

[A-11] Evaluation of Pediatric Emergency Tracheal Intubation by Anesthesiologists in non-operating room settings

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Introduction: Pediatric emergency tracheal intubation in non-operating room (non-OR) settings may carry a higher risk of morbidity and mortality in children. These intubations are performed under great uncertainty given a lack of familiarity with the child's history, airway evaluation, and the uncontrolled emergent settings compared to the OR. A higher incidence of difficult intubation and complications has been associated with non-OR emergency tracheal intubation in adults.¹⁻³ However, pediatric studies are limited to those where pediatric intensivists managed the airway.⁴⁻⁵ This retrospective study explored the frequency, process of care, and outcomes of pediatric emergency tracheal intubation by anesthesiologists in non-OR settings.

Methods: All non-OR emergency intubations performed by anesthesiologists in children <18 years in a children's hospital from May, 2004- July, 2012 were reviewed. The indication, hospital location, medications given, direct laryngoscopy view, number of attempts, and adjuvant airway use were recorded. Demographics, comorbidities, preexisting airway abnormality, intubation adverse events (IAE), and outcomes were documented. Data are presented as n (%), odds ratios [95% confidence intervals], p values.

Results:

172 intubations in 150 children were analyzed. 66.7% intubations occurred in an intensive care setting, 25.7% in general care and 7.6% in other locations. A pediatric anesthesiologist was present in 78% of intubations while 22% were staffed by other anesthesiologists. Respiratory distress/arrest (100, 71%) and cardiopulmonary arrest (24, 17%) were the major indications. A sedative/induction agent was administered prior to intubation in 69.2% cases and a neuromuscular blocker in 53.5%. 152 (88.4%) intubations were successful in 1-2 attempts, and 20 (11.6%) were difficult (i.e. ≥ 3 attempts). Intubation attempts had been made prior to anesthesia team arrival in 38 cases (22%), and ≥ 3 prior attempts occurred in 12. Adjuvant equipment (i.e. bougie, LMA or video scopes) was used in 16 cases including 8 for difficult intubation, and tracheostomy was required in 4. Difficult intubation was associated with airway abnormality (OR 5.29 [1.90, 14.79], 0.012), craniofacial abnormality (6.53 [2.35, 18.16], 0.001), but not child age (OR 2.4 [0.87, 6.56], 0.098), IAEs and death. IAE occurred in 34 intubations including 22 main stem intubations and 10 regurgitation or aspiration. Aspiration pneumonia occurred in 8 children and death in 31.

Conclusions: Pediatric emergency endotracheal intubation by anesthesiologists in non-OR settings was associated with a significant rate of difficult intubations and IAEs. However, difficulty was associated with known risk factors, reinforcing the importance that these aspects be communicated to optimize emergent intubation scenarios.

Keywords:

anesthesiologist, children, emergency tracheal intubation, non-operating room settings, adverse events, complications

References:

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