Adenotonsillectomy in Children Less Than 3 Years of Age: An Insurance Claims Database Analysis from 2008 to 2014

Nicholas M Dalesio MD1,2, Helen H. Lee MD MPH1, Wil Van Cleve MD MPH1
1Department of Anesthesiology, Division of Pediatric Anesthesia and Critical Care Medicine, Johns Hopkins School of Medicine, Baltimore MD
2Department of Otolaryngology-Head and Neck Surgery, Johns Hopkins School of Medicine, Baltimore MD
3Department of Anesthesiology, University of Illinois at Chicago, Chicago IL
4Surgical Outcomes Research Center (SORCE), Department of Anesthesiology and Pain Medicine, University of Washington, Seattle WA

INTRODUCTION

Tonsillectomy (T&A) is one of the most common surgical procedures in children, with approximately 357,000 procedures being performed in the United States every year (CULLEN). It is the primary treatment in the pediatric population for sleep-disordered breathing (SDB), defined by a collection of symptoms including snoring, abnormal breathing during sleep, and obstructive sleep apnea syndrome (OSA). If left untreated, OSA can lead to significant morbidity, including pulmonary hypertension, neurocognitive, and behavioral defects that can affect school performance. Younger age has repeatedly been shown to be a risk factor for post-operative complications, leading several authors and national societies to recommend in-patient admission for children < 3 years of age after T&A. In addition to age, several co-morbidities including asthma, obesity, neuromuscular conditions such as cerebral palsy, as well as OSA, increase the risk of having post-operative complications after T&A.

METHODS

• Utilized the Truven Health Analytics MarketScan® Commercial Claims and Encounters (CCAE) Database, representing ~50 million commercially insured Americans (adults and their dependents), from 2008 to 2014.
• Include patients aged < 3 years undergoing T&A.
• Exclude weekend procedures, patient evaluated in an emergency department (ED) or admitted to hospital within 24 hours prior to surgery.
• Demographics (age, sex), disposition planning, and patient comorbidities (asthma, complex chronic conditions (CCC)) were collected and analyzed.
• Post-operative complications (hemorrhage, dehiscence, pain, fever, nausea, respiratory problems within 14 days) after initial discharge were measured.
• Peri-operative drug prescriptions were examined, specifically those for narcotics in the past, however, pain control remains a focus for re-admission for this complication.
• Children less than 1 year of age were not at increased risk for any post-operative complications compared to 2-3 year olds (Table 2).

RESULTS

• 25,448 patients identified (12.2 ± 3 years of age)
• 72.8% of cases were performed outpatient surgery (Table 1a)
• 9.1% of children presented with pre-operative PSG testing.

Objectives:

- Characterize common peri-operative practices associated with T&A in privately insured children less than 3 years of age.
- Evaluate risk factors for post-operative complications in this population.
- Perform a sub-analysis of the age group of children under 1 year of age.

DISCUSSION

• Peri-operative admission guidelines for children < 3yo undergoing T&A are routinely not being followed. Clinicians may be observing these patients in recovery and making patient-specific decisions whether to discharge or keep in-hospital.
• Asthma, OSA, CCC, or SDB are complications associated with increased risk for post-operative respiratory complications. Keeping these patients may likely mitigate re-admission for this complication.
• Asthma was a risk factor for every complication, suggesting control of the disease as well as chronic and peri-operative medication management should be evaluated as risk factors.
• Pain prescriptions during this period decreased significantly, whereas re-evaluation for pain have only mildly increased. This may indicate an over-prescription of narcotics in the past, however, pain control remains a focus for children undergoing T&A and further investigation for effective and safe analgesic therapies is necessary for this patient population.

Limitations:

- Retrospective study.
- Data only from privately insured children.
- In-hospital management unknown.
- Surgeon/anesthesiologist specialty training in pediatrics unknown.

REFERENCES


FIGURES

Figure 1a

Figure 1b

Figure 2a

Figure 2b