

# Sleep Apnea and its Impact on Ischemic Stroke

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## DESCRIPTION

Sleep apnea is a sleep-related breathing disorder in which breathing repeatedly slows or even stops during sleep. Sleep apnea can increase the risk of stroke, and having a stroke makes the person more likely to develop sleep apnea. Sleep apnea is related with types of major health problems like, coronary heart disease, heart failure, stroke, and an irregular heartbeat. Sleep-related breathing disorders, including Obstructive Sleep Apnea (OSA), Central Sleep Apnea (CSA), and Cheyne-Stokes respiration, are common in patients with stroke or Transient Ischemic Attack (TIA) has been reported with adverse effects in both the general population and patients with stroke. Moreover, OSA itself may be an independent risk factor for stroke. Sleep apnea, which is one of the most common chronic diseases, is a risk factor for ischemic stroke, recurrent stroke, and poor functional recovery after stroke. More than half of stroke survivors experience sleep apnea in the acute phase after stroke, with obstructive sleep apnea being the most common subtype. After stroke, the frequency and severity of sleep apnea may decrease over time, but up to one-third of patients in the chronic phase after ischemic stroke have moderate to severe sleep apnea. Obesity can also be the reason of developing both sleep apnea and heart diseases but, it is estimated that the person who is suffering with sleep apnea, with or without obesity are also more likely to get heart arrhythmias or heart disease. Over the past decades, it has been shown that treatment of sleep apnea in the acute phase of stroke is possible and can have a beneficial impact on recovery and long-term outcomes. Nevertheless, challenges in detecting and predicting sleep apnea after stroke, uncertainties regarding the optimal timing of its diagnosis and lack of clear treatment guidelines have led to sleep apnea still being underdiagnosed which remains therapeutic. It has been proposed as one of the potentially modifiable risk factors for vascular disease, including stroke. The more severe the sleep apnea is the higher the risk of stroke will be. Pathological mechanisms linking sleep apnea to vascular risk factors include

hypoxia, arrhythmias, dysautonomia, glucose intolerance, hypertension, dyslipidaemia, and inflammation. Sleep apnea and/or habitual snoring are increasingly recognized as independent risk factors for arterial hypertension, cardiac arrhythmia, coronary artery disease, myocardial infarction, and ischemic stroke. Physiological changes in respiratory and cardiovascular activity during sleep are primarily sleep cycle dependent and mediated by autonomic control. Arousal during sleep leads to increased respiratory and cardiovascular activity. Clinical signs and symptoms of sleep-disordered breathing are unreliable in stroke patients and require diagnostic sleep studies with polysomnography or Home Sleep Apnea Testing (HSAT) for diagnosis. As with other vascular diseases, secondary prevention is important for the short and long term outcome and risk of recurrence in patients with acute ischemic stroke. Organized stroke unit care allows optimized acute stroke management, early detection of potential stroke etiologies and corresponding vascular risk factors. Obstructive sleep apnea increases the risk of ischemic stroke. OSA is a form of sleep apnea caused by repeated collapse of the upper airway during sleep. In addition to increasing the risk of stroke, OSA can disrupt sleep and cause daytime symptoms such as excessive sleepiness, morning headaches, and mood swings.

## CONCLUSION

Repeated airway collapses during sleep can create negative pressure in the chest and slows the blood flow. Limited oxygen: OSA also decreases the saturation of oxygen, which means that the blood cannot carry enough oxygen to meet the body's needs. Impact on other risk factors for stroke: OSA increases the risk of other conditions such as heart disease, high blood pressure, diabetes and arrhythmias. These and other health effects of OSA may increase the risk of stroke. Cardiac Structural Defects: A person with OSA is twice as likely to have a hole in his heart called a patent foramen ovale. A patent foramen ovale increases the risk of stroke.

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