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COMMENTARY

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Questions on the clinical applicability on the international consensus on the assessment of bruxism

Nicolás Patricio Skármeta[1,2,3] | Fernando Hormazabal Navarrete[4,5]

[1]Faculty of Health Sciences, School of Dental Medicine, Orofacial Pain and Dental Occlusion, Universidad San Sebastián, Santiago, Chile

[2]Orofacial Pain and TMD, Hospital del Salvador, SMMO, Santiago, Chile

[3]Orofacial Pain and TMD, OPHdental, Santiago, Chile

[4]School of Dentistry, Pontificia Universidad Católica de Chile, Santiago, Chile

[5]Orofacial Pain, Pain Unit, Hospital Clínico Mutual de Seguridad de la Cámara Chilena de la Construcción, Santiago, Chile

Correspondence
Nicolás Patricio Skármeta, Faculty of Health Sciences, School of Dental Medicine, Orofacial Pain and Dental Occlusion, Universidad San Sebastián, Bellavista 7, Recoleta, Santiago, Chile.
Email: nskarmetap@docente.uss.cl

The recently published international consensus on bruxism assessment aimed to summarise the current understanding of sleep and awake bruxism. The consensus gathered some of the most renowned international experts with the intention of clarifying certain aspects of the definition, current status, grading system and future research perspectives on bruxism.

Some interesting conclusions and concepts arose from this work; however, while analysing the concepts proposed, many critical questions regarding the definitions and clinical applicability seemed unresolved, giving way to speculations on whether or not the conclusions convened help clinicians or not.

1 | SLEEP BRUXISM DEFINITION STATUS

The consensus proposes that bruxism should be considered a risk factor rather than a disorder, which explains the changes made on the current definition. This proposal emphasises the idea that when sleep bruxism meets a certain degree of frequency or intensity, individuals are more prone to develop unfavourable oral health consequences. Nonetheless, several studies have failed to support the existence of these associations.[1-3]

While assessing sleep bruxism as a risk factor, the definition also uses a similar pathogenic distinction to the one utilised in periodic limb movement disorders and periodic limb movement during sleep (PLMD-PLMS); in the absence of sleep-related complaints or clinical sleep disturbances, PLMS is considered a polysomnographic finding. Likewise PLMD cannot be diagnosed in the presence of other sleep disorders, such as restless legs syndrome or obstructive sleep apnoea.[4]

Moreover, this proposal seems reasonable if it is considered that PLMD-PLMS and sleep bruxism are often concurrent and share common sleep macrostructure architectural features. However, it cannot be overlooked that both phenomena have important differences, such as the association with specific sleep disorders, cyclic alternating pattern onset and the absence of studies finding common gene variants.[5-7]

Additionally, recent findings showed that patients with sleep bruxism shown impaired sleep architecture and often reported tiredness and sleepiness during the day.[8,9]

The current definition neglects the fact that evidence is scarce and inconclusive in defining how sleep bruxism alters sleep variables and relates to other sleep disorders. Therefore, changing the status of the definition without further investigating these aspects may be inadequate.

2 | IN OTHERWISE HEALTHY INDIVIDUALS HEALTH CUT: SECONDARY SLEEP BRUXISM?

A third conflicting aspect of this definition is the "otherwise healthy individuals" phrase, most likely coined based on the assumption that sleep bruxism may be secondary to other health disorders. However, to make this averment, an established cause-and-effect relation to health comorbidities should be proven. Is this the case? If we take as an example the link between obstructive sleep apnoea (OSA) and sleep bruxism, this problem can be illustrated well.

Hosaya et al found that sleep bruxism episodes were more prevalent in patients with obstructive sleep apnoea than in healthy control subjects, with an odds ratio of 3.67 linked to oxygen desaturation and increased arousability.[10] Conversely, another study reported that 50.8% of the individuals presented concomitant OSA and sleep

bruxism with only a moderate correlation between AHE and sleep bruxism episodes or bursts.[11] These findings support the idea that still there is not enough evidence to establish a definitive causative link between OSA and sleep bruxism.[12] *So is the association between OSA and sleep bruxism causative, or do they coexist? If the pathogenesis of sleep bruxism is multifactorial, could the genesis between episodes be variable as well?*

Perhaps a more clinical and pragmatic approach is needed to define sleep bruxism and the coexisting health problems that need to be addressed by the clinician, such as "sleep bruxism concomitant to OSA" or "sleep bruxism concomitant to temporomandibular disorders."

3 | IS AWAKE BRUXISM NOT A MOVEMENT DISORDER?

The definition described in the consensus well illustrates the variety of masticatory motor activities clinically observable in individuals with awake bruxism. Nonetheless, implying that awake bruxism is not a movement disorder may also be problematic. Movement disorders are motor-neurological conditions that caused abnormal increased movements, which may be voluntary or involuntary. Hyperkinetic movement disorders are broad categorical descriptions of motor activities not based on quantitative empirical foundations and are mostly constructed on clinical descriptions of a group of motor signs. As such, the distinctions between different motor phenomenologies may be many times blurry and hard to narrow down.[13] It is very likely that phenomenologically, awake bruxism may include a range of motor activities that goes from a motor habit, a motor tic (urge to clench, thrust or brace the teeth), a mild mandibular stereotypy or other movements disorders. *Again, where is the limit to clinically discriminate if the awake motor activity presented by the patient corresponds to a movement disorder?*

4 | THE GRADING SYSTEM

The grading system published by Lobbezoo et al[14] in 2013 intended to establish a graded assessment of bruxism constructed on the likelihood of making a sensitive and specific assessment, based on the assumption that an anamnetic report is less sensitive and specific than the report plus a clinical assessment. However, later studies showed that neither self-reports nor the anamnetic and the clinical assessment proposed in the 2013 grading system was able to correctly identify sleep bruxism when it was compared to polysomnography.[15,16] Moreover, in the absence of clinical screening diagnostic tools with acceptable positive predictive values,[17] we wonder if we really should be using a grading system at all. *So why maintain a grading system if we do not know its validity and applicability? What is the performance metric of the proposed diagnostic system in assessing bruxism? Is the grading system recommended by the authors clinically tested?*

Notwithstanding that the current consensus contributes to an interesting theoretical discussion on understanding bruxism as a risk factor, the theory seems unfruitful if it is not in service of the clinical applicability. We have raised some questions that we believe need to be addressed by the consensus authors. *So, from the clinical standpoint, is the current consensus clinically applicable? Has the consensus improved our capability of defining, diagnosing, and assessing bruxism?* We are not entirely sure, and although we acknowledge that this is a work in progress, we may very well be more confused than before.

CONFLICT OF INTEREST

None.

ORCID

Nicolás Patricio Skármeta https://orcid.org/0000-0002-3023-0777

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