

Dentists Can Save Lives!

Serious cardiovascular complications, high blood pressure, heart attacks and strokes are linked to OSA

by Brock Rondeau, D.D.S., I.B.O., D.A.B.C.P.

It has been estimated that approximately 90 million people in North America suffer from insomnia, snoring or sleep apnea. Dentists who see patients on a regular basis have an opportunity to diagnose and treat these patients with oral appliances. In the January 2006 issue of the medical journal *Sleep*, the American Academy of Sleep Medicine announced that the first treatment option for patients with mild to moderate Obstructive Sleep Apnea (OSA) was the utilization of oral appliances. For this serious sleep disorder there are basically three treatment options: *surgical intervention*, the wearing of the *CPAP device* and *oral appliances*.

The majority of my patients are coming to me because they were diagnosed with OSA, given the CPAP device and were unable to wear it. The statistics on the success of the CPAP device varies greatly according to the sleep clinics but there are thousands of patients who either will not or cannot wear this device, despite the fact that this device is almost 100% effective in eliminating OSA when worn on a regular basis.

When patients present with severe OSA; however, I think medical and dental practitioners must work together to encourage the patient to wear this life-saving device. The literature is replete with articles that mention the



serious cardiovascular complications that can arise, including high blood pressure, heart attacks, strokes, cardiac arrhythmias, and hypercapnia, when patients stop breathing hundreds of times each night (severe OSA). The dental profession needs to focus on treating patients with mild to moderate OSA or on those who snore but do not have OSA. It has been my experience that the majority of patients seen in an average dental practice can be treated successfully with an oral appliance if the airway obstruction problem can be solved prior to treatment.

Airway obstruction can be *nasal*, *oropharyngeal* or *hypopharyngeal*.

1. Nasal obstruction

includes deviated septums, enlarged turbinates, polyps, allergies, etc. To help diagnose nasal obstructions, the rhinometer is an excellent, accurate and non-invasive device which evaluates the potential obstructions in each side of the nasal airway. Sound waves go up the nose and any obstructions are recorded on the computer. The presence of such obstructions would result in a referral to an E.N.T. specialist for evaluation and treatment. This should be done prior to the fabrication of the oral appliance, which will significantly increase the success rate of your treatment.

2. Oropharyngeal obstruction

means obstructions in the oral cavity, including constricted maxillary arches, high palates, enlarged tonsils or adenoids, excess soft tissue in the area of the soft palate, large tongue or an enlarged uvula. In the case of a constricted maxillary arch and a high palate, these patients will need

to have their upper arches expanded with an orthopedic appliance, preferably a fixed appliance.

Patients with enlarged tonsils must have them removed prior to the fabrication of the oral appliance. I recently treated an 18 year old male with a BMI (Body Mass Index) 36 with a neck circumference of 20 inches and AHI 49 events per hour (severe OSA). This diagnosis was made using a home study device, an Emblemata, and a hospital sleep study (polysomnogram).

I find that the overnight sleep study device, Emblemata, is extremely useful as a screening tool to assess the seriousness of the sleep disorder. Patients that are found to have moderate to severe OSA are referred to a hospital or sleep clinic for the polysomnogram, where the diagnosis is made by a sleep specialist.

I subsequently wrote a letter to the E.N.T. specialist and reported the findings, which indicated severe OSA, and the tonsils were removed. The E.N.T. specialist wrote an extremely complimentary letter regarding my correct diagnosis of this young man's problems. Prior to the surgery, his AHI was 49 (severe OSA), loud snoring. After the surgery, his AHI was 12 (mild OSA), slight snoring. Since he still had mild OSA, I recommended an oral appliance, which reduced his AHI to seven, which is almost normal. I believe that we, as general dentists, need to recognize that patients who are overweight with large necks are extremely vulnerable to OSA and must be diagnosed and treated.

3. Hypopharyngeal obstruction

(throat) frequently occurs when patients are Class II skeletal (normal maxilla and underdeveloped or retrognathic mandible).

At night, when the patient is asleep, the tongue falls back and blocks the airway. This is particular serious when the patient sleeps on their back. The main function of the oral appliance is to move the lower jaw forward, increase the posterior vertical dimension and subsequently move the

tongue forward to open up the pharyngeal airway. The pharyngometer is a diagnostic device that is utilized to diagnose the size of the airway during the daytime as well as nighttime. To assess the size of the collapsed airway at night, we ask the patient to exhale all the air from their lungs and a measurement is taken. Then my staff will take a simple bite registration to see if the airway could be increased in size when the mandible was moved forward and the bite opened in the anterior.

When we tried to move the 18 year old male patient's jaw to different forward positions, we could not see any increase in the airway. Therefore, I was sure that the oral appliance would not be effective unless the tonsils were removed. As shown previously, after the tonsils were removed, the oral appliance was effective in significantly decreasing his OSA and snoring.

What would have been the health consequences if we had not treated his severe sleep apnea at age eighteen? In addition to the cardiovascular implications, which were discussed previously, severe OSA also predisposes him to type 2 diabetes and GERD. The social implications also include loss of memory, difficulty concentrating, excessive daytime sleepiness which increases the risk of traffic accidents, impotence, and depression. My staff and I feel good about the fact that we were able to prevent this problem from getting worse.

Some authorities report in the literature that oral appliances are only effective in 50% of the cases at reducing OSA. I think that this is extremely misleading! I do not think oral appliances should be utilized for severe OSA unless the patient absolutely cannot wear the CPAP device. Oral appliances should be fabricated routinely for patients with mild (AHI 5 - 15 events per hour) or moderate OSA (AHI 15 - 30 events per hour). Therefore, the proper diagnosis must be made by a medical specialist prior to treatment with an oral appliance. I believe that airway obstructions in the nasal and oropharyngeal areas must be removed prior to the fabrication of an oral appliance.

When oral appliances are utilized in these cases, they are highly effective. My success rate with oral appliances is in excess of 90%. The reason for this is that I routinely evaluate my patient's nasal airway (rhinometer), oropharyngeal airway and hypopharyngeal airway (pharyngometer), prior to treatment. If you cannot properly diagnose the problem, then your treatment will be less successful.

The dental profession has the treatment option that most patients prefer. Recently, I spoke with a sleep specialist in Nevada who estimated that 15 to 30% of the population is suffering from mild, moderate or severe OSA. I think the dental profession needs to learn how to diagnose and properly treat these patients. Not only will you feel better about yourself and your practice, but you will also significantly improve your net worth. We are presently treating approximately 3 patients with sleep disorders per week and the fee is \$3,000 per treatment.

I would urge dentists who are interested in helping their patients to take courses on this important subject so they can help their patients improve their quality of life and overall general health.



Dr. Brock Rondeau

Dr. Brock Rondeau is a general dentist whose practice is limited to the treatment of patients

with orthodontic, orthopedic, TMJ and snoring and sleep apnea problems. He graduated from Dalhousie University Dental School in Halifax, Nova Scotia in 1966. He is a diplomat of the International Board of Orthodontics and has approximately 700 active patients. Dr. Rondeau lectures internationally for more than 100 days per year and has for the past twenty-four years. He has taught in Canada, the United States, England, Hong Kong, Australia, and Poland. Dr. Rondeau is also a Diplomate of the American Board of Craniofacial Pain.

FELLOWSHIPS/MASTERSHIPS/DIPLOMATES

- 1988 Fellowship International Association for Orthodontics
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- 2005 Fellowship American Academy of Craniofacial Pain
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CONTRIBUTIONS TO THE FIELD OF DENTISTRY

- Contributing Editor, Journal Clinical Pediatric Dentistry
- Contributing Editor, Journal of General Orthodontics
- Contributing Editor, Functional Orthodontist

PROFESSIONAL ACHIEVEMENTS

- 1982 Certified Instructor, International Association for Orthodontics
- 1983 IAO Pinsker Award Winner
- 1986 IAO Past President
- 1993 AAFO Clinician of the Year
- Contributing Editor, Journal of General Orthodontics
- 2006 Voted one of Dentistry Today's 9th Annual Top Clinicians in CE
- 2007 Voted one of Dentistry Today's 10th Annual Top Clinicians in CE

PROFESSIONAL SOCIETIES

- Ontario Dental Association
- Ontario Society of Preventive Dentistry (Past President)
- Canadian Dental Association
- London-District Dental Society
- London Preventive Society (Past President)
- American Association for Functional Orthodontics
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- American Academy of Craniofacial Pain
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