

Adenotonsillectomy Resolves Obstructive Sleep Apnea for Children

From Mike: Surgery. The ultimate symptom reducer. Make the body incapable of reacting to allergies. Not one word below about the relationship to food allergies and eliminating pasteurized dairy, grains, sugar and chocolate. And they are anesthetizing and cutting babies yet.

Within the last ten years, the primary reason that children have had surgery to remove their tonsils and adenoids is not infection but [obstructive sleep apnea](#). In one recent research study, the findings revealed that nine in ten children have an adenotonsillectomy for this sleep disorder. This change is due to increasing awareness that sleep apnea in children may cause developmental delay, failure to thrive, cardio-respiratory complications and behavioral disorders. Following adenotonsillectomy, many of these problems are resolved.

Children younger than age three are considered to be at high-risk for the development of complications after adenotonsillectomy. These complications include respiratory compromise caused by [edema](#) in the relatively narrow oropharynx of a young child, circulatory collapse as a consequence of blood loss in a child with low blood volume reserves, and high rates of [dehydration](#) because of poor oral intake. Accordingly, young children undergoing adenotonsillectomy are recommended to stay overnight in the hospital for observation.

Previous research on adenotonsillectomy in young children have evaluated outcome on the basis of post-operative complications, reflecting the emphasis placed on complications and risks following surgery for these young patients. However, it is also important to establish the degree of improvement in OSA after adenotonsillectomy in young children using full-night polysomnography (PSG) or laboratory sleep study, the acknowledged standard for diagnosis of sleep disorders. To date, the high cost of PSG, limited availability of the procedure and difficulties in obtaining PSG before and after surgery have prohibited this type of evaluation.

The present paper examines changes in the respiratory distress index (RDI), defined as the average number of apneas and hypopneas per hour of sleep, as measured by a laboratory sleep study following adenotonsillectomy for OSA in children under three years of age. The purpose is to evaluate changes in the physiology of sleep after adenotonsillectomy for OSA in the high-risk population of children less than three years of age.

The authors of "Outcome of Adenotonsillectomy for Obstructive Sleep Apnea in Children under Three Years," are Ron B. Mitchell MD, and James Kelly PhD, both from the University of New Mexico Health Sciences Center, Albuquerque, NM. Dr. Mitchell is now affiliated with Virginia Commonwealth University in Richmond, VA. Their findings are being presented at the American Academy of Otolaryngology-Head and Neck Surgery Foundation Annual Meeting & OTO EXPO, being held September 19-22, 2004, at the Jacob K. Javits Convention Center, New York City, NY.

Methodology: Children who were shown to have OSA by polysomnography and were under 3 years of age with were included in the study. Those excluded were older than three years, had a previous adenotonsillectomy; or had an RDI less than five.

For each child the following was recorded: age, gender, ethnicity, associated illnesses, and pre- and post-operative body mass index (BMI). Age and gender- specific BMI percentiles were calculated and children were divided into four groups: Group 1 included children who were underweight with a BMI less than or equal to the 5th percentile; Group 2 included children who were of normal weight with a BMI greater than the 5th percentile but less than the 85th percentile; Group 3 included children who were at risk of being overweight with a BMI greater than or equal to the 85th percentile but less than the 95th percentile; and Group 4 included children who were overweight with a BMI greater than or equal to the 95th percentile.

Children underwent a monopolar Bovie adenotonsillectomy and were admitted to hospital after surgery. For each child the following was recorded: complications during extubation or in the

recovery room; complications during hospital stay; need for intensive care monitoring; and total length of hospital stay.

The effectiveness of adenotonsillectomy for OSA was determined by a laboratory sleep study to determine RDI. Children enrolled in the study also underwent a second PSG within 12 months after surgery and findings were classified as: mild; moderate; or severe. The minimum oxygen saturation was also recorded.

Results: After exclusions, the study population included 20 children of whom 15 (75 percent) were male. The mean age of the children at the time of inclusion was 2.2 years (range 1.1 to 3.0 years).

The findings confirm previous reports that children less than three years represent a high-risk group for complications after adenotonsillectomy for OSA. These complications include laryngospasm, severe desaturations requiring supplemental oxygen and poor oral intake. More than 25 percent of the children included in the study were affected by these complications. The average length of hospitalization was 2.4 days but about 30 percent of children stayed for four days or longer and some stayed as long as six days. Two children required monitoring in the intensive care unit.

The number of children with severe OSA after surgery decreased significantly. However, only seven children (35 percent) had resolution of OSA as measured by a post-operative RDI of less than five. Three children had persistent severe OSA after surgery and five others had minimum oxygen desaturations below 80 percent. These findings imply that children younger than three years should have routine post-operative PSG to identify persistent OSA and significant desaturations.

Conclusion: The findings reveal that children do improve markedly after adenotonsillectomy for severe OSA, but the most have persistent symptoms of the disorder. Children younger than age three years with obstructive sleep apnea usually have a number of concurrent but unrelated illnesses. They are at high-risk for complications after adenotonsillectomy, necessitating an observed overnight hospital stay following surgery. These children show significant improvement in RDI over a period of several months after adenotonsillectomy. However, a sleep study is recommended for children younger than three after adenotonsillectomy for OSA since the majority of them have post-operative RDIs that indicate persistent OSA.

Note: The American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) represents the nation's 11,000 otolaryngologist-head and neck surgeons. These specialists diagnose and treat disorders of the ear, nose, and throat and related structures of the head and neck. Learn more about the specialty and otolaryngic disorders at the AAO-HNS Internet web site, <http://www.entnet.org>.

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