

# Obstructive Sleep Apnea

Underwriting Dialogue

## Characteristics

Obstructive sleep apnea (OSA) is a chronic condition characterized by repetitive partial or total collapse of the upper airway during sleep, resulting in partial or total breathing cessation.

An apnea is complete cessation of breathing for at least ten seconds. A hypopnea is a partial cessation of breathing for at least ten seconds, accompanied by decreased blood oxygen content or terminated by arousal from sleep. The prevalence of OSA, while unknown, has been increasing, and many cases remain undiagnosed.

Obesity is the strongest risk factor for OSA. Some of the other risk factors include male gender, increasing age, cigarette smoking, nasal congestion, craniofacial and upper airway soft tissue abnormalities, large neck circumference, and a family history of OSA.

People with OSA may experience excessive daytime sleepiness, snoring, motor vehicle accidents, restless sleep, fatigue, poor concentration, poor memory, mood disorders, witnessed breathing interruptions, morning headaches, impaired work performance, decreased quality of life, and awakening with gasping, choking, dry mouth or sore throat.

The multiple breathing interruptions and resultant arousals that occur with OSA provoke a number of maladaptive responses that stress the cardiovascular system. OSA is associated with hypertension, coronary artery disease, cerebrovascular disease, including strokes, arrhythmias, including atrial fibrillation, sudden death, heart failure, pulmonary hypertension, and type 2 diabetes.

## Diagnosis

An overnight sleep study at a sleep laboratory, called a polysomnogram, is the gold standard to diagnose OSA. During the study a number of parameters can be measured, including sleep time, sleep stages, respiratory effort, air flow, heart rhythm, blood oxygen content (saturation), eye movements, brain activity, and chest, abdominal, and limb movements.

With a split night study, if the first half of the study reveals sleep apnea, the second half of the study can be used to determine the correct nasal CPAP pressure setting. Home sleep studies can also be performed, although they tend to be less accurate and provide less information than those performed at a sleep laboratory. Furthermore, a split night study cannot be performed at home.

The diagnosis of OSA is based upon the Apnea-Hypopnea Index (AHI), which is the average number of apneas and hypopneas per hour of sleep.

An AHI of at least five in the presence of symptoms or conditions associated with OSA or an AHI of at least 15 without any associated symptoms or conditions is considered diagnostic.

Untreated OSA is associated with increased mortality, which increases with worsening apnea severity and lower blood oxygen content.

## Treatment

Positive airway pressure, most commonly in the form of CPAP (continuous positive airway pressure) is considered to be the treatment of choice for OSA. CPAP uses air pressure to keep the airway open and prevent apneas and hypopneas. The amount of pressure necessary to maintain airway patency is determined during a CPAP titration study.

CPAP improves many of the adverse consequences of OSA and decreases mortality. However, CPAP can be difficult to tolerate, which reduces the compliance rate.

Oral appliances, which reposition the jaw and tongue, may lower the AHI and improve symptoms, but tend to be less effective than CPAP. Weight loss (including that achieved via bariatric surgery) tends to improve OSA, but often does not cure it. In some people with OSA, a majority of the apneas and hypopneas occur while supine, and the use of devices to prevent supine sleeping, such as pillows, alarms, or tennis balls, might help reduce the AHI.

Although several types of surgical procedures are available, good evidence is lacking to support surgery as the treatment of choice for OSA. The effectiveness varies depending upon the procedure performed and the individual circumstances. Avoidance of alcohol and medications that may depress the central nervous system, such as opiates and benzodiazepines, may also be helpful in OSA. When modalities other than CPAP are used to treat OSA it is very helpful if there is a sleep study that confirms the efficacy of the chosen treatment.

## Underwriting OSA: Case Studies

Factors that are considered in the underwriting of OSA include the AHI level, severity of oxygen desaturation, treatment modalities, including evidence of effectiveness and compliance, and the presence of associated conditions.

**Applicant 1** is a 50 year old applicant with severe obstructive sleep apnea who is treated with CPAP. The applicant is well followed, data from the CPAP machine confirms compliance for the past 18 months, and the CPAP has been noted to be completely effective. The applicant is otherwise healthy.

*This applicant would qualify for Standard Plus.*

**Applicant 2** is a 70 year old applicant with moderate obstructive sleep apnea who has been treated with an oral appliance for the past two years. A recent sleep study showed that the apnea has become mild with the use of the oral appliance. The applicant is asymptomatic and has no other medical issues.

*This applicant would qualify for Standard Plus.*

**Applicant 3** is a 60 year old applicant with moderate obstructive sleep apnea who has not tolerated any treatment. The applicant has hypertension, which is well controlled on medications.

*This applicant would qualify for Table 4.*



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