

Paramedic CAT (Critically Appraised Topic) Worksheet

Title: The use of endotracheal intubation for prehospital patients with severe head injuries

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Clinical Scenario: A 28 year old female is ejected from the vehicle in a rollover MVC. 911 is called by other occupants of the vehicle. EMS arrives, immobilizes the patient and choose not to intubate due to patient clenching her jaw, and she seemed to be maintain her own airway (adequate respiratory rate, no vomit in airway, actively swallowing). The patient has large hematoma to the right occipital region as well as crepitus. Pt has clinical 5/5 of closed head injury including decorticate posturing.

PICO Question: In prehospital patients with head injury(P) that are clenching, yet maintaining their own airway, does ET intubation(I) v.s. basic airway management(C) lead to increased mortality(O)?

Search Strategy: In PubMed (Prehospital OR Out of Hospital) AND (Head Injury OR Brain Injury OR Closed Head Injury) AND (Intubation OR Endotracheal Intubation OR ETI) (MeSH) AND (Basic Airway Management OR Supplemental Oxygen OR Bag Valve Mask) (MeSH)

Search Outcomes: This search strategy found 0 matches. Hand-searched references from article "Paramedic Rapid Sequence Intubation for Severe Traumatic Brain Injury: Perspectives from an expert panel" and found 4 relevant papers that were used.

Relevant Papers:	Author,Date	P	Design	Outcomes	Results	Weaknesses
	Stockinger (2003)	533 patients who were transported to a Trauma Center (316 were Intubated by EMS & 217 had BVM)	Retrospective LOE:2	Mortality	Intubated patients had significantly higher mortality rates than BVM	Prehospital protocols were not standardized and varying levels of injury severity.
	Murray (2000)	894 Pts transported to Urban Trauma Centre with Severe Head Injury (Field GCS <8 & Head AIS score >=3) (42 were excluded due to inadequate data)	Retrospective LOE:2	Mortality	Patients intubated by EMS had increased mortality when compared with non-intubated patients	Prehospital protocols were not standardized and varying levels of injury severity
	Wang (2004)	4098 pt's met criteria (Head Neck AIS score >=3 and undergoing OOH ETI or ED ETI)	Retrospective LOE:2	Primary: Mortality Secondary: Neurologic and Function Outcome	Odds of Death were higher for OOH intubation than for ED intubation. OOH ETI was associated with poor neuro outcome and moderate to	Functional Injury Score was not validated by outside source (Was created as a measurement by authors of study) & If the time of ETI was not known pt was still included and assumed to have
	Winchell (1997)	1092 pt's met initial criteria, of these 671 had severe head injury (Head/Neck AIS Score >=4) and 351 had isolated severe head injury (Head/Neck AIS score >=4 w/o any other AIS score component >3) with notable blunt trauma injury and a scene GCS <8.	Retrospective LOE:2	Mortality and Functional Status sufficient for discharge to home.	Increased survival in intubated group and discharge to home showed no difference between groups.	Data was collected and reviewed by different personnel at each hospital.

Comments: The results of the studies noted show an increase in mortality associated with OOH ETI. Many of these pts may have been critically injured from the outset and therefore death was only a matter of time despite any interventions performed.

Clinical Bottom Line: These results were significant enough to warrant further investigation. Perhaps trauma airway management protocols should be conservative.

References
 Winchell, Robert I, Hoyt, David B (1997). Endotracheal Intubation in the Field improves Survival in Patients with Severe Head Injury Arch Surg. 1997; 132(6):692-7
 Wang, Henry E, Peltzman, Andrew B. et al (2004). Out-of-Hospital Endotracheal Intubation And Outcome After Traumatic Brain Injury Ann Emerg Med.2004;44(5):439-50
 Stockinger, Zolt T., McSwain Jr., Norman E. Prehospital Endotracheal Intubation for Trauma Does Not Improve Survival over Bag-Valve-Mask Ventilation J Trauma.2004;56(3):531-6
 Murray, James A, Demetriades, Demetrios et al.(1999). Prehospital Intubation in Patients with Severe Head Injury J Trauma.2000;49(6):1065-70