncertain.
Methods: Using SEER (2010–2022), we identified adults with cT1a kidney cancer, non-metastatic prostate cancer, and stage I–II testicular cancer. Rurality was defined using USDA Rural-Urban Continuum Codes. Guideline concordance included partial nephrectomy (PN) for kidney cancer and risk-adapted management for prostate cancer. Multivariable logistic regression estimated adjusted odds ratios (aORs) by rurality.
Results: Among 516,105 patients, rural residence was associated with lower rates of guideline-concordant care. In kidney cancer, PN use was lower in rural areas (57.8% urban vs 49.9% rural-remote), with reduced adjusted odds (rural-remote aOR 0.72; 95% CI 0.67–0.78). In prostate cancer, rural patients were less likely to receive guideline-concordant management (rural-remote aOR 0.74; 95% CI 0.71–0.76). Among active surveillance–ineligible patients, definitive local therapy rates were also lower in rural populations. Testicular cancer concordance exceeded 90%, though rural representation was limited.
Conclusions: Significant rural–urban disparities persist in early-stage GU cancer management despite established guidelines. Improving access to specialized surgical and radiation services, referral networks, and surveillance infrastructure may reduce these gaps and improve outcomes.

P2-50 Impact of Prior Immunotherapy on Outcomes of FGFR Inhibitors in FGFR2-Altered Cholangiocarcinoma: A Real-World Analysis with Trinetx Database

Vedant Shah MD, Ansy Patel, Raj Nandan Chennuri MD, Sagar Patel MD, Ghanshyam Ghelani

Background: Durvalumab plus chemotherapy is now the first-line standard for cholangiocarcinoma, yet its impact on subsequent FGFR2-targeted therapy remains unclear. FGFR2 fusions occur in ~10–16% of intrahepatic cholangiocarcinomas, and pemigatinib was approved based on the FIGHT-202 trial conducted before immunotherapy adoption. Whether prior immune checkpoint inhibitor (ICI) exposure affects FGFR inhibitor efficacy is unknown.
Methods: This retrospective cohort study used the TriNetX Global Network. Adults with intrahepatic cholangiocarcinoma receiving pemigatinib or futibatinib were stratified into two cohorts: prior ICI plus chemotherapy (Cohort A, n=81) versus chemotherapy alone (Cohort B, n=119). After 1:1 propensity score matching (n=65 each), primary outcomes were 1- and 3-year overall survival (OS). Competing risk analysis assessed subsequent line of therapy initiation versus death.
Results: One-year OS was 34% versus 59.3% favoring the chemotherapy-alone cohort (HR 1.69; 95% CI 0.996–2.87; p=0.023). Three-year OS was 10.2% versus 30.3% (HR 1.62; 95% CI 1.00–2.64; p=0.048). Competing risk analysis demonstrated higher cumulative mortality in ICI-exposed patients (70.2% vs. 55.5%), with similar rates of proceeding to subsequent therapy (~30% vs. ~24%).
Conclusion: Prior ICI exposure was associated with significantly inferior survival following FGFR inhibition, likely reflecting immunotherapy-refractory disease biology, greater disease burden, and diminished functional reserve at the time of targeted therapy initiation. Limitations include the retrospective design, reliance on administrative coding without molecular confirmation of FGFR2 fusion status, and residual confounding despite propensity score matching, which may affect generalizability.

P2-51: Incidence of cytogenetic abnormalities in CLL Patients of African American Origin in New York City

Karan Chouhan MD, Pramil Cheriyath, MD

Background: Chronic lymphocytic leukemia is a common hematologic cancer in which cytogenetic abnormalities significantly influence prognosis and treatment. Risk stratification based on fluorescence in situ hybridization (FISH) categorizes patients into favorable, intermediate, and unfavorable groups. However, data on cytogenetic patterns in African American populations remain limited.
Methods: We conducted a retrospective review of adult CLL patients at Brooklyn Cancer Care (2012–2023). Cytogenetic findings were grouped as favorable (del[13q]), intermediate (normal cytogenetics, trisomy 12), and unfavorable (del[17p], multiple abnormalities). Risk stratification incorporated the Integrated CLL Scoring System (ICSS), including IGHV mutation status and CD38 expression.
Results: Nineteen patients were included. Del(13q) was observed in 42.1% (n=8), trisomy 12 in 31.5% (n=6), and multiple abnormalities in 10.5% (n=2). No patients exhibited del(11q) or del(17p). ICSS classification showed 42.1% favorable, 47.3% intermediate, and 10.5% unfavorable risk. Compared with general population data, this cohort demonstrated a lower prevalence of del(13q) and higher prevalence of trisomy 12.
Conclusions: African American patients with CLL may exhibit distinct cytogenetic patterns, with relatively higher intermediate-risk features and lower favorable-risk abnormalities. Larger studies are needed to better define these differences and guide risk-adapted management.

Mutation	Study population	General population
del (13q)	42.1%	55%
Trisomy 12	31.5%	16%
del (11q)	-	18%
del (17q)	-	7%
del (6q)	-	7%
Multiple CG abnormalities	10.5%	-

P2-52: Cracking the ABCG8 Code: The Mystery of Hemolytic Anemia

Karan Chouhan MD, Pramil Cheriyath, MD

Background: ABCG8 mutations are classically associated with sitosterolemia, a rare autosomal recessive
disorder of plant sterol metabolism. In reported cases, patients can develop not only sterol abnormalities but also hematologic findings such as hemolytic anemia, stomatocytosis, macrothrombocytopenia, and increased red cell fragility. However, these manifestations are usually described in patients with clear clinical or biochemical evidence of sitosterolemia. This case is important because it describes a patient with persistent hemolytic anemia and a heterozygous ABCG8 mutation, but without the usual features of sitosterolemia, suggesting a broader and less recognized disease spectrum.
Case: We report a 32-year-old woman with persistent hemolytic anemia despite standard therapies. The report highlights that rare genetic variants may explain unexplained hemolytic anemia when standard evaluation and conventional treatments do not fully account for the presentation or produce lasting improvement. It also raises the possibility that even a single-allele ABCG8 variant may contribute to red cell membrane instability and clinically meaningful hemolysis. This has diagnostic importance for clinicians evaluating atypical or treatment-resistant hemolytic anemia.
Conclusion: The study concludes that heterozygous ABCG8 variants may have underrecognized hematologic consequences, even in the absence of classic sitosterolemia. It expands the known phenotype of ABCG8-related disease and supports further research into the role of these variants in red blood cell membrane disorders and unexplained hemolytic anemia.

P2-54: Revealing May-Thurner Syndrome in a Young woman: An Unexpected Clot Twist

Amara Sofia MD, Ashish Guragain MD, Joseph Defrank MD

Background: May-Thurner syndrome is an underdiagnosed condition caused by compression of the left common iliac vein, predisposing to venous stasis and Deep vein thrombosis (DVT). It may account for a significant proportion of left-sided DVT cases.
Case Presentation: A 26-year-old woman with polycystic ovarian syndrome on oral contraceptives presented with progressive left leg pain and swelling. Imaging revealed extensive iliofemoral DVT involving multiple venous segments. Intravenous heparin was initiated, followed by mechanical thrombectomy. Post-procedure venography demonstrated residual external iliac vein stenosis, treated with balloon angioplasty. Intraoperative findings suggested May-Thurner syndrome, later confirmed by CT angiography showing compression of the left common iliac vein. The patient improved clinically and was discharged on apixaban with counseling to avoid oral contraceptives and prolonged immobilization.
Discussion: This case highlights the synergistic risk of thrombosis from hormonal therapy, underlying hypercoagulability, and anatomical compression. May-Thurner syndrome should be considered in young patients with extensive unilateral DVT. Early recognition allows for targeted interventions including thrombectomy and venous reconstruction to prevent complications such as post-thrombotic syndrome and pulmonary embolism.
Conclusion: Prompt diagnosis and multidisciplinary management of May-Thurner syndrome are essential to optimize outcomes and prevent recurrence in high-risk patients.

P2-62: CPX-351 vs standard 7+3 chemotherapy in secondary acute myeloid leukemia and acute myeloid leukemia with myelodysplasia-related changes

Hamza Ansari MD, Bolivia Fernandes MD, Canan Dirican MD, Yashas Prasad Mylarappa MD, Michael Maroules MD

Background: CPX-351 has shown improved outcomes compared with conventional 7+3 chemotherapy in secondary Acute myeloid leukemia (AML) and AML with myelodysplasia-related changes. However, its higher cost necessitates evaluation of overall benefit.
Methods: A meta-analysis of five studies (n=434) compared CPX-351 with 7+3. Outcomes included complete remission with or without incomplete recovery (CR+CRi), 30- and 60-day mortality, and overall survival (OS). Pooled risk ratios (RR) and hazard ratios (HR) were calculated using fixed-effect models. Heterogeneity was assessed using I^2 statistics.
Results: CPX-351 significantly improved remission rates (RR 1.37, 95% CI 1.11–1.70; p=0.0038; I^2=0%). Thirty-day mortality was lower but not statistically significant (RR 0.53; p=0.071), while 60-day mortality was significantly reduced (RR 0.57; 95% CI 0.34–0.97; p=0.038; I^2≈9.6%). Overall survival favored CPX-351 (HR 0.70; 95% CI 0.55–0.91), indicating reduced risk of death.
Conclusion: CPX-351 improves remission rates and survival compared with 7+3 in high-risk or secondary AML, with reduced early mortality. Despite higher cost, these findings support its use as preferred induction therapy in older patients. Further studies should evaluate cost-effectiveness and long-term outcomes.

P2-63: Global Disparities in Multiple Myeloma Outcomes: A WHO Region-Based Analysis of Survival Proxies and Health System Indicators

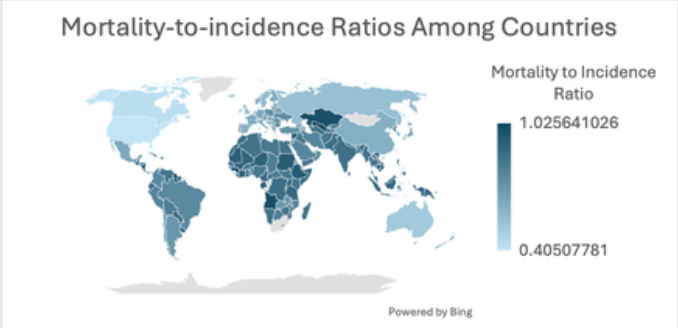
Canan Dirician MD, Folasade Ajayi, Michael Maroules MD

Background: Multiple myeloma incidence is rising globally, with outcomes varying across regions due to disparities in healthcare access and resources. The mortality-to-incidence ratio (MIR) serves as a proxy for survival in settings lacking robust survival data. This study evaluates regional MIR variation and its association with health system indicators.

Methods: Multiple myeloma incidence and mortality data were obtained from GLOBOCAN 2020 to calculate MIRs across six WHO regions. Health system indicators—including physician density, current health expenditure as a percentage of GDP, and reported healthcare access difficulty—were compiled and descriptively analyzed.

Results: Substantial disparities were observed. Africa and South-East Asia had the highest MIRs (0.86), lowest physician densities (2.6 and 7.7 per 10,000), and high access difficulties (>60%). The Eastern Mediterranean Region also showed a high MIR (0.83) and limited access. In contrast, the Americas had a lower MIR (0.51), higher physician density (28), and greater health expenditure. Europe and the Western Pacific demonstrated intermediate MIRs (0.63) with relatively stronger healthcare infrastructure.

Conclusions: Significant global disparities in multiple myeloma survival are closely associated with healthcare access, workforce availability, and national investment. Strengthening health systems and improving access to diagnostics and novel therapies are critical to reducing these inequities.



P2-64: Impact of Hydrogel Rectal Spacer Placement and Prostate–Rectum Separation on Rectal Dosimetry in Definitive Radiation Therapy for Localized Prostate Cancer

Canan Dirician MD, Aishwarya Ramesh MD , Raj Nandan Chennuri MD , Nilay Son MD, Anurag Chandra MD

Background: Hydrogel rectal spacer reduces rectal radiation exposure during prostate cancer treatment, but the relationship between achieved prostate–rectum separation and dose reduction remains unclear. We evaluated this association in routine clinical practice.

Methods: A single-institution retrospective cohort study included 139 patients with localized prostate cancer treated with external beam radiation therapy (2019–2026). Patients received conventionally fractionated or stereotactic body radiation therapy. Rectal dose parameters (V65, V70) were extracted. In spacer recipients, prostate–rectum separation was measured at the apex, mid-gland, and base; minimum separation was defined as the smallest measurement. Gastrointestinal toxicity was graded using CTCAE v5.0. Linear regression assessed associations between spacer use, separation, and rectal dosimetry.

Results: Among 139 patients, 80 received conventionally fractionated therapy (53 with spacer, 27 without). Spacer placement significantly reduced rectal V65 by 5.47% ($p<0.001$) and V70 by 5.16% ($p<0.001$). Each 1-mm increase in minimum separation was associated with a 3.16% reduction in V65 ($p=0.049$). A similar trend was observed for V70 but was not statistically significant. No single anatomic measurement independently predicted dose reduction. Clinically significant gastrointestinal toxicity was rare.

Conclusions: Hydrogel spacer placement significantly reduces rectal radiation exposure. Greater prostate–rectum separation confers additional benefit, highlighting the importance of achieving adequate spacer deployment.

P3-13: Trends in Mortality from Acute Myeloid Leukemia in Patients with Myelodysplastic Syndromes: A United States Population-Based Analysis from 1999–2023

Bolivia Crocete Aloysia Fernandes MD, Warren Fernandes MD, Canan Dirican MD, Vedant Shah MD, Ajitha Virinchipuram Ganesan MD, Sneha Bijoy , Venkata Sireesha Chemarthi , Pramil Cheriyath MD, Michael Maroules MD

Background: Transformation of myelodysplastic syndromes (MDS) to acute myeloid leukemia (AML) carries high mortality and remains a major clinical challenge. Tracking long-term mortality trends is essential to identify gaps in care, assess progress, and inform targeted interventions.
Objective: To evaluate trends in age-adjusted mortality from AML in patients with underlying MDS in the United States from 1999–2023, stratified by region, sex, race, and urbanization.
Design, Setting, and Participants: Population-based ecological time-trend analysis using CDC WONDER (1999–2023). Included all U.S. deaths from AML with underlying MDS on death certificates. AAMRs and APCs were calculated using Joinpoint regression.
Main Outcomes: AAMR per 100,000 and APCs with 95% CIs across demographic and geographic subgroups.
Results: Mortality remained low overall but varied by subgroup. Males had higher AAMRs, with an early increase (1999–2001, APC +14.58%, $p<0.05$) then stabilization; females remained stable. Whites showed an early increase (APC +21.13%, $p<0.05$) then plateau; Blacks had lower, non-significant fluctuations. Large metropolitan areas had increases (1999–2001 APC +27.39%; 2004–2009 APC +12.17%) followed by declines, stabilizing after 2013. Other areas and regions showed minimal or non-significant changes.
Conclusions: No sustained decline in AML mortality among MDS patients over 25 years, highlighting the need for earlier detection, improved access, and disparity-focused strategies.

P3-14: Efficacy and Safety of Asciminib in Chronic Myeloid Leukemia After Tyrosine Kinase Inhibitor Failure: A Systematic Review and Meta-Analysis

Bolivia Crocete Aloysia Fernandes, Warren Fernandes, Vedant Shah, Canan Dirican, Sri Harsha Narayana, Muhammad Ashar Ali, Wajeeha Aiman, Ajitha Virinchipuram Ganesan, Folasade Ajayi, Gunwant Guron, Michael Maroules

Background: Transformation of myelodysplastic syndromes (MDS) to acute myeloid leukemia (AML) carries high mortality and remains a major clinical challenge. Understanding long-term mortality trends is essential to identify disparities and guide interventions.
Objective: To evaluate trends in age-adjusted mortality from AML among patients with underlying MDS in the United States from 1999 to 2023, stratified by sex, race, region, and urbanization.
Methods: Population-based ecological time-trend analysis using CDC WONDER data (1999–2023). Included all U.S. deaths attributed to AML with underlying MDS on death certificates. Age-adjusted mortality rates (AAMR) and annual percent changes (APC) with 95% confidence intervals were calculated using Joinpoint regression.
Results: AML-related mortality remained low but varied by subgroup. Males had higher AAMRs, with an early increase (APC +14.58%, $p<0.05$) followed by stabilization; females showed no significant trends. White individuals demonstrated an early rise (APC +21.13%, $p<0.05$) with subsequent plateau, while Black individuals had lower but variable rates. Large metropolitan areas showed early fluctuations with stabilization after 2013. Regional trends were largely unchanged.
Conclusions: AML-related mortality in MDS patients has not declined over 25 years. Persistent disparities highlight the need for improved early detection, equitable care access, and targeted interventions.

P3-22: When Bleeding and Thrombosis Collide: Navigating Antiplatelet Therapy in Hereditary Hemorrhagic Telangiectasia-

Glenda Delgado MD ,Ilan Fleisher, MD, Carlos Tejeda MD

Background: Hereditary hemorrhagic telangiectasia (HHT) is characterized by fragile telangiectasias and arteriovenous malformations (AVMs), predisposing patients to recurrent bleeding. However, paradoxical embolization and coexisting cardiovascular disease may necessitate antiplatelet therapy. Evidence guiding antiplatelet use in HHT remains limited.

Case Presentation: A 68-year-old woman with hypertension, coronary artery disease status post coronary artery bypass grafting, hyperlipidemia, HHT with colonic AVMs, and prior celiac artery stenting presented with symptomatic anemia. Ten days after discharge, she developed acute lower gastrointestinal bleeding with hemoglobin of 6.6 g/dL. She was initially maintained on aspirin with transfusion support, while clopidogrel was discontinued. Cardiology recommended continuation of dual antiplatelet therapy (DAPT) due to high thrombotic risk, whereas gastroenterology advised against it given active bleeding. After stopping clopidogrel, bleeding resolved. At follow-up, clopidogrel was cautiously reintroduced as single antiplatelet therapy, which she tolerated for six months without recurrence. She remained stable at one year.

Discussion: This case illustrates the competing risks of hemorrhage and thrombosis in HHT. In the absence of guidelines, management requires individualized risk assessment and multidisciplinary collaboration. A stepwise approach—holding DAPT during active bleeding followed by cautious single-agent reintroduction—may reduce complications.

Conclusion: Antiplatelet therapy can be safely resumed in select HHT patients after bleeding stabilization. Further studies are needed to guide management.

Infectious Diseases

P1-03: When a severe Sore Throat Signals Marrow Failure: Severe Febrile Neutropenia with pancytopenia in a Previously Healthy Adult

Navdeep Saini, MD, Makarand Madine, MD, Pramil Cheriyath, MD, Vinod Nookala, MD

Background: Severe pancytopenia with profound neutropenia is rare in previously healthy adults and represents a medical emergency, particularly when associated with infection. Early recognition and treatment of febrile neutropenia are critical to prevent life-threatening complications.
Case: A 35-year-old previously healthy woman presented with high-grade fever and severe tonsillopharyngitis. Laboratory evaluation revealed profound pancytopenia with an absolute neutrophil count (ANC) of zero. Extensive infectious, hematologic, and autoimmune workup was negative except for blood cultures growing coagulase-negative Staphylococcus. She was treated with broad-spectrum intravenous antibiotics and granulocyte colony-stimulating factor (G-CSF), resulting in rapid hematologic recovery and clinical improvement.
Conclusion: Acute pancytopenia with febrile neutropenia can occur even in immunocompetent individuals. Prompt diagnosis, exclusion of reversible causes, and early initiation of antibiotics and G-CSF are essential to reduce morbidity and improve outcomes.

P1-12: Culture-Negative Bioprosthetic Aortic Valve Endocarditis Presenting as Pneumonia and Septic Shock

Prathima Guntipalli MD, Anas Mardini MD, Sudipta Rao MD, Pramil Cheriyath, MD

Background: Prosthetic valve endocarditis (PVE) occurs in up to 20% of all patients suffering from infective endocarditis. PVE can produce significant morbidity and mortality. Diagnosis of PVE can be challenging, particularly if the patient has had prior antibiotic use and thus has negative blood cultures. Delays in diagnosis can result in irreversible damage to the prosthetic valve; acute heart failure requiring emergency surgery; or hemodynamic instability requiring immediate surgery.
Case Presentation: A 74-year-old man with extensive CAD, history of CABG, and bioprosthetic aortic valve replacement 2021, recurrent episodes of presyncope, increasing exertional dyspnea, fatigue, hypoxemia, hypotension, tachycardia. Initial diagnosis showed leukocytosis, elevated BNP indicative of cardiac dysfunction, progressive elevation of troponin indicative of NSTEMI, and multifocal consolidation bilaterally by chest CT along with bilateral pleural effusion and pulmonary edema. Treatment began for community-acquired pneumonia, septic shock and acute decompensated heart failure. Transthoracic echocardiogram showed new LV systolic dysfunction prompting testing of transesophageal echocardiogram showed vegetations on bioprosthetic aortic valve and perforation of the anterior mitral leaflet with severe MR. Blood cultures are negative. He was transferred to the Urgent Cardiothoracic Surgery.
Conclusion: The clinical scenario described illustrates the importance of rapid multidisciplinary management and timely echocardiographic assessment of prosthetic valve patients experiencing unexplained respiratory distress.

P1-18: Acute Carbamazepine Toxicity Triggered by Paxlovid: A Stroke Mimic in a Patient With Epilepsy

Parjanya Shah MD, Inban Pugazhendi MD, Nandan Shah MD, Nayanika Tummala MD, Nikhila Chelikam MD, MSCR

Background: Carbamazepine (CBZ) is an antiseizure medication with a narrow therapeutic index and is primarily metabolized by CYP3A4. Ritonavir, co-formulated with nirmatrelvir in Paxlovid, is a potent CYP3A4 inhibitor and can markedly raise CBZ concentrations. Although this interaction is pharmacologically well recognized, contemporary cases in the COVID-19 era remain uncommon.

Case Presentation: A 52-year-old man with a seizure disorder on chronic CBZ and valproate presented with acute dysarthria, ataxia, lethargy, and nausea two days after starting Paxlovid. Stroke alert evaluation and CT/CTA were negative. His CBZ level was markedly elevated at 19.8 µg/mL. Paxlovid and CBZ were discontinued, supportive care was provided, and his neurologic symptoms resolved as CBZ levels declined.

Conclusion: This case highlights a serious drug–drug interaction in which ritonavir inhibited CBZ metabolism, resulting in acute neurotoxicity mimicking stroke.

Table 1 highlights prior cases on Ritonavir-Carbamazepine interaction. Clinicians should avoid co- prescribing Paxlovid with CBZ and should monitor antiseizure drug levels when initiating or discontinuing ritonavir-containing regimens.

Table 1. Prior Case Studies on Ritonavir–Carbamazepine Interactions

Author/Year	Protease Inhibitor(s)	Presentation	Outcome
Kato et al., 2000	Ritonavir	Vomiting, vertigo, liver dysfunction	Resolved after stopping ritonavir & lowering CBZ
García et al., 2000	Ritonavir + CBZ (+phenytoin)	Ataxia, lethargy	Improved after discontinuing CBZ
Burman & Orr, 2000	Ritonavir + Efavirenz	Ataxia, falls	Improved after stopping CBZ
Mateu-de Antonio, 2001	Ritonavir → nelfinavir	Vertigo, diplopia, severe ataxia	Resolved after stopping ritonavir
Bates & Herman, 2006	Lopinavir/ritonavir, nelfinavir	Drowsiness, gait instability	Resolved after decreasing CBZ dose

P1-17: Breaking the Pattern: Unexplained Multiple Ring-Enhancing Brain Lesions in a Non-Endemic Adult

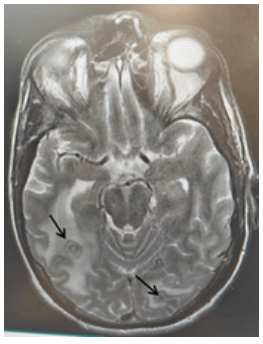
Nandan Shah MD, Vaghani D, Kale M, Thakkar U, Vyas R, Shah N, Kenny C, Vinod Nookala MD, Pramil Cheriyath MD

Background: Multiple intracranial ring-enhancing lesions present a broad differential including infections (e.g., Neurocysticercosis, toxoplasmosis, tuberculosis), neoplasms, and inflammatory conditions. Neurocysticercosis (NCC), caused by *Taenia solium*, is the most common parasitic CNS infection but is less typical in non-endemic regions.

Case Presentation: A 42-year-old man with hypertension and uncontrolled type 2 diabetes (HbA1c 14.6%) presented with severe agitation requiring intubation. He had remote Caribbean travel and freshwater exposure but no pork ingestion. Labs showed hyperglycemia and hypokalemia.

CT head revealed multiple ring-enhancing lesions with surrounding edema. He was admitted to the ICU and started empirically on albendazole, praziquantel, dexamethasone, and levetiracetam. Additional workup for infectious and neoplastic etiologies was initiated.

Conclusion: Differential diagnoses included NCC, metastatic disease, toxoplasmosis, tuberculosis, fungal abscess, and free-living amoebae. Absence of classic risk factors complicated diagnosis. Severe agitation likely reflected metabolic derangements superimposed on CNS pathology.



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P3-11: Severe Babesiosis in an Asplenic Patient Treated with Red Cell Exchange: Highlighting the Critical Need for Evidence-Based Guidelines

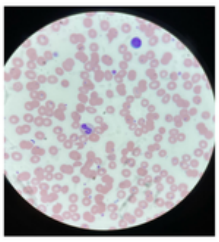
Snigdha Cheela MD, Gaurav Sudhir, Sushant Duddala MD, Michael Akerman MD, Zia Ud Deen MD, Pramil Cheriyath MD

Background: Babesiosis is an emerging tick-borne disease with increased severity in immunocompromised and asplenic individuals, with mortality exceeding 20% in high-risk groups. Splenectomy predisposes to fulminant infection requiring aggressive management.

Case Presentation: A 62-year-old pre-diabetic male with prior splenectomy presented with three days of fever, chills, weakness, and near-syncope. Laboratory findings revealed hemolytic anemia, thrombocytopenia, leukocytosis, acute kidney injury, transaminitis, and hyperbilirubinemia. Peripheral smear confirmed Babesia microti infection with high parasitemia (17.6%). He developed severe babesiosis with multi-organ dysfunction. Treatment with atovaquone and azithromycin was initiated. Due to high parasitemia and clinical deterioration, he underwent red cell exchange (RCE) transfusion with 12 units of packed red blood cells, resulting in reduction of parasitemia to 4% and subsequent clinical improvement.

Discussion: Severe babesiosis should be suspected in asplenic patients presenting with fever and hemolysis. Diagnosis relies on peripheral smear or PCR. Standard therapy includes atovaquone–azithromycin or clindamycin–quinine. RCE is recommended in severe cases, particularly with parasitemia >10% or organ dysfunction, though evidence remains limited. Potential complications include transfusion reactions and fluid overload.

Conclusion: This case highlights the association of high parasitemia with severe disease in asplenic patients and supports the role of RCE in management. Further studies are needed to establish clear, evidence-based guidelines.



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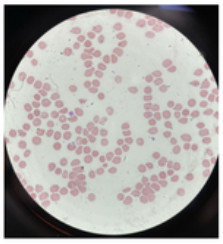


07/04/25 - Post exchange transfusion

Nephrology

P2-27: Demographic And Socioeconomic Disparities In The Co-Occurrence Of Atrial Fibrillation And Chronic Kidney Disease – A Population-Based Study

Komal Arora MD, Anand Shah MD, Nirmit Patel MD, Hriday Shah MD, Raam Mannam MD, Pramil Cheriyath MD

Authors: Komal Arora MD, Anand Shah MD, Nirmit Patel MD, Hriday Shah MD, Raam Mannam MD, Pramil Cheriyath MD
Introduction: Atrial fibrillation and Chronic kidney disease frequently coexist and are associated with worse clinical outcomes. This study evaluates demographic and socioeconomic factors linked to AF–CKD co-occurrence.
Methods: We performed a retrospective analysis of the National Inpatient Sample 2022. Patients with AF were identified using ICD-10 code I48 and those with CKD using code N18. Multivariable logistic regression assessed associations between demographic and socioeconomic variables and AF–CKD co-occurrence.
Results: A total of 343,223 patients had concurrent AF and CKD. Compared to ages 18–30, odds of co-occurrence increased markedly with age (31–50: OR 15.74; 51–60: OR 62.95; 61–79: OR 134.10; ≥80: OR 287.57; all p<0.001). Females had lower odds than males (OR 0.63; p<0.001). Black patients had higher odds (OR 1.22), while Hispanic, Native American, and other races had lower odds (all p<0.001). Medicare (OR 1.96) and Medicaid (OR 1.13) were associated with higher odds compared to private insurance. Higher income quartiles showed minimal variation.
Conclusions: Significant demographic and socioeconomic disparities exist in AF–CKD co-occurrence, particularly among older adults, Black patients, and those with non-private insurance. Targeted interventions are needed to address these disparities and improve outcomes.

P3-31: Immune Checkpoint Inhibitor-Induced Acute Kidney Injury with Multisystem Involvement Mimicking Septic Shock in a Patient with Advanced Melanoma: A Diagnostic Challenge

Shirley Perez MD, Ranjan Gupta MD, Dhaval Shah MD, Pierre- Louis MD, John Depetrillo MD

Background: Nivolumab and other immune checkpoint inhibitors (ICIs) have improved outcomes in advanced melanoma but are associated with immune-related adverse events (irAEs) that can mimic sepsis. Early recognition is critical for appropriate management.
Case Presentation: A 56-year-old woman with stage IIIB melanoma presented with acute confusion, fever (104°F), hypotension refractory to fluids, hypoxia, and diffuse rash 24 hours after nivolumab infusion. Laboratory findings revealed leukocytosis, elevated inflammatory markers, acute kidney injury (Cr 0.68→3.52), and rising troponin. Imaging showed bilateral ground-glass opacities and colonic wall thickening. Infectious, obstructive, and nephrotoxic causes were excluded. Findings were consistent with multisystem irAEs, including acute interstitial nephritis. High-dose intravenous corticosteroids were initiated, resulting in rapid clinical improvement within 24 hours and complete renal recovery by day 5.
Discussion: irAEs can present with multiorgan involvement and closely resemble septic shock, posing diagnostic challenges. This case is notable for severe presentation without classic risk factors, highlighting cumulative exposure to ICIs as a potential contributor. Prompt corticosteroid therapy is essential and often results in full recovery. Delayed recognition may lead to unnecessary antibiotics and worse outcomes.
Conclusion: ICIs can cause life-threatening irAEs that mimic sepsis. Early identification and timely corticosteroid therapy are critical for recovery and prevention of complications.

Neurology

P1-01: Beyond Bell's Palsy: Cerebral Venous Sinus Thrombosis Presenting with Cranial Neuropathy in a Woman Undergoing IVF

Meghana Reddy Muddham MD, Alekhya Vanteru MD , Venkatesh Gondhi MD

Introduction: Cerebral venous sinus thrombosis (CVST) is a rare but potentially fatal cause of headache with often nonspecific neurologic findings. Early recognition is essential, especially in patients with prothrombotic risk factors.
Case Presentation: A 44-year-old woman with hypertension and polycystic kidney disease presented with progressive headache and neck pain. Initial neurologic exam and imaging (CTH, MRI, CTA) were unremarkable. Despite steroids, she developed left ptosis and facial droop, treated as Bell's palsy. Lumbar puncture showed elevated opening pressure without infection. Worsening blurry vision prompted ophthalmologic evaluation, revealing bilateral papilledema. MR venography demonstrated near-complete thrombosis of the right internal jugular vein extending into the sigmoid and superior sagittal sinuses, consistent with subacute CVST. She was started on heparin. Workup revealed heterozygous Factor V Leiden and prothrombin G20210A mutations, with concurrent IVF hormonal therapy.
Conclusion: CVST can mimic peripheral neuropathies and may be missed on initial imaging. In high-risk patients, early MRV and prompt anticoagulation are critical to prevent irreversible neurologic and visual complications.

P1-04: Bilateral Deep Brain Stimulation in Parkinson's Disease A Challenging Case of Bilateral Deep Brain Stimulation in Parkinson's Disease Complicated by Intracranial Hemorrhage, Lead Migration, and Stimulation-Induced Side Effects

Navdeep Saini, MD, Makarand Madine, MD, Pramil Cheriyath, MD, Vinod Nookala, MD

Introduction: Deep brain stimulation (DBS) is a well-established surgical treatment for advanced Parkinson's disease (PD), particularly effective for controlling medication-refractory tremors, rigidity, and bradykinesia. While DBS offers significant symptomatic improvement and functional gains, complications such as hemorrhage, infection, lead migration, and stimulation-related side effects can pose substantial management challenges.
Case Presentation: A 70-year-old male with a 15-year history of idiopathic Parkinson's disease presented with severe tremors, bradykinesia, and postural instability unresponsive to medical therapy. During DBS surgery, an intraoperative right-sided hemorrhage occurred, leading to postoperative left-sided hemiplegia. After recovery, adjustments in DBS parameters resulted in a therapeutic trade-off between tremor control and side effects such as dysarthria and postural instability. Lead migration was later confirmed and re-revision surgery was considered.
Conclusion: This case highlights the therapeutic potential and risks of DBS in Parkinson's disease. It underscores the importance of individualized programming, multidisciplinary care, and careful risk-benefit assessment, especially in cases complicated by hemorrhage and hardware-related issues. DBS in advanced Parkinson's disease requires ongoing monitoring and a team-based approach to balance symptom relief with potential complications.

P1-11: Myasthenia Gravis Amidst COVID-19

Prathima Guntipalli MD , Ramya Pakala, Donald Hathaway III

Background: The aim is to review immunological triggers as well as beneficial treatment regimens and their considerations in managing Myasthenia Gravis patients with varying severity of COVID-19.
Methods: A systematic review was performed on 63 articles through extensive search of PubMed, Science Direct, Google scholar, JAMA, and Scopus databases from the onset of COVID-19 using keywords, 'COVID-19', 'Myasthenia Gravis,' 'Neuromuscular disease,' 'Immunosuppressants' and 'Immunomodulators.' Excluded other neuromuscular disorders, included 18 articles of COVID-19 patients with Myasthenia Gravis.
Results: From COVID-19 pandemic, looking for neuromuscular complications that may be directly or indirectly related to coronavirus infection. Coronavirus, through molecular mimicry, forms autoantibodies against the neuromuscular junction might trigger immune-mediated disorders such as Myasthenia Gravis (MG). MG patients on immunosuppressive or immunomodulatory therapy are predisposed to COVID-19, with severe complications. Steroids have varied effects on COVID-19 patients depending on their stage of infection. IL-6 is an inflammatory marker found in COVID-19 and MG patients, associated with a higher mortality rate.
Conclusion: Routine treatment for MG should be tailored depending on the COVID-19 severity. Steroids and immunomodulators should be used with caution in MG patients. However, limited data exist on how COVID-19 affects people with Myasthenia Gravis.

P2-12: Clocking the Window Effect: A Simulation-Based Study of Circadian Light Exposure and Sundowning in Alcohol Withdrawal

Jaswinder Chilana MD; Sushanth Dosala MD; Vinod K Nookala MD; Jonathan B Ramharack MD

Introduction: Sundowning is common in patients with Alcohol withdrawal and is associated with increased sedative use, restraints, escalation of care, and prolonged length of stay (LOS). Circadian disruption contributes to this phenomenon. While non-pharmacologic interventions improve outcomes, the impact of natural light exposure via window-room placement remains understudied. We performed a simulation-based study to evaluate whether window-bed assignment could reduce sundowning and LOS.
Methods: A synthetic cohort of 300 patients with alcohol withdrawal was generated using clinically realistic variables (age, comorbidities, CIWA-AR severity, psychiatric history, seasonality, and escalation factors). Sundowning probability was modeled using logistic regression incorporating established risk factors, with window-bed placement as a protective variable. LOS was modeled based on clinical severity and escalation events. Analyses included multivariable regression and 1:1 propensity score matching.
Results: Sundowning occurred in 57% of non-window beds versus 29% of window beds. Window-bed placement was independently protective (adjusted OR 0.20–0.35; $p<0.001$). LOS was reduced by approximately 1.4–1.5 days ($p<0.001$). Propensity-matched analyses confirmed consistent reductions in both outcomes.
Conclusions: Window-bed assignment, as a proxy for natural light exposure, significantly reduced modeled sundowning and LOS. These findings support a low-cost, scalable QI strategy and justify real-world validation.

Pulmonology & Critical Care

P1-02: Pulmonary Embolism with Severe Pulmonary Hypertension in a Patient with Abnormal Uterine Bleeding

Meghana Reddy Muddham MD, Nikhila Chelikam MD , Dhaval Shah MD, Vinod Nookala MD

Background: Venous thromboembolism is a known complication of endometrial cancer, occurring in up to 12% of patients. Pulmonary embolism typically causes moderate pulmonary artery systolic pressure (PASP) elevation; values >100 mmHg are rare and raise concern for extensive clot burden or chronic thromboembolic pulmonary hypertension (CTEPH). Management is challenging when bleeding limits anticoagulation.
Case: A 66-year-old woman with chronic postmenopausal bleeding and anemia presented with dyspnea. Imaging revealed bilateral PE with lower-extremity DVTs. Echocardiography showed right ventricular strain and PASP ~105 mmHg; right-heart catheterization confirmed precapillary pulmonary hypertension. Suspected endometrial malignancy with active bleeding precluded immediate anticoagulation. A temporary IVC filter was placed, and sildenafil initiated. Anticoagulation was later resumed cautiously. Clinical status improved, with PASP decreasing to ~50 mmHg.
Conclusion: Markedly elevated PASP in acute PE may mimic CTEPH. In patients with concurrent malignancy and bleeding, individualized strategies—including temporary mechanical protection, staged anticoagulation, and targeted therapy—can enable recovery. Early multidisciplinary management is essential to optimize outcomes and prevent long-term complications.

P1-05: Sleep Well for a Better World: The Rising Prevalence of Sleep Disorders among Young Professionals – a Growing Health Concern

Gagana Putchala MD, Pramil Cheriyath, MD

Background: Screen-based device (SBD) use is widespread in modern 24/7 work environments and may disrupt sleep through light-mediated effects on melatonin. Sleep deprivation is increasingly prevalent among young professionals (YPs).
Objectives: To identify factors contributing to sleep disorders in YPs aged 20–35 in India and assess their impact.
Methods: A cross-sectional study of 442 YPs (208 males, 234 females) from hospitals and IT sectors in South India was conducted using convenience sampling. Ninety-one participants worked night shifts. Sleep quality and SBD use were assessed using the Pittsburgh Sleep Quality Index (PSQI), Smartphone Addiction Scale–Short Version (SAS-SV), and a self-administered questionnaire. Data were analyzed using descriptive statistics, chi-square tests, and correlation analyses ($p<0.05$).
Results: Mean age was 31.2 years, with an average sleep duration of 356 minutes/day. High screen time was observed in 53% (SAS-SV >97), and 67% were poor sleepers. Higher SBD use correlated with worse sleep quality.
Conclusion: SBD overuse is associated with poor sleep among YPs, particularly in healthcare workers. Early identification and targeted interventions are essential to improve sleep and prevent long-term health consequences.

P1-26: From Abdomen to Thorax: Unveiling Müllerian Carcinoma Through Bilateral Pleural Effusions

Swetha Balaji MD, Alekhya Mamillapalli MD, Rhuma Ali MD, Nader Mahmood MD

Background: Pleural effusions are commonly caused by heart failure, infection, or malignancy. However, bilateral effusions as the initial presentation of Müllerian cancer are rare, highlighting the role of pulmonologists in detecting extrathoracic disease.
Case Presentation: A 52-year-old woman with hypertension and hyperlipidemia initially presented with non-exertional chest discomfort. One month later, she developed dyspnea, weight loss, early satiety, and cough. Chest X-ray showed bilateral pleural effusions; thoracentesis yielded minimal fluid due to loculation. CT abdomen revealed ascites, abdominal masses, and bilateral effusions. Paracentesis demonstrated exudative fluid. Tumor biopsy was positive for PAX8, WT1, CK7, and GATA3, consistent with Müllerian malignancy. She was started on systemic chemotherapy.
Conclusion: Respiratory symptoms may reflect occult intra-abdominal malignancy. Exudative effusions of unclear etiology should prompt evaluation for gynecologic cancers, particularly in postmenopausal women. Loculated effusions may limit diagnostic yield, emphasizing the need for systemic evaluation. Early recognition of extrathoracic malignancy presenting with bilateral pleural effusions is essential for timely diagnosis and treatment.

P1-29: A Clinical Comparison between the Standard Macintosh and the Trupti Laryngoscope Blade for Laryngeal Visualization in Anaesthetized Adults

Kinjal M Solanki , Dipeshkumar P. Shah , Deep M Solanki, Vijay S. Shah, Maulik Mehta

Background: Difficult airways may be encountered in both anticipated and unanticipated circumstances. Difficult laryngoscopy and failed intubation result in severe morbidity related to anaesthesia. This has forced the anesthesiologists to pursue their interest in developing newer gadgets to facilitate successful and safe endotracheal intubation. One such gadget is the levering laryngoscope blade. We conducted a clinical trial to compare the usefulness of Trupti blade with Standard Macintosh blade for providing glottic view, for endotracheal intubation.
Methods: We included 235 patients belonging to ASA I and II, of either Sex, between 18-70 years, undergoing elective surgery and requiring endotracheal intubation.
Results: We found that the incidence of difficult laryngoscopy with Standard Macintosh was 7.66% compared to 0.85% with Trupti blade in Elevated position. Trupti blade in Elevated position significantly improved restricted glottic view when compared with Standard Macintosh blade. However, in Neutral position the Trupti blade provided less grade I and II and more grade III and IV views when compared to Standard Macintosh blade, suggesting worsening of glottic view.
Conclusions: The Trupti blade in elevated position significantly improved the glottic views during difficult laryngoscopy in comparison with Standard Macintosh blade. However, in Neutral position Trupti blade did not behave identical to the Standard Macintosh blade and made the glottic view worse. The Trupti blade may be added to the armamentarium of aids to difficult intubation available in the operation theatre as well as in ambulances.

P2-08: From Reversible to Irreversible: Uncontrolled Asthma Progressing to Bronchiectasis and Very Severe Pulmonary Hypertension

Praneeth Jasti, MD; John Devereux, BS; Sri Harsha Narayana, MD; Yashas Prasad Mylarappa, MD; Nayanika Tummala, MD

Introduction: Asthma typically has favorable outcomes with early diagnosis and guideline-based management. However, delayed recognition and poor control can lead to airway remodeling, irreversible lung damage, and end-stage complications.
Case Presentation: A 70-year-old woman with longstanding "mild asthma" presented with progressive dyspnea, chronic cough, and reduced exercise tolerance. Her history was notable for poor follow-up, medication nonadherence, and recurrent untreated exacerbations. Examination revealed tachypnea, elevated JVP, RV heave, and diffuse coarse breath sounds. Imaging showed hyperinflation, bronchiectasis, and airway thickening. Echocardiography demonstrated a dilated right ventricle, enlarged pulmonary artery, severe tricuspid regurgitation, and RVSP ~120 mmHg, consistent with severe Group 3 pulmonary hypertension. She was treated with oxygen, airway clearance, bronchodilators, inhaled steroids, antibiotics, and pulmonary hypertension therapy. Right heart catheterization was planned.
Conclusion: Chronic uncontrolled asthma can progress to bronchiectasis and severe pulmonary hypertension. Early diagnosis, adherence to therapy, patient education, and structured follow-up are essential to prevent irreversible complications and adverse outcomes.

P2-11: Unstable Airways, Stable Outcomes? A Propensity Score– Matched Analysis Of Osa And Icu Outcomes After Cabg And Valve Surgery

Jaswinder Chilana MD, Makarand Madine MD, Jeril Lasington MD, Sandeep Kumar Reddy Bandakadi MD, Sushanth Dosala MD, Rutikbhai Desai MD, Nader Mahmood MD, Jonathan Ramharack MD, Vinod Nookala MD, Pramil Cheriyath MD

Purpose: Obstructive sleep apnea (OSA) is common in patients undergoing open cardiac surgery and has been associated with adverse postoperative outcomes; however, obesity and cardiometabolic comorbidities may confound this relationship. We evaluated whether pre-existing OSA independently affects ICU outcomes following Coronary artery bypass grafting and valve surgery.
Methods: We performed a retrospective cohort study using the MIMIC-IV database. Adults undergoing CABG and/or valve surgery were identified using ICD codes. Pre-existing OSA was defined using diagnostic codes. Propensity score matching (1:1) balanced age, sex, BMI, comorbidities, smoking status, and surgery type. Primary outcome was ICU length of stay (LOS); secondary outcomes included ICU mortality, prolonged mechanical ventilation (>24 and >48 hours), and postoperative pneumonia.
Results: Among 9,334 patients, 1,211 (13.0%) had OSA. After matching, 1,176 well-balanced pairs were analyzed. OSA was not associated with ICU LOS (β=0.008; 95% CI −0.051 to 0.067; p=0.78). ICU mortality (OR 1.72; p=0.26), prolonged ventilation >48 hours (OR 0.89; p=0.21), ventilation >24 hours (OR 0.95; p=0.52), and pneumonia (OR 1.06; p=0.80) were similar between groups.
Conclusions: OSA was not independently associated with adverse ICU outcomes after adjustment. These findings suggest that perioperative risk is driven more by cardiometabolic burden than OSA alone, though residual confounding remains possible.

P2-13: Use of Serial ROX Index Trends to Guide Corticosteroid Therapy and Predict Intubation in Acute Hypoxemic Respiratory Failure: A Simulation Study with Plans for Real-World Validation

Jaswinder Chilana MD, Makarand Madine MD, Jeril Lasington MD, Sandeep Kumar Reddy Bandakadi MD, Sushanth Dosala MD, Rutikbhai Desai MD, Nader Mahmood MD, Jonathan Ramharack MD, Vinod Nookala MD, Pramil Cheriyath MD

Introduction: ROX index—defined as (SpO_2/FiO_2)/respiratory rate—is a bedside tool used in Acute hypoxemic respiratory failure to assess risk of deterioration. While static ROX has been studied for predicting intubation, the role of dynamic changes (ΔROX) in guiding corticosteroid therapy and predicting outcomes remains unclear.
Methods: We conducted a simulation-based machine learning study using 300 virtual AHRF patients. Data included demographics, comorbidities, and ROX measurements at baseline, 6, 12, 24, and 48 hours. ΔROX trends were used to model clinical trajectories. Patients were categorized by steroid management (escalation, de-escalation, maintenance). Models evaluated prediction of treatment decisions and intubation. A real-world retrospective validation study (2022–2025) is underway using EMR data, including patients with PaO_2/FiO_2 <300 receiving steroids within 24 hours.
Results: The ΔROX-based model predicted corticosteroid decisions with a multiclass AUC of 0.99 and accuracy of 96.7%. For intubation, the model achieved an AUC of 0.91 with strong sensitivity and specificity. Rising ROX trajectories were associated with steroid de-escalation, lower intubation rates, and shorter ICU stays.
Conclusions: ΔROX is strongly associated with treatment decisions and respiratory outcomes in AHRF. These findings support its potential as a real-time tool for guiding therapy, pending validation in clinical datasets.

P2-25: Pulmonary Aspects Of Igg4-Related Disease And Fibrosing Mediastinitis

Dhaval Shastri MD, Nader Mahmood MD, Greeshma Jalemu MD

Introduction: IgG4-related disease is a rare immune-mediated disorder that can involve multiple organs. Mediastinal involvement presenting as fibrosing mediastinitis is uncommon and may mimic malignancy.
Case Presentation: A 79-year-old man with hypertension, hyperlipidemia, diabetes, benign prostatic hyperplasia, emphysema, and pernicious anemia presented with worsening heart failure symptoms. During hospitalization, he underwent pacemaker placement for bradyarrhythmia. A routine chest CT incidentally revealed mediastinal lymphadenopathy concerning for malignancy. Biopsy of the lymph nodes demonstrated dense fibrosis with lymphoplasmacytic infiltration and no evidence of malignancy. Immunohistochemistry showed IgG4 positivity, confirming IgG4-related fibrosing mediastinitis.
Management and Outcome: The patient was started on corticosteroid therapy (prednisone), resulting in significant symptomatic improvement.
Discussion: IgG4-related mediastinal disease is rare and can mimic neoplastic or infectious processes. Diagnosis relies on histopathology and immunostaining. Early recognition is important, as corticosteroids are highly effective and can prevent disease progression.
Conclusion: IgG4-related fibrosing mediastinitis should be considered in the differential diagnosis of mediastinal lymphadenopathy. Timely diagnosis and treatment can lead to favorable outcomes.

P2-26: Optimizing D-Dimer Testing in the Emergency Department

Dhaval Shastri MD, Saloni Brahmbhatt MD, Nader Mahmood MD, Dr. Greeshma Jalemu MD

Purpose: D-dimer test is widely used to evaluate Pulmonary embolism in the emergency department, but overuse in low-risk patients leads to unnecessary imaging. We assessed whether applying clinical tools could reduce over-testing.
Methods: In this observational QI study, 93 ED patients undergoing D-dimer testing for suspected PE were evaluated. Risk stratification used Pulmonary Embolism Rule-out Criteria and Wells Score. Outcomes included unnecessary D-dimer use, CT pulmonary angiography (CTPA) utilization, and PE diagnosis.
Results: D-dimer elevation was strongly associated with PE (χ^2=21.78, p<0.001). PERC predicted PE risk (p=0.018), while Wells score was not associated with D-dimer results (p=0.650). PERC demonstrated high sensitivity (97.4%) but low specificity (21.9%), supporting its role in ruling out PE. CTPA was performed in 44.1% of patients, yet only 4.9% were positive, indicating overuse.
Conclusions: A PERC-first approach can safely reduce unnecessary D-dimer testing and imaging in low-risk patients. Wells score alone was less predictive but remains useful when combined with D-dimer.Integrating decision-support tools into EMR and promoting adherence to validated algorithms may improve patient safety, reduce radiation exposure, and lower healthcare costs.

Table 1: Summary of Clinical Scores and Testing

Parameter	N (%)	Interpretation
Total Patients evaluated	93	-
PERC Score: 0	22 (23.6%)	D-dimer testing not indicated, but all tested
Wells Score < 2 (Low risk)	84 (90.3%)	Most low-risk still underwent D-dimer testing
CT Pulmonary Angiography (CTPA) performed	41 (44.1%)	High imaging use
PE confirmed on CTPE	2 (4.88%)	Very low diagnostic yield

Table 2:Statistical Association

Variable	Test Statistic	p-value	Interpretation
D-dimer elevation vs PE	χ^2 = 21.78	<0.001	Strong association
Wells score vs D-dimer	F = 0.43	0.650	Not significant
PERC score vs PE risk	χ^2 = 5.61	0.018	Significant predictor
Gender vs D-dimer	–	0.589	No difference

P2-45: Early Clinical Stabilization Versus Late Pulmonary Vascular Sequelae: A Propensity-Matched and Landmark Analysis of Mechanical Thrombectomy Versus Catheter-Directed Thrombolysis in Acute Pulmonary Embolism

Inban Pugazhendi MD, Ashita Agrawal MD, Jonathan Ramharack MD, Nader Mahmood MD, Pramil Cheriyath MD, Vinod Nookala MD, Venkatesh Gondi MD

Background: Catheter-based therapies, including Mechanical thrombectomy (MT) and Catheter-directed thrombolysis (CDT), are increasingly used in intermediate- and high-risk Pulmonary embolism. Comparative data on long-term outcomes, particularly chronic thromboembolic pulmonary hypertension (CTEPH), remain limited.
Objectives: To compare early and long-term outcomes between MT and CDT in acute PE.
Methods: A retrospective cohort study using TriNetX (2017–2024) identified adults with acute PE undergoing MT or CDT. After propensity score matching (n=6,245 pairs), outcomes included 1-year mortality (primary), in-hospital outcomes, and incident CTEPH. Landmark and competing-risk analyses were performed.
Results: One-year mortality was similar (MT 12.5% vs CDT 13.2%; HR 0.95, p=0.16). MT was associated with improved early outcomes, including lower in-hospital mortality (3.1% vs 4.7%; OR 0.64, p<0.001), reduced ICU use, and shorter length of stay. Major bleeding and readmission rates were comparable. Among 30-day survivors, late mortality did not differ; however, MT was associated with higher 1-year CTEPH incidence (2.6% vs 1.6%; HR 1.61, p<0.001), confirmed in competing-risk analysis.
Conclusions: MT improves early clinical stabilization without increasing bleeding risk but may be associated with higher long-term CTEPH risk. These findings highlight an early–late outcome tradeoff and the need for prospective studies to guide optimal patient selection.

P3-02: ICU Admission Predictors in Adults Aged 20-50 With Pneumonia-Associated Pleural Effusion/Empyema

Swetha Balaji MD, Anas Al Mardini MD, Gabriel Perez APN, Reshmanth Prathipati MD, Husein Abu-rumman MD, Muzamil Khan MD , Yuliana Petrynshyn MD , Jonathan Ramharack MD

Introduction: Pneumonia-associated pleural effusion and empyema can lead to severe illness requiring intensive care. While outcomes are well studied in pediatric and elderly populations, data in younger adults remain limited. We aimed to identify predictors of ICU admission in adults aged 20–50 years with pneumonia-related pleural complications.
Methods: We conducted a retrospective study of 214 hospitalized patients. The primary outcome was ICU admission. Variables included empyema, alcohol use, age, sex, race, and comorbidities (categorized as present or absent). Multivariable logistic regression was used to estimate adjusted odds ratios (ORs). Model fit and multicollinearity were assessed using the Hosmer–Lemeshow test and variance inflation factors.
Results: ICU admission occurred in 25.2% of patients. Comorbidities (OR 2.53, 95% CI 1.28–4.99) and increasing age (OR 1.09/year, 95% CI 1.01–1.12) were significant predictors. Empyema showed a strong association (OR 66.66) but with wide confidence intervals. Alcohol use, sex, and race were not significant. Model fit was good with no multicollinearity.
Conclusions: Comorbidities, age, and empyema independently predict ICU admission in younger adults with complicated pneumonia, supporting improved risk stratification.

P3-03: Impact of Substance Use on Clinical Outcomes and Pleural Complications in Young Adults Hospitalized with Pneumonia: A Pilot Retrospective Cohort Study

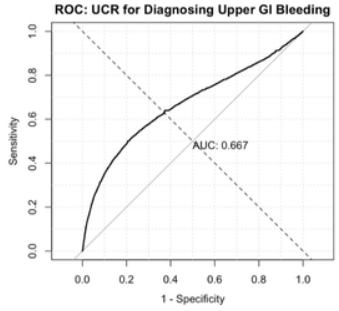
Swetha Balaji MD, Anas Al Mardini MD, Reshmanth Prathipati MD, Hrithik Dakssesh Putta Nagarajan, Husein Abu-Rumman MD, Gabriel Perez APN, Jonathan Ramharack MD

Background: Young adults with pneumonia are underrepresented in studies evaluating substance use and clinical outcomes.
Methods: We conducted a retrospective cohort study of adults aged 20–53 years hospitalized with pneumonia (2020–2024, N=242). Substance exposure included smoking, alcohol, or illicit drug use. Outcomes were ICU admission, in-hospital mortality, length of stay (LOS), pleural effusion, and empyema. Multivariable regression adjusted for age, sex, and race.
Results: Substance exposure was present in 74%. ICU admission occurred in 24%, mortality in 7%, and pleural effusion in 18%. Substance exposure was not independently associated with ICU admission (OR 1.32, p=0.456), mortality (OR 1.89, p=0.342), pleural effusion (OR 1.13, p=0.754), or LOS (p=0.321). Increasing age predicted ICU admission (OR 1.05 per year, p=0.018). Illicit drug use was independently associated with higher mortality (OR 3.12, p=0.047).
Conclusions: While overall substance exposure was not associated with worse outcomes, illicit drug use identified a high-risk subgroup with increased mortality. Larger studies are needed to confirm these findings.

P3-04: Diagnostic Performance of the Urea-Creatinine Ratio for Upper GI Bleeding in Critically Ill Adults: An eICU-CRD Study

Swetha Balaji MD, Hrithik Dakssesh Putta Nagarajan, Jonathan Ramharack MD

Background: The urea-creatinine ratio (UCR) has been proposed as a biomarker for upper gastrointestinal bleeding(UGIB), but its performance in critically ill patients remains unclear.
Methods: We conducted a retrospective study using the eICU Collaborative Research Database, including 4,657 adults with clinically significant UGIB identified by ICD codes. Receiver operating characteristic analysis assessed UCR for diagnosis and outcomes, including mortality and transfusion. Subgroup analyses compared variceal and non-variceal bleeding.
Results: UCR showed modest diagnostic performance (AUC 0.67; 95% CI 0.66–0.68) with an optimal cutoff of 24.5 (sensitivity 51.5%, specificity 77.8%). It performed slightly better than urea alone (AUC 0.65; p=0.0004), while creatinine showed no discrimination (AUC 0.51). In-hospital mortality was 11.1%; UCR demonstrated limited prognostic value (AUC 0.61) and an inverse association with mortality (OR 0.98 per unit increase, p<0.001). Performance remained poor after excluding renal dysfunction. UCR also showed limited ability to predict transfusion (AUC 0.59). Findings were consistent across variceal and non-variceal subgroups.
Conclusions: UCR demonstrates modest diagnostic and limited prognostic utility in ICU patients with UGIB, offering minimal advantage over urea alone and limited clinical value for risk stratification.



P3-12: Hydralazine-Induced Lupus: A Rare Culprit Behind Lymphocyte-Predominant Pleural Effusion

Manu Balusu MD, Rutikbhai Desai MD, Mit Chauhan MD, Anas Mardini MD, Nader Mahmood MD, Jonathan Ramharack MD, Gaurang Patel MD

Introduction: Hydralazine-induced lupus (HIL) is an uncommon complication with variable presentations. Diagnosis in critically ill patients is challenging due to overlap with infection, malignancy, and autoimmune diseases. We report a case of lymphocyte-predominant pleural effusion secondary to chronic hydralazine therapy.
Case Description: An elderly patient on high-dose Hydralazine (100 mg TID) presented with acute abdominal pain and vomiting after hemodialysis. Imaging revealed an umbilical hernia and an incidental loculated left pleural effusion with lung collapse. Thoracentesis showed exudative fluid with WBC 317 (86% lymphocytes). Adenosine deaminase and acid-fast bacilli were negative, reducing suspicion for tuberculosis. Due to persistent concern for malignancy, the patient underwent thoracotomy; cytology and pathology were negative. Autoimmune workup revealed negative ANA but elevated anti-histone antibodies (5.4), supporting HIL.
Discussion: Lymphocyte-predominant pleural effusions are typically associated with tuberculosis, malignancy, or autoimmune disease. Drug-induced lupus can cause serositis, including pleuritis, though this is rare (<5%). This case is notable for ANA-negative HIL presenting solely as pleural effusion. HIL risk is dose-dependent and higher with prolonged therapy. Early recognition and discontinuation of the offending agent can prevent unnecessary invasive procedures and lead to resolution.

P3-16: Iatrogenic Anaphylaxis to a Ubiquitous Disinfectant: A Case Report of Sodium Hypochlorite-Induced Shock and a Systems-Based Prevention Framework

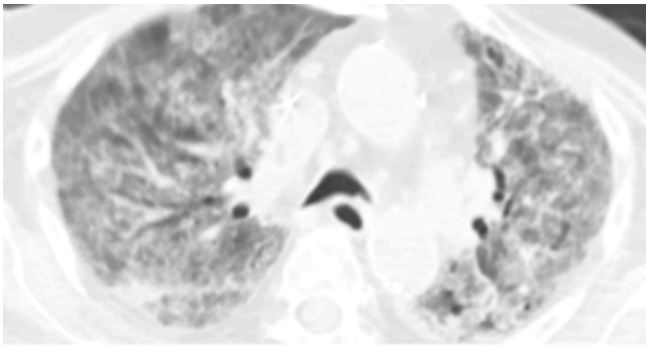
Hari Dharshan Soundararajan MD, Arshiya Shabnam MD, Pramil Cheriyath, MD

Background: Sodium hypochlorite is widely used for infection control due to its broad antimicrobial activity. While it is a known irritant, true IgE-mediated hypersensitivity reactions, including anaphylaxis, are exceedingly rare and limited to case reports.
Case Presentation: A 53-year-old male with persistent atrial fibrillation and atopy (strawberry allergy) presented with dyspnea. Minutes after hospital room cleaning with sodium hypochlorite, he developed acute multisystem shock with hypotension, obtundation, stridor, wheezing, and fecal incontinence. Initial differential diagnoses included pulmonary embolism, seizure, and asthma exacerbation. Rapid clinical improvement following intramuscular epinephrine, along with a history of bleach allergy, confirmed Anaphylaxis.
Discussion: The presence of angioedema, distributive shock, and gastrointestinal involvement distinguished this event from irritant-induced bronchospasm. The mechanism likely represents a true hypersensitivity reaction, potentially via haptenization of sodium hypochlorite with host proteins. A “two-hit” hypothesis is proposed, involving atopic predisposition and chronic occupational exposure leading to sensitization.
Conclusions: This case highlights a rare but severe, preventable reaction. Prevention strategies include improved allergy screening for chemical exposures, standardized EHR allergen documentation, enhanced communication with environmental services, and use of safer disinfectant alternatives such as hydrogen peroxide-based agents in sensitized patients.

P3-28: A Diagnostic Dilemma: When Ards Isn't Ards: A Case Of Acute Interstitial Pneumonitis

Swetha Balaji MD, Husein Taher Abu-Rumman MD, Akhila Reddy Devi Reddy MD, Dhaval Shastri MD, Utsav Patel MD, Jonathan Ramharack MD

Background: Acute Interstitial Pneumonia (AIP), or Hamman-Rich syndrome, is a rare and rapidly progressive form of idiopathic interstitial lung disease associated with high mortality. It often presents as acute respiratory failure and can mimic Acute Respiratory Distress Syndrome (ARDS), making diagnosis challenging.
Case Presentation: An 85-year-old male with atrial fibrillation and multiple cardiac comorbidities presented with progressive dyspnea, hemoptysis, and fever. He had recurrent hospitalizations for hypoxic respiratory failure, initially treated as diffuse alveolar hemorrhage (DAH) possibly related to amiodarone toxicity. Imaging consistently showed bilateral infiltrates and ground-glass opacities (Figure 1). Despite treatment with corticosteroids and supportive care, his condition worsened. Extensive infectious, rheumatologic, and vasculitis workup, including bronchoscopy with bronchoalveolar lavage, was unremarkable. The patient received high-dose intravenous steroids, antibiotics, and prolonged ventilatory support requiring tracheostomy and PEG placement. Lung biopsy was deferred due to poor prognosis. He developed persistent hypoxemia and hypercapnia and transitioned to comfort care, ultimately succumbing to respiratory failure.
Conclusion: This case highlights the diagnostic complexity of AIP, particularly when mimicking ARDS. Early recognition is crucial, although prognosis remains poor despite aggressive management, especially in elderly patients with comorbidities.



P3-29: Cardiac Implantable Devices As Continuous Respiratory Monitors In Chronic Lung Disease: From Signal To Clinical Insight

Swetha Balaji MD, Hriday Shah MD, Utsav Patel MD, Venkatesh Gondhi MD, Atul Prakash MD

Abstract:
Chronic lung diseases—including Chronic obstructive pulmonary disease, Idiopathic pulmonary fibrosis/interstitial lung disease, and Pulmonary hypertension—are leading causes of global morbidity and mortality. Current monitoring relies on intermittent, clinic-based assessments such as spirometry, six-minute walk testing, and right heart catheterization, which fail to capture early physiological changes preceding exacerbations.
Cardiac implantable electronic devices (CIEDs), including Pacemaker, Implantable cardioverter-defibrillator, and cardiac resynchronization therapy systems, are frequently present in this population due to shared cardiovascular comorbidities. These devices continuously measure intrathoracic impedance, respiratory rate, minute ventilation, and activity—parameters sensitive to fluid shifts and ventilatory compromise. Data are transmitted via remote monitoring platforms and have demonstrated correlation with standard respiratory metrics.
This narrative review synthesizes evidence supporting the repurposing of CIEDs for continuous respiratory monitoring in chronic lung disease. We examine physiological mechanisms, review disease-specific data—including subgroup analyses from trials such as the CHAMPION trial—and discuss technological, regulatory, and ethical considerations.
Repurposing existing cardiac devices offers a scalable approach to continuous respiratory surveillance. Leveraging this infrastructure may enable earlier detection of deterioration and improve outcomes, highlighting an opportunity limited more by clinical integration than technological capability.

P3-32: Tricuspid Endocarditis with Bilateral Septic Pulmonary Emboli, Necrotizing Lung Abscesses, and Refractory Hemoptysis: A Multisystem Crisis Requiring Surgical and Endovascular Intervention

Shirley Perez MD, Ranjan Gupta MD, Dhaval Shah MD, Pierre- Louis MD, John Depetrillo MD

Background: Tricuspid valve endocarditis is strongly associated with intravenous drug use and carries high risk of septic pulmonary emboli. Large, mobile vegetations increase the likelihood of pulmonary infarction and life-threatening complications.
Case: A 38-year-old woman with intravenous drug use presented with fever, hypoxia, hypotension, chest pain, and hemoptysis. Laboratory studies showed leukocytosis and markedly elevated inflammatory markers. Chest CT demonstrated bilateral pulmonary infarcts with necrosis. Echocardiography revealed large tricuspid vegetations (25 mm and 24 mm) with severe regurgitation. Blood cultures grew Staphylococcus aureus. Despite broad-spectrum antibiotics and supportive care, she developed lung abscess and empyema requiring video-assisted thoracoscopic surgery. Her course was complicated by massive hemoptysis, hypovolemic shock, cardiac arrest, and subsequent arterial embolization. Due to high surgical risk, valve replacement was deferred. Instead, percutaneous debulking using the AngioVac system was performed, achieving approximately 80% vegetation removal with residual moderate tricuspid regurgitation.
Conclusion: This case highlights the severe complications of right-sided endocarditis in intravenous drug use. Multidisciplinary management is essential for survival. The AngioVac system represents a promising minimally invasive alternative for vegetation debulking in high-risk surgical candidates.

Rheumatology

P1-19: Does BMI Influence Vitamin D Status? Findings from NHANES

Nikhila Chelikam MD, Parvathi Varma MD, Garima Vats MD, Yash Solanki MD, Naveen Parva MD, Venkatesh Gondhi MD

Background: Vitamin D is essential for metabolic balance, and its deficiency has been linked to obesity and altered body composition. This study evaluates the relationship between vitamin D levels and BMI categories in a nationally representative cohort.
Methods: Data from 35,162 participants (2007–2018) were analyzed. Vitamin D levels were categorized as deficient (<20 ng/mL), insufficient (20–29.9 ng/mL), and sufficient (≥30 ng/mL). BMI was classified as underweight, normal, overweight, and obese. Survey weights accounted for complex sampling. Chi-square tests assessed prevalence, and multinomial logistic regression evaluated associations, adjusting for age, sex, and race.
Results: Vitamin D deficiency was highest in underweight individuals (18.25%), followed by normal (10.14%), obese (9.48%), and overweight (8.44%). Compared to underweight individuals, normal weight was associated with a 48% lower likelihood of deficiency (OR 0.52, 95% CI 0.40–0.67), obese with 43% lower likelihood (OR 0.57, 95% CI 0.44–0.74), and overweight with the lowest risk (OR 0.43, 95% CI 0.33–0.57) (all p<0.001).
Conclusion: Vitamin D deficiency was most common in underweight individuals, while higher BMI was associated with lower risk. Further studies are needed to clarify causality and guide supplementation strategies.

P1-25: When muscle weakness persists: Recognition of the Late-Onset Statin-Induced Autoimmune Myopathy in the Outpatient Setting.

Lizeth Nathalia Arenas MD, Aatman Shah MD, Carlos A. Tejeda MD

Introduction: Statins are first-line therapy for hyperlipidemia but can rarely cause severe myopathy, including Rhabdomyolysis. Statin-associated myopathy typically affects proximal muscles and may occur even after long-term use.
Case Presentation: A 67-year-old woman with hypertension, hyperlipidemia, diabetes, and coronary artery disease presented with 5 months of progressive proximal weakness after escalation of high-intensity statin therapy (40 mg to 80 mg). She reported difficulty with activities of daily living. Examination showed weakness in hip flexion and shoulder abduction. Labs revealed markedly elevated CK (peak 11,889 U/L) and transaminitis, with normal thyroid and renal function. Statin-induced myopathy was suspected. She was treated with intravenous fluids, resulting in CK improvement, and discharged on prednisone with gradual symptomatic recovery.
Discussion: Statin-induced autoimmune myopathy presents with proximal weakness and markedly elevated CK. Persistent symptoms after statin discontinuation suggest immune-mediated disease requiring immunotherapy. This case highlights the importance of early recognition, particularly in outpatient settings, to prevent morbidity and guide timely management.

P1-30: When Statins Attack: Progressive Proximal Weakness Unmasking Immune-Mediated Necrotizing Myopathy

Kinjal M Solanki, Yash Solanki, Deep Solanki, Abdel-azim Bayoumy, Sujata Sukhavasi, Pradeep Balasubramanian

Introduction: Statins are commonly prescribed and generally well tolerated, but rarely can cause immune-mediated necrotizing myopathy (IMNM), a severe condition marked by progressive proximal muscle weakness and markedly elevated creatine kinase (CK). Unlike toxic statin myopathy, symptoms persist despite drug discontinuation.
Case Presentation: A 67-year-old female with hyperlipidemia, diabetes, and hypertension presented with two months of progressive proximal muscle weakness, initially in the lower extremities and later involving the upper extremities, causing difficulty climbing stairs, rising from a seated position, and performing overhead activities. She denied myalgias or sensory symptoms. She had been on long-term atorvastatin, with a dose increase one year prior; the medication was stopped after symptom onset, but weakness progressed. Examination showed symmetric proximal weakness without sensory deficits. Labs revealed markedly elevated CK, and imaging was unremarkable. IMNM was suspected, and she was managed with intravenous hydration with plans for immunosuppressive therapy.
Conclusion: IMNM should be suspected in patients with persistent or worsening weakness despite statin discontinuation. Early recognition and prompt immunosuppressive therapy are essential to improve outcomes and prevent complications.

P2-14: Unmasking Catastrophic Toxicity from Standard-Dose Methotrexate: A Case Illustrating Early Misses and Late Clues

Disha Patel MD, Parjanya Shah MD, Nandan Shah MD

Introduction: Methotrexate (MTX) is widely used at low weekly doses but has a narrow therapeutic margin in older adults. Even minor renal dysfunction or drug interactions can precipitate severe toxicity. Early manifestations—mucositis, rash, and fatigue—are often nonspecific, delaying diagnosis. We present a fulminant case of low-dose MTX toxicity with pancytopenia, cutaneous necrosis, and multiorgan failure.
Case Presentation: An 81-year-old woman with rheumatoid arthritis presented with weakness, oral pain, rash, and poor appetite. Examination revealed mucositis and necrotic skin lesions. Laboratory evaluation demonstrated severe pancytopenia (WBC 1.2×10^9/L, platelets 13×10^3/μL), macrocytosis, and acute kidney injury (Cr 2.35 mg/dL). Infectious and autoimmune workup was negative. Bone marrow biopsy showed hypocellularity with trilineage suppression. She was treated with broad-spectrum antimicrobials, folic acid, transfusions, and filgrastim; however, leucovorin rescue was not administered. Despite multidisciplinary care, she developed progressive lactic acidosis and multiorgan failure, culminating in death. An incidental diagnosis of mantle cell lymphoma was identified but not contributory to the acute presentation.
Discussion: Low-dose MTX toxicity can occur in the setting of renal impairment and polypharmacy. Normal serum MTX levels do not exclude toxicity. Delayed recognition contributes to high mortality.
Conclusion: Early identification of mucocutaneous findings and prompt initiation of rescue therapy are critical to improving outcomes in MTX toxicity.

P3-05: When a Trusted Ally Turns Foe: Stevens-Johnson Syndrome (SJS) Triggered by Hydroxychloroquine

Chakradhar Murari MD, Swapna Gangasani MD, Steven Golombek MD

Background: Hydroxychloroquine is widely used in autoimmune diseases and is generally well tolerated. Stevens-Johnson syndrome (SJS) is most commonly associated with sulfonamides, antiepileptics, and NSAIDs, with hydroxychloroquine being a rare trigger.
Case Presentation: A 46-year-old woman with depression, anxiety, Raynaud's phenomenon, and chronic joint pain was started on hydroxychloroquine 200 mg daily. Within one month, she developed a progressive pruritic erythematous rash involving the extremities, trunk, face, and mucosa. Initial treatments with permethrin, corticosteroids, and antibiotics were ineffective. She was hospitalized due to worsening rash and desquamation with concern for SJS. Examination revealed widespread maculopapular lesions with mucosal involvement. Laboratory findings showed leukocytosis and elevated lactate. Skin biopsy was inconclusive. Hydroxychloroquine was discontinued, and she was treated with intravenous corticosteroids and supportive care, resulting in gradual improvement. At one-month follow-up, complete re-epithelialization was noted with residual hyperpigmentation.
Discussion: This case highlights the diagnostic challenge of rare severe cutaneous adverse reactions associated with commonly used medications. Despite inconclusive biopsy findings, the clinical presentation and temporal relationship supported SJS. Early drug withdrawal and supportive care were critical in preventing progression. Clinicians should maintain a high index of suspicion for SJS even with medications considered relatively safe.

P2-14: Unmasking Catastrophic Toxicity from Standard-Dose Methotrexate: A Case Illustrating Early Misses and Late Clues

Disha Patel MD, Parjanya Shah MD, Nandan Shah MD

Introduction: Methotrexate (MTX) is widely used at low weekly doses but has a narrow therapeutic margin in older adults. Even minor renal dysfunction or drug interactions can precipitate severe toxicity. Early manifestations—mucositis, rash, and fatigue—are often nonspecific, delaying diagnosis. We present a fulminant case of low-dose MTX toxicity with pancytopenia, cutaneous necrosis, and multiorgan failure.
Case Presentation: An 81-year-old woman with rheumatoid arthritis presented with weakness, oral pain, rash, and poor appetite. Examination revealed mucositis and necrotic skin lesions. Laboratory evaluation demonstrated severe pancytopenia (WBC 1.2×10^9/L, platelets 13×10^3/μL), macrocytosis, and acute kidney injury (Cr 2.35 mg/dL). Infectious and autoimmune workup was negative. Bone marrow biopsy showed hypocellularity with trilineage suppression. She was treated with broad-spectrum antimicrobials, folic acid, transfusions, and filgrastim; however, leucovorin rescue was not administered. Despite multidisciplinary care, she developed progressive lactic acidosis and multiorgan failure, culminating in death. An incidental diagnosis of mantle cell lymphoma was identified but not contributory to the acute presentation.
Discussion: Low-dose MTX toxicity can occur in the setting of renal impairment and polypharmacy. Normal serum MTX levels do not exclude toxicity. Delayed recognition contributes to high mortality.
Conclusion: Early identification of mucocutaneous findings and prompt initiation of rescue therapy are critical to improving outcomes in MTX toxicity.

Sports Medicine

P3-18: Knee Injuries in NFL Linemen — Correlation with BMI

Robert Farrell MD, Michael Lem MD, John Bianchi MD, Lawrence Chang DO, Marc Lafonte MD, Juan Lujan MD, Chris Soriano MD

Background:
Knee injuries are among the most common injuries in the National Football League and can significantly impact player availability and performance. Body mass index (BMI) may influence the risk and severity of lower-extremity injuries in high-level athletes.
Purpose:
To evaluate the association between BMI and the incidence and severity of knee injuries in NFL offensive and defensive linemen.
Methods:
Injury data from 2009–2022 were obtained from official NFL databases. Knee injuries in linemen were analyzed by week and stratified by BMI, calculated from height and weight data from Pro-Football-Reference. Players were grouped by BMI, focusing on those ≥40. Injury severity was assessed using game status (probable, questionable, doubtful, out).
Results:
Offensive tackles were most frequently listed on injury reports. Among players with BMI ≥40, most were probable (n=182), followed by questionable (157), out (134), and doubtful (26). Mean BMI was highest in probable players (42.4±2.69) and lowest in those listed as out (40.9±0.99). Significant differences were observed between probable vs questionable ($p=0.023$) and probable vs out ($p<0.001$). Rates of being out or doubtful were similar between BMI ≥37 and <37 groups.
Conclusions:
Higher BMI may be associated with less severe injury status among NFL linemen, with injuries predominantly lower grade and increasing later in the season, suggesting cumulative effects.

P3-19: Intractable Calf Pain, Stiffness and Numbness in a Runner

Robert Farrell MD, Lawrence Chang DO

Background:
Entrapment of the lateral sural nerve (LSN), a purely cutaneous sensory nerve supplying the posterolateral lower leg, foot/heel, and ankle, can occur after surgery and lead to persistent neuropathic pain. Scar tissue formation is a potential but underrecognized cause.
Case Presentation:
A 39-year-old male Army medic and recreational runner with left plantar fasciitis s/p left open plantar fasciectomy and gastrocnemius resection presented with three months of persistent left calf and foot pain. He had difficulty with ankle plantarflexion and dorsiflexion, numbness over the lateral calf, ankle, and foot, and a palpable mass at the surgical site. Prior treatments—including home exercises, Graston scraping, cortisone injections, physical therapy, dry needling, and TENEX—failed. LSN entrapment from scar tissue or nerve disruption was suspected. The patient declined repeat surgery and underwent ultrasound-guided scar tissue release with three sessions of hydrodissection.
Conclusion:
He had complete resolution of pain and stiffness. This case highlights hydrodissection as an effective nonoperative option for postoperative nerve entrapment.