Presentation Abstract

Session: EP1-Electronic Presentations Session 1

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31 - Succinylcholine is Associated with Increased Mortality when used for Rapid Sequence Intubation of Severely Head Injured Patients in the Emergency Department

Category: Airway

Author(s): Asad E. Patanwala, Brian L. Erstad, Denise J. Roe, John C. Sakles. The University of Arizona, Tucson, AZ

Abstract: Study Objectives: The objective was to evaluate the effect of paralytic type used for rapid sequence intubation in the emergency department (ED) on mortality in patients with traumatic brain injury (TBI).

Methods: This was a retrospective cohort study conducted in an academic emergency department in the U.S. Adult patients with TBI who underwent rapid sequence intubation in the ED with rocuronium or succinylcholine between October 2010 and October 2014 were included. Billing and clinical databases were complemented with manual data acquisition. Data obtained were patient demographics, head abbreviated injury score (AIS), Glasgow Coma Scale, early occurrence of hypotension or hypoxia, comorbidities, and other medications used during intubation. The main outcome of interest was in-hospital mortality. The primary predictor of interest was paralytic type (rocuronium or succinylcholine). A logistic regression analysis was conducted to determine the association between paralytic type and mortality. A significant interaction was identified between head AIS and paralytic. Thus subjects were stratified based on severity of injury using head AIS scores. High-severity (HS) group had a severe or critical head AIS (score ≥4) and the low-severity (LS) had a less than severe AIS (score <4).

Results: The final study cohort included 233 adult TBI patients who underwent rapid sequence intubation using succinylcholine (n=149) or rocuronium (n=84). The median age was 42 years (IQR 29 to 56), the majority male (n=188, 81%), and 33% (n=76) had a HS head injury. In patients who were given rocuronium, mortality was 22% (12/54) and 23% (7/30) in the LS and HS categories, respectively (p=1.000). In patients who were given succinylcholine, mortality was 14% (14/103) and 44% (20/46) in LS and HS categories, respectively (p<0.001). In the multivariate analysis after adjusting for important confounders, paralytic type was not significantly associated with mortality in the LS category, (OR 0.75, 95% CI 0.29 to 1.92, p=0.548). However, in patients in the HS category, succinylcholine was associated with increased mortality (OR 4.10, 95% CI 1.18 to 14.12, p=0.026).

Conclusion: In patients with severe TBI undergoing rapid sequence intubation in the ED, succinylcholine was associated with increased mortality compared to rocuronium.
