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Highlights from this issue

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Pregnancy problems

This month I'll start the primary survey with consensus statements from the Faculty of Pre-Hospital Medicine on the management of severely injured or ill pregnant patients.

For the most seriously unwell pregnant patients, such as those in cardiac arrest, I think it's fair to say that the prospect of performing a hysterotomy in the resuscitation of a pregnant woman is terrifying to many clinicians. The Faculty of Pre-Hospital Medicine guidelines on Pre-Hospital Resuscitative Hysterotomy / Peri-Mortem Caesarean Section take us through the evidence for when, who, and how we can mentally prepare for the terrible day when we might be called to act. If you're in a position where you may have to do this then prepare now. Read the article and mentally prepare for a day that will hopefully never come.

Linked to this guideline is the Faculty of Pre-Hospital Care Consensus guideline on the management of traumatic pregnant and obstetric complications. Much of this will also be relevant to those of us who prefer the warmth and light of the emergency department too as the principles of resuscitation are applicable to both. For those of you with an interest in evidence based medicine it's interesting to look at the strength of evidence to support the recommendations. Perhaps unsurprisingly the breadth and depth of studies in pregnant patients is low with many recommendations based on consensus or extrapolated from studies in non-pregnant cohorts. Despite these limitations this work represents the best evidence available and is well worth a read before you need it in practice.

Cadavers and carbon dioxide

End tidal CO₂ is increasingly used in the management of critically unwell patients and is usually considered a function of cardiac output and respiration. You clearly would not expect to get a waveform from a cadaver. Surprisingly that's exactly what Reid and colleagues found when

intubating cadavers and then ventilating them with an end tidal CO₂ monitor. A rather unexpected finding was the detection of persistent end tidal CO₂ waveforms from some of the cadavers. This was persistent in some cases, but did not occur in all. Reassuringly oesophageal intubation did not detect CO₂ but the reasons why tracheal intubation did show CO₂ are unclear.

Remifentanyl in the ED

I must admit that I'd not heard about using remifentanyl for procedural sedation in paediatric practice. We use it in adult ventilated patients together with propofol, but the idea of using it as a sedation only drug was new. Remifentanyl appears to have attractive properties as detailed in a systematic review by Kisilewicz and colleagues, but the evidence for its effectiveness in paediatric care is limited. Perhaps Remi's pathophysiological attractiveness may not yet be ready for prime time.

Heart rate volatility

This paper must be a contender for the largest number of data points in an *EMJ* publication. The authors analysed roughly 7 million heart rate data points to determine variability from 2051 ED patients. They found that in those patients who exhibited a low heart rate variability there was an increasingly likelihood of admission to the high dependency unit (as a marker of serious illness). This corroborates other studies on autonomic nervous system variability and may help us better understand the significance of routine observations taken in the ED.

Are we ready for ECPR?

There is great enthusiasm for extra corporeal cardiopulmonary resuscitation in some corners of the internet. If you hang around on twitter for long enough someone, somewhere will advocate the use of ECPR and probably mention some fantastic anecdotal stories of success

(and they do seem to exist), but is the evidence there to suggest that we should all be doing it? Schober *et al* describe data on the use of ECPR in the ED and conclude that it may have a place in a highly selected group of patients. Interestingly they only found 7 patients had ECPR over 10 years and logistically that clearly presents problems. In a linked commentary Callaway and Sunde have looked at the data and suggest that the evidence base for widespread adoption is not there yet. Hopefully this paper prompts some well designed prospective trials in the future.



Survival in traumatic cardiac arrest

Ahmed and colleagues have examined the US trauma data bank to determine the survivability of traumatic cardiac arrest. Interestingly they found that roughly 13% of patients who underwent CPR survived to hospital discharge. We've recently seen similar data from the UK such that both these studies tell us that we should not be nihilistic about traumatic arrest. Good outcomes are possible and we should aggressively seek and treat reversible causes.

It's all about flow

Lastly Barak-Corren and colleagues in Israel have used readily available data to predict disposition of ED patients. In contrast to many studies in this area they have investigated a progressive prediction model that alters the certainty of disposition decision at 3 time points during a patient's journey. They propose that such a predictive model can improve flow in the ED, something that we would all welcome.

You should also look out for our editorial comments, images and BestBets, there is plenty in this month's journal to make you think, learn and become a better clinician.