

Factors associated with early provision of respiratory support in deteriorating ward patients with chest sepsis

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Abstract

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Background Implementation of the National Early Warning Score in the National Health Service (NHS) has renewed focus on prompt identification and referral of the deteriorating ward patient. A large body of published work suggests that delay in both referral and admission to critical care can be associated with poor outcomes. We sought to explore factors associated with early provision of respiratory support in a cohort of deteriorating ward patients referred to the critical care team.

Methods SPOT (light) (Sepsis Pathophysiological and Organisational Timing) was a prospective observational study carried out between 2010 and 2011 in acute NHS hospitals in the UK. In a pilot retrospective analysis, we merged data from this study with organ support data from the Critical Care Minimum Data Set. Deteriorating adult ward patients referred to the critical care team with presumed severe chest sepsis and with no treatment limitations in place were eligible for inclusion. We used these data to assess critical care bed availability and factors affecting decisions to accept patients to the intensive care unit.

Findings 828 patients at 13 acute hospitals were referred to the critical care team. 7-day mortality was 17% (138 patients); 115 (83%) of these patients had not received inspiratory positive pressure ventilation (IPPV) despite having had no treatment limitations in place. 275 (33%) of the 828 patients were accepted by the critical team after review. A decision to accept was significantly more likely when beds were available than when not available (269/275 [34%] vs 6/275 [15%], $p=0.010$). Mean time to commencing IPPV was significantly reduced by critical care bed availability (0.8 days [SD 1.3] vs 2.3 [1.4], $p=0.001$). 130 patients (16%) received IPPV, of whom 93 (72%) proceeded directly to IPPV rather than via non-invasive ventilation (NIV) initially. Patients were more likely to proceed directly to IPPV where the critical care team made a decision to admit (72/93 [77%] vs 21/93 [57%], $p=0.018$).

Interpretation These pilot data suggest that critical care bed availability and a decision to admit to critical care are associated with both a faster and a more direct provision of IPPV (rather than via NIV initially). In this small sample, a large proportion of the mortality occurred in patients who had not received IPPV despite having had no treatment limitations in place.

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Contributors

SH conceived and supervised the study. SH and PdS acquired the data. MN performed the statistical analysis and wrote the first draft of the abstract. All authors contributed to subsequent drafts and have approved the final abstract.

Declaration of interests

We declare no competing interests.