

Stroke and Cardiac Risks Associated with Sleep Apnea

What is sleep apnea?

Sleep apnea is a common sleep disorder and can cause very serious cardiac problems if left untreated. Sleep apnea is characterized by the absence of breathing while sleeping. One common symptom of sleep apnea is snoring. Despite what you think or what you have heard, snoring is not normal. During these apneic (periods of no breathing) events, the upper airway repeatedly collapses, causing cessation of breathing (apnea) or inadequate breathing (hypopnea) and sleep fragmentation. Sleep fragmentation causes chronic daytime sleepiness.

How common is it?

The National Sleep Foundation (NSF) estimates that 30 million Americans have sleep disordered breathing. That is 20% of our population. The majority of these people remain undiagnosed. A Mayo Clinic study done in March of 2005 and published in the New England Journal of Medicine found that people with obstructive sleep apnea (OSA) were twice as likely to die during the small hours of the night than those without OSA.

Why is it so serious?

Cardiac risks

Sleep apnea disturbs heart function in many ways. In a person without OSA, when breathing stops, blood oxygen levels drop to approximately 90% of normal and carbon dioxide levels increase. In sleep apnea, those levels drop to 60% of normal and carbon dioxide levels increase even more. With high levels of carbon dioxide and low levels of oxygen, many abnormal heart rhythms can develop during periods of sleep apnea.

A study in 2001 found that the more numbers of apneas/hypopneas a person had, the higher their risk for heart attack. Sleep apnea has been associated with heart disease regardless of the presence of high blood pressure or other heart risk factors. (Evidence exists that OSA causes an increase in the stiffness and inflammation of the arteries. This hardening and narrowing of the arteries of the heart is proving to be an important aspect of heart disease, particularly in older adults.) It is estimated that 50-60% of patients with impaired cardiac function suffer from sleep related breathing disorders.

Hypertension

Sleep apnea also tightens blood vessels and significantly raises blood pressure. A number of studies have found a strong association between sleep apnea and high blood pressure (hypertension). In the past, the relationship between sleep apnea and hypertension was thought to be largely due to obesity, a risk factor common to both conditions. Recent and major studies are finding higher rates of hypertension in people with sleep apnea regardless of weight. In those whose high blood pressure is resistant to treatment, sleep apnea is likely to be particularly severe.

Stroke

OSA appears to increase the chances of stroke independent of high blood pressure. A 2000 study suggests that blood becomes more viscous (stickier) in the morning in people with OSA, compared to those without. Another study in 2000 reported higher levels of fibrinogen (clotting factor) in those with OSA. Higher levels of fibrinogen have been linked to both stroke and heart attack. A 1998 study reported that the carotid artery is in far greater danger of becoming narrowed and hardened in people with OSA than in the average person. The carotid artery is the major blood supplier to the brain.

What is the treatment?

In general, weight loss, avoidance of alcohol, sedatives, and hypnotics and positional sleeping can all help a person with sleep apnea, but may not be enough. Positive Airway Pressure (PAP) Therapy is generally the treatment of choice for OSA. A device weighing approximately 5 lbs is connected to a machine that fits on the face. The machine compresses room air and supplies a continuous stream of air to the airway to prevent its collapse during sleep. It essentially works as an air splint to a persons airway.

Application of PAP therapy provides many benefits. Sleep patterns are returned to normal and patients report less daytime sleepiness, better moods, and improved concentration and memory. Bed partners report elimination of snoring resulting in better sleep for themselves. A 2003 study suggests that reducing apneas by 90% by using PAP therapy can lower blood pressure significantly and decrease heart disease by 37% and stroke by 56%.

Other treatments include surgery and oral appliances. These may be effective in some individuals, but do have certain limitations.