



The National Healthy Sleep Awareness Project involves a partnership between the American Academy of Sleep Medicine, Center for Disease Control and Sleep Research Society. The long term goal of the project is to promote improved sleep health in the United States. The project will increase public awareness of the importance of healthy sleep. It also will promote the treatment and prevention of sleep disorders.

Treatment of Obstructive Sleep Apnea

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INTRODUCTION

In our previous article, we discussed a 49-year-old-man with GERD, depression, hypertension, and obesity who complained of snoring and excessive daytime sleepiness. Suspicion for obstructive sleep apnea (OSA) was high, and the authors reviewed indicators of and screening for the disorder. This article discusses OSA treatment options.

CASE CONTINUED

The patient undergoes a home sleep study which shows an apnea-hypopnea index (AHI) of 26 respiratory events per hour. Before revisiting his sleep specialist, he discusses treatment options with his family physician.

DISCUSSION

An AHI of 26 events/h indicates moderate OSA. The decision to treat his sleep disorder depends on many factors, including OSA severity, medical comorbidities, and associated symptoms (e.g. daytime sleepiness). Treatment of severe OSA, with or without symptoms, has been associated with cardiovascular event reduction.^{1,2} Anyone with OSA and daytime sleepiness (“OSA syndrome”) should be offered treatment.^{3,4} Our patient’s history of depression and hypertension are also indications for definitive treatment, regardless of OSA severity. Weight loss counseling is an essential first step; weight management decreases OSA severity and associated symptoms.⁵⁻⁷

Positive airway pressure (PAP) is first-line therapy for all patients with moderate to severe OSA, those with mild OSA syndrome, and any patients with significant comorbidities (e.g. depression, diabetes, hypertension).⁸ PAP works as a pneumatic splint, relieving upper airway obstruction during sleep. A small, quiet device sends pressurized room air through flexible tubing into a facial interface. Available interfaces include “full face” masks delivering air through the nose and

mouth, nasal masks and “pillows” providing air intranasally, and rarer “oral masks” delivering air only through the mouth.

Mandibular advancement devices (MADs) offer another effective treatment option for patients with mild to moderate OSA as well as those with severe disease who decline or are intolerant to PAP.^{9,10} Supplied by dentists, after referral from the physician, these oral appliances increase upper airway caliber by bringing forward the jaw, tongue, and other soft tissues. While viable treatment alternatives, MADs are not as effective as PAP in normalizing AHI¹¹ and are not indicated as first line therapy for severe OSA.¹² Many medical insurances, including medicare, provides coverage.

Various surgical options are available, including uvulopalatopharyngoplasty (UPPP) and maxillomandibular advancement (MMA). These procedures can reduce the AHI, but less effectively than PAP. They carry significant risk of side effects and are reserved for patients intolerant to PAP or MADs, and those with significant cranio-facial abnormalities (e.g. mandibular hypoplasia).^{13,14} Tracheostomy remains a viable option for PAP-intolerant patients with severe OSA; the procedure is nearly 100% effective in eliminating obstructive apneic events, but associated social stigma and lifestyle modifications limit patient acceptance.¹⁵ Tonsillectomy/adenoidectomy is considered first-line therapy for pediatric OSA but is less effective in adults.¹⁶

An array of other OSA treatments have emerged. Positional therapy, accomplished by sewing tennis balls into the back of a night shirt, sleeping laterally against a full body pillow, or wearing an anti-supine belt, is available for supine-predominant OSA. It can be effective¹⁷ but not to the extent of PAP.¹⁸ Patients with mild to moderate OSA can also trial nasal expiratory positive airway pressure (EPAP) generated by a one-way valve adhered to the base of the nostrils. Although early data shows modest benefit,^{19,20} direct comparisons to PAP in treatment-naïve patients are lacking. Emerging methods of hypoglossal nerve stimulation may also improve airway patency through genioglossus muscle contraction.^{21,22}

CASE CONCLUSION

The patient and his physician agree that he should begin PAP therapy. His sleep specialist prescribes autotitrating PAP (APAP) at a range of 5-20 cm H₂O. Over the next several months his excessive daytime sleepiness improves, he no longer snores, and he has more energy to use his fitness center.

TREATMENT OF OBSTRUCTIVE SLEEP APNEA

Several models of care for ongoing PAP management for patients with OSA exist. Primary care clinicians may consider consultation and collaboration with a sleep specialist as an effective model of care.²³ Additionally, successful models driven by primary care practitioners have been demonstrated.²⁴ The decision to start APAP versus fixed-setting, continuous PAP (CPAP) is increasingly common. APAP units adjust PAP based on airflow limitation, apneas, and snoring. They are as effective as CPAP²⁵ and, given reduced need for in-laboratory CPAP titration, can lead to significant cost savings. APAP- or CPAP-intolerant patients and individuals requiring more advanced nocturnal ventilation may use bi-level PAP (BPAP).

Whichever PAP mode is utilized – APAP, BPAP, or CPAP – adherence is essential. A dose-response relationship exists between increasing PAP use and improved sleepiness, blood pressure, and quality of life.^{26,27} Although the Centers for Medicare and Medicaid Services (CMS) and many private insurers require ≥ 4 hours of use on $\geq 70\%$ of nights to document adherence, PAP use should be encouraged with all sleep. Family physicians can dovetail their efforts with those of sleep specialists to improve PAP adherence by promoting positive initial experiences with PAP, providing anticipatory support for future troubleshooting, and involving bed partners and other family members in OSA treatment.

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