

Surgery, oral devices associated with improvement in sleep breathing disorder

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Treatment with surgery or an oral appliance that adjusts the jaw is associated with improvements in obstructive sleep apnea, a condition caused by blocked upper airways in which patients periodically stop breathing during sleep, according to two reports in the May issue of *Archives of Otolaryngology-Head & Neck Surgery*.

Sleep apnea is most commonly treated with continuous positive airway pressure (CPAP) therapy, according to background information in one of the articles. Individuals undergoing CPAP therapy wear a mask at night connected to a machine that increases air pressure in the throat, preventing the airway from closing. "Although it is a safe and effective therapy, it has several drawbacks including discomfort or skin irritation from the mask, dry or stuffy nose and eye irritation," the authors write. "Such complications result in compliance rates of between 50 percent and 70 percent, even in patients with successful amelioration of obstructive sleep apnea syndrome symptoms by using CPAP ventilation."

"Patients with obstructive sleep apnea who cannot tolerate or refuse CPAP therapy may be considered for surgical treatment," write Neville Patrick Shine, F.R.C.S. (O.R.L.-H.N.S.), of St. Johns Hospital, Edinburgh, Scotland, and Richard Hamilton Lewis, F.R.A.C.S., of Royal Perth Hospital, Perth, Australia. Drs. Shine and Lewis reviewed the medical records of 60 patients (55 men and five women, average age 47.5) undergoing surgery to treat obstructive sleep apnea between 2002 and 2006. The procedure, transpalatal advancement pharyngoplasty,

aims to address the airway obstruction and create a larger space in the area behind the roof of the mouth. All participants underwent sleep testing before and after surgery.

As measured by the number of sleep disturbances and arterial oxygen saturation (the amount of oxygen in blood flowing through the arteries, which decreases in patients with obstructive sleep apnea), surgery was considered successful in 38 of the 60 patients (63 percent). Sleep apnea was completely cured in 21 patients (35 percent).

No associations were found between preoperative characteristics—including demographic, historical and clinical variables such as disease severity or obesity—and surgical outcome, suggesting that it may be difficult to predict which patients will respond well to the procedure.

"To our knowledge, this is the largest series reported to date regarding the transpalatal advancement pharyngoplasty procedure," the authors conclude. "It should be considered in patients in whom conservative management has failed and who are willing to undergo surgery to improve the retropalatal airway."

In another article, Chul Hee Lee, M.D., and colleagues at Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, Korea, evaluated 50 Korean patients (46 men and four women, average age 50.2) who received an oral device to treat obstructive sleep apnea between 2005 and 2007. The mandibular advancement device prevents airway obstruction by moving the lower jaw forward. Patients underwent sleep testing by polysomnography before and at least three months after receiving the device, completed questionnaires about sleep quality and sleepiness and had several measurements of their tongue and throat areas taken and analyzed.

As defined by the number of episodes of shallow or stopped breathing per night, the device was considered successful in 37 of 50 patients (74 percent). This included three of seven patients with mild cases of obstructive sleep apnea (43 percent), 22 of 27 with moderate cases (82 percent) and 12 of 16 with severe cases (75 percent). No differences were seen between patients who did and did not respond successfully to treatment with regards to demographic data or data gathered during sleep testing.

"In conclusion, the mandibular advancement device is a simple, non-invasive, easy-to-manufacture and easy-to-use device and showed good treatment outcome in nocturnal respiratory function and sleep quality in Korean patients with obstructive sleep apnea," the authors write. "Even in patients with severe obstructive sleep apnea, mandibular advancement device application showed a good success rate. Hence, mandibular advancement device application can be used as a good alternative option in patients with obstructive [sleep](#) apnea, without patient selection, and could be used in [patients](#) with severe obstructive [sleep apnea](#)."

More information: *Arch Otolaryngol Head Neck Surg.* 2009;135[5]:434-438, 439-444.

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