

Abstract

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Reasons for repeat Rapid Response Team calls, and associations with in-hospital mortality

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Objectives:

Previous publications have noted increased mortality risk in patients subject to repeat Rapid Response Team (RRT) calls. Thus far, these patients have been examined as a homogenous group, however many reasons may exist for repeat calls. In particular, those may be preventable by the Rapid Response System (RRS) have not been investigated as a potential avenue for quality improvement. Therefore, this study was conducted to address this knowledge gap.

Methods:

This was a retrospective study of adult patients attended by the RRT. The investigating hospital's RRS database was queried to identify patients with potentially preventable repeat calls, who were grouped into : Type 1, following an initial call that ended despite the patient still triggering RRT calling criteria (T1-PRC) and Type 2, within 24 hours of an initial call and for the same calling reason (T2-PRC). In-hospital mortality for patients with T1-PRC and T2-PRC calls, and those having repeat calls for all other reasons (ORC), were compared against patients with only a single call during their admission (SC).

Results:

Mortality occurred in 31 (43.7%) T1-PRC, 13 (15.1%) T2-PRC, 56 (28.9%) ORC and 289 (13.9%) SC patients. Univariate odds ratios, by comparison to SC patients, were 4.80 (95% CI 2.96 – 7.81) $P < 0.001$, 1.10 (0.60 – 2.02) $P = 0.75$, and 2.52 (1.80 – 3.52) $P < 0.001$, respectively. Significant mortality effects persisted for the T1-PRC and ORC groups after adjustment for patient, admission and initial call characteristics with odds ratios of 4.07 (2.36 – 7.01) $P < 0.001$ and 2.29 (1.57 – 3.34), $P < 0.001$ respectively.

Conclusions:

This study identified that repeat calls following an initial call that ended with persisting breach of predefined calling criteria were strongly associated with increased mortality. This highlights the risk to patients from the RRT leaving reversible clinical deterioration unresolved at the end of calls, and provides the opportunity to review RRS practices.