Risk Factors Associated with Reintubation in Trauma Patients

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Introduction

• Reintubation is associated with increased mortality, complications, hospital stay, and financial burden1,2.
• Most studies have focused on reintubation in medically ill ICU populations2.
• However, surgical ICU patients with traumatic injuries have different pathophysiology, comorbidities, and injury patterns.
• We evaluated comorbidities, injury patterns, and events leading up to extubation in trauma patients associated with reintubation.
• Elucidating risk factors leading to reintubation may help inform clinical practice in the surgical ICU.

Methods

We performed a retrospective chart review of adult trauma patients admitted to the surgical ICU between October 2019 - December 2019 who underwent extubation from mechanical ventilation. Reintubation was defined as the need for mechanical ventilation, not secondary to a planned operation, within 7 days of extubation. Patients who required reintubation were compared to those who underwent successful extubation.

Demographics

Patient Population: Fifty patients admitted to the Surgical ICU after sustaining traumatic injuries (82% blunt mechanism).
• Age: 45 ± 17
• Gender: 74% Male

Results

Table 1. Various factors were evaluated against need for reintubation using Fisher’s exact test, with significance set to p<0.05. Odds ratio of reintubation was calculated for significant factors.

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Patients requiring reintubation had higher rates of tracheostomy (0% vs 27%, p=0.01), longer ICU length of stay (23 vs. 5, p=0.0001), and longer hospital length of stay (16 vs. 38, p=0.001).

Conclusions

Pattern of injury is more likely to predict the need for reintubation as opposed to preexisting comorbidities or demographic factors in trauma patients. Injury patterns associated with need for reintubation in trauma patients included unilateral or bilateral pulmonary contusions and fractures of the ribs, sternum, or spine. As expected, reintubation is associated with need for tracheostomy and longer hospital stays.

References


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