

Bruxism and Biopsychosocial Symptoms - A Systematic Review

Thanish Ahamed S¹, Jyothi Priya²

1st year Student, BDS Saveetha Dental College¹,

Asistants Professor ,Physiology Department Saveetha Dental College²

INTRODUCTION:

Bruxism has been defined as an involuntary repetitive jaw muscle activity characterised by jaw bracing, clenching, grinding and gnashing of the teeth especially the mandibular bone[1][2]. Bruxism can simply classified as awake bruxism i.e bruxism occurs during wakefulness and sleep bruxism i.e occurs while sleep [3]

bruxism as repetitive jaw muscle activity characterized by clenching or grinding of the teeth and/or by bracing or thrusting of the mandible that can occur during wakefulness(i.e., awake bruxism)orduringsleep (i.e., sleep bruxism)

Prevalence rate of AB and SB is about 20 and 8–16% respectively in adult population. AB is found to be predominantly among females while no such gender difference is seen for sleep bruxism. Onset of SB is about 1 year of age soon after the eruption of deciduous incisors . The disorder is appearing more frequently in the younger population [8]. The prevalence in children is between 14 to 20%. In adults aged above 60 years and over only 3% are being aware of frequent grinding^[4,5,6].

Historically, occlusal discrepancies and dental-skeletal anomalies were hypothesized as major causes in the initiation and perpetuation of bruxism. However, current understanding does not support these conditions as etiologic factors^[7,8]. The association between bruxism and sleep came from studies using polysomnography in which masticatory motor activity, autonomic parameters and brain electrical activity (EEG) were recorded during sleep. Such investigations indicated that bruxism, as measured by increased electromyographic (EMG) activity in the masticatory muscles, is the result of an arousal response or a sudden change in the depth of sleep during which an individual transitions from deeper to lighter sleep.Although bruxism can occur in all stages of sleep, it is more often observed during stage 1 and 2 of non-rapid eye movement (NREM) sleep and during rapid eye movement (REM) sleep^[9]

METHODS :

A pubmed search was done using the key words ;Bruxism , Bruxism medications and TMJ related problems to know more about bruxism . Additional information was collected using the terms Temporomandibular disorder,, saliva and sleep diseases from various sources. Studies were reviewed for relevant data and the following are established

Since the results of this investigation show that bruxism is not only related to physical abnormalities but also to

behavior and life-style, dentists may find that some patients will continue to brux no matter how much their dental condition is improved. In these patients, the dental materials used in restorative treatment should be resistant to wear and breakage. For instance, porcelain occlusal surfaces on posterior crowns or large posterior composite resin restorations may be con- traindicated. Teeth weakened by large restorations would also be evaluated as potential cusp fractures due to the force produced by bruxing. The dentition may need to be protected with a prosthesis to be worn during times the patient is most apt to brux. When presenting treatment plans, dentists should be aware of “type A characteristics” so as to enlist patient cooperation. Information should be presented to patients in personally relevant and salient ways, such as using audio-visual aids to show the effects of bruxism. This can help the patient comply with treatment recommendations, especially with the use of splints. Finally, since bruxism may affect the outcome of treat- ment of TMJ disorders and chronic pain, steps should be taken to control parafunctional activity. It may become important to refer patients to a stress or life-style manage- ment program if they brux severely and continuously, es- pecially if the patients are highly competitive and are un- der life stress. These programs, with the appropriate and indicated dental care, can help them develop alternative skills needed to prevent serious damage to their teeth and related structure.

At present there is no treatment that effectively, permanently eliminates the bruxing habit . For that reason the therapeutic approach to SB for now is oriented toward palliating, albeit partially, the effect of SB and preventing and treating its pathological effects on the stomatognathic apparatus. One of the most important therapeutic tools is to give the patient information and a detailed, simple explanation of the clinical picture. Although the etiopathogenesis and physiopathology of SB seem to rest on central mechanisms that are beyond voluntary control (neurotransmitter activity, micro-arousals), the patient’s cooperation in observation of the habit during wakefulness and the patient’s engagement in the self-management of the habit through self-relaxation measures are very important elements for helping to reduce the frequency and intensity of masticatory muscle activity during wakefulness, which favours muscle relaxation and the reduction of bruxing episodes during sleep. If the patient does not assume responsibility for this important aspect of self-management in therapy and apply it, any other

measures will be of only very limited usefulness. There are some pharmacological compounds (botulinum toxin type A, benzodiazepines and other muscle relaxants, anticonvulsants, beta blockers, dopamine and other dopaminergic drugs^[17], antidepressants, clonidine, etc.) that can help control SB, although their use must be restricted to nonrecurrent situations, such as the start of treatment or periods of exacerbation due to a rise in emotional tension, and always as part of a comprehensive, interdisciplinary approach.^[10,11,12,13]

Further management strategies are the initial management of bruxism should be directed at identifying the causes of dysfunctional sleep and working toward reducing factors that might fragment the patient's sleep architecture^[14,15].

The following factors contribute to sleep disturbance:

- Over the counter stimulants
- Excessive caffeine and alcohol consumption
- Cigarette smoking
- Stress
- Shift work, deployment schedule
- Pain, medical conditions
- Psychiatric disorders
- Others

Optimum sleep management will require active participation by the patient, and in some instances, may warrant an interdisciplinary approach with other health care providers. Non-pharmacologic treatments, such as cognitive behavioral therapy, can significantly reduce the physiologic arousal often present in patients with sleep complaints.¹¹ Sleep hygiene instructions should also be provided to patients.^[15,16]

CONCLUSION:

Bruxism should not be considered as an isolated, anatomic dental problem. Instead, it may be more accurately categorized as a sleep-related disorder with dental and masticatory muscle implications. The prognosis for bruxism is variable depending on the severity and duration of the factors producing arousals during sleep. Intraoral appliances may protect dental structures from wear; however, a long lasting reduction in nocturnal masticatory muscle activity and awakening pain complaints may not be possible without identifying and addressing the etiology of the underlying sleep disturbance.

REFERENCE:

1. American Academy of Orofacial Pain. Orofacial Pain: Guidelines for assessment, classification and management. Chicago: Quintessence;1996.
2. textsClinical Update Vol. 28, No. 1 by U.S. Navy. Naval Postgraduate Dental School, January 2006 Bruxism – a review Commander Ngoc-Nhung Tran, DC, USN and Captain John F. Johnson, DC, USN
3. Lobbezoo F, Ahlberg J, Glaros AG, Kato T, Koyano K, Lavigne GJ, et al. Bruxism defined and graded: an international consensus. *J Oral Rehabil.* 2013;40D1]:2–4
4. ICSID—International Classification of Sleep Disorders: Diagnostic and Coding manual. Diagnostic Classification Steering Committee, Thorpy, Chairman, Rochester, MN: American Sleep Disorders Association (1990)
5. Sari S, Sonmez H (2001) The relationship between occlusal factors and bruxism in permanent and mixed dentition in Turkish children. *J Clin Pediatr Dent* 25:191–194
6. Lavigne G, Montplaisir JV (1994) Restless legs syndrome and sleep bruxism: prevalence and association among Canadians. *Sleep* 17:739–743
7. Rugh JD and Harland J. Nocturnal bruxism and temporomandibular disorders. *Adv Neurol.* 1988;49:329-41.
8. Lavigne GJ, Goulet JP, Zuconni M, Morrison F, Lobbezoo F. Sleep disorders and the dental patient: an overview. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1999 Sep;88(3):257-72.
9. Macaluso GM, Gurra P, DiGiovanni G, Boselli M, Parrino L, and Terzano MG. Sleep bruxism is a disorder related to periodic arousals during sleep. *J Dent Res.* 1998 Apr;77(4):565-73.
10. Lobbezoo F, Van der Zaag J, Van Selms MK, Hamburger HL, Naeije M. Principles for the management of bruxism. *J Oral Rehabil.* 2008;35:509-23.
11. Mohamed SE, Christensen LV, Penchas J. A randomized doubleblind clinical trial of the effect of amitriptyline on nocturnal masseteric motor activity (sleep bruxism). *Cranio.* 1997;15:326-32.
12. Raigrodski AJ, Mohamed SE, Gardiner DM. The effect of amitriptyline on pain intensity and perception of stress in bruxers. *J Prosthodont.* 2001;10:73-7.
13. Macedo CR, Silva AB, Machado MA, Saconato H, Prado GF. Occlusal splints for treating sleep bruxism (tooth grinding). *Cochrane Database Syst Rev.* 2007;4:CD005514.
14. Lavigne GJ, Goulet JP, Zuconni M, Morrison F, Lobbezoo F. Sleep disorders and the dental patient: an overview. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1999 Sep;88(3):257-72.
15. Macaluso GM, Gurra P, DiGiovanni G, Boselli M, Parrino L, and Terzano MG. Sleep bruxism is a disorder related to periodic arousals during sleep. *J Dent Res.* 1998 Apr;77(4):565-73.
16. Lobbezoo F, Naeije M. Bruxism is mainly regulated centrally, not peripherally. *J Oral Rehabil.* 2001 Dec;28(12):1085-91.
17. Jacobs G, Pace-Schott E, Stickgold R, Otto M. Cognitive behavior therapy and pharmacotherapy for insomnia: a randomized controlled trial and direct comparison. *Arch Intern Med.* 2004 Sep 27;164(17):1888-96.