Screening and Comprehensive Evaluation for SRBD, Performed by Dentists in Everyday Clinical Practice

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Abstract

Background: The role of the dentist in screening patients at risk for sleep disorders and treating those diagnosed with sleep apnea is well positioned. The purpose of this study is to introduce the methods of screening and detailed evaluation of the risk of developing sleep apnea in dental patients.

Methods: Methods of screening using questionnaires such as ESS, STOP-BANG test and other questions are presented in this study. Once it has been determined that a patient is at risk of sleep apnea, a trained dentist can and should perform a clinical recognition and must be acquainted with the clinical findings that may indicate the risk for sleep apnea. A detailed evaluation assessing wide variety of factors not only in the oral cavity, but also extraoral – the TMJ, muscles, the head and neck posture, the organs of upper airways aims to focus the dentist's attention to a possible higher risk 100 of sleep apnea.

Results: Studies have shown that when a dentist is properly trained to evaluate for a sleep disorder by methods of screening and clinical recognition, the chances of uncovering one rapidly increase.

Conclusions: Becoming aware of conditions involving the head and neck that may indicate an increased level of risk for sleep apnea and higher understanding of those conditions is essential for optimum patient care and may lead to improved quality of life for dental patients.

Introduction

The role of the dentist in modern medicine is expanding rapidly. Today it is proven that the overall health of the patient may be impacted by their dental health. The dental work should not only be associated with the trivial things, such as tooth restoration, root canal cleaning and dentures, but also with the management of some diseases. Today science has proven that periodontal disease can lead to cardiovascular problems and erectile dysfunction (3). As any other family physician dentists can and should identify a patient who is at risk for sleep apnea (4). However, this requires some degree of training- the dentist must be able to recognize the symptoms and clinical findings related to a sleep breathing disorder.

Methods

Applying simple and focused questions such as existing questionnaires (ESS, STOP-BANG) or adding questions to those used by the dentist when taking a health history can easily bring to light factors that increase the risk of SRBD. The dental specialist may use the Epworth Sleepiness Scale (ESS) or the STOP-BANG questionnaire. Table 1 shows the STOP-BANG questionnaire, where every letter stands for a question (5).

First Four Questions	Four Additional Questions
S: snore loudly	B: body mass index > 28
T: feel tired during the day	A: age > 50 years
O: observed/witnessed to have stopped breathing	N: neck size: male > 43 cm; female > 40cm
P: high blood pressure	G: gender: are you a male
Yes to two or more questions: at risk	Yes to one or more : at risk

Table 1. STOP-BANG questionnaire for assessing factors, increasing the risk of sleep apnea.

The ESS contains similar questions, but the answers are given with a point system. At the end of the questionnaire, the sum of the points indicates the risk for an OSA. Assessing the risks of OSA can also happen with the addition of a few basic questions to the existing medical questionnaire: Do you have difficulty falling asleep or staying asleep? Do you snore? Are you frequently tired during the day? Are you aware or have you been told that you stop breathing during sleep? Is your sleep unrefreshing? Special emphasis should be directed toward headaches, cardiovascular disease, diabetes, asthma, allergy, neurocognitive difficulties and medication. Positive responses to these questions would indicate that further evaluation is needed. If a patient is found at risk for sleep disorder, it is important for the dentist to know what additional questions to ask to confirm this and how to properly refer the patient for more definitive care (6). Table 2 shows some of the clinical findings connected with SRBD. Aside from gathering medical history, the temporomandibular joints (TMJs) should be evaluated for joint sounds, joint tenderness or pain. The range of motion of the mandible should also be recorded. Muscle tenderness in the head and neck is often a component of TMD and may be related to bruxism (7). The masseter, sternocleidomastoid, temporal and lateral pterygoid muscles should be evaluated. All dentists are comfortable in evaluating the dental and supporting structures of the oral cavity. Dentists must assess for periodontal disease and loose teeth. The presence of dental caries also must be evaluated. The tongue also should be evaluated in terms of its position at rest in the mouth relative to the soft palate and the ability to view the oropharynx. This evaluation is referred as the Mallampati score (Table 3), where I stands for a full view of the oropharynx and IV represents full obstruction of the oropharynx, soft palate and uvula (8).

Clinical Observation	Potential Relationship
Tongue	
Coated	At risk for gastroesophageal reflux disease or mouth-breathing habit
Enlarged	Increased tongue activity, OSA
Obstruct view of oropharynx (Mallampati score)	I and II lower risk for OSA III and IV increased risk for OSA
Teeth and periodontal structures	
Gingival inflammation	Mouth-breather, poor oral hygiene
Dry mouth (xerostomia)	Mouth-breather, may be medication
Tooth wear	May have sleep bruxism
Airway	
Long sloping soft palate	At risk for OSA
Enlarged/swollen/elongated uvula	At risk for OSA/snoring
Extraoral	
Chapped lips or cracking at the corners	Inability to nose-breathe
Poor lip seal	Chronic mouth-breather

Table 2. Clinical findings, that the dentist can assess, performing a detailed evaluation of the risks of OSA.

Score	What is observed with the tongue at rest mouth wide open
I	Visualize the soft palate, uvula, tonsils and the oropharynx
II	Visualize the soft palate, most of the uvula, superior portion of the tonsils, not the oropharynx
III	Can see the soft palate but not the uvula, tonsils, or into the oropharynx
IV	Cannot see the soft palate or any structures below this, can only see the hard palate

Table 3. Mallampati score for assessing the position and the mass of the tongue by the visibility of the tonsils and uvula.

One of the key elements related to a successful treatment involves the patient's ability to breathe through the nose. Many people have difficulty breathing, especially at night, which can lead to a mouth-breathing habit (9). A questionnaire to determine a patient's breathing problems at night is useful. One of the simple to use is the Nasal Obstruction Symptom Evaluation (NOSE) scale, presented at Figure 1. The NOSE scale includes 5 questions and asks the patient to rate their perception of nasal airway problems over the past month based on a scale of 0 to 4 ranging from no problem to a severe problem (10). Improvement of the nasal airway alone may have an impact on the ability to breathe more comfortably. Through reducing the nasal airway resistance, inspiratory drive can also be reduced, which may reduce snoring and improve apnea.

Figure 1. NOSE – Nasal Obstruction Symptom Evaluation scale

Results

Studies have shown that when a dentist is properly trained to evaluate for a sleep disorder by methods of screening and clinical recognition, the chances of uncovering one rapidly increase.

Discussion

The dentist can assume many different roles in the evaluation of patients for sleep-disordered breathing, from screening to active involvement in management, often using an oral appliance.

Conclusions

Becoming aware of conditions involving the head and neck that may indicate an increased level of risk for sleep apnea and higher understanding of those conditions is essential for optimum patient care and may lead to improved quality of life for dental patients.

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