

Effect of Post-intubation Hypotension on Outcomes in Major Trauma Patients

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Introduction

Development of post-intubation hypotension (PIH) is common and associated with poor outcomes in critically ill patients requiring endotracheal intubation (ETI). However, PIH has not been evaluated in the trauma population. Our aim was to determine the prevalence of PIH in trauma patients and assess the association of PIH with patient outcomes.

Methods

Retrospective case series of adult (≥ 16 years) trauma patients requiring intubation after referral to a provincial trauma team located at a Level 1 center in Halifax between 2000 and 2015. Data was collected from a provincial trauma registry and the patient chart. We evaluated the prevalence of PIH and created a logistic regression model to determine likelihood of mortality after controlling for potential confounding variables.

Results

Overall, 477 patients arrived unintubated and required ETI by the trauma team, of which 444 patients met eligibility criteria. Incidence of PIH was 36.3% (161/444). The PIH and non-PIH groups were similar with respect to gender, provider level, and volume of fluid administered within 15 minutes of intubation. Patients in the PIH group were older (PIH 44.8 ± 20.8 years vs. non-PIH 39.0 ± 18.2 years; $p = 0.003$) and more likely to have an Injury Severity Score ≥ 12 (PIH 84.8% vs. non-PIH 75.4%; $p = 0.021$). In-hospital mortality in the PIH group was 29.8% (48/161), compared to 15.9% (45/283) in the non-PIH group ($p = 0.001$). Death in the emergency department occurred in 7.5% (12/161) of patients who developed PIH versus 1.4% (4/283) in the non-PIH group ($p = 0.002$). After controlling for confounding factors, PIH development was associated with increased mortality in trauma patients (odds ratio = 1.83, 95% CI 1.01-3.31; $p = 0.047$).

Conclusion

Development of PIH was common (36.3%) and associated with increased mortality (OR 1.83). Clinicians should attempt to minimize hemodynamic instability during ETI in patients with traumatic injuries.