

Management of Snoring and Obstructive Sleep Apnea with Mandibular Repositioning Appliances: A Prosthodontic Approach

Reva Malhotra Barewal, DDS, MS^{a,*},
Chad Cameron Hagen, MD, DABPN^b

KEYWORDS

- Sleep apnea • Mandibular advancement • Oral appliances • Snoring
- Practice guidelines • Review

KEY POINTS

- Dentists are becoming increasingly aware of the importance of detection and management of obstructive sleep apnea.
- The anatomic and neuromuscular risk factors in the pathogenesis of obstructive sleep apnea are reviewed with particular emphasis on oral findings.
- Mandibular repositioning appliances hold an important role in the treatment of this condition; however, knowledge of indications and contraindications for treatment, potential areas of oropharyngeal obstruction, appliance design, and treatment steps are vital to ensure maximum treatment success.

INTRODUCTION

The understanding of the complex link between healthy sleep and brain and body function is relatively new. The knowledge base of sleep disorders has exponentially increased over the past 20 years beginning with the publication of the first book on sleep medicine in 1989 titled, *The Principles and Practice of Sleep Medicine*, edited by Kryger and colleagues,¹ recognizing sleep as a specialty in its own right. Dental sleep medicine is also a rapidly emerging discipline that supports sleep specialists, pulmonologists, otolaryngologists, neurologists, and psychiatrists in screening patients for sleep-disordered breathing and providing treatment for many of these patients. The importance of a multidisciplinary approach cannot be understated as the most effective method of treating this condition. New research is showing links

^a Private Practice, 9300 Southeast 91st Avenue, Suite 403, Portland, OR 97086, USA; ^b Sleep Disorders Program, Oregon Health and Science University, 3181 Southwest Sam Jackson Park Road, Portland, OR 97239, USA

* Corresponding author.

E-mail address: drb@fusiondentalspecialists.com

between sleep-disordered breathing, nocturnal parafunction, sleep-related movement disorders, and finally, sleep-orofacial pain interactions.² A greater awareness of these links would increase skills in providing a more holistic approach to care for patients. Although continuous positive airway pressure (CPAP) remains the first line of treatment for sleep apnea, there is an important role for mandibular advancement devices, which require dentists to have a good understanding of occlusion, temporomandibular disorders (TMD), and removable appliance therapy. In consideration that these areas of learning are already being taught in prosthodontics creates a natural selection for dental sleep medicine in this publication. It is the intention to provide a brief review of sleep apnea and guidelines for the dentist to encourage participation of the dentist in recognition of this condition and understanding of treatment options for their patients.

PREVALENCE/INCIDENCE

Sleep-disordered breathing (SDB) conditions are highly prevalent in society and often undiagnosed. SDB decreases the quality of sleep by breaking its continuity and tends to bring the individual to a state of transient arousal. When these arousals are too frequent or too long, they can cause a multitude of neurocognitive complaints. Compromised airflow can result in oxygen desaturation. Sleep disturbance and oxygen compromise are associated with a variety of consequences (**Box 1**), which can affect the individual and impair their ability to function in society.³

Obstructive sleep apnea (OSA) is associated with hypertension, myocardial infarction, coronary artery disease, and arrhythmias.⁴ There is also evidence to suggest neurocognitive impairment, excessive daytime sleepiness, fatigue, mood disturbance, structural brain changes, and reduced quality of life.⁵⁻¹⁰

SDB consists of obstructive and nonobstructive breathing disorders during sleep (**Fig. 1**). Obstructive disorders such as upper airway resistance syndrome cause fragmented less efficient sleep and increased work of breathing because of narrowing of the pharynx or narrowness in the nasal airway. There is no oxygen desaturation less than 4%.¹¹ OSA causes both fragmented sleep and oxygen desaturation. OSA is characterized by repetitive pharyngeal collapse at the level of the soft palate or base of tongue. Obstructive apnea refers to nearly complete cessation of breathing for 10 seconds or more. Obstructive hypopnea refers to partial collapse of the airway resulting in either arousal or oxyhemoglobin desaturation exceeding 3%. Nonobstructive breathing disorders during sleep include central sleep apnea (lack of respiratory drive) and sleep-related hypoventilation or obesity hypoventilation syndrome. Hypoventilation can arise from obesity, chronic obstructive pulmonary disease or asthma,

Box 1

Adverse outcomes associated with OSA

Metabolic disturbances: impaired glucose and lipid metabolism, systemic inflammation

Cardiovascular disturbances: hypertension, stroke, congestive heart failure, arterial fibrillation

Excessive daytime sleepiness

Increased risk of motor vehicle accidents

Impaired quality of life

Depression

Cognitive impairment

Download English Version:

<https://daneshyari.com/en/article/3130759>

Download Persian Version:

<https://daneshyari.com/article/3130759>

[Daneshyari.com](https://daneshyari.com)