CHOC Children's
Nursing Research

CHOC Children's Hospital
Best Evidence and Recommendations

Tonsillectomy & Adenoidectomy Care Guidelines

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PICO: What are best practices in post-operative care of pediatric tonsillectomy & adenoidectomy patients to improve outcomes, improve pain management, decrease length of stay (LOS), and prevent readmission?

P (Population/problem): In post-operative pediatric tonsillectomy & adenoidectomy patients
I (Intervention/issue): what are best practices
C (Comparison): compared to current practice
O (Outcome): to improve outcomes, improve pain management, decrease LOS, and prevent readmission?

Background:
Tonsillectomy is one of the most common surgeries in the United States and involves the surgical removal of the tonsils often done when a child has frequent or recurrent tonsillitis that is unresponsive to treatment. An adenoidectomy is a surgery to remove the adenoids when a child has had breathing problems or ear and sinus problems that won't go away with antibiotics. A tonsillectomy and adenoidectomy (T&A) is done to remove both the tonsils and the adenoids when a child has both breathing and swallowing problems (Baugh et al., 2011). Tonsillectomies rank as the 2nd most frequent surgery in children and are one of the most costly conditions. While eighty percent of tonsillectomies are performed as a same day surgery, patients under age 3 or greater than age 3 with comorbidities should be admitted to the hospital for overnight observation (Baugh et al., 2011). Comorbidities include patients with downs syndrome, craniofacial anomalies, neuromuscular disease, chronic lung disease, metabolic disease, and obesity.

Postoperative T&A complications include nausea, vomiting, pain, dehydration, referred otalgia, post-obstructive pulmonary edema, velopharyngeal insufficiency, and nasopharyngeal stenosis. However, pain management is one of the more significant issues observed. Complications are also more common in patients with craniofacial disorders such as Down syndrome, cerebral palsy, major heart disease, or bleeding diatheses and in children younger than 3 years with polysomnography (PSG)–proven OSA (Baugh et al., 2011).

After tonsillectomy, about 1.3% of patients experience delayed discharge during the initial hospital stay, and up to 3.9% have secondary complications requiring readmission. The primary reasons for readmission or prolonged initial stay included pain, vomiting, fever, and tonsillar hemorrhage. In addition to these common causes of morbidity, many unusual and rare complications of tonsillectomy have also been described. Among these are reports of vascular injury, subcutaneous emphysema, jugular vein thrombosis, atlantoaxial subluxation (Grisel syndrome), taste disorders (hypogeusia, ageusia, dysgeusia, and phantogeusia), and persistent neck pain (Eagle syndrome) (Baugh et al., 2011).

In 2011, Baugh et al., published a clinical practice guideline for tonsillectomy (with or without adenoidectomy) in children in the Journal of the American Academy of Otolaryngology.

Recommendations from this guideline include criteria for identifying candidates for tonsillectomy and peri-operative care. Highlights include a strong recommendation for a single dose of intravenous dexamethasone intra-operatively to decrease post-operative nausea and vomiting and throat pain, and a strong recommendation against administering antibiotics peri-operatively. The guideline also recommends that clinicians advocate and educate the family on pain management with over-the-counter pain medications and hydration for post-operative pain control.

Clinicians have tracked adherence on the recommendations in the guideline involving administration of dexamethasone and avoiding the routine administration of antibiotics and comparing its usage before and after publication. These findings show that prior to the guideline being published, 98.4% of children received dexamethasone, compared to 98.9% after publication. Also, 36% of surgeons routinely administered antibiotics prior to publication. Afterward, 26% of surgeons administered antibiotics at least 50% of the time (Elluru, 2017).

CHOC Children's cared for a total of 582 tonsillectomy patients in 2016. Evaluation and benchmarking of our organizational data related to T&A treatment and outcomes revealed an opportunity to standardize and improve post-operative management of this patient population, aligning it to the best practice recommendations reported in the literature. The purpose of this evidence-based practice project was to conduct a comprehensive literature review to identify best practices for post-operative T&A management and identify opportunities for improvement.

Search Strategies and Databases Reviewed:

- Databases searched for this review included: CINHAL, PubMed, Wiley and Google Scholar. Key search terms included: tonsillectomy, pediatric postoperative pain, care guideline, tonsillectomy diet, pain control after tonsillectomy, post-op* and hydration, oral fluid intake pediatrics, hydration tonsillectomy, best practice tonsillectomy. A total of 7 articles from 2011 – 2016 were reviewed and included: a comprehensive clinical guideline, systematic reviews, retrospective case studies, and chart reviews.

Synthesis of the Evidence:

- Published practice guideline includes identifying appropriate candidates for tonsillectomy (with or without adenoidectomy based on sleep-disordered breathing), suggests that IV dexamethasone should be used intra-operatively, making strong recommendations against using routine antibiotic administration, advocating and educating patients and families on pain management, and tracking post-tonsillectomy hemorrhage (Baugh et al., 2011).
- Antibiotic administration could increase the incidence of bacterial resistance, and also cause adverse effects such as a rash or upset stomach. Therefore, the risks outweigh the benefits of routine antibiotics for tonsillectomies.
- Pain, vomiting, fever, nausea, vomiting and dehydration are the most common post-operative complications and reasons for readmissions as well as delayed discharges. Administering a dose of IV dexamethasone intra-operatively could reduce the incidence of post-operative nausea and vomiting, as well as decrease post-operative pain and resume oral intake sooner (Baugh et al., 2011).
- Limited evidence is available regarding post-operative IV fluids as well as diet recommendation. One study showed all patients received IV fluids until discharge, but did not examine minimum amount of oral intake (Rohfling et al., 2016).
- Limited to no evidence regarding post-operative diet, and if a soft diet versus a regular diet is best.

- A common theme among all articles reviewed was patient and family education regarding home pain control. Throat pain is greatest the first few days following surgery, and may last up to 2 weeks; pain is also worse in the morning.
- Providers should discuss pain control with families starting pre-operatively and until discharge home.
- Studies indicate that adequate fluid intake can assist with decreasing pain and avoid dehydration. Families should encourage oral intake to assist with pain control and prevent dehydration.
- When the child is inpatient, it is up to the clinician to determine if the child is adequately hydrated. Dehydration is one of the most common causes of readmission post-operatively. Therefore, the clinician should also provide the family with appropriate education in order to continue adequate fluid intake once discharged home (Rohlfing et al., 2016).
- Yellon et al. (2014) suggests scheduled acetaminophen rather than administering acetaminophen on an as-needed basis for home pain management. Their study also revealed ibuprofen is safe to use as second-line or in conjunction with acetaminophen. However, the article also states that while this finding is statistically significant, there is limited suggesting evidence about the safety of ibuprofen. However, other studies have found ibuprofen safe for use and that it does not increase the risk for hemorrhage (Baugh et al., 2011).
- Due to conflicting findings, it is recommended that providers educate families on the side effects of the medication and instruct families to give the lowest dose within the therapeutic range to decrease the risk of overmedicating at home.
- Mahant et al. (2015) conducted a retrospective study comparing practices before and after the tonsillectomy clinical practice guideline was published, and saw that while the readmission rates for bleeding were about the same, there was a significant increase in readmissions due to pain.
- Nurses play a significant role inpatient and family education.
- With the proper education, patients and families can have better pain control management at home (Howard et al., 2013). Therefore, nurses should partner with the physicians in providing consistent education to the family regarding home pharmacological and non-pharmacological pain management.
- With adequate pain management and hydration inpatient, the length of stay could be decreased. Also, with continued education, fewer readmissions could be prevented.
- Overall, outcomes can be improved by implementing a care guideline that defines consistent pain management interventions and by providing consistent education to the patient and family at every opportunity prior to discharge.

The national T&A guideline is currently under review and is expected to be published in spring, 2018.

Practice Recommendations:
After thorough review of the literature, it was determined that our organization's current practice for post-operative T&A management is consistent with the best practice recommendations described in the literature. However, we identified an opportunity to develop a formal care guideline and order set for T&A patients. Based on the evidence, this standardization could potentially decrease length of stay and ensure consistent nursing education and discharge instructions. Through the implementation of a care guideline and order set for CHOC's T&A patients, we hope to improve outcomes as evidenced by improved pain management, decreased length of stay, and decreased incidences of readmissions.

- Collaborate with ENT surgeons and key stakeholders to create an evidence-based care guideline for T&A hospitalized patients.
- Work with information services department to develop order sets consistent with the guidelines.

- Educate physicians, residents and nursing on the care guideline and order set. This will ensure patients and families receive consistent care and education for home management.
- Collaborate with multidisciplinary team to monitor and evaluate effectiveness of practice and make changes as new evidence comes available.
- Make ongoing changes to the organizational care guidelines and order sets to ensure consistency with latest evidence and current national guidelines.

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