Implementing Prehospital TBI Guidelines Impacts Outcomes

Jason T. McMullan, MD, MS, FAEMS reviewing Spotts DI et al. JAMA Surg 2019 May 8

Survival improved among severely injured patients after EMS agencies implemented protocols emphasizing avoidance or treatment of hypoxemia, hypotension, and hyperventilation. Current guidelines for prehospital care of traumatic brain injury (TBI) focus on avoiding or treating hypoxemia, hypotension, and hyperventilation (Prenp Hosp Emerg Care 2009;12 Suppl 1:S1). Unfortunately, these guidelines are largely based on observational data and, more than a decade after publication, have not been prospectively evaluated. Although the recommendations have face validity, we have not known if systematic implementation translates into better outcomes.

To address this, researchers compared survival before and after implementation of the guidelines in patients with suspected TBI who were transported to trauma centers by emergency medical services (EMS) agencies in Arizona. The study included roughly 15,000 patients in the preimplementation phase and 6000 in the after phase. Analyses were adjusted for a variety of potential confounders and risk factors. Despite similar patients in the postimplementation phase, survival to hospital admission significantly improved in this adjusted odds ratio (1.70). Survival to hospital discharge (the primary outcome) did not improve significantly overall (aOR, 1.06) but did increase in those most likely to benefit from prehospital interventions (e.g., patients with severe but not devastating head injuries [aOR, 2.03] and those requiring airway intervention [aOR, 3.62]).

COMMENT

It is refreshing to know that what I have been teaching prehospital providers for more than a decade makes a difference. Not surprisingly, a subset of patients experienced the most benefit; the trajectory of moderately injured patients and the most critically injured patients is not likely to be altered by any intervention. However, providing guideline-based care to all patients ensures the best outcomes for each individual patient. These findings serve as a call to action for EMS agencies to confirm that their treatment protocols reflect TBI guidelines.

EDITOR DISCLOSURES AT TIME OF PUBLICATION

Disclosures for Jason T. McMullan, MD, MS, FAEMS at time of publication

- Consultant/advisory Board: EMIRES International; Shire Pharmaceuticals
- Grant/Research Support: NIH (Strategies to Innovate EmergEncy Care Clinical Trials Network: The ACCESS Trial), DoD (USAFA Intertanial Ketamine as an Adjunct to Fantrantynly for the Prehosptial Treatment of Acute Traumatic Pain), Pharmacological Depression in Prehospital Deployment and in Extreme Temperature Simulation
- Editorial Boards: Journal of Emergency Medical Services
- Leadership Positions in Professional Societies: NAEMS (Chair, Research Committee)

CITATION(S):