

Procedural Sedation for Imaging of Cervical Spine Immobilized Trauma Patients at Pediatric Trauma Center

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Background: Pediatric trauma patients with cervical spine (CS) immobilization using a cervical collar often require procedural sedation (PS) for radiologic imaging. The limited ability to perform airway maneuvers while immobilized is a concern for providers of PS in the emergency department (ED).

Objective: To describe the use of procedural sedation (PS) for radiologic imaging in pediatric trauma patients who are cervical spine (CS) immobilized.

Methods: Retrospective chart review of all trauma patients (age <21 years) with CS immobilization was performed from 01/2015-01/2017. Patient demographics, imaging modality, PS success, sedation medications, and serious adverse events (SAE) were collected and analyzed. Potential SAEs included cardiac arrest, airway obstruction including laryngospasm, aspiration, unplanned hospital admission, and need for emergency anesthesia consultation. Patients intubated prior to arrival to the ED were excluded.

Results: A total of 1417 patients with 1898 imaging encounters met our inclusion criteria. The median age was 101 months and 40.7% were male. Computed tomography (CT) of the head was the most common imaging type (974/1898) followed by CT of the abdomen (262/1898). 956/1898 (49%) required PS; 875/956 (91.5%) required a single sedation agent whereas 81/956 (8.4%) required more than one sedation medication. Fentanyl, 447/875 (51.1%) followed by Morphine, 348/875 (39.8%) were the most commonly used sedation agents. Midazolam and Fentanyl were the most common combination medications utilized (17/81). No patient received ketamine and only 7/956 (0.7%) received dexmedetomidine. Airway obstruction 5/956 (0.3%) was the most common SAE and only 4/956 (0.2%) required the insertion of an oral airway or nasal trumpet.

Conclusion: At a pediatric trauma center, only 50% of CS immobilized non-intubated patients required PS for their radiological imaging. Most patients who required PS did so with a single medication. There was a very low incidence of SAEs or the need for airway interventions.