Study finds excellent agreement between subjective and objective compliance with OAT

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According to new research that will be presented Saturday, June 11, at the 20th Anniversary Meeting of the American Academy of Dental Sleep Medicine (AADSM), objective compliance measurements agree with subjective compliance estimates in patients with obstructive sleep apnea (OSA) undergoing oral appliance therapy (OAT) – a finding that is not apparent in patients using continuous positive airway pressure (CPAP) therapy.

Results show that the objective mean wearing time in the whole group was 6.8 hours per night. Among 21 patients who filled out the subjective compliance diary, both the objective and subjective mean wearing times were 7.0 hours per night.

"The results of this study suggest that the use of an objective instrument to measure oral appliance compliance during treatment of obstructive sleep apnea is feasible and, therefore, should be implemented in future studies dealing with oral appliance therapy for obstructive sleep apnea," said principal investigator and lead author Olivier M. Vanderveken, MD, PhD, a staff-member consultant ENT, head and neck surgeon at the Antwerp University Hospital, and faculty lecturer at the Faculty of Medicine of the University of Antwerp in Belgium.

"These results contrast with the finding in literature on compliance during CPAP treatment revealing that self-reported daily compliance

with CPAP significantly overestimates the actual daily use of CPAP as assessed by objective measurement of CPAP compliance," said Vanderveken.

This four-week clinical trial compared active measurement of Mandibular Repositioning Appliance (MRA) compliance with patients' self-reports. The study involved 23 men and women with an established diagnosis of sleep-disordered breathing (SDB) who had an average apnea-hypopnea index (AHI) of 14.8 breathing pauses per hour of sleep. They had an average age of 47 years. Compliance was measured during MRA treatment by establishing a mean rate of use, using an active built-in microsensor thermometer (TheraMon) with on-chip integrated read-out electronics. The sampling interval of the recording by the active microsensor was done at a rate of 1 measurement per 15 minutes (every 900 seconds). The subjects were unaware that their MRA use was being measured objectively.

The read-out of the data was performed at a one-month interval. During the follow-up visit, patients were asked to fill out a questionnaire about MRA wear during the last four weeks (mean hours/night, mean nights/week). The objective measurement of MRA wear time was based on the assumption that the MRA has been worn when the chip records a temperature intraorally > 89.6 °F. To compare the subjective estimates of the patients with the objective data from the microsensor, a Wilcoxon signed rank test was performed.

"The removable nature of an oral appliance warrants an objective assessment of the effective use and compliance with overnight oral appliance treatment for obstructive sleep apnea," said Vanderveken.

This abstract will receive the Clinical Excellence Award and Clinical Research Award at the AADSM 20th Anniversary Meeting.