

## Obstructive Sleep Apnoea: A Silent Foe

[*Chest Heart Journal* 2018; 42(2) : 63-65]

DOI: <http://dx.doi.org/10.33316/chab.j.v42i2.2019580>

Obstructive sleep apnoea is an under recognized and under diagnosed medical condition, with a myriad of negative consequences on patients health and society as a whole. Symptoms include daytime sleepiness, loud snoring, and restless sleep. While the “gold standard” of diagnosis is by polysomnography, a detailed history and focused physical examination may help uncover previously undiagnosed cases. Undetected obstructive sleep apnea can lead to hypertension, heart disease, depression, and even death. Several modalities exist for treating obstructive sleep apnea, including continuous positive airway pressure, oral appliances, and several surgical procedures. However, conservative approaches, such as weight loss and alcohol and tobacco cessation, are also strongly encouraged in the patient with obstructive sleep apnea.

### Epidemiology

It is believed that more than 85% of patients with clinically significant OSA have never been diagnosed.<sup>1</sup> This is thought to reflect the fact that many patients with symptoms of OSA are not aware of their heavy snoring and nocturnal arousals. It is estimated that as many as 1 of 5 adults has at least mild symptoms of obstructive sleep apnea, while 1 of 15 has moderate to severe symptoms. Most population-based studies support the existence of a twofold to threefold greater risk of OSA in men than in women. Patients aged 65 through 95 years are also at significantly increased risk of developing symptoms.

### Pathophysiology

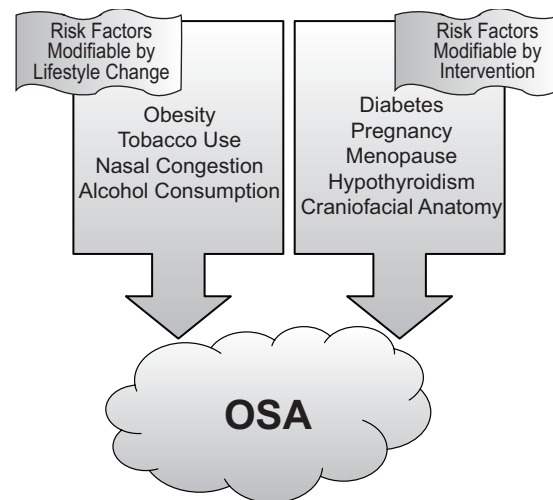
OSA is caused by repetitive bouts of upper airway obstruction during sleep as a result of the narrowing of respiratory passages.<sup>3</sup> The most common site of obstruction is the nasopharynx.<sup>3</sup> It is important to differentiate OSA from the less common central sleep apnea,

which is caused by an imbalance in the brain's respiratory control centers during sleep. While the pathogenesis of OSA is thought to be multifactorial, anatomic defects are thought to play a major role.

Certain physical characteristics that may contribute to OSA include obesity, thickened lateral pharyngeal walls, nasal congestion, enlarged uvula, facial malformations, micrognathia, macroglossia, and tonsillar hypertrophy. Obesity contributes to airway narrowing through fatty infiltration of the tongue, soft palate, or other areas surrounding the airway.

As the patient falls asleep, muscles of the nasopharynx begin to relax and the surrounding tissue collapses, causing compromise of the airway. As oxygen levels in the body start to drop and carbon dioxide levels rise, the patient is aroused from sleep; this causes an increase in sympathetic tone and subsequent contraction of nasopharyngeal tissue, which allows alleviation of the obstruction.<sup>1</sup>

### Risk Factors



Risk factors for obstructive sleep apnea (OSA).

### **Clinical Manifestations**

A thorough history and physical examination will often elucidate some of the signs and symptoms of OSA. Common symptoms include snoring, awakening from sleep with a sense of choking, morning headaches, fitful sleep, decreased libido, as well as a history of hypertension, cerebrovascular disease, renal disease, diabetes, or gastroesophageal reflux disease.<sup>4</sup> Despite being a defining feature of OSA, alleged absence of daytime somnolence is not sufficient to dismiss the diagnosis of OSA, as often somnolence may go unnoticed or be underestimated because of its chronicity. Because of the nonspecific and variable features of OSA, its diagnosis based on a clinician's subjective analysis alone is inaccurate.

### **Diagnosis**

OSA can be measured by using an apnea-hypopnea index, which records the number of times per hour of sleep that a patient experiences an abnormally low respiratory rate or complete cessation of breathing. Typically, an apnea-hypopnea index of 5 or more is sufficient for a diagnosis of OSA. Polysomnography, also known as a "sleep study," is the current "gold-standard" of OSA diagnostic testing. Additional diagnostic modalities for OSA include portable sleep monitors, radiographic studies for anatomic analysis, and empiric treatment.

### **Management**

Treatment of OSA depends on the severity, duration, and cause of the patient's symptoms as well as the patient's lifestyle, comorbidities, and overall health. Nonetheless, certain measures should be undertaken by nearly all persons affected by OSA. Overweight patients should be encouraged to undergo a weight-loss regimen. Studies<sup>6</sup> have shown that a 10% weight loss is associated with a 26% reduction in apnea-hypopnea index scores. For severely obese patients, bariatric surgery (ie, gastric banding, gastric bypass, gastroplasty) may be considered, as studies have shown that symptoms of OSA can be relieved in up to 86% of patients undergoing such operations.

Other lifestyle changes that may help modify the signs and symptoms of OSA include cessation of alcohol and tobacco use, as well as the use of a lateral sleeping position. Furthermore, the use of benzodiazepines and other central nervous system depressants should be avoided.

First-line therapy for most patients with OSA continues to be the use of continuous positive airway pressure (CPAP). This therapy maintains adequate airway patency; it not only immediately reverses apnea and hypopnea, but it also decreases somnolence and increases quality of life, alertness, and mood. However, patient compliance levels average only 50% to 60% because of the frustrations associated with CPAP machines, including mask leaks, nasal congestion, and sleep disruption.

A commonly implemented alternative to CPAP involves the use of oral appliances designed to advance the mandible forward. Such devices decrease arousal and the apnea-hypopnea index while increasing arterial oxygen saturation. Furthermore, patients tend to have a stronger preference for oral appliances. Many clinicians, however, still consider oral appliances to be a suboptimal alternative to CPAP.

For those patients receiving little benefit from CPAP or oral appliances, surgery may be considered. The most commonly implemented surgical procedure for treatment of OSA is uvulopalatopharyngoplasty.

### **Conclusion**

OSA is an important public health concern. While only 1 in 5 patients has at least mild OSA and only 1 in 15 has moderate to severe OSA, the social impacts are often much greater. Disturbed sleep patterns lead to increased levels of daytime somnolence, which can cause days of missed work and increased levels of motor vehicle and occupational accidents. Furthermore, as discussed above, OSA can both worsen existing medical conditions and influence the onset of new disease. Given that the condition is undiagnosed for 85% of patients with sleep apnea, it is important for clinicians and patients alike

to recognize and deal with the early signs and symptoms of obstructive sleep apnea.

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**References**

1. Kato M., Adachi T., Koshino Y., Somers V. K. Obstructive sleep apnea and cardiovascular disease. *Circ J.* 2009; 73(8): 1363–1370.
2. Young T., Peppard P. E., Gottlieb D. J. Epidemiology of obstructive sleep apnea: a population health perspective. *Am J Respir Crit Care Med.* 2002;165(9):1217–1239.
3. Morrison D. L., Launois S. H., Isono S., Feroah T. R., Whitelaw W. A., Remmers J. E. Pharyngeal narrowing and closing pressures in patients with obstructive sleep apnea. *Am Rev Respir Dis.* 1993;148(3):606–611.
4. Senn O., Brack T., Russi E. W., Bloch K. E. A continuous positive airway pressure trial as a novel approach to the diagnosis of the obstructive sleep apnea syndrome. *Chest.* 2006;129(1):67–75.
5. Peppard P. E., Young T., Palta M., et al. Longitudinal study of moderate weight change and sleep-disoriented breathing. *JAMA.* 2000;284(23):3015–3021.
6. Buchwald H., Avidor Y., Braunwald E., et al. Bariatric surgery: a systematic review and meta-analysis. *JAMA.* 2004; 292(14): 1724–1737. Erratum in: *JAMA.* 2005; 293(14):1728.