Current Guidelines for Tubes and Tonsils

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Objectives

- Summarize up-to-date guidelines for tonsillectomy and ventilating tubes in children.
- 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
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Media Frenzy

- “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.” *ABC News, Jan 11, 2011*

Is this really a battle?

- Patient vs. Physician Vs. Guidelines???

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
**Why wait?**

- Tendency to improve over time
- Limited benefit in less severely affected
- Surgical risks

**Complications of T&A**

- **Intra-op**
  - Trauma to teeth, larynx, pharyngeal wall, soft palate
  - Difficult intubation
  - Laryngospasm
  - Laryngeal edema
  - Aspiration
  - Respiratory compromise
  - PTIF 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)

**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

**Documentation**
Other Documentation

- If not fully documented:
  - observe for frequency and features of next two episodes.

Why document?

- Less severe do not gain sufficient benefit from tonsillectomy to justify the risk of the procedure.
- Even children who meet the strictest Paradise criteria have a modest benefit which may fade by 3 years post-op.
- Shared decision-making with family

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 disease
  - FH of rheumatic heart disease
  - Numerous repeat infections in a household
  - Others: school absences affecting performance, very severe sore throats

Not indications

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

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

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

PSG Guidelines

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

- Children without comorbidities
  - Need for surgery uncertain
  - Discordance between tonsillar size and reported symptom severity
PSG Guidelines

- Communicate PSG results to anesthesiologists prior to induction.
- Admit overnight if AHI > 10 or O2 sat < 80%.
- Children should have lab-based PSG.

PSG decision to operate

- No clear consensus
  - >1 AHI and O2 less than 92% considered abnormal
  - Tonsillectomy in >5 AHI
  - Some children with normal or mild AHI are still symptomatic
  - Look at the whole picture!

Statement 6: Outcome Assessment for SDB

- Counsel that SDB may persist or recur after surgery

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
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
- Counsel families extensively
  - High incidence of non-compliant caregivers
- Local anesthetic does not improve pain
- Acetaminophen with codeine no better than acetaminophen alone
- NSAIDS: Cochrane review: 1000 children
  - Not significantly increase post-op bleeding
Statement 10: Posttonsillectomy hemorrhage
- Clinicians should determine their rate of primary and secondary post-tonsillectomy bleeding.

Tubes
- Most common surgery done in the US in children
- 667,000 annually
- 7% of US children have ventilation tubes (VTs) by age 3.
- Up to 30% in one study of children in daycare

Indications for Tubes
- Metanalysis of VTs vs. no surgery in patients with AOM or OME
  - Mean absolute decrease in AOM incidence of 1 episode per child-year
  - In AOM only: mean episode decrease was 1.75 per child-year.
- QOL of families not well studied
  - Rosenfeld, 2000: 80% improvement in kids QOL
- Parent education of reduction of risk factors is key: daycare, smoke, breastfeeding, pacifiers, vaccination

AOM Indications
- Individual approach
- At minimum:
  - 3 or more discreet episodes in 6 months
  - 4 or more in 12 months
  - Breakthrough on chemoprophylaxis
OME Indications

- Children with VTs spent 32% less time with MEE during first year
- Hearing levels were improved in children with VTs at 6 and 12 months post-op.
  - Improvements diminish over time.
  - Cochrane metanalysis:
    - Otherwise healthy children with OME and hearing loss
    - Early insertion of VTs had no effect on language development/cognition
  - One RCT: Children with OME >9 months, hearing loss, and speech/learning issues
    - Marginal effect of VTs on language

When to do VTs

  - Document laterality, duration, presence and severity of associated symptoms
  - Distinguish at risk child for speech, language, learning problems
    - More prompt evaluation and treatment
  - Not at risk: 3 month rule
    - 6 months if unilateral
  - Hearing testing after 3 months or when delays or suspected significant hearing loss

When to do VTs

- Additional considerations
  - Recurrent OME with prolonged cumulative duration (6 of last 12 months)
  - Watchful waiting in children without hearing loss or speech/learning issues
    - Reexamine every 3 to 6 months until effusion no longer present or meets other criteria.
    - Paradise, et al., 2007: suggest watchful waiting up to 6 to 12 months in children not at risk is acceptable.
  - Adenoidectomy only if clear other indication or second set of tubes.

Post-surgery Early Referral

- Educate PCP to send patient to OHNS if:
  - Chronic, recurrent, bloody or unresponsive otorrhea
    - Otorrhea should initially be treated with drops only
  - Persistent ear pain
  - Deterioration in hearing
  - Balance issues
  - Structural problem with TM (cholesteatoma, retraction)
  - Tympanostomy tube obstruction and symptoms of OME/AOM
  - VT in the middle ear space
  - Retained tube?
**Risks of VTs**

- Tympanosclerosis: 32%
- Otorrhea: 26%
- Focal atrophy: 25%
- Perforation: 2.2%; 16.6%
- Occlusion: 7%
- Premature extrusion: 4%
- Retraction pocket/cholesteatoma: 0.8 to 3%
- Medial Displacement: 0.5%
- Hearing loss: ?

**Summary**

- **Guidelines**
  - Help make evidence-based decisions about care.
  - Protect patients.
  - Identify gaps for further research.
  - Still allow for individual evaluation disease and management.

**References**