MED +

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Research (including clinical, translational and innovation)

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Mortality and Cardiovascular Outcomes in Sarcoidosis Patients with Co-existing Heart Failure with Preserved Ejection Fraction Treated with Sodium-Glucose Cotransporter-2 Inhibitors

Thurairajasingam, Krija; Hamilton, Michael; Otabor, Emmanuel; Okunlola, Ayoyimika; Alomari, Laith; Lam, Justin

Imperial College London ; Jefferson Einstein Philadelphia Hospital, Philadelphia, Pennsylvania. ; Lincolnshire Community and Hospital NHS trust ;

Royal College of Physicians

Introduction & background

- Systemic sarcoidosis can lead to heart failure through various non-infiltrative mechanisms. SGLT2 inhibitors are established as part of guideline-directed therapy for heart failure with reduced ejection fraction.
- Their potential benefits in sarcoidosis patients with preserved ejection fraction remain unclear
- It is unknown whether these agents improve outcomes in patients without confirmed cardiac sarcoid involvement.

Method

- We performed a retrospective cohort study in the TriNetX Global Network.
- Adults ≥ 18 years with sarcoidosis and HFpEF recorded between 2019 and 2024 were eligible; other infiltrative cardiomyopathies were excluded.
- 1:1 propensity-score matching for demographics, comorbidities and medications yielded 2,280 patients per group (SGLT2 vs control).
- Outcomes were tracked for five years: all-cause mortality (primary); hospitalizations; arrhythmias (atrioventricular block or ventricular tachyarrhythmia); major adverse cardiovascular events (MACE: cerebral infarction, acute HF, cardiac arrest);, inflammatory markers

Conclusion

- SGLT2 inhibitor therapy was linked to lower mortality and fewer hospitalizations.
- Inflammatory markers such as CRP and ESR were also reduced among treated patients.
- No significant differences were observed in arrhythmia or major cardiovascular events, highlighting the need for prospective confirmation of these findings.

Results

Outcome	SGLT2 Inhibitor Group (n = 2,280)	Control Group (n = 2,280)	P value	Interpretation
All-cause mortality	10.3 %	19.2 %	< 0.001	Significantly differnce
Hospitalization (any cause)	41.1 %	48.7 %	< 0.001	Reduced hospitalization risk
Arrhythmias (AV block / VT)	5.2 %	5.0 %	NS	No significant difference
Major Adverse Cardiovascular Events (MACE)	11.8 %	10.4 %	NS	No significant difference
C-reactive protein (mg/L)	32.4 ± 54.8	45.2 ± 64.4	< 0.001	Lower systemic inflammation
Erythrocyte sedimentation rate (mm/h)	35.3 ± 28.7	43.9 ± 32.8	< 0.001	Lower inflammatory activity

References

1. *Gilotra NA, Griffin JM, et al. Sarcoidosis-Related Cardiomyopathy: Current Knowledge, Challenges, and Future Perspectives State-of-theArt Review. J Card Fail. 2022 Jan;28(1):113-132. doi:10.1016/j.cardfail.2021.06.016. Epub 2021 Jul 11. PMID: 34260889; PMCID: PMC8748280.*
2. *Patel J, Rassekh N, Fonarow GC, et al. Guideline-Directed Medical Therapy for the Treatment of Heart Failure with Reduced Ejection Fraction. Drugs. 2023 Jun;83(9):747-759. doi: 10.1007/s40265-023-01887-4. Epub 2023 May 31. PMID: 37254024.*

King's College Hospital NHS Foundation Trust

Proposal of a modified NIVO score as a simpler clinical decision aid for patients with acute hypercapnic respiratory failure

Paula Rocktaschel[1,2], Deepak Jose[2], Yacoob Hamuth[2], Abubakar Khan[2], Thomas Buttle[2], Lynette Linkson[2], Chia Ling Tey[2]

Background and aims.

- Non-invasive ventilation (NIV) improves survival in acute hypercapnic failure, an effect also seen in increasingly frail patients.
- Despite this, there is prognostic pessimism and NIV underusage, especially in frail patients.
- To tackle poor NIV use, the NIVO score was introduced by the BTS RSU pilot audit in 2021 as a clinical prediction tool to aid treatment decisions and minimise undertreating suitable patients
- The NIVO score can be challenging to apply in the emergency setting due to its reliance on the eMRCD scale.
- Inspired by an internal audit on acute NIV over two months in our DGH, we propose a modified NIVO score (mNIVO) excluding the eMRCD scale to increase usage amongst acute physicians and help reduce NIV underusage in the acute setting.

NIVO score

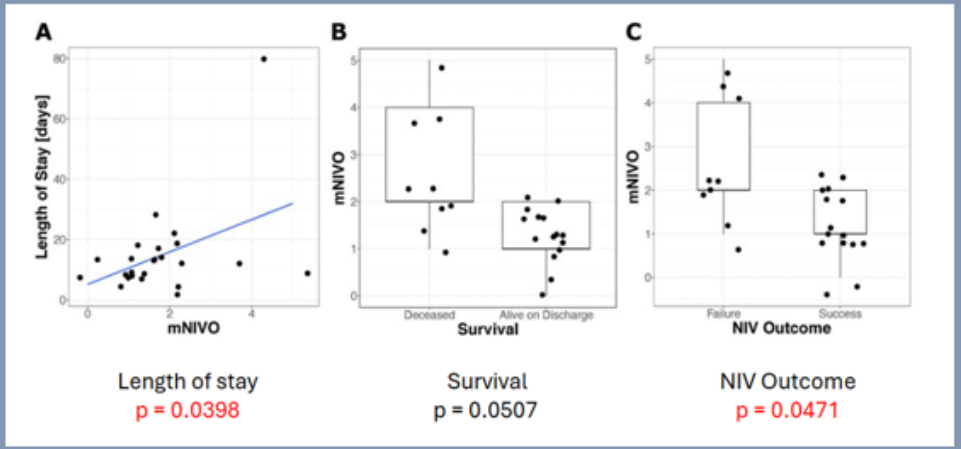
- Consolidation on CXR
- GCS < 15
- PMH of AF
- pH < 7.25
- Time to acidaemia
- eMRCD scale *scoring the functional impact of dyspnoea on a good day, within the last 3 months*

→ Predict in-patient & 1-year mortality
→ Aid patient discussions
→ Inform treatment decision

Patient cohort included 24 patients receiving acute NIV over two months in one DGH.

Patient indicators		Patient indicators during admission		Outcome	
Age	73.7 ± 11.1	Initial pH	7.23 ± 0.08	Time on acute NIV [days]	2.4 ± 2.2
F / M	12 / 12	Initial pCO2	10.5 ± 1.7	pH corrected / not corrected	15 / 9
NIVO	***3 ± 2.1***	Consolidation (yes / no)	15 / 9	Discharged / deceased	15 / 9
mNIVO	***1.75 ± 1.2***	GCS (15 / < 14)	14 / 10	pH after NIV	7.35 ± 0.10
		Atrial fibrillation (Yes / No)	8 / 16	PCO2 after NIV	8.4 ± 2.2
		Time to acidaemia (< 12 / > 12)	17 / 7	Length of hospital stay [day]	14.5 ± 15.2

The mNIVO score correlates with clinical outcome.



Length of stay p = 0.0398 | Survival p = 0.0507 | NIV Outcome p = 0.0471

Fig 1: *The mNIVO significantly correlated with NIV outcome and LOS, and showed a strong trend towards significant correlation with survival. A significant correlation was observed between the original NIVO score and survival only (p = 0.043, not shown).*

24 patients received NIV over the study period of two months

NIVO was not documented in any case & could be calculated for < 50 % from the initial clerking

Retrospectively, mNIVO score could be calculated for all patients

Discussion.

The mNIVO score might be an alternative to the NIVO score if proven to show similar prognostic accuracy in future studies.

Retrospective study in a small cohort in a single center

Simplified clinical usability -> more accurate treatment decisions, especially in frail patients

Information captured in the eMRCD scale is important to obtain from patients to guide treatment escalation planning

1 Ghosh, D & Elliott, MW (2019), *Clinical Medicine*, *19*(3), 237–242.
2 British Thoracic Society Respiratory Support Pilot Audit Report 2021
3 Hartley, T et al. (2021). *European Respiratory Journal*, *58*(2).

Contact
[1]paula.rocktaschel@nhs.net
[2]Princess Royal University Hospital, KCH Trust

Hyponatremia Following Ischemic Stroke: A Study of 287 Patients in a Stroke High-Dependency Unit

Insha Aleena [1], VSBPradeep Konakanchi [2];
[1]Apollo Multispecialty Hospitals Ltd, Kolkata;
[2]Sandwell and West Birmingham Hospitals NHS Trust

INTRODUCTION:

Hyponatremia, a low serum sodium level (<135 mmol/L), is a common and critical electrolyte disorder in acute ischemic stroke patients. Even mild reductions can cause brain swelling and worsen neurological outcomes. It often stems from Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) or Cerebral Salt Wasting (CSW), which require distinct management. Previous studies link hyponatremia to longer hospital stays and poorer functional recovery. Other electrolyte imbalances, like hypokalemia, also occur. This study aims to determine hyponatremia's incidence, severity, and causes in stroke high-dependency unit (HDU) patients, and its association with short-term clinical outcomes, offering insights for improved patient care.

AIMS/OBJECTIVES:

Our study had three main aims:
1. To determine the incidence and severity of hyponatremia in acute ischemic stroke patients in a stroke high-dependency unit (HDU).
2. To identify the underlying causes of post-stroke hyponatremia.
3. To assess the association between hyponatremia (and other electrolyte imbalances) and short-term clinical outcomes like HDU stay duration, early neurological deterioration, and discharge functional status.

To achieve these, we aimed to: quantify hyponatremia incidence and severity; identify the mean serum sodium in affected patients; determine common age groups and infarct types linked to hyponatremia; analyze causes (SIADH, CSW, others); assess the link between hyponatremia/other electrolyte imbalances and HDU stay length; compare baseline vs. discharge mRS; and note diuretic use.

MATERIALS & METHODS:

Study Design and Participants

This was an observational study of 287 consecutive acute ischemic stroke patients admitted to a stroke HDU at between January and May 2025.

Data Collection

We collected data from medical records on demographics, stroke characteristics (infarct type, NIHSS score), and laboratory parameters including serum sodium, potassium, calcium, and magnesium. We also recorded medication history, specifically diuretic use, and clinical outcomes such as HDU length of stay, neurological deterioration, and modified Rankin Scale at discharge.

Definitions

Hyponatremia was defined as serum sodium <135 mmol/L, categorized as mild (130–134 mmol/L), moderate (125–129 mmol/L), or severe (<125 mmol/L). Etiology (SIADH, CSW, or other) was determined clinically/biochemically.

Statistical Analysis

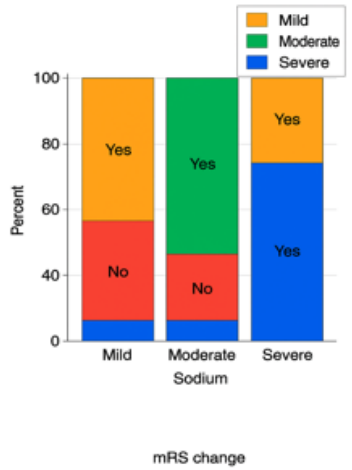
Descriptive statistics summarized patient data and hyponatremia incidence. We used chi-square for categorical variables to analyze associations. Functional outcomes were analyzed using appropriate statistical methods. A p-value of <0.05 indicated statistical significance.

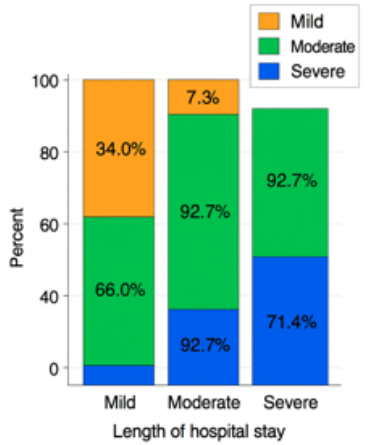
RESULTS:

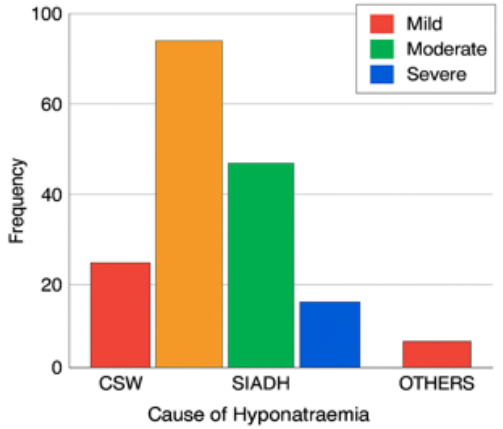
Patient Profile (n=287): Mostly male (64.1%), age 61–70 years (40.1%), with high comorbidity (87.1%).
Electrolyte Disturbances: Hyponatremia was highly prevalent (55.4%), mostly mild (35.9%). Other common issues: hypomagnesemia (27.2%) and hypokalemia (21.3%).
Key Associations:
Low sodium significantly associated with greater functional decline (mRS change; p=0.015).
Moderate/Severe hyponatremia correlated with significantly prolonged hospital stays (p=0.005).
SIADH was the primary cause (38%) and accounted for all moderate/severe cases (p<0.0001).

DISCUSSION:

Hyponatremia (**55.4%** prevalence) is a critical complication in acute ischemic stroke.
Impact on Outcomes: The disturbance is associated with poorer neurological outcomes (mRS) and longer hospitalization, especially in its moderate/severe forms.
Etiology: SIADH drives the most severe sodium derangements, underscoring the role of stroke-specific neuroendocrine dysfunction rather than general patient factors.







CONCLUSION:

Hyponatremia is frequent in acute ischemic stroke patients in the HDU, with SIADH being the most common cause. Moderate to severe hyponatremia is linked to longer HDU stays and worse early neurological outcomes. Other electrolyte imbalances like hypokalemia are also common. These findings underscore the critical need for early detection, accurate diagnosis, and targeted management of electrolyte disturbances to optimize stroke care, potentially reducing hospital stay and improving functional recovery.

Prevalence of Gastrointestinal (GI) Parasitic Infections in Rural Northeast Thailand: A Cross-Sectional Study.

Lu, Baichi[1]; Abdirizak Hassan, Mariam[2]; Albanese, Mattia[2]; Azouaghe, Olivia[2]; Fairouz, Fariha[2]; Kuboyama, Yusuke[2]; Mohamud Ali, Qadija[2]; Mosler, Fernando[2]; Ponzetta, Laura[3]; Ravetta, Pietro[2]; Charunwathana, Prakaykaew[2]; Phuphisut, Orawan[2]; Thaenkham, Urusa[2]; Koompapong, Khuanchai[2]

[1]Guy's and St Thomas' Trust ; [2]Mahidol University, Thailand ; [3]University of Turin, Italy

Mahidol University
Faculty of Tropical Medicine
Mahidol Bangkok School of Tropical Medicine

Background

- GI parasitic infections remain common in Thailand - **9.79% prevalence in 2019.**[1]
- **Soil and water exposure** and **eating raw or undercooked food** increase infection risk.[2]
- In Si Sa Ket, where **75% work in agriculture, occupational exposure** drives ongoing transmission.
- Targeted surveillance and treatment can reduce **malnutrition, anaemia, and economic loss** from chronic infection.[3]

AIM: Measure prevalence of GI parasites and implement treatment.

Method

- **Cross-sectional** survey (October 2024) in 4 rural areas.
- **Recruitment**: Public health officials and village health volunteers.
- **Stool analysis**: Direct smear (in saline and iodine) and Kato thick smear conducted by trained personnel.
- **Positive samples** were **independently verified** and treated as per **Thai national guidelines.**

Results

Fig. 1.

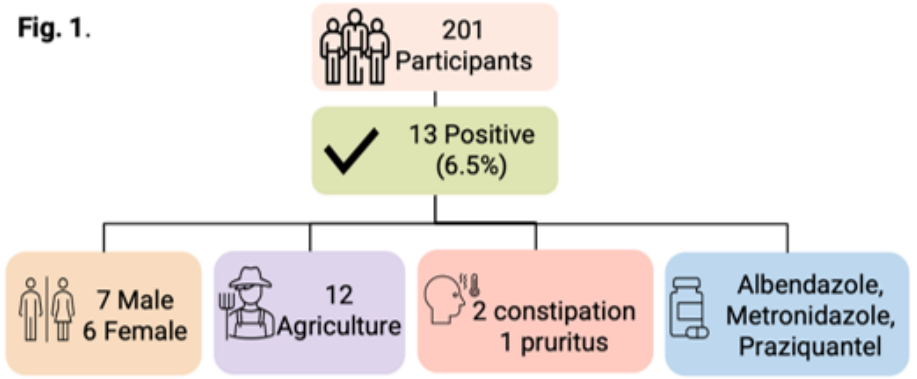
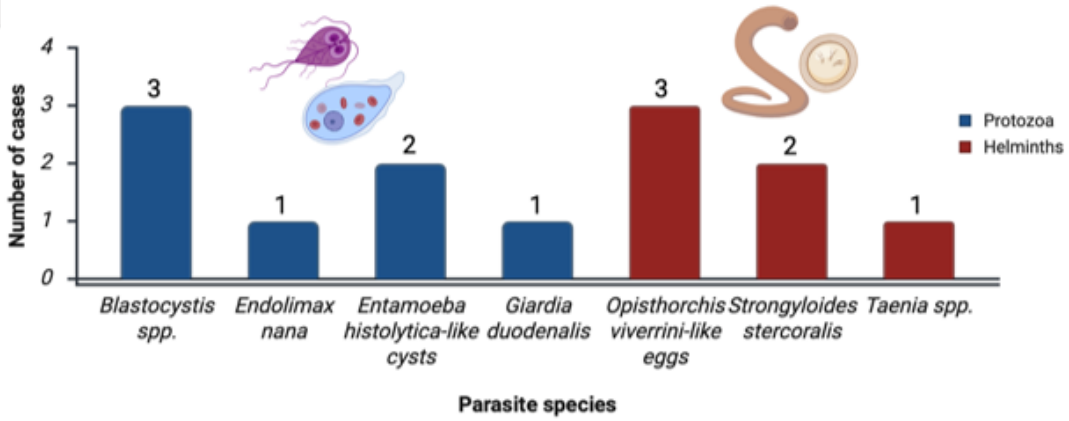


Fig. 2: Distribution of parasites detected.



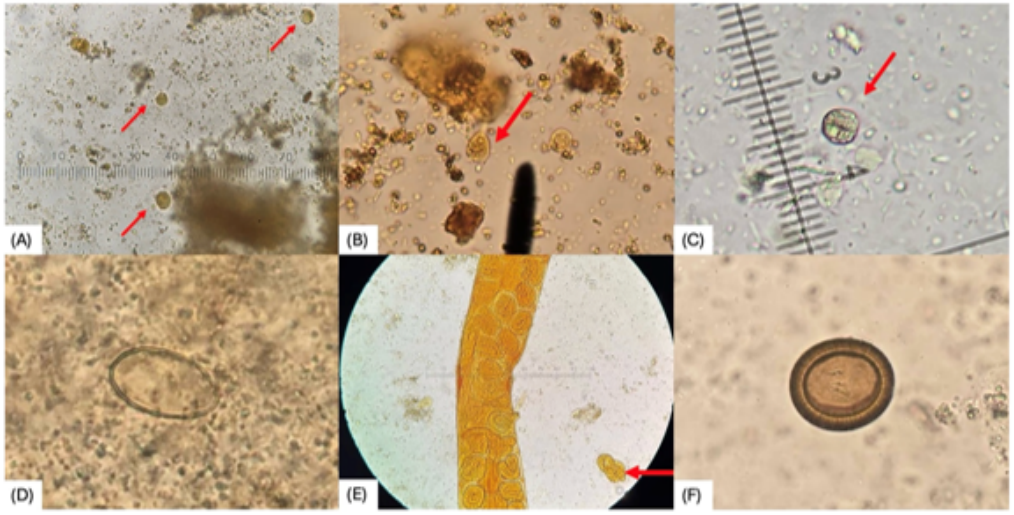


Fig. 3: Microscopy.

(A) *Blastocystis* spp. vacuolated form
(B) *G. duodenalis* cyst
(C) *E. histolytica*-like cyst
(D) *O. viverrini*-like egg
(E) *S. stercoralis* egg with larvae and free-living female
(F) *Taenia* spp. egg.

Take-home Messages

- **6.5% prevalence** of GI parasitic infections among screened volunteers.
- **77% asymptomatic**, highlighting the hidden community burden of infection.
- **92% agricultural workers**, reflecting ongoing **occupational exposure risk.**
- **Targeted treatment** successfully delivered in accordance with Thai national guidelines.
- Findings **inform future public health priorities** for surveillance and risk reduction.

References:
1. Wattanawong O, *et al*. Current status of helminthiases in Thailand: A cross-sectional, nationwide survey, 2019. *Acta Trop*. 2021 Nov 1;223:106082.
2. Boonjaraspinyo S, *et al*. A Cross-Sectional Study on Intestinal Parasitic Infections in Rural Communities, Northeast Thailand. *Korean J Parasitol* 2013;51(6):727.
3. Suntaravitun P. Prevalence of intestinal parasites and associated risk factors for infection among rural communities of Chachoengsao province, Thailand. *Korean J Parasitol*. 2018 Feb 1;56(1):33–9.

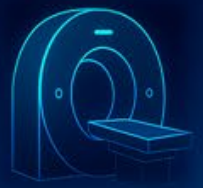
FROM X-RAYS TO INTELLIGENCE: EVIDENCE FOR LDCT AND AI IN LUNG CANCER SCREENING

Dr Amjad Alqharaibeh • Royal Papworth Hospital, Cambridge, UK

INTRODUCTION

- Lung cancer: leading cause of cancer death; survival is stage-dependent.
- CXR improved detection but no mortality benefit (PLCO).
- LDCT detects earlier disease and shows survival advantage.

KEY TRIALS / RESULTS



PLCO (CXR): no mortality reduction.
NLST (LDCT vs CXR): ~20% ↓ lung-cancer mortality.
NELSON (LDCT vs no screen): ~24% ↓ mortality in men.
UKLS / UK pilots: marked stage shift; ~76% stage I detection in pilots.
Net effect: LDCT = only modality with proven mortality benefit.

ROLE OF AI

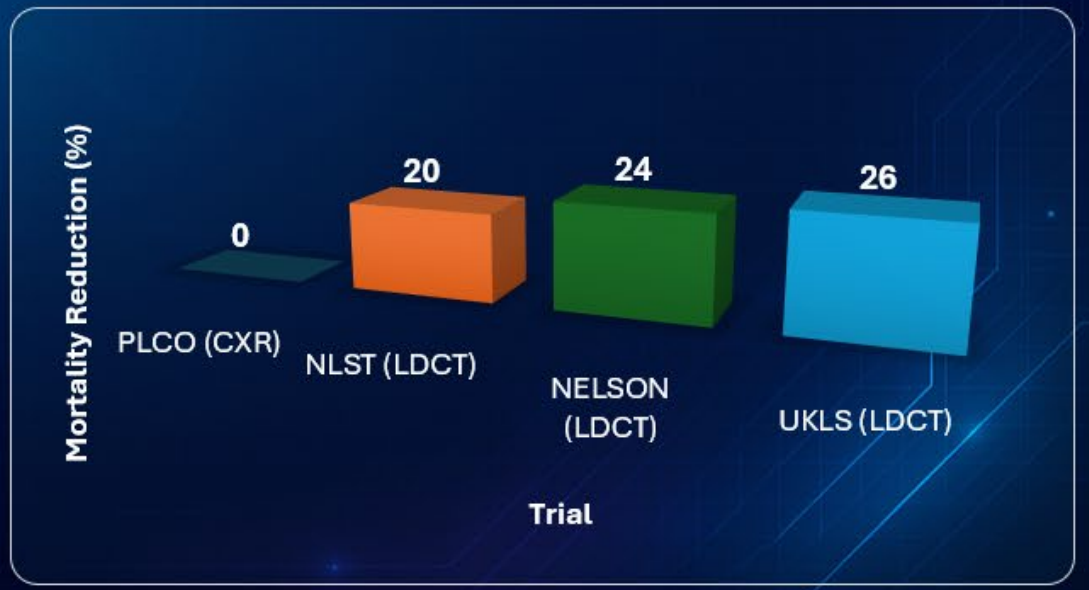
DL models on CXR: nodule sensitivity up to ~95%; boost reader accuracy.
Second-reader AI helps less-experienced clinicians.
Risk models (e.g., CXR-LC) outperform smoking-only criteria for prediction.
No proven mortality reduction yet; use for triage to LDCT and risk refinement.

GUIDELINES & PRACTICALS

- Guidelines (UK NSC, USPSTF, EC, WHO): endorse LDCT, exclude CXR for screening.
- Radiation: LDCT ~1–1.5 mSv vs CXR ~0.02 mSv. False positives managed via structured nodule pathways.
- Cost-effective in high-risk cohorts.

CONCLUSION / TAKE-HOME

- CXR is obsolete for screening.
- LDCT saves lives; implement in high-risk groups.
- AI enhances detection & risk stratification but does not replace LDCT.
- Future: AI-supported LDCT programmes.



References:
PLCO JAMA 2011; NLST NEJM 2011; NELSON NEJM 2020; UKLS Lancet Reg Health Eur 2021; AI meta-analyses Chest 2022; Eur Radiol 2023; JAMA Netw Open 2019.

Hyperkalemia and Cardiovascular Outcomes in Type 2 Diabetes and Heart Failure with Reduced Ejection Fraction Treated with Sodium-- glucose cotransporter-2(SGLT2) Inhibitor plus Mineralocorticoid Antagonist versus Mineralocorticoid Antagonist Alone

Otabor Emmanuel; Okunlola Ayoyimika; Idowu Abiodun ; Adebolu Olayinka; Hassan Abdulraheem ; Hamilton, Michael; Lam Justin; Alomari Laith; Thurairajasingam Krija

Jefferson Einstein Philadelphia Hospital, Philadelphia; United Lincolnshire Hospitals, NHS Trust ; Saint Peter's University hospital, New Brunswick, ; Imperial College London

Royal College of Physicians

Introduction & background

- MRA therapy in T2DM patients with HFrEF often leads to hyperkalemia.

- SGLT2 inhibitors may lessen potassium burden and enhance cardiovascular outcomes.

- Real-world evidence supporting these effects remains limited.

Aims

- The primary aim of this study was to determine whether, in adults with T2DM and HFrEF already receiving MRA therapy, the addition of an SGLT2 inhibitor reduces hyperkalemia
- Secondary outcomes including major adverse cardiovascular events (MACE), compared with MRA therapy alone.

Method

- This was a real-world, retrospective cohort study using the TriNetX Global Collaborative Network, which includes anonymized data from 148 healthcare organizations worldwide.
- Adults with type 2 diabetes mellitus and heart failure with reduced ejection fraction (LVEF ≤ 40%) who received spironolactone or eplerenone between 2020 and 2024 were identified.
- Two cohorts were compared: those who added an SGLT2 inhibitor at least one month after MRA initiation versus those maintained on MRA alone. After 1:1 propensity-score matching, 2,989 patients were included in each group.
- The primary outcome was hyperkalemia , with secondary outcomes including severe hyperkalemia, all-cause mortality, major adverse cardiovascular events, and arrhythmia.

Results

Outcome	MRA + SGLT2	MRA Alone	p-value	Interpretation
Hyperkalemia > 6.0 mmol/L	5.6 %	8.7 %	< 0.001	45 % lower risk
All-cause mortality	10.6 %	21.6 %	< 0.001	59 % lower mortality
MACE (MI, stroke, PE, cardiac arrest)	10.3 %	14.1 %	0.006	37 % lower MACE
Arrhythmia (AF, VT, VF)	11.2 %	12.5 %	0.033	24 % lower risk

Conclusion

- In a real-world, propensity-matched cohort of T2DM and HFrEF patients on MRA therapy, adding an SGLT2 inhibitor reduced hyperkalemia risk.
- The combination therapy also lowered rates of major adverse cardiovascular events (MACE) and arrhythmias.
- Overall, it was linked to decreased all-cause mortality within one year compared with MRA alone.

References

1. *Cooper LB, Lippmann SJ, Greiner MA, et al . Use of Mineralocorticoid Receptor Antagonists in Patients With Heart Failure and Comorbid Diabetes Mellitus or Chronic Kidney Disease. J Am Heart Assoc. 2017 Dec 23;6(12):e006540. doi: 10.1161/JAHA.117.006540. PMID: 29275368; PMCID: PMC5779000.*
2. *2. Wing S, Ray JG, Yau K, et al. SGLT2 Inhibitors and Risk for Hyperkalemia Among Individuals Receiving RAAS Inhibitors. JAMA Intern Med. 2025;185(7):827–836.*

HYBRID EPICARDIAL-ENDOCARDIAL ABLATION VS CATHTER ABLATION FOR NON-PAROXYSMAL ATRIAL FIBRILLATION

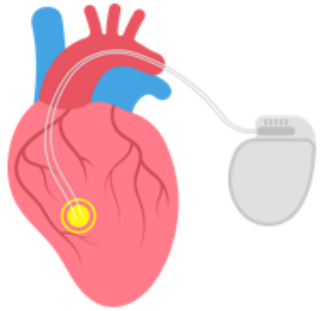
A Systematic Review and Meta-analysis of Randomized Controlled Trials

Introduction

Cathter Ablation (CA) has revolutionized Atrial Fibrillation (AF) care - BUT not for everyone

Non-paroxysmal Atrial Fibrillation (AF) often recur despite antiarrhythmic therapy and repeat cathter ablations (CA)

Hybrid Endocardial - Epicaridal ablation (HA) tackles the arrhthmogenic substrate from both atrial surfaces - aiming for more durable lesions, posterior wall isolation, and improved rhythm control



Objective

To systematically review and pool evidence from randomized controlled trials comparing hybrid epicardial-endocardial ablation with cathter ablation in non-paroxysmal/ persistent atrial fibrillation

Key Sources and Acknowledgements

RCTs included:

- Kress 2024
- DeLurgio 2020 (CONVERGE)
- Pison 2014
- Bisleri (2019)
- Gehi 2023

Authors:

- Kanita Farooq (King's College NHS Foundation Trust)
- Zuha Akhtar (University of Oxford and Frimley Health NHS Foundation Trust)
- Maria Babu (Lancashire Teaching Hospitals)
- Ishpreet Singh (Royal Cornwall Hospitals NHS Trust)

Methodology

01 Systematic review and Meta-analysis conducted in accordance with **PRISMA 2020** and registered on **PROSPERO**

Search Strategy:

02 Electronic searches of PubMed, Embsase, Cochrane CENTRAL, Scopus, and ClinicalTrials.gov using:
("Atrial Fibrillation" [Mesh/tiab]) AND ("Hybrid ablation" OR "Convergent ablation") AND ("Catheter ablation")
PubMed syntax shown; equivalent terms adapted for other databases

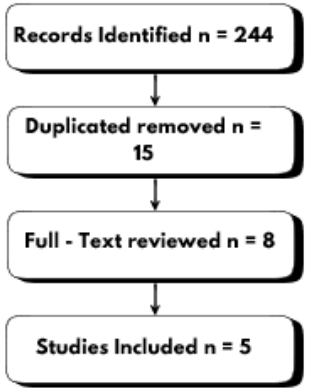
Inclusion Criteria:

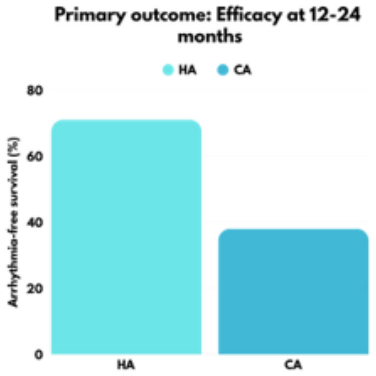
03
- *Population*: Adults (≥18 years) with non-paroxysmal or long-standing AF
- *Intervention*: Hybrid Epicardial-Endocardial Ablation
- *Comparator*: Catheter Ablation alone
- *Outcomes*:

1. Primary Outcome: Maintenance of sinus rhythm at 12-24 months without antiarrhythmic therapy
2. Secondary Outcome: Complications (procedural related e.g., tamponade, stroke), repeat intervention (ablarion or cardioversion), quality of life improvement

Analysis and Data extraction:

04 Random-effects meta-analysis using Review Manager 5.4 to pool risk ratios (RR) with 95% CIs. Data were independently extracted by two reviewers and cross-checked for accuracy





Results

- 5 RCTs were included - n ≈ 450
- **Rhythm control:** At 12-24 months HA achieved arrhythmia-free survival in **65-76 %** vs **32-43 %** for CA representing an absolute pooled benefit of ≈ +30% ($p<0.001$). Off anti-arrhythmic drugs, HA maintained superior sinus-rhythm durability (≈ **57-72 %** vs **28-41 %**)
- **Safety:** Major complication rates were comparable (HA **8-11 %** VS CA **6-10 %**); no procedural mortality reported. Serious adverse events (e.g., tamponade, stroke) were infrequent.
- **Re-interventions:** HA required fewer repeat procedures - cardioversions **12-16 %** vs **24-29 %** and repeat ablation (**5-8 %** vs **34-37 %**)

Analysis

- HA achieved **higher long-term rhythm control** than CA, plausibly by enabling durable posterior-wall and epicardial lesion sets with endocardial gap closure.
- **Comparable safety** across RCTs supports feasibility, although Across RCTs, 30-day major complications were similar between strategies, supporting procedural feasibility, though technique heterogeneity (lesion sets, energy source, staging) limits cross-trial comparison.
- The treatment effect is also likely modulated by substrate burden; refining selection within non-paroxysmal AF (e.g., larger LA, greater fibrosis, prior failed CA) may optimize benefit and avoid unnecessary invasiveness.

Conclusion

HA ablation offers **superior arrhythmia-free survival** compared with CA in persistent AF, with similar safety. These findings support its consideration as a treatment option for selected patients. Further multicentre RCTs should refine patient selection and evaluate long-term durability

The diagnosis, management and outcome of bone and joint tuberculosis infections in UK adults

S. Al-Biatty, F. McGill, C. Hall

Introduction

- Extrapulmonary tuberculosis (TB) involving the musculoskeletal system – bone and joint TB (BJ TB) - occurs in around 5% of cases; the spine is the most common site.
- Uncertainty exists regarding the optimal duration of anti-tuberculous treatment for BJ TB. The World Health Organisation stipulates 6-12 months[1]; the American Thoracic Society 9-12 months[2]; national Indian guidelines 12-18 months[3]; and UK national guidelines six months provided there is no central nervous system involvement[4].

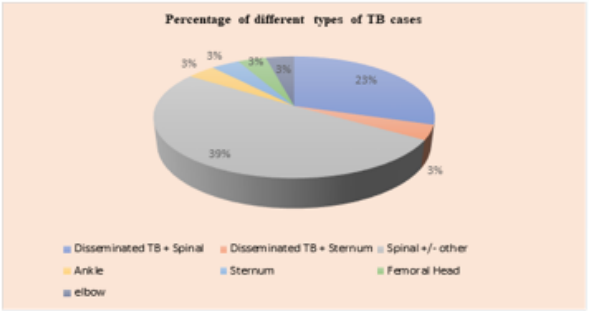
Methods

- Retrospective cohort study of all cases of BJ TB managed in the TB service in Leeds, UK between 2016 and 2023.
- Cases were identified from local TB case notification records.
- Data regarding patient demographics, care pathway, microbiological and radiological results, management and outcome were obtained from electronic health records.

Patient demographics

- 31 cases of BJ TB were identified.
- The mean age of our patient cohort was 38 years. 77.4% were male and 22.6% were female. 39% had recently arrived in the UK and the majority of patients were not born in the UK (Fig 1).

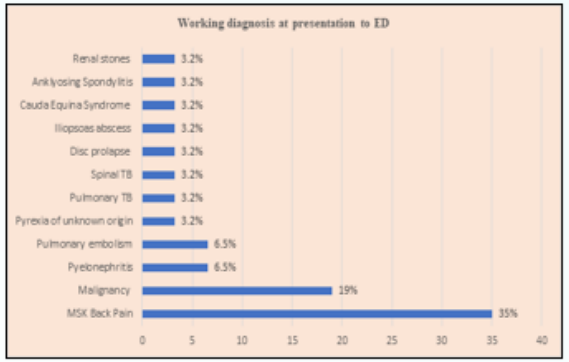
Fig 1: Type of bone & joint infections in our patient cohort



Pathway to Diagnosis

- Most patients presented to primary care in the first instance. The most common symptom elicited from the General Practitioner's (GP's) history was *'unresolving back pain'* (23%). The mean number of primary care consultations to referral to the TB service was 4.6 in the case of spinal TB and 3.5 in the case of other BJ TB sites.
- Many patients presented to the emergency department, with a variety of differential diagnoses ensuing (Fig 3). The most common of which was musculoskeletal back pain (35%) and malignancy (19%).
- The average time from the onset of symptoms to first imaging was 5.2 months for spinal TB and 6.8 months for other BJ TB sites.

Fig 2: Differential diagnoses in patients with spinal TB presenting to the emergency department



Clinical data

- 68% of cases were microbiologically proven; 83% of which were fully sensitive M. TB. There were two cases of MDR-TB and three cases of mono-resistant disease to rifampicin, isoniazid and pyrazinamide. Positive histology was found in 39% of cases.
- The most common type of BJ infection was spinal TB (39%)with the most common site being the thoracic spine (29%).There were seven other cases which involved the spine inthe setting of disseminated TB.
- 61% of cases presented with a collection/abscess. Psoas muscle involvement was present in 19% of cases while spinal cord compression was found in 16%.
- The standard duration of treatment in our cohort was 12 months; mean duration in the cohort was slightly longer due to the MDR-TB cases. A repeat MRI was asked for by the clinician in 68% of cases. 58% had orthopaedic/surgical intervention (other than a biopsy) with spinal fusion being the most common procedure at 12.9% (almost a quarter of cases of spinal TB required fusion).

Management outcomes

6 months into treatment

- 41% of patients had no symptoms; 33% had mild back pain/stiffness. 54% of patients had an element of restriction of movement. 11 patients were noted to use analgesia. The mean weight change from the start of treatment was +3.7kg in the case of spinal TB and +5.78kg in the case of other BJ TB infections.

12 months into treatment

- Twenty patients (65%) reached either clinical and/or radiological resolution at 12 months. One patient had ongoing pain, and another had poor response to treatment. There were no deaths in this cohort.

To date, no cases of relapse after completion of treatment had occurred in this cohort.

Conclusion

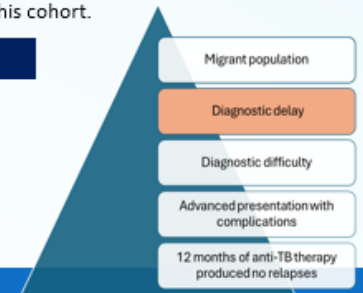


Figure 3. Main study findings

Diagnostic Delay

- There are clear challenges in our patient group. Many are migrants from countries endemic with TB. Patients would present multiple times to their health practitioner with delays in waiting for musculoskeletal referrals and physiotherapy services, for example, in the community.
- We divided delay into patient, diagnostic and treatment delays.
- How did our cohort fair as compared to UK national statistics where the median diagnostic delay in 2021 for Pulmonary TB was 76 days. The median diagnostic delay for our spinal TB group was 157 and our non-spinal TB 240 days .

Recommendations

- Further studies focused on the drivers of delayed diagnosis of BJ TB would be helpful with a view to reducing time to diagnosis. The bulk of the delay in our cohort occurs in primary care i.e. from onset of symptoms to suspicion of osteoarticular TB.
- The existing policy to treat BJ TB for 12 months in Leeds is based on previous data showing relapses with 6 months of treatment; however, given the conflicting international guidelines further studies are needed to understand the optimal duration of treatment. For example, whether treatment for nine months would have similar outcomes.

References:

1. World Health Organization. WHO operational handbook on tuberculosis. Module 4: drug-susceptible tuberculosis treatment. Accessed online at: 9789240050761-eng.pdf (who.int) 30/11/23

2. Infectious disease society of America. ATS/CDC/IDSA Guidelines for Treatment of Drug-Susceptible Tuberculosis (idsociety.org) 26/02/2024

3. Ministry of Health and Family Welfare, India. Training module on extrapulmonary tuberculosis 2023. Accessed online at Training Module on Extrapulmonary TB :: Ministry of Health and Family Welfare (tbcindia.gov.in) 30/11/23

4. National Institute for Health and Care Excellence. Guideline NG33: Tuberculosis. Published 13 January 2016. Accessed online at: Recommendations | Tuberculosis | Guidance | NICE 30/11/23

- This poster was shown at the ECCMID 2024 barcelona conference

IMPROVING ADHERENCE TO ASTHMA MEDICATION: IDENTIFYING THE MOST CLINICALLY AND COST-EFFECTIVE STRATEGIES FOR ADULTS WHO ARE NON-ADHERENT TO PRESCRIBED TREATMENT

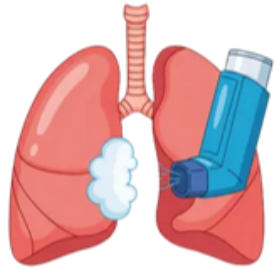
A Systematic Review of RCTs and Observational Studies

Introduction

Optimal asthma control depends on both **pharmacological treatment** and patient **self-management,** including correct inhaler technique, consistent medication adherence, and trigger avoidance. Non-adherence is a major determinant of poor asthma outcomes, leading to hospital admissions, increased exacerbations, and preventable deaths.

In the United Kingdom, asthma affects over **5.4 million** people, costing the NHS **approximately £3 billion annually**, much of which is preventable. Evidence shows that up to **two-thirds of these deaths are preventable with effective asthma control and adherence support.**

According to the NICE Guideline previously NG80 2017 (updated 2025 NG245), effective asthma control requires personalised action plans, regular inhaler reviews, support for adherence, and tailored education.



Objective

To systematically evaluate evidence from randomised controlled trials and observational studies to identify the most clinically and cost-effective interventions that improve medication adherence in adults with asthma.

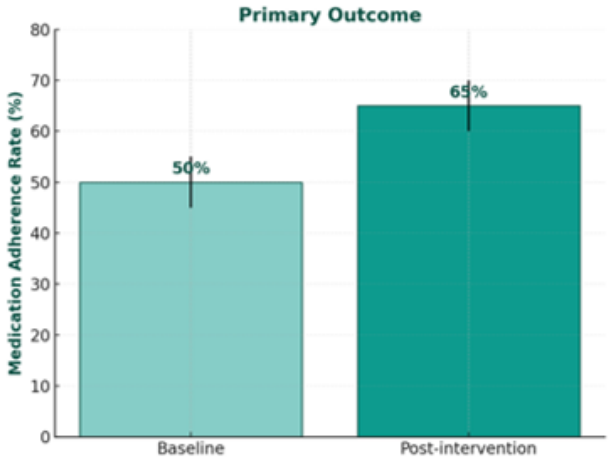
Methodology

01 A systematic review was conducted in accordance with PRISMA 2020. The protocol was prospectively registered on PROSPERO.

02 **Search Strategy:**
Electronic searches of PubMed, Embase, ClinicalTrials.gov, and the Cochrane Library (2015–2025) using search terms "Asthma," "Medication Adherence," "Pharmacist-led," "Digital Tools," "Inhaler Technique," "Patient Activation," "Reminder," "Cost-effectiveness." (MeSH terms were adapted using PubMed syntax for database uniformity.)

03 **Inclusion criteria**
- **Population:** Adults (≥18 years) diagnosed with asthma.
- **Intervention**: Strategies to improve adherence to prescribed asthma medication.
- **Comparator:** Standard care or alternative adherence interventions.
- **Outcomes:**
  - **Primary outcome**: Medication adherence rate measured via prescription refill data, electronic monitoring, or validated self-report scales.
  - **Secondary outcomes**: Asthma control, exacerbation frequency, hospitalisations, quality of life, and cost-effectiveness.

04 **Analysis and Data Extraction**
Pooled risk ratios (RR) and 95% confidence intervals (CI) were computed for comparable outcomes. Data was independently extracted by three reviewers and cross-checked for accuracy



Medication adherence improved from 50% to 65%

Results

8 studies were chosen: 4 RCTs and 4 Observational Studies from a total of 324. Interventions evaluated include:
- **Pharmacist-led interventions:** +25–30% adherence
- **Specialist follow-up:** +35% adherence
- **Digital tools:** +20% adherence
- **Pictorial plans**: +18% improvement in understanding

Pharmacist-led interventions and specialist follow-up achieved the largest adherence gains and sustained asthma control at 3–6 months

Cost-effectiveness:
- Pharmacist-led education → **£185–£230 saved** per patient annually via **27%** fewer emergency visits and **22%** fewer hospitalisations.
- Digital activation tools → **12–18%** reduction in healthcare costs and 20% improvement in refill adherence.
- Specialist follow-up → **25%** fewer unscheduled GP visits, saving £0.9–£1.2 million per year.

Conclusion

Specialist follow-up and pharmacist-led education were most effective, improving adherence by up to 35% and reducing hospitalisations by over 20%, with potential NHS savings exceeding £1 million annually. Digital innovations, such as reminder apps and remote monitoring, enhanced adherence with cost-effective scalability.

Future work should focus on integrating digital technology with personalised follow-up and behavioural support to sustain adherence, address real-world barriers, and ensure equitable, patient-centred asthma.

Key Sources & Acknowledgements

- Zia et al., 2020
- NICE Guideline NG245, 2025
- NICE NG80/10, 2017
- Asthma + Lung UK, 2024
- Rackow et al., 2025
- Amorha et al., 2020
- Hynes et al., 2022
- Bidwal et al., 2017
- Cvietusa et al., 2023

Authors
Zuha Akhtar (Frimley Health Foundation Trust, University of Oxford)
Kanita Farooq (King's College London)
Maria Babu (Lancashire Teaching Hospitals)
Ishpreet Singh (Royal Cornwall Hospitals NHS Trust)

Airway Physiology is a Stronger Contributor to Asthma Exacerbation Risk than Type 2 Inflammation

Authors: Layla Zeitouni, Chris Popoola, Jessica McKeever, Brian Lipworth, Marcello Cottini and Rory Chan

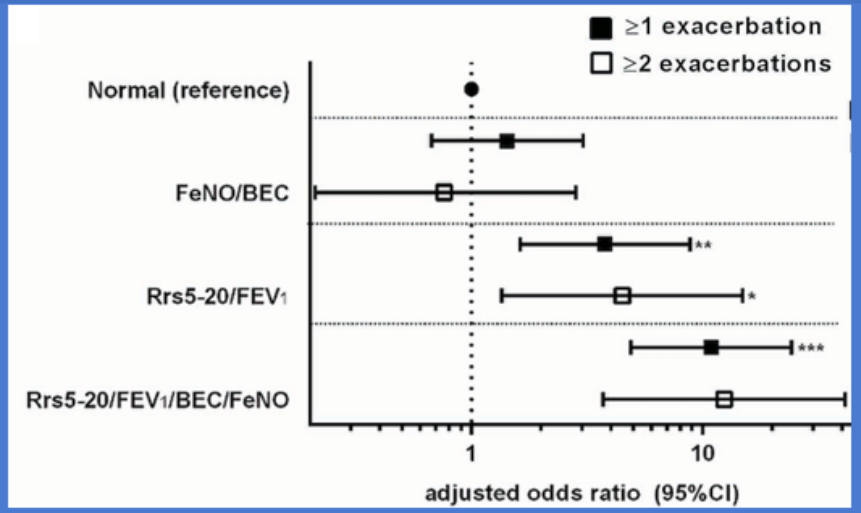
Introduction:

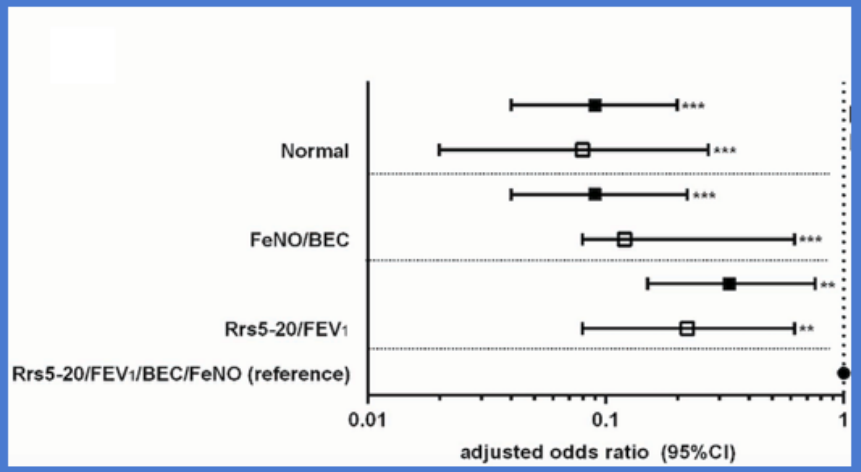
- Key hallmarks of asthma include airway inflammation, variable airflow obstruction and bronchial hyperresponsiveness.
- Oscillometry is a non-invasive method of measuring small airways dysfunction.

Methods:

- Oscillometry Asthma Registry (OAR) included 937 adults diagnosed with asthma according to GINA.
- Data collected from Ninewells Teaching Hospital, UK and Allergy and Pneumology Outpatient Clinic in Italy. Ethical approval was granted by the local institutional review board/Caldicott Guardian.
- Severe exacerbations defined as episodes requiring ≥3-day course of prednisolone 25mg.

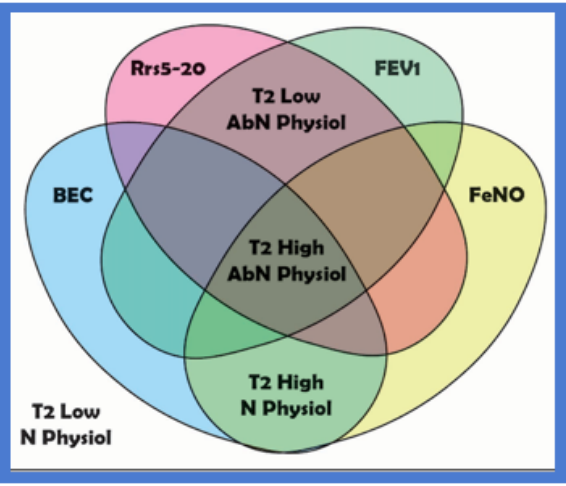
	Rrs 5-20 (kPa/L/s)	FEV_1	BEC (cells/µL)	FeNO (ppb)
Group 1 - Normal	<0.10	≥80%	<300	<25
Group 2 - T2 high only	<0.10	≥80	≥300	≥25
Group 3 - Abnormal physiology only	≥0.10	<80%	<300	<25
Group 4 - Abnormal	≥0.10	<80%	≥300	≥25





Results:

- Individuals with abnormal physiology only (Group 3) had a higher exacerbation risk compared to those with the normal phenotype (Group 1).
- There was no significant difference in exacerbation rates between those with normal physiology (Group 1) versus those with T2 high only (Group 2).
- Individuals with the quadruple asthma phenotype (Group 4), exhibited a significantly higher risk of exacerbations compared to other three cohorts.



Conclusion:

- While T2 inflammation is a key driver of asthma pathology, physiological parameters should be considered when monitoring exacerbation risk.

HOLDING BACK THE FLOOD

NHS
Barking, Havering and Redbridge University Hospitals NHS Trust

Should we Embrace Restrictive Resuscitation in Sepsis? - A Systematic Review

Dr Neoma Lemos

BACKGROUND

- Sepsis is a life-threatening organ dysfunction caused by a dysregulated response to infection.
- IV fluids remain the cornerstone of initial resuscitation — yet 30–60% of septic patients develop fluid overload, contributing to increased ventilator time, ICU stay, and mortality.

Clinical Dilemma

Are we over-resuscitating? Could a restrictive fluid strategy be equally safe — or even superior — to the liberal approach?

CLINICAL INSIGHTS

"Fluids are a drug. Like any drug, they require the right dose, timing, and indication."
— Malbrain et al., Intenåsive Care Med 2018

- Restrictive fluid resuscitation appears non-inferior in early sepsis
- Reductions as small as ~3.5L are associated with lower ventilator use, shorter ICU stay, and less organ dysfunction
- Emphasises individualised care over protocolised volume thresholds

FUTURE DIRECTIONS

- What is the optimal volume per individual patient?
- Can bedside tools (e.g. CRT, IVC collapse) guide fluid decisions?
- How do we adjust for frailty, comorbidities, or renal reserve?

SYSTEMATIC REVIEW & STUDY SUMMARY

- Databases: PubMed (2019–2024)
- Inclusion: RCTs & meta-analyses, adult patients with sepsis/septic shock
- Studies: 7
- Total patients: 4,246
- Primary outcome: Mortality
- Secondary: Ventilator days, fluid balance, AKI, ICU/hospital LOS

Outcome	Effect (Restrictive vs Liberal)
Mortality	No significant difference
Ventilator Use	Reduced
Total Fluid Volume	Lower volumes in restrictive
AKI / Adverse Events	No increase in harm
Ventilator Use	Trend towards reduction

Key Studies

CLOVERS (2023), Reynolds (2023), Linden (2024), Boulet (2024), Semler (2021), Corl (2019), Jessen (2022)

TAKEAWAY & CONCLUSION

- Restrictive fluid strategies appear safe in early sepsis.
- No increase in mortality or risk of acute kidney injury (AKI).
- Potential benefits include:
  - Reduced need for invasive support (e.g., ventilation).
  - Shorter ICU stays.
  - Improved outcomes in select patient groups (e.g., frail, elderly, or with comorbidities).

It's time to move from "How much fluid?"
To "Does this patient need more fluid — or something else?"

Previously presented at the Society for Acute Medicine (SAM) Annual Conference, Manchester – September 2025

EFFECT OF ATORVASTATIN AND ROSUVASTATIN ON LIPID PARAMETERS AND INFLAMMATORY BIOMARKERS IN PATIENTS WITH ACUTE CORONARY SYNDROME A SYSTEMATIC REVIEW AND META-ANALYSIS

Authors

Aruba Sohail[1], Aiman Khurshid[2], Maman Khurshid[1], Mir Umer Farooq Alam[3]

Affiliations

[1] Dow University of Health Sciences, Karachi, Pakistan
[2] The Stoke Mandeville Hospital, Thames, United Kingdom
[3] Griffin Hospital, Connecticut, USA

Introduction

Acute Coronary Syndrome (ACS) remains a major cause of cardiovascular morbidity and mortality. Statins are central to ACS management, lowering LDL-C and inflammatory biomarkers such as CRP, thereby reducing recurrent cardiovascular events. Atorvastatin (lipophilic) and rosuvastatin (hydrophilic) differ in pharmacological properties, but their comparative effectiveness in ACS remains unclear. Previous trials have been limited by small sample sizes and heterogeneous results. This meta-analysis evaluates and compares the impact of both statins on lipid parameters and inflammatory markers in ACS patients.

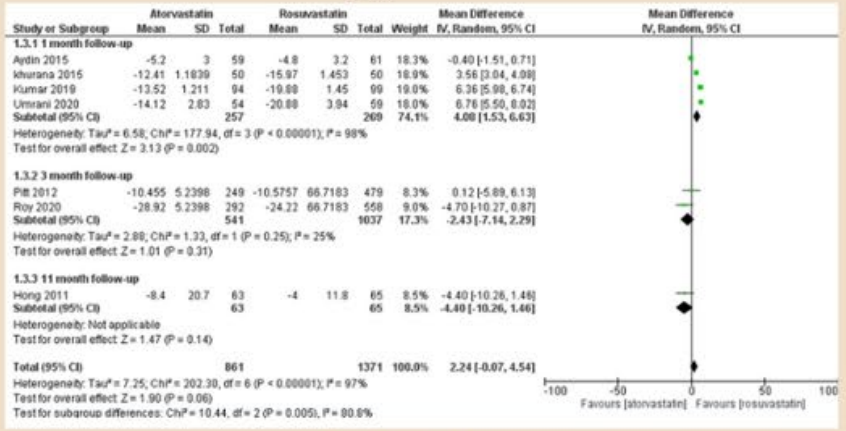
Objective

To compare the efficacy of atorvastatin versus rosuvastatin in reducing lipid parameters (LDL-C, HDL-C, TC, TG) and inflammatory biomarkers (CRP, ESR) among patients with ACS.

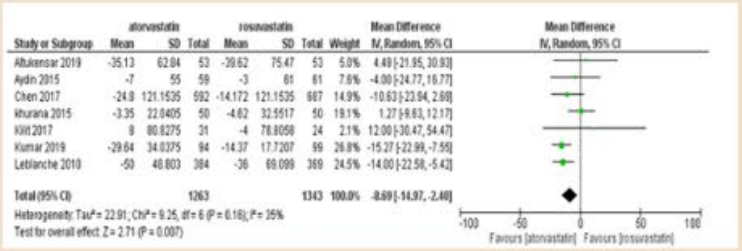
Methodology

- Design: Systematic review and meta-analysis (PRISMA and Cochrane guidelines).
- Databases: MEDLINE, CENTRAL, and ClinicalTrials.gov (inception–August 4, 2025).
- Inclusion: RCTs and observational studies comparing atorvastatin vs rosuvastatin in ACS.
- Analysis: Random-effects model; results as WMD (95% CI); heterogeneity assessed with I^2 statistic.
- Follow-up: Short-term (1 month) and long-term (>3 months).

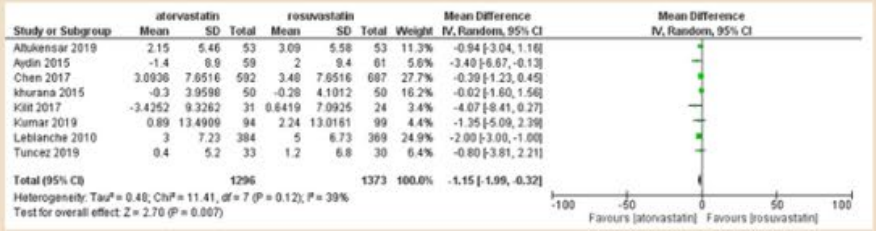
CRP



Triglyceride



HDL-C



Results

- Studies included: 15 (13 RCTs + 2 observational); N = 5,491 patients.
- CRP: Significant short-term reduction with rosuvastatin (WMD 4.08; 95% CI 1.53–6.63; p=0.002).
- HDL-C: Significant short-term increase with rosuvastatin (p=0.007).
- TG: Significant decrease with atorvastatin in short- and long-term (p=0.007; p=0.04).
- LDL-C, TC, ESR, oxLDL: No significant differences between groups.
- Heterogeneity: Mostly low to moderate except for CRP (I^2=98%).

Conclusion

- Rosuvastatin is more effective in lowering CRP and raising HDL levels short-term.
- Atorvastatin is superior in reducing triglyceride levels at 3 months.
- No significant differences for other lipid or inflammatory parameters.
- Clinical implication: Statin selection may be individualized based on patient profile.
- Future direction: Larger, high-quality RCTs are needed to establish therapeutic superiority.

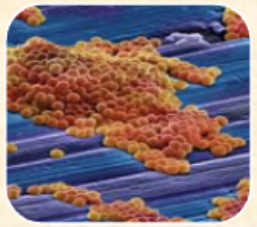
Microbiological Spectrum and Antimicrobial Resistance in Critically Ill Patients: A Six-Year Experience from a Tertiary Care Hospital ICU

INTRODUCTION

Hospital-acquired infections cause major illness and death in ICU patients with prolonged stays, ventilation, or catheter use.

These factors increase risk of bloodstream, urinary, and ventilator-associated infections.

The study analyses MDRO trends and microbial patterns in ICU patients over six years.



MATERIALS AND METHODS

Study Design: Retrospective analysis of 400 ICU patients (Jan 2017–Dec 2022).

Data Collected: Demographics and culture results from blood, urine, and endotracheal aspirates (>72 hrs after ICU admission).

Methods: Standard microbiological techniques used; results presented as frequencies and percentages.

INCLUSION CRITERIA

1. Patients ≥14 years of age.
2. ICU stay of at least 72 hours.
3. Availability of all three culture reports (blood, urine, endotracheal aspirate).

EXCLUSION CRITERIA

1. Patients with incomplete or missing records.
2. Patients discharged or deceased within 72 hours.
3. Patients with documented infections prior to ICU admission.

RESULTS

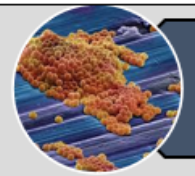
Patients: 400 total (52% male, mean age 47 years)

Positive cultures: 249 (62%).

Blood: 25% positive ,mainly *Staphyloc occus spp.*, including MRSA (3.5%).

- Blood: Gram-positive cocci dominate
- Urine: Yeast frequently isolated
- Respiratory: Gram-negative bacilli lead
- ⚠ Resistance Alert: MRSA & Acinetobacter prevalent
- Action: Strengthen surveillance, infection control & antibiotic stewardship

HIGHLIGHTS



Pathogen patterns varied by site, with Staphylococcus dominating blood infections and Acinetobacter baumannii prevalent in respiratory samples.

The persistence of MDROs and high urinary yeast rates underscore the need for stronger antibiotic stewardship and infection control.

COAUTHORS: Abir Aijaz, Mohd Mubarik Naqash, Irfan Ali, Burhan Shoaib

PRESENTED BY : Dr Judat Tasawoor

Lower Survival in SMuRF-less Patients with Myocardial Infarction but Reduced 1-Year Mortality Associated with Targeted Therapies: A MIMIC-IV database Study

AUTHORS: Hamza, Anfal; Basit, Abdul; Sufyan, Muhammad; Hassan, Arbaz; Sajjad, Talha; Arham, Muhammad; Jehangir, Hanzala; ; Dad, Allah; Hamza bin Abdul Malik, Mohammad; Labeeq, Muhammad; Shehryar, Farah; Waqas Afzal, Muhammad;

INTRODUCTION

Despite lacking traditional cardiovascular risk factors, patients without Standard Modifiable Cardiovascular Risk Factors (SMuRF-less) have significantly worse outcomes.

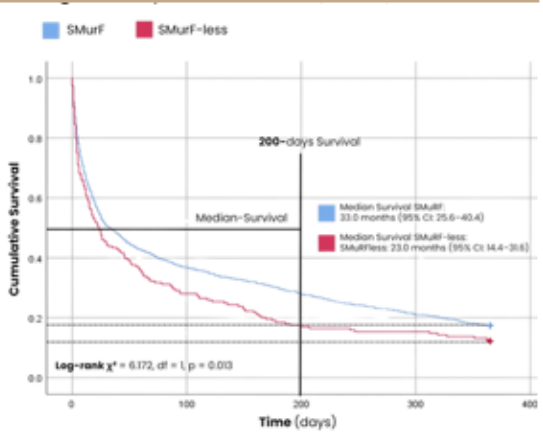
OBJECTIVE

Our study aims to assess clinical characteristics and mortality outcomes in SMuRF and SMuRF-less group in patients with Myocardial Infarction.

METHODS

- A retrospective cohort study using the MIMIC-IV database was conducted to compare outcomes in SMuRFs (diabetes, hypertension, smoking, and dyslipidemia) and without any of these (SMuRF-less).
- Cox hazards regression was used to identify predictors of mortality.
- Kaplan–Meier survival analysis was performed to compare time-to-death between two groups.
- SPSS (Version 30.0) was used, with significance defined at $p < 0.05$.

KAPLAN-MEIER ANALYSIS



	Total	Events	Censored	Percentage
SMurF	1071	885	186	17.4%
SMurF-less	189	166	23	12.2%

CONCLUSION

SMuRF-less patients exhibited significantly lower survival at 90, 180, and 365 days compared to SMuRF-positive patients. Beta-blockers, statins, nitrates, and PCI/CABG were independently associated with reduced 1-year mortality in the SMuRF-less group.

RESULTS

- A total of 3391 patients were retrieved (male: 2246; females:1145) and out of these, 384 (11.32%) were SMuRF-less.
- SMuRF-less patients had significantly lower median survival compared to those with SMuRFs (23 vs. 33 days) at 90 days with (Log-rank $\chi^2 = 5.139$, $p = 0.023$), 180 days ($\chi^2 = 8.934$, $p = 0.003$), and 365 days ($\chi^2 = 6.172$, $p = 0.013$).
- In Cox regression analysis, use of beta-blockers (HR 0.658, 95% CI 0.565–0.766, $p < 0.001$), statins (HR 0.809, 95% CI 0.696–0.941, $p = 0.006$), nitrates (HR 0.597, 95% CI 0.491–0.725, $p < 0.001$), and PCI/CABG (HR 0.516, 95% CI 0.431–0.618, $p < 0.001$) were independently associated with significantly lower 365-day mortality in the SMuRF-less group.

Atherosclerotic vascular disease in patients undergoing transcatheter aortic valve implantation: A meta-analysis of prevalence and clinical impact

A Papazoglou[1*], E Tsiartas[2*], K Kyriakoulis[3], D Moysidis[4], S Daios[5], V Anastasiou[5], V Kamperidis[5], A Ziakas[5], N Fragkakis[6], V Vassilikos[6], G Giannakoulas[5]

*[1]Athens Naval Hospital; [2]Cambridge University Hospitals NHS Foundation Trust; [3]National and Kapodistrian University of Athens, Greece; [4]Aristotle University of Thessaloniki; [5]AHEPA University Hospital of Thessaloniki; [6]Hippokrateion Hospital of Thessaloniki; *The authors contributed equally and serve as co-first authors.*

Introduction

Degenerative aortic stenosis (AS) frequently coexists with atherosclerotic vascular disease (ASCVD), including coronary artery disease (CAD), peripheral artery disease (PAD), and cerebrovascular events (CVE), owing to shared risk factors.[1] This overlap complicates transcatheter aortic valve implantation (TAVI) planning and outcomes. The prognostic role of ASCVD remains uncertain, as reflected in current guidelines, where recommendations on CAD assessment and revascularisation before TAVI are based on limited, low-level evidence.[2] We aimed to systematically quantify the prevalence and prognostic significance of ASCVD in TAVI patients.

Materials and Methods

-Systematic review and meta-analysis (PROSPERO CRD42024597919) with records from Medline and Scopus (to 12/2024).
-Random-effects models were used to pool prevalence and adjusted hazard ratios (HR) for mortality, with subgroup analyses to detect group-specific differences.
-Meta-regression performed to investigate sources of heterogeneity and explore relationship of confounding variables.

Figure 1: ASCVD prevalence in patients undergoing TAVI

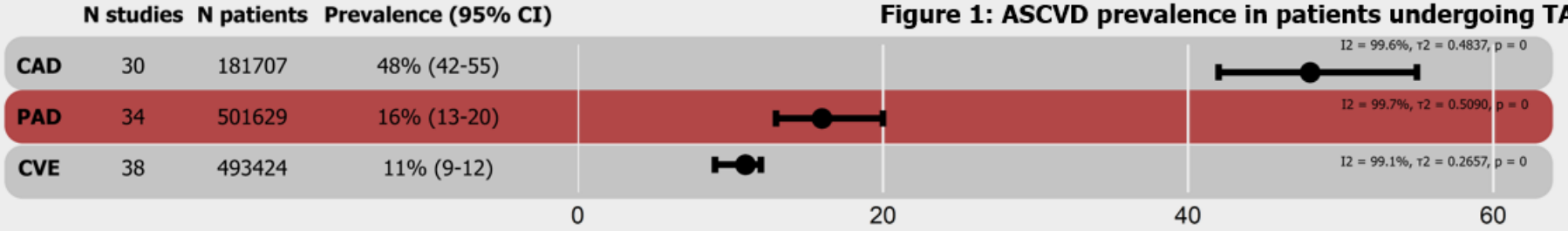
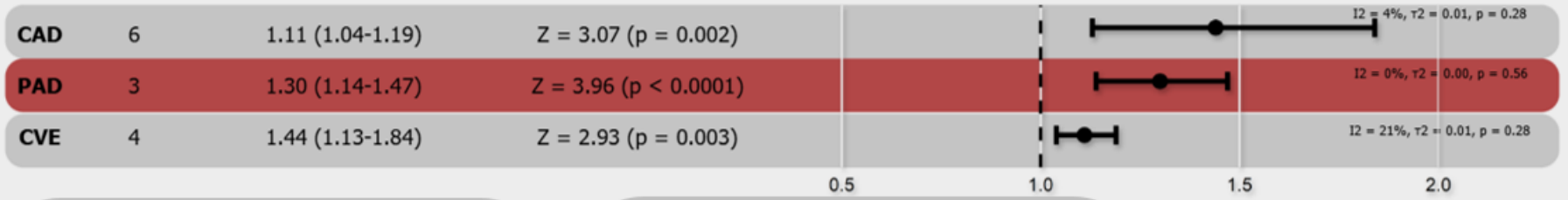


Figure 2: ASCVD and mortality in patients undergoing TAVI



Results

Study and patient characteristics:
-13540 records screened: 43 studies (14 randomized, 29 observational/mixed) included.
-732,895 patients: mean age = 81.2, 51% male, Society of Thoracic Surgeons (STS) score = 5.3

Pooled ASCVD prevalence (Figure 1):
-CAD: 48% (42–55) → ↑ in North American cohorts (p<0.01)
-PAD: 16% (13–20)
-prior CVE: 11% (9–12) → ↑ in studies with <10,000 participants (p = 0.04)

Meta-regression analyses for confounding variables:
-Hypertension
-Diabetes → ↑ CAD (including myocardial infarction-MI and coronary bypass grafting-CABG)

-Smoking
-↑ Ejection fraction → ↓ CAD (including MI and CABG)

-Older age
-↑STS score → ↑ ASCVD prevalence across all components

Analysis of ASCVD prognosis:
-Higher risk of all - cause mortality with all ASCVD components (Figure 2).

Conclusion

-ASCVD prevalence among TAVI patients is high and predicts worse outcomes.
-Our findings inform tailored risk stratification and MDT strategies.
-Optimisation of medical therapy is critical, including intensive lipid and blood pressure control for comprehensive cardiovascular risk management.

Scan to see expanded figures with individual studies.

[1] Milin AC *et al.* Insights into aortic sclerosis and its relationship with CAD. *J Am Heart Assoc.* 2025;3:e001111. [2] Vahanian A *et al.* 2021 ESC/EACTS guidelines for valvular heart disease. *EuroIntervention.* 2022;17:e1126–96.

Predicting outcomes in patients hospitalised with community acquired pneumonia: Is NEWS2 better than CURB-65 and DECAF?

Nayyar M, Lanka S, Khan M, Ur Rahman S, Liaquat A

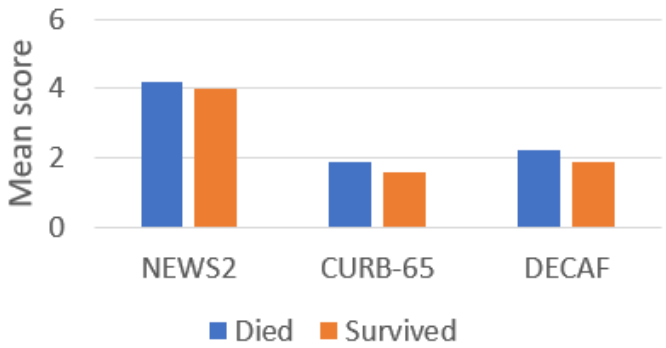
Calderdale & Huddersfield NHS Foundation Trust

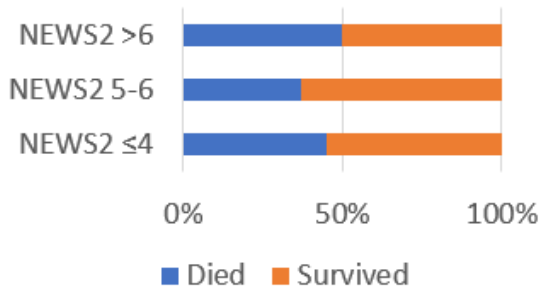
Introduction:

- Community acquired pneumonia affects 10 in 1000 people every year. 42% of these require hospital admission.
- CURB-65 score is used to predict the 30-day mortality in patients with CAP.
- DECAF score is used to predict mortality in patients with exacerbation of COPD.
- NEWS2 score was developed by RCP to standardise the recognition and management of acutely unwell patients
- We elected to compare these scoring systems to establish if one is superior to others in predicting deterioration in patients hospitalised with CAP (1,2).

Methods:

- We retrospectively reviewed the case notes of all patients aged 18 and over admitted to our hospital with a diagnosis of CAP over a 2 week period.
- Data such as demographics, observations, NEWS2, CURB-65, DECAF, radiology, laboratory tests and antibiotics were collected.
- The outcome measures were need for intensive care and death.





Results:

- 98 patients were included, 43 (44%) died.
- Patients that died were more likely to have high NEWS2 (4.2 vs 4), CURB-65 (1.9 vs 1.6) and DECAF (2.2 vs 1.9) scores
- Raised NEWS2 score was associated with a raised CURB-65 score (average 1.5 in NEWS2 ≤4 and 2.44 in NEWS2 >6)
- NEWS2 ≤4 was associated with 45% mortality, NEWS2 5-6 with 37% and NEWS2 >6 with 50%.
- Patients with NEWS2 >4 were most likely to be reviewed by ICU compared with NEWS2 <4 (7.5% vs 5%)
- Those with CURB65 ≥3 were more likely to be reviewed by ICU than CURB-65 ≤1 (14% vs 9%). They also had a higher mortality (52% vs 34%)

Conclusion:

- CURB-65 and NEWS2 scores are equally effective in predicting acute deterioration and mortality in patients hospitalised with CAP.
- In patients with COPD, DECAF score is as effective as NEWS2 and CURB-65 in predicting adverse outcomes. Therefore, NEWS2 is an appropriate tool to utilise in risk-stratifying all in-patients with CAP.

References:

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Med+ 2025 11 – 12 November

Royal College of Physicians

Fetal bradycardia prompting parental diagnosis of Long QT Syndrome

Kiruthika Ananthan, Sian Chivers, Will Regan, Antonio de Marvao, Trisha Vigneswaran, Eric Rosenthal, Vita Zidere, John M. Simpson, Rachel M. Bastiaenen, John Whitaker

Background and objectives

Long QT syndrome is primarily an inherited condition associated with risk of sudden cardiac death. Due to variable phenotypic expression, a prolonged QT interval is not always present. LQTS may present in the fetus with persistent bradycardia, including sinus bradycardia or functional 2:1 atrioventricular (AV) block. We report our experience of fetal bradycardia prompting parental assessment for inherited LQTS.

Methods

Retrospective review of electronic health records of fetuses with bradycardia referred to our fetal cardiology tertiary centre **(143)**

VT/structural heart disease excluded

Autoimmune AV block excluded (+ve maternal Ro/LA antibodies)

Assessment via fetal echo: fetal bradycardia defined as HR Z score <-2 for gestational age **(20)**. Sinus bradycardia **(16)** 2:1 AV block **(4)**

LQTS panel genetic testing offered based on clinical judgment on a case-by-case basis performed either antenatally*/postnatally

Advanced GA

1 mother declined testing

Comprehensive assessment was undertaken in 12 mothers and 11 fathers including review by a cardiologist specialised in Inherited Cardiac Conditions (ICC), a clinical geneticist and cascade genomic testing.

**Antenatal genetic screening involved either amniocentesis or testing maternal blood*

Results and discussion

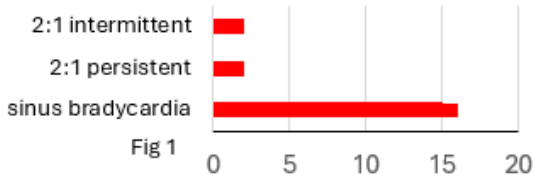
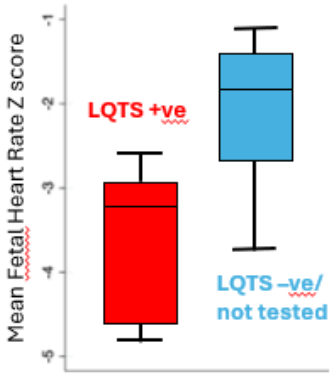


Fig 1

Amongst 20 fetuses, 16 had sinus bradycardia and four had 2:1 AV block (intermittent = 2; persistent =2) *(Figure 1)*.

Genetic testing was undertaken in 12 fetuses. Pathogenic LQTS genetic variants were found in 11 fetuses (KCNQ1=8; KCNE1=1; KCNH2=1; CALM2=1)

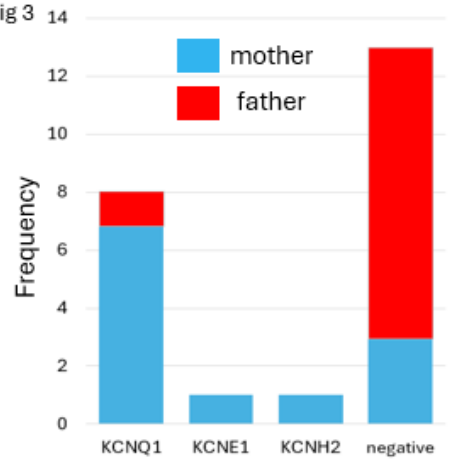
Fig 2



Fetuses with LQTS variants had a lower median HR z score than those without a genetic variant or who were not tested (-3.20 vs -2.35, p=0.03) *Figure 2*

Cascade genetic testing was offered to 12 mothers and 11 fathers. Pathogenic LQTS variants were identified in nine mothers (KCNQ1=7; KCNE1=1; KCNH2=1) and one father (KCNQ1=1). *Figure 3*

Fig 3



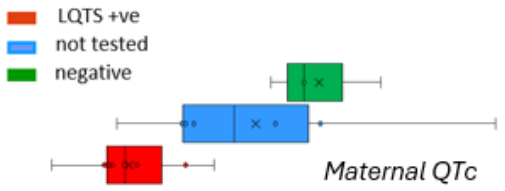


Fig 4

Maternal QTc was higher in those with pathogenic variants compared to those who did not undergo genomic testing (456.9+/- 11.6 vs 425.9+/-28.7msec, p=0.009) but <400msec in the paternal carrier.

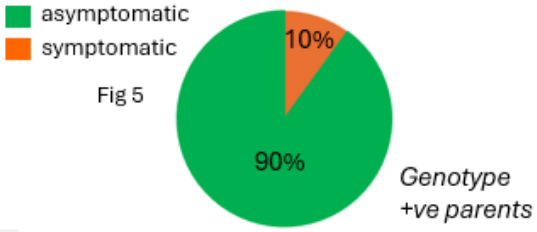


Fig 5

Genotype +ve parents

Of parents with pathogenic LQTS variants:
- all except one parent were asymptomatic
- three parents had a normal QTc
- only one patient had a Schwartz score ≥3
- none fulfilled the NHS England criteria for genomic testing for LQTS.

Bisoprolol was initiated prophylactically in 6 genotype +ve mothers (4 pre- and 2 post-partum). In one case this was following a +ve treadmill test.

Conclusion

Persistent fetal bradycardia may be the **first** and **only indicator** of parental LQTS and we propose expansion of the criteria for genomic testing to reflect this. This should prompt consideration of this diagnosis even with a normal maternal QTc and lead to the initiation of specific management strategies for pregnancy and delivery prior to the results of genomic testing being available.

Incidence and Clinical Outcomes of Infective Endocarditis Following TAVR vs. SAVR: A Systematic Review and Meta-Analysis

Hassan, Arbaz; Hamza, Anfal; Arham, Muhammad; Ahmad, Waqas; Akram, Muhammad Rizwan; Saim, Muhammad; Bader, Aymen; Dad, Allah; Tareen, Muiz Khan; Bakht, kinza; Sajjad, Talha

University Hospitals of Derby and Burton NHS Foundation Trust

INTRODUCTION

The global incidence of Infective Endocarditis (IE) increased by staggering 129% in the last three decades, resulting in dismal outcomes following valve interventions.

OBJECTIVE

This review seeks to compare incidence and survival rates following Transcatheter aortic valve replacement (TAVR) vs. Surgical aortic valve replacement (SAVR) in patients with IE.

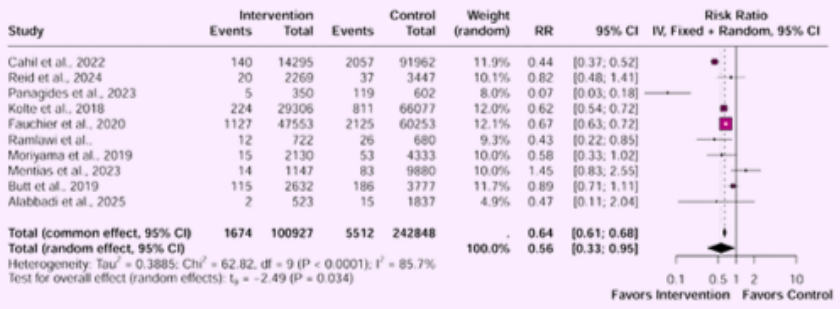
RESULTS

- TAVR Group = 100,927 patients ; SAVR Group = 242,848 patients
- Incidence of IE = TAVR < SAVR; (RR = 0.56, p= 0.034)
- Risk of Sepsis: TAVR-IE < SAVR-IE; (RR: 0.41; p= 0.025)
- Risk of Atrial Fibrillation = TAVR-IE > SAVR-IE; (HR = 1.22, p= 0.007)
- Risk of Pacemaker Implantation: TAVR-IE > SAVR-IE; (HR=1.21; p= 0.160)

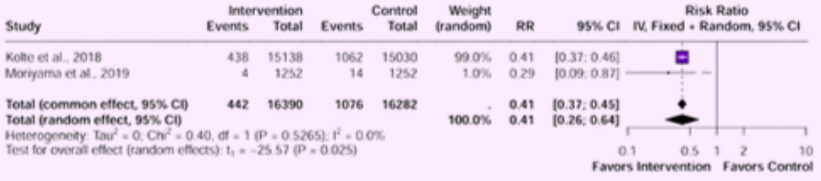
METHODS

- The review protocol was registered on PROSPERO (ID: CRD420251012750).
- We searched databases to retrieve RCTs and observational studies comparing TAVR and SAVR in IE patients.
- Primary outcome was incidence of IE.
- Secondary outcomes included AFib, sepsis, and pacemaker implantation.
- The "meta" package was used in R-studio analyze binary and continuous outcomes

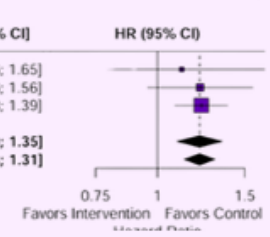
Forest Plot 1. Incidence of Infective Endocarditis (IE) in TAVR versus SAVR



Forest Plot 2. Forest plot for Sepsis in IE-TAVR versus IE-SAVR



Forest Plot 3. Forest plot for Hazard Ratio Atrial Fibrillation (AF) between both Groups



CONCLUSION

Higher incidence of IE in SAVR and contrasting risk profiles in both groups suggest the need of personalized therapeutic strategies and longitudinal outcome monitoring following valve interventions.

Long-Term Efficacy & Safety of Low-Carbohydrate Diets in Type 2 Diabetes Remission: A Systematic Review

Rajib Das, **Nour Mohammad**, Md Shaiful Islam, Sowmitra Das, **Faisal Abdullah**, Md Abdul Kader, Md Abdullah Al Mamun, Sourav Dutta, David Unwin, Istvan Mazak

1. Background

- Type 2 Diabetes (T2D) affects **4.9 million people in the UK**, costing the NHS **£10 billion GBP annually** [1].
- Pharmacological management often fails to achieve remission and is associated with side effects and escalating costs [2].
- **Low-carbohydrate diets (LCDs)** and **ketogenic diets (KDs)** are emerging as effective non-pharmacological strategies for T2D remission.

2. Aims & Objectives

To evaluate the **long-term efficacy and safety** of LCDs/KDs in:

- Glycaemic control & T2D remission
- Weight loss & metabolic health
- Medication reduction & cost savings

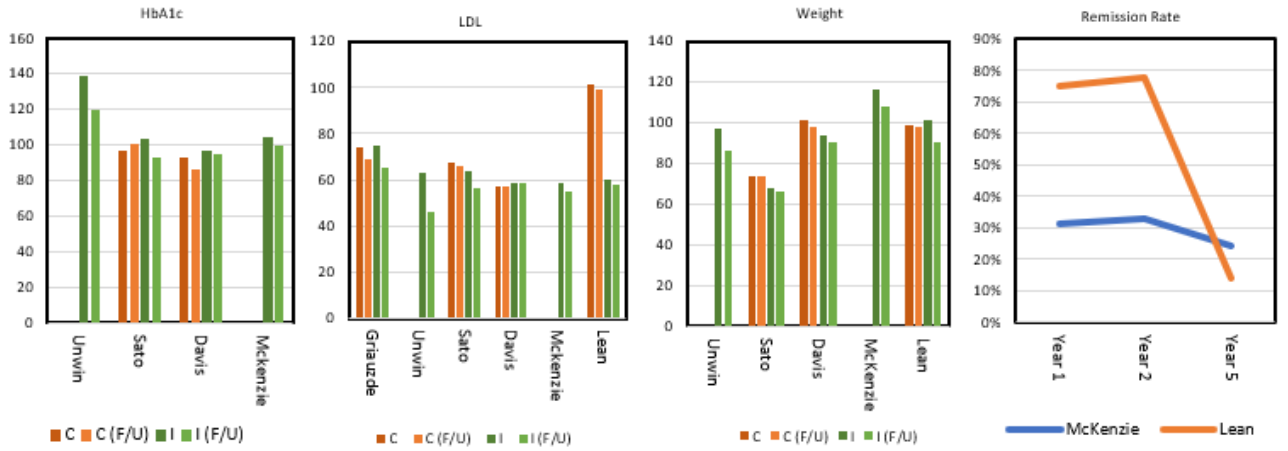
3. Methodology

- **Design**: **Systematic Review (PRISMA-guided)**: PubMed & Cochrane search (2000–2024)
- **Inclusion**: RCTs, cohort studies, ≥12-month follow-up, Adults with T2D, LCDs/KDs intervention ≥12 months
- **Outcomes**: ***Primary:*** T2D remission, changes in HbA1c, body weight. ***Secondary:*** BP, lipid profiles, adverse events
- **Final Studies Included**: 6
- **Follow-up Duration**: 1–8 years
- **Population**: Adults with T2D
- **Interventions**: LCDs (50–130g carbs/day), KDs (<50g carbs/day)

Nour Mohammad
Trust Grade SHO, SWFT
taifnour570@gmail.com

Study	Design	Duration	Key Finding
Unwin et al. (2023)	Single-arm	8 years	**51% remission, HbA1c ↓63→46, Weight ↓10kg** [3]
Lean et al. (2024) – DiRECT	Non-randomized	5 years	**14% remission at 5 years, 32% off glucose-lowering meds** [4]
McKenzie et al. (2024)	Cluster RCT	5 years	Significant weight loss, improved lipids, **no major adverse events** [5]
Griauzde et al. (2022)	RCT	1 year	HbA1c ↓75→65.2, **improved BP & lipids** [6]
Sato et al. 2017 (1 year F/U)	RCT	1.5 year	Significant improvements in HbA1c & BMI from baseline were observed[7]
Davies et al. 2009	RCT	1 year	At 1 year, both low-carb and low-fat diets produced similar weight loss[8]

4. Results



5. Discussion

- **LCDs are effective in inducing remission**, improving metabolic outcomes[3,4,5]
- **Adherence & support** are critical to long-term success.[3]
- **No major adverse effects reported over 5–8 years**[4]
- LCDs should be preferable to **pharmacotherapy** or **bariatric surgery** in many type-2 diabetic patients [9]
- **Liver and renal functions show no deterioration**[5]
- They significantly reduce HbA1C levels and weight[3]
  Weight loss greatly enhances insulin sensitivity overall[10]
- Keeping weight off prevents diabetes from returning.

Outcome	Improvement Observed
HbA1c	↓ up to 17 mmol/mol[3]
Weight	↓ up to 11 kg[3]
BMI	↓ significantly in a few studies
SBP	↓ by 8 mmHg in some trials[3]
HDL	↑ across most trials
LDL	↓ notably in all studies
Triglycerides	↓ notably (e.g., **186 → 124** mg/dL)[3]
Remission Rate	**75% at 1 year → 14% at 5 years**[4]
Medication Use	↓ up to 74% off glucose meds[4]

6. Recommendations & Scope of NHS Implications

- Offer LCDs as a **viable option** for motivated T2D patients
- Provide **ongoing support** via remote monitoring, group sessions, or dietitian input
- Monitor lipids, renal function, and medication adjustments
- **Cost Savings: Up to £68,353/year per practice** [3]
- Potential for **integration into NHS diabetes pathways** as a first-line strategy

7. Conclusion

- **LCDs & KDs are safe, sustainable, and clinically effective options for T2D remission.**
- Implementation in **NHS primary care** could reduce the diabetes burden.
- **Structured support** is essential for long-term adherence.
- **Personalized dietary strategies** should be incorporated into standard diabetes care.

Prevalence and Predictors of Depression in Asthma Patients: a Cross-sectional Study

Anushka Kataria[1], Jefferson Daniel[1], Barney Isaac[1], Balamugesh Thangakunam[1], Jesson Paulson Illimoottil[2], K Reka[3], Devasahayam J Christopher[1]

[1]Department of Pulmonary Medicine, Christian Medical College, Vellore, Ranipet Campus, Tamil Nadu, India; [2]Department of Psychiatry, Unit III, Christian Medical College, Vellore, Tamil Nadu, India; [3]Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India

1 Background

- Asthma is frequently associated with depression.
- The relationship may be bi-directional, possibly mediated by a shared inflammatory pathway.
- Data from India on the prevalence of depression in asthma patients remain limited.

2 Aim

- To estimate the prevalence of depression in asthma patients and identify the associated risk factors.

3 Methods

Asthma patients screened in OPD (n=842)

↓

Asthma patients randomly selected for enrollment (n=264)

↓

Underwent assessment for depression (n=248)

Assessments:

- Socio-demographic and clinical details collected, including treatment compliance
- **ACT** (Asthma Control Test)
- **AQLQ** (Asthma Quality of Life Questionnaire)
- **PHQ-9** (Patient Health Questionnaire-9)
- Inhaler technique checked
- AEC (absolute eosinophil count) and FeNO (fractional excretion of nitric oxide) done

Written informed consent obtained from all participants.

4 Results

Figure 1

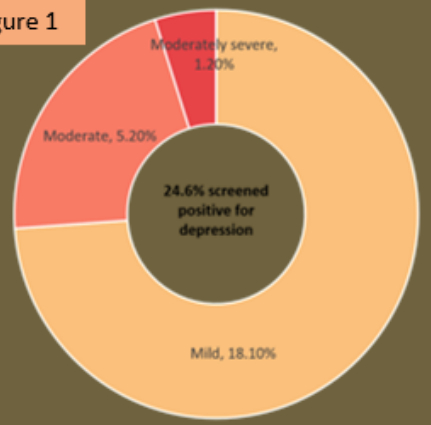


Table 1

Logistic regression	Univariate regression		Multivariate regression	
Predictor variables	**Unadjusted OR [95% CI]**	**P-value**	**Adjusted OR [95% CI]**	**P-value**
Female gender	1.87 [1.03,3.39]	**0.040**	1.89 [0.87,4.14]	0.11
Comorbidities	2.10 [1.11,3.99]	**0.023**	1.80 [0.81,3.96]	0.15
Inhaler technique incorrect	3.59 [1.10,11.75]	**0.035**	1.44 [0.33,6.19]	0.63
Non-compliance with ICS	2.30 [1.16,4.56]	**0.016**	1.69 [0.77,3.70]	0.19
ACT (Partly controlled/uncontrolled asthma)	2.92 [1.58,5.40]	**0.001**	0.97 [0.39,2.44]	0.95
AQLQ	0.32 [0.20,0.52]	**<0.001**	0.27 [0.12,0.57]	**0.001**
Non-eosinophilic asthma	1.11 [0.61,2.00]	0.739		

- **Nearly 1 in 4 asthma patients screened positive for depression.**
- Depression severity correlated negatively with asthma control ((ρ = -0.332, P<0.001) and quality of life (ρ = -0.451, P<0.001).
- **Poor quality of life was the strongest independent predictor of depression.**

5 Conclusions

- The subjective burden of asthma appears to have a greater influence on psychological health compared to disease severity or demographic factors.

6 Implications

- **Routine screening for depression** should be a part of comprehensive asthma management.
- **Patient education** on correct inhaler technique and adherence should be emphasised.
- **Future longitudinal studies** should explore whether improving asthma-related quality of life or treating comorbid depression can enhance both psychological and respiratory outcomes.

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Contact: anushkakataria100998@gmail.com

EVALUATION OF THE GASTROINTESTINAL TRACT IN PATIENTS WITH ISOLATED HYPOFERRITINAEMIA

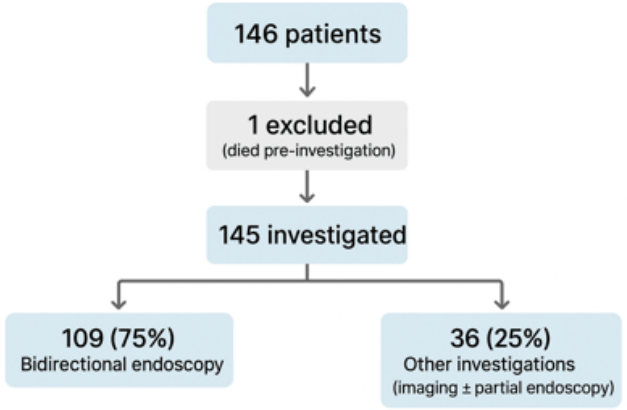
Hebden LA and Hebden JM. University Hospitals Bristol and Weston NHS Foundation Trust and Sheffield Teaching Hospitals NHS Foundation Trust

Introduction

Bidirectional endoscopy is standard practice in the investigation of iron deficiency anaemia patients, revealing colonic carcinoma in 5-10%. However, the value of investigating isolated hypoferritinaemia is unclear. The BSG guidelines on iron deficiency suggest consideration of endoscopic investigation in those aged >50 after discussing the risk and potential benefit.

Methods

We prospectively evaluated 146 consecutive patients seen by a single consultant gastroenterologist who had been referred from primary care with isolated hypoferritinaemia. All patients were offered investigation as per iron deficiency anaemia (IDA) guidelines following clinic consultation. Data was collected from the initial consultant consultation letter and from Infoflex (endoscopy) and Sunquest ICE system (blood results, radiology and histology). Lesions judged to be sources of significant blood loss were as defined by Rockey et al[1] (carcinomas, adenomatous polyps >15mm, vascular ectasia ≥5 or >8mm, duodenal / gastric / colonic ulcers >1cm, oesophagitis [LA grade D], erosive gastritis and active colitis).



Diagnostic yield in isolated hypoferritinaemia

Pathology	Frequency (percentage)
Normal/non-significant	135 (93.1%)
Colonic polyps	3 (2.1%)
Extra GI cancers (HCC, lung, ovarian)	3 (2.1%)
Erosive/haemorrhagic gastritis	2 (1.4%)
Hyperplastic/regenerative polyp	2 (1.4%)
Coeliac disease	1 (0.7%)
Colonic cancer	1 (0.7%)
Complex renal cyst	1 (0.7%)
Oozing gastric polyp	1(0.7%)

Results and discussion

One-hundred-and-forty-six patients (median age 68 {30-93}; 108 females) were seen over an 11-year period (2014-2025). One patient was excluded (died before investigations from new glioma). Fifty-nine patients (40%) were asymptomatic (no symptoms or lethargy only). One-hundred-and-nine patients (75%) had bidirectional endoscopies, with the remaining a combination of endoscopic and radiological imaging, or imaging alone. Colonic carcinoma was discovered in 1 patient (0.7%). This was significantly less than in a group of patients with IDA previously described from the same clinic (1/145 versus 17/261, $p<0.04$)[2]. No gastric carcinomas were found. Other significant findings were: colonic polyps in 3 (2%); erosive/haemorrhagic gastritis in 2 (1.4%); hyperplastic/regenerative gastric polyps in 2 (1.4%); coeliac disease (serology negative, Marsh 3a) in 1 (0.7%); complex renal cyst resulting in nephrectomy in 1 (0.7%) and an oozing gastric polyp in 1 (0.7%). There were no significant gastric or duodenal ulcers or angiodysplasias. Investigations were normal or non-significant in 135 (92%) patients. Lung carcinoma was discovered in 1 patient who had a CT for associated weight loss, and ovarian carcinoma in 1 patient who had a CT for associated abdominal pain. Hepatocellular carcinoma was identified in 1 patient on renal tract ultrasound.

Conclusions

Gastrointestinal malignancy is rarely found in the investigation of isolated hypoferritinaemia

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High Neutrophil-to-Lymphocyte Ratio is Associated with Adverse Outcomes in Acute Myocardial Infarction Patients Treated with Fibrinolysis: A Meta-Analysis

Warrington and Halton Teaching Hospitals NHS Foundation Trust

AUTHORS: Hamza, Anfal; Shehryar, Farah; Arham, Muhammad; Hassan, Arbaz; Chaudhary, Muhammad Umair; Ghaffar, Minahil; Mehmood, Asad; Sajjad, Talha; Sufyan, Muhammad; Afzal, Muhammad Waqas; Chughtai, Hamza Iqbal; Dad, Allah; Malik, Atif Nawaz

INTRODUCTION

Acute myocardial infarction (AMI) affects nearly 3 million people globally. Neutrophil-to lymphocyte ratio (NLR) has emerged as a potential prognostic marker in fibrinolysis-treated AMI patients.

OBJECTIVE

This study aims to evaluate prognostic utility of NLR in predicting adverse outcomes and assess its diagnostic accuracy using a pooled (AUC) estimate.

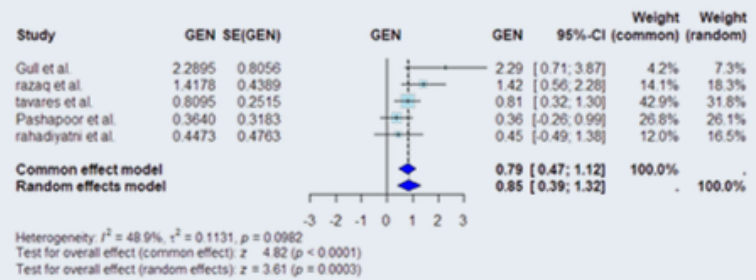
RESULTS

- 3,141 patients (males: 2312, females: 829, pooled mean age: 57.93 [p<0.00001])
- High NLR moderately predicted adverse outcomes in AMI (pooled AUC: 0.701; 95% CI: 0.596–0.789), with better accuracy for all-cause mortality (AUC: 0.776; 95% CI: 0.655–0.876) than treatment success (AUC: 0.596; 95% CI: 0.468–0.713)
- High NLR was associated with increased mortality (OR: 1.71; 95% CI: 1.00–2.90), and stroke (OR: 3.02; 95% CI: 2.67–3.41).

METHODS

- This meta-analysis (CRD420251025025) adhered to the PRISMA 2020 guidelines.
- We included fibrinolysis-treated acute MI patients, with high vs. low NLR groups.
- The primary outcome was the pooled AUC for NLR's predictive accuracy; secondary outcomes included mortality and major cardiovascular events.
- Statistical analysis was performed using R (v2025.05.0+496) with significance set at $p < 0.05$.

AUC OVERALL



CONCLUSION

As an accessible marker, NLR may aid in early risk stratification and inform clinical decision-making

SUB-GROUP ANALYSIS