Title: Journal Update monthly top five

Corresponding first author

Name Jonathan Matthews
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
https://orcid.org/0000-0003-0798-5888
Email Jonathan.matthews1@nhs.net
Twitter (if you wish)

Co-authors

Name Jenni Cooper
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
ORCID ID (if you wish)
Email Jenni.Cooper1@nhs.net
Twitter (if you wish)

Name Tom Burt
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
ORCID ID (if you wish)
Email Thomas.burt@nhs.net
Twitter (if you wish)

Name Hinal Patel
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
ORCID ID (if you wish)
Email Hinal.patel5@nhs.net
Twitter (if you wish)

Name Alexandra Pasint-Magyar@nhs.net
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
ORCID ID (if you wish)
Email Alexandra.pasint-magyar@nhs.net
Twitter (if you wish)

Name Neha Bhatia
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
ORCID ID (if you wish)
Email neha.bhatia2@nhs.net
Twitter (if you wish)

Name George Taylor
Affiliation Emergency Department, St Mary's Hospital, Imperial Healthcare, London, UK.
ORCID ID (if you wish)
Email George.taylor7@nhs.net
Twitter (if you wish)

Daniel Darbyshire
https://orcid.org/0000-0001-5619-0331
d.darbyshire@lancaster.ac.uk
@dsdarbyshire

Word count including subheadings & bottom line (excluding references): 1408

This month's update is by the team at St Mary's Hospital, Imperial College Healthcare NHS Trust in London, UK. We used a multimodal search strategy, drawing on free open-access medical education resources and literature searches. We identified the five most interesting and relevant papers (decided by consensus) and highlight the main findings, key limitations and clinical bottom line for each paper.

The papers are ranked as:

- Worth a peek—interesting, but not yet ready for prime time.
- Head turner—new concepts.
- Game changer—this paper could/should change practice.

1. International DO-IT Collaboration. Intravenous Thrombolysis in Patients With Recent Intake of Direct Oral Anticoagulants: A Target Trial Analysis and Comparison With Reversal Agent Use by Meinel et al[1]

Topic: Stroke

Outcome Rating: Game Changer

Intravenous thrombolysis for acute ischaemic stroke in patients taking direct oral anticoagulants (DOACs) remains controversial, and most international guidelines recommend caution or avoidance. This retrospective, multicentre, observational cohort study gathered data from 28 international stroke centres, including the UK, and employed a target trial methodology to investigate the safety and efficacy of thrombolysis.

Included patients had had a disabling stroke and ingested a DOAC within the previous 48 hours, or been prescribed a DOAC with the time of last dose uncertain; 1342 patients were identified. Analysis demonstrated no association between haemorrhage and thrombolysis administration. Symptomatic intracerebral haemorrhage occurred in 3.0% of thrombolysis patients versus 5.9% of non-thrombolysis patients, adjusted difference for thrombolysis -

2.1% (95% CI -5.3% to +1.2%). Patients receiving thrombolysis were significantly more likely to achieve a good functional outcome (modified Rankin Scale ≤2 or return to baseline) at 90 days. An auxiliary comparison also found no significant difference in symptomatic intracerebral haemorrhage or efficacy outcomes between thrombolysis patients who did or did not receive prior DOAC reversal, primarily idarucizumab.

The primary limitation is the potential for indication bias inherent in the study's retrospective design. This is reflected by higher mortality among non-thrombolysis patients and a more favourable baseline profile in those receiving thrombolysis, who generally had milder strokes, fewer large vessel occlusions and fewer comorbidities. Crucially, limited patient numbers with confirmed high DOAC levels (>100 ng/mL) prevented reliable subgroup analysis in the group most likely to carry an increased bleeding risk.

Bottom line: For patients presenting with stroke and eligible for thrombolysis, recent DOAC ingestion may not be as unsafe as previously presumed; however, prospective studies are needed for a definitive answer.

2. Oxygen therapy in early warning scores: a systematic review and meta analysis by Harrison et al[2]

Topic: Oxygen therapy

Outcome Rating: Head Turner

Early warning scores (EWS) are used to identify patient deterioration. The majority of EWS include oxygen therapy as a binary variable with a score of 0 for a patient on room air and a number of points for supplemental oxygen. Using this binary system may decrease the sensitivity of the scores in detecting small but important changes. The aim of this systematic review and meta-analysis was to compare adult early warning scores (EWS) that use graded oxygen scoring with systems using binary oxygen scoring.

Fifteen studies reporting 16 EWS with graded oxygen weighting were included. Four of these studies compared binary to graded oxygen scoring and were suitable for meta-analysis. Between the 4 studies, primary outcomes included some or all of cardiac/peri-arrest, unplanned ICU admission and death. Meta-analysis showed a significant improvement in the performance of graded oxygen EWS over binary oxygen EWS (logit(AUROC)=0.19; 95% CI 0.094 to 0.285; p=0.002) at predicting some or all of: cardiac/peri-arrest, unplanned ICU admission and death. Overall, 15 of 16 studies were deemed to be at high risk of bias. The major limitation of this study for ED clinicians is that only EWS developed for inpatient use were included.

Bottom line: In the inpatient setting, a graded oxygen EWS is superior to a binary oxygen score; this may be applicable to ED long-stay patients but needs further research for the general ED population.

3. Compression Ultrasound DVT Diagnostic Pathway Collaborators. Novel Artificial Intelligence Guided Non-expert Compression Ultrasound Deep Vein Thrombosis Diagnostic Pathway May Reduce Vascular Laboratory Venous Testing by Avgerinos et al[3]

Topic: Ultrasound

Outcome Rating: Worth a peek

Lack of availability of ultrasound out of hours can delay definitive diagnosis for patients with suspected deep vein thrombosis (DVT), leading to unnecessary treatment with anticoagulants and their inherent risks. Bedside point-of-care ultrasound (POCUS) for DVT can be performed by emergency physicians, but comfort and accuracy with this skill vary. A recent meta-analysis suggested that the sensitivity of POCUS without AI (Artificial Intelligence) for DVT is 90% (95% CI 82%-95%) and the specificity is 95% (CI 91%-97%), with better performance by those experienced in performing the study.[4]

Avgerinos and colleagues conducted a single-centre prospective study assessing an AI-guided diagnostic pathway for suspected lower-limb DVT. Using the ThinkSono Guidance system, non-ultrasound-trained clinicians performed two-region proximal compression ultrasound, supported by real-time AI prompts and remote radiologist review. Among 53 patients (mean age 56 years, 45% female), the pathway achieved 100% sensitivity and 96% specificity (95% CI not reported) compared with formal venous duplex scanning. Median scan-to-review time was 37 minutes, with scanning itself taking under 7 minutes. When both the AI-guided scan and D-dimer were negative, patients were discharged without vascular laboratory imaging (32% of patients in the study).

This was a small single-centre study, that offered limited follow-up. The proprietary AI platform and absence of cost-effectiveness data also limit generalisability. Further multicentre validation is needed to establish safety, scalability and economic impact.

Bottom line: AI-guided compression ultrasound by non-experts shows excellent early diagnostic accuracy for proximal DVT. It could accelerate diagnosis and reduce dependence on outpatient ultrasound services, but larger validation studies are needed before clinical adoption.

4. Exclusion of intracranial lesions in mild traumatic brain injury using glial fibrillary acidic protein and ubiquitin C-terminal hydrolase-L1: a European multicenter study by Milevoj Kopcinovic et al[5]

Topic: Traumatic Brain Injury

Outcome Rating: Head Turner

CT scans for mild traumatic brain injury (mTBI) carry considerable resource and radiation burden. Biomarkers are a potential alternative diagnostic tool; however, single biomarkers have shown inadequate sensitivity. This multinational observational study compared the use

of combined serum biomarkers (UCH-L1 and GFAP) with single biomarkers in ruling out mTBI. CT imaging was used as a reference standard. Adults (>18 years old) with suspected mTBI (GCS 13-15) presenting within 12 hours from injury at one of 12 European centres were included

Among 822 patients (median age 64), 112 (13.6%) had CT-proven intracranial haemorrhage. Combined assays demonstrated superior sensitivity (95.5%; 95% CI: 89.9–98.5) and NPV (97.3%; 95% CI: 93.9–98.9) than either single biomarker. However, 74.5% of CT-negative patients had positive mTBI assays, which the authors postulate may reflect subtle, MRI-detectable neuronal/glial injury; however, the data in this study do not assess this.

Half the cohort were over 65, likely explaining the overall higher CT-positive rate compared with other European studies (5-6%). In this group, combined serum biomarkers performed poorly, with only 5.3% ruled out with manufacturer cut-offs. The authors derived age-adjusted cut-offs from ROC curves and redefined the combined assays rule-out function, improving the NPV in those ≥65 from 92.1% (95% CI: 73.5–98.0) to 94.4% (95% CI: 89.6–97.0).

The authors suggest that, in their study, population combined assays could have avoided 186 CT scans. However, CTs were reported locally without central validation, which introduced inter-reader variability within this multinational group. While potentially useful, unselective combined biomarker testing in practice may generate heightened patient/clinician concern and increase CT use in those considered low risk.

Bottom line: Combined serum biomarkers may reduce CT burden, but greater validation and refinement are still needed to develop a tool with an acceptable negative predictive value.

New Biomarkers of Acute Intestinal Ischemia: A Prospective Study Validating the Interest of Glucagon-Like Peptide-1 and -2 by El Hamwi et al[6]

Topic: Acute Intestinal Ischemia

Outcome Rating: Worth a peek

Glucagon-Like Peptides as Novel Biomarkers in Acute Intestinal Ischemia: Implications for Emergency Medicine

Diagnosing acute intestinal ischaemia in the emergency department is often limited by reliance on late imaging or exploratory surgery. Glucagon-like peptides 1and 2 (GLP-1, GLP-2) are potential biomarkers of intestinal hypoperfusion.

This prospective, single-centre case-control validation study included 23 patients ≥18 presenting to the Emergency Department with acute abdominal pain and a pain score of 3/10 or higher. The case group had a CT-confirmed diagnosis of acute intestinal ischaemia, and controls had no evidence of abdominal pathology on CT.

The study found that significantly elevated GLP-1 and GLP-2 levels in patients with confirmed intestinal ischaemia outperformed conventional biomarkers such as lactate, citrulline, and I-FABP. While the results were statistically significant, the impact of common comorbidities such as T2DM, obesity and coronary artery disease remains undetermined.

Bottom line: GLP-1 and GLP-2 show potential as diagnostic biomarkers for acute intestinal ischaemia.

References

1 Meinel TR, Bücke P, D'Anna L, *et al.* Intravenous Thrombolysis in Patients With Recent Intake of Direct Oral Anticoagulants: A Target Trial Analysis and Comparison With Reversal Agent Use. *Stroke*. 2025;56:2836–45. doi: 10.1161/STROKEAHA.125.051384

2 Harrison CH, Tupper P, Gerry S, *et al.* Oxygen therapy in early warning scores: a systematic review and meta-analysis. Published Online First: 1 October 2025. doi: 10.1136/thorax-2024-222663

3 Avgerinos E, Spiliopoulos S, Psachoulia F, *et al.* Novel Artificial Intelligence Guided Non-expert Compression Ultrasound Deep Vein Thrombosis Diagnostic Pathway May Reduce Vascular Laboratory Venous Testing. *Eur J Vasc Endovasc Surg*. 2025;70:517–22. doi: 10.1016/j.ejvs.2025.04.070

4 Hercz D, Mechanic OJ, Varella M, *et al.* Ultrasound Performed by Emergency Physicians for Deep Vein Thrombosis: A Systematic Review. *West J Emerg Med*. 2024;25:282–90. doi: 10.5811/westjem.18125

5 Milevoj Kopcinovic L, Nikolac Gabaj N, Lapić I, *et al.* Exclusion of intracranial lesions in mild traumatic brain injury using glial fibrillary acidic protein and ubiquitin C-terminal hydrolase-L1: a European multicenter study. *Eur J Emerg Med*. 2025;32:351–8. doi: 10.1097/MEJ.0000000000001234

6 El Hamwi A, Hamard F, Hinault-Boyer C, *et al.* New Biomarkers of Acute Intestinal Ischemia: A Prospective Study Validating the Interest of Glucagon-Like Peptide-1 and -2. *J Am Coll Surg*. 2025;241:610–8. doi: 10.1097/XCS.0000000000001453

Contributorship Statement

All authors contributed to the drafting and finalising of the article. Dan Darbyshire is the guarantor.

Funding

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing Interests

Nil