Abstract

The preparations and timing of extubation from mechanical ventilation for the Surgical Intensive Care Unit (SICU) patient warrant investigation to reduce the need for costly reintubation. The aim of this work was to identify predictors of extubation failure in surgical (non-trauma) postoperative intensive care patients to decrease the rate of 30-day reintubations. A systematic literature review identified pertinent risk factors for extubation failure that included demographic, hemodynamic, respiratory, and neurological parameters within a variety of patient populations, however SICU specific predictors were lacking. This retrospective analysis reviewing 2.5 years of SICU data studied electronic medical records and related data bases from the population of non-trauma surgical patients who were admitted postoperatively to a SICU with an endotracheal tube and requiring invasive mechanical ventilation. SICU patients who were successfully extubated were compared to those who failed extubation. The results of logistic regression analysis indicated that the predictor associated with extubation failure was respiratory rate (OR 1.086, 95% CI, 1.006-1.172, $p = 0.034$). The significance of an elevated respiratory rate during the 24 hours preceding extubation has been underappreciated as a risk factor for reintubation.

Keywords: critical care, ICU, intensive care, reintubation, failed extubation, unplanned extubation