



Primary survey: Highlights from this issue

doi:10.1136/emered-2022-212951

Mary Dawood

Appendicitis

It's refreshing and inspiring to see new research on an age old presentation, acute appendicitis (AA) has not gone away and continues to be one of the most common surgical emergencies presenting to ED's. Despite its regular appearance it can still be missed at initial presentation leading to adverse outcomes of morbidity and mortality. CT is the gold standard for diagnosis of acute appendicitis but it's not the panacea, high levels of irradiation, cost and availability in all settings limit its use. So it was interesting to read a paper by Lehmann and colleagues from Switzerland who sought to determine whether ultrasound can be used as a first diagnostic measure in suspected cases to rule out AA. In their study which included 508 patients with suspected AA, 308 (60.4%) patients had a conclusive ultrasound. Among these, sensitivity for appendicitis was 89.6% (95% CI: 82.1 to 94.3%), specificity 93.8% (89.1–96.6%), the positive predictive value was 87.98 (80.84–92.71, the negative predictive value 94.65 (91.18–96.80). But-- for the remaining 200 patients, ultrasound was inconclusive. The authors conclude that ultrasound performed by emergency physicians or radiologists is sensitive and specific in diagnosing or ruling out appendicitis, they cautioned however, that an inconclusive ultrasound examination calls for further imaging since 29% of patients in their study with inconclusive ultrasound had an acute appendicitis.

Appendicitis is not the preserve of adults and is also a common presentation in children and adolescents where the diagnosis can be just as elusive. In this population, ultrasound is the recommended initial imaging modality for all the reasons listed above as well as being much less frightening for children. Appendiceal diameter is a primary sonographic determinant of paediatric appendicitis. In an interesting study from Boston Children's Hospital, Neal and colleagues sought to determine if the diagnostic performance of outer appendiceal diameter differs based on age or with the addition of secondary sonographic findings. They retrospectively reviewed 945 patients aged less than 19 years that had an ultrasound (US) to rule out appendicitis. Although there was no significant difference in optimal diameter threshold between age groups, both 7- and 8-millimetres

thresholds were more predictive than 6 millimetres across all groups ($p < 0.001$). They concluded that appendiceal diameter as a continuous measure was more predictive of appendicitis in the youngest group. Across all age groups, the optimal diameter threshold was 7 millimetres for the diagnosis of paediatric appendicitis. They added that addition of individual or combination secondary sonographic findings increases diagnostic performance.

In praise of clinical judgement

We have come to revere a variety of scoring systems at triage and in the ED to rapidly identify the sickest patients, those likely to deteriorate and overall to prioritise care and optimise patient flow. Undoubtedly scoring systems have their place and value but so has clinical judgement which perhaps we under value in the face of scientifically validated tools. So it was really good to see two papers in this issue which focus on clinical judgement and are well worth a read. The first paper from Italy by Salvato and colleagues who sought to validate existing tools Ambulatory (AMB), Glasgow Admission Prediction (GAP) and Sydney Triage to Admission Risk Tool (START) in predicting hospital admission at triage and compared them with the clinical judgement of triage nurses. This was a single site prospective observational study of 1710 consecutive patients in 2019. They found the scores provided moderate accuracy in predicting patient admission, however all of the scores were significantly worse than the clinical judgement of the triage nurses. I suspect experienced triage nurses will not be remotely surprised by these findings but all the same reassured by this endorsement of nursing gestalt. In a similar vein, Veldhuis and colleagues in Amsterdam hypothesised that clinical judgement of ED clinicians is superior to early warning scores (EWS) in predicting the need for ICU admission. They reviewed the available literature which they acknowledged as being of medium scientific quality, nonetheless they concluded that clinical judgement has greater accuracy in predicting the need for ICU admission and severe adverse events compared with EWS for patients in the ED but performance of both is similar in predicting mortality and deterioration. Again a vote of confidence in our ED clinicians.

Fractures in children

Forearm fractures in children often require closed reduction in the ED but achieving best outcomes depends on the efficacy of anaesthesia used. Common methods of analgesia include, procedural sedation and analgesia, haematoma block, intravenous regional anaesthesia and regional nerve blocks. Choosing the most appropriate method in the absence of evidence can be difficult especially when the child and parent in front of you are needing your confident reassuring approach. So I was keen to read the paper by Goh and colleagues in Singapore who undertook a systematic review of peer reviewed evidence to identify the most effective anaesthesia in terms of pain reduction and patient safety. They screened 1288 records and nine trials which studied 936 patients. They found that infraclavicular blocks resulted in better pain outcomes, fewer events of hypoxia as well as better parental and practitioner satisfaction compared with procedural sedation and analgesia. However they concluded overall that there is insufficient data to guide clinicians in choosing a particular anaesthetic method in the ED and highlighted the need for more adequately powered studies, so back to the drawing board and more research please.

Pulmonary embolism

Diagnosing pulmonary embolism PE continues to be a challenge for ED clinicians as the disease can present with wide array of signs and symptoms especially in patients with underlying heart and lung disease. Missing a PE is a perpetual concern because of a potentially fatal outcome. PERC guidelines are helpful in many cases but definitive diagnosis requires CT angiography (CTPA) where there is high suspicion of a PE. The challenge for the clinician is balancing the risks of missing a PE against the harm from CT scanning and over investigation in patients with a low probability of a PE. In this issue, Reed and colleagues from Edinburgh, present a well-structured expert practice review on clinical assessment of PE at the front door. I found this an enlightening review and I highly recommend it to all our readers.

ORCID iDMary Dawood <http://orcid.org/0000-0002-2535-2657>