Medical Xpress

Novel device quantifies the efficacy of oral appliance therapy for snoring and sleep apnea

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New research that will be presented Saturday, June 11, at the 20th Anniversary Meeting of the American Academy of Dental Sleep Medicine (AADSM) in Minneapolis, Minn., quantified the efficacy of mandibular advancement splints (MAS) using a self-administered, at-home device to monitor snoring and sleep-disordered breathing.

Clinical assessment of MAS efficacy in the treatment of snoring and obstructive sleep apnea (OSA) is based predominantly on subjective reports by the patient and partner, and less commonly, on the apnea hypopnea index (AHI), which is the average number of pauses in breathing that occur per hour of sleep. The current study used the Sonomat, a portable, unobtrusive device that has sensors contained within a mattress overlay. These sensors measure AHI by detecting and recording snoring, breathing and body movements.

Results show that MAS treatment reduced the average AHI from 10.3 events per hour to 3.8 events per hour. The respiratory event movement index (RMI), which records more types of events than AHI, was reduced from 15.9 events per hour to 7.6 events per hour.

There was also a decrease in the percentage of patients who snored from 38 percent without the MAS to 15 percent with the MAS. Snoring decreased overall, but 12 of the 42 subjects still snored for greater than 25 percent of the night, with several having substantial increases in

snoring.

"The primary findings in our study were that MAS devices were effective in the treatment of OSA by reducing AHI in moderate and severe OSA patients," said principal investigator and lead author Joachim Ngiam, BDS. "Overall, significant reductions in snoring were found to occur with MAS therapy with greater changes seen in OSA patients."

The study involved data from 42 men and women over two consecutive nights. The subjects slept the first night without the MAS and the second night with the MAS advanced to 70 percent of maximum jaw protrusion.

The researchers also found what appeared to be a devolutionary effect with MAS treatment in attenuating or reversing the progression of a snorer's disease to OSA, as a substantial number of patients transitioned to lower AHI and snoring categories.

Despite favorable reductions in AHI with MAS treatment, snoring may persist and patients may question treatment success, indicating a need for quantification of therapy efficacy.

"Although significant reductions in AHI and snoring were observed, residual snoring may persist or even increase in some patients," said Ngiam. "A significant proportion of patients, 29 percent, still snored greater than 25 percent of total sleep time, with several having substantial increases despite MAS therapy."

Provided by American Academy of Sleep Medicine