REVIEW ARTICLE

Awake Bruxism Intensified During COVID-19 Pandemic by Cumulative Stress – An Overview

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ABSTRACT

COVID-19 pandemic may produce prolonged and unaccustomed emotional stress which appears to accumulate during such difficult times. The cumulative stress may have a profound impact on a wide range of health outcomes, including oral health. Persons under such intensified stress are more likely to clench their jaws or grind their teeth during wakefulness, that is, awake bruxism. Identification of such bruxism can present a challenge for dental professionals and it often goes unnoticed until harmful orofacial effects occur. Lack of knowledge of such bruxism among dental professionals may result in oral complications such as damage to teeth, facial or jaw muscle pain, and teeth sensitivity. The aim of this overview is to highlight the awake bruxism which could be developed/intensified during COVID-19 pandemic by excessive stress and to present the several aspects related to this dental condition.

Key words: Anxiety, awake bruxism, biofeedback, botox, clenching, COVID-19, grinding, occlusal guard, pandemic, sleep bruxism, stress

INTRODUCTION

COVID-19 pandemic constitutes a public health emergency of global concern and has substantially impacted the world economy. Several dramatic actions were imposed to reduce the spread of coronavirus which included closing businesses, making people stay home and observe increased hygienic measures, and wearing face masks outdoors as well as practicing physical distancing. Such actions almost disrupted all aspects of people's lives, including employment, education, and entertainment, as well as travel, transportation, and recreation.[1]

The impact of such actions on people's lives has resulted in growing concerns and uncertainties which created fears among people of losing their jobs or becoming infected with the coronavirus and die. These concerns impacted people's mental health and created an environment of excessive anxiety and high levels of emotional stress.[2-4]

The intolerance of uncertainty and inability to cope with such excessive anxiety and high levels of emotional stress may lead to harmful oral health consequences. These include developing teeth grinding during wakefulness or awake bruxism[5,6] or worsening the existing ones.[7]

The aim of this overview is to highlight the awake bruxism which may be developed/intensified during COVID-19 pandemic by increased stress and to present the several aspects related to this dental condition.

Awake bruxism (also known as wakeful bruxism or diurnal bruxism) is a repetitive jaw muscle activity characterized by unconscious jaws clenching or teeth grinding during wakefulness and has a psychosocial component. It differs from sleep bruxism (also known as nocturnal bruxism) which occurs while asleep and is considered a sleep-related movement disorder and may accompany other sleep disorders.[8,9] Both awake and sleep bruxism may create deleterious effects to the maxillofacial area.[10]

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The exact etiology of awake bruxism is not completely understood and is considered multifactorial. It can be attributed to a combination of the following factors: (1) psychosocial; the most important factor where excessive emotions can lead to anxiety, stress, anger, frustration, or tension, (2) personality; such as aggressive, hyperactive, or competitive, (3) adverse effect of medications and other substances; such as certain antidepressants, and recreational drugs, and (4) coping mechanism; where the body may rely on a conscious or unconscious awake bruxism for adaptation and management of excessive stress.[11]

Identification of awake bruxism can present a challenge for a dental professional and it often goes unnoticed until a dental emergency occurs. Diagnosis of awake bruxism is based on history taking and is combined with clinical examination utilizing the following signs and symptoms: (1) tooth wear which is seen within normal range of jaw movements or at eccentric position, (2) tooth or teeth hypersensitive to cold air or liquid, (3) masticatory muscles discomfort, fatigue or stiffness, (4) occasional headache in temporal muscle region, (5) masseter muscle hypertrophy on voluntary contraction, (6) tongue or cheek indentation, and (7) tooth mobility.[9,11]

Failure to detect and manage awake bruxism may result in the following negative oral health consequences: (1) damage to teeth, crowns, or restorations, (2) severe facial or jaw muscle pain, (3) problems in chewing, speaking, and swallowing, (4) tension-type headache, (5) temporomandibular joint disorders, (6) referred ear pain, and (7) masseter muscle enlargement.[12]

Intervention to control the psychosocial factor of awake bruxism should be the first step in managing awake bruxism. The following approaches may be used: Stress reduction, counseling, lifestyle changes, and hypnotherapy.[4] Reduction of stress may be achieved using a combination of the following options: Acupuncture, yoga, and deep breathing, as well as meditation which focuses the mind on a particular thought, activity, or exercise.[13]

Options for management of awake bruxism may include occlusal guards, Botox injections, and biofeedback treatment. The first option utilizes occlusal guards which cushion teeth during daytime and prevent them from grinding against each other. These guards can be either custom-made by a dentist or a generic one bought over the counter. Patients may show poor compliance with daytime wear which presents a real challenge. The second treatment option consists of Botox injection of small amounts into the masseter muscle using a botulinum toxin protein. It acts as a temporary muscle relaxant to control muscle activity and reduce the pain associated with teeth grinding. Effect of this muscle relaxant usually lasts for 3–6 months, and Botox injection needs to be repeated. The third treatment option of biofeedback helps that persons become aware of and reduce their awake bruxism. Biofeedback utilizes an electrodiagnostic medicine procedure which determines and records the electrical activity generated by the masseter muscle. During this treatment, the patient is trained on how to control jaw muscle activity and movements, and such training includes visual, vibratory, or auditory feedback from electromyography (EMG).[14-19]

Management of awake bruxism accompanied with more complex psychosocial issues may require referral to a psychiatrist, psychologist, or hypnotist.[20]

Clinical differentiation between awake and sleep bruxism is difficult and definite diagnosis may be achieved using EMG for awake bruxism,[15] or polysomnography (PSG) for sleep bruxism.[21] PSG is a test which is done while the person is fully asleep for recording the brain waves, the oxygen level in the blood, heart rate and breathing, as well as eye and leg movements during the study.[22]

It is accepted that occlusal equilibration, along with extensive restorative treatment, should not be started until after control of bruxism's psychosocial issues and complete management of awake bruxism.[23-25]

CONCLUSION

COVID-19 pandemic may produce cumulative emotional stress which may have a profound impact on several health aspects, including oral health, where persons are more likely to develop or worsen the awake bruxism. Identification of such oral condition can present a challenge for dental professionals and often goes unnoticed until dental pain or tooth fracture occur. Screening of dental patients for awake bruxism and its accompanied high level of masticatory muscle activity should be paid attention to during COVID-19 pandemic. Dentists should become more familiar with the diagnostic methods of awake bruxism, options for its treatment, and techniques for reducing or stopping high levels of stress. Lack of attaining such familiarity may result in several oral complications.

REFERENCES

1. Ioannidis JP. Coronavirus disease 2019: The harms of exaggerated information and non-evidence-based measures. Eur J Clin Invest 2020;50:e13222.
2. Xing Q, Xuedong Z. Psychological intervention of oral patients during the epidemic prevention period of new coronavirus pneumonia. Chin J Stomatol 2020;55:E003.
3. Asmundson GJ, Taylor S. Coronaphobia: Fear and the 2019-nCoV outbreak. J Anxiety Disord 2020;70:102196.
4. Thompson BA, Blount WB, Krumholz TS. Treatment approaches to bruxism. Am Fam Physician 1994;49:1617-22.
5. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: Address mental health care to empower society. Lancet

2020;395:e37-8.
6. Quadri MF, Mahnashi A, Al Almutahhir A, Tubayqi H, Hakami A, Arishi M, *et al*. Association of awake bruxism with khat, coffee, tobacco, and stress among Jazan University Students. Int J Dent 2015;2015:842096.
7. Almeida-Leite CM, Stuginski-Barbosa J, Conti PC. How psychosocial and economic impacts of COVID-19 pandemic can interfere on bruxism and temporomandibular disorders? J Appl Oral Sci 2020;28:e20200263.
8. The glossary of prosthodontic terms. J Prosthet Dent 2005;94:10-92.
9. Paesani DA, Lobbezoo F, Gelos C, Guarda-Nardini L, Ahlberg J, Manfredini D. Correlation between self-reported and clinically based diagnoses of bruxism in temporomandibular disorders patients. J Oral Rehabil 2013;40:803-9.
10. Lobbezoo F, Ahlberg J, Raphael KG, Wetselaar P, Glaros AG, Kato T, *et al*. International consensus on the assessment of bruxism: Report of a work in progress. J Oral Rehabil 2018;45:837-44.
11. Shetty S, Pitti V, Babu CL, Kumar GP, Deepthi BC. Bruxism: A literature review. J Indian Prosthodont Soc 2010;10:141-8.
12. Murali RV, Rangarajan P, Mounissamy A. Bruxism: Conceptual discussion and review. J Pharm Bioallied Sci 2015;7 Suppl 1:S265-70.
13. Lobbezoo F, van der Zaag J, Naeije M. Bruxism: Its multiple causes and its effects on dental implants-an updated review. J Oral Rehabil 2006;33:293-300.
14. Kuhn M, Türp JC. Risk factors for bruxism. Swiss Dent J 2018;128:118-24.
15. Kanathila H, Pangi A, Poojary B, Doddamani M. Diagnosis and treatment of bruxism: Concepts from past to present. Int J Appl Sci 2018;4:290-5.
16. Guaita M, Högl B. Current treatments of bruxism. Curr Treat Options Neurol 2016;18:10.
17. Mesko ME, Hutton B, Skupien JA, Sarkis-Onofre R, Moher D, Pereira-Cenci T. Therapies for bruxism: A systematic review and network meta-analysis (protocol). Syst Rev 2017;6:4.
18. Tinastepe N, Küçük BB, Oral K. Botulinum toxin for the treatment of bruxism. Cranio 2015;33:291-8.
19. Ilova S, Zolger D, Castrillon E, Car J, Huckvale K. Biofeedback for treatment of awake and sleep bruxism in adults: Systematic review protocol. Syst Rev 2014;3:42.
20. Manfredini D, Lobbezoo F. Role of psychosocial factors in the etiology of bruxism. J Orofac Pain 2009;23:153-66.
21. Goldstein RE, Clark WA. The clinical management of awake bruxism. J Am Dent Assoc 2017;148:387-91.
22. Kushida CA, Littner MR, Morgenthaler T, Alessi CA, Bailey D, Coleman J Jr., *et al*. Practice parameters for the indications for polysomnography and related procedures: An update for 2005. Sleep 2005;28:499-521.
23. 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.
24. Manfredini D, Visscher CM, Guarda-Nardini L, Lobbezoo F. Occlusal factors are not related to self-reported bruxism. J Orofac Pain 2012;26:163-7.
25. Michelotti A, Cioffi I, Landino D, Galeone C, Farella M. Effects of experimental occlusal interferences in individuals reporting different levels of wake-time parafunctions. J Orofac Pain 2012;26:168-75.

How to cite this article: Hassan KA, Khier SE. Awake Bruxism Intensified During COVID-19 Pandemic by Cumulative Stress – An Overview. J Clin Res Dent 2020;3(1):1-3.