

Extended Abstract

The Role of Surgery in the Treatment of Sleep Apnoea – Evidence from 1000 patients

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Abstract

Obstructive Sleep Apnoea (OSA), has been traditionally managed by respiratory physicians with CPAP. The evidence for the diagnosis of OSA and treatment thresholds are discussed, particularly in relation to the validity of the Apnoea / Hypopnoea Index (AHI) and the Epworth Sleepiness Score (ESS). The evidence from over 1000 patients analysed at our institution suggests that these indicators of OSA severity are far from robust. The evidence from other measures of OSA severity are considered and linked to our patients symptoms and quality of life scores. There is emerging evidence that surgery has greater benefits than CPAP. The evidence for and against CPAP are discussed, along with a discussion of the role of surgery in this condition. Outcomes are provided from patients intolerant of CPAP and mandibular advancement devices from our institution.

Obstructive sleep apnea (OSA) is a disease characterized by intermittent and repetitive narrowing of the airway during sleep. Surgical therapies for the treatment of OSA aim to improve airway patency by addressing selected site(s) of obstruction. Because several areas may each be responsible for the narrowing, different surgical modalities have also been developed. In this review, we give an overview of surgery for each of potential obstruction site(s). As a consequence of the multi-factorial and heterogeneous etiology of OSA, surgical therapies need to be selected and performed specifically for each patient, as there is no perfect surgery that will fit all patients. As with any other treatment modalities for OSA, surgical therapies have variable efficacy, but are a very important tool on OSA management in selected patients and have been shown effectiveness in decreasing the morbidity and mortality associated with the disease.

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Obstructive sleep apnea (OSA) is a syndrome characterized by intermittent and repetitive upper airway collapse or narrowing during sleep [1]. Repetitive closure of the upper airway results in sleep fragmentation, hypoxemia, hypercapnia, and increased sympathetic nervous system activation, all of which lead to symptoms, such as excessive daytime sleepiness and cognitive impairment. In addition, OSA increases an individual's risk for developing cardiovascular disease, endocrinologic abnormalities,

and even early mortality

The gold standard for diagnosis is a polysomnogram (PSG) or overnight sleep study. In regard to OSA, a PSG calculates the number of obstructive airway events per hour of sleep, known as the apnea-hypopnea index (AHI). An AHI < 5 is considered normal. An AHI between 5 and 15 is mild OSA; 15 to 30 AHI is moderate OSA, and an AHI > 30 indicates severe OSA.

Continuous positive airway pressure (CPAP) device is currently considered to be the first-line treatment for OSA in adults [3]. When used properly, CPAP treatment is efficacious at reducing both subjective symptoms of OSA and cardiovascular risk [4, 5]. However, CPAP efficacy is limited by highly variable patient compliance to therapy. In the literature, the reported adherence to CPAP ranges from 30 to 70 % [3, 6]. Thus, a significant number of patients ultimately abandon CPAP therapy.

For patients who are intolerant to CPAP, physicians must consider other treatment modalities. Alternative treatment options include a multitude of options, and among them is surgery.

Surgery may be used as a primary treatment option in select patients who have identifiable anatomical problems (e.g., enlarged tonsils) or it may be used as a “salvage” treatment option for patients who are not compliant with CPAP. Despite a variable cure rate, surgery has been shown to routinely decrease OSA severity and increase subjective quality of life [7, 8].

The anatomical cause of OSA is generally heterogeneous, with multiple potential levels of airway obstruction; therefore, many different surgical procedures have been developed for the treatment of OSA