Impact of Airway Proximity in Procedures on Serious Adverse Event (SAE) Rate in Pediatric Sedation

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Introduction: Risk identification is a key component of avoiding AE during pediatric sedation. The association of procedure type with the incidence of SAE is unknown. We hypothesized that procedures with greater airway proximity are associated with increased occurrence of SAE.

Methods: Retrospective analysis of 133,223 cases from Pediatric Sedation Research Consortium database from 11/2011-5/2015. Primary outcome was incidence of SAE, defined as laryngospasm, apnea, airway obstruction, aspiration, desaturation, emergent consult, emergent airway, seizure, increased level of care, aborted procedure, cardiac arrest, and death. Independent variables included age, procedure location, provider, indication, co-existing medical conditions and sedative agent. Use of propofol, ketamine, benzodiazepines and opioids, alone or in combination, was recorded. Patients were divided into two procedural groups. Group 1 included procedures with close proximity to the airway (EGD, TEE, dental, and bronchoscopy). Group 2 included all other procedures. Provider types of intensivist and anesthesiologist were compared with all others. Location was divided such that Group 1 included a sedation unit and Group 2 was all other locations. Multivariable logistic regression analysis was used.

Results: SAE observed in 4.18% procedures (4.48% Gp1, 4.15% Gp 2, p=0.08). There was no difference in SAE based on procedure type (OR 0.963, CI 0.870-1.066). Patients with respiratory diagnosis as primary indication for the procedure (OR 2.052, CI 1.675-2.515) or as a coexisting respiratory problem (OR 2.161, CI 2.032-2.298) were more likely to experience SAE. Provider type of intensivist or anesthesiologist was associated with fewer SAE (OR 0.821, CI 0.774-0.871). There was no difference in SAE by location (OR 0.970, CI 0.913-1.030). Propofol (OR 3.719, CI 3.235-4.275), ketamine (OR 1.880, CI 1.667-2.120), or opioid (OR 1.100, CI 1.023-1.182) use was associated with SAE.

Conclusions: Procedure type with greater airway proximity is not independently associated with increased risk of SAE in children receiving procedural sedation.