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## Treatment of Obstructive Sleep Apnea



### Treatment of Obstructive Sleep Apnea- Overview

Obstructive Sleep Apnea(OSA) is a common disorder involving collapse of the upper airway during sleep. This repetitive collapse results in sleep fragmentation, hypoxemia, hypercapnia, increased sympathetic activity. As specialists in upper airway anatomy, physiology and surgery, Otolaryngologists are uniquely qualified to treat patients with OSA. In the Clinical Guidelines for Evaluation, Management and Long-term Care of Obstructive Sleep Apnea in Adults, it is recommended that evaluation for primary surgical treatment be considered in select patients who have severe obstructing

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anatomy that is surgically correctible (e.g., tonsillar hypertrophy obstructing the pharyngeal airway) and in patients in whom continuous positive airway pressure (CPAP) therapy is inadequate. (Epstein, EJ, Evidence Based Clinical Guideline)

Surgical treatment of pediatric sleep disordered breathing with tonsillectomy and adenoidectomy is the recommended first line treatment. In the pediatric population, resolution of OSA occurs in 82% of patients who are treated with tonsillectomy and adenoidectomy. (Breitzke, S, Meta-analysis). One other recent publication of specific interest for otolaryngologists is a large multicenter retrospective review on the treatment outcomes for OSA after an adenotonsillectomy. This review included 578 children of which 90 percent of the children were less than 13 years of age. Fifty percent of the children were obese (BMI > 95%). Only 27% of the children had complete resolution of OSA (AHI < 1 total sleep time) while 21.6% had an AHI > 5/hr TST. Surgical success was variable and depended upon outcome measures selected. So success is as low as 27% (AHI of < 1) or as high as 78% (AHI < 5). Fifty nine percent of the obese children had an AHI > 5/hr TST. An analysis of factors which were associated with an elevated post-operative AHI in order of influence were age > 7 years, elevated BMI, presence of asthma and more severe OSA pre-operatively.

In most patients with moderate to severe OSA, continuous positive airway pressure (CPAP) is the first line treatment. Successful long term treatment of OSA with CPAP is difficult to achieve and fewer than 50% of patients on CPAP are adequately treated, as defined by 4 hours of use 70% of nights. (Weaver, TE, Level 2 evidence and Kribbs, NB, Level 2 evidence) Other treatment options must be available to patients with OSAS.

"Surgical procedures may be considered as a secondary treatment for OSA when the outcome of PAP therapy is inadequate, such as when the patient is intolerant of CPAP, or CPAP therapy is unable to eliminate OSA (Consensus). Surgery may also be considered as a secondary therapy when there is an inadequate treatment outcome with an oral appliance (OA), when the patient is intolerant of the OA, or the OA therapy provides unacceptable improvement of clinical outcomes of OSA (Consensus). Surgery may also be considered as an adjunct therapy when obstructive anatomy or functional deficiencies compromise other therapies or to improve tolerance of other OSA treatments (Consensus)" (Epstein, EJ) Surgery for OSAS has been shown to improve important clinical outcomes including survival and quality of life. (Weaver, EM. Level 2 evidence)

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