FACTS ABOUT

Sleep Apnea

WHAT IS SLEEP APNEA?

Sleep apnea is a common disorder that affects millions of men, women and children but is often undiagnosed, despite the potentially serious consequences of the disorder. It is estimated that at least 18 million Americans have unrecognized sleep apnea.

Sleep apnea owes its name to a Greek word, apnea, meaning "want of breath." Those with sleep apnea literally stop breathing in their sleep. There are basically two types of apnea: obstructive and central. Obstructive sleep apnea is far more common than central and occurs when air cannot flow into or out of the person's nose or mouth although efforts to breathe continue. The air cannot flow in or out even though effort is made due to an obstruction in the upper airway; hence the name "obstructive sleep apnea". Central sleep apnea occurs when the brain fails to send the appropriate signals to the breathing muscles to initiate respirations. Some people have a combination of both types.

In addition to apneas, hypopneas are often present. Hypopnea also comes from Greek: "hypo" meaning "beneath" or "less than normal" and "pnea" meaning "breath." A hypopnea is not a complete cessation of breath but a reduction in airflow and a struggle to breathe. With each apnea and hypopnea, the oxygen level in the blood typically drops.

In a given night, the number of apneas may be as high as 20 to 30 or more per hour. These breathing pauses are almost always accompanied by snoring between apneas, although not everyone who snores has this condition. Sleep apnea can also be characterized by choking sensations. The frequent interruptions of deep, restorative sleep often lead to early morning headaches and excessive daytime sleepiness.

Early recognition and treatment of sleep apnea is important because it may be associated with irregular heartbeat, high blood pressure, heart attack, stroke and diabetes.

WHO GETS SLEEP APNEA?

Sleep apnea often occurs in all age groups and both sexes but is more common in men (it may be under diagnosed in women) and possibly young African Americans. Four percent of middle-aged men and 2 percent of middle-aged women have sleep apnea along with excessive daytime sleepiness. People most likely to have or develop sleep apnea include those who snore loudly and also are overweight, or have some physical abnormality in the nose, throat, or other parts of the upper airway. Sleep apnea seems to run in some

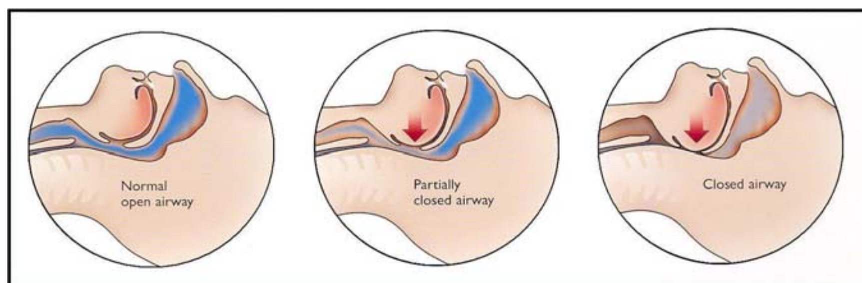
families, suggesting a possible genetic basis.

WHAT CAUSES SLEEP APNEA?

Certain mechanical or structural problems in the airway cause the interruptions in breathing during sleep. In some people, apnea occurs when the throat muscles and tongue relax during sleep and partially block the opening of the airway. When the muscles of the soft palate at the base of the tongue and the uvula (the small fleshy tissue hanging from the center of the back of the throat) relax and sag, the airway becomes blocked, making breathing labored and noisy and even stopping it all together. Sleep apnea also can occur in obese people when an excess amount of tissue in the airway causes it to be narrowed. With a narrowed airway, the person continues his or her efforts to breathe, but air cannot easily flow into or out of the nose and/or mouth. Unknown to the person, this results in heavy snoring, periods of no breathing, and frequent arousals (causing abrupt changes from deep to light sleep). Ingestion of alcohol and some sleeping pills increases the frequency and duration of breathing pauses in people with sleep apnea.

HOW IS NORMAL BREATHING RESTORED DRUING SLEEP?

During the apneic event, the person is unable to breathe in oxygen and to exhale carbon dioxide, resulting in low levels of oxygen and increased levels of carbon dioxide in the blood. The reduction in oxygen and increase in carbon dioxide alert the brain to resume breathing and cause an arousal. With each arousal, a signal is sent from the brain to the upper airway; breathing is resumed, often with a loud snort or gasp. Frequent arousals, although necessary for breathing to restart, prevent the patient from getting enough restorative, deep sleep.



WHAT ARE THE EFFECTS OF SLEEP APNEA?

Because of the serious disturbances in their normal sleep patterns, people with sleep apnea often feel very sleepy during the day and their concentration and daytime performance suffer. The consequences of sleep apnea range from annoying to life-threatening. They include depression, irritability, sexual dysfunction, learning and memory difficulties, and falling asleep while at work, on the phone, or driving. It has been estimated that up to 50 percent of sleep apnea patients have high blood pressure. Sleep apnea was listed as an identifiable cause of hypertension by the National Institutes of Health and is associated with congestive heart failure, coronary artery disease, abnormal heart rhythms such as atrial fibrillation, stroke, and diabetes. Risk for heart attack and stroke is increased in those with sleep apnea. In addition, sleep apnea is sometimes implicated in sudden infant death syndrome.

WHEN SHOULD SLEEP APNEA BE SUSPECTED?

For many sleep apnea patients their spouses are the first ones to suspect that something is wrong, usually from their heavy snoring and apparent struggle to breathe. Coworkers or friends of sleep apnea victims may notice that the individual falls asleep during the day at inappropriate times (such as while driving a car, working, or talking). The patient often does not know he or she has a problem and may not believe it when told. It is important that the person see a doctor for evaluation of the sleep problem.

HOW IS SLEEP APNEA DIAGNOSED?

In addition to the primary care physician, physicians with specialty training in sleep disorders such as pulmonologists are involved in making a definitive diagnosis and initiating treatment. Diagnosis of sleep apnea is not simple because there can be many different reasons for disturbed sleep. Several tests are available for evaluating a person for sleep apnea.

Polysomnography is a test that is performed in a specialized medical facility that records a variety of body functions during sleep, such as the electrical activity of the brain, eye movements, muscle activity, heart rate and rhythm, respiratory effort, airflow, and blood oxygen levels. Polysomnography is used to diagnose sleep apnea, determine its severity, and to initiate and adjust treatment.

The ***Multiple Sleep Latency Test (MSLT)*** measures the speed of falling asleep. In this test, patients are given several opportunities to fall asleep during the course of a day when they would normally be awake. For each opportunity, time to fall asleep is measured. People without sleep problems usually take an average of 10 to 20 minutes to fall asleep. Individuals who fall asleep in less than 5 minutes are likely to require some treatment for sleep disorders. The MSLT may be useful to measure the degree of excessive daytime sleepiness and to rule out other types of sleep disorders.

Diagnostic tests usually are performed in a sleep center, but new technology may allow some sleep studies to be conducted in the patient's home. Most tests performed in the patient's home are for screening purposes and are used to see if polysomnography is warranted.

HOW IS SLEEP APNEA TREATED?

The specific therapy for sleep apnea is tailored to the individual patient based on medical history, physical examination, and the polysomnography results. Medications are generally not effective in the treatment of sleep apnea. Oxygen administration may safely benefit certain patients but does not eliminate sleep apnea or prevent daytime sleepiness. Thus, the role of oxygen in the treatment of sleep apnea is controversial, and it is difficult to predict which patients will respond well. It is important that the effectiveness of the selected treatment be verified; this is usually accomplished by polysomnography.

Physical or Mechanical Therapy

Nasal continuous positive airway pressure (CPAP) is the most common effective treatment for sleep apnea. In this procedure, the patient wears a mask over the nose during sleep, and pressure from an air blower forces air through the nasal passages. The air pressure is adjusted so that it is just enough to prevent the throat from collapsing during sleep. The pressure is constant and continuous. Nasal CPAP prevents airway closure while in use, but apnea episodes return when CPAP is stopped or used improperly.

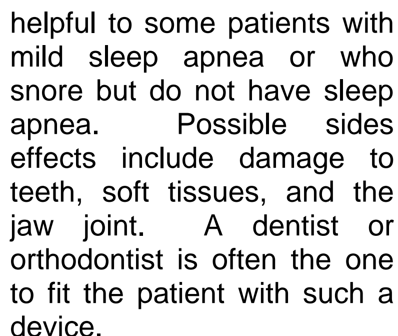
Variations of the CPAP device attempt to minimize the side effects that sometimes occur, such as nasal irritation and drying, facial skin irritation, abdominal bloating, mask leaks, sore eyes, headaches, and difficulty tolerating the pressure. Some versions of CPAP vary the pressure to coincide with the person's breathing pattern, and others start with a low pressure, slowly increasing it to allow the person to fall asleep before the full prescribed pressure is applied.

Behavioral Therapy

Behavioral changes are an important part of the treatment program, and in mild cases behavioral therapy may be all that is needed. The individual should avoid the use of alcohol, tobacco, and sleeping pills which make the airway more likely to collapse during sleep and prolong the apneic periods. Overweight persons can benefit from losing weight. Even a 10 percent weight loss can reduce the number of apneic events for most patients. In some patients with mild sleep apnea, breathing pauses occur only when they sleep on their backs. In such cases, using pillows and other devices that help them sleep in a side position is often helpful.

Dental Appliances

These are devices worn in the person's mouth that reposition the lower jaw and tongue to help keep the airway open. These have been



helpful to some patients with mild sleep apnea or who snore but do not have sleep apnea. Possible sides effects include damage to teeth, soft tissues, and the jaw joint. A dentist or orthodontist is often the one to fit the patient with such a device.

Surgery

Some patients with sleep apnea may need surgery. although several surgical procedures are used to increase the size of the airway, none of them is completely successful or without risks. More than one procedure may need to be tried before the patient realizes any benefits.

Some of the more common procedures include removal of adenoids and tonsils (especially in children), nasal polyps or other growths, or other tissue in the airway and correction of structural deformities. Younger patients seem to benefit from these surgical procedures more than older patients.

Uvulopalatopharyngoplasty (UPPP) is a procedure used to remove excess tissue at the back of the throat (tonsils, uvula, and part of the soft palate). The success of this technique may range from 30 to 50 percent. The long-term side effects and benefits are not known, and it is difficult to predict which patients will do well with this procedure.

Laser-assisted uvulopalatoplasty (LAUP) is done to eliminate snoring but has not been shown to be effective in treating sleep apnea. This procedure involves using a laser device to eliminate tissue in the back of the throat. Like UPPP, LAUP may decrease or eliminate snoring but not sleep apnea itself. Elimination of snoring, the primary symptom of sleep apnea, without influencing the condition may carry the risk of delaying the diagnosis and possible treatment of sleep apnea in patients who elect LAUP. To identify possible underlying sleep apnea, sleep studies are usually required before LAUP is performed.

Tracheotomy is used in persons with severe, life-threatening sleep apnea. In this procedure, a small hole is made in the windpipe and a tube is inserted into the opening. This tube stays closed during waking hours and the person breathes and speaks normally. It is opened for sleep so that the air flows directly into the lungs, bypassing any upper airway obstruction. Although this procedure is highly effective, it is an extreme measure that is poorly tolerated by patients and rarely used.

Other procedures

Patients in whom sleep apnea is due to deformities of the lower jaw may benefit from surgical reconstruction. Finally, surgical procedures to treat obesity are sometimes recommended for sleep apnea patients who are morbidly obese.

A sleep specialist will provide you all your options and make recommendations on which treatments are best for your specific situation. There are many options available today to treat sleep apnea and other sleep disorders.

For More Information on Sleep Apnea and Other Sleep Disorders

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