Highlights from this issue

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Paul M Middleton

Triage category and prediction of longer-term outcomes

Triage identifies patients who require the most urgent attention, and allows stratification of scarce resources. Many emergency presentations conceal a multitude of sins, with few as all-encompassing as syncope. The broad range of conditions that provoke, mimic or originate as syncope means that predicting those most risk in this broad group relies on exhaustive and penetrating questioning and examination.

Bonzi's retrospective study on 678 syncope patients found that the triage process was poorly predictive of adverse events at 10 days. They also examined an OESIL score, and found that previous cardiac history and abnormal ECG were predictive of later disasters. This paper highlights that triage, for all its uses in managing flow in an ED, is no substitute for early, informed, careful risk-stratification, and that it will not perform well in an area for which it was never designed.

Traumatic head injury triage

A cohort study by Fuller *et al* from TARN investigated the classification of adult head injury patients by the London Ambulance Service (LAS) and the Head Injury Transportation Straight to Neurosurgery (HITS-NS) criteria.

Bypass of major trauma patients to definitive care is a common theme in many trauma systems, and one challenge is to manage intracranial injuries needing urgent neurosurgical intervention, in the context of physiological instability from multisystem injury. Head injured patients are particularly vulnerable to hypoxia and hypotension, so to accurately balance the risk between these competing priorities a triage tool which accurately predicts the presence of intracranial injury is necessary.

In 6559 patients, Fuller found that the both tools showed poor sensitivity for a significant traumatic brain injury, when compared to a reference standard, of 44.5% and 32.6% respectively. Adding bleeding disorders, vehicle entrapment and age ≥55 to the LAS rule increased sensitivity to 74%.

The investigators showed under-triage rates for significant TBI of 67.4% and 55.5% for HITS-NS and LAS, with false negative cases often comprising older patients with less severe injuries and low falls. The poor performance of these triage rules underlines difficulties in patient disposition, even within a mature trauma system. This paper adds to the debate about which strategy is superior, however without clear evidence that outcomes in head injured patients stabilised at a trauma centre and then transferred for neurosurgical intervention are worse than those for patients taken directly to a specialist centre with possible under-resuscitation, the emphasis on initial trauma centre management will remain.

High sensitivity cardiac troponin T in infection—more outcome prediction

De Groot points out that 13% of patients who meet criteria for early goal directed therapy go to a normal ward, when disposition is guided by either Mortality in ED Sepsis (MEDS) or Predisposition, Infection, Response and Organ-Failure (PIRO) score, and suggests that this could be improved by the addition of a biomarker reflecting myocardial damage from hypoperfusion, highly sensitive cardiac troponin T (hs-cTnT).

They found increased odds of hospital death by 2.2 with hs-cTnT in the third quartile compared with the second, and 5.8 if it was elevated to the fourth quartile. hs-cTnT also showed good discrimination measured by the area under the (AU) ROC curve, and was an independent and more powerful predictor than the MEDS or PIRO scores alone. However, like many sophisticated (and expensive) biomarkers, hs-cTnT correlation with other reliable predictors of outcomes may not help to guide us practically in our choice of intervention, however may assist us in our efforts to engage the arbiters of higher levels of care. But the greatest usefulness of this study may be in the finding that hs-cTnT in the lowest quartile predicted a zero risk of death.

Gestalt

The way we think about our patients, the processes of diagnosis, and the intrinsic organisation in the way physicians integrate information are topics of huge interest for many. Gestalt derives from a German school of psychology and suggests that we can discern a whole concept or image in parallel with perceiving the fragmented pieces of information that form the whole; the "the whole is other than the sum of its parts". This ability is likely to be intrinsic to the effective practice of emergency medicine, and is likely to involve subtle cues such as lack of facial expression, recently shown to be associated with the presence of cardiovascular disease.

Body studied the use of gestalt in the diagnosis of chest pain by inducing emergency physicians to make a graded estimate of the likelihood of an ACS. Treating physicians were blinded to initial troponin level and the outcome, although they had access to the ECG and other information.

In 451 patients with chest pain, of whom 81 had an AMI, unstructured clinical judgment had moderate overall diagnostic accuracy, with an AUROC curve of 0.76, but was insufficient to rule in or rule out ACS in the ED. However, a normal ECG and initial troponin added to physician gestalt would enable 25% of patients to be safely discharged, and using high-sensitivity troponin would increase this figure to 40%.

Procedural sedation for cardioversion

Propofol, methohexital, thiopentone and etomidate were identified in an EMJ review as good choices for procedural sedation in cardioversion, largely due to their short onset, duration and recovery time, and propofol has been described as the closest to an ideal agent for cardioversion.

Kaye and Govier collected data from a case series of 100 patients given propofol for ED cardioversion of both atrial and ventricular tachycardias, and demonstrated minimal complications and no sentinel adverse events. They concluded that propofol 1 mg/kg was safe in patients undergoing ED cardioversion, with a similar level of safety using a 0.5 mg/kg dose in patients with haemodynamic compromise.