

Stroke and Sleep-Disordered Breathing

How sleep apnea is related to stroke and what you can do about it



What is Sleep-Disordered Breathing?

Sleep-disordered breathing is a group of chronic conditions in which partial or complete cessation of breathing occurs many times throughout the night, resulting in daytime sleepiness or fatigue that interferes with a person's ability to function and reduces quality of life.

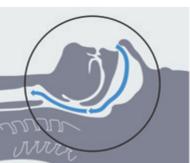
The sleep disorder that is most commonly associated with stroke is sleep apnea.

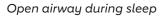
What is Sleep Apnea?

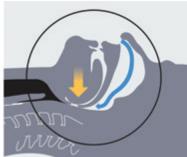
The most common type of sleep apnea is **Obstructive Sleep Apnea (OSA)** which occurs when a person's upper airway closes (either partially or fully) but efforts to breathe continue.

Another type of sleep apnea is called **Central Sleep Apnea (CSA)** which occurs when a person's airway is open, but respiratory effort ceases due to a decrease in the brain's signal to breathe. CSA is a central nervous system disorder.

While OSA is most common, both OSA and CSA may be associated with stroke. Most people with sleep apnea do not have breathing problems during the day.







Sleep apnea present with obstruction

It's estimated that up to 80% of sleep apnea patients are undiagnosed. Increasing awareness and improving screening for sleep disorders is vital in the prevention of stroke and in improving stroke outcomes.

Sleep apnea can impact people of all ages, including children, but the risk factors include being male, overweight and over the age of 40. More than half of the people who have had a stroke also have sleep apnea. Proper diagnosis and treatment may help prevent a first or subsequent stroke.

What are the Signs & Symptoms of Sleep-Disordered Breathing?

- Snoring (usually observed or reported by sleep partner)
- Disrupted sleep (occasionally due to gasping) or waking up frequently during the night, gasping for air
- Daytime fatigue and feeling tired
- Morning headache
- Problems with concentration and memory
- Waking up often during the night to urinate

How is Sleep Apnea Related to Stroke?

Sleep apnea may contribute to or be the cause of a first-time or recurrent stroke. It can also be an after-effect of stroke. CSA causes low oxygen levels during sleep as well as elevated blood pressure, both of which can increase the risk of a stroke.

How is Sleep Apnea Diagnosed?

If sleep apnea is suspected, the patient should be evaluated in a sleep study. Many patients can be evaluated with a Home Sleep Test which monitors breathing, oxygen levels, pulse, and breathing effort. Some patients who have co-existent conditions such as heart failure, chronic obstructive pulmonary disease (COPD), neuromuscular disease, or CSA are evaluated with a sleep study performed in a sleep center.

How is Sleep Apnea Treated?

The most common treatment for sleep apnea is Continuous Positive Airway Pressure (CPAP). A CPAP is a small, quiet, bedside device that gently delivers pressurized air through a small mask. This pressure serves as an "air splint" to keep the upper airway open and help prevent further collapse of the airway (apneas). In recent years, there have been significant improvements in CPAP technology, with the devices, and masks providing enhanced comfort, use, and compliance. Another option for treatment of OSA is oral appliances. Oral appliances advance the lower jaw (mandible) to help keep the upper airway open at night. Oral appliances should be fit by a dentist experienced with these devices to ensure proper fit as well as follow-up to ensure effectiveness.

Lifestyle Changes

The following lifestyle changes may also be helpful in controlling sleep apnea:

- Weight loss
- Avoidance of alcohol several hours before bedtime

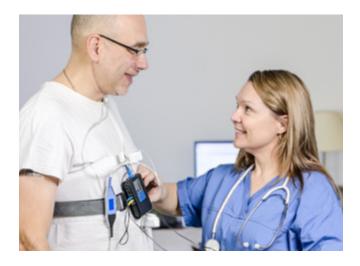
Sleep Hygiene

Good sleep hygiene helps to maintain regular wake and sleep cycles. Here are some good sleep hygiene tips:

- Avoid napping during the day
- Avoid stimulants such as caffeine and alcohol too close to bedtime
- Exercise to promote good sleep
- Get adequate amounts of natural light during the day
- Establish a regular and relaxing bedtime routine
- Make your bedroom quiet, dark, restful (remove TVs, computers, and cell phones), and a little bit cool

Most Importantly - Get a Diagnosis!

If you or your sleep partner suspect you may have sleep disordered breathing, make an appointment with a sleep specialist for a proper evaluation and diagnosis. If you are diagnosed with sleep-disordered breathing, you can get on the path to proper treatment and potentially reduce the risk of stroke!



For stroke information, call the American Stroke Association at 1-888-4-STROKE (1-888-478-7653) or visit stroke.org.

For information on life after stroke, call and ask for the Stroke Family Warmline.

For heart- or risk-related information, call the American Heart Association at 1-800-AHA-USA1 (1-800-242-8721) or visit us online at heart.org.

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