Pretreatment for Intubation of Head Trauma Victims: Lidocaine vs. Esmolol

Laryngoscopy and intubation cause hemodynamic responses that are potentially detrimental in head trauma victims. Traditionally, these hemodynamic effects have been minimized by pretreatment with lidocaine during rapid sequence intubation. The authors of this study compared lidocaine with esmolol for attenuating the hemodynamic response in head trauma victims being intubated in the ED.

In a prospective, randomized, double-blind study, 30 patients with isolated head trauma were pretreated with 2 mg/kg of either lidocaine (14 patients) or esmolol (16 patients) 3 minutes before intubation. The mean pre-intubation Glasgow Coma Scale score was 7.9+/4.0. CT findings included 9 subdural/epidural hematomas, 6 cortex hemorrhages, and 2 multihemorrhages; 11 patients had neurosurgical intervention (craniotomy in 9 and a ventricular catheter in 2). There were no significant differences between the 2 groups in mean heart rate or systolic or diastolic blood pressure during a 2-minute or an 8-minute time interval around intubation. Importantly, all patients had clinically insignificant changes in heart rate and blood pressure.

Comment: Previous studies of lidocaine's role in mitigating hemodynamic responses to intubation have produced conflicting results; esmolol has a much more consistent track record. For intubation, a synthetic opioid (fentanyl) or a beta-blocker (esmolol) is recommended for hemodynamic mitigation, and lidocaine is recommended to blunt the direct intracranial pressure response to laryngoscopy that is independent of blood pressure. This small study evaluated lidocaine for a purpose (suppression of hemodynamic response) for which it is not used, so this does not add to our knowledge in this area.

— DM Birnbaumer, MD

Published in Journal Watch Emergency Medicine March 21, 2001

CITATION(S):

Levitt MA and Dresden GM. The efficacy of esmolol versus lidocaine to attenuate the hemodynamic response to intubation in isolated head trauma patients. Acad Emerg Med 2001 Jan 8 19-24.