# Alternative Management of Non-Severe Pediatric Obstructive Sleep Apnea to Improve Quality of Life and Decrease Symptoms

**Olivia Ho, PA-S**
**Stony Brook University Physician Assistant Program**

Stony Brook School *of* Health Technology and Management

## BACKGROUND

- **Obstructive sleep apnea (OSA)** or obstructive sleep apnea syndrome (OSAS) is a common and potentially serious condition where breathing stops multiple times per hour.
- Occurs in all ages, but it affects **~3% of all children**.[1]
- If left untreated, it can lead to **poor growth, cognitive, and behavioral development**.[2]
- **Surgery** is the first line treatment for severe OSA with or without comorbidities, however there is not enough support on whether it is necessary to manage non-severe pediatric OSA to improve quality of life and decrease symptoms.
- It has been thought that as children develop, their bodies naturally adjust to accommodate enlarged tonsils.

## CURRENT TREATMENT MODALITIES

### Tonsillectomy with or without adenoidectomy

- First line treatment for pediatric OSA

### Leukotriene inhibitors

- Have severe side effects and need to be monitored closely
  - i.e. depression, behavioral changes, influenza-like symptoms
- Effectiveness has not been studied for children under 12 years old

### Inhaled corticosteroids

- Have side effects associated with long term use
  - i.e. increase risk for pneumonia, impair growth in children, weight gain, oral thrush

### Orthodontic approaches

- Such as maxillary expansion, and positive airway pressure can be expensive and have poor compliance

## METHOD

- **Resources searched**: PubMed with MeSH terms, Google Scholar
- **Key words**: "tonsillectomy," "adenoidectomy," "child," "sleep apnea, obstructive," and "sleep apnea syndromes"
- **Inclusion criteria**: randomized controlled trials, comparative studies, observational studies, and systematic reviews published within the last 10 years
- **Exclusion criteria**: meta-analysis, participants with chromosomal abnormalities, previous adenotonsillar surgeries

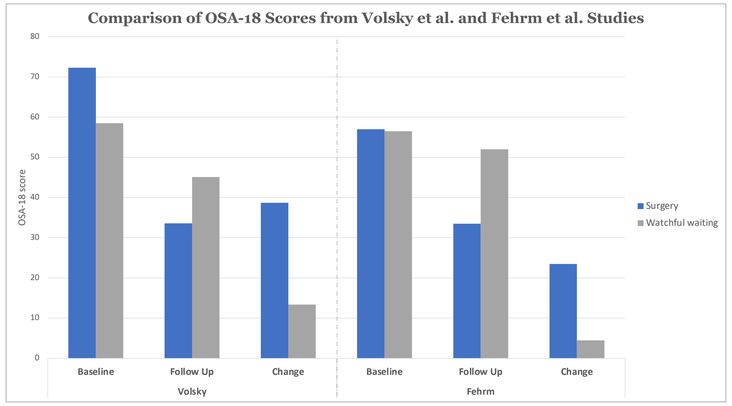
## PICO QUESTION

Is adenotonsillectomy necessary to alleviate obstructive sleep apnea symptoms and improve quality of life for children 2 to 18 years of age with non-severe obstructive sleep apnea?

- **P**: children 2-18 years of age with non-severe obstructive sleep apnea
- **I**: surgical intervention (adenotonsillectomy)
- **C**: watchful waiting / observation
- **O**: improved quality of life and decreased obstructive sleep apnea symptoms

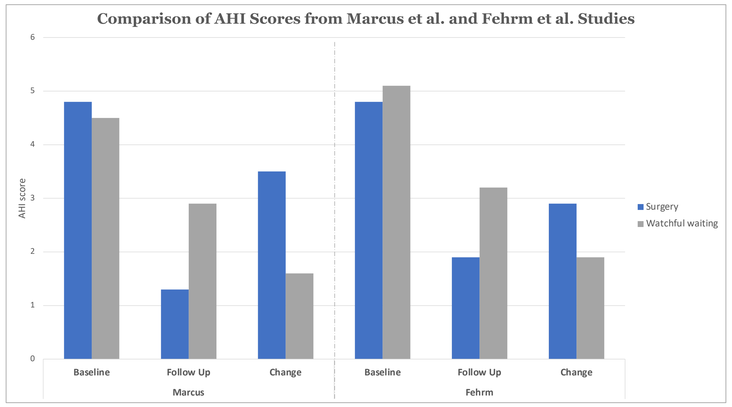
## RESULTS

### OSA-18 scores[4,5]




- OSA-18 scores measure quality of life related to OSA. Higher scores indicate poorer quality of life.
- Decreased OSA-18 scores were seen in both groups, but significantly more in the early adenotonsillectomy group.

### Apnea Hypopnea Index (AHI) scores[3,4]




- AHI scores are used to determine the severity of OSA and associated symptoms.
- Improvement were demonstrated in both groups, but significantly decreased in the early adenotonsillectomy group.

## CONCLUSION

- Overall, there is greater significant improvement in quality of life and decreased symptoms with early adenotonsillectomy for children with obstructive sleep apnea versus watchful waiting/observation.[3,4,5]
- Spontaneous improvement of polysomnography findings in the watchful waiting group.[3]
- Children with mild OSA that minimally affects quality of life can be managed with watchful waiting.[4]
- Improvement of quality of life was seen in the watchful waiting/observation group at follow up based on OSA-18 and PSQ SRBD scores.[5]

## LIMITATIONS & FUTURE DIRECTIONS

- Current studies have small sample sizes and short follow-up periods. It is recommended for future studies to include randomized, longitudinal clinical trial with a large sample size (>100 participants) and longer or multiple follow-up sessions.
- Further research must be done to study racial disparities in African American children.
- Many children with chromosomal abnormalities are at risk for OSA and at increased risk for perioperative complications. Future studies should investigate the risk benefit analysis of adenotonsillectomy and alternative interventions for management of OSA.

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