

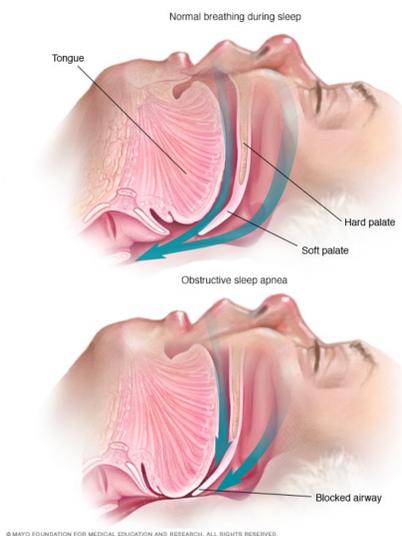
The Role of Dentistry in Diagnosing and Treating OSA

INTRODUCTION

- 18 million people in the US suffer from sleep apnea
- Dentists can be earliest diagnosticians of sleep apnea disorders
- **Obstructive Sleep Apnea (OSA)** is defined as the pharyngeal airway (upper airway) becoming narrowed or obstructed at different intervals during sleep. At least 5 episodes per hour of sleep where respiration stops temporarily
 - In other words, when someone's breathing is interrupted during sleep
- OSA that goes undiagnosed or untreated can lead to severe health outcomes
 - ie: cardiovascular disease, metabolic disorders, depression
- Individuals with OSA also suffer from day-to-day consequences
 - Excessive sleepiness leading to decreased productivity at their workplace, higher chance of automobile accidents, headaches, irritability, and memory loss

A DEEPER LOOK: PATHOPHYSIOLOGY

- There are many anatomical factors that play into the pathophysiology
 - Narrow pharyngeal airway, longer airway, specific pharyngeal lumen shapes which all could lead to pharyngeal collapse during sleep which is the key factor in OSA
 - Pharyngeal structures affected are the genioglossus, soft palate, epiglottis, and lateral pharyngeal walls
- **"Pcrit"** (Pharyngeal critical closing pressure) is the gold standard technique in quantifying upper airway collapse during sleep



PREVALANCE AND RISK FACTORS

- Roughly 85% of those with OSA have gone undiagnosed
- 1 in 5 adults suffer from mild OSA symptoms, 1 in 15 from moderate to severe OSA
- African Americans are equal to Caucasians, lesser so in Asian descent
- Men suffer 2-3x more than women do
- Older patients (age 65-95 years old) are at an increased risk
- **Risk factors** include:
 - **Obesity** (measurement of neck circumference), **tongue** scalloping and fat, **hyoid bone** positioning
 - Shorter **mandibular length**, **craniofacial** anatomy
 - **Hypothyroidism**, **diabetes**, **pregnancy**, **nasal** congestion, **alcohol/tobacco** consumption

DIAGNOSIS IN A DENTAL SETTING

- Typical diagnosis: positive polysomnography or a "sleep study"
- **Bruxism** or **grinding** can be the first sign, something only dentists can diagnose
- As dentists, we look for signs of:
 - **Worn occlusal surfaces**, **gingival recession**, and even **caries**, **scalloped tongue**, **throat redness**
- Those with smaller mandibles are more susceptible to OSA

DENTAL TREATMENTS

- Custom oral appliances made by dentists are a reasonable alternative with those who suffer from mild to moderate OSA
- **CPAP** (continuous positive airway pressure) is the gold standard treatment, but many patients find it challenging to use
- **3 types** of oral appliances available:
 - 1) Tongue retaining devices:** Creates a stop so the tongue cannot block the throat. Plastic splint placed around the tongue and holds it out of place
 - 2) Mandibular advancement devices:** Upper and lower device with metal hinges and screws that can be adjusted to advance the lower jaw
 - ie: Herbst Appliance
 - 3) Occlusal guards:** Similar to mandibular advancement devices, but less invasive. Helps reposition the mandible



Tongue Retaining Device



Mandibular Advancement Device

DENTAL CONSIDERATIONS

- It is important for dental practitioners managing OSA patients utilizing dental appliances to consider:
- Occlusal changes
 - TMJ pain
 - Changes to teeth positioning, mobile teeth
 - Dryness of the mouth

CONCLUSION

- Dentists can be the first practitioners to diagnose OSA in their patients
- Dentists, alongside the patient's PCP or sleep medicine specialist, can fabricate oral appliances that are generally well tolerated by patients with mild to moderate OSA
- Patients should continue to undergo sleep tests with their doctor while utilizing their oral appliances to determine its efficacy

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