

***NAMS Regional Symposium on Sleep Medicine***  
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**TREATMENT OF OBSTRUCTIVE SLEEP APNEA**

**SYNOPSIS**

The non-surgical conservative treatment of OSA includes weight reduction, avoidance of alcohol for 4-6 hours prior to bedtime, and sleeping on one's side rather than on the back. 10% reduction in weight has been shown to lead to a 26% reduction in the respiratory disturbance index (RDI). Continuous Positive Airway Pressure (CPAP) is recommended as the first-line therapy for severe obstructive sleep apnea and for OSA associated with cardiovascular disorders. CPAP which acts physiologically as a pneumatic splint maintains a constant pressure in the upper airway throughout the respiratory cycle. CPAP is recommended for patients with symptomatic obstructive sleep apnea even if the apnea-hypopnea index is in the mild range (5 to 15). The relative contraindications to the use of CPAP are bullous lung disease and recurrent sinus or ear infections. CPAP treatment has been found to reduce the cognitive impairment and sleepiness associated with OSA in randomised controlled trials. Some randomized trials, but not in others, had also shown that CPAP reduced blood pressure in both hypertensive and normotensive patients with OSA. The pressure that has to be prescribed for CPAP treatment is titrated during polysomnography. This enables to find the minimal and optimal level of CPAP that is required to ameliorate the obstructive events, restore normal levels of arterial oxygen saturation and decrease the frequency of arousals in all positions and stages of sleep. Adherence to CPAP treatment is a problem in OSA. Patients have been considered compliant if they use their CPAP device more than 4 hours per night, 5-7 nights per week. It has been reported that 20-40% of patients do not use the prescribed CPAP therapy. Conventional fixed-pressure CPAP delivers a fixed airway pressure and is effective in most patients. However, other modes of pressure delivery such as bilevel positive airway pressure, auto-adjusted CPAP, and pressure-relief CPAP are also available. Other mechanical devices for treatment include Bilevel positive airway pressure (BiPAP) and oral appliances (OA). Oral Appliances act by pulling the tongue forward or by moving the mandible and soft palate anteriorly and this enlarges the posterior airspace and helps to open or dilate the airway. Currently, three basic designs of OAs that can be used to treat

sleep-related breathing disorders are mandibular repositioners, tongue-retaining devices (TRDs), and palatal-lifting devices. There are no convincing evidences that these alternate devices are better than the conventional fixed-pressure CPAP with regard to compliance or efficacy. Surgical correction of the upper airway is indicated in patients who have a specific underlying abnormality that is causing the OSA. Surgical removal of enlarged adenoids and tonsils are practiced if these are found to be the cause for OSA especially in children. Uvulopalatopharyngoplasty, uvulopalatal flap and RF ablation of the soft palate are some of the important surgical procedures that may help to reduce soft palate redundancy. Pharmacologic therapy is not the primary form of treatment in OSA. There are no clinically useful drugs for treatment of OSA, except in certain cases of residual sleepiness persisting despite apparently successful treatment. Modafinil is the drug used for this purpose. Medical conditions that may cause OSA such as myxedema and gigantism can be treated with specific therapy.

#### **SUGGESTED READING**

1. Basner RC (2007). Continuous Positive Airway Pressure for Obstructive Sleep Apnea. *N Engl J Med* **356**:1751-8.
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3. Collop NA, Anderson WM, Boehlecke B et al. (2007). Clinical guidelines for the use of unattended portable monitors in the diagnosis of obstructive sleep apnea in adult patients. Portable Monitoring Task Force of the American Academy of Sleep Medicine. *J Clin Sleep Med* **3**: 737-47.
4. Sullivan CE, Issa FG, Berthon-Jones M, Eves L (1981). Reversal of obstructive sleep apnea by continuous positive airway pressure applied through the nares. *Lancet* **1**: 862-65.