

Sleep apnea occurring during REM sleep is significantly associated with type 2 diabetes

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A multi-ethnic study in *Journal of Clinical Sleep Medicine* reports that there is a statistically significant relationship between obstructive sleep apnea (OSA) episodes occurring during rapid eye movement (REM) sleep and type 2 diabetes.

Results indicate that the adjusted odds ratio for [type 2 diabetes](#) was 2.0 times higher in patients with REM-related OSA, defined as having an REM apnea-hypopnea index (AHI) of 10 or more breathing pauses per hour of REM sleep. The prevalence of type 2 diabetes was 30.1 percent in participants with OSA and 18.6 percent in those without OSA; however, the overall association between OSA and diabetes became non-significant after controlling for covariates such as body mass index (BMI), age, race and gender. Middle-aged participants with OSA had an adjusted odds ratio for type 2 diabetes that was 2.8 times higher than younger or middle-aged people without OSA. Hispanics and older patients referred for OSA evaluation had a higher prevalence of type 2 diabetes; this relationship was not affected by OSA.

According to principle investigator Kamran Mahmood, MD, MPH, of the University of Illinois at Chicago, the researchers were surprised by the significant association of REM-related OSA with type 2 diabetes.

"We believe that REM-related OSA is a marker of early OSA, especially in women and patients younger than 55 years," said Mahmood.

"Generally, OSA is worse in REM sleep compared to non-REM sleep because of neurologically mediated impairment of skeletal muscles of upper airway and ventilation. This may be the reason for closer association of REM-related OSA and type 2 diabetes."

The study gathered data from 1,008 consecutive patients who were evaluated for OSA by comprehensive polysomnography at the University

of Illinois at Chicago; 66.9 percent were African American, 16.9 percent were Caucasian, 14.9 percent were Hispanic and 1.3 percent were Asian. OSA was defined as an AHI of five or more breathing pauses per hour of sleep and was diagnosed in 745 individuals (74 percent); the 263 adults (26 percent) who did not have OSA served as the control. Men comprised 52.8 percent of the OSA group but only 28.5 percent of the control group.

According to the authors, the findings are consistent with several studies on the association of OSA with glucose tolerance, insulin resistance and type 2 diabetes. REM-related OSA is more common in mild-to-moderate cases of OSA, especially in women and in patients younger than 55 years of age. Sleep fragmentation caused by OSA may reduce REM sleep time, which could explain a high REM AHI.

Mahmood said that the results highlight the need to educate minority groups about OSA and its complications. The authors encourage awareness campaigns and making OSA screening part of all obesity management programs.

According to the American Academy of Sleep Medicine, OSA is a sleep-related breathing disorder that involves a decrease or complete halt in airflow despite an ongoing effort to breathe. It occurs when the muscles relax during sleep, causing soft tissue in the back of the throat to collapse and block the upper airway. This leads to partial reductions (hypopneas) and complete pauses (apneas) in breathing that can produce abrupt reductions in blood oxygen saturation. Brief arousals from sleep restore normal breathing but can cause a fragmented quality of sleep. Most people with OSA snore loudly and frequently, and they often experience excessive daytime sleepiness.

Source: American Academy of [Sleep Medicine](#) ([news](#) : [web](#))

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