Pediatric Panel
Tonsillectomy and OSA
Guidelines

Ben Cable, MD, Anna Meyer, MD, Kristina Rosbe, MD
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No disclosures
2011

- **Tonsillectomy Guidelines (CPG-T):**

- **Polysomnography Guidelines (CPG-PSG):**

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**Effect of Guidelines**

- **UK guidelines, 1999**
  - 0.2% of children fulfill criteria for recurrent tonsillitis in 2008 study

- **Italian T&A guidelines, 2003, 2008:**
  - Evaluation of effect 2013
  - No change in frequency or indication for T&A
    - Except for acute recurrent tonsillitis
  - Complaints about guidelines
    - did account for overall presentation of patients
    - Did not rely on EBM

Motta, et al., 2013; Elizabeth, et al., 2013
Effects of Guidelines

- Laryngoscope 2013:
  - ASPO survey: pediatric otolaryngologist non-compliant.
- Disagreement between guidelines nearly 20% (Aarts, et al., 2012)

CPG-T Statement 1: Watchful Waiting for Recurrent Throat Infection

- Paradise criteria (NEJM, 1984)
- Fewer than
  - 7 episodes in the past year
  - 5 episodes per year in the past 2 years
  - 3 episodes per year in the past 3 years
  - Document, document, document!
Patient Perspective

“Helen's mother, Maryann Nash, would like her daughter's tonsils removed, but the latest medical recommendations suggest relying on medicine instead. "She has had strep throat twice. She's had tonsillitis already and now she is just worn down," Nash said. "Some things are still a personal choice and I think some people will still follow their gut and I think some doctors might not follow all the guidelines and I think that should be accepted too."” Channel 9 News

Is this really a battle?

Patient vs. Physician Vs. Guidelines???
CPG-T Statement 2: Recurrent Throat Infection with Documentation

- Clinicians may recommend tonsillectomy for recurrent throat infection with the recommended frequency WITH DOCUMENTATION of one or more of the following:
  - Temperature >38.3
  - Cervical lymphadenopathy (tender or >2cm)
  - Tonsillar exudate
  - Positive GABHS

-OR-

- Not fully documented and observe for frequency and features of next two episodes.

Why document?

- Less severe do not gain benefit > risks
- Children who meet the strictest criteria
  - modest benefit
  - may fade by 3 years post-op
- Shared decision-making with family
CPG-T Statement 3: Tonsillectomy for recurrent infection with modifying factors

- Clinicians should assess for modifying factors in those who do not meet criteria in Statement 2
  - Multiple antibiotic allergy/intolerance
  - Recurrent severe infections requiring hospitalization
  - PFAPA (periodic fever, aphthous stomatitis, pharyngitis, adenitis)
  - History of PTA
  - Lemierre’s
  - FH of rheumatic heart disease
  - Numerous repeat infections in a household
  - PANDAS?

Others: school absences affecting performance, very severe sore throats

Poorly validated:
- chronic tonsillitis, febrile seizures, hot potato voice, tooth malocclusion, cryptic tonsils, chronic pharyngeal carriage of GABHS
More Media!

- “There is some wiggle-room for doctors within the recommendations. For example, if a child snores and if the tonsils prevent proper breathing, they can still be considered a good candidate for surgery.” – Channel 9 News

- “Kids usually get sent for tonsillectomy after a bunch of bad, sore throats.” - NPR

CPG-T Statement 4: Tonsillectomy for SDB

- Clinicians should ask caregivers of children with SDB and tonsil hypertrophy about comorbid conditions that might improve after surgery
  - Growth retardation
  - Poor school performance
  - Enuresis
  - Behavioral problems
CPG-T Statement 5: Tonsillectomy and Polysomnography

- Clinicians should counsel caregivers about tonsillectomy as a means to improve health in children with abnormal PSG who have tonsillar hypertrophy and SDB

Weight and SDB

- Autism?!?

- Growth failure in untreated SDB (Bonuck, et al. 2009)

  vs.

- Adenotonsillectomy as risk factor for childhood obesity (Jeyakumar, 2011)
CPG-PSG Statement 1:
PSG in high-risk children

- Refer patients for pre-op PSG if:
  - Obesity
  - Down Syndrome
  - Craniofacial abnormalities
  - Neuromuscular disorders
  - Sickle cell disease*
  - Mucopolysaccharidoses

Role of PSG in High-Risk

- Avoid unnecessary procedures
- Diagnostic certainty in high anesthesia risk
- Define severity of SDB for preoperative planning
- Postoperative management
- Provides baseline for postop comparison
CPG-PSG Statement 2: PSG for Uncertain Presentations

- Children *without* comorbidities
  - Need for surgery uncertain
  - Discordance between tonsillar size and reported symptom severity
  - Age less than 2 yrs?
- Children with large tonsils/nasal obstruction and concordant symptoms can proceed without PSG

Parent Awareness

- Sleep habits and quality
  - Length of sleep
  - How they wake in the am
  - Car/TV/reading/naps
  - Enuresis/tantrums
  - Instruction on listening to sleep

- Behavior
  - Unaware
  - Accustomed
  - Denial

- OSA-18
CPG-PSG Statement 4: Communication

- Communicate PSG results to anesthesiologists prior to induction.
Anesthesia Risks

- Difficult airway
- Abnormal central respiratory drive
- Abnormal cardiopulmonary physiology
- Increased sensitivity to Rx
  - Opioids
  - Nitrous oxide
- Post-operative monitoring for ventilation/oxygenation

CPG-PSG Statement 4: Admission recommendations

- Under 3 years old
- AHI > 10 or 02 sat < 80%
- Continuous pulse oximetry
- Availability of ICU
  - Very severe OSA
  - Comorbidities
  - Significant post-op obstruction and desaturation
CPG-PSG Statement 5: Laboratory-based PSG

- PSG gold standard
- Portable monitoring devices
  - Limited studies in adults
  - Very little in children
  - None assess children with comorbidities
- Additional research needed

CPG-T: Statement 6: Outcome Assessment for SDB

- Counsel that SDB may persist or recur after surgery
Statement 7: Intraoperative Steroids

- Administer a single dose
- For post-op nausea and vomiting
- Throat pain

Statement 8: Perioperative Antibiotics

- Should not routinely administer perioperative antibiotics
Statement 9: Postoperative pain control

- Advocate for pain management after tonsillectomy
- Educate caregivers about the importance of managing and reassessing pain

Pain Control

- Local anesthetic does not improve pain
- Acetominophen with codeine no better than acetominophen alone
  - Significant % codeine hypo- and hypermetabolizers
  - FDA strong recommendation against codeine for T&A, 2012
- NSAIDS: Cochrane review: 1000 children
  - Not significantly increase post-op bleeding
Statement 10: Post-tonsillectomy hemorrhage

- Clinicians should determine their rate of primary and secondary post-tonsillectomy bleeding.

Summary

- New guidelines for SDB emphasis the complexity of diagnosis of SDB and the role of a multitude of comorbid conditions.
- Tonsillectomy is most commonly performed for SDB.
- Tonsillectomy is a major surgery for which careful perioperative management should be organized.
References


Thank You!
Objectives

- Summarize new guidelines for evaluation of SDB in children.
- Summarize new guidelines for pediatric tonsillectomy.
- Identify the evidence that supports these guidelines.
- Acknowledge that guidelines work together with physician assessment of individual patients.

How many tonsillectomies per year in US in children?

- 530,000 in children under 15
- 16% of all ambulatory surgery
- Only procedure with greater frequency:
  - Myringotomies and tubes (667,000)
- 1915-1960s: tonsillectomy #1 surgery in US
- 1977-1989: decrease by 50%
- Indication shift: from throat infection to SDB
- SDB is now the primary indication for surgery
Complications of T&A

- **Intra-op**
  - Trauma to teeth, larynx, pharyngeal wall, soft palate
  - Difficult intubation
  - Laryngospasm
  - Laryngeal edema
  - Aspiration
  - Respiratory compromise
  - ETT ignition
  - Cardiac arrest
  - Lip burn
  - Eye injury
  - Fracture of mandibular condyle

- **Post-op**
  - Bleeding
  - Nausea/vomiting/dehydration
  - Post-op pulmonary edema
  - Velopharyngeal insufficiency
  - Nasopharyngeal stenosis
  - Atlantoaxial subluxation
  - Osteomyelitis
  - Taste disorders
  - Persistent neck pain (Eagle syndrome)
  - Jugular vein thrombosis
  - Vascular injury
  - Mortality: 1/16,000-1/35,000 (1970s)

SDB effect

- IQ point loss ≥ 5 points (Lead < 4 points)
- Treatment effects:
  - Behavior
  - Attention
  - QOL
  - Neurocognitive function
  - Enuresis
  - Parasomnias
  - Restless sleep
Failure of tonsillectomy

- SDB often is multifactorial
- Obesity
- Craniofacial syndrome
- Effective in 60-70% of children with significant tonsillar hypertrophy
- Only effective in 10 – 25% of obese children