Rapid response systems and the deteriorating patient

It has been nearly 25 years since so-called medical emergency teams or rapid response systems were introduced in order to better identify and manage the clinically deteriorating ward patient. Such hospital teams are now commonplace, although under the guise of many acronyms, differing expertise and clinical governance structures. This issue of the journal contains a symposium analysing the health-care-wide problem of the deteriorating patient. The timely updates from the authors highlight some important aspects of patient safety, outcomes and demonstrate a professional role still in evolution.

Effect of early warning systems on outcomes

It may seem intuitive that early warning systems with built-in escalation procedures and professional expertise will improve outcomes for patients at risk of clinical deterioration. However, the evidence remains subject to significant scrutiny, occasional criticism and the eternal optimism for a better system tomorrow. In 1998, a confidential enquiry into the deteriorating patient (McQuillan et al, 1998) found that ward-based systems were deficient and inadequate. The authors reported 39% of patients were admitted to intensive care from the emergency setting late in the course of their acute illness, with over half adjudged as receiving less than adequate resuscitation before intensive care unit admission.

These findings were considered to be yet more evidence that medical emergency teams or rapid response systems may have a role in bridging the gap between routine ward care and that provided by existing cardiac arrest teams. It was proposed that measurable physiological derangement, which contributed to an aggregated warning score, would alert ward teams to early patient deterioration. Today national guidance exists to encourage the use of medical emergency teams and early warning scores, in an attempt to reduce avoidable deaths within the UK and beyond (Royal College of Physicians, 2012).

In 2005 the MERIT trial (Medical Early Response Intervention and Therapy), a randomized controlled study conducted in 23 Australian hospitals, demonstrated no benefit from rapid response teams in reducing unplanned intensive care unit admissions, cardiac arrests or patient mortality (Hillman et al, 2005). Since that publication a number of meta-analyses have reported on similar trials and their association between a medical emergency team or rapid response system and a decrease in incidence of hospital mortality and cardiac arrests (Leng, 2007). In this issue Hogan and colleagues (https://doi.org/10.12968/hmed.2017.78.3.150) broaden the discussion to include evidence in support of the concept of the 'chain of prevention'. Their article focuses on outcomes from cardiac arrest, implications for resource utilization and educational aspects of recording and responding to the deteriorating ward-based patients.

Strikingly both this article and the accompanying work of Jones et al (https://doi.org/10.12968/hmed.2017.78.3.137) remind us of the poor outcomes associated with in-hospital cardiac arrest. Importantly the authors highlight that few cardiac arrests were preceded by medical emergency team or rapid response system review and intervention. While it could be argued that patient outcomes may be related to more than the presence or absence of a rapid response system, failure to escalate a deteriorating patient remains a fundamental issue in a significant number of patients.

In reality success or failure in the clinical context is likely to reside in the subtle interplay between such complex clinical pathways and the medical professionals who use them. There is nothing new in this observation and while we plead caution in the interpretation of the ancient Greek aphorism 'Rules are for the guidance of wise men and the blind obedience of fools', there remains an element of learning in it for all clinicians. It is incumbent on all who care for patients that they do so to the best of their ability and there is a legal responsibility on health-care organizations to enable their staff to deliver such care (Berwick, 2013). Inevitably financial and manpower constraints will impact on the ambitions to deliver these objectives, but hospitals must resist the urge to replace the absence of the experienced clinical leader at the bedside, with rules and guidelines that lack the fidelity to bring about improvement and change.

Rapid response systems at the end of life

While improvements in education, training and staff development will always remain close to the top of our agenda, acknowledging that the inpatient demographic is changing will be an important first step in better defining the rapid response system of the future. The population is ageing and, with it, increasingly patients with significant comorbidity (Braude et al, 2016) are more likely to spend their last few weeks and months of life in a hospital bed. For a number of such patients, even an efficiently and timely escalated care plan will do little to modify the outcome for a patient approaching the end of his/her life.

Evidence suggests that a large proportion of patients who are referred to rapid response teams have a life-limiting illness with a four times increased likelihood of death, raising important moral and ethical questions around the challenges of life-sustaining treatment. This is accompanied by a lower completion of 'do not resuscitate orders' despite increased involvement of palliative care services (Sulistio et al, 2015). It is therefore conceivable that there are a significant proportion of patients that are

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inappropriately being referred for medical emergency team or rapid response system assessment.

With this in mind the new approach offered within this issue by Hartin and Walker (https://doi.org/10.12968/hmed.2017.78.3.160) deals head on with the challenges of modern medicine and gets us back to basics. Communicating risk, sharing decisions and valuing what may be important to patients at the end of life, remains for so many medical consultations the elephant in the room. Using medical emergency team or rapid response system expertise to enable conversations and teach health workers skills to support patients and their families in planning for life with deteriorating health and sometimes in death signals a welcome change of emphasis.

Conclusions

Understanding the past may be key to successfully shaping the future, but living there is not recommended. Since MERIT was published we better understand complex systems, the importance of protocols and pathways and their limitations. We are slowly dismantling the old paternalistic ways of medicine and in so doing must be prepared to have better conversations with patients. Preventing patient deterioration and rescuing those who have slipped through the medical safety net will continue to challenge modern medicine, particularly as societal expectations and patient demographics change. **BJHM**

KEY POINTS

- In the face of equivocal evidence it is still good clinical practice that the deteriorating patient is identified and managed via outreach mechanisms.
- In reality the success or failure of these actions in the clinical context is likely to reside in the subtle interplay between such complex clinical pathways and the medical professionals who use them.
- Preventing patient deterioration and rescuing those who have slipped through the medical safety net will continue to challenge modern medicine.

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